

Research Article

COVID-19 and Service Provisions at Darou Khoudous Health Center of Touba

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Abstract

Introduction: The objective is to study the consequences of COVID-19 on service provision at the Serigne Mbacke Madina health center in Darou Khoudous in the Touba district. **Materials and methods:** To achieve this objective, a retrospective, descriptive study was conducted from July 2021 to December 2021. **Results:** Over the period 2016-2020, the age group 50-59 years and 60 years and over rarely attended the health structure. This low attendance at the health structure was further accentuated in 2020. According to consultation by service: We note that General Medicine, TRI and On-call are quite busy over the period with a significant drop in these consultations within these services in 2020. Indeed, General Medicine went from 37,378 patients in 2017 to 22,332 patients in 2020, i.e. 40%, TRI went from 35,461 patients in 2017 to 26,080 patients in 2020, i.e. 26.45%, and On-call went from 21,880 patients to 12,008 patients in 2020, i.e. 45.11%. Between 2019 and 2020 in Medicine we noted a decrease of 27.84%, in TRI a decrease of 27.8%. For patients followed for HIV at the Darou Khoudous health center, we noticed an almost complete absence of the 0-14 age group. We also noticed a low rate of new cases before 2018 and a sharp drop in the rate of new cases in 2020, a decrease of 87.84% compared to 2019. For tuberculosis patients followed in the department, we noted a strong impact on the age group >15 years, more accentuated between 15 and 35 years over the period 2016-2020. For this same age group, we also noticed a decrease in cases between 2019 and 2020, a decrease of 10%. In 2018 we also noticed a peak in cases compared to the previous 2 years. According to the EPI: variations are almost non-existent during the pandemic, on the contrary, attendances have increased since 2016, this would surely be due to awareness of the beneficial effects of EPI vaccines and that the disease initially only affected the elderly, rare are the cases of children reported. **Conclusion:** The data collected as part of this study show that the COVID-19 pandemic has disrupted health services and put intolerable pressure on health systems and their staff. We urgently need to reverse this trend and strengthen the resilience of health systems.

Keywords

COVID-19, Services, Health Center, Touba

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Received: 2 September 2024; **Accepted:** 20 September 2024; **Published:** 30 September 2024



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1. Introduction

Coronavirus disease is an emerging zoonosis-type pathology manifesting as a potentially serious acute respiratory infection due to a virus of the Coronaviridae family, SARS-Cov-2 (*Severe Acute Respiratory Syndrome Coronavirus 2*) [1, 2]. In December 2019, the appearance of several cases of pneumonia of unknown origin in Hubei province in China led to the identification, in January 2020, of a new coronavirus, called SARS-CoV-2 by the Coronavirus Working Group of the International Committee on Taxonomy of Viruses [3, 4]. For the first patient recorded on March 2, 2020, it was a case imported from Blaise Diagne International Airport in Dakar and came from Europe [5]. Senegal, like other African countries, was hit by the wave of the pandemic after Asia, Europe and the American continent [6].

The objective of our study is to study the consequences of COVID-19 on service delivery in the Darou khoudous health center in Touba. Regarding the specific objectives, these were:

1. Determine the impact of the effects of COVID-19 on health center consultations by comparing consultations from 2019 and 2020 and on consultations by health center department.
2. Determine the frequency of consultations based on age.
3. Determine the consequences of COVID-19 on the care of patients monitored for tuberculosis and those monitored for HIV.
4. Determine the consequences on the PEV.

2. Methodology

2.1. Study Framework

Our study was carried out at the Serigne Mback é Madina Health Center, which is the reference health center for the Touba Health District located in the Diourbel medical region. This district is limited to:

1. To the North by the Darou Mousty Health District (DS);
2. To the East by the Lingu ère Health District;
3. To the south and west by the Mback é Health District.

The Serigne Mback é Madina Health Center is located in the Village of Darou Khoudoss. It was inaugurated on March 6, 2006 and was established as a coordination structure for the Touba Health District in 2010.

2.2. Type of Study and Study Period

This will be a comparative, descriptive, cross-sectional and analytical study from July 2021 to December 2021.

2.3. Study Data

The study data consists of all service consultations carried out in the Darou Khoudoss health center.

Inclusion criteria

Included were all consultations carried out in the health center services between 2016 - 2020 and then monthly consultations between 2019 and 2020.

Non-inclusion criteria

Not included was any service whose consultations are not recorded in the database.

2.4. Data Collection

The data collected were:

Data over 5 years before the COVID-19 pandemic of 2016-2020:

1. Age-specific care from 2016 to 2020
2. Consultations by health center department (medical department, sorting room and guards) from 2016 - 2020.
3. Patients monitored for tuberculosis between 2016-2020
4. Patients monitored for HIV between 2016 - 2020
5. The expanded programme on vaccination (EPI) between 2016 - 2020.

And the monthly data between 2019 - 2020:

1. Age-specific care between 2019-2020
2. Consultations by health center department (medical department, sorting room and on-call shifts) for 2019 and 2020.
3. Patients monitored for tuberculosis between 2019 and 2020
4. Patients monitored for HIV between 2019 and 2020

Data entry and statistical analysis

Data were entered into EXCEL version 2016 and analyzed with STATA14.

3. Results

5-year data before the COVID-19 pandemic.

3.1. Support for the Period 2016-2020 Depending on Age

Figure 1 below shows the evolution of consultations at the Darou Khoudoss health center over the period 2016-2020. Indeed, there is a trend in care that differs according to the age group. Over the period 2016-2020, the 50-59 and 60 and over age groups rarely visited the health facility. This low attendance at the health facility was further accentuated in 2020.

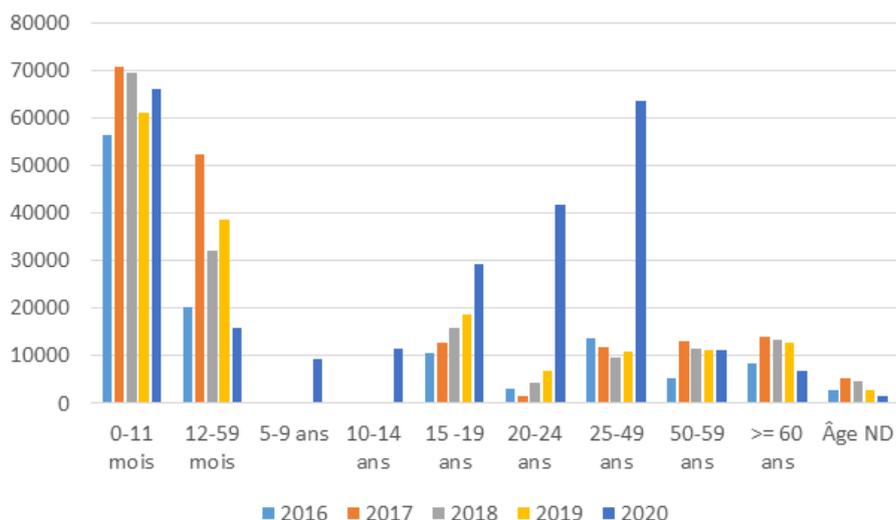


Figure 1. Evolution of support over the period 2016-2020.

3.2. Consultations by Service at the Darou Khoudoss Health Center

Consultations evolved differently depending on the service over the period 2016-2020 (figure 2). We note that General

Medicine, TRI and On-call are quite busy over the period with a significant drop in these consultations within these services in 2020. Indeed, General Medicine went from 37,378 patients in 2017 to 22,332 patients in 2020, TRI went from 35,461 patients in 2017 to 26,080 patients in 2020 and On-call went from 21,880 patients to 12,008 patients in 2020.

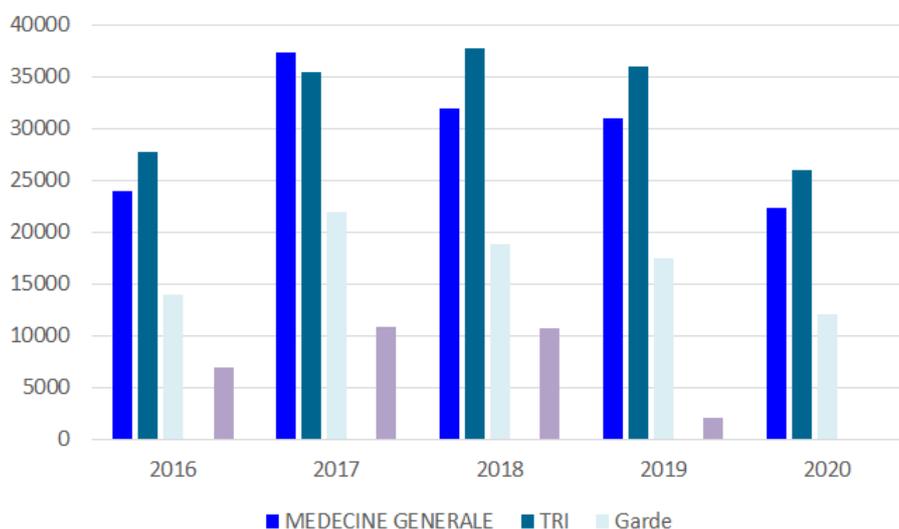


Figure 2. Evolution of consultations by service over the period 2016-2020.

3.3. Care of HIV Patients on ARVs by Age Group Over the Period 2016-2020

Figure 3 below shows that the care of HIV patients on ARVs at the Darou Khoudoss Health Center evolved differently over the period 2016-2020 depending on the age group.

We note a total absence of the age group between 1-4 years and that under 1 year. The care of the 5-14 year age group shows a fairly significant drop with a number going from 14,619 patients treated to 5,441. For the care of the age group over 14 years, we note an increase with a number going from 8,701 patients in 2016 to 21,741 in 2020.

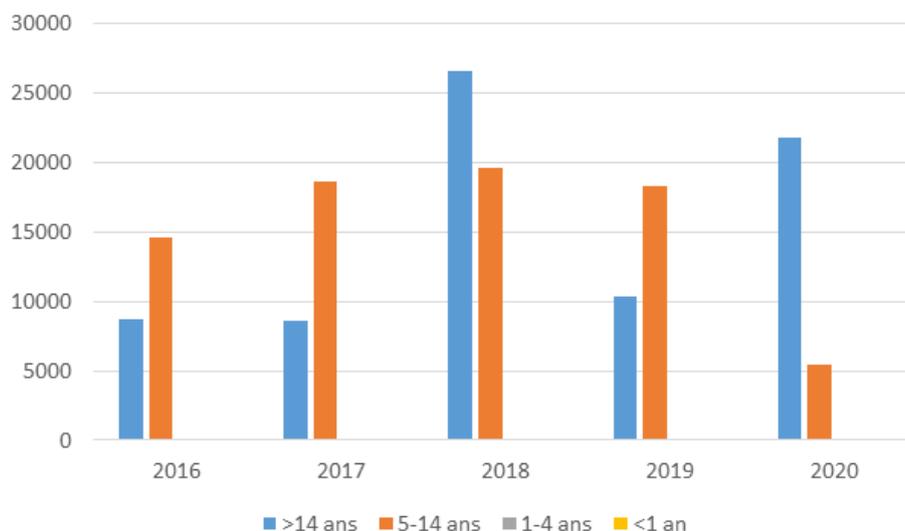


Figure 3. Evolution of care for HIV patients on ARVs over the period 2016-2020.

3.4. Pulmonary Tuberculosis Consultations by Age Over the Period 2016-2020

Consultations for patients with pulmonary tuberculosis evolved differently depending on age over the period 2016-2020 (Figure 4). We noted a high attendance in the age group between 0-4 years between 2016 and 2017. The fre-

quency of this age group subsequently recorded a significant decline with a number going from 43,829 patients in 2017 to 16,160 in 2020. For the age groups 5-9 years, 10-14 years and those over 15 years, the number of patients registered at the Darou Khoudoss Health Center remained very low from 2016 to 2019. It was in 2020 that we noted the presence of patients in these age groups, but with a fairly low frequency.

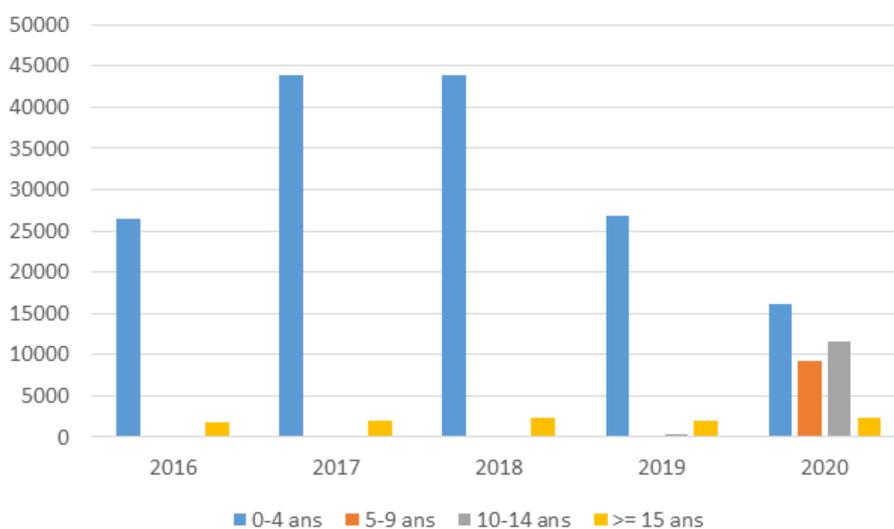


Figure 4. Evolution of pulmonary tuberculosis consultations over the period 2016-2020.

Vaccination through the Expanded Programme on Immunization

As for vaccine doses in the Expanded Programme on Immunization, available doses, entries, doses administered and those used evolved differently over the period 2016-2020 (Figure 5). The doses available at the beginning experienced a

slight decrease over the period from 28,286 to 28,056, unlike entries, doses administered and those used which evolved over the period. Indeed, entries increased from 41,821 in 2016 to 51,840 in 2020, doses administered increased from 39,004 in 2016 to 50,593 in 2020 and doses used increased from 40,552 in 2016 to 52,467 in 2020.

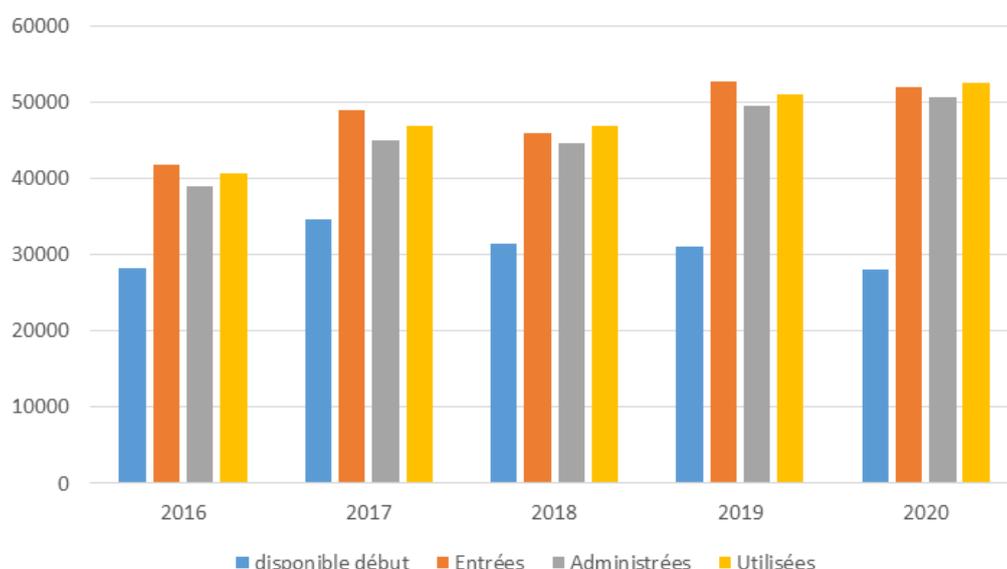


Figure 5. Evolution of vaccine quantities in the EPI over the period 2016-2020.

4. Discussion

4.1. Age-Based Support

There is indeed an observed evolution of care that differs according to the age group. Over the period 2016-2020, the age group 50-59 years and 60 years and over rarely attended the health facility. This low attendance at the health facility was further accentuated in 2020 with the pandemic. We noticed that young subjects aged 15 to 35 attended health facilities more than the elderly during the pandemic, this would be due to the beliefs that the disease only affects the elderly and living especially with comorbidities, being afraid of contracting the disease they prefer to stay at home, thus increasing the complications linked to comorbidities. Despite this, a similar study has not been found in the scientific literature to date.

4.2. Evolution of Consultations by Service

The strategies implemented at the level of our countries to achieve the health-related Millennium Development Goals had made it possible to make remarkable progress. However, serious threats weigh on these achievements given the current context linked to the pandemic of the new coronavirus 19. Indeed, the latter risks having a very strong impact on our weak economies but also on the continuity of activities at the level of care delivery points throughout the health pyramid. At the level of reference health structures, the effects are likely to be very marked. Consultations evolved differently depending on the service over the period 2016-2020. We found that General Medicine, TRI and On-Call are quite busy over the period with a significant drop in these consultations within these services in 2020.

Indeed, General Medicine went from 37,378 patients in 2017 to 22,332 patients in 2020, i.e. 40%, TRI went from 35,461 patients in 2017 to 26,080 patients in 2020, i.e. 26.45%, and On-Call went from 21,880 patients to 12,008 patients in 2020, i.e. 45.11%. Between 2019 and 2020 in Medicine we noted a drop of 27.84%, in TRI a drop of 27.8% and in On-Call a drop of 31.28%. In our study we noted a decrease in attendance varying between 26.45% to 45.11% in curative or palliative care similar to the study carried out on 17 health centers in Niamey with a decrease varying between 29% to 58% [7]. In a study carried out in Taiwan, reported a decrease of 23.9% in outpatient care activities and 35.2% in hospitalizations during the SARS epidemic of 2003. They noted a decrease of 27.6% in the use of services and 44.3% in hospitalizations during the Ebola epidemic in West Africa [7, 8].

4.3. Care for HIV Patients on ARVs

For patients monitored for HIV at the Darou Khoudous health center, we noticed an almost complete absence of the 0-14 age group. We also noted a low rate of new cases before 2018 and a sharp drop in the rate of new cases in 2020, a decrease of 87.84% compared to 2019. In our study, we recorded a sharp drop in new cases to 87.84% in 2020, while a study of the impact of covid on 502 health facilities in Asia and Africa carried out by the Global Fund recorded a 41% drop in the screening rate worldwide [9, 10]. A sharp decrease in the number of people tested could lead to an increase in the infection rate. Patient referral and HIV testing are important prevention and management strategies [11].

Disruption of these services has a significant impact on countries' ability to combat HIV and protect at-risk populations. Disruption of HIV prevention services, including referral, testing and PMTCT, increases the risk that people

living with HIV will be unaware of their HIV status, which means they will not access the treatment they need and will unwittingly infect others [13].

4.4. Pulmonary Tuberculosis Consultations

For tuberculosis patients monitored in the department, we noted a strong incidence in the age group >15 years, more pronounced between 15 and 35 years over the period 2016-2020. For this same age group, we also noted a decrease in cases between 2019 and 2020, a decrease of 10%. In 2018, we also noted a peak in cases compared to the previous 2 years [12].

For our study we noticed a 10% drop in tuberculosis patients in 2020 compared to 2019 in the age group most affected by this disease, however a study of the impact of covid on 502 health establishments in Asia and Africa carried out by the global fund noted a sharp drop of 59% in 2020 [10].

The decline in referrals, screening and testing means that people potentially infected with TB are not only at increased risk of contracting the disease and dying, but are at greater risk of transmitting the disease, including drug-resistant strains.

4.5. Vaccination Through the Expanded Programme on Immunization

As for vaccine doses in the Expanded Programme on Immunization, the available doses, entries, doses administered and those used evolved differently over the period 2016-2020. The doses available at the beginning experienced a slight decrease over the period from 28,286 to 28,056, unlike entries, doses administered and those used which evolved over the period. Indeed, entries increased from 41,821 in 2016 to 51,840 in 2020, doses administered increased from 39,004 in 2016 to 50,593 in 2020 and doses used increased from 40,552 in 2016 to 52,467 in 2020.

The evolution of doses administered through the EPI over the period 2019-2020. A saw tooth evolution is observed with a downward trend [8, 14].

For the EPI, the variations are almost non-existent, similar to health center 4 in Niamey which did not record any variations in vaccinations compared to the 16 other health centers during the pandemic [7].

5. Conclusion and Recommendations

To combat COVID-19 and mitigate its impacts on outpatient care, HIV, TB and EPI, we must invest in health systems and community responses. We must protect health workers with adequate and sufficient PPE, strengthen health systems to prevent collapse and be ready to roll out COVID-19 tests, treatments and vaccines. The data collected in this study show that the COVID-19 pandemic has disrupted health services and put intolerable pressure on health systems and their staff. We urgently need to reverse this trend and strengthen the resilience of health systems.

Abbreviations

ARV	Antiretroviral Virus
COVID-19	Coronavirus Disease 19
HIV	Human Immunodeficiency Virus
PMTCT	Prevention of Mother to Child Transmission
TB	Tuberculosis

Author Contributions

Papa Gallo Sow: Conceptualization, Formal Analysis, Methodology, Project administration, Writing – original draft

Assane Diop: Project administration, Supervision, Validation, Visualization, Writing – original draft

Boubakar Gueye: Investigation, Methodology, Project administration, Supervision, Validation

Martial Coly Bop: Investigation, Methodology, Supervision

Aboubakry Dramé: Conceptualization, Formal Analysis, Investigation, Methodology, Supervision

Abdou Aziz Ndiaye: Formal Analysis, Methodology

Alioune Badara Tal: Formal Analysis, Investigation, Supervision, Validation

Cheikh Tacko Diop: Formal Analysis, Methodology, Project administration, Validation, Visualization

Gora M'baye: Formal Analysis, Investigation, Supervision

Conflicts of Interest

The authors declare no conflicts of interests.

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