

**MANAGEMENT OF AN OUTBREAK OF CONFIRMED COVID-19 CASES IN A RURAL COMMUNE, CENTRAL AFRICAN REPUBLIC IN 2021****<sup>1,\*</sup>Kalthan, E., <sup>2</sup>Yagata-Moussa, E.F., <sup>3</sup>Wol-Wol, P., <sup>4</sup>Kpahina, AO. and <sup>5</sup>Fandema, E.**<sup>1</sup>Direction of Epidemiological Surveillance and Public Health Emergency Management, CAR<sup>2</sup>Epidemic Control Service<sup>3</sup>Health district of Bouar-Baoro<sup>4</sup>Training program in field epidemiology (BUEA University)<sup>5</sup>Public Health Training Institute (University of Bangui)**Received 17<sup>th</sup> October 2021; Accepted 24<sup>th</sup> November 2021; Published online 30<sup>th</sup> December 2021**

---

**Abstract**

In the commune of Doaka-Koursou in the district of Bouar-Baoro, an outbreak of COVID-19 cases was detected following a wedding ceremony attended by several people from different localities. The objective of this survey is to describe and analyse the management of a COVID-19 outbreak in the rural commune of Doaka-Koursou in CAR. This is a retrospective and descriptive study in people who tested positive for COVID-19, symptomatic or asymptomatic. The investigation took into account the management of the outbreak, the observance of preventive measures and the management of cases. A total of 106 cases have been recorded during this COVID-19 outbreak. Peak cases were observed at week 41 (50 cases). The extreme ages were 1 and 85 years with an average of 33 years. The 20 to 29 age group accounted for 29% (n=31). On the other hand, the female sex had 70% of patients with a sex ratio of woman to man of 2.4. However, only one case was vaccinated against COVID-19. No deaths were recorded. Signs such as cough, fever, headache were observed in 100, 80 and 70% respectively. Half of the patients had symptoms of fatigue, joint pain and anorexia. Barrier and distancing measures had not been observed in the commune of Doaka-Koursou. Although the vaccine response had occurred almost at the end of the outbreak, prompt management of patients had limited the progression to severity.

**Keywords:** Outbreak, pandemic, COVID-19, Doaka-Koursou, rural commune, CAR.

---

**INTRODUCTION**

The Coronavirus Disease 2019 (COVID-19) pandemic has been for several months now, a major public health problem facing all of humanity not only because of the number of people who get sick and the ensuing economic catastrophe, but also because of the large number of deaths (Timtchueng *et al.*, 2020). In total, more than 250 million cases of COVID-19 have been recorded worldwide since the beginning of the pandemic in November 2019. More than five million deaths have been recorded so far, but the vast majority of those infected have recovered (OMS, 2021). In Africa, a total of 4,522,489 confirmed cases of COVID-19 and 119,816 deaths have been reported as of 23 April 2021 (Dirk Kohnert, 2021). Faced with the devastation caused by this pandemic, response measures to limit its spread have been taken in almost every country in the world (Lango-Yaya *et al.*, 2020). The Central African Republic (CAR) like all countries in the world is hit by the COVID-19 pandemic. Since the detection of the first case on 14 March 2020 the country has recorded until 30 October 2021, 11,437 confirmed cases with 100 deaths. Twenty-six (26) out of 35 health districts have recorded confirmed cases with a minimum of 02 cases and a maximum of 107 respectively in Boda and Bouar-Baoro district. The country experienced two epidemic waves between 2020 and 2021. In the commune of Doaka-Koursou in bouar-Baoro district, an outbreak of COVID-19 cases was detected from 05 to 19 October 2021. This follows a wedding ceremony attended by several people from different localities. The onset of symptoms in several inhabitants of the commune, sometime after the celebration had alerted the health authorities.

A rapid test was done on samples from suspects showed positive results for COVID-19. The objective of the work is to describe and analyse the management of a COVID-19 outbreak in a rural commune in CAR.

**METHODOLOGY**

This is a retrospective and descriptive study of the outbreaks of COVID-19 cases in the rural commune of Doaka-Koursou. It had covered the period from October 21 to November 20, 2021. The study population consisted of people who tested positive for COVID-19, symptomatic or asymptomatic living in the locality. The tools used for data collection were: the linear list of cases, the registers of health facilities and laboratory, the investigation report and the sitrep. The variables studied were related to sociodemographic (age, sex), sociocultural (hand salutation, mask wearing, hand washing, distancing), the origin of cases (village, neighborhood), vaccination status (vaccinated or not against COVID-19), the evolution of the disease (cure, death), the number of cases according to time (epidemiological week). The data was analyzed by Epi Info version 7 and Excel 2016. The comparison of variables was made by the Chi2 test and the significance threshold was 0.05.

**RESULTS**

A total of 106 cases have been recorded during this COVID-19 outbreak in the rural commune of Doaka-Koursou. Peak cases were observed at week 41 (50 cases). The first case was detected at week 40 (Figure 1). Extreme ages ranged from 1 to 85 years. The mean age was 33 years [standard deviation =

---

\*Corresponding Author: *Kalthan, E.*,  
Direction of Epidemiological Surveillance and Public Health Emergency Management

18]. Eighty patients (75%) were in the 20-60 age group. The age group of 20 to 29 years accounted for 31 cases or 29% (Table 1). Women among the sick accounted for 70% with a female/male sex ratio of 2.4. This epidemic had affected 26 villages in this commune Doaka-Koursou (Figure 2). The epicentre of the outbreak was in Doaka-1 village with 20 cases (N=106). Of the patients, only one was vaccinated against COVID-19 with Johnson & Johnson, 20 days before the onset of symptoms. No deaths were recorded during this episode. All the patients had a dry cough. Signs such as fever, headache were observed in 80 and 70% respectively. Half of the patients had symptoms of fatigue, joint pain and anorexia (Table 2).

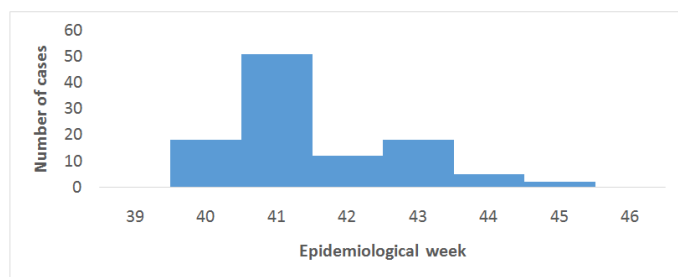


Figure 1. Distribution of confirmed COVID-19 cases by epidemiological week

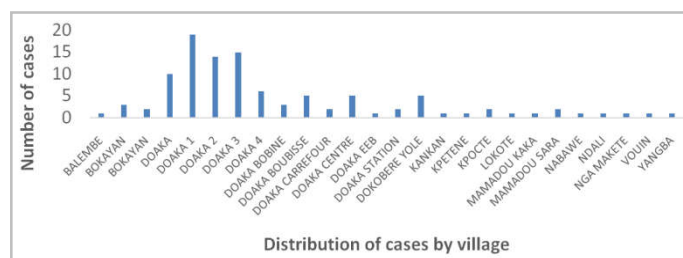


Figure 2. Situation of confirmed COVID-19 cases in the 26 villages of Doaka-Koursou

Table 1. Distribution of confirmed cases of COVID-19 in the commune of Doaka-Koursou

Age range (years)	Number	Percentage (%)
0 - 9	10	9,4
10 - 19	11	10,4
20 - 29	31	29,2
30 - 39	11	10,4
40 - 49	21	19,8
50 - 59	17	16,0
60 - 69	1	0,9
70 - 79	2	1,9
80 - 89	2	1,9
TOTAL	106	100

Table 2. Distribution of COVID-19 patients by observed symptoms

Symptoms	Actual	Percentage
Dry cough	10	100
Fever	8	80
Headache	7	70
Joint pain	5	50
Fatigue	5	50
Anorexia	5	50
Loss of taste	3	30
Difficulty in swallowing	2	20
Chest pain	1	10

As for the barrier measures, few people were wearing masks during marriage or at other gathering places in the villages, despite the mass distribution made by the Ministry of Health

and humanitarian organizations. The greeting by contact was the same before and during the COVID-19 epidemic in the commune. A mass vaccination campaign against COVID-19 was organized in the commune of Doaka-Koursou on November 20, 2021 so week 46 (Figure 1). The number of cases had decreased significantly. Vaccination coverage was 10.7%.

## DISCUSSION

The rural commune of Doaka-Koursou is located on the Bangui-Douala major axis. It receives the daily passage of truckers in both directions. This is the axis, in 2020, that led to the exponential increase in the number of COVID-19 cases at the beginning of the epidemic in CAR (Lango-Yaya *et al.*, 2020). This led to the strengthening of epidemiological and laboratory surveillance at the various points of entry between the two countries in March 2021. The country is in its third wave especially since all variants of coronavirus are circulating in the Central African Republic. Since 2021 there has been a lull in terms of the number of detected cases of COVID19 in the area. On the first of October 2021, a wedding brought together a delegation from the commune of Niem and the population of Doaka 4 village. Many people had participated. According to the investigation, two members of the visitors coughed during the ceremony. Six days after the ceremony, which corresponds to the incubation period of the coronavirus, cases of COVID-19 began to be recorded at the Doaka Health Center. The first patient was received at the center on October 6, 2021. It is a 26-year-old male subject, a member of the choir at the wedding, complained of anorexia, joint pain and dry cough without fever (temperature at 36 °). His COVID-19 test was positive. The other patients and their contacts came afterwards to be screened and receive treatment.

The peak of this common infection was achieved at week 41 with 50 cases (N=106). Doaka-1 village had recorded the most sick people. The investigation had noticed that most of the members of the choir reside in this village. The difference in risk of getting COVID-19 was not significant between participants and non-participants in marriage (p=0.3). While the venue of the ceremony, Dokoa 4 had fewer cases. In addition, the inhabitants of the household hosting the ceremony were vaccinated against COVID-19. They had taken advantage of their proximity to the health centre to receive the vaccine. Overall, vaccination coverage against COVID-19 is 6.3% in CAR in general and the commune of Doaka-Koursou had received only 50 doses of vaccine for a population of about 7,000 inhabitants, in Bouar-Baoro district in particular. This confirms Mari Françoise's statement to this term "African peoples are footing the bill for the shortage of screening tests, the weakness of hospital care structures, and a 'vaccine apartheid' between rich and poor countries, which reduces the rate of the Vaccinated African population to around 3%" (Mari, 2021). Rebecca Schiff also noted that remote rural communities are at a disadvantage in terms of funding to support the provision of care during the COVID-19 pandemic was also noted by Rebecca Schiff (Schiff *et al.*, 2020). Insufficient vaccination and non-compliance with barrier measures against COVID-19 had led to a massive infection of people during the wedding ceremony in the village. This is an example that illustrates very well the consequence of non-compliance with the preventive measures enacted by the authorities against the COVID-19 pandemic. The consequences of this strict non-compliance have led the city

towards community contamination and the rapid spread of the coronavirus according to Banen (BANEN Baudelaire *et al.*, 2021). This state of affairs is explained by the lack of vaccine in CAR. The rural area had been disadvantaged when doses were distributed. This justifies what Rebecca Schiff described in her article regarding the lack of resources allocated in rural areas (BANEN Baudelaire *et al.*, 2021 ; Olushola Ogunkola *et al.*, 2020). Prompt management of symptomatic outpatient patients had made it possible to limit the severe cases responsible for deaths. Unfortunately, the COVID-19 vaccination of eligible individuals had been organized 45 days (week 46) after the detection of the first patient almost at the end of the epidemic (Figure 1).

### Conclusion

The COVID-19 pandemic continues to progress, in its third phase in rural CAR. The analysis of the management of this epidemic had shown inequalities in the response to the pandemic between urban and rural areas. A finding of disadvantage for remote rural communities in terms of funding to support the provision of care during the COVID-19 pandemic was demonstrated. In addition, insufficient vaccination and non-compliance with barrier measures had led to an explosion of COVID-19 cases following the wedding ceremony in Doaka-Koursou commune.

### Acknowledgements

The authors thank the following institutions and personalities: World Health Organization (WHO), Institut Pasteur de Bangui (IPB), Bouar-Baoro Health District and the head of the Doaka Health Centre for providing data on COVID-19.

### Conflict of interest:

None

### REFERENCES

- BANEN Baudelaire J et NGUENDO-YONGSI H. Blaise. La pandémie de la covid-19 au Cameroun : analyse des mesures barrières et répercussions socioéconomiques à douala. *International Journal of Science Academic Research*. Vol. 02, Issue 02, pp.1058-1064, 2021 February 15. (<http://www.scienceijsar.com>)
- Dirk Kohnert . On the socio-economic impact of pandemics in Africa: Lessons learned from COVID-19, Trypanosomiasis, HIV, Yellow Fever and Cholera. 2021 May 5. (<https://econpapers.repec.org/paper/osfafrica/uda5j.htm>)
- Lango-Yaya E., DB, Rawago, S, N'yetobouko, GW, Koyaweda, JE, Kaleb Kandou, S, Pounguinza, R, LeBonBondom, S, Sombot, R, Feissona, C, Bobossi, D, Feiganazoui, MF, AGBOKO, O, Senzongo, HK, Kassini, CD, Rafai. Epidemiological and biological profile of Covid-19 at the National Laboratory Of Clinical Biology and Public Health of Bangui, Central African Republic: Cross-Sectional Study From April To July 2020. *GSI*. 2020 November; 8 (11).
- Mari, F. The African Continent Grappling with the Outbreak of the Third Wave of COVID 19 ... and Other Major Pandemic Pathologies. 2021 August. (<https://doi.org/10.4000/etudescaribeennes.22195>)
- Olushola Ogunkola I., Yusuff Adebayo Adebisi, Uchenna Imo F, Goodness OgeyiOdey, EkpereonneEsu, Don Eliseo Lucero-Prisno. Rural communities in Africa should not be forgotten in responses to COVID-19. *Int J HealthPlann Manage.*, 2020 Aug 13;35(6):1302-1305.
- OMS. Covid-19 : l'OMS confirme la flambée des cas en Europe (+10% de hausse). 2021 novembre 7. (<https://news.un.org/fr/story/2021/11/1108262>)
- Schiff R., Kristy Buccieri, J, Waagemakers Schiff, C, Kauppi & M, Riva. COVID-19 and pandemic planning in the context of rural and remote homelessness. *Canadian Journal of Public Health* volume, 111, pages 967–970. 2020 December.
- Timtchueng, M., C, Mapa-Tassou, P, Juvet Lowe Gnintedem, H, Martial TchaboSontang, M, Ndoungue, V, Meli, H, René Zambou et SP, Choukem. Gestion sécurisée des dépouilles de personnes décédées de la COVID-19 en Afrique sub-Saharienne : et si on laissait les familles enterrer leurs morts? *Pan Afr Med J*. 2020 August 17;35(Suppl 2): 148.

\*\*\*\*\*