Early stage of the COVID-19 pandemic in Guinea: Knowledge, attitudes, and practices of health providers towards COVID-19 suspected cases

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ABSTRACT

Introduction: This study aimed to analyze healthcare providers' knowledge, attitudes, and practices on suspected COVID-19 cases at the early stage of the COVID-19 pandemic in Guinea. **Methods**: A cross-sectional study was conducted nationwide from April 10 to April 25, 2020, with health personnel from 169 health facilities. **Results:** Among the 1058 healthcare providers (HCPs), 44.9% lived in Conakry and 55.1% in the countryside. The transmission modes between humans (80.9%) and through the direct respiratory tract (80.6%) were well-known by HCPs. The correct definition of suspected COVID-19 cases was known by 54.8%. Regarding HCPs reported adherence to key preventive practices measures: consistent hand washing after medical procedures (81.7%), use of gloves (70%), and always using masks (48.5%). The age groups of 25-39 years (AOR= 3.68, 95% CI: 1.99-6.83), 40-59 years (AOR= 3.49, 95% CI: 1.66-7.36), and 60+ years (AOR=3.10, 95%CI: 1.01-9.61); good knowledge of the signs of COVID-19 (AOR= 2.57; 95% CI: 1.31-5.06), good knowledge of preventive measures (AOR= 5.75, 95%CI: 1.94-17.11), good attitude towards a suspected case of COVID-19 (AOR= 2.60; 95% CI: 1.61-4.18), infection prevention and control training (AOR=1.94, 95%CI: 1.01-3.72), nurses/midwives compared to medical doctors (AOR=0.41, 95%CI: 0.29-0.57) and pharmacies compared to teaching hospitals (AOR=0.03, 95%CI: 0.01-0.82) were statistically significantly associated with knowledge of the correct definition of a suspected case. The age groups of 25-39 years (AOR= 2.36; IC95%: 1.28-4.36) and 60 years and over (AOR= 4.03; 95% CI: 1.33-12.28) and being a pharmacist compared to medical doctor (AOR=0.26, 95%CI: 0.07-0.98) were associated with the good preventive practices of the healthcare professional in COVID-19 suspected cases management. **Conclusions**: Our study found significant knowledge and practice gaps among healthcare providers in Guinea during the early stages of the COVID-19 pandemic. Less than a quarter could correctly define a suspected case, and adherence to mask-wearing was low despite strong hand hygiene. These findings were consistent with those of other low-income countries. We also found that older providers had better knowledge and practices, while a professional disparity was identified with pharmacists demonstrating poor preventive practices. Therefore, future interventions should target younger healthcare providers and pharmacists with tailored training, PPE fact sheets, and clear guidelines to improve preparedness for future health crises.

Introduction

The COVID-19 pandemic (Coronavirus disease) caused by a new strain of the coronavirus family began in the port city of Wuhan in China in December 2019 [1]. It is the second international health emergency that affected health systems in Africa after the Ebola virus disease (EVD) of 2014-2016 [1–3]. The disease is usually manifested by a superficial respiratory infection or pneumonia, including fever, cough, shortness of breath, difficult breathing, and in severe cases, severe acute respiratory syndrome, kidney failure, or death [1,4,5]. In the early stage of the COVID-19 pandemic, there was no vaccine or established treatment for COVID-19. However, simple measures such as regular hand washing with soap or a hydro-alcoholic solution, using a disposable tissue or coughing or sneezing into the elbow crease, maintaining physical and social distancing (of at least one meter), and wearing a mask appropriately when outside the house are recommended as disease prevention measures [1].

COVID-19 was reported as an outbreak by Chinese health authorities to the World Health Organization (WHO) on December 31, 2019 [6]. By January 30, 2020, the disease had already spread to 18 countries, prompting the WHO to declare it a Public Health Emergency of International Concern (PHEIC) [7]. On March 11, 2020, after infecting 118,000 people and causing 3,400 deaths in 114 countries, the WHO declared COVID-19 a pandemic. As of May 12, 2020, more than 4,000 cases had been reported and 283,000 deaths in 204 countries worldwide [8]. In Africa, the first case of COVID-19 was notified in Egypt on February 15, 2020, before infecting more than 45,332 people in 46 of the 54 countries on the continent as of May 12, 2020 [8,9]. As of the same date, the pandemic affected 15 countries in Africa [8]. In Guinea, two imported cases were confirmed as of March 12, 2020 [10]. The countries in Africa that reported cases of COVID-19 were differently affected by the Ebola virus disease (EVD) epidemic of 2014-2016. Guinea had a high disease burden, with more than 3804 cases, including more than 2536 deaths [11]. In Guinea, on March 12, 2020, the country registered its first case of COVID-19 among the first two imported cases, and by June 6, 2020, the country had 4165 confirmed COVID-19 cases with 23 hospital deaths [12].

Considering the different epidemic histories of the countries, the varying levels of their health systems, and the rapid spread of COVID-19, it is evident that African nations faced the pandemic with diverse levels of preparedness. Crucially, the effectiveness of any public health response hinges significantly on the readiness of healthcare providers. Healthcare providers' knowledge, attitudes, and practices (KAP) are fundamental in preventing transmission, managing cases, and ensuring community trust. However, at the early stage of the COVID-19 pandemic, there was a significant lack of comprehensive data on the KAP of healthcare providers on this novel disease. To address this critical gap and inform robust public health strategies in Guinea, this study aimed to analyze the knowledge, attitudes, and practices of healthcare professionals (HCPs) on suspected COVID-19 cases.

Methods

Study design, timeframe and setting

This was a cross-sectional study conducted from 10-25 April 2020, in 13 out of 38 health districts, including five in the special region of Conakry (the highly affected zones) and eight in the countryside (Kindia, Mamou, Labé, Kankan, N'zérékoré, Lola, Siguiri and Mali), which is less affected.

Guinea is a West African country with more than 12 million inhabitants in 2018. The population mostly lives in rural areas and below the national poverty line [13]. Its public health system is based on a three-level pyramid, including the primary level (423 rural and urban health centers), the secondary level (Seven regional hospitals, 26 district hospitals, and eight communal medical centers), and the tertiary level (three national hospitals, including two university hospital centers). In addition, there is also a large formal private sector of company hospitals, polyclinics, doctors' surgeries, private, not-for-profit health centers, and a poorly controlled informal sector [14].

Study population, and sampling
The study population included healthcare providers (HCPs) from various public and private health facilities in the selected districts. These HCPs comprised medical doctors, nurses, assistant nurses, midwives, and ward boys/girls.

We stratified sampling by region (Conakry and urban cities of administrative regions in the countryside) and the level of health facilities. Overall, 169 health facilities (49 health centers, 120 hospitals and private clinics) were selected using a simple random sampling for public and private health facilities from the list provided by the Ministry of Health. In the hospitals, we interviewed staff in internal medicine, paediatrics, emergency, infectious diseases, gynaecological-obstetrics, surgery, dental practices, and pharmacy departments. In the health centres, we surveyed healthcare providers from the primary curative consultation, the expanded program on immunization, and the prenatal consultation units. In each ward, five to 10 healthcare providers responded to the questionnaire.

Data collection
Data on the knowledge, attitudes, and practices of HCPs were collected using a standardized semi-structured questionnaire designed based on previous studies' experiences [15,16]. The data was collected by a team of 10 interviewers composed of graduate medical doctors, Master's students in public health, and specially trained research assistants. A one-day pre-test of the questionnaire was carried out with a sample. The final questionnaire was created in the KoboCollect collection software and uploaded onto Android tablets.

The study variables included socio-demographic characteristics (age, sex, profession, nature and type of health facility, professional experiences), knowledge about COVID-19 (definition of a suspected case, transmission modes, prevention measures, availability of treatment), attitudes and practices towards COVID-19 suspected cases in health facilities (use of personal protective equipment).

The correct definition of a COVID-19 suspected case in this study was that used by the Ministry of Health of Guinea: a person with a fever of at least 38 degrees Celsus associated with cough and history of contact with a confirmed or probable case or a person with a severe acute respiratory infection with a history of residence abroad or contact with a probable or suspect case [17].

Study variables
Outcome variables: Our study had two outcome variables. First, it was healthcare providers' knowledge of a suspected COVID-19 case. It was categorised into "good knowledge" if the provider gave the correct definition of a COVID-19 suspected case and "poor knowledge" if the provider did not provide an accurate definition of a suspected COVID-19 case. A suspected case was defined as an individual who presented with either a severe Acute Respiratory Infection (ARI) and a history of contact with a confirmed or probable case, or a fever higher than 38°C and a cough with a history of contact. The second outcome variable was the practice of healthcare providers. It was categorized into either "good practice" if the provider always consistently uses gloves and a mask and regularly washes hands with soap and water or a hydro-alcoholic solution, and "Poor practice" if the provider does not apply the previously listed preventive measures.

Independent variables: The independent variables included in the analysis were age, sex, residence, profession, work experience, nature and type of the health facility, knowledge about COVID-19 (germ, incubation, symptoms, virus transmission modes, prevention measures, susceptibility, and severity), attitudes, information sources and knowledge of the COVID-19 case management guide. For analysis purposes, we categorized some variables. The age of the healthcare providers were categorized into "Under 25", "25-39", "40-59" and "60 and over". Work experience was also categorized into "Under 5", "5-10", and "over 10". Knowledge of the COVID-19 signs was categorized into "good knowledge" (if the provider identified headache, fever, cough, dyspnea, sore throat, and runny nose as COVID-19 signs) and "poor knowledge" (if the provider identified fewer signs). Knowledge of the COVID-19 transmission modes was

categorized into "good knowledge" (the provider identified respiratory track, human-to-human transmission, animal-to-human transmission, and touching contaminated objects/surfaces as SARS-CoV-2 transmitters) and "poor knowledge" (if other). Awareness of COVID-19 prevention measures was categorized into "good awareness" (the provider identified hand washing, wearing a mask, standing at least one meter away from another person, limiting movement while staying at home, and using the crook of the elbow or a disposable handkerchief when coughing or sneezing) and "poor awareness" (if any other response). The perception of susceptibility to COVID-19 was categorized into "good perception" (the provider believes that everyone, regardless of race, income, occupation, or age, was susceptible to the virus) and "poor perception" (the provider believes that one category of people is more susceptible to the virus than others). The perception of the severity of COVID-19 was also categorized into "good perception" (the provider believes that older people are more likely to die from COVID-19 regardless of race) and "poor perception" (if any other response). The healthcare provider's attitude was categorized into "good attitude" (the provider considers any case of fever above 38°C with a runny nose as a suspicious case of COVID-19 and treats it with proper use of personal protective equipment (PPE) and "wrong attitude" (the provider has any other attitude). The training of healthcare providers and knowledge of the management guide have been grouped into "yes" (the provider has received training in infection prevention and control (IPC): prevention and control of infection and knows the management guide) and "no" (if other).

Data management and analysis

The data were collected using KoboCollect software (version 1.25.1) and then cleaned and analyzed using Stata software version 16 (Stata Corporation, College Station, TX, USA). First, we summarised the data using descriptive statistics (proportion, mean with standard deviation (SD), and median with interquartile range (IQR)). Next, we verified the relationship of each independent variable with each outcome variable through univariate analysis. We then constructed two binary logistic models. The candidate variables are those we identified in the literature or considered relevant to explain our outcome variables. The findings were reported using crude odds ratios (COR) with 95% confidence intervals (CI) for univariate analysis and adjusted odds ratios (AOR) with 95% CI for multivariate analysis. The significance level was set at $p<0.05$.

Ethical considerations

The research protocol for this study was approved by the National Committee of Ethics for Health Research in Guinea (N°: 042/CNERS/20). Respondents gave their voluntary and informed consent before the administration of the questionnaire. Data confidentiality was taken into account at all levels of the study.

Results

A total of 1,058 healthcare providers were interviewed in the 169 health facilities visited in the 13 health districts, including 475 (44.9%) in Conakry and 583 (55.1%) in the countryside. Nurses (47.9%) and medical doctors (41.2%) represented the most professional categories. The majority of respondents were female (51%). The mean age of healthcare providers was 35.1 years with a SD of 9.2, and the median years of work experience was 6 with an interquartile range of 3-10 (Table 1).

Majority of healthcare providers (83.0%) knew that COVID-19 caused respiratory illness. The main transmission modes of COVID-19 reported by healthcare providers were the human-to-human route, such as shaking hands, hugging, kissing (80.9%) and the direct respiratory route (80.6%). COVID-19 transmission through contaminated objects/surfaces was less known by healthcare providers (27.5%). Slightly more than half of the healthcare providers (54.8%) knew the correct definition of a suspected COVID-19 case. This includes healthcare 235 (22.2%) of providers who reported severe acute respiratory Infections (ARI) + History of Contact with a confirmed or probable case, and 345 (32,6%) of providers who reported a person

with a fever (+38°C) + Cough + history of contact (Table 2).

Regular hand washing with soap or a hydro-alcoholic solution (85.0%), wearing a mask (66.9%), avoiding hand shaking (64.7%), and maintaining a distance of at least one meter (62.2%) were the main prevention measures of COVID-19 reported by healthcare providers. However, other prevention measures, such as disinfecting equipment and surfaces as well as staying at home, were rarely cited by healthcare providers at 20.7% and 16.5% respectively (Table 2).

According to healthcare providers' practice, the consistent use of gloves (70.8%), use of masks (48.5%), and hand washing (81.7%) after medical procedures were the main prevention measures used by healthcare providers in the health facilities visited (Table 3). These figures highlight the magnitude of the challenges and strengths in knowledge and practice within the surveyed facilities. Among the 1058 healthcare providers surveyed, 507 (47.9%) had a good practice of preventive measures (Table 3).

In addition to the lack of Infection Prevention and Control training for 84.2% of healthcare providers, 73.2% had yet to hear of the COVID-19 guide for managing suspected cases. Regarding sources of information, the media (89.7%) and the Internet (58.6%) remained the most dominant (Table 3).

Factors associated with the correct definition of a suspected COVID-19 case and practising good preventive measures by healthcare providers

The healthcare providers aged 25-39, 40-59 and 60 and above had a good knowledge of the correct case definition of suspected COVID-19 cases as compared to those under 25 years of age. However, as compared to medical doctors, nurses were significantly less likely to give an accurate description of a suspected COVID-19 case (AOR=0.41; 95% CI: 0.29-0.57) Regarding facility type, HCPs from pharmacies were significantly less likely to give the correct definition of a suspected case compared to those from a university teaching hospital (AOR=0.03, 95%CI: 0.01-0.82).

After adjusting for other explanatory variables, healthcare providers with good knowledge of the signs of COVID-19 were twice as likely to correctly define a suspected COVID-19 case as those with poor knowledge (AOR=2.57; 95% CI: 1.31-5.06). Similarly, healthcare providers with good knowledge of COVID-19 prevention measures were nearly six times more likely to know the correct definition of a suspected COVID-19 case (AOR=5.75 (1.94-17.11) than those with low knowledge. In addition, healthcare providers with a good attitude towards a suspected case were more likely to correctly define a suspected case (AOR=2.60; 95% CI: 1.61-4.18) than those without a good attitude. Finally, healthcare providers who had received training on infection prevention and control and the management guide were almost twice as likely to correctly define a suspected case compared to those who had not received this training and the COVID-19 management guide (AOR= 1.94; 95% CI: 1.01-3.72) (Table 4).

After adjusting for other explanatory variables, we found that healthcare providers aged 25-39 (AOR=2.36; 95% CI: 1.28-4.36) and those aged 60 and over (AOR=4.03; 95% CI: 1.33-12.28) were twice and four times, respectively more likely to have good practice in dealing with the suspected case as compared to those under 25.

Pharmacists (AOR=0.26; 95% CI: 0.07-0.98) are less likely to have good practice in dealing with a suspected case than medical doctors. On the other hand, lab technicians/biomedical engineers (AOR=1.59, 95CI: 1.00-2.54) were more likely to have good practice in dealing with a suspected case than medical doctors (Table 4).

Discussion

Our study assessed the knowledge and practices of healthcare providers in Guinea during the early stage of the COVID-19 pandemic and revealed significant gaps in their understanding of a correct case definition, alongside varying levels of adherence to preventive measures. These findings highlight a disparity in knowledge and practices among healthcare providers and identify key factors associated

with both a correct case definition and good preventive practices.

A key finding of our study is that slightly more than half (54.8%) of the healthcare providers surveyed were able to provide a correct and complete definition of a suspected COVID-19 case. This figure, though low, is consistent with other studies conducted in sub-Saharan Africa during the early phase of the pandemic. For instance, a study in Nigeria reported that healthcare workers showed limited knowledge of key COVID-19 protocols, including case definitions [18]. Similarly, research in other low-resource settings has indicated that insufficient access to timely and accurate information hindered frontline workers' ability to correctly identify cases [19]. The low percentage we observed suggests that in April 2020, the dissemination of standardized WHO protocols had not yet effectively reached all healthcare personnel in Guinea, highlighting a critical area for improvement in public health communication and training.

Regarding preventive practices, our study found high adherence for certain measures, with 81.7% of providers always washing their hands and 70.8% always using gloves. These rates are encouraging and reflect a strong awareness of basic hygiene, aligning with research showing a surge in hand hygiene compliance globally in response to the pandemic [20]. However, adherence to mask-wearing was considerably lower at just 48.5%. This is a concerning finding, but it mirrors challenges reported elsewhere. A survey in Ghana, for example, linked low mask use among healthcare workers to limited supply and poor distribution of personal protective equipment (PPE), a common issue in resource-constrained environments [21]. Our findings suggest that while awareness of hygiene is strong, systemic issues related to PPE availability may have presented a major barrier to consistent application of preventive measures.

In general, most healthcare providers have a good knowledge of human-to-human transmission modes and prevention measures. Our findings are similar to those found in Italy, where healthcare providers had a good knowledge of prevention measures on the general aspects of the COVID-19 epidemic [22].

The positive association between increasing age and correct knowledge of case definitions and good practices [23] is a consistent theme across different contexts. This suggests that more experienced professionals, having navigated previous public health crises, may be better equipped to adapt to new disease protocols. However, the finding that nurses and midwives were less likely to know the correct definition compared to medical doctors highlights a professional disparity also noted in studies from Nigeria and Ghana, which pointed to uneven distribution of training and informational resources across different healthcare roles [24].

The challenges with preventive practices observed in our study are also reflected in other settings. While we found high adherence to hand washing, the lower use of masks by healthcare providers is a common finding in resource-limited environments. This often results from supply chain issues or a lack of standardized protocols, a problem documented globally [25]. Our specific finding that pharmacists were significantly less likely to have good preventive practices is particularly noteworthy and contrasts with some studies that found high levels of compliance in urban pharmacy settings [26]. This disparity may be unique to our context, suggesting that pharmacists in Guinea may face distinct barriers to accessing or using PPE, a factor that public health interventions should specifically address.

In addition, our study found that healthcare providers needed more knowledge of the modes of contamination from infected objects and surfaces. Moreover, almost half of the healthcare providers did not know a suspected case's definition. This situation remains worrying as it highlights critical gaps in their ability to implement essential infection prevention and control (IPC) measures, specifically concerning the correct identification, isolation, and initial management of suspected COVID-19 cases. This could contribute to the community spread in and around Conakry. Studies have also reported discrepancies in the knowledge of healthcare

providers about COVID-19. For example, Moro et al. in Italy reported that 57.8% of healthcare providers had average knowledge of issues related to the management of COVID-19 patients 2. Insufficient knowledge about the transmission modes of COVID-19 and symptoms was also reported in more than six out of ten healthcare providers by Bhagavathula et al. in the United Arab Emirates [27]. However, the risk of transmission of COVID-19 remains high in people who are in direct contact with a person already infected, which is the case with healthcare providers. This could be a potential source of contamination for users of health facilities [28,29]. This increased risk of transmission is often associated with prolonged and unprotected contact with patients [30].

Moreover, infected cases among healthcare providers have been reported in China during the early stage of Covid-19 pandemic, where more than 3,300 were infected in early March, and in Italy, where 20% of healthcare providers were infected [31]. In addition, in the United States, among the 1,423 infected healthcare providers that reported having had contact with a COVID-19 confirmed case, 55% affirmed having had this contact in a healthcare setting within 14 days before the onset of their illness [32]. Thus, particular emphasis should be placed on the transmission modes of the disease through infected objects and surfaces in strengthening the capacity of healthcare providers on the prevention and control measures in the hospital setting. Also, we found that the correct identification of suspected cases was mainly associated with a good knowledge of signs and transmission modes, a good attitude towards a suspected case, and training on prevention and control of infection. Healthcare providers with a good attitude towards a suspected case were also more likely to identify a suspected case correctly. Some studies have also reported that knowledge may directly affect individuals' attitudes toward the disease and, to some extent, their behaviors [33,34].

Most healthcare providers changed their work habits for fear of contracting COVID-19. This is reflected in the routinewearing of gloves and masks during consultations and hand washing after each medical procedure. However, a minority of the healthcare providers stated that they did not regularly use this equipment during their task. This could be explained by the low availability of PPE in health facilities and may increase the risk of contamination among healthcare providers. Access to PPE by healthcare providers remains a significant concern, as shortages have been reported in several health facilities [31].

In Guinea, the contamination of healthcare providers by COVID-19 could be primarily due to the insufficient application of infection prevention and control measures in a context where frequent hand washing and gloves in health structures are not standard practices [35]. In contrast, good practices related to the availability of PPE were reported by Zhang et al. in China, where 89.7% of healthcare providers observed good practices concerning COVID-19 prevention [34]. Providing health facilities with sufficient PPE could help protect healthcare providers and patients against nosocomial infections and help curb the spread of the virus.

Over eight in ten healthcare providers had not received infection prevention and control training in the past six months. Few knew the COVID-19 management guide for identifying and managing suspected cases. This situation could be explained by the weak pro-activity of health authorities in developing this manual and the absence of a training plan or a plan to strengthen healthcare providers' capacities. The predominance of social networks as information sources on COVID-19 remains a significant concern because of the misinformation about the disease circulating through these social networks, often leading to stigmatization [22,36–38]. In the epidemic context, authentic sources for reliable information, including health authorities and scientific data, are essential for healthcare providers to effectively manage the disease and appropriately prepare the response [27,38]. Urgent steps should be undertaken by health authorities to ensure wide dissemination of the COVID-19 guidelines, especially in less affected areas, to strengthen the preparedness of these areas to deal with a possible upsurge of cases [27].

The main limitation of this study is its cross-sectional nature. It did not allow us to have a global understanding of managing suspected COVID-19 cases among the healthcare providers we met, and unable to establish causality. Nevertheless, it has the merit of questioning the disparity in healthcare providers' knowledge, attitudes, and practices between two areas differently affected by the disease.

Conclusion

Our study found significant knowledge gaps and notable variations in the practices of healthcare providers in Guinea during the early stages of the COVID-19 pandemic. Slightly more than half of healthcare workers could provide a correct definition of a suspected case, while adherence to preventive practices was strong for hand hygiene but considerably lower for mask-wearing. These findings are consistent with challenges observed in other low-income countries and highlight the difficulty of rapidly disseminating reliable information and resources.

We found that older healthcare providers (25 years and older) had both good knowledge of a suspected COVID-19 case definition and good COVID-19 preventive practices. In addition, prior training in infection prevention and control, having good knowledge of COVID-19 signs and a good attitude towards a suspected case were all associated with a provider's knowledge of the case definition, but not their preventive practices. A key professional disparity was also identified: unlike medical doctors, pharmacists demonstrated poor COVID-19 preventive practices.

Therefore, future interventions should specifically target younger healthcare providers (under 25 years) and pharmacists. We recommend the provision of PPE fact sheets or wall posters, updated guidelines for the management and prevention of the COVID-19 pandemic, and tailored training on infection prevention and control to improve preparedness for future health crises.

What is already known about the topic

- The COVID-19 pandemic was caused by a new strain of the coronavirus family
- This is the second international health emergency that alerts health systems in Africa after the Ebola virus disease (EVD) of 2014-2014.

What this study adds

- A considerable number of healthcare providers did not know the case definition for a suspected COVID-19 case.
- Majority of healthcare providers had good hand hygiene practices, but the use of face masks was low.
- Older healthcare providers (25+ years old) had good knowledge and preventive practices, while pharmacists had poor COVID-19 preventive practices.
- Those who had received prior training in infection prevention and control were more likely to have better knowledge.
- Providing face masks and additional training could ensure better management of COVID-19 cases by HCPs.

Tables

Table 1: Socio-demographic characteristics of healthcare providers surveyed in selected health facilities in Guinea, April 2020 N=1058)

Table 2: Knowledge of health providers surveyed in selected health facilities in Guinea, April 2020 (N=1058)

Table 3: Practices of healthcare providers surveyed in selected health facilities in Guinea, April 2020 (N=1058)

Table 4: Factors Associated with the Correct Identification of COVID-19 Suspected Cases and Good Practices of Health Personnel toward Suspected COVID-19 Cases in Selected Health Facilities in Guinea, April 2020

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Table 1: Socio-demographic characteristics of healthcare providers surveyed in selected health facilities in Guinea, April 2020. (N=1058)		
Socio-demographic characteristics	**Frequency**	**Percentage (%)**
Mean age (±SD)	35.1 (±9.2)	
Age (years)		
<25	75	7.1
25–39	719	68.0
40–59	240	22.7
60 and more	24	2.3
Sex		
Male	523	49.4
Female	535	50.6
Residence		
Conakry	475	44.9
Countryside	583	55.1
Profession		
Medical doctors	436	41.2
Nurses / Midwives / Assistant-nurses	507	47.9
Lab technician / Biomedical	95	9.0
Pharmacist	20	1.9
	Median	IQR
Professional experience (years)	6	3 – 10
Type of health facility		
University Teaching Hospital / National Hospital	112	10.6
Medico-communal centre / District hospital	455	43.0
Health Centre / Infirmary	325	30.7
Clinic / Polyclinic	128	12.1
Ministry of Health / District Health Offices / Communal Health management board	32	3.0
Pharmacy	6	0.6

Table 2: Knowledge of health providers surveyed in selected health facilities in Guinea, April 2020 (N=1058)

Healthcare workers' knowledge	Frequency	Percentage (%)
Responsible germs		
Virus	867	81.9
Bacteria	30	2.8
Parasite	10	0.9
Do not know	151	14.3
COVID is a preventable disease		
Uncertain / Disagree	48	4.5
Agree	1010	95.5
Knowledge about the COVID-19 incubation time		
Do not know	256	24.2
Know	802	75.8
Diseases caused by COVID-19		
Respiratory disease	878	83.0
Digestive disease	95	9.0
Cardiovascular disease	22	2.1
Do not know	162	15.3
SARS-CoV-2 transmission mode		
Direct respiratory tract	853	80.6
Animal to Human	134	12.7
Human to human (shaking hands, hugging, kissing)	856	80.9
Environment to human	292	27.6
Sexual fluids	45	4.3
Mouth (infected food)	96	9.1
By touching dead bodies	73	6.9
By touching contaminated objects/surface	291	27.5
Do not know	15	1.4
Symptoms of COVID-19		
Fever	1000	94.5
Headache	559	52.8
Cough	901	85.2
Breathing difficulties	649	61.3
Sore throats	369	34.9
Nasal flow	323	30.5
Diarrhea/Vomiting	163	15.4
Abdominal pain	53	5.0
Anorexia	106	10.0

Do not know	12	1.1
Definition of a COVID-19 suspected case		
Severe ARI + History of contact with confirmed/probable case	235	22.2
Fever (+38°C)	29	2.7
Fever (+38°C) + Cough	345	32.6
Fever (+38°C) + Cough + contact history	345	32.6
Do not know	104	9.8
How to prevent COVID-19		
Avoid shaking hands	685	64.7
Cough/sneeze into handkerchief or elbow	406	38.4
Maintain 1 m distance	658	62.2
Wash hands regularly	899	85.0
Wearing mask	708	66.9
Disinfect materials and surfaces	219	20.7
Staying at home	175	16.5
Avoid groupings	549	51.9

Table 3: Practices of healthcare providers surveyed in selected health facilities in Guinea, April 2020 (N=1058)		
Practices of Healthcare providers	**Frequency**	**Percentage (%)**
Frequency of glove use		
Never/rarely	38	3.6
Often/sometimes	271	25.6
Always	749	70.8
Frequency of mask use		
Never/rarely	162	15.3
Often/sometimes	383	36.2
Always	513	48.5
Frequency of use of outerwear		
Never/rarely	118	11.2
Often/sometimes	271	25.6
Always	669	63.2
Frequency of hand washing		
Never/rarely	19	1.8
Often/sometimes	175	16.5
Always	864	81.7
Source of information for health providers on COVID-19		
Employer	30	2.08
Professional	265	25.0
Superior	477	45.1
No	925	87.4
Friends/Family	133	12.6
Medias	949	89.7
Internet	620	58.6
Infection Prevention and Control training in the last 6 months		
No	891	84.2
Yes	167	15.8
Heard about/aware of the COVID-19 guide for managing suspected cases		
No	774	73.2
Yes	284	26.8

Table 4: Factors Associated with the Correct Identification of COVID-19 Suspected Cases and Good Practices of Health Personnel toward Suspected COVID-19 Cases in Selected Health Facilities in Guinea, April 2020

Characteristics	A correct definition of a suspected case of COVID-19								Good practice of healthcare personnel							
	Crude OR	95% CI Lower	95% CI Upper	p-value	AOR	95% CI Lower	95% CI Upper	p-value	Crude OR	95% CI Lower	95% CI Upper	p-value	AOR	95% CI Lower	95% CI Upper	p-value
Age (Years)																
<25	1				1				1				1			
25-39	4.55	2.60	7.97	<0.001	3.68	1.99	6.83	<0.001	2.52	1.40	4.53	0.002	2.36	1.28	4.36	0.006
40-59	4.62	2.54	8.39	<0.001	4.39	1.66	7.36	0.001	2.23	1.20	4.17	0.012	1.76	0.84	3.68	0.131
60 and more	4.78	1.80	12.66	0.002	3.10	1.01	9.61	0.05	4.73	1.77	12.62	0.002	4.03	1.33	12.28	0.014
Sex																
Male	1				1				1				1			
Female	0.48	0.38	0.62	<0.001	0.83	0.61	1.13	0.234	1.05	0.82	1.34	0.724	1.22	0.90	1.64	0.194
Profession																
Medical doctors	1				1				1				1			
Nurses / Midwives	0.31	0.24	0.41	<0.001	0.41	0.29	0.57	<0.001	0.83	0.63	1.08	0.163	0.74	0.53	1.03	0.077
Lab technicians / Biomedical	0.55	0.35	0.86	0.009	0.66	0.41	1.07	0.089	1.79	1.15	2.8	0.011	1.59	1.00	2.54	0.052
Pharmacists	0.43	0.18	1.07	0.069	0.73	0.26	2.08	0.556	0.28	0.08	0.98	0.047	0.26	0.07	0.98	0.047
Professional experience																
<5 years	1				1				1				1			
5-10 years	1.71	1.29	2.26	<0.001	1.23	0.89	1.70	0.207	1.21	0.91	1.61	0.191	1.13	0.83	1.54	0.443

More than ten years	1.53	1.11	2.09	0.009	1.37	0.84	2.22	0.21	1.27	0.9	1.75	0.155	1.42	0.89	2.29	0.145
Type of health facility																
University Teaching Hospital	1				1				1				1			
District hospital	0.51	0.33	0.79	0.003	0.84	0.52	1.37	0.488	0.91	0.59	1.61	0.676	1.03	0.65	1.63	0.892
Health centers	0.49	0.31	0.77	0.002	0.90	0.54	1.50	0.692	1.28	0.82	2.00	0.279	1.35	0.84	2.17	0.219
Clinic / Polyclinic	0.74	0.43	1.26	0.265	0.67	0.37	1.22	0.193	1.45	0.86	2.43	0.166	1.34	0.78	2.30	0.284
MoH / District Health Office	1.42	0.58	3.47	0.441	0.89	0.33	2.42	0.82	0.5	0.20	1.27	0.146	0.47	0.18	1.22	0.122
Pharmacy	0.09	0.01	0.84	0.034	0.03	0.01	0.82	0.038	–	–	–	–	–	–	–	–
Signs of COVID-19																
Poor knowledge	1				1				–	–	–	–	–	–	–	–
Good knowledge	6.23	3.43	11.31	<0.001	2.57	1.31	5.06	0.006	–	–	–	–	–	–	–	–
Transmission mode																
Poor knowledge	1				1				–	–	–	–	–	–	–	–
Good knowledge	10.45	3.74	29.22	<0.001	2.95	0.92	9.46	0.068	–	–	–	–	–	–	–	–
Prevention of COVID-19																
Poor knowledge	1				1				–	–	–	–	–	–	–	–
Good knowledge	16.53	5.99	45.61	<0.001	5.75	1.94	17.11	0.002	–	–	–	–	–	–	–	–
Perception of the severity of COVID-19																
Poor knowledge	1				1				–	–	–	–	–	–	–	–
Good knowledge	1.75	1.36	2.26	<0.001	1.32	0.99	1.75	0.056	–	–	–	–	–	–	–	–

Attitudes of HCPs																
Not a good attitude	1				1				–	–	–	–	–	–	–	–
Good attitude	3.34	2.17	5.15	<0.001	2.60	1.61	4.18	<0.001	–	–	–	–	–	–	–	–
Infection Prevention and Control of Training and Supportive Guide																
No	1				1				–	–	–	–	–	–	–	–
Yes	2.61	1.46	4.65	0.001	1.94	1.01	3.72	0.047	–	–	–	–	–	–	–	–