



CORESMA - COVID-19-Outbreak Response combining E-health, Serolomics, Modelling, Artificial Intelligence and Implementation Research

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| WP 4 | Implementation Research Containment Measures |
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D4.2 Rapid assessment of the COVID-19 containment measures in Côte d'Ivoire and Nepal in 2020

1. Background and objectives of this report

On January 12 2020, the World Health Organization confirmed that a novel coronavirus was the cause of a respiratory illness in a cluster of people from Wuhan City in China. COVID-19 is a viral respiratory disease caused by infection with the SARS-CoV-2 virus. Symptoms occur 1-14 days following exposure, on average after 3-7 days. These symptoms include fever, fatigue, cough, difficulty breathing, sometimes worsening to pneumonia and kidney failure - especially in those with underlying medical conditions. On **March 11, the WHO declared the ongoing COVID-19 outbreak a pandemic.**

Along the emergence of the pandemic, the European Union's Horizon 2020 research and innovation programme funds since April 2020 several research initiatives among else the project "COVID-19-Outbreak Response combining E-health, Serolomics, Modelling, Artificial Intelligence and Implementation Research (CORESMA)".

The CORESMA project among else aims to immediately generate the most needed clinical and epidemiological data needed for defining targeted public health measures at national and global level, early enough to become effective during this COVID-19 outbreak, using the Surveillance Outbreak Response Management and Analysis System (SORMAS). Specifically, in the work package 1 (WP1) "Enhancing public health preparedness and availability of impactful real time data through digital health surveillance with SORMAS". In this work package, the SORMAS software is being adapted to the countries in order to best serve the needs of the countries in surveillance of the pandemic, handling of cases, contact tracing and in the communication with the laboratories. It also enables the countries to analyse the current situation of the pandemic and react appropriately. Furthermore, the work package 4 (WP4) "Application of the epidemic surveillance and response analysis system (SORMAS) to improve preparedness and surveillance during the COVID-19 epidemic in Côte d'Ivoire: a study on the implementation of SORMAS" analyses the impact and acceptability of SORMAS on the preparedness and surveillance of the COVID pandemic in the countries.

This document guides us through the COVID-19 containment measures applied by the government and the ministries of health in Côte d'Ivoire and Nepal since the start of the pandemic up to end of December 2020. Consequently the objective is

- To review containment measures put in place in Côte d'Ivoire and Nepal in the course of 2020.

In chapters 2 and 3, we provide a chronogram of containment measures put in place in Côte d'Ivoire respectively Nepal in the course of 2020. Chapter 4 summarises and compares key measures across the two countries. Ultimately, the document is to enable to see the setting into which SORMAS is implemented. The SORMAS software then supports the countries in the registration and follow-up of COVID-19 cases and in the tracing of their contacts. It further facilitates the exchange between different actors in the health sector (doctors, contact tracers, nurses etc.). Through this central platform, the time from diagnosis to the successful identification of contacts and their quarantine, will shorten and the risk for transmission in the wider population will be reduced.



2. COVID-19 situation in Côte d'Ivoire and the country's surveillance-response mechanism

March 11 2020, Côte d'Ivoire records its first COVID-19 case with an Ivorian returning from Italy (Daily Sabah, 2020).

March 23, the government of Côte d'Ivoire declares the **state of emergency** for the country and reports 73 COVID-19 cases, these increased to 916 cases and 13 deaths up to April 21 2020. The borders were closed and all **movement of people to and from Abidjan are banned**. A national **curfew (9pm - 5am)** was introduced and all **bars closed**. A national emergency plan is then being formulated (UNDP Côte d'Ivoire).

President Alassane Ouattara announced on May 7 2020, that the country would begin easing COVID-19 measures on **May 8**. **Measures were to be relaxed nationwide except for Abidjan and some surrounding suburbs, where a state of emergency is in place until at least Friday, May 15**. However, the **curfew in Abidjan will be shortened** from 21:00 to 05:00 to 23:00 to 04:00. The state of emergency means **restaurants, maquis, bars, nightclubs, cinemas and places of entertainment remain closed**, and **gatherings of more than 50 people are banned**. Elsewhere, **schools, restaurants, bars and concert venues have reopened, and gatherings of up to 200 people are allowed**. Areas impacted by the state of emergency include the District of Abidjan, Dabou, Azaguie, Bingerville, Grand-Bassam, Bonoua, Assinie and up to PK30 on the Abidjan-Yamoussoukro motorway. The use of protective **face masks** is mandatory in all public places nationwide, and those who do not comply are liable to be sanctioned by the authorities. The country's **borders remain closed** until further notice and international flights to and from Côte d'Ivoire were suspended indefinitely on March 22, except for humanitarian and security purposes (Garda, 2020a).

Côte d'Ivoire extends state of **emergency through July 30**. **Land and sea borders will remain closed** during this period; however, **domestic flights resumed June 26**. **International flights were allowed to restart July 1**. Cargo and freight transport will likely continue through land and sea borders, with increased screening in place. The lockdown of the Grand Abidjan region (Abidjan, Dabou, Azaguie, Bingerville, Grand-Bassam, Bonoua, Assinie, and up to PK30 on the Abidjan-Yamoussoukro motorway) has been eased, and **unrestricted travel can resume July 15**. Other measures that remain in place include: **A ban on large public gatherings, closure of bars, nightclubs, cinemas, and other places of entertainment**, monitoring and close screening of all passengers arriving in the country, mandatory wearing of **facemasks** in public (WorldAware, 2020).

As of **16 September**, Abidjan ends isolation and schools are reopened. All travellers to Côte d'Ivoire must carry a negative COVID-19 test certificate dating back no more than 72 hours. Bars, nightclubs, cinemas and entertainment venues reopened on 1 August 2020. The wearing of masks remains in force in public places. Continuing their support to the Government according to their comparative advantages, the various agencies of the United Nations Development System are contributing to the implementation of the national response plan for COVID-19, through multisectoral interventions aligned with the various strategic axes of this plan. These include interventions in: epidemic preparedness, health, risk communication, education and access to water, hygiene and sanitation (UN Office for the Coordination of Humanitarian Affairs, 2020).

As of **December 17 2020**, authorities maintain restrictive measures across the country as part of the nation's efforts to slow the spread of COVID-19. **Land and sea borders are closed**; however, both **domestic and international flights have resumed**. Travellers arriving in Côte d'Ivoire will still need to present **negative COVID-19 test** results taken up to seven days before arrival. Travellers will also have to declare their trip on the official travel reporting portal and pay XOF 2,000 (USD 3.57). Travellers



must present the declaration form at the port of entry. **Arriving travellers are encouraged to self-isolate for two weeks and monitor symptoms.** Travellers leaving Côte d'Ivoire also require a negative COVID-19 test and a declaration form. The test must be taken no more than seven days before departure. **Cargo and freight transport will likely continue through land and sea borders, with increased screening in place. Bars, nightclubs, cinemas, and other places of entertainment open with adequate hygiene and social distancing measures in place.** Large gatherings have resumed with the approval of local authorities. Protective **facemasks are mandatory** in public places, particularly in the greater Abidjan area. Authorities could reimpose, extend, further ease, or otherwise amend any restrictions with little-to-no notice depending on disease activity over the coming weeks (Garda, 2020a).

Table 1 Summary of containment measure for COVID-19 in 2020 since the declaration of the state of emergency in Côte d'Ivoire.

| Date | Event | Containment measures |
|---------------------|--|--|
| March 23 | Announcement of state of emergency | Nationwide curfew (9pm-5am), borders, forbidden movement to and from Abidjan, restaurants, maquis, bars, nightclubs, cinema and other entertainment places are closed, gathering of more than 50 people banned |
| May 8 | Measures relaxed (except Abidjan) | Schools, restaurants, bars and concert venues have reopened, and gatherings of up to 200 people are allowed. Use of face masks in public compulsory Abidjan curfew shortened (11pm-4am) |
| June 26 | Opening of the borders Lockdown of the Grand Abidjan region eased | International flights allowed Unrestricted travel resume but ban on large public gatherings, closure of bars, nightclubs, cinemas, and other places of entertainment stays in place for Abidjan |
| August 1 | Abidjan eases measures | Bars, nightclubs, cinemas and entertainment venues reopened |
| September 16 | Abidjan ends isolation | Schools reopen Land and sea borders remain closed Face masks mandatory in public |

3. COVID-19 situation in Nepal and the country's surveillance-response mechanisms

The **first case was identified in Nepal January 28 2020**. Nepal started preparing for the epidemic, focusing mainly on the identification and management of cases. A High-Level Coordination Committee under the lead of the Prime Minister and Minister of Defense was formed for oversight of preparation and response activities. Five **hub hospitals** and **13 satellite hospitals** were designated COVID-19 hospitals, requiring dedicated space for the isolation of infected individuals. Expert teams were formed to formulate guidelines for the treatment, testing, and management of COVID-19. Ongoing communication was established among the Central and Provincial Health Emergency Operation Centers and the Ministry of Health. **Temperature monitoring was instituted at the Tribhuvan International Airport, the only international airport in Nepal** (Basnet et al., 2020).

On **March 11 2020**, **mandatory self-quarantine** of all individuals arriving from the eight nations (**China, Italy, Spain, Iran, South Korea, Germany, France, and Japan**) that had community spread was initiated. **Health screening** consisting of a questionnaire for symptoms and a temperature check was instituted at **43 Points of Entry from neighboring nations, India and China** (Basnet et al., 2020).



The Government of Nepal issued a nationwide **lockdown from 24 March, prohibiting domestic and international travels, border closures and closure of non-essential services**. Only essential services, including pharmacies and grocery stores, could open. Citizens could only leave their houses at designated time periods. All domestic and international flights were halted. Maintaining **physical distancing, masks, hand washing, and hand sanitizers** were encouraged. End of March, there were five cases from China, Europe, and Dubai that tested positive and were placed in isolation in COVID-19-designated hospitals in Kathmandu. Trained personnel under the Epidemiology and Disease Control Division (EDCD) were mobilized to **conduct extensive contact tracing** based on their flight details and movement history to identify individuals with a potential infection. Lockdown/quarantine measures were strictly reinforced by the security sector (police, border management, corrections). Police presence was expansive and powerful. They implemented cash fines, confiscation of vehicles, and even imprisonment for failure to adhere to quarantine measures (Basnet et al., 2020).

In April 2020 the document '**COVID-19 NEPAL: PREPAREDNESS AND RESPONSE PLAN (NPRP)**' was published by UN Nepal. 'NPRP lays out the preparedness actions and key response activities to be undertaken in Nepal, based on the trends and developments of the global COVID-19 pandemic. The plan outlines two levels of interventions; one that is the preparedness that should take place at the earliest possible and that constitutes an investment in Nepal's health systems that will in any case benefit the people of Nepal, regardless of the extent of the COVID-19 pandemic in the territory. The second level is the effective response, across sectors, to an estimated caseload of 1500 infected people and 150,000 collaterally affected people (contacts). This can then be scaled up in case there is a vast increase in number of infected and affected people, beyond the original scenario of 1500 patients (UN Nepal, 2020).

June 12, government of Nepal has decided to **ease the lockdown adopting a phased approach**. In the first phase of 21 days, **shops were allowed to open and vehicles to operate under the odd-even (alternate day) rule. Public places, institutions and events with higher intensity of congregation (schools, colleges, shopping malls, pubs, conferences, sport activities etc.) remained closed** (WHO Country Office for Nepal, 2020a).

July 22, with a few exceptions, most **lockdown restrictions have been lifted** (WHO Country Office for Nepal, 2020b).

October 17, **Limited commercial flight service has resumed**, but, except for trekkers and mountaineers) as described above, foreign citizens are still prohibited entry into Nepal. Domestic flights have resumed, including full seating capacity. Flights will operate under strict COVID-19 mitigation measures. Depending upon the port of entry, newly arrived travellers must undergo a **mandatory quarantine** ranging from 2 to 14 days. Suspected COVID-19 cases already in country must also quarantine for 14 days. **Masks are required** when outdoors, including while on public transport and taxis (US Embassy in Nepal, 2020).

October and November, high case loads and deaths observed in Nepal, especially in Kathmandu district, home isolation and quarantine as well as contact tracing seem to pose problems. New testing sites were established by the Ministry of Health and Population (WHO Country Office for Nepal, 2020c).

December 15 2020, Nepal is generally relaxing international and domestic COVID-19, **air travel allowed**, although some controls continue. On-arrival and electronic visa issuance remains suspended, except for foreigners officially affiliated with international development organizations and diplomatic missions. **Foreign nationals must present evidence of a negative COVID-19 test result** issued no more than 72 hours prior to departure for Nepal. **Land border crossing points remain closed to foreign**



nationals. Arrivals, regardless of nationality, must **quarantine for at least 2 and up to 14 days.** Most nationwide gathering restrictions have been lifted, though some limitations remain. Most **schools, religious institutions, and nonessential businesses have been allowed to reopen.** Residents are still required to wear **protective face masks** and adhere to **social distancing** guidelines while in public. Several areas are enacting localized curbs on top of nationwide protocols. **Travel to the Kathmandu Valley from other areas remains limited,** with visitors required to have proof of having tested negative for COVID-19. Nonessential activity remains limited in some high-risk zones. Residents must stay home to the extent possible in these locations. Essential and permitted businesses must enforce social distancing standards and may be subject to closures. Access to such areas is limited. Officials continue to advise Nepali citizens against nonessential international travel. **Health checks are mandatory at all entry points** (Garda, 2020b).

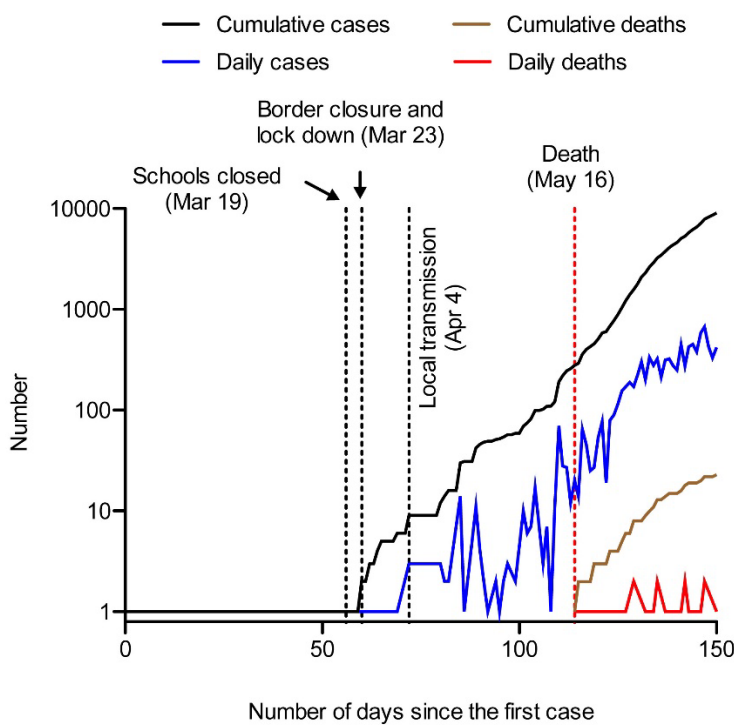


Figure 1 Cases and deaths due to COVID-19 in Nepal from March to June 2020. Number of cases and deaths. X-axis shows number of days since 23 January 2020, reported first case; y-axis, cumulative and daily number of cases and deaths in log10 scale. Critical incidences are indicated by dotted lines. Data extracted from Government of Nepal (Panthee et al., 2020).

Table 2 Summary of containment measure for COVID-19 in Nepal.

| Date | Event | Containment measures |
|----------|-------------------------|---|
| March 11 | Control of immigration | Mandatory self-quarantine for people arriving from China, Italy, Spain, Iran, South Korea, Germany, France, and Japan Health screening at Indian and Chinese borders |
| March 24 | Nationwide lockdown | Borders closed and non-essential services Physical distancing, face masks and handwashing encouraged |
| June 12 | Phased ease of lockdown | Shops reopen, vehicles allowed on even-odd number system (alternating days) |



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| | | Public places, institutions and events with higher intensity of congregation (schools, colleges, shopping malls, pubs, conferences, sport activities etc.) remained closed |
| July 22 | Most lockdown restrictions lifted | |
| October 17 | Commercial flights allowed with restrictions | Mandatory quarantine Face masks in public places mandatory |
| status December 15 | | Most schools, religious institutions, and nonessential businesses have been allowed to reopen Travels to Kathmandu restricted landborders closed for foreign nationals, all arrivals need to quarantine Gathering restrictions mostly lifted |

4. Containment measures in Côte d'Ivoire and Nepal

Table 3 below summarizes the various containment measures and their intended impact on the COVID-19 situation in the countries, as well as their application in Côte d'Ivoire and Nepal.

Table 3 Containment measures and their duration of application in the countries (Côte d'Ivoire and Nepal)

| Containment measure | Côte d'Ivoire | Nepal |
|--|--|---|
| Reduction of the risk of transmission | | |
| Confinement (curfew) | March 23 to May 7 - longer for Abidjan and some suburbs <ul style="list-style-type: none"> • National curfew 9pm-5am • Bars, restaurants, cinemas and entertainment closed • Large gatherings forbidden State of emergency extended through July 30 | March 24 to July 22 - Nationwide lockdown Shops closed until June 12 Cars operate on odd even rule from June 12 |
| Face masks in public places | March 23 to May 7 - longer for Abidjan and some suburbs June/July up to December | July 6 onwards |
| Contact tracing | March - contacts of travellers from affected countries are followed via sms and phone calls Isolation of contacts in the dedicated centre for follow-up | For travellers based on flight details |
| Disinfection measures | March onwards - disinfection of facilities frequently visited by positive cases | March 24 |



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| Hand-washing | March onwards - promotion of handwashing with water and soap and hydro-alcoholic solutions | |
| Disinfection of potentially contaminated surfaces | March onwards - disinfecting places at risk (home, office), of confirmed cases | |
| Widespread environmental disinfection | | |
| Increase social distance | | |
| Home confinement of persons | Confinement of asymptomatic or mild cases in dedicated places (Marcory, Bassam) | March 24 to July 22 Citizens could only leave their homes at designated time periods |
| Closure of schools | March 23 to May 7 - longer for Abidjan and some suburbs September 2020 schools reopen in Abidjan | March 24 to July 22 |
| Population-wide measures to reduce mixing of adults | Forbidden of large gatherings Bars, restaurants and cinemas and entertainment institutions closed | |
| Decrease interval between symptom onset and start of isolation | | |
| Promotion of testing | April 2020, 13 new testing sites were established | October new testing sites were established |
| Mass testing | | |
| Thermal scanning | At the airport FHB with thermal cameras | End January onwards At Tibhuvan International Airport |
| Contact tracing | March 12, Identification and follow-up of contacts | March 24 Especially for travellers on the same flight |
| Travel restrictions | | |
| Recommended deferral of non-essential travel | March 23 to June 26 Domestic flight resume | |
| Travel ban and closure of borders | March 23 to July 30 | March 24 onwards |



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|---|--|--|
| | | October 17 limited commercial flights for trekkers resumed |
| Thermal screening at entry/exit | March 30 onwards | March 11 onwards Health screening (questionnaire and temperature check) at 43 entry points from India and China |
| Mandatory COVID testing when travelling | July onwards, negative test not older than 5 days needed | |
| Quarantine after travel | Encouraged self-isolation for two weeks | March 11 Mandatory self-quarantine for China, Italy, Spain, Iran, South Korea, Germany, France, and Japan, later for all travellers suggested |



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