

## COMMENTARY

# COVID-19 Control in Islands

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*Lindsay Edouard*

Member of the Editorial Advisory Board, African Journal of Reproductive Health; Blue Bay, Mauritius

**\*For Correspondence:** Email: *soranae@gmail.com*

Peculiarities of the islands of the southwestern Indian Ocean enabled control of the spread of COVID-19: closing of ports of entry and lockdown with strict sanitary curfew whilst maintaining access to essential health services. There was an increase in violence, whether in the community or within the household, and challenges include meeting the needs of disadvantaged groups. Progressive relaxation of lockdown procedures was accompanied by social measures to promote wellbeing. Control measures were relatively successful to curtail the spread of COVID-19, the number of cases ranging from 81 in Seychelles to 2,603 in Mayotte by the end of June 2020.

### ***Insularity***

Thrown across the Seven Seas and often among various shades of turquoise, islands are land masses that are usually thought to be idyllic as exemplified by the lotus eaters of Lord Tennyson and the desert island discs of that long-running radio programme of the British Broadcasting Corporation. The ensuing perspective of a romantic paradise leads to yearning by visitors who fantasize about utopian peaceful living. Improved accessibility, whether for development projects or specifically for tourism, often destroys their setting of Gardens of Eden associated with the South Seas.

Imported species, from international travel, soon disturbed the endemic and indigenous flora besides fauna sometimes, leading to ecological disasters such as the extinction of the dodo in Mauritius. And neither were human populations spared when newly-introduced infections spread unhindered in communities due to lack of herd immunity. The problem worsened when journey times decreased with progress in the operations of sea vessels from sail to steam. Due

to its limited incubation period, an infective agent previously took its toll on passengers and crew only during those earlier long journeys whereas the subsequent shorter journey times opened the way to its transmission to the population at destination. The measles infections that devastated Fiji, Hawaii and Easter Island during the 19th century have parallels with the global spread of the virulent SARS-CoV-2 novel coronavirus, more commonly known as COVID-19.

Facts being sometimes more appealing than fiction, disastrous situations on islands have become the basis for novels as a form of historical fiction in literature. Actual events served as the basis for novels such as *Robinson Crusoe* and for this region: *Paul et Virginie* by Bernardin de St Pierre in 1788 and *Les naufragés de l'île Tromelin* by Irène Frain in 2009. In sharp contrast, fiction emanating from certain ineffective traditional herbal practices has unfortunately found their way as facts, through so-called knowledge in the informal grey literature. Whereas individuals are free to purchase their preferred potions irrespective of effectiveness, government services should only provide preparations that have been scientifically proven to be of value.

Insularity is associated with different ways of living that are not necessarily the stereotypical care-free approach commonly described in traditional literary works of the South Seas. An island constitutes the setting for a natural prison and its residents often gaze at the horizon: before the advent of the internet, it was often for wondering what is going on beyond. Conversely, the international spread of COVID-19 was followed closely on the web for prompt intervention when appropriate. Faced with their first infection, islands could easily seal their borders by prohibiting passenger traffic at ports of entry, whether air or sea. Living in a small world

with trust in leaders and decision-makers, islanders generally appreciated that the exceptional circumstances of the COVID-19 pandemic necessitated exceptional measures to ensure the public good.

### ***Geopolitical considerations***

Countries of the southwestern Indian Ocean consist of the four independent states of Comoros, Madagascar, Mauritius and Seychelles besides Mayotte and Reunion, two far-flung departments of France. Sharing certain commonalities from their colonial past, these islands have evolved differently since the 1950s.

The colonial legacy includes the prioritization of social services resulting in relatively well-developed health services with networks of health facilities and provision of education services leading to highly-literate populations.

### ***Perceived threat***

Some of those islands were initially considered as being at high risk from COVID-19 due to their economic dependence on tourism from Europe and Asia, the two continents most affected by the pandemic at the time. However prompt political decision-making, often of an unpopular nature, was instrumental in controlling damaging effects from this invisible, albeit elusive, enemy.

### ***Gender issues***

Due to their central role within households, women were disproportionately affected by the pandemic whether from availability of fresh produce for the preparation of meals, price of commodities for the shopping basket or access to social services. Besides, there were specific constraints pertaining to formal employment during lockdown such as time management for accommodating household tasks with work-from-home assignments.

It is therefore not surprising that women were often at the forefront of numerous initiatives for addressing issues through practical action as opposed to mere protests by various affinity groups that were also adversely affected by lockdown policies. With increased awareness of

the need for food sufficiency through local production and less dependency on imports, women groups immediately took to growing vegetables often by exploiting unused plots of land.

With their longstanding experience in apparel design within the textile industry, women promptly came up with innovative models for masks. Unknowingly, they became excellent agents for health promotion by transforming disease prevention into positive behaviour through the public perception of masks as fashionable accessories.

Home confinement led to increased stress levels and mood changes that could explain, among certain sections of the population, serious consequences as reflected in general violence and petty crimes such as thefts. Besides an increase in gender-based violence within households, there was a substantial rise in sexual violence towards young girls in the community.

On the other hand, stay-at-home orders caused special problems in the mode of operations of commercial sex workers.<sup>1</sup> They sometimes had recourse to electronic means for access to their clientele.

### ***Individual prevention***

Care-free island living is usually not compatible with personal measures such as mask wearing and distancing, whether social or physical. Usually no opportunity is missed for an informal gathering upon bumping into friends on the street and greetings necessitate physical contact. Mask wearing is in sharp contrast with the prevalent informal dress code besides being deemed as uncomfortable specially when it is hot. As a result, there was the potential for poor compliance with those two basic preventive measures.

Compulsory in certain supermarkets, the wearing of gloves was frowned upon to the extent that it was a deterrent that discouraged shopping by potential customers. A high level of education, associated with social liberties in a democratic society, provides ingredients for freedoms in various domains specially for empowering people to challenge seemingly inappropriate measures. In this particular situation, it was regrettable whenever ineffective measures were implemented

in the clear absence of objective supporting data for an evidence-based approach to policy formulation.

### ***Service provision***

Accessibility to health services is better in smaller jurisdictions as opposed to vast areas that are sparsely populated. Having long been an official priority for government services, reproductive health care is well represented in public infrastructure. Hospital tasks<sup>2</sup> and procurement of commodities<sup>3</sup> were prioritised in the context of the COVID-19 situation.

Emergency access to health services were fully protected during lockdown and actually received much logistical support from police officers for transfer to health facilities.

### ***Treatment***

In the absence of any proven effective treatment for infection with COVID-19, clinical interventions consisted largely of symptomatic management. As a disease first recognised only in December 2019, not much is known about its natural history and treatment<sup>4</sup>.

In the islands of the southwestern Indian Ocean, traditional practitioners have a strong following in the management of health conditions<sup>5</sup>. Ingredients such as cloves, ginger and lemon were prominent in Covid-related potions. Besides inhalation and throat gargles with concoctions for action in the oropharynx, ointments and balms were commonly recommended for rubbing on the skin of the chest as done traditionally for respiratory disease.

The rich flora of Madagascar has been successfully exploited for therapeutic purposes as exemplified by *Catharanthus roseus*, the periwinkle which is popular for ornamental purposes in home gardens in those islands<sup>6</sup>. Vinblastine and vincristine, vinca alkaloids from that plant, were pioneering cures for leukaemia and lymphomas: now used in chemotherapy for numerous cancers, their synthesis is imminent<sup>7</sup>.

### ***Covid-Organics***

Developed by the Institut malgache de Recherches Appliquées, Covid-Organics is an artemisia-based

preparation supplemented by two other herbal ingredients that are commonly used for symptomatic treatment in Madagascar. Promoted by the Malagasy President who sent shipments to numerous friendly countries in Africa, Covid-Organics has not yet been adequately evaluated through randomised controlled trials.

As far back as 2000, the Regional Office for Africa of the World Health Organization stated its commitment to use the same scientific approach to appraise traditional preparations and other drugs. It recently reiterated the need for scientific scrutiny to avoid misinformation pertaining to the efficacy and safety of Covid-Organics<sup>8</sup> and likewise, the Health Commission of the African Union has requested further evidence<sup>9</sup>. Without recognition from multilateral agencies, specially the World Health Organization, Covid-Organics was not imported in numerous countries.

### ***Chloroquine***

When faced with a difficult individual situation, medical practitioners should use their clinical judgment to prescribe drugs for unapproved indications. However it was unfortunate that, in the absence of any evidence of efficacy, chloroquine and its hydroxy derivative were promoted for the management of COVID-19 in a population perspective early in the current pandemic. This publicity, pertaining to the value of chloroquine for COVID-19 control without any strong evidence, led to outrage among academics besides distortion of its market price and the manufacturing of fake versions<sup>10</sup>. Mauritius received a donation of 500,000 tablets of hydroxychloroquine from India on 15 April.

Included in the Model List of Essential Medicines of the World Health Organization for the clinical management of malaria and certain autoimmune disorders such as rheumatoid arthritis, chloroquine was assessed for the specific context of COVID-19 by not missing the opportunity for well-designed clinical trials to contribute to scientific knowledge. Preliminary findings indicate the likely value of remdesivir to shorten recovery time and in combination with baricitinib to also decrease mortality<sup>11</sup>.

**Table 1:** Islands of the southwest Indian Ocean and COVID-19 at the end of June 2020<sup>17</sup>

Country	Area (km <sup>2</sup> )	Population		Covid-19	
		Number (000s)	Density (per km <sup>2</sup> )	Cases	Deaths
Comoros	1,659	873	457	293	7
Madagascar	587,041	26,262	35	2,138	20
Mauritius	2,040	1,265	618	341	10
Mayotte	374	279	750	2,603	35
Reunion	2,511	860	340	522	2
Seychelles	459	97	205	81	0

### *Mauritius*

An analysis, of air passenger traffic from infected areas and country capacity to control local transmission of COVID-19, had placed Mauritius in a cluster of high-risk countries<sup>12</sup>. Worried by the problem, Mauritius initiated precautionary measures in January: improved screening of arriving passengers, arrangements for the repatriation of nationals from Wuhan in China and regular meetings of a ministerial committee, chaired by the Prime Minister, for local preparedness through stock-taking and anticipating impact. Severe quarantine procedures were implemented and travellers from high-risk countries were banned from entry.

The Republic of Mauritius includes outlying islands, such as Rodrigues and Agalega, that have remained free from COVID-19 due to prompt measures to close borders.

### *Monitoring*

Through a live address on national television during prime time in the evening of 18 March, the Prime Minister announced the arrival of the first three cases of COVID-19 on its shores: besides his plea for voluntary home confinement, concurrent statements were issued by the ministries of health and education for the immediate implementation of measures such as school closure<sup>13</sup>. The last case, from local transmission, was diagnosed 39 days later on 26 April. The island became Covid-free on 11 May, 54 days after the announcement of the first cases. However 13 days later, on 24 May, further cases started to be detected among returning residents but they had all been maintained under strict quarantine control upon arrival and consisted of only a handful at the end of June.

### *Political will*

Government should be commended for its strong leadership with bold decision-making throughout the epidemic. Personally committed to the effective management of the epidemic, the Prime Minister chaired the daily meetings of a committee, including at weekends. The public was kept informed daily of its decisions through live television broadcasts at prime time: press conferences were then held every evening by members of the National Communication Committee which included various ministers as well as an epidemiologist and the director for infection control at the Ministry of Health. Whereas the value of an intersectoral approach is often brandied around during discussions on health policy formulation, nowhere was it more prominent than during those press conferences of the National Communication Committee when various ministers took turn to justify decisions.

Emergency measures, implemented on an ad hoc basis, were consolidated into the COVID-19, quarantine and public health bills. Voted in parliament in May, those acts had exploited the opportunity to update the legislative framework for coping with future epidemics.

The government decision to prioritise the health of individuals over economy of the country was justified, in parliament, by the Prime Minister<sup>14</sup> who quoted Disraeli: "The care of the public health is the first duty of the statesman". Confinement lasted 10 weeks and within a week of complete relaxation of those measures, the parliamentary budget speech outlined measures for redressing the economy.

### *Lockdown*

Passenger flights were suspended from 19 March and sanitary confinement was imposed from 20 March. As the call for voluntary home confinement was largely ignored, a sanitary curfew order was imposed on 23 March. It was followed, on 25 March, by a complete lockdown of the country except for the essential services of police, health, fire and banking. A small relaxation occurred from 2 April when individuals were allowed to buy food in supermarkets but only twice weekly, according to the first letter of their family name. Only workers in essential jobs were initially issued with work access permits which became more widely available from 15 May. The curfew order was lifted from 31 May, Mother's Day, when activities resumed normally except for a continuing ban, on selected "crowd-pulling" activities, until Monday 15 June. Mandatory measures currently consist of the wearing of face masks in public besides observance of physical distancing. Normal passenger flights are expected to resume on 1 September.

### *Quarantine*

Strict quarantine procedures were applied to all arriving passengers for at least 14 days and individuals released only after negative testing. As many as 19 hotels, often beachfront, were requisitioned to supplement hospitals and government buildings, such as recreation centres, to serve as quarantine centres.

With the need to repatriate a large number of Mauritian nationals abroad, specially on holidays or serving on cruise ships, plans were made for their return journeys in phases. However they had to produce negative COVID-19 test results before boarding flights and subjected to retesting upon arrival before proceeding to quarantine centres.

### *Testing*

As the gold standard, the PCR test was extensively used for both screening and diagnostic purposes. All positive cases from screening with the rapid antigen test were subjected to PCR confirmation. With more than 30,000 PCR and 100,000 rapid antigen tests having been performed, more than

10% of the population had already been screened by the end of June.

The extensive testing of the population played a major role in the successful control of the epidemic in Mauritius. Initially it was carried out as part of contact tracing after detection of cases but it was soon extended to frontline workers such as health staff, police and prison officers, staff of residential care homes and supermarket workers. Testing was also performed on all attendees at fever clinics of the five regional hospitals besides those suspected of having been affected by a concurrent outbreak of dengue.

### *Health services*

During confinement, the public was discouraged to attend health facilities for mild problems but, when needed, police officers provided transport to individuals. A web-based service was run by volunteers for free medical consultations.

Reproductive health services were not unduly affected during confinement. Emergency cases continued to receive the usual hospital care and private pharmacies remained open. However the disruption in outpatient services led to delays in consultations upon normal resumption of activities after deconfinement.

### *Media*

Responding to public interest, both written and audiovisual media paid special attention to the epidemic. News bulletin on national television and radio usually started with a progress report whereas newspapers featured special articles in each issue, often including a dedicated column on COVID-19.

Avid for information, the public sought details of this new disease often to the detriment of more important health priorities. During phone-in programmes on radio, both listeners and presenters questioned the value of certain sanitary measures being implemented: whilst being an excellent sign of participative democracy through full freedom of both thought and expression, there was unfortunately a lack of appreciation of basic epidemiological principles for infection control. Nevertheless such discussions were useful for improving awareness of the need for vigilance.

### **Other islands**

The following table gives an indication of the extent of the epidemic in the islands of the southwest Indian Ocean. As with all administrative data, there are limitations due to completeness of coverage and problems in ascertainment of cases<sup>15</sup>. Those issues are specially relevant in view of the insidious nature of the majority of COVID-19 infections that remain subclinical and asymptomatic. Inaccurate denominators can lead to misleading case-fatality rates whereas poor identification of cases would cause wrong incidence rates.

Nevertheless the observed differences definitely reflect the variety of prevailing conditions in those islands regarding preventive care, service coverage, health infrastructure and monitoring systems. Collaborative efforts, specially with a multilateral approach, have an important role to play<sup>16</sup>. Historical, sociological and anthropological approaches would enable a comparative appreciation of country experiences as pertaining to their specificities.

### **Outlook**

Set up after experience from the Ebola outbreak of 2014, the African Centres for Disease Control and Prevention provides useful information at the country level<sup>18</sup>. This pandemic has been a wake-up call to prioritise the health sector in the development agenda and governments should build resilience to cope with future adverse events<sup>19</sup>. Having eluded virus hunters despite their impressive track-record during numerous outbreaks over the last few decades<sup>20</sup>, this novel coronavirus is likely to continue to be with us for the foreseeable future. Until the availability of an effective treatment or vaccine, preventive measures will be prominent in our new COVID-defined way of life.

Islanders miss their care-free idyllic lifestyle. In some jurisdictions, return to a COVID-free status has lately led to enjoyment of most aspects of the former lifestyle albeit in fear of a threat that looms over the horizon: the second wave of the epidemic from incoming visitors when borders reopen to normal passenger traffic.

Safe behaviours, embraced during the acute phase of the epidemic, should be maintained to ensure better health and wellbeing in the long-term. Those islands will face major challenges due to the devastating impact on their local economy. High unemployment can be expected and changes in legislation should protect the rights of working women specially during pregnancy and for infant care.

### **Conflict of Interest**

None

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