Nigeria

RestoreDataRights: Mapping Declaration Principles to National Laws and Practices

As part of the RestoreDataRights project, Open Institute and DataReady are compiling a set of research briefs that explore how key provisions of the RestoreDataRights Declaration are translated into law and practice across four jurisdictions: Kenya, Ghana, South Africa and Nigeria. The purpose of this series of briefs is to establish an evidence-base of current data governance and use practices and to identify where advocacy opportunities may arise for civil society to improve the transparency, inclusiveness and accountability of governments' pandemic response.

This brief explores data governance and protection issues as they relate to the pandemic response inNigeria. This analysis is based on independent qualitative research, complemented where relevant by a comparative legal analytical lens. This involved the collection of data from a diverse set of online resources including, among others, law reports, case law databases, news reports, publications by international organisations, government publications, government policy statements, and academic journal articles. The findings of this research are set out in Annex I below, with a list of the sources explored at Annex II. For certain analytical fields, no relevant online information was identified despite an extensive desk search of online information having been conducted. The desk search primarily relied on general and legal search engines, and derivative sources.

Summary of powers that the Nigerian government has to use data as part of the pandemic response

The Presidential declaration of Covid-19 as a dangerous disease in terms of the Quarantine Act did not suspend the operation of the Nigeria Data Protection Regulation 2019. The Regulation, which is the primary source of data protection law in Nigeria, requires all organizations that control the data of natural persons to make their data protection policies available to the general public, to obtain the consent of data subject for data processing, to retain data for a reasonable

period and to take care to secure personal data. The Regulation also prohibits data collection practices which cause prejudice to the dignity of the human person. There is, however, limited information about whether the Regulations are effective in safeguarding data privacy. Experts continue to highlight the inability of the custodian agency of the Regulation, which is not a Data Protection Authority, to enforce data protection or prosecute numerous data privacy violations that have been reported to it. This has further strengthened the call for Nigeria's draft Data Protection Bill, which has far-reaching provisions and seeks to establish an independent Data Protection Authority, to be forwarded to the National Assembly for legislative consideration.

Although the National Assembly and State Houses of Assembly are provided with the responsibility by the 1999 Constitution to exercise oversight over Executive actions which impact data related rights, there has been limited if any parliamentary oversight over the Nigerian Government's data collection and processing practices. Although parliament has continued to operate during the associated lockdown, public participation in parliamentary processes has been severely limited.[1] The President has also continued to refuse to assent to the Digital Right and Freedom Bill which would have promoted freedom of expression, assembly and association in the online realm.[2]

The Nigerian Government has extensively relied on a variety of digital tools and systems to manage the COVID-19 pandemic. The logistics and supply chain of Nigeria's public health response is, for example, monitored by a digital Logistics Management Information System

---

[1] OrderPaper Intelligence Unit, OrderPaper Nigeria, May 2020 available at https://www.ipu.org/file/9334/download.
[2] Olasupo, "Why Nigeria needs to sign Digital Right and Freedom Bill into law as the world goes digital", *The Guardian*, available at https://guardian.ng/features/why-nigeria-needs-to-sign-digital-right-and-freedom-bill-into-law-as-the-world-goes-digital/.

operated by the Nigeria Centre for Disease Control.[3] This system tracks supplies at national and State levels in order to attempt to prevent stockout and improve preparedness. There is a need to conduct further research in order to measure the impact of this system on supply chain efficiency.

An innovative cloud based digital tool for surveillance called the Surveillance Outbreak Response Management and Analysis System (SORMAS) has also been used by the Nigerian Centre for Disease Control to track the spread of coronavirus in Nigeria.[4] SORMAS enables rapid analysis of cases, contact tracing and other disease surveillance functions at the State and national level. SORMAS also acts as a form of technical regulation by targeting messaging and instructions at officials across the Nigerian healthcare system based on automated data analysis. The data collected using SORMAS has also formed the basis of various public health actions including the deployment of medical and laboratory supplies, modelling activities and decision making by the Presidential Task Force on COVID-19. SORMAS is open-source and is supported by a strong community of developers with funding from multiple sources. This significantly promotes transparency and accountability. Source codes and technical specifications are managed and documented on the GitHub website, where they can be accessed and altered. In light of the importance of SORMAS to the regulation of the response of the Nigerian health system to COVID-19, it is imperative that there is sufficient regulatory oversight over such development.

In addition to using SORMAS, the Nigeria Centre for Disease Control has scaled up the use of its event-based surveillance system. Under this system, a designated team located at the Nigeria Centre for Disease Control receives calls and responds to text messages and live chats. The team also uses automated scanning and manual internet searches to identify chatter around

---

[3] Nigeria Centre for Disease Control "One Year After: Nigeria's Covid-19 Public Health Response February 2020-January 2021) available at https://covid19.ncdc.gov.ng/media/files/COVIDResponseMarch1.pdf.
[4] Id.

COVID-19. Data from the Nigeria Centre for Disease Control's event-based surveillance system is also reviewed by its surveillance and communications teams to inform its integrated rumour management strategy and counter Covid-19 related misinformation. There is, however, limited information about the integrated rumour management strategy and how data is used to inform this strategy.

On a more decentralized level, the Nigeria Centre for Disease Control has also advised States to maintain a database of contacts of identified Covid-19 contacts and to follow up with these contacts to ensure that they are tracked and have samples collected for testing. The guidance provides that data collection should be performed in line with the principles of confidentiality and using the appropriate case investigation forms on the electronic reporting platform SORMAS (or paper-based systems where there is no electronic system in place). The guidance emphasises the need for reasonable care to be exercised in capturing the data – including in relation to the completion of the case investigation forms prior to sample collection. There is, however, limited information about the measures States have adopted in response to this guidance. There also does not appear to be any oversight over these the Covid-19 related data collection and processing practices adopted by States.

Members of the Nigerian Police Force and other law enforcement agencies are also required to use proportionate police investigation resources to trace individuals believed to have been exposed to COVID-19.[5] Such contact tracing must be performed with due respect to human rights and in collaboration with authorised health agencies.[6] Although there is a telephonic mechanism through which persons may report human rights abuses by members of the Nigerian

---

[5] Nigeria Police Force. Enforcement of Covid-19 Regulation: Operational Guidelines for the Police and other law enforcement agencies in Nigeria. Available at
https://covid19.ncdc.gov.ng/media/files/COVID_19_BOOKLET_.pdf.pdf.
[6] Id.

Police Force, it is likely that many targets of the police's contact tracing efforts may be unaware if their rights are infringed. There also does not appear to be adequate transparency about the nature and extent of the Nigerian Police Force's contact tracing activities.

Preliminary Findings

- The extensive obligations imposed by the Nigeria Data Protection Regulation 2019 remain operative despite the declaration by the President of COVID-19 as a dangerous disease. There is, however, limited information about the effectiveness of the Regulation in promoting human rights in the online realm.

- Although the National Assembly and State Houses of Assembly are provided with the responsibility by the 1999 Constitution to exercise oversight over Executive actions which impact data related rights, there has been limited if any parliamentary oversight over the Nigerian Government's data collection of processing practices.

- The Nigerian Government has relied on digital tools to respond to and manage the Covid-19 pandemic. SORMAS, for example, is an innovative open-source system which facilitates effective data collection and processing. As a form of technical regulation, SORMAS also communicates directly with officials across the Nigerian health system to issue instructions based on automated data analysis.

- The contact tracing practices of the Nigerian Police Force are opaque. Existing accountability structures may be insufficient to deter abuses as it is likely that many targets of contact tracing practices would be unaware if their rights are infringed.

- Further research is required to access how States have responded to the guidance issued by the Nigeria Centre for Disease Control regarding Covid-19 related data governance.

- There is inadequate transparency about the Nigeria Centre for Disease Control's integrated rumour management strategy which is aimed at combatting COVID-19 related disinformation.

- The window for the President's assent (or dissent) to be given to the Digital Rights and Freedom Bill expired in June 2019, when a new National Assembly was inaugurated. The Bill has since been presented to the National Assembly for assent again and the President will have a further opportunity in the near future to provide his assent.

Annex I: Nigerian Covid-19 laws and practices mapped to the RDR Declaration

Country	RDR Declaration Principle	RDR Declaration Principle components	Findings
Nigeria	**Transparency**	Aggregated data and metadata are open to the public	The Nigeria Centre for Disease Control publishes Covid-19 related aggregate statistics daily on its website and on various social media platforms. This information includes the reported number of new confirmed Covid-19 positive cases by State; the reported number of aggregate Covid-19 positive cases; the aggregate number of reported "discharged" persons; and the reported number of aggregate Covid-19 deaths. The COVID-19 Tracking Dashboard, which expresses the aggregate data, is operated by the Nigeria Centre for Disease Control in partnership with eHealth Africa gGmbH.
		Open source software and algorithms are used to analyse data	A cloud based digital tool for surveillance called the Surveillance Outbreak Response Management and Analysis System "SORMAS" has been used by the Nigerian Centre for Disease Control to track the spread of coronavirus in Nigeria. SORMAS facilitates disease control and outbreak management, in addition to disease surveillance and epidemiological analysis, for all administrative levels of the public health system. SORMAS is an open-source and free-of-charge software, supported by a strong community of developers with funding from multiple sources. Source codes and technical specifications are managed and documented on the GitHub website, where software developers can access and alter them. For developing interoperability between SORMAS and other digital applications such as DHIS2, Fast Healthcare Interoperability Resources (FHIR) is used, which is an industry standard for exchanging healthcare data between systems. FHIR is also open source.
			The SORMAS-CoV module contains all disease-specific diagnostic standards, case definitions, and containment procedures defined by the World Health Organization. SORMAS allows for the assignment of different user roles within public health services. The module allows the targeted collection of relevant epidemiological data about the case person, including hospitalization, symptoms and persons with whom they have come into contact. Furthermore, the task management feature facilitates coordinated action of the surveillance personnel in the outbreak response.
		Information on what entities are collecting data, from what communities and for what purposes are made available to the public	SORMAS was rolled out in all testing laboratories to implement real time data reporting. Data clerks were assigned by the Nigeria Centre for Disease Control to healthcare facilities to assist with data management. Employees of the Nigeria Centre for Disease Control have also supported the training of surveillance officers to use SORMAS in treatment centres, laboratories and in State Emergency Operations Centres. Cases of Covid-19 disease are reported from health facilities or local government areas through SORMAS using a tablet. By November 2020, the use of SORMAS was scaled up to cover all States to enable rapid analysis of cases, contact tracing and other disease surveillance functions at the State and national level. The data collected using SORMAS has formed the basis of various public health actions including the

deployment of medical/laboratory supplies, modelling activities and decision making by the Presidential Task Force on COVID-19. Data from the Nigeria Centre for Disease Control's event-based surveillance system is also reviewed weekly by its surveillance and communications teams to inform its "integrated rumour management strategy" and counter Covid-19 related misinformation.

In addition to using SORMAS, the Nigeria Centre for Disease Control has scaled up the use of its event-based surveillance system as an additional source of information. In this regard, a designated team located at the Nigeria Centre for Disease Control receives calls, and responds to text messages and live chats. The team also uses automated scanning and manual internet searches to identify chatter around COVID-19 and has developed a protocol to escalate concerns to the relevant personnel as needed. By the end of January 2021, six hundred and seventeen thousand and ninety-six calls had been responded to.

The Nigeria Centre for Disease Control has also issued a Guidance for States regarding the strategies to improve surveillance for Covid-19. In terms of this guidance, States are advised to maintain a database of contacts of identified Covid-19 contacts and to follow up with these contacts to ensure that they are tracked and have samples collected for testing. The guidance provides that data collection should be performed in line with the principles of confidentiality and using the appropriate case investigation forms on the electronic reporting platform SORMAS (or paper-based systems where there is no electronic system in place). The guidance emphasises the need for reasonable care to be exercised in capturing the data – including in relation to the completion of the case investigation forms prior to sample collection. State Teams are further advised to keep track of samples collected in their States on a daily basis and to ensure that every unique sample has a completed case investigation form and is entered onto the SORMAS system to remove disparities. Surveillance/data officers are also required to verify and confirm the entry of correct patient contact information to ensure that confirmed cases can be followed up, isolated, and that contact tracing is done effectively.

The logistics and supply chain of Nigeria's public health response is monitored by a digital Logistics Management Information System operated by the Nigeria Centre for Disease Control. This system tracks supplies at national and State levels in order to attempt to prevent stockout and improve preparedness.

From September 2020, the process through which the risks associated with Covid-19 transmission by international travellers who enter and exit Nigeria has been digitised using the Nigeria International Travel Portal. This Portal was established with support from the Private Sector Coalition against COVID-19.

In the Operational Guidelines for the Police and other Law Enforcement Agencies in Nigeria, the Nigeria Police Force states that police and other law enforcement agencies are also expected to use proportionate police investigation resources to carry out contact tracing of individuals believed to have been exposed to Covid-19. The Guidelines require that such contact tracing must be performed with due respect to human rights and in collaboration with authorised health agencies.

			Citizens may telephonically submit complaints regarding the infringements of their rights by police arising from the enforcement of Covid-19 measures to the Assistance Inspector General of Police and/or the Force Public Relations Officers at the respective Zonal and State Commands.
		Data sharing agreements and related documents are openly published	All data generated through SORMAS is owned and processed in a central server under control of the Nigerian Centre for Disease Control.
		Data suppliers and other private sector actors are procured through open and competitive tender processes	Under Nigerian law, all Ministries, Departments, and Agencies must publish any transactions above 5 million Naira on the National Open Treasury Portal. COVID-19 related response expenditures fall under emergency procurement procedures in terms of section 43 of the Public Procurement Act 2007. In terms of the Bureau of Public Procurement's "Guidelines on the Conduct of Public Procurement Activities by Ministries, Departments and Agencies as a Result of the Covid-19 Pandemic/Lockdown", the Nigerian government is required to publish all contract information regarding Covid-19 procurement in the public domain. All procurement plans, procurement tender opportunities, and contract awards related to the COVID-19 pandemic response must be published on the Bureau of Public Procurement website. The name of all contractors, description of the projects, contract sums and durations of the contracts must be published. The Bureau of Public Procurement is working in collaboration with the Federal Ministry of Finance, Budget and National Planning, the Office of the Accountant General of the Federation and the Budget Office of the Federation to ensure that these Guidelines are properly implemented. According to the Public and Private Development Centre, however, only 5 out of more than 150 Ministries, Departments, and Agencies complied with these reporting obligations by June 2020. Data was also not published in machine-readable formats, and was often incomplete. By November 2020, 9 Ministries, Departments, and Agencies published 157 emergency contracts.
		Government Covid-19 related data strategies and plans are made publicly available	There is no known-of "data strategy" beyond the ongoing discussion on the draft Data Protection Bill which is yet to be transmitted to the National Assembly.
		Details of intra-governmental data sharing are made openly available and are subject to parliamentary, judicial and public scrutiny	Intra-government data sharing was discussed as part of the work of the Committee on Citizen Data Management and Harmonization but there is no parliamentary, judicial or public oversight.
	Inclusion	Decisions made around how Covid-19 data are used are taken through established democratic processes	The primary source of data protection law is the Nigeria Data Protection Regulation 2019 which was issued by the Nigerian Information Technology Development Agency on 25 January 2019. The Regulation was issued pursuant to the Nigerian Information Technology Development Agency Act. This Regulation was not suspended by the Presidential declaration of Covid-19 as a dangerous disease in terms of the Quarantine

			Act. The National Assembly and State Houses of Assembly are provided with the responsibility by the 1999 Constitution to exercise oversight over Executive actions which impact data related rights. Although the Nigerian Parliament has continued to operate during the associated lockdown, public participation in parliamentary processes has been severely limited. The consideration of the Control of Infectious Diseases Bill, 2000, for example, did not initially include any scope for public input. The President has also refused to assent to the Digital Right and Freedom Bill which would have promoted freedom of expression, assembly and association online.
		The public is consulted on how sensitive data (e.g. location data derived from mobile phones) are shared and used to tackle Covid-19, and their responses are used to inform policy interventions	There has been no public consultation beyond the call for public comments on the draft Data Protection Bill.
		Any public-private data partnerships that are established to share and use Covid-19 related data should also include representatives from civil society and digital rights groups	There is no engagement mechanism for ensuring civil society participation in public-private partnership design and oversight. There are no independent accountability mechanisms.
		The needs of vulnerable groups are taken into account and steps taken to protect 'sensitive group data' are included alongside actions to protect individuals' data	There is no known policy position on this issue.
	Accountability	Appropriate steps are taken to protect data that could, either alone or when combined with other data, result in the identification of individuals or vulnerable groups within datasets to tackle Covid-19	There is no known policy position on this issue.
		Data collected for epidemiological purposes shall not be shared or used by other parts of government, such as policy forces or Ministries of Interior	The Operational Guidelines for the Police and other Law Enforcement Agencies in Nigeria, the Nigeria Police Force require that police and other law enforcement agencies to use proportionate police investigation resources to carryout contact tracing of individuals believed to have been exposed to Covid-19. The Guidelines require that such contact tracing must be performed in collaboration with authorised health agencies.
		Protocols shall be established to respond to	The Implementation Framework for the Nigeria Data Protection regulation requires data controllers to notify the

		potential data breaches of datasets containing sensitive data	National Information Technology Development Agency within 72 hours of becoming aware of any breach. A Data Controller must also immediately notify a data subject of a personal data breach where such will likely result in high risks to their freedoms and rights.
		Individuals or vulnerable groups who may be harmed by the misuse of their data in response to the Covid-19 epidemic - either intentionally or accidentally - shall have access to judicial redress and due process	While there is a live discussion of this issue within the context of the broader Data Protection Bill, there is no COVID-19 specific discussion on this issue.
		Governments and public bodies shall retain retain all intellectual property rights over databases and all derivative data outputs using African citizens' data as part of the Covid-19 response	There is no known policy position on this issue.
		Governments, private companies and other entities shall commit to engaging with civil society organisations and digital rights defenders in order to identify responsible and practicable ways of winding-down any emergency data collection, processing and use at the end of the pandemic, in accordance with local laws and in line with international best practices	There is no known policy position on this issue.
	Miscellaneous	Freedom of expression restrictions and anti-misinformation measures	In order to mitigate the risk posed by the spread of Covid-19 related misinformation, the Nigeria Centre for Disease Control developed a communications strategy tagged 'Take Responsibility'. The messages around this theme were disseminated using traditional and social media. The Nigeria Centre for Disease Control has also participated in various forms of public engagement about Covid-19, including to explain the mitigation measures, and has developed information education materials to assist the national government and States to communicate about Covid-19. In the Operational Guidelines for the Police and other Law Enforcement Agencies in Nigeria, the Nigeria Police Force states that the police should embrace measures to combat fake news.

Transparency

The website on which the Nigeria Centre for Disease Control publishes Covid-19 related aggregate statistics is https://covid19.ncdc.gov.ng/

The social media platforms on which the Nigeria Centre for Disease Control publishes Covid-19 related aggregate statistics include Facebook and Twitter. See https://www.facebook.com/NCDCgov and https://twitter.com/NCDCgov

Please note that there may be additional social media platforms on which this aggregated data is published.

Information about eHealth Africa is available at https://www.ehealthafrica.org/the-eha-story

The Nigeria Centre for Disease Control commented on the use of the SORMAS digital tool for surveillance at testing laboratories in the National Strategy to Scale Up Access to Coronavirus Disease Testing in Nigeria. This is available at https://covid19.ncdc.gov.ng/media/files/COVID19TestingStrategy_2ZWBQwh.pdf

It has become apparent from this research that the governance of Covid-19 laboratory data is crucial to address the pandemic and advance data related rights. There are, however, various technical constraints which have limited the efficacy of Covid-19 laboratory data.

The Operational Guidelines for the Police and other Law Enforcement Agencies in Nigeria are available at https://covid19.ncdc.gov.ng/media/files/COVID_19_BOOKLET_.pdf.pdf

The Guidance for States regarding the strategies to improve surveillance for Covid-19 issued by the Nigeria Centre for Disease Control is available at https://covid19.ncdc.gov.ng/media/files/SurveillanceStrategies.pdf

In my view, the Guidance raises rule of law concerns in light of the broad discretion it affords law enforcement officials to limit human rights. In relation the data governance, the Guidance

does not in my view adequately constrain the use of Covid-19 related data by law enforcement officials.

For information about the SORMAS tool, the Nigeria Centre for Disease Control's event-based surveillance system, the Nigeria Centre for Disease Control's communications strategy aimed at mitigating the risk posed by Covid-19 related misinformation, the Nigeria International Travel Portal, and the digital Logistics Management Information System operated by the Nigeria Centre for Disease Control, see the Nigeria Centre for Disease Control's report entitled "One Year: Nigeria's COVID-19 Public Health Response" which is available at https://covid19.ncdc.gov.ng/media/files/COVIDResponseMarch1.pdf

For information on the ownership of data generated by SORMAS, see https://sormasorg.helmholtz-hzi.de/nigeria.html

For information about the open-source nature of SORMAS, see https://health.bmz.de/ghpc/case-studies/software_disease_surveillance_outbreak_response/GHPC_SORMAS_full_version_final.pdf

The Guidelines by the Bureau of Public Procurement on the Conduct of Public Procurement Activities by Ministries, Departments and Agencies as a result of the Covid-19 pandemic/lockdown are available at https://www.bpp.gov.ng/wp-content/uploads/2020/05/BPP-Guideline-on-COVID-19-Procurements.pdf

For commentary and an explanation of Nigeria's public expenditure in the pandemic environment, see https://blogs.worldbank.org/africacan/advancing-transparency-and-accountability-public-expenditure-pandemic-environment

For an analysis of the open data requirements of Nigeria's Covid-19 related public expenditure and the levels of compliance, see https://www.open-contracting.org/2021/03/02/how-emergency-covid-19-spending-rallied-open-data-activists-in-nigeria-to-push-for-reforms/

For the EU's comments on the use of SORMAS to track the coronavirus in West Africa and beyond, see

https://ec.europa.eu/info/strategy/recovery-plan-europe/recovery-coronavirus-success-stories/global-response/tracking-coronavirus-west-africa-and-beyond_en

It is interesting to note that SORMAS was developed in response to the Ebola crisis in West Africa (prior to the covid-19 pandemic). SORMAS has significant transparency related advantages over other digital surveillance tools, and seems to permit institutions to build their disease response strategies into the software. This technical form of regulation, however, requires sufficient local oversight to ensure democratic accountability.

For the CDC's analysis of SORMAS, see

https://www.cdc.gov/coronavirus/2019-ncov/global-covid-19/compare-digital-tools.html

The CDC's analysis helpfully covers other digital tools, including the District Health Information Software (DHIS2), Go.Data, Open Data Kit (ODK), Epi Info, CommCare, KoboToolbox, and Excel. Each of these digital tools has been deployed in various countries for contact tracing, investigations, and/or national surveillance. Paper is also included because it continues to be used and there are a number of resources available online for the COVID-19 response.

Inclusion

The legislative mandate of the Nigeria Centre for Disease Control is described at
https://ncdc.gov.ng/ncdc

The Presidential declaration of COVID-19 as a dangerous disease in terms of the Quarantine Act is available at https://africanlii.org/sites/default/files/Nigeria_COVID19_Reg.pdf

There does not, however, appear to be any public consultation prior to the Presidential declaration.

The Nigeria Data Protection Regulation is usefully analysed in Greenleaf, Graham, Nigeria Regulates Data Privacy: African and Global Significance (April 10, 2019). (2019) 158 Privacy Laws & Business International Report, 23-25, UNSW Law Research Paper No. 19-66, Available at SSRN: https://ssrn.com/abstract=3401783

For an analysis of the Digital Right and Freedom Bill, see

https://guardian.ng/features/why-nigeria-needs-to-sign-digital-right-and-freedom-bill-into-law-as-the-world-goes-digital/ and

https://guardian.ng/features/why-nigeria-needs-to-sign-digital-right-and-freedom-bill-into-law-as-the-world-goes-digital/

The OrderPaper Intelligence Unit analyse the shifts in citizen participation and inclusion in Nigeria pursuant to the COVID-19 pandemic at https://www.ipu.org/file/9334/download

Accountability

The Operational Guidelines for the Police and other Law Enforcement Agencies in Nigeria are available at https://covid19.ncdc.gov.ng/media/files/COVID_19_BOOKLET_.pdf.pdf

These Operational Guidelines set out the various accountability mechanisms that are formally available to persons whose rights are affected by the operations of police personnel and other security forces. In light of the opaque nature of these practices in the data rights realm, many persons whose rights are affected may be unaware of the infringement. The mechanisms provided for in the Operational Guidelines do not address this limitation.

The data breach compliance requirements in Nigeria are analysed at https://www.mondaq.com/nigeria/data-protection/984628/understanding-nigerian-data-protection-compliance-requirements-and-managing-breach and https://www.dlapiperdataprotection.com/index.html?t=breach-notification&c=NG

Additional Resources

For an evaluation of the maturity of SORMAS, see Tom-Aba D, Silenou BC, Doerrbecker J, Fourie C, Leitner C, Wahnschaffe M, Strysewske M, Arinze CC, Krause G. The Surveillance Outbreak Response Management and Analysis System (SORMAS): Digital Health Global Goods Maturity Assessment. JMIR Public Health Surveill. 2020 Apr 29;6(2):e15860. doi: 10.2196/15860. PMID: 32347809; PMCID: PMC7221633.