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International Health Regulations gaps in Africa: A majorchallenge for the war against COVID-19?

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Abstract
Many of the 54 countries in the African Continent had gaps in the International Health Regulations (IHR) core capacities of 50% and above. The numbers of countries with gaps of such magnitude included 29 (53.7%) in IHR legislation; 22 (40.7%) in coordination and national IHR focal point functions; 7 in surveillance; 23(42.6%) in preparedness; 11 (20%) in response; 24 (44.4%) in risk communication; 23 (42.6%) in human resource; 8 (14.8%) in laboratory; 41 (76%) in points of entry; 6 (11.1%) in zoonotic events management capacities. The dearth of IHR core capacities implies that significant numbers of countries in the Continent are likely to have major challenges communicating risk, identifying, testing, tracing contacts, quarantining suspected cases, and safely managing COVID-19 cases.

Keywords:*Africa continent; International Health Regulations; COVID-19; IHR Core Capacities gaps*

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Editorial

In 2005 the fifty-eighth World Health Assembly (WHA) adopted the International Health Regulations (IHR) as the primary global instrument for preventing, protecting, controlling, and providing a public health response to the spread of diseases such as COVID-19 [1]. Subsequently, WHO published an IHR core capacity monitoring framework consisting of the following core capacities:

a) national legislation, policy and financing;
b) coordination and IHR National Focal Point (NFP) communications;
c) surveillance;
d) response;
e) preparedness;
f) risk communication;
g) human resources;
h) laboratory; and
i) human hazards (biological, chemical, radiological and nuclear) [2].

The existence of IHR capacities depicts the strength of the national disease surveillance and response system (DSRS). Member states (including the 54 continental Africa countries) used a WHO designed questionnaire to monitor progress in the implementation of IHR core capacities [3]. Data on each of the core capacities was extracted from the WHO Global Health Observatory [4]. In this paper, the gap in each of the IHR core capacities was calculated through subtraction of the actual member state assessed capacity score from the maximum capacity attainable (i.e. 100%).

IHR core capacities gaps

Table 1 presents the IHR core capacities gaps for each of the 54 African continent countries.

Core capacity 1: National legislation, policy and financing

Sixteen countries reported no IHR legislation gaps. Nine countries reported gaps between 21-40%, 11 between 41-60%, 6 between 61-80%, and 12 had 81% and above. Twenty-nine (53.7%) of the countries had IHR legislation gaps of 50% and above. The latter countries might not have IHR-related legislation, policy, regulations, and other administrative (including standard operating procedures) instruments for handling infectious disease pandemics such as COVID-19.

Core capacity 2: Coordination and National Focal Point (NFP) communications

Seventeen countries had IHR coordination capacity gaps of 20% and below; 10 had 31-40%; 22 had 51-60%; 3 had 71-80%, and 2 had over 90%. About 27 (50%) of the countries had an IHR coordination capacity gap of 60% and above.

Seventeen countries had IHR national focal point functions gap of 20% and below; 18 had 31-40%; 10 had 51-60%; 2 had 71-80%; 7 had 90% and above. Approximately 19 (35.2%) of the countries had gaps in national IHR focal point functions of 51% and above. Twenty-two (40.7%) of the countries had a combined IHR coordination and national IHR focal point functions gap of 60% and above. The latter countries may not have multi-sectoral plans, coordination and communication mechanisms to stem the spread of COVID-19 in a coordinated and synergistic manner.

Core capacity 3: Surveillance

IHR surveillance encompasses the ability to detect, assess, notify, and report public emergency events. Six countries reported to have 100% IHR surveillance capacity score, and thus, zero gap. About 26 countries had surveillance capacity gaps of 1-20%, 12 had 21-40%, 9 had 41-60%, and 1 (Equatorial Guinea) had 61% and above. Seven countries (Kenya, Senegal, Central African Republic, Comoros, Tanzania, Sao Tome and Principe, and Equatorial Guinea) had surveillance capacity gaps of 50% and above. The latter group of countries may not have a system at all levels of a national health system for capturing public health events (e.g. COVID-19), assessing, confirming, verifying and notifying higher levels.

Core capacity 4: Preparedness

Five countries (Cabo Verde, Egypt, Morocco, Niger, and South Africa) reported to have 100% IHR preparedness capacity score, and hence, zero gap. Also, 10 countries reported gaps in IHR preparedness capacities of 1-20%, 9 countries reported gaps of 21-40%, 14 countries reported gaps of 41-60%, 9 countries reported gaps of 61-80%, and 7 countries reported gaps of 81% and above. The twenty-three (42.6%) of the countries in Africa with IHR preparedness capacity gaps of 50% and above might not have a multi-hazard national public health emergency preparedness and response plan, and mapping of priority public health risks and resources.

Core capacity 5: Response

Six countries (Egypt, Eswatini, Ethiopia, Morocco, Seychelles, and Zimbabwe) reported not to have IHR response capacity gaps. Fifteen countries reported response capacity gaps of 1-20%; 15 of 21-40%; 10 of 41-60%; 6 of 61-80%; and 2 of 81% and above. Eleven (20%) of the countries had IHR response capacity gaps of 50% and above; and thus, may not have public health emergency response mechanisms, and functional Infection Prevention and Control (IPC) at national and hospital levels to manage severe COVID-19 cases.

Core capacity 6: Risk communication

Twelve countries (Angola, Cabo Verde, DRC, Egypt, Ethiopia, Liberia, Morocco, Niger, Seychelles, Sierra Leone, South Africa, Zimbabwe) reported that they had IHR risk communication capacity score of 100%, and hence, zero gap. Six countries reported risk communication gap of 1-20%; 9 of 21-40%; 12 of 41-60%; 7 of 61-80%; and 8 of 80% and above. The twenty-four (44.4%) countries with a risk communication gap of 50% and above might not have mechanisms for effective risk communication during a public health emergency such as COVID-19.

Core capacity 7: Human resources

Twelve countries (Cameroon, Cote d'Ivoire, Egypt, Ethiopia, Guinea, Malawi, Morocco, Namibia, Niger, Seychelles, South Africa, and the United Republic of Tanzania) reported that they did not have any IHR human resources capacity gaps. Six had IHR human resources capacity gaps of 1-20%, 13 of 21-40%, 14 of 41-60%, 3 of 61-80%, and 6 of 91-100%. Twenty-three countries that had IHR human resource capacity gaps of 41% and above may not have human resources trained to meet IHR requirements.

Core capacity 8: Laboratory

Nine countries (Angola, Cabo Verde, Cote d'Ivoire, Eswatini, Ethiopia, Lesotho, Namibia, Seychelles, and Uganda) reported they had no IHR laboratory capacity gaps. Thirteen countries had laboratory gaps of 1-20%, 18 of 21-40%, 9 of 41-60%, 3 of 61-80%, and two of 81% and above. The eight countries which had laboratory capacity gaps of more than 50%may not have laboratory biosafety and biosecurity practices in place to safely diagnose COVID-19.

Core capacity 9: Points of entry (airports, ports, ground crossings)

Two countries (Cabo Verde and Egypt) reported no gap in IHR points of entry capacity. Four countries reported gaps of entry capacities of 1-20%, 6 countries reported gaps of 21-40%, 7 countries reported gaps of 41-60%, 13 countries reported gaps of 61-80%, and 22 countries reported gaps of 81% and above. About 41 (76%) of the countries in Africa reported gaps in IHR points of entry capacities of 50% and above. These countries will have challenges testing for COVID-19 at points of entry to prevent importation of cases.

Other capacities 10: IHR-related hazards

The development of capacities for the safe management of IHR-related hazards, including zoonosis, food safety, chemical events, and radio-nuclear events, is essential for countries [16].

Zoonosis:Eighteen countries (Angola, Cabo Verde, Cameroon, Cote d'Ivoire, Egypt, Eswatini, Ethiopia, Ghana, Guinea, Madagascar, Morocco, Namibia, Niger, Rwanda, Seychelles, Sierra Leone, South Africa, Sudan) reported having 100% IHR zoonosis control capacities, and thus, no gap. Five of the remaining countries had capacity gaps of 1-20%, 18 countries of 21-40%, 9 countries of 41-60%, 3 countries of 61-80%, and 1 country of 89%. Six countries (Burundi, Djibouti, Eritrea, Gambia, Sao Tome and Principe, and Equatorial Guinea) had zoonotic events management capacity gaps of 50% and above.

Food safety:Five countries (Egypt, Kenya, Morocco, Seychelles, and South Africa) reported that they did not have any IHR food safety capacity gaps. For the remaining countries, 11 had capacity gaps of 1-20%, 12 of 21-40%, 12 of 41-60%, 5 of 61-80%, and 9 of 90% and above. Twenty-three countries reported that they had IHR food safety capacity gaps of 50% and above.

Chemical events:South Africa reported having had no IHR chemical capacity gaps. Of the remaining countries, 3 countries had a gap of 1-20%, 6 of 21-40%, 9 of 41-60%, 11 of 61-80%, and 24 of 81% and above. Thirty-nine (72%) countries had chemical events management capacity gaps of 50% and above.

Radio nuclear:There were no reported radio nuclear capacity gaps in 4 countries. These are Egypt, Ghana, Morocco, and South Africa. About 3 countries reported a gap of between 1-20%, 10 countries between 21-40%, 4 countries between 41-50%, 13 countries between 61-80%, and 20 countries gaps of 81% and above. Thirty-three countries had IHR radio nuclear capacity gaps of 60% and above.

Competing interests

The authors declare no competing interest.

Authors' contributions

All authors contributed equally in designing the study; extracting data from the WHO Global Health Observatory; data analysis; and drafting the manuscript. All the authors approved the final version of the manuscript.

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Table 1: IHR capacities gaps (%) in countries of the African continent (2017)

Country	Legislation	Coordination gap	IHR national focal point functions gap	Preparedness gap	Response gap	Surveillance gap	Risk communication gap
Algeria	0	10	100	20	17	20	57
Angola	0	0	100	10	6	5	0
Benin	100	53	80	73	54	25	71
Botswana	50	90	0	73	24	40	71
Burkina Faso	25	73	40	63	28	30	86
Burundi	50	80	20	100	94	15	86
Cabo Verde	50	27	60	0	31	0	0
Cameroon	100	80	40	45	36	20	57
Central African	100	100	0	55	83	55	71

Republic							
Chad	75	43	20	73	41	25	43
Comoros	100	80	20	53	72	55	57
Congo	100	70	40	82	77	40	86
Cote d'Ivoire	0	10	20	27	31	0	14
Democratic Republic of the Congo	100	53	40	40	24	15	0
Djibouti	75	47	60	100	42	30	57
Egypt	25	0	100	0	0	10	0
Equatorial Guinea	75	80	0	92	45	65	86
Eritrea	0	37	20	75	25	10	71
Eswatini	0	0	20	30	0	5	29
Ethiopia	0	17	40	10	0	5	0
Gabon	25	37	20	75	42	5	57
Gambia	100	100	20	75	35	25	86
Ghana	25	27	40	48	12	20	14
Guinea	50	63	40	17	17	10	71
Guinea-Bissau	0	10	40	57	12	5	29
Kenya	100	80	0	45	23	50	14
Lesotho	0	17	0	47	18	45	29
Liberia	0	0	60	10	12	0	0
Libya	25	17	40	57	17	45	57
Madagascar	100	73	20	45	53	30	43
Malawi	100	0	40	37	42	25	14
Mali	50	70	60	83	72	40	57
Mauritania	75	60	40	53	65	45	100
Mauritius	25	0	100	20	6	20	29
Morocco	0	0	60	0	0	0	0
Mozambique	0	17	40	20	17	10	14
Namibia	0	10	60	57	12	10	29
Niger	0	17	40	0	11	15	0
Nigeria	50	17	100	67	60	15	43
Rwanda	75	27	100	30	6	20	57
Sao Tome and Principe	100	53	40	92	72	60	86
Senegal	50	90	80	65	48	50	57
Seychelles	0	0	0	10	0	0	0
Sierra Leone	0	0	60	40	12	10	0
Somalia	75	73	40	100	72	5	86
South Africa	0	0	60	0	12	15	0
South Sudan	100	43	20	53	37	20	71
Sudan	50	0	100	30	48	5	29
Togo	50	17	20	47	30	0	14
Tunisia	25	53	60	40	37	15	71
Uganda	50	47	40	18	24	40	29
United Republic of Tanzania	25	20	40	18	35	55	29
Zambia	50	37	40	27	36	35	29
Zimbabwe	25	33	60	47	0	5	0

Source: Authors estimates using data from WHO [4].

Table 1: IHR capacities gaps (%) in countries of the African continent (2017) (Continued)

Country	Human resources gap	Laboratory gap	Points of entry gap	Zoonosis gap	Food safety gap	Chemical gap	Radio-nuclear gap
Algeria	40	38	12	11	27	46	23
Angola	40	0	73	0	27	92	69
Benin	60	83	74	44	67	100	100
Botswana	80	35	91	22	53	92	31
Burkina Faso	60	4	97	22	60	85	85
Burundi	100	28	94	56	73	100	100
Cabo Verde	100	0	0	0	53	100	100
Cameroon	0	4	74	0	53	77	8
Central African Republic	60	59	94	44	67	92	69
Chad	40	48	85	33	53	85	77
Comoros	40	31	85	33	47	85	77

Congo	60	67	74	22	47	77	100
Cote d'Ivoire	0	0	48	0	13	15	15
Democratic Republic of the Congo	20	14	53	11	13	100	8
Djibouti	100	41	91	56	53	85	92
Egypt	0	4	0	0	0	8	0
Equatorial Guinea	40	24	76	89	80	100	100
Eritrea	20	28	26	67	100	100	100
Eswatini	40	0	53	0	27	46	100
Ethiopia	0	0	9	0	100	100	31
Gabon	80	48	88	33	7	62	69
Gambia	100	83	37	78	73	54	100
Ghana	60	4	64	0	13	54	0
Guinea	0	4	70	0	47	85	92
Guinea-Bissau	60	48	91	33	60	100	100
Kenya	20	28	56	33	0	62	38
Lesotho	80	0	54	22	13	85	85
Liberia	20	10	36	44	53	62	69
Libya	40	34	37	22	7	92	23
Madagascar	60	53	94	0	40	77	77
Malawi	0	30	82	22	33	92	92
Mali	60	20	85	22	27	100	92
Mauritania	60	62	91	44	87	77	69
Mauritius	60	34	76	22	20	31	38
Morocco	0	10	28	0	0	23	0
Mozambique	40	4	85	22	60	69	46
Namibia	0	0	9	0	7	46	100
Niger	0	30	82	0	20	85	85
Nigeria	60	27	97	44	40	62	62
Rwanda	40	4	34	0	40	46	62
Sao Tome and Principe	100	67	86	78	100	100	100
Senegal	40	57	94	44	67	31	31
Seychelles	0	0	76	0	0	8	77
Sierra Leone	40	24	76	0	93	54	46
Somalia	60	37	100	11	100	100	100
South Africa	0	10	85	0	0	0	0
South Sudan	100	34	85	22	87	100	100
Sudan	20	49	76	0	20	54	46
Togo	20	20	76	11	40	62	77
Tunisia	60	47	59	11	27	46	62
Uganda	40	0	100	44	80	38	31
United Republic of Tanzania	0	22	70	22	27	38	38
Zambia	60	37	52	22	27	38	23
Zimbabwe	40	24	18	33	20	69	46

Source: Authors estimates using data from WHO [4].

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