

THE LANCET

Supplementary appendix

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Supplement to: Salyer SJ, Maeda J, Sembuche S, et al. The first and second waves of the COVID-19 pandemic in Africa: a cross-sectional study. *Lancet* 2021; published online March 24. [http://dx.doi.org/10.1016/S0140-6736\(21\)00632-2](http://dx.doi.org/10.1016/S0140-6736(21)00632-2).

Supplemental Table 1. Average number of COVID-19 cases per day and public health and social measures in place at peak incidence of the first and second waves in Africa between 14 February - 31 December 2020.

Country	Month PCR capacity established	Date of first case	Date first stringent PHSM*	PHSM Type†	First Wave			Second Wave		
					Epi week range from wave start to peak incidence	Average cases/day from wave start to peak	Number of PHSM in place at peak incidence	Epi week range from wave start to peak incidence	Average cases/day from wave start to peak	Number of PHSM in place at peak incidence
Central Region										
Burundi	February	31 Mar	5 Mar	ITC	17 to 28	3	1	50 to	5	2‡
Cameroon	February	6 Mar	13 Mar	ITC	14 to 25	140	6	44 to	70	4‡
Central African Republic	February	14 Mar	26 Mar	CPE, ITC, ROG, ROIM, SC, WC	17 to 23	38	6	--	--	--
Chad	March	19 Mar	8 Mar	ITC	12 to 19	6	7	30 to	8	7‡
Congo Republic	March	14 Mar	3 Mar	ITC	12 to 35	28	5	43 to	26	5‡
DR Congo	February	10 Mar	1 Mar	ITC	12 to 25	61	7	42 to	88.0	3‡
Equatorial Guinea	February	14 Mar	Unknown	Unknown	16 to 31	43	Unknown	--	--	Unknown
Gabon	February	12 Mar	1 Mar	ITC	14 to 25	53	6	47 to	11	6‡
Sao Tome & Principe	June	6 Apr	Unknown	Unknown	15 to 22	9.0	Unknown	--	--	Unknown
Eastern Region										
Comoros	April	30 Apr	Unknown	Unknown	18 to 25	5	Unknown	50 to	6	Unknown
Djibouti	March	17 Mar	18 Mar	ITC	13 to 22	48	5	--	--	--
Eritrea	March	21 Mar	11 Mar	ITC	23 to 24	4	7	47 to	17	7‡
Ethiopia	February	13 Mar	1 Mar	ITC	19 to 34	362	7	--	--	--
Kenya	February	13 Mar	1 Mar	ITC	14 to 31	175	7	39 to 46	594	7
Madagascar	February	20 Mar	15 Mar	ITC	20 to 30	119	7	--	--	--
Mauritius	February	19 Mar	18 Mar	ITC	12 to 14	11	7	34 to 43	1	1
Rwanda	February	14 Mar	1 Mar	ITC	21 to 35	36	5	42 to	43	7‡
Seychelles	February	14 Mar	1 Mar	ITC	11 to 26	1	3	40 to	1	4‡
Somalia	April	16 Mar	14 Mar	ITC	13 to 22	28	5	35 to 45	13	5
South Sudan	February	5 Apr	1 Mar	ITC	15 to 24	25	5	49 to	14	5‡
Sudan	February	13 Mar	14 Mar	CPE, ROG, SC, WC	16 to 25	122	7	44 to 49	146	3
Tanzania§	February	16 Mar	14 Mar	ITC	--	--	4‡	--	--	--
Uganda	February	21 Mar	1 Mar	ITC	19 to 23	15	7	32 to 38	104	7
Northern Region										
Algeria	February	25 Feb	10 Mar	CPE	12 to 19	101	7	26 to 33	489	5
Egypt	January	14 Feb	15 Mar	SC	12 to 26	635	7	43 to	441	6‡
Libya	March	24 Mar	1 Mar	ITC	26 to 43	450	7	--	--	--
Mauritania	March	13 Mar	1 Mar	ITC	20 to 25	67	6	45 to 50	78	5
Morocco	February	2 Mar	13 Mar	ITC, ROIM	13 to 16	103	7	25 to 46	1,846	7
SADR	July	24 Jul	Unknown	Unknown	30 to 32	1	Unknown	51 to	0-3	Unknown
Tunisia	February	2 Mar	4 Mar	CPE, ITC	11 to 14	21	7	33 to	964	6‡
Southern Region										
Angola	February	21 Mar	1 Mar	ITC	22 to 43	61	7	--	--	--
Botswana	February	30 Mar	1 Mar	ITC	24 to	71	6‡	--	--	--
Eswatini	May	14 Mar	1 Mar	ITC	16 to 33	30	7	47 to	71	6‡
Lesotho	May	13 May	6 March	ITC	23 to 31	11	6	50 to	38	5‡
Malawi	February	2 Apr	20 Mar	CPE, ROG	19 to 30	43	5	51 to	23	5‡
Mozambique	February	22 Mar	1 Mar	ITC	17 to 38	44	6	--	--	--
Namibia	February	13 Mar	1 Mar	ITC	26 to 34	92	6	47 to	227	4‡
South Africa	February	5 Mar	1 Mar	ITC	15 to 29	3,454	7	46 to	6,036	7‡
Zambia	February	18 Mar	1 Mar	ITC	13 to 20	13	4	24 to 31	94	6
Zimbabwe	February	20 Mar	1 Mar	ITC	21 to 31	50	7	45 to	92	7‡
Western Region										
Benin	February	16 Mar	1 Mar	ITC	12 to 26	11	5	41 to 44	12	5
Burkina Faso	February	9 Mar	12 Mar	CPE	11 to 15	14	7	26 to 37	10	3
Cabo Verde	February	20 Mar	1 Mar	ITC	13 to 41	35	5	53 to	32	6‡
Cote d'Ivoire	February	11 Mar	16 Mar	ITC, SC	12 to 25	76	6	51 to	45	1‡
Gambia	February	17 Mar	18 Mar	CPE, ROG, ROIM, SC, WC	25 to 33	30	7	--	--	--
Ghana	February	12 Mar	1 Mar	ITC	13 to 27	217	5	44 to	108	5‡
Guinea	February	13 Mar	7 Mar	ITC	13 to 32	56	5	--	--	--
Guinea Bissau	February	25 Mar	Unknown	Unknown	13 to 19	13	Unknown	--	--	Unknown
Liberia	February	16 Mar	10 Mar	ITC	12 to 24	6	7	40 to	5	5‡
Mali	February	25 Mar	19 Mar	SC	13 to 24	22	5	45 to	59	5‡
Niger	February	19 Mar	13 Mar	CPE, ROG	13 to 15	25	5	45 to	35	4‡
Nigeria	February	27 Feb	18 Mar	CPE, ROG, WC	12 to 26	234	7	47 to	487	6‡
Senegal	February	2 Mar	14 Mar	CPE, ROG	10 to 33	72	4	48 to	84	4‡
Sierra Leone	February	31 Mar	16 Mar	ROG	14 to 21	13	6	51 to	10	5‡
Togo	February	6 Mar	16 Mar	CPE	10 to 47	11	6	--	--	--

Abbreviations: *PHSM = public health and social measures

†PHSM type: CPE = Cancelled public events, CPT = Close public transport, ITC = International travel controls, ROG = Restrictions on gatherings, SC = School closures, WC = Workplace closures

‡Peak incidence not attained at the time of this analysis, measures listed were taken as of 31 December 2020

§Countries not reporting epidemiology data.

Supplemental Table 2: Comparing weekly incidence, testing capacity, and case fatality ratios before, during, and after each peak of COVID-19 cases in Africa between 14 February - 31 December 2020.

Country	Start of first wave				Peak of first wave				Post peak 1 trough				Peak of second wave				Post peak 2 trough				Peak of third wave			
	Epi week	Weekly incidence*	Test per case ratio (3-week)†	Case fatality ratio	Epi week	Weekly incidence*	Test per case ratio (3-week)†	Case fatality ratio	Epi week	Weekly incidence*	Test per case ratio (3-week)†	Case fatality ratio	Epi week	Weekly incidence*	Test per case ratio (3-week)†	Case fatality ratio	Epi week	Weekly incidence*	Test per case ratio (3-week)†	Case fatality ratio	Epi week	Weekly incidence*	Test per case ratio (3-week)†	Case fatality ratio
Central Region																								
Burundi	17	0.8	23.9	6.7	28	6.7	15.5	0.4	38	0.3	509.8	0.2	TBD‡	--	--	--	NA	--	--	--	NA	--	--	--
Cameroon	14	15.7	3.0	1.6	25	80.2	15.4	2.6	43	5.1	108.3	2.0	TBD‡	--	--	--	NA	--	--	--	NA	--	--	--
Central African Republic	17	1.5	29.7	0	23	174.8	4.0	0.3	42	0.2	82.4	1.3	NA	--	--	--	NA	--	--	--	NA	--	--	--
Chad	12	0.1	4.2	0	19	13.0	2.5	9.6	27	0.4	58.6	8.5	TBD‡	--	--	--	NA	--	--	--	NA	--	--	--
Congo Republic	12	0.5	ND	0	35	128.7	5.2	1.8	40	0	34.0	1.8	TBD‡	--	--	--	NA	--	--	--	NA	--	--	--
DR Congo	12	0.3	1.2	6.7	25	12.5	5.5	2.3	41	1	12.6	2.5	TBD‡	--	--	--	NA	--	--	--	NA	--	--	--
Equatorial Guinea	16	41.4	14.0	0	31	1250.0	14.7	1.7	38	1.4	98.8	1.7	NA	--	--	--	NA	--	--	--	NA	--	--	--
Gabon	14	6.7	13.3	4.8	25	459.5	8.6	0.8	39	15.2	315.3	0.6	TBD‡	--	--	--	NA	--	--	--	NA	--	--	--
Sao Tome & Principe	15	20.0	1.0	0	22	1105.0	1.9	2.5	36	5.0	2.6	1.7	NA	--	--	--	NA	--	--	--	NA	--	--	--
Eastern Region																								
Comoros	18	3.3	4.9	0	25	98.9	3.2	2.6	37	5.6	4.6	1.5	TBD‡	--	--	--	NA	--	--	--	NA	--	--	--
Djibouti	13	23.0	24.8	0	22	1084.0	6.4	0.7	35	3.0	337.1	1.1	NA	--	--	--	NA	--	--	--	NA	--	--	--
Eritrea	23	0.4	89.6	0	24	10.4	76.4	0	33	0	35.3	0	TBD‡	--	--	--	NA	--	--	--	NA	--	--	--
Ethiopia	19	0.9	224.8	2.1	34	98.0	13.9	1.7	NA	--	--	--	NA	--	--	--	NA	--	--	--	NA	--	--	--
Kenya	14	1.9	40.9	2.8	31	85.2	8.4	1.7	38	15.8	21.5	1.6	46	148.6	6.5	1.8	NA	--	--	--	NA	--	--	--
Madagascar	20	5.0	14.6	0.3	30	83.2	2.0	0.9	48	0	12.9	1.5	NA	--	--	--	NA	--	--	--	NA	--	--	--
Mauritius	12	13.8	10.2	5.6	14	92.3	18.2	3.1	18	0	3483.8	3.0	43	21.5	264.2	2.3	NA	--	--	--	NA	--	--	--
Rwanda	21	2.7	298.2	0	35	72.7	55.0	0.4	41	2.3	295.2	0.6	TBD‡	--	--	--	NA	--	--	--	NA	--	--	--
Seychelles	11	20.0	5.6	0	26	590.0	9.4	0	36	10.0	229.3	0	TBD‡	--	--	--	NA	--	--	--	NA	--	--	--
Somalia	13	0.1	ND	0	22	24.5	3.5	4	32	0.4	2.7	2.9	45	18.5	2.8	2.5	NA	--	--	--	NA	--	--	--
South Sudan	15	0.2	21.8	0	24	32.9	7.4	1.7	35	1.1	96.3	1.9	TBD‡	--	--	--	NA	--	--	--	NA	--	--	--
Sudan	16	1.1	3.5	15.1	25	37.0	4.6	6.1	38	0.5	5.7	6.2	49	48	9.4	6.5	NA	--	--	--	NA	--	--	--
Tanzania§	-	-	-	-	NA	--	--	--	NA	--	--	--	NA	--	--	--	--	NA	--	--	--	NA	--	--
Uganda	19	0.7	343.1	0	23	4.4	181.3	0	29	1.0	301.4	0	38	32.6	17.6	1.0	42	17.3	16.9	0.9	50	99.9	8.0	0.8
Northern Region																								
Algeria	12	3.6	ND	7.5	19	33.4	1.8	8.8	23	15.4	5.9	7.0	33	102.3	3.7	3.5	40	25	4.3	3.4	48	172.3	ND	2.9
Egypt	12	2.0	44.6	3.1	26	113.8	6.8	4.3	34	8.5	50.4	5.4	TBD‡	--	--	--	NA	--	--	--	NA	--	--	--
Libya	26	31.4	26.5	2.5	43	1102.1	3.7	1.4	NA	--	--	--	NA	--	--	--	NA	--	--	--	NA	--	--	--
Mauritania	20	6.8	13.8	10.0	25	292.3	8.9	3.8	44	8.5	39.8	2.1	50	309.6	4.9	2.2	NA	--	--	--	NA	--	--	--
Morocco	13	11.0	4.4	5.4	16	34.0	6.9	4.9	22	8.9	147.6	2.6	46	994.4	4.6	1.7	NA	--	--	--	NA	--	--	--
SADR	30	6.7	ND	25.0	32	16.7	2.1	14.3	40	0	4.3	7.1	TBD‡	--	--	--	NA	--	--	--	NA	--	--	--
Tunisia	11	1.4	1.7	0	14	22.2	17.3	3.1	20	0.4	605.0	4.3	TBD‡	--	--	--	NA	--	--	--	NA	--	--	--
Southern Region																								
Angola	22	0.5	112.5	4.7	43	55.3	6.8	2.9	TBD‡	--	--	--	NA	--	--	--	NA	--	--	--	NA	--	--	--
Botswana§	24	8.3	381.9	1.7	TBD‡	--	--	--	NA	--	--	--	NA	--	--	--	NA	--	--	--	NA	--	--	--
Eswatini	16	5.7	7.1	4.6	33	430.7	6.1	1.8	44	50.7	31.2	2.0	TBD‡	--	--	--	NA	--	--	--	NA	--	--	--
Lesotho	23	0.9	363.5	0	31	92.6	5.7	2.7	44	5.7	14.6	2.3	TBD‡	--	--	--	NA	--	--	--	NA	--	--	--
Malawi	19	0.9	32.1	5.4	30	34.1	5.7	2.7	40	0.9	61.7	3.1	TBD‡	--	--	--	NA	--	--	--	NA	--	--	--
Mozambique	17	1.2	32.2	0	38	47.8	8.4	0.6	TBD‡	--	--	--	NA	--	--	--	NA	--	--	--	NA	--	--	--
Namibia	26	49.2	14.1	0	34	653.8	5.9	0.9	45	85.8	22.6	1.0	TBD‡	--	--	--	NA	--	--	--	NA	--	--	--
South Africa	15	8.9	42.8	1.2	29	1516.1	3.8	1.4	39	164.5	11.1	2.4	TBD‡	--	--	--	NA	--	--	--	NA	--	--	--
Zambia	13	1.4	21.9	0	20	26.9	14.8	0.9	23	1.8	55.7	0.6	31	103.1	4.7	2.7	46	9.3	108.5	2.1	TBD‡	--	--	--
Zimbabwe	21	0.7	57.7	7.1	31	81.4	9.9	1.8	40	4.4	38.9	2.9	TBD‡	--	--	--	NA	--	--	--	NA	--	--	--
Western Region																								
Benin	12	0.2	14.7	0	26	29.0	5.5	1.4	40	1.4	211.4	1.7	44	10.7	231.1	1.5	NA	--	--	--	NA	--	--	--
Burkina Faso	11	0.7	ND	0	15	7.3	3.6	5.4	24	0.2	225.0	5.9	37	12.2	22.5	3.3	44	2.3	28.2	1.1	TBD‡	--	--	--
Cabo Verde	13	6.7	ND	20.0	41	1186.7	2.9	1.1	52	225.0	3.1	1.0	TBD‡	--	--	--	NA	--	--	--	NA	--	--	--
Cote d'Ivoire	12	0.8	ND	0	25	94.4	4.2	0.7	45	4.5	36.3	0.6	TBD‡	--	--	--	NA	--	--	--	NA	--	--	--
Gambia	25	4.1	52.9	5.4	33	289.5	2.9	3.4	45	2.3	66.5	3.3	NA	--	--	--	NA	--	--	--	NA	--	--	--
Ghana	13	4.3	21.7	3.3	27	202.0	5.9	0.6	41	6.8	35.0	0.7	TBD‡	--	--	--	NA	--	--	--	NA	--	--	--
Guinea	13	1.0	0.8	0	32	51.6	12.3	0.6	NA	--	--	--	NA	--	--	--	NA	--	--	--	NA	--	--	--
Guinea Bissau	13	1.0	ND	0	19	175.0	2.6	0.5	47	1	242.9	0.6	NA	--	--	--	NA	--	--	--	NA	--	--	--
Liberia	12	0.6	5.7	0	24	30.6	12.8	6.6	36	1.4	221.7	6.3	TBD‡	--	--	--	NA	--	--	--	NA	--	--	--
Mali	13	0.9	ND	5.6	24	14.0	9.2	5.8	32	1.3	84.3	4.9	TBD‡	--	--	--	NA	--	--	--	NA	--	--	--
Niger	13	0.7	ND	5.6	15	14.9	2.7	2.3	41	0	630.2	5.8	TBD‡	--	--	--	NA	--	--	--	NA	--	--	--
Nigeria	12	0.1	ND	0	26	21.5	4.8	2.3	43	2.7	27.6	1.8	TBD‡	--	--	--	NA	--	--	--	NA	--	--	--
Senegal	10	0.2	ND	0	33	59.1	11.8	2.1	44	4.7	60.8	2.1	TBD‡	--	--	--	NA	--	--	--	NA	--	--	--
Sierra Leone	14	0.8	ND	0	21	27.3	1.5	5.6	48	0.8	185.6	3.1	TBD‡	--	--	--	NA	--	--	--	NA	--	--	--
Togo	10	0.1	ND	0	47	20.5	45.7	2.3	NA	--	--	--	NA	--	--	--	NA	--	--	--	NA	--	--	--

Abbreviations: ND = no data available to calculate; NA = not applicable

*Weekly incidence = the number of new cases reported for the identified epi week divided by the population and multiplied by 100,000.

†3-week test per case ratio = the number of molecular and antigen tests conducted the week before, during, and after the identified epi week over the total number of new cases during that same 3-week period.

‡TBD = to be determined; country(ies) experiencing an increase in cases, but have yet to report a peak incidence for the current wave of cases.

§Countries who have yet to experience an initial peak of cases or who are not reporting epidemiology data.