Regional network for Equity in health in east and southern Africa (EQUINET)[1] and East Central and Southern Africa Health community (ECSA HC)[2]

Brief: COVID-19 in East and Southern Africa – early evidence from population level data, June 2020

This information sheet presents a first output of work in progress summarising evidence as of June 12 2020 from official and scientific population data across countries in east and southern Africa (ESA) on the COVID-19 pandemic, the responses to it and the relationship with other indicators of population health, health systems and health determinants. The information is sourced from World Health Organisation (WHO), official, public health and technical/ scientific sources. The sources of information are cited or hyperlinked, with hyperlinks to documents giving further details on indicators or issues raised. Further information can be found on the WHO page on COVID-19.

The information sheet aims to address four questions:

a. How and where is the epidemic progressing over time?
b. What relationship is there between morbidity from other key causes and COVID-19?
c. How has the health system responded in terms of prevention and care?
d. How has the epidemic and responses to it related to and addressed social determinants of risk and vulnerability?

Key messages

In terms of the epidemic profile, reported data suggests that by June 12th most ESA countries had a slow sustained rise in total cases, with a gradient similar to that of India. Only Mauritius and Seychelles have shown a more rapid clear plateauing. Diverse country epidemic profiles raises a caution on making simple generalisations about the pandemic in the region. Average case fatality is relatively low, possibly in part due to a lower share of elderly people, although there was no evident relationship on this across countries, nor between case fatality and co-morbidities linked to poor prognoses.

In terms of the health system response, there is some evidence to suggest that countries with greater capacities at ports of entry and those that implemented a more stringent response at the time of the first index case had a lower prevalence of cases by June 12. Low testing levels, despite reasonable surveillance capacities and TB case tracing coverage, highlight the limitations imposed by poor access to diagnostics. It also suggests potentials to embed test and trace in primary care systems - as for TB - and a need to invest in decentralised laboratory capacities for multiple public health risks.

In terms of social determinants of COVID-19, ESA countries have wide variability in the risk factors for COVID-19 -such as access to handwashing facilities and urbanisation- and in vulnerability, such as in larger refugee populations in East Africa and DRC. High levels of food insecurity and inequality in many countries point to potential challenges for insecure households to manage prolonged social isolation strategies due to the sustained rise in cases. Falling remittances from migrants due to lockdowns in host countries may further affect household coping capacities, while debt servicing affects national resources for the response. Some countries have high debt servicing and high prevalence and may be more stressed, notwithstanding their overall national income. High levels of adult literacy and mobile phone ownership are assets for information outreach and for the social responses that are critical for controlling COVID-19, if strategies engage communities and if barriers such as high data charges are reduced.

Low – albeit increasing- testing rates in most ESA countries affects data accuracy. Nevertheless the findings highlight some key assets, deficits and experiences. A follow up analysis as testing and case numbers rise and with further country health information will provide stronger evidence on the trends in and responses to COVID-19 in the region.

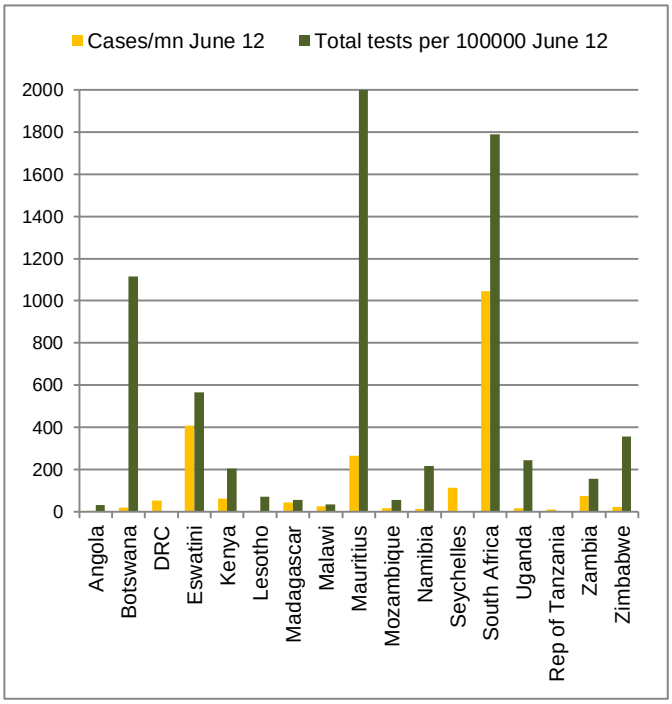
[1] EQUINET: Training and Research Support Centre (Dr Rene Loewenson) admin@equinetafrica.org
[2] East Central and Southern Africa Health Community (Dr Willy Were and Prof Yoswa Dambisya)

The data

The cross country data reported in this information sheet comes from official data, reported on the WHO AFRO weekly situation reports; the online Worldometer database updated daily; the WHO global health observatory data; World Bank World Development indicators and other UN databases. Cross country databases were used to avoid having different definitions for different countries. Some health systems data were obtained directly from countries. The data sources are indicated in each section.

There were gaps in key data.
For example, excess all-cause mortality in the period (comparing 2020 data with the previous 5 year average) would help to overcome diagnostic limitations, but was not available. This needs follow up inquiry. The population within countries is not homogenous, national data does not show within country variations and recent population data is not yet available for some indicators. COVID-19 data for Tanzania was not available in the sources used after May 12 2020. The rate of antigen testing for COVID-19 was low for most countries except for Botswana, Mauritius and South Africa. This raises caution on the validity of data on cases, and thus of linked data such as the case fatality rate, which uses cases as a denominator. As *Figure 1* indicates, where testing is higher so are case numbers. As testing rates in the region increase, the number of cases and accuracy of case data may increase, albeit complicating trend analyses. Case numbers by mid-June were still at relatively low levels for exploring relationships between different measures and the analysis will be repeated in July.

Figure 1: Levels of testing vs reported cases

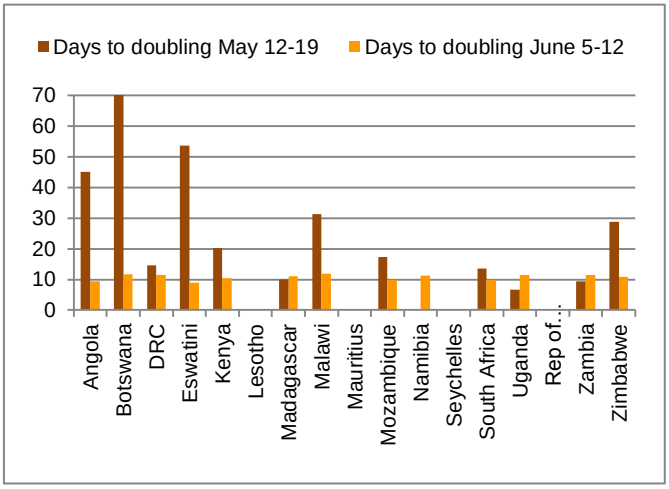


Source: Worldometer data, June 12 2020

1. How and where is the epidemic progressing over time?

To explore the epidemic progression in the region we explored data on the **incidence and mortality from COVID-19** and how this has progressed over time for the different ESA countries. *Table 1* overleaf reports this from official data sources indicated. The rates per million rather than absolute numbers were used to take population differences between countries into account.
`

Figure 2: Days to doubling, May and June



The change in **days to doubling of the case numbers** between May and June shown in *Table 1* and *Figure 2* indicates changes in the pace of transmission of the epidemic: The shorter the days to doubling the more rapid the speed of transmission. The days to doubling have fallen between May and June for ESA countries, suggesting **a rise in the pace of transmission** in the period. There are exceptions: In Lesotho, Mauritius and Seychelles cases have not increased. In Uganda, Madagascar and Zambia there appears to have been a small slowing of the pace. (As noted above, data from Tanzania was not available). The progression is also indicated by the curves shown in *Figures 3a and 3b* overleaf, showing the trend in total cases over weekly time periods from April 29 to June 12 in the different ESA countries. South Africa's steep rise in cases in *Figure 3a* overshadows that of other countries. However, the trend in

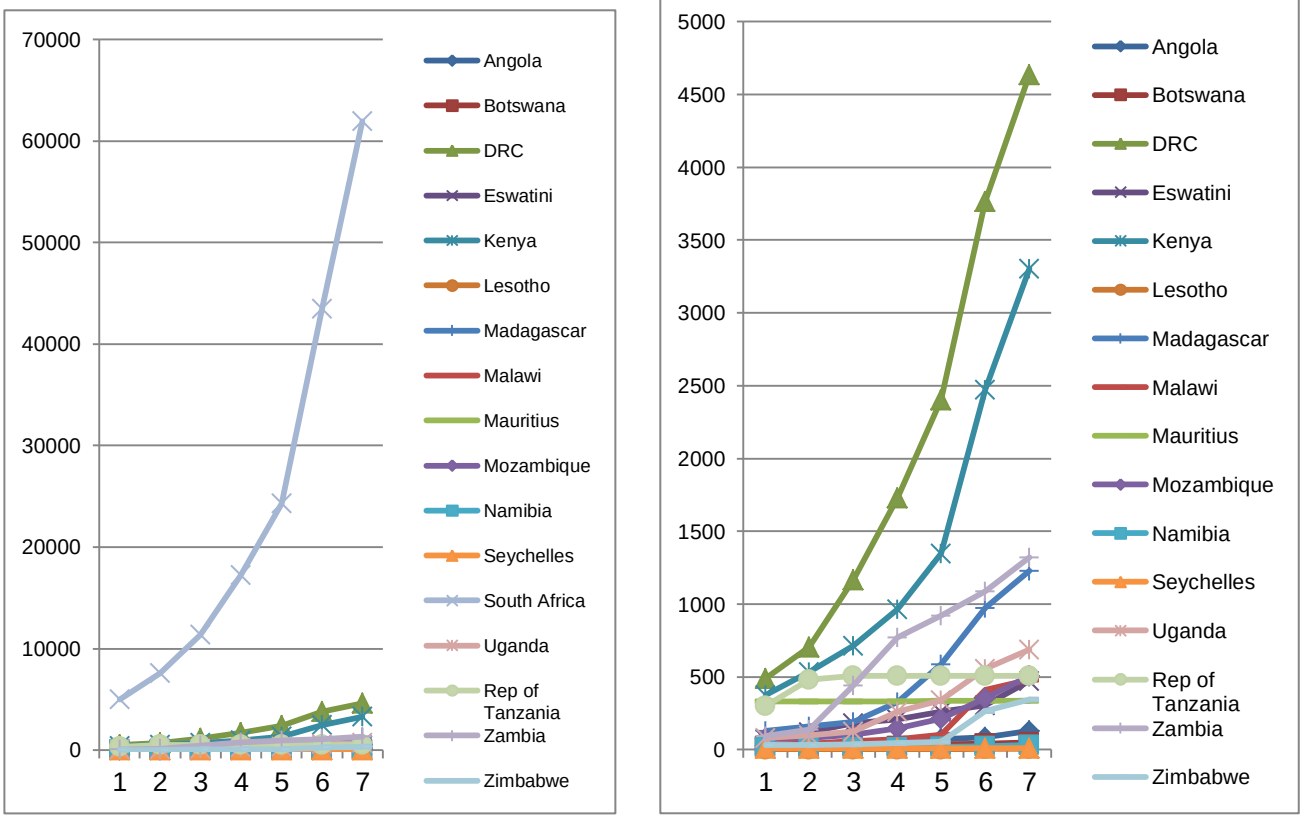
Figure 3b indicates that, excluding data for Tanzania, **total cases are rising in all countries except for Seychelles, Mauritius and Namibia**. These trends will be reviewed in July.

Table 1 Reported COVID-19 Cases in ESA countries 12 June 2020

Country	Total cases June 12 (i)	Estimated doubling time in days (ii)		Cases/ million people June 12 (i)	Total deaths 12 June (i)	Total deaths / 10 mn 12 June (i)	Case fatality rate June 12 (i)	Tests / 100000 people 12 June (i)	Cases in health workers/ 1000 (iii)
		12-19 May	5-12 June						
Angola	130	45.0	9.3	4	20	20	3.85	30.5	0.0
Botswana	48	168.0	11.7	20	40	40	2.08	1114.1	42.0
DRC	4637	14.5	11.4	52	100	100	2.18		54.0
Eswatini	472	53.6	9.0	407	300	300	0.64	565.1	43.0
Kenya	3305	20.2	10.5	62	200	200	2.90	202.3	3.0
Lesotho	4	static	static	2	0	0	0.00	70.8	0.0
Madagascar	1230	10.0	11.1	44	40	40	0.81	54.3	26.0
Malawi	481	31.2	11.9	25	20	20	0.83	35.0	86.0
Mauritius	337	static	static	265	800	800	2.97	10835.3	90.0
Mozambique	509	17.3	9.7	16	6	6	0.39	54.2	0.0
Namibia	31	static	11.3	12	0	0	0.00	217.2	125.0
Seychelles	11	static	static	112	0	0	0.00		0.0
South Africa	61927	13.6	9.8	1045	2300	2300	2.19	1789.2	29.0
Uganda	686	6.6	11.4	15	0	0	0.00	244.1	0.0
UR Tanzania	509	static	static	9	40	40	4.13		2.0
Zambia	1321	9.3	11.5	72	50	50	0.76	153.9	43.0
Zimbabwe	343	28.8	10.8	23	30	30	1.17	356.2	27.0

DRC = Democratic Republic of Congo UR= United Republic mn = million
Sources: (i) Worldometer 28/3/2020 (ii) Doubling time estimated from the total case numbers and days between periods shown. (iii) WHO AFRO 12 May

Figures 3a, 3b: Total cases April 29-June 12, (a) including and (b) excluding South Africa

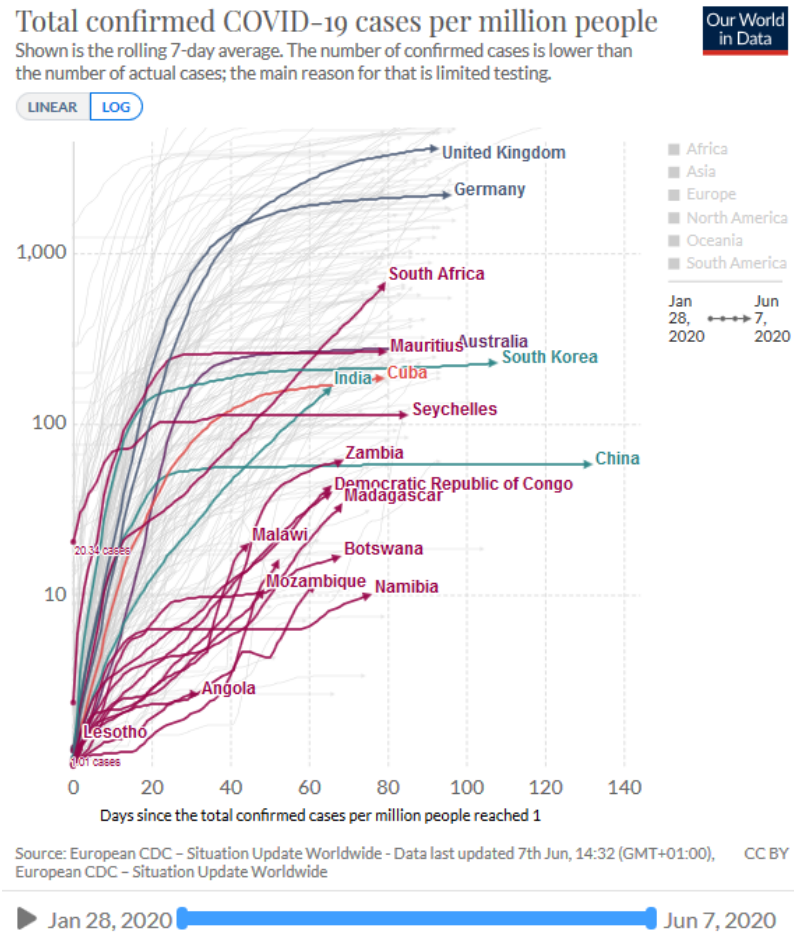


Source: Worldometer data; Time periods: 1=29 Apr; 2=12 May; 3=19 May; 4=26 May; 5=5 June; 6=12 June

Aligning the different epidemics to a common start point (the date 30 cases/day were reached) - as shown in the logarithmic form in *Figure 4* - indicates that **for most ESA countries, the rise in cases has been slower, but sustained**. South Africa's epidemic curve and that of many other ESA countries appears to follow a slope similar to that of India than of the steeper rise in European countries like the UK or Germany. **Only Mauritius and Seychelles show the more rapid plateauing** achieved in Australia, S Korea and China, with a need to ensure that any cluster outbreaks are contained. An analysis of the Mauritian response is reported by Jeeneea and Sukon, May 2020. A slower, sustained rise before cases fall may imply a longer period of stronger social distancing measures, and thus a more sustained strain on social and economic activity.

While the pattern will become clearer as testing increases and cases are followed over a longer period, it would appear that for many ESA countries the epidemic has had a slow, sustained increase. It is also evident that **it is not valid to generalise about the epidemic in the region- it is taking different forms in different ESA countries**.

Figure 4:



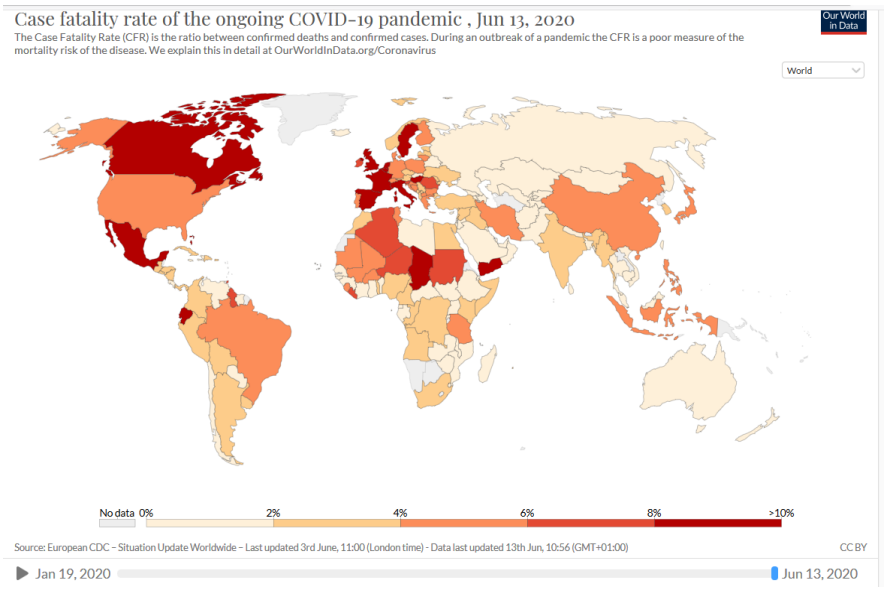
Source: Our World in Data, June 7, 2020, Note Kenya data overlaps DRC data https://ourworldindata.org/coronavirus.

The relationship between these trends and factors such as having an air travel hub, the density of urbanisation and the movement of workers to rural homes are discussed later.

The data on **mortality** and the case fatality rate (deaths as a share of cases) provides an indication of the severity of cases. The trends are similar to those shown in *Figure 3a and 3b*, and the average case fatality rate across the region as a whole is 1.46%. This is lower than other regions, as shown in *Figure 5.*

The data in *Table 1* suggests that **case fatality rates** are generally higher in ESA countries where testing levels are higher, including Botswana, Mauritius and South Africa, but not consistently so.

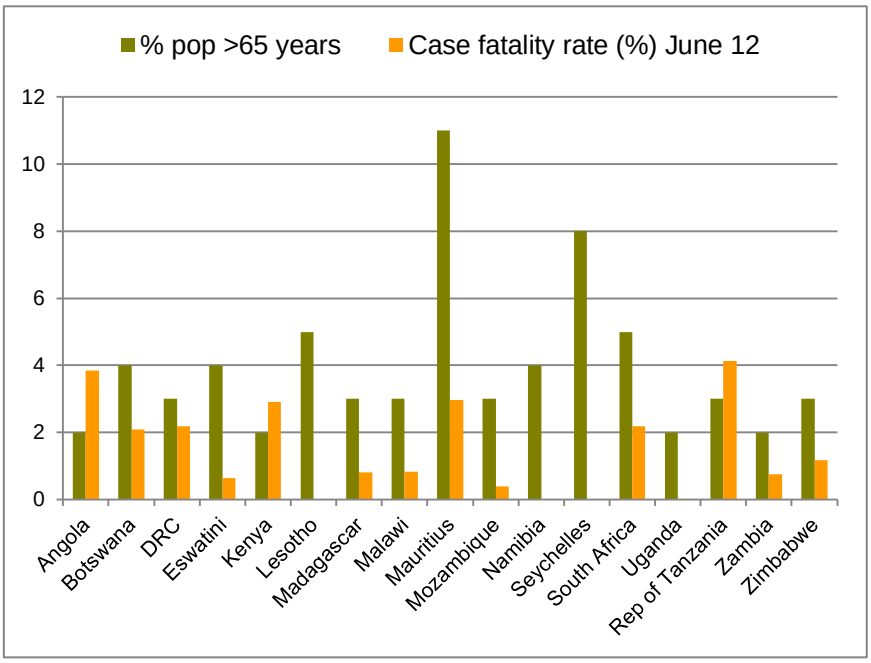
Figure 5



Source: Our World in Data, June 7, 2020,

Given the low levels of testing, it would be useful to assess the excess mortality from COVID-19, that is the difference in all-cause mortality for the epidemic period compared to the average for the same period in the past 5 years. This may indicate whether there has been excess mortality associated with the epidemic. The only country for which this data is reported in public domain is South Africa, and evidence reported to mid June suggests no excess mortality to that date. Assessing this would need follow up inquiry within countries, taking into account variations in the accuracy and frequency of vital statistics data.

Figure 6: Case fatality vs share of population > 65 years doubling

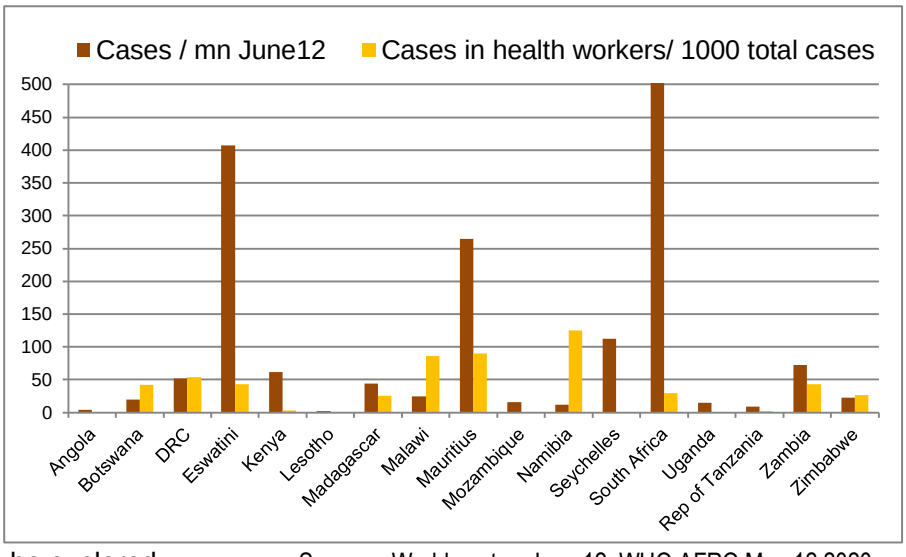


Sources: Worldometer data, World Bank development indicators

Dowd et al, 2020 in a multi-country study report that differences in the age structure of populations may help to explain differences between countries in COVID-19 related mortality. A lower level of COVID-19 related mortality in the ESA region may thus be due to the lower share of people in older age groups in the population, given the vulnerability of this age group to severe disease from COVID-19. ESA countries have an average of only 3.9% of people >65 years in the population, compared to 9% globally., with higher shares in Mauritius (11%), Seychelles (8%) and South Africa (5%). Overall mortality data is still very low. There is, however, **no clear relationship between case fatality and the share of elderly people in the population**. One consideration is that many elderly people in ESA countries live in rural areas and that the epidemic has perhaps mainly been urban in its early phase, where the share of elderly people may be even lower. This remains to be further assessed over time.

One group potentially more at risk of infection are health workers. As indicated in *Figure 7,* lower case levels in the population are not always associated with a similarly low level in health workers. In Botswana, Malawi and Namibia, health workers appear to have a higher share of cases than the population prevalence would suggest.

Figure 7: Cases/ million in the population vs cases in health workers / 1000 cases



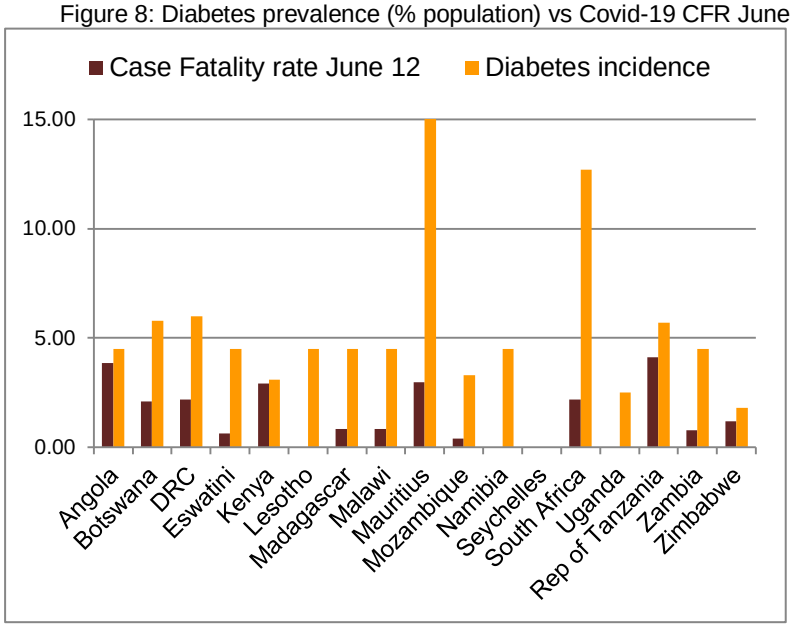
Sources: Worldometer June 12, WHO AFRO May 12 2020

In Namibia, case numbers are low and the share of cases in health workers is high. In contrast, despite neighbouring South Africa's higher prevalence in the population, the share of cases in health workers is low. The reasons for this, such as in the protection provided to and level of testing of health workers would need to be explored.

2. How is COVID-19 relating to other forms of morbidity?

There is evidence from other regions globally , summarised by Clark et al., (2020), that the severity of COVID-19 is greater for people with **underlying health conditions**. We explored this in relation to diabetes using population level data, ie diabetes prevalence in the population and the COVID-19 case fatality rate (CFR) (See *Figure 8*). .

Figure 8: Diabetes prevalence (% population) vs Covid-19 CFR June 12



Sources: Worldometer June 12, World Bank 2020

The CFR does seem to be higher in countries with higher prevalence of diabetes, but not consistently or significantly so. (Pearsons R=0.1 p>0.05). This would need to be further reviewed later in the epidemic, but it also suggests that at population level other factors intervene. For example, despite Mauritius having an extremely high level of diabetes, it has a CFR that is the same as that of Kenya, where diabetes prevalence is lower. These outcomes may be affected by differences in the quality of services for both diabetes and COVID-19 and within country variations for different social groups.

There were no clear relationships between the CFR and TB incidence or adult obesity data across ESA countries at population level, both co-morbidities suggested to possibly affect case outcomes. These relationships may be tested again after the epidemic has progressed.

Evidence is also being gathered on total cases of **related illnesses** such as pneumonia and total in-patient and outpatient cases in key months in 2020 compared to the same months in 2019 which may help to indicate whether service volumes rose. Here too other factors may intervene. There is a possibility that patient numbers may fall if people stay away from services, such as if there is concern about their risk of contracting COVID-19 in health care settings, or that services under strain may focus on COVID-19. WHO has thus provided guidance on maintaining other essential health services during the epidemic. Preliminary data reported from countries indicated that facility reporting of cases of TB in the first quarter of 2019 and 2020 showed a fall in cases in 2020 for the four countries for which data has been obtained so far, and for 3 of the four countries for diabetes. It is not possible to draw conclusions from this limited data. This will be explored further for a wider period and a wider number of countries, as well as for conditions that may have fallen as a result of lockdowns, such as in road traffic accidents due to falling vehicle traffic.

3. How has the health system responded?

The response to the COVID-19 pandemic is not the responsibility of the health system alone. Public information, availability of safe water, soap, food, job security and social protection are important features of the response that depend on the actions of other sectors and are discussed in the next section.

The health system response combines pandemic preparedness through capacities at ports of entry and for surveillance, as required in terms of the International Health Regulations (IHR) (2005) together with capacities for testing and providing quick results, case and contact tracing, isolation of and care for cases and protection of health and other frontline workers from infection. *Table 2* below shows selected data on the health system response, adding to data on testing rates and cases in health workers already shown in *Table 1*.

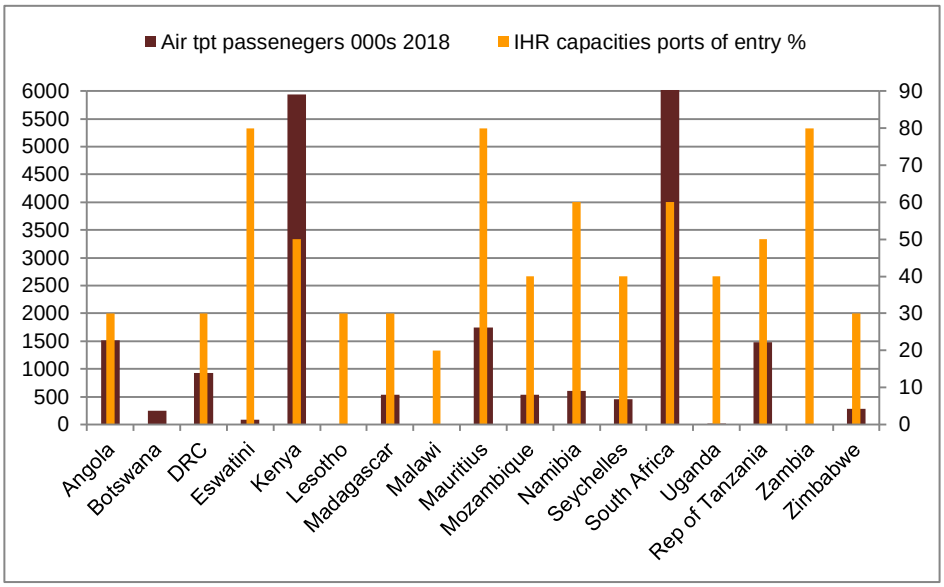
Table 2 Indicators of health system responses ESA countries 12 June 2020

Country	Tests / 100000 people 12 June (i)	Covid-19 Government stringency index (ii)		# total hospital beds / 1000 (iii)	# ICU beds / 1 million pop (iv)	# doctors/ 100 000 pop(iv)	# nurses and midwives / 100 000 pop (v)	IHR capacities ports of entry (iii)	IHR capacities surveillance (iii)	TB case detection rate % (vi)
		Index date 1st case	As of May 17							
Angola	30.5	92	84	0.8	3.4	21	130	30	100	61
Botswana	1114.1	69	77	1.8	63.9	37	330	0	60	59
DRC		15	80	0.8	0.7	9	47	30	60	63
Eswatini	565.1	14	83	2.1	0	8	383	80	80	80
Kenya	202.3	31	89	1.4	9.7	20	150	50	80	63
Lesotho	70.8	74	74	1.3	4.7	7	65	30	60	55
Madagascar	54.3	94	62	0.2	0	18	11	30	60	55
Malawi	35.0	51	62	1.3	0	2	25	20	80	48
Mauritius	10835.3	6	75	3.4	95.2	201	340	80	60	80
Mozambique	54.2	22	56	0.7	0	7	44	40	80	57
Namibia	217.2	9	62	2.7	44.6	37	280	60	80	61
Seychelles		23	71	3.6	326.5	95	330	40	80	87
South Africa	1789.2	17	89	2.8	55.7	91	350	60	20	76
Uganda	244.1	58	91	0.5	1.5	9	63	40	80	65
UR Tanzania		3	51	0.7	0	4	41	50	60	53
Zambia	153.9	20	56	2.0	5.5	16	89	80	60	58
Zimbabwe	356.2	27	92	1.7	4.1	8	120	30	60	83

DRC = Democratic Republic of Congo UR= United Republic of
Sources: (i) Worldometer 12/6/2020 (ii) Oxford COVID-19 Government Response Tracker 2020 (iii) WHO Global Health Observatory 2020 (iv) Reuters 2020 (v) African health statistics 2020 (vi) World Bank 2020

The IHR **capacities for ports of entry and for surveillance** are shown in *Table 2* and *Figures 9 and 10.* Greater capacities at ports of entry are associated to some extent with lower cases, albeit not consistently or significantly so (*Figure 10*, Pearsons R=0.2, p>0.05).

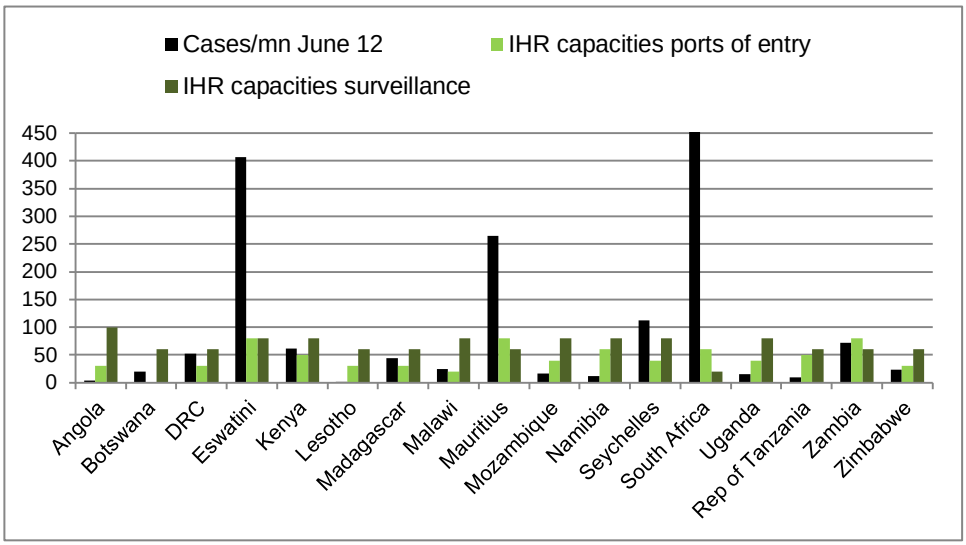
Figure 9: Air transport passenger volumes vs IHR capacities at ports of entry



Countries with a high level of airline traffic (Angola; DRC; Kenya; Mauritius; South Africa and Tanzania) need strengthened controls at airports, particularly Kenya and South Africa as they are key regional hubs for transit passengers to neighbouring countries.

Source: Worldometer 2020; WHO 2020

Figure 10: Covid-19 cases June 12 vs IHR capacities

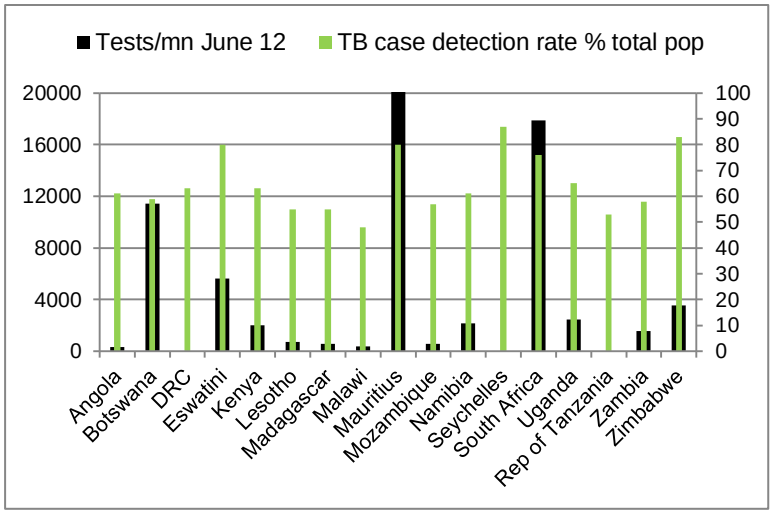


Sources: Worldometer 2020; WHO 2020; South Africa cases = 1045, axis cut

Those with longer, porous land borders (Malawi, Zambia, Zimbabwe, Tanzania and Uganda) face different challenges in port health, with people crossing land borders at multiple formal and informal points. An average IHR capacity for ports of entry of 44% for ESA countries collectively suggests that this is an area that needs significant attention for this and future pandemics. While most ESA countries implemented early travel bans, longer term strategies are needed to enable movement of people, goods and facilitate economic activities.

Surveillance capacities are reported to be stronger, with an average of 68% for ESA countries collectively. The average TB case detection rate in the region is 65% (as shown in *Table 2*). Yet these capacities are struggling to meet the challenge in many countries. As noted earlier, the **rate of antigen testing for COVID-19** in the population has been low for most ESA countries except for Botswana, Mauritius and South Africa. Excluding these three countries, the average level of testing in the other countries is 180/100 000, well below the level of above 1100/ 100 000 in countries with effective test and trace systems or the level needed for cases detection and contact tracing. While the rate of testing has increased in many countries, ESA countries have struggled to access adequate test kits and reagents for antigen testing, notwithstanding orders placed and efforts made, raising regional advocacy for more distributed local production of essential health technologies. The shortfall means that ESA countries have to make best use of limited test resources to maximise public health gains, to identify cases in high transmission settings, protect high risk personnel and to prevent cluster outbreaks.

Figure 11: COVID-19 tests / million vs TB case detection rates

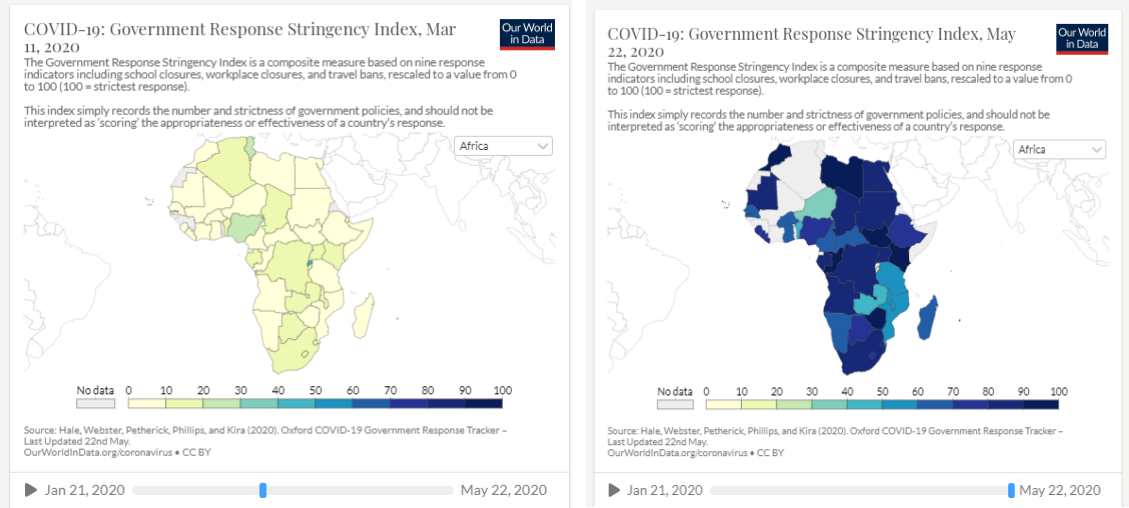


Sources: Worldometer 2020; WHO 2020; South Africa cases = 1045

Figure 11 shows that the **capacities for effective test and trace** are present in ESA countries, given high rates of TB test and trace coverage, while for COVID-19 it is still deeply constrained. Beyond the concern over access to test kits and reagents, there is a question of whether test and trace for COVID-19 could to be more effectively embedded within public primary care systems, as is the case for TB, as well as whether it is timely to invest in decentralised laboratory capacities to enhance decentralised screening of multiple public health risks.

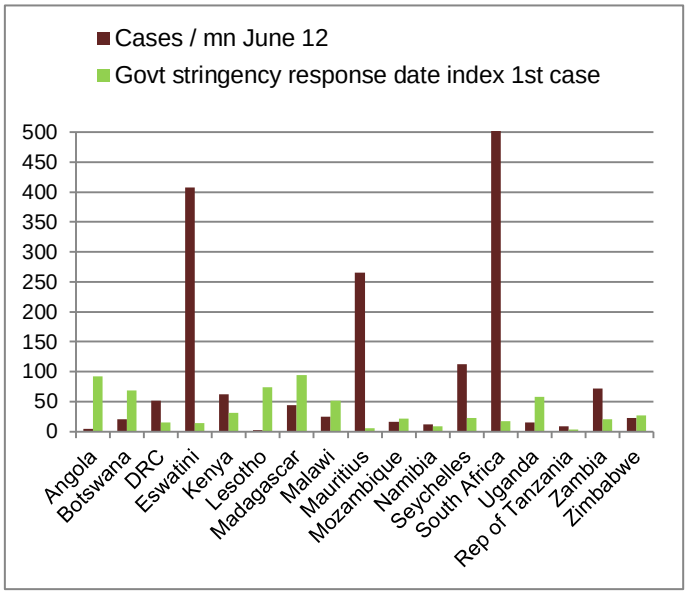
Most ESA countries responded early and with strong lockdowns, border controls and social isolation measures to the pandemic, forewarned to some extent by its impact in Asia and Europe. *Figures 12a and 12b* below show the significant change in response between March and May, according to an index compiling 8 different elements of the response (see Oxford COVID-19 Government Response Tracker, 2020)

Figures 12a and 12b: Covid-19 Government response Stringency index March 11 and May 22



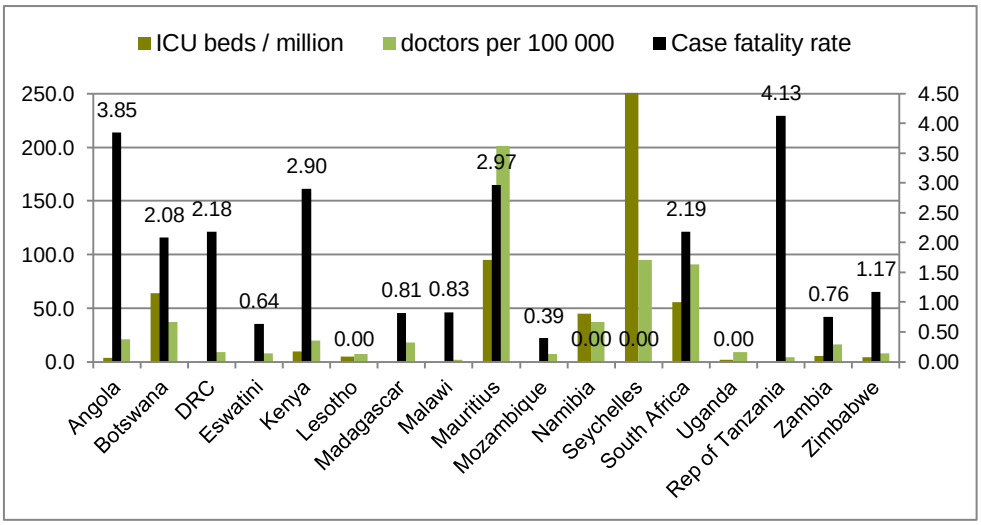
Source: Oxford COVID-19 Government Response Tracker 2020

Figure 13: Covid-19 cases vs the Govt stringency index at 1st case



As shown in *Figure 13,* **the level of stringency of the response** on the date of the first index case appears to have been important for later case incidence- the lower the stringency, the higher the current cases, and vice versa. This would need to be further explored in future rounds of data analysis. There is no clear relationship between medical personnel (doctors, nurses), hospital beds and case numbers, with the latter more related to prevention interventions. Case fatality shows some – albeit not statistically significant - association with ICU beds (*Figure 14*), as one index of availability of essential health services and technologies.

Figure 14: Case fatality vs ICU beds and doctors



Sources: Worldometer 2020; WHO 2020;

Further areas that can be assessed from country evidence for their relationship to outcomes in future rounds include exploring the length of time (days) between date of first case, date of local transmission and date of implementation of key prevention methods; the average time between antigen tests and results; the rate of testing relative to the number of quarantine centres and laboratories and the level of provision of PPE for health workers.

4. How have COVID-19 and responses related to social determinants of risk and vulnerability?

ESA countries have variable levels of different factors that raise both risk of and vulnerability to Covid-19, with selected indicators of these factors shown in *Table 3.*

Table 3 Indicators of health system responses ESA countries 12 June 2020

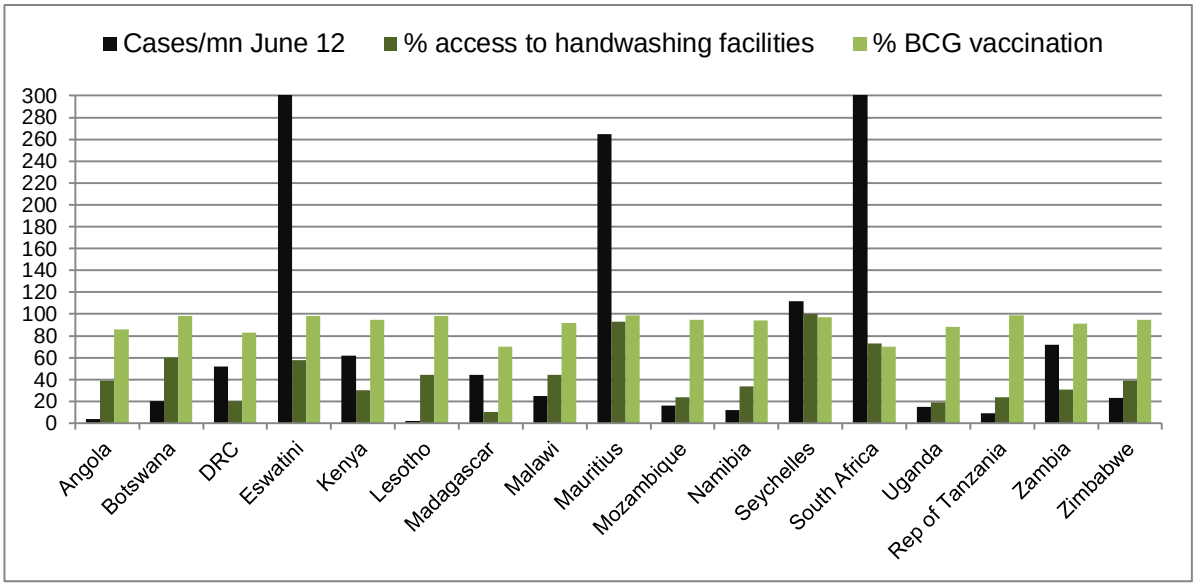
Country	% access to improved sanitation and hand-washing with soap (i)	% chronic under-nutrition in <5s 2007-19 (ii)	% immu-nised with BCG 2018 (ii)	Land density pop/km sq (iii)	#s refugees' IDPs 000s, 2018 (iii)	remittance returns % GDP 2018 (iii)	% employ-ment in farming (iii)	Adult literacy % total 2018 (iii)	GINI coeffi-cient 2018 (iii)	Debt servicing as % GDP (iii)
Angola	39	37.5	86	25	39.8	0.0	50	66	51.3	9.1
Botswana	60	28.9	98	4	2	0.2	21	87	53.3	1.0
DRC	20	42.7	83	37	529.1	3.9	65	77	42.1	0.8
Eswatini	58	25.5	98	66	0.1	2.7	12	88	54.6	1.0
Kenya	30	26.2	95	90	421.2	3.1	54	82	40.8	3.2
Lesotho	44	34.6	98	69	0.01	23.0	9	77	44.9	1.9
Madagascar	10	41.6	70	45	0.01	3.1	64	75	42.6	0.9
Malawi	44	39.0	92	192	13.8	2.6	44	62	44.7	1.0
Mauritius	93	13.6	99	623	0.01	1.7	6	91	36.8	20.6
Mozambique	24	42.3	95	38	4.9	2	70	61	54.0	5.7
Namibia	34	22.7	94	3	2.4	0.4	22	92	59.1	
Seychelles	100	7.9	97	210	0	1.4		96	46.8	
South Africa	73	27.4	70	48	89.3	0.3	5	87	63.0	6.6
Uganda	19	28.9	88	213	1165.7	4.9	73	77	42.8	2.6
UR Tanzania	24	31.8	99	64	278.3	0.7	65	78	40.5	1.9
Zambia	31	34.6	91	23	49.9	0.4	49	87	57.1	5.6
Zimbabwe	39	23.5	95	37	7.8	5.6	67	89	44.3	2.0

DRC = Democratic Republic of Congo UR= United Republic of
Sources: (i) WHO and UNICEF 2015 (ii) WHO Global Health Observatory 2020 (iii) World Bank 2020

A number of **social determinants affect *risk* of COVID-19** in ESA countries.

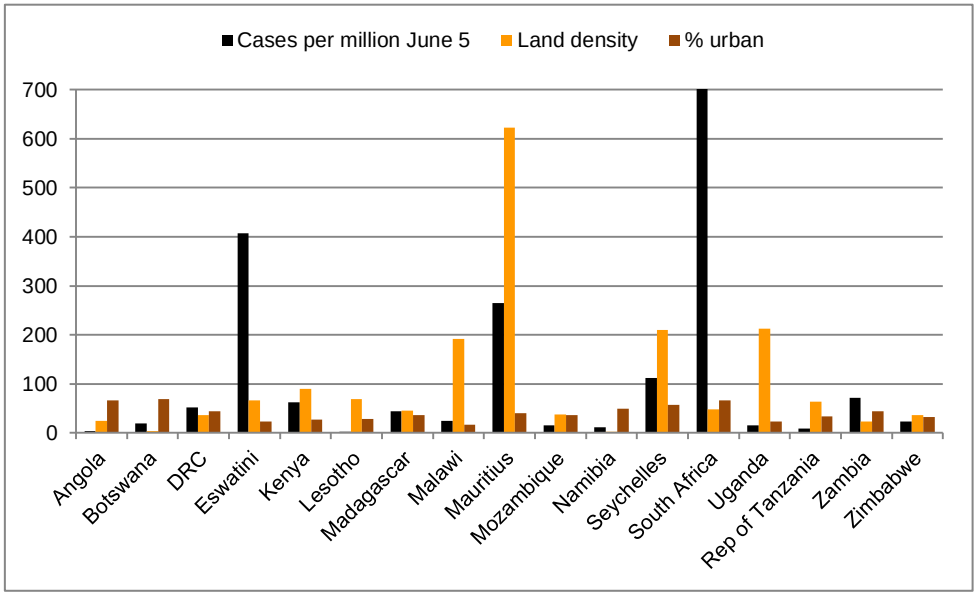
- An average of 43.6% of households access **sanitation and handwashing facilities** across ESA countries, although with a range of between 10% in Madagascar and 100% in Seychelles. While there is no evident relationship between levels of these facilities and cases at population level (*Figure 15*), low levels of access to water for handwashing is a serious barrier to implementing the public health message of handwashing with soap.
- The level of **urbanisation** also varies in the region, from 17% urbanised in Malawi to 69% in Botswana. Cases are often higher where land density and urbanisation are higher, but not uniformly or statistically significantly so (*Figure 16*).
- There has been some discussion of BCG vaccination possibly boosting the immune response to other respiratory infections, although there is no research evidence that supports this for COVID-19. BCG coverage levels are high in all ESA countries (See *Figure 15*) so it was not possible to see any relationship with case numbers. Neither was there any evident relationship between prevalence of COVID-19 and prevalence of HIV.

Figure 15: Covid-19 cases/mn , access to handwashing and BCG vaccination coverage



Source: Worldometer 2020; WHO 2020; WHO and UNICEF 2015

Figure 16: Covid-19 cases/mn , land density and urbanisation



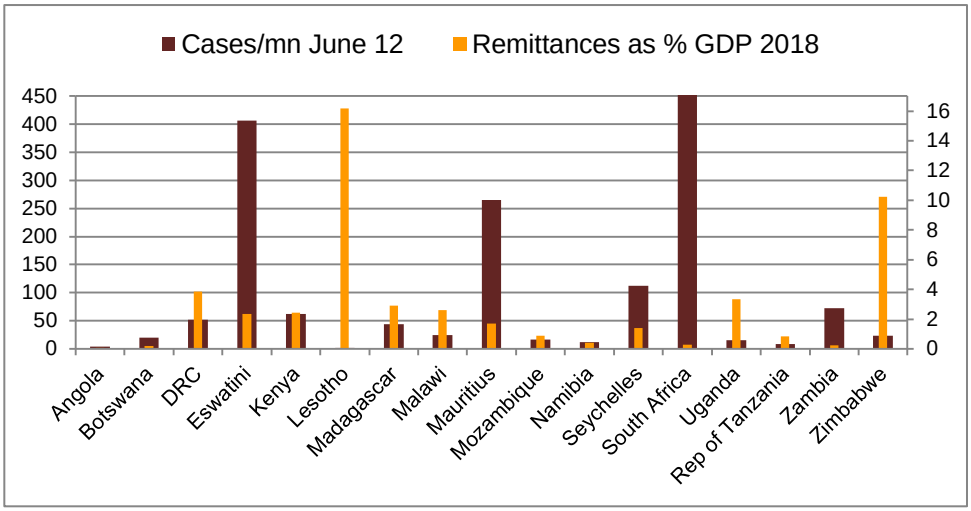
Sources: Worldometer 2020; WHO 2020; World Bank, 2020 , South Africa= 1045 cases

There are also factors in ESA countries that could have an impact on ***vulnerability*** **to COVID-19:**

- As shown in *Table 3,* some ESA countries have high levels of **refugee and internally displaced populations**, particularly DRC, Kenya, Tanzania and Uganda. These populations if located in camps may face risks related to intensity of settlement and access to water and services. There is no disaggregated evidence on these populations.
- An average level of 30% of chronic under 5 year **undernutrition** points to a level of food insecurity that may make populations more vulnerable to the impacts of COVID-19. Food insecurity, poverty and informal employment may affect the willingness of people who already face food and income insecurity to remain in quarantine if it deepens this insecurity. Many ESA countries have high levels of inequality (See *Table 3*), with the average Gini coefficient 48.2. This further indicates the precarious economic conditions lower income groups face that affect their possibility of staying in lockdowns and the need to prevent the impacts of COVID-19 on employment and incomes further widening inequality and the health vulnerabilities associated with it.

- *Figure 17* indicates the level to which **remittances** play a role in the different ESA countries. While shown as a share of national gross domestic product (GDP), remittances from migrants in other Africa countries and other regions globally are often critical for family incomes. For countries like Zimbabwe, Lesotho, Madagascar, DRC and Uganda, these financial flows may play a key role in reducing vulnerability to the impacts of COVID-19. Early evidence suggests that remittances may fall, due in part to lockdowns reducing informal and formal employment in host countries. The World Bank (2020) projects that remittances will fall globally by 20% and by 23% in Sub-Sarahan Africa as a result of COVID-19 and shutdowns, the steepest fall in recent history. There is as yet no cross country data on this, but there is evidence of migrants returning to home countries due to economic hardship in countries where they are working, with a risk of increased vulnerability from falling remittances and a risk of cross-border transmission, unless appropriately managed.

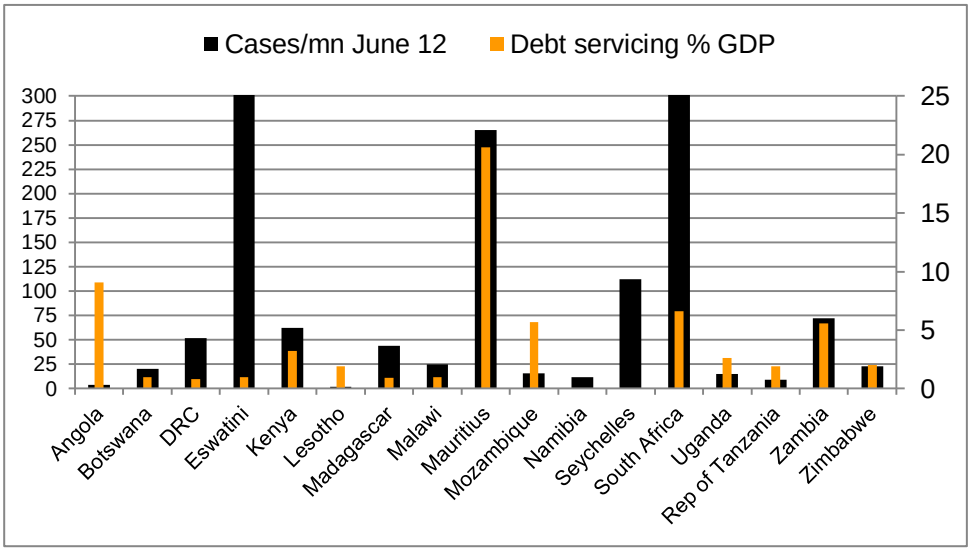
Figure 17: Covid-19 cases/mn and remittances



Sources: Worldometer 2020; World Bank, 2020; South Africa= 1045 cases

At national level, African Finance Ministers have pointed out that the ability to mobilise resources to respond to COVID -19 has been limited by the level of resource outflow in debt servicing, with UN Economic Commission for Africa (2020) estimating relief of debt servicing to yield US 44bn for African countries. While some of the lowest income countries have received a 6 month short term relief of debt servicing by the IMF, *Figure 18* suggests that the national income level cannot be the sole criteria for **debt relief,** such as for countries that have both high case levels and high shares of GDP in debt servicing, such as Zambia.

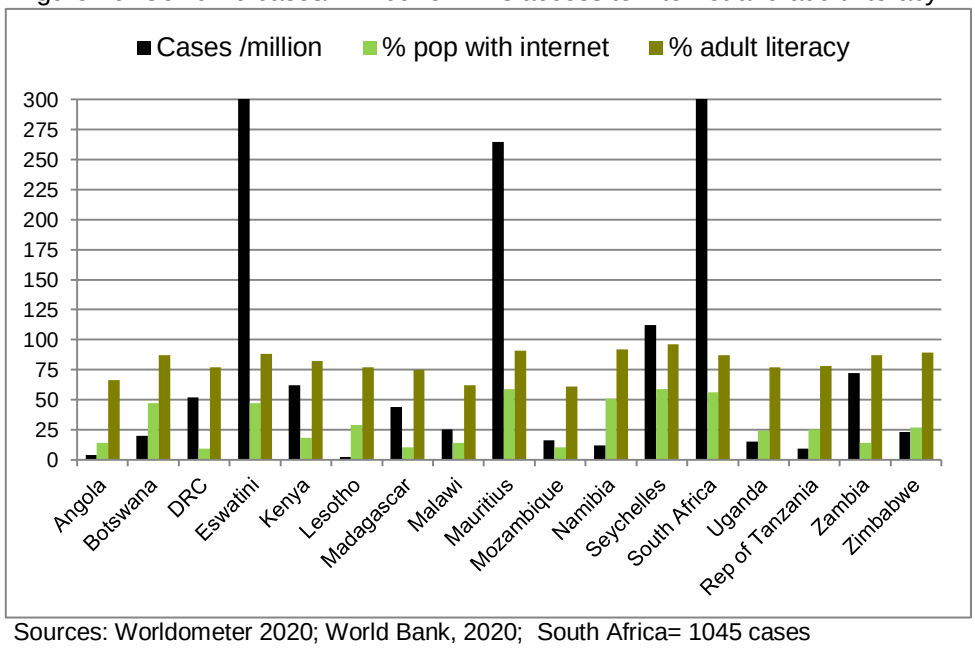
Figure 18: Covid-19 cases/mn and debt servicing



Sources: Worldometer 2020; World Bank, 2020; South Africa= 1045 cases

There are also **assets that support responses** and can reduce risk and vulnerability. Remittances, raised earlier, can support households to mitigate negative impacts, while local outreach services and water infrastructures help to prevent risk. High levels of adult literacy in ESA countries shown in *Figure 19* are assets for information outreach and the social responses that are critical for controlling Covid-19. While there is a high level of mobile phone ownership to support this (an average of 93 subscriptions per 100 people in the region) access to internet is much lower (see *Figure 19)* and data charges are high relative to other regions . Countries with higher internet access (South Africa, Seychelles, Mauritius, Namibia) have a greater potential to engage these social assets to manage COVID-19, to use test and trace apps, share new information, and to support remote education and economic activities during and after the epidemic.

Figure 19: Covid-19 cases/mn June 12 vs access to internet and adult literacy



Sources: Worldometer 2020; World Bank, 2020; South Africa= 1045 cases