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CIRCULAR H 155 OF 2020: PROVINCIAL COVID-19 RESPONSE PLAN

Purpose of the Document

The purpose of the document is to coherently communicate the WCDoH's plan in response to the COVID-19 outbreak in the province and pulls together multiple pieces of work in preparation for the surge. Note this is a living plan that will evolve as the epidemic evolves in the province.

Scope of the Document

The plan focuses particularly on the preparedness of the health service delivery platform, outlining the Department's strategic approach and more specific interventions to prepare the different care settings within the health system to respond in a responsible, comprehensive and decisive manner to the COVID-19 outbreak. The document also addresses the governance, resource management and information and surveillance approaches to managing the outbreak in the province.

Yours sincerely



DR KEITH CLOETE

HEAD OF DEPARTMENT

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DATE: 24/07/2020



Western Cape
Government

Health

COVID-19 Response Plan

July 2020

LET'S **STOP** THE SPREAD

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Acronyms

CHW	Community Health Workers
COPC	Community Orientated Primary Care
COVID-19	Coronavirus Disease 2019
CST	Community Screening and Testing
CTICC	Cape Town International Convention Centre
EC	Emergency Centres
EMS	Emergency Medical Services
FPS	Forensic Pathology Services
GIS	Geographic Information System
HCBS	Home and Community Based Services
HEI	Higher Education Institution
HIV	Human Immunodeficiency Virus
HoD	Head of Department
I&Q	Isolation and Quarantine
ICU	Intensive Care Unit
IPC	Infection Prevention and Control
JOC	Joint Operations Committee
LOGIS	Logistical Information System
M&E	Monitoring and Evaluation
MASHA	Modelling and Simulation Hub, Africa
MEDSAS	Medical Stores Administration System
MoU	Memorandum of Understanding
MRC	Medical Research Council
NHLS	National Health Laboratory Services
NICD	National Institute for Communicable Diseases
OHS	Occupational Health and Safety
OPEXCO	Operations Management Executive
PACK	Practical Approach to Care Kit
PCR	Polymerase Chain Reaction
PHC	Primary Health Care
PHDC	Provincial Health Data Centre

PPE	Personal Protective Equipment
PTM	Provincial Transversal Management
PUI	Persons Under Investigation
SARS	South African Revenue Services
SARS-CoV-2	Severe Acute Respiratory Syndrome Coronavirus 2
SGE	Strategic Governance Executive
SOP	Standard Operating Procedures
SYSPRO	Software package used by central hospitals for supply chain management and asset management
TB	Tuberculosis
TEXCO	Top Management Executive
TTC	Testing and Treating Centre
WCDoH	Western Cape Department of Health
WHO	World Health Organisation
WoGA	Whole of Government Approach
WoSA	Whole of Society Approach

Executive Summary

The Situation

The Western Cape reported its first case of COVID-19 on the 11th March and to date has had a total of 85 009 cases, constituting 22.6 % of all cases in the country. There is now established community transmission, particularly evident in the City of Cape Town District that accounts for 71% of the cases in the province and 15.7% of the cases in the country. As at the 21st July there have been 2 693 COVID-19 deaths reported in the province, of these deaths diabetes and/or hypertension are the most common co-morbidities.

Strategic Approach

The Department has identified 4 priority strategies to inform the provincial response to COVID-19,

1. Epidemic preparedness in the 'no cases' transmission scenario
2. Stop transmission in the 'sporadic case' transmission scenario
3. Contain and mitigate in the 'clusters of cases' transmission scenario
4. Protect the vulnerable and health workforce when there is established community transmission

Strategies 3 and 4 are the focus of the Provincial Hotspot Strategy, which is context specific and targets high risk groups like people who are 55 years and older and anyone else who has co-morbidities. Central to all 4 strategies are well crafted risk communication messaging coupled with nudge strategies to ensure people adopt the necessary mask wearing, hand and surface hygiene, respiratory etiquette and physical distancing measures to limit their risk of contracting the virus.

The provincial response is anchored by the following principles:

- A whole of government, whole of society approach
- Preparedness measures based on sound intelligence as far as is possible
- A nuanced approach, responsive to all 4 transmission scenarios
- Context sensitive approach to public health measures
- Risk communication that is dynamic and honest

Health Platform Response

The COVID-19 service design takes into consideration both the global and local experiences and is based on the assumption that approximately 88% of patients will present with mild to moderate disease, while the balance of patients will experience moderate to severe COVID-19 disease requiring hospitalisation. The Department is planning for three levels of acuity, mild to moderate, moderate, and severe. It is anticipated that patients with mild to moderate symptoms will predominately recover at home or in an intermediate care setting, patients with moderate symptoms will likely require acute hospital care and those with severe symptoms will need critical care either in high care setting or an ICU.

On the PHC platform the focus is on preventive interventions and supported self-care, targeting people who are asymptomatic or have mild COVID-19 symptoms. Quarantine and isolation facilities have been created to accommodate people who are unable to self-isolate and quarantine at home. An inpatient acute platform is being prepared to provide care for those with predominantly moderate to severe COVID symptoms. Intermediate care facilities will provide care for mild to moderate cases requiring hospitalisation; those with moderate symptoms will be cared for in a general acute bed; and those with severe disease will be cared for in high care or ICU. Due to the shortage of critical care beds, provision has been made for high-flow nasal oxygen and

dexamethasone therapy in general acute and intermediate care beds; and where patients have a very poor prognosis provision has been made for palliative care, for those patients with a poor prognosis.

It is estimated using the revised NECM model that the province will require approximately 5 450 beds to accommodate hospitalisations during the epidemic surge, of which 950 are for critical care. The Department is currently planning to have 5 983 public sector beds available and this includes 1275 intermediate care beds, 3 540 acute care beds, 450 critical care beds and 718 palliative care beds.

Introduction

The coronavirus disease 2019 (COVID-19) global outbreak was declared a pandemic on the 11th March 2020 by the World Health Organisation (WHO). On the 5th March South Africa reported its first case and on the 15th March the President declared the COVID-19 outbreak a national disaster, imposing a 6-week national lockdown from the 27th March to the end of April. The country currently remains largely on lockdown with a phased approach to lifting restrictions, this was to slow the spread of the virus, allowing the health system time to prepare for the epidemic surge. The Western Cape reported its first case on the 11th March 2020, currently 27.6% of COVID positive people in the country reside in the province, the vast majority, in the City of Cape Town District.

COVID-19 poses a significant threat to the health and wellbeing of the citizens in the province and the country as a whole. The Western Cape Department of Health (WCDoH) being responsible for driving the health system response, is playing a critical role in informing the whole of government response to COVID-19 in the province. This plan broadly captures the measures that are being put in place to prepare the provincial health system for the surge, coupled with strategies to contain the spread of the virus in the province and protect the most vulnerable. The intention is to (i) slow and stop transmission where possible; (ii) provide optimised care for those who are infected, especially the severely ill; and (iii) minimise the impact on the health system without compromising population health outcomes.

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Understanding the Western Cape Epidemic

Trends in Virus Transmission

As at 21st July 2020, The Western Cape had conducted 378 895 tests and had a total of 85 009 cases of COVID-19. Of these, 70 061 had recovered, 12 254 were active cases and a total of 2 693 deaths had been confirmed. At the start of the epidemic, cases were imported from other countries, however, from mid-April this changed as local transmission took over (see Figure 1). There is now established community transmission in the City of Cape Town District, with 71% of cases residing in the city. Approximately 32% of all rural cases are in the Breede Valley and Drakenstein municipalities in Cape Winelands. See Table 1 which provides a breakdown of cases per municipality in the province as at the 21st July 2020.

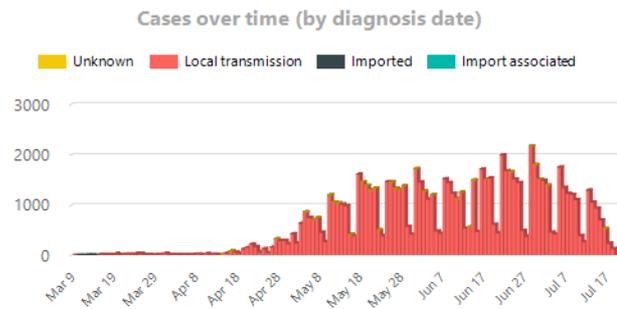


Figure 1: Total cases per day over time

Table 1: Case per Municipality as at the 21st July 2020

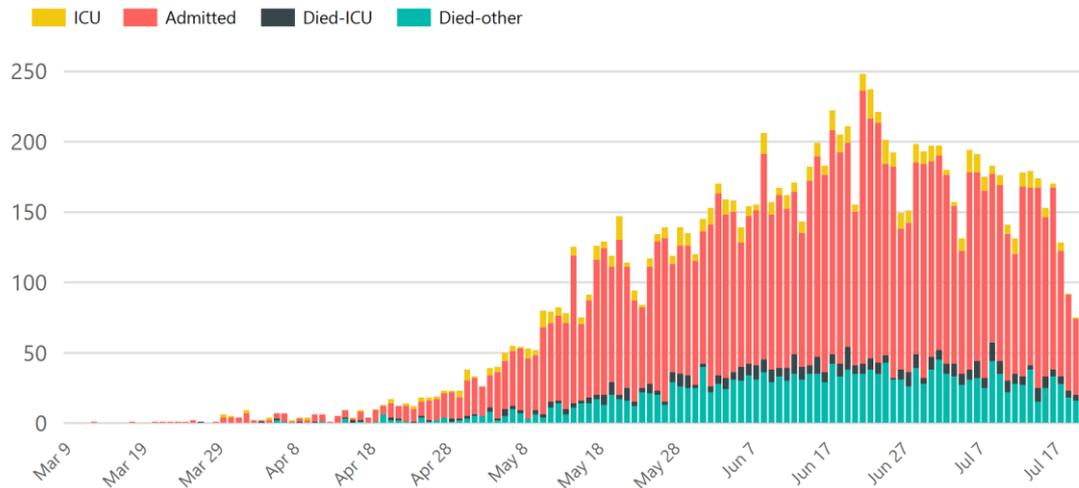
Events by Area		Cases									Admissions***					Deaths****					
District	Subdistrict	All cases			per 100,000 pop			Recent cases*			Total	per million	7-14d	<=7d	Incr.	Total	per million	SDR**	7-14d	<=7d	Incr.
		Total	Active	Rec.	Cases	Active	<=7d	7-14d	<=7d	Incr.											
City of Cape Town	Eastern	7743	878	6604	1099	125	61	724	431	60%	1176	1670	100	78	78%	261	371	376	41	33	80%
	Khayelitsha	7479	563	6593	1689	127	50	333	222	67%	1197	2704	72	49	68%	323	730	1313	16	18	113%
	Klipfontein	7780	814	6575	1896	198	88	485	361	74%	1508	3675	123	81	66%	391	953	923	26	22	85%
	Mitchells Plain	6795	797	5745	1104	130	71	502	437	87%	1043	1695	86	91	106%	253	411	554	25	29	116%
	Northern	4964	624	4217	1061	133	68	360	319	89%	634	1356	49	38	78%	123	263	196	8	15	188%
	Southern	7479	996	6220	1253	167	83	665	495	74%	1134	1900	87	72	83%	263	441	334	31	21	68%
	Tygerberg	10693	1257	9087	1465	172	84	1000	616	62%	1456	1994	130	104	80%	349	478	486	47	42	89%
	Western	7187	894	6074	1138	142	81	540	510	94%	994	1575	92	78	85%	219	347	340	26	30	115%
	Sub-total	60120	6823	51115	1307	148	74	4609	3391	74%	9142	1988	739	591	80%	2182	474	468	220	210	95%
Cape Winelands	Breede Valley	2465	427	1979	1324	229	149	281	278	99%	271	1455	30	20	67%	59	317	351	9	13	144%
	Drakenstein	3471	404	2944	1127	131	76	290	235	81%	481	1562	34	19	56%	123	399	441	15	16	107%
	Langeberg	846	176	645	747	155	99	127	112	88%	93	822	8	13	163%	25	221	241	6	5	83%
	Stellenbosch	1632	249	1335	852	130	72	189	138	73%	177	924	20	9	45%	48	251	329	1	5	500%
	Witzenbosch	1064	210	822	742	146	110	119	158	133%	127	886	17	13	76%	32	223	288	5	5	100%
	Sub-total	9478	1466	7725	1006	156	98	1006	921	92%	1149	1219	109	74	68%	287	305	355	36	44	122%
West Coast	Bergvliet	291	62	223	414	88	65	25	46	184%	26	370	5	5	100%	6	85	91	1	0	0%
	Cederberg	83	30	51	153	55	39	13	21	162%	33	607	3	5	167%	2	37	61	0	0	NaN
	Matzikama	174	61	106	243	85	59	32	42	131%	38	532	3	3	100%	7	98	101	1	0	0%
	Saldanha Bay	1026	193	811	863	162	81	148	96	85%	134	1128	15	19	127%	22	185	303	3	4	133%
	Swartland	986	234	723	664	158	95	150	141	94%	117	788	17	11	65%	29	195	297	4	4	100%
Sub-total	2560	580	1914	552	125	75	368	346	94%	348	751	43	43	100%	66	142	197	9	8	89%	
Overberg	Cape Agulhas	143	56	85	381	149	96	34	36	106%	17	453	4	3	75%	2	53	67	0	0	NaN
	Overstrand	1203	216	973	1178	211	125	252	128	51%	119	1165	19	12	63%	14	137	107	1	1	100%
	Swellendam	208	75	127	496	179	133	45	56	124%	23	548	4	4	100%	6	143	149	1	1	100%
	Theewaterskloof	826	161	643	699	136	81	154	96	62%	86	728	6	9	150%	22	186	245	6	6	100%
	Sub-total	2380	508	1828	794	169	105	485	316	65%	245	817	33	28	85%	44	147	147	8	8	100%
Garden Route	Blitou	276	129	142	414	193	135	64	90	141%	19	285	6	3	50%	5	75	90	1	1	100%
	George	1850	686	1124	881	327	236	403	496	123%	187	890	40	28	70%	40	190	194	6	16	267%
	Hessequa	90	37	52	168	69	73	18	39	217%	8	149	1	2	200%	1	19	10	0	0	NaN
	Kannaland	44	22	22	196	98	67	8	15	188%	3	133	0	1	∞	0	0	0	0	0	NaN
	Krystia	674	327	336	879	427	321	134	246	184%	33	430	11	8	73%	11	143	135	1	5	500%
	Mossel Bay	833	389	434	874	408	210	253	200	79%	52	546	11	10	91%	10	105	75	4	3	75%
	Oudshoorn	300	130	160	319	138	69	100	65	65%	46	489	13	6	46%	10	106	104	4	3	75%
Sub-total	4067	1720	2270	657	278	186	980	1151	117%	348	562	82	58	71%	77	124	114	16	28	175%	
Central Karoo	Beaufort West	136	74	55	269	146	109	33	55	167%	28	553	10	7	70%	7	138	138	2	4	200%
	Langsburg	17	10	7	187	110	121	2	11	550%	1	110	0	0	NaN	0	0	0	0	1	∞
	Prince Albert	1	1	0	7	7	0	1	0	0%	0	0	0	0	NaN	0	0	0	0	0	NaN
Sub-total	154	85	62	207	114	89	36	66	183%	29	390	10	7	70%	7	94	90	2	5	250%	
Unallocated	Unallocated	6250	1073	5147	∞	∞	∞	960	913	95%	180	∞	21	17	81%	30	∞	NaN	7	10	143%
	Sub-total	6250	1073	5147	∞	∞	∞	960	913	95%	180	∞	21	17	81%	30	∞	NaN	7	10	143%
Western Cape		85009	12255	70061	1215	175	102	8444	7104	84%	11441	1635	1037	818	79%	2693	385	298	313	105%	

∞ Based on date first added to WC live list, which will be later than the date of diagnosis. ** Standardized Death Rate: age and sex standardized on the total WC population. *** There may be a period lag in recording of admissions over the most recent days. **** Based on date of death reporting, should average over time, but there is a consistent lag to from true date of death.

Trends in Hospitalisation & Deaths

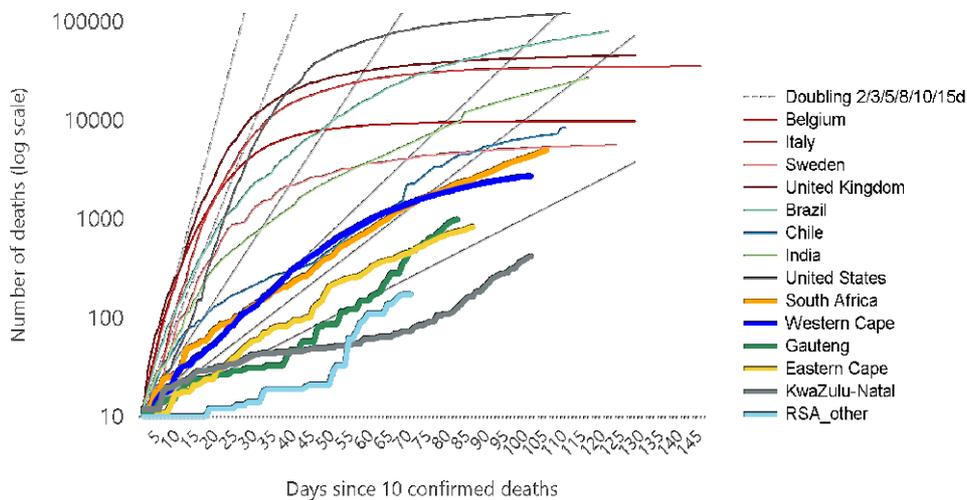
There have been 22 358 hospitalisations across the public and private sector since the start of the epidemic, currently there are 2 319 admissions of which 243 (10,5%) are in critical care. Of these current admissions, 2 067 are general admissions, with 1 369 being COVID-confirmed and 707 persons under investigation. Figure 2 shows the hospitalization and deaths per day in the Western Cape. Hospital admissions and deaths have been increasing steadily, with an exponential increase seen from mid-April, however since mid-June the numbers have started to plateau.

Figure 2: Hospitalisation Trends



The true underlying burden of COVID-19 is likely higher than the number of cases detected. Currently there are an average 39-40 deaths per day, at a case fatality rate of 3%, this means that roughly 1300 people became infected in the preceding week (roughly 8 days prior to death if allowing for incubation of 3 days; 2.5 days to admission; and 2.5 days to death). If 30% of cases are asymptomatic, then the true number of cases is likely 1 857 new cases 8 days prior. Table 1 shows that the total number of cases detected through testing in the Western Cape in the last 7 days is 7 104, which is approximately 1 014 cases per day in the preceding week.

Figure 3: Death Doubling Time



The death doubling time is currently sitting at around 12-13 days. Although the cumulative number of cases will increase, Figure 3 shows that rate at which the number of deaths doubles is slowing down. Death doubling time is a measure of containment of the virus. Therefore a decreasing rate of change for death doubling time indicates that virus transmission is being curtailed and is slowing down. It may also indicate that treatment of patients with Covid-19 is effective and successful. The number of daily deaths per 1 million population is also slowing down. Figure 4 shows that the rate at which this number increases has been slowing down and may even be on a downward trajectory.

Figure 4: Daily deaths per million population

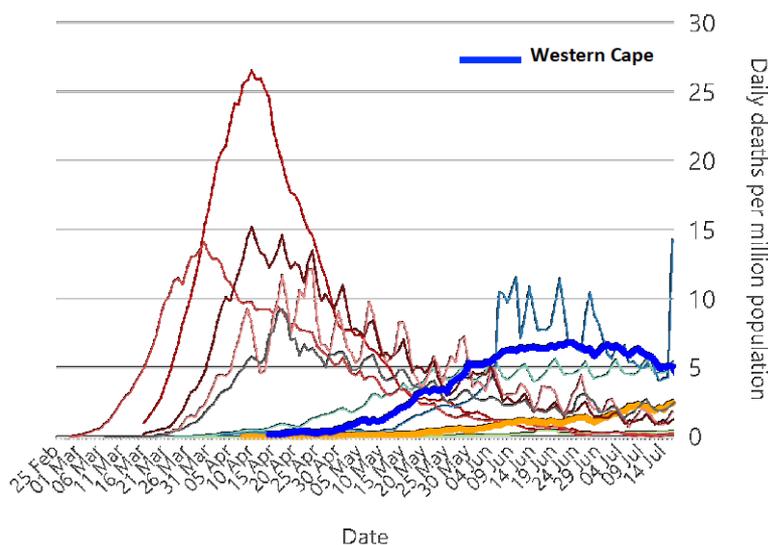


Figure 5 shows the various comorbidities that present in the COVID-19 deaths. The top comorbidities per age category, in order, are as follows:

- 20-29 years: HIV infection and current/previous TB infection.
- 30-39 years: current/previous TB infection, diabetes and HIV infection
- 40-49 years: diabetes, HIV infection and current/previous TB infection..
- 50-59 years: diabetes, hypertension, and HIV infection.
- 60-69 years: hypertension, diabetes and COPD
- 70 years and older: Hypertension, diabetes and chronic kidney disease.

Figure 5: Comorbidities by age group at death

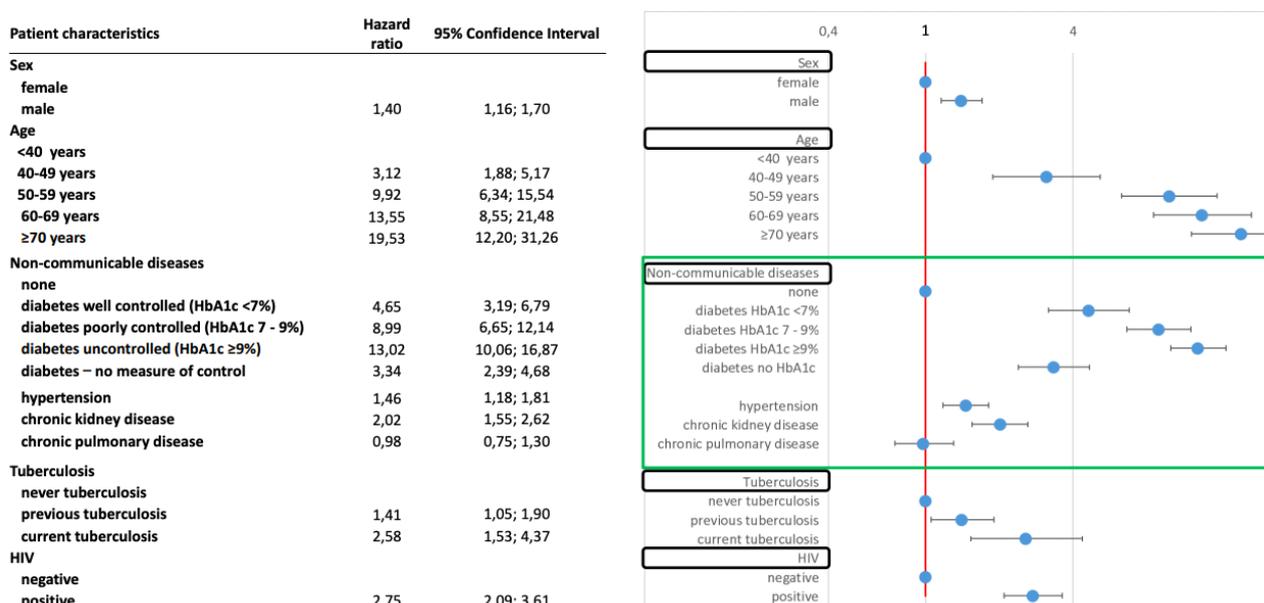
Comorbidities in adults (>20 years) deceased from COVID-19 until 8 July 2020													
Age group in years	Total deaths	Males	Diabetes	Hypertension	Cardio-vascular disease	Chronic kidney disease	Chronic pulmonary disease / asthma	Cancer	HIV	TB current	TB ever	Other co-morbidity	3 or more co-morbidities
20-29	41	19 (46%)	4 (10%)	4 (10%)	0	0	2 (5%)	1 (2%)	12 (29%)	4 (10%)	6 (15%)	0	3 (7%)
30-39	124	55 (44%)	36 (29%)	25 (20%)	3 (2%)	6 (6%)	6 (6%)	3 (2%)	33 (27%)	13 (10%)	25 (20%)	7 (6%)	24 (19%)
40-49	259	149 (58%)	109 (42%)	60 (31%)	5 (2%)	13 (5%)	29 (11%)	3 (1%)	75 (29%)	14 (5%)	43 (17%)	7 (3%)	56 (22%)
50-59	512	283 (55%)	300 (59%)	264 (52%)	10 (2%)	61 (12%)	50 (10%)	7 (1%)	83 (16%)	13 (3%)	65 (13%)	1 (3%)	130 (25%)
60-69	573	307 (54%)	312 (54%)	322 (56%)	15 (3%)	71 (12%)	87 (15%)	6 (1%)	52 (9%)	13 (2%)	61 (11%)	27 (5%)	142 (25%)
≥70	673	321 (48%)	261 (42%)	391 (58%)	35 (5%)	129 (19%)	101 (15%)	15 (2%)	19 (3%)	9 (1%)	33 (5%)	57 (8%)	158 (23%)

Note: Comorbidity numbers are based on routine reporting of comorbidities in deceased patients (all patients) and previous public sector health service records of comorbidities for those treated in the public sector for their comorbidities. Comorbidities may therefore be under-reported for private sector patients and for comorbidities that can't readily be inferred from public sector health records. Obesity is an important comorbidity in COVID-19 but is not reported here as it is not routinely captured.

Of the 2 182 deaths, 18.8% of cases had 3 or more co-morbidities. Of all cases, who died (49.8%) had hypertension as a co-morbidity with diabetes following as the second commonest co-morbidity (47.8%). Previous TB infection was found in 10.7% of deaths with current TB being a co-morbidity in 3%. Chronic pulmonary disease and HIV infection were prevalent in 12.7 and 12.6% of those who died, respectively. Cardiovascular disease was a comorbidity in 3.1% of 2 182 Covid-19 deaths.

Figure 6 shows the chance of dying given the presence of various risk factors. The left shows the hazard ratios, while the right displays this risk graphically. The risk of death for males who are infected is 1.4 times the risk of females. The risk of dying if you are 40-49 years, 50-59 years, 60-69 years and 70 years or older is 3.12 times, 9.92 times, 13.55 times, and 19.53 times greater than if you are younger than 40 years old, respectively. Therefore, this shows that the risk of death is clearly higher the older you are.

Figure 6: Risk factors that influence the likelihood of death



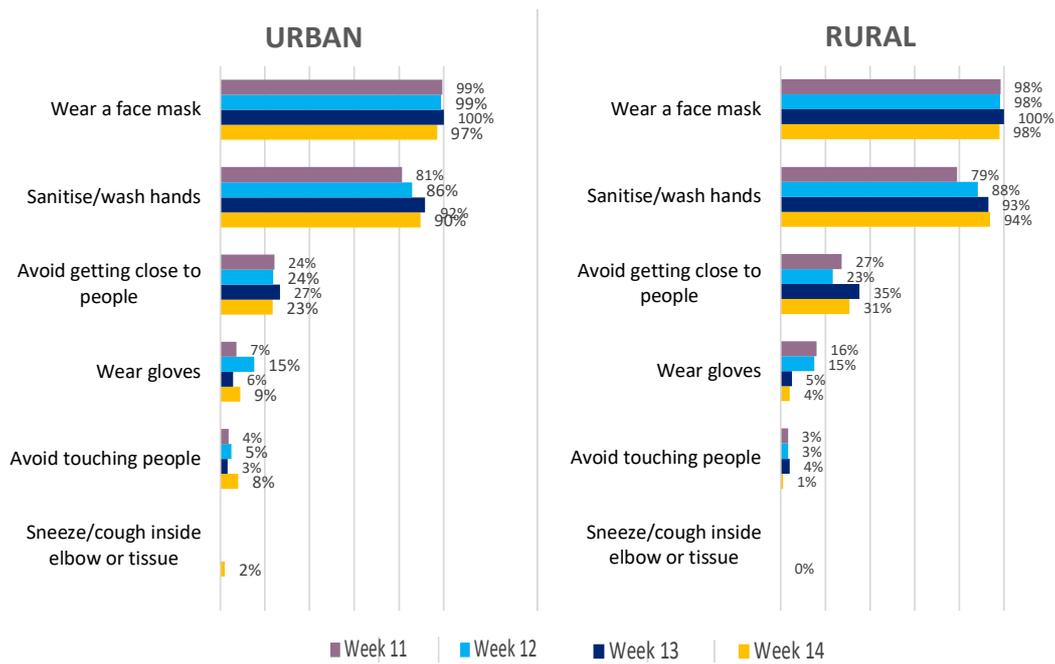
For diabetics, the risk of death is greater than in those who have no non-communicable disease. Furthermore, risk of death in diabetics increases the more poorly controlled blood glucose levels are and similarly, the presence of hypertension and chronic kidney disease increases risk of death. Current TB as well as previous TB presents an increased risk of dying. HIV positivity also presents a 2.75 times greater risk of dying compared to HIV negative people who have Covid-19. Risk in HIV positive patients was the same whether or not they had attained viral suppression.

Trends in the Practice of Personal Protective Behaviours

The rate of transmission of the virus can be increased or decreased as a direct result of the actions of individual citizens. The collective behaviour of individuals in a given area can have a profound effect on the whether or not the virus is allowed to spread. A provincial self-reporting community survey found that most people chose to wear a mask, 97% of urban and 98% of rural respondents indicating that they wore masks when leaving the home. This is a positive trend, likely to reduce the risk of transmission in the province.

Handwashing/sanitisation prevalence increased steadily over the course of June, with 90% and 94% of urban and rural respondents, respectively, engaging in the protective behaviour by the last week of June. Almost a quarter and a third of urban and rural dwellers surveyed, respectively, avoided getting too close to people outside of the home. Very few people avoided touching other people or sneezed into their elbows or into a tissue. Thus there is considerable room for improvement in personal protective behaviour as a prevention strategy, see Figure 7.

Figure 7: Percentage of survey respondents practicing personal protective behaviours



In a separate exercise, community interviews were conducted – 64 respondents provided answers to a series of questions which sought to elicit norms or beliefs in various communities related to the following themes; wearing of face masks, hand sanitizing and washing, risk of dying, and risk of transmission. Some of the norms and beliefs included:

- Not wearing a face mask is seen as socially acceptable.
- Inability to afford a mask.
- Forgetting to wear the mask because the person is not used to doing so.
- Poor knowledge of the importance of wearing a mask.
- Face masks are worn incorrectly by only covering the mouth and not the nose.
- Sharing of unwashed face masks.
- Same frequency of hand-washing as pre-epidemic times.
- Hand-washing driven by belief that perceived vulnerable family members will be protected.
- Sanitizing hands when there are external cues such as mandatory sanitation before entering a shop.
- Not knowing which chronic diseases increased risk of dying.
- Not knowing age categories in which risk of dying is higher.
- Belief that Covid-19 does not exist in private residences and only exists in public spaces.

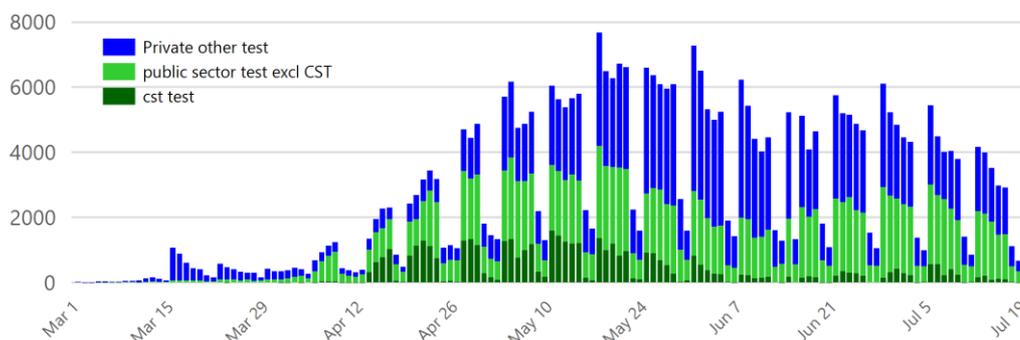
Whilst the sample size in both the community surveys and the community questionnaires were relatively small, the results do provide useful insights into what influences adherence to personal protective behaviours. Note as these surveys involved self-reporting the results should be viewed with caution for an element of bias.

Trends in Testing

There has been a change in the testing policy from the beginning of June, City of Cape Town District moved from screening and testing all symptomatic people to only testing those who met the following criteria:

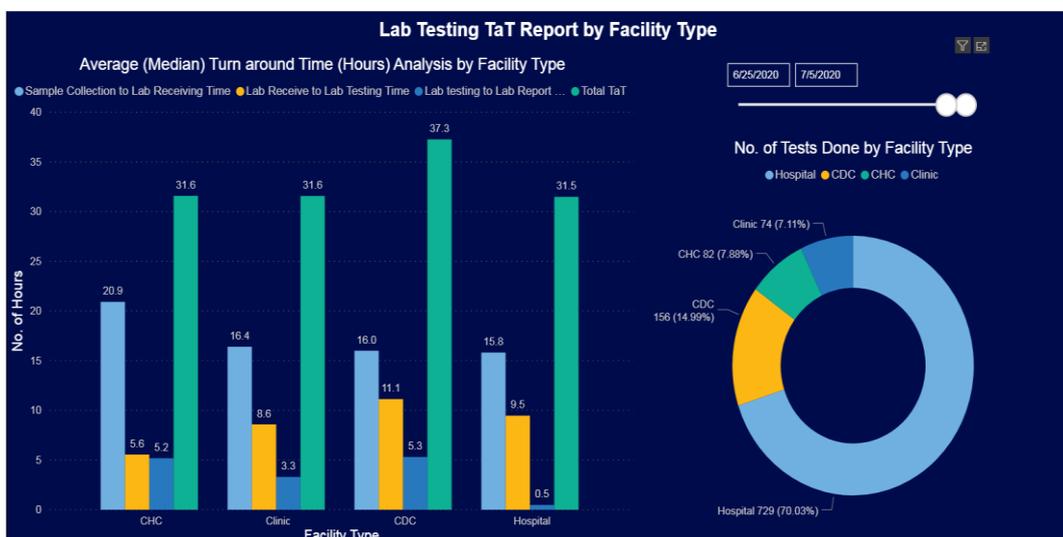
- Those admitted to hospital.
- Those over 55.
- Those with one or more of the following conditions: diabetes, hypertension or heart disease on treatment.
- Those with cancer on treatment.
- Those with tuberculosis on treatment.
- Those with HIV with poor adherence to ARVs.
- Those with chronic lung disease (e.g. asthma, emphysema, chronic bronchitis).
- Healthcare workers
- Those living in care or old-age homes.

Figure 8: Number of laboratory tests done per day



The impact of the change in testing policy is evident in Figure 8, as the community testing and screening (CST) contributed less to the overall test numbers from the beginning of June. Testing capacity has been boosted through agreements with private laboratories and academic institutions. The current turnaround time for Covid-19 laboratory results ranges from 31.5 to 37.3 hours (Figure 9).

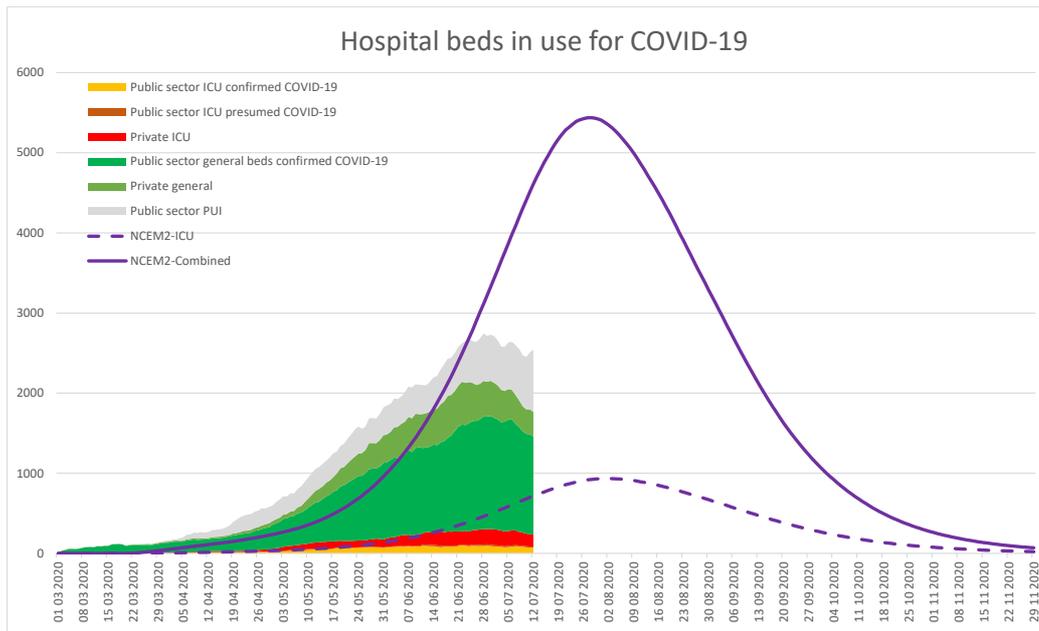
Figure 9: Turnaround time for laboratory tests done per day



Predicting Demand at the Surge

Calibration of actual data with the modelled scenario estimates the peak of the epidemic is likely at the end of July (see Figure 10). The actual general and ICU admissions have been significantly lower than numbers forecasted by the NCEM2 model. The model predicts that a total of 5 450 beds will be required across the public and private sectors to meet the demand for hospitalisations at the peak. The critical care beds need is 950, with the balance being for general acute beds. It is important to note that beds for persons under investigation (PUI) are also required, and the modelled output includes this amount.

Figure 10: Bed Demand at the epidemic peak



Strategic Approach to the Response

Priority Strategies

The Department's priority focus areas (see Figure 11) for each of the transmission scenarios, are as follows. Note that in each scenario there will be preparations for the next transmission scenario.

Epidemic Preparedness

In the 'no case' transmission scenario the Department will focus on preparing for the epidemic by:

- Setting up screening and triage protocols in all health care settings
- Readying the health system for the surge
- Developing a risk communication strategy
- Conducting active case finding

Stop Transmission

In the 'sporadic cases' scenario the focus is on stopping transmission by:

- Rapidly test and trace
- Isolating all positive cases
- Quarantining all contacts
- Screen and triage at all points of access to the health system
- Implementing public health measures like mask wearing, hand and surface hygiene, respiratory etiquette and physical distancing

Contain and Mitigate

In the 'clusters of cases' scenario the focus is on containment and mitigation by:

- Test all symptomatic cases in the cluster environment
- Rapid testing and tracing of all possible contacts outside of the cluster environment
- Isolating all positive cases and quarantining all contacts
- Tailoring care in accordance with the severity of symptoms and vulnerability
- Implementing public health measures like mask wearing, hand and surface hygiene, respiratory etiquette and physical distancing

Protect the most vulnerable and the health workforce

In the 'community transmission' scenario demand for care is likely to exceed the resources available and thus the focus is on protecting the vulnerable and the health workforce by:

- Limit testing to the vulnerable and health workers
- Managing the demand for care with clear clinical decision-making support
- Reprioritising resource allocations
- Rapidly operationalise additional capacity created specifically for the surge



Figure 11: Priority Strategies

Pillars of our COVID-19 Response



Find

In areas of the province where there are no cases or sporadic cases, active case finding, contact tracing, quarantine of suspected cases and isolation of confirmed cases is the focus of the response. All health care settings have mechanisms in place to screen and triage for the virus and where there are clusters of cases and community transmission those vulnerable to severe disease are targeted to ensure early intervention.



Test

The test strategy in areas of no cases or sporadic cases all suspected cases are tested in accordance with the relevant NICD guideline. In areas where there are clusters, all people in the cluster environment should ideally be tested to contain the spread. In the context of established community transmission, where the demand for testing exceeds the testing capacity, people under investigation in hospital, people with co-morbidities, people 55 years and older; health workers and other designated essential workers will be prioritised for testing.



Isolate

In the no cases, sporadic cases and cluster of cases transmission scenarios, all positive cases must ideally self-isolate and where self-isolation is not possible the province will provide an isolation facility. In the context of established community transmission, it was initially assumed that the demand for government provided isolation facilities would exceed the capacity available and that access would have to be based on clearly defined vulnerability criteria that considers the risk of severe disease. In reality, the rate of decline when offered access to isolation facilities increased significantly with the reduction of the lockdown levels from Level 5 to Level 4 to Level 3 (exceeding 80%). Reasons have included fear of personal and household thief and the likely restrictions on personal freedoms like smoking, drinking, amongst others.



Quarantine

All people who have come into contact with a positive case must be quarantined where there are no, sporadic or clusters of cases. In the context of established community transmission it was assumed that the quarantine strategy for government provided quarantine facilities would have to be based on clearly defined criteria for vulnerability as demand was expected to exceed available resources. In reality, the rate of decline when offered access to isolation facilities increased significantly with the reduction of the lockdown levels from Level 5 to Level 4 to Level 3 (exceeding 80%).



Care

Primary Health Care (PHC)

The primary health care strategy will focus on primary prevention in the form of public health measures like mask wearing, hand and surface hygiene, physical distancing and respiratory etiquette in all four transmission scenarios. Where there is established community transmission, community based supported self-care interventions will dominate the PHC response to minimise the strain on the health system.

Acute Inpatient Care

This strategy is focused on providing adequate access to inpatient care for people with moderate to severe symptoms of the disease, with clear clinical protocols for managing patients in accordance with their evolving care needs, at the same time protecting the health workforce. This strategy applies in all transmission scenarios however where there is established community transmission there must be clear guidance for clinicians on care rationing when demand starts to exceed the acute inpatient care resources.

Palliative Care

The palliative care strategy focuses on those experiencing severe symptoms who have a poor prognosis and are unlikely to benefit from critical care interventions. Provision is being made for both palliation and end of life care with clear clinical guidelines to support clinicians. This strategy applies to all 4 transmission scenarios, however as community transmission is established and care is rationed to manage demand, the uptake of palliative care is expected to rise rapidly.

Death Management

This strategy is focused on creating additional capacity both within the health system and in partnership with municipalities and the undertaker fraternity, in preparation for the surge in demand for mortuary services as community transmission becomes established.

Guiding Principles for Action

The WCDoh's response grounds the broader provincial government response and is based on the following guiding principles

A whole of government, whole of society approach

Central to any response when dealing with a threat of this nature is a coordinated multisectoral approach that harnesses the collective resources of the province to ensure responsive, comprehensive and decisive action. Unlocking relational power by leveraging off the social capital of key health actors is central to the effectiveness of this response as managing an epidemic well relies heavily on trust, cooperation and collective action.

Preparedness measures based on sound intelligence as far as is possible

Striking a balance between explicit and tacit knowledge across a broad range of health actors is key to ensuring that we don't stop at 'disease interventions' and progress to 'human centred interventions'. In this time of great uncertainty a rapid response is required, at scale and our collective learning needs to keep pace with this reality. We need to ensure we learn from the experiences of others, being mindful of both power dynamics that stop people from sharing freely and the emergent nature of epidemics.

A nuanced approach, responsive to all 4 transmission scenarios

The World Health Organisation (WHO) has defined four transmission scenarios for COVID-19: no cases, sporadic cases, clusters of cases, and community transmission. The province has a combination of these four scenarios across districts, necessitating a context sensitive approach and the provincial health system needs to have the flexibility to dealing with all 4 scenarios simultaneously.

Context sensitive approach to public health measures

Measures like physical distancing, mask wearing, hand and surface hygiene and respiratory etiquette are important public health measures to limit the spread of the virus. However a number of our citizens are likely to struggle to implement these practices in their daily living environments. Thus Government would need to find innovative ways to enable and support people in protecting themselves acquiring or spreading the virus.

Risk communication that is dynamic and honest

Risk communication is lifesaving in a public health emergency and key in the response to an outbreak. The latest and most accurate available information on the epidemic must be frequently and honestly shared; with open acknowledgment of the uncertainties, in order to maintain credibility and trust.

Service Delivery Capability for COVID-19

Testing & Tracing Capability

Case and contact tracing is a foundational strategy to manage the Covid-19 epidemic. It has distinct roles in all four transmission scenarios of the epidemic and has consequently, evolved in concert with the epidemic in Cape Town and in the rural districts of the province.

The Approach

The approach to case and contact tracing is tailored to transmission scenarios playing out in defined geographical areas of the province.

The 'no cases' transmission scenario

In this scenario active case finding is required, this means vigilance for any case that enters the province or district and the focus is on messaging to people returning to the country or entering the area, alerting them to symptoms and encouraging those with symptoms to test.

The 'sporadic cases' transmission scenario

In the context sporadic cases the focus here is on stopping transmission, this requires timeous throughput of laboratory specimens and the contact of cases on the same day that the results become available. This is best done through telephoning the cases, or if that fails, arranging for a home visit. In addition, effort to shutdown transmission requires attention to ascertaining the close contacts of cases, contacting them to ensure quarantining.

The 'clusters of cases' transmission scenario

This scenario occurs when more than one case has been detected in for example a workplace or home setting. Focusing on testing close contacts of cases in these settings, with and without symptoms, is critical. Both symptomatic and asymptomatic cases should go into isolation, and their

close contacts should quarantine. Case and contact tracing in this phase of the epidemic aims to contain the epidemic, to prevent widespread community transmission. Tracing and contacting close work contacts of each case is the responsibility of the workplace.

The community transmission scenario

In this context, case and contact finding becomes less effective in the prevention of further disease transmission, on account of the exponential increase in cases. The focus shifts to the protection of high risk people and reserving test kits for these high risk people, for health workers, and for the sick. Nonetheless, the focus on contacting cases and high risk contacts is important, and each person tested has the right to know their status in order to manage their own health status and to protect the health of their families and communities. Mild cases will not be tested but when COVID-19 is suspected, the person concerned will be asked to self-isolate.

The Process

Tracing PODs

PODs have been created to co-ordinate contact tracing activities, and are operationalised in line with the transmission scenario of a particular geographical area. In the City of Cape Town District where there is established community transmission, there are 2 PODs per sub-structure. In rural districts PODs operate at sub-district level. A call centre has been established to follow-up cases and their contacts in co-ordination with field teams and PODs.

Case and contact tracing involves interviewing people to ascertain risk and prevent further infection as well as ensure that cases and contacts know what their responsibilities are to prevent ongoing viral spread. The interviews are also a means to determine the risk of further community transmission, and food insecurity which both promote ongoing viral transmission, see Table 2. At the end of May case and contact tracing was devolved to district and sub-district levels.

Table 2: Interview Script for COVID Positive Cases & their Contacts

CASES	CONTACTS
<ol style="list-style-type: none"> 1. If mildly affected, know what to do should they become ill. 2. Information about isolation: <ul style="list-style-type: none"> <input type="checkbox"/> <i>Asymptomatic people</i> need to isolate for 14 days from the date of diagnosis <input type="checkbox"/> <i>mildly symptomatic people</i> need isolate from date of symptom start <input type="checkbox"/> <i>severe illness people</i> need to isolate for 14 days from clinical stability (using hospital discharge as a proxy) 3. Determine if they are able to isolate at home and refer for off-site isolation if needed. 4. Determine if there are special needs in the household (food security, children and other concerns). 5. Ascertain close contacts, and obtain telephone numbers 6. Capture data (for case and contacts) and send information to field teams for action (food insecurity, isolation requests) 	<ol style="list-style-type: none"> 1. Inform them that they are a contact of a known case (name if case consents to disclosure) 2. Inform them about their risk of infection and what they should do if they develop mild or severe symptoms 3. Determine if they are at risk for severe disease. 4. Determine whether they can self-quarantine at home and refer for off-site quarantine if needed. 5. Determine if there are special needs in the household (food security, children and other concerns). 6. Inform outreach team about high risk contacts.

Case and contact tracing in the workplace

All employers are required to manage the workplace contacts of cases and employees are responsible for informing the workplace of their COVID-19 status. However, if there is doubt about this, the field team may contact the workplace. It is the responsibility of the workplace to inform the Department of Labour and the Department of Health.

Testing & Triage at Health Facilities

Fifty seven Testing and Triage Centres (TTC) are being constructed across the public health platform (see Table 3). Of these, 25 are operational, 22 are under construction and 10 TTCs are in the planning and procurement phase. The design for these centres is based on COVID-19 IPC strategies and enables patient triaging and channelling through the facility with minimal exposure for both service users and health workers.

Table 3: Status of TTC in the Province

OPERATIONAL		
<input type="checkbox"/> Tygerberg Hospital <input type="checkbox"/> Victoria Hospital <input type="checkbox"/> Khayelitsha Hospital <input type="checkbox"/> Karl Bremer Hospital <input type="checkbox"/> Mitchells Plain Hospital <input type="checkbox"/> Red Cross Children's Hospital <input type="checkbox"/> Groote Schuur Hospital <input type="checkbox"/> Elsies River CHC <input type="checkbox"/> Robertson Hospital	<input type="checkbox"/> Paarl Hospital <input type="checkbox"/> New Somerset Hospital <input type="checkbox"/> George Hospital <input type="checkbox"/> Wesfleur Hospital <input type="checkbox"/> Eerste River Hospital <input type="checkbox"/> Mowbray Maternity Hospital <input type="checkbox"/> Stellenbosch Hospital <input type="checkbox"/> Symphony Way CDC	<input type="checkbox"/> Worcester Hospital <input type="checkbox"/> False Bay Hospital <input type="checkbox"/> Helderberg Hospital <input type="checkbox"/> Kraaifontain CHC <input type="checkbox"/> Heideveld Emergency Centre <input type="checkbox"/> Ceres Hospital <input type="checkbox"/> Bothasig CDC <input type="checkbox"/> Gustrouw CDC
UNDER CONSTRUCTION		
<input type="checkbox"/> Kleinvlei CDC <input type="checkbox"/> Macassar CDC <input type="checkbox"/> Durbanville CDC <input type="checkbox"/> Reed Street CDC <input type="checkbox"/> Gugulethu CDC <input type="checkbox"/> Beaufort West Hospital <input type="checkbox"/> Harry Comay Hospital <input type="checkbox"/> Hawston CDC	<input type="checkbox"/> District Six CDC <input type="checkbox"/> Retreat CHC <input type="checkbox"/> Du Noon CHC <input type="checkbox"/> Vangaurd CHC <input type="checkbox"/> Beaufort West CHC <input type="checkbox"/> Alan Blythe Hospital <input type="checkbox"/> De Doorns CHC	<input type="checkbox"/> Kleinmond CHC <input type="checkbox"/> Slangrivier Satellite Clinic <input type="checkbox"/> Asla Park Clinic <input type="checkbox"/> Craggs Clinic <input type="checkbox"/> Nieuveldpark Clinic <input type="checkbox"/> Hermanus Hospital <input type="checkbox"/> Klappmuts CHC
PROJECTS IN PROCUREMENT		
<input type="checkbox"/> Citrusdal Clinic <input type="checkbox"/> Diazville Clinic	<input type="checkbox"/> Klawer Clinic <input type="checkbox"/> Piketberg Clinic	<input type="checkbox"/> Riebeeck West Clinic <input type="checkbox"/> Veldrif Clinics <input type="checkbox"/> Hermanus CDC
PROJECTS IN PLANNING		
<input type="checkbox"/> Bella Vista Clinic	<input type="checkbox"/> Gansbaai Clinic	<input type="checkbox"/> Railton Clinic.

Quarantine and Isolation Capability

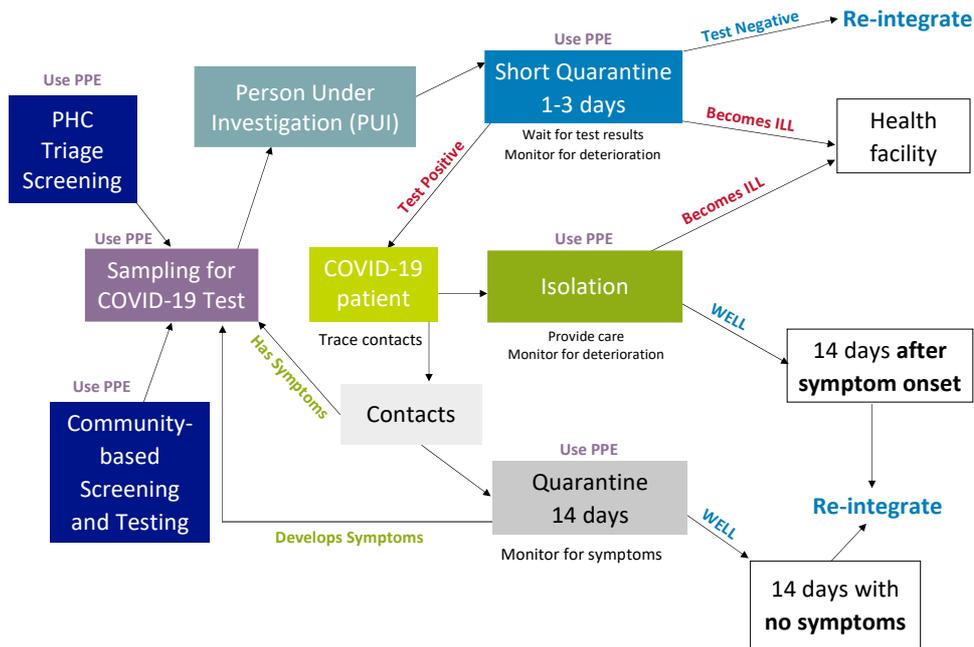
The COVID-19 epidemic has required the activation of a number of public health measures to contain the spread of the virus. One of the key interventions includes placing restrictions on the movement of people who tested positive and those who have been exposed. The infected person is required to isolate, while those exposed must quarantine until such time that they no longer pose a risk to others. The quantum of facilities for quarantine and isolation has been informed by demand forecasting techniques and revised in line with emergent epidemic data, including quarantine and isolation utilisation trends in the various districts.

These facilities provide accommodation with proper infection control measures, and organizational arrangements to manage the use of these lodging arrangements, transport, meals and other humanitarian support, including a clear interface with the health system to support self-care and refer upward if required. A screening, testing, isolation and quarantine care pathway has been put in place, see Figure 12, and isolation and quarantine accommodation has been sourced for people who can't do so at home. Furthermore, a tracking and tracing mobile application is being piloted. This web-based application links to existing health platforms such as HealthCheck, GovChat and Cmore. The benefits of a tracking and tracing application are:

- Shorter turnaround time for sharing of laboratory results with patients.
- Easier access to laboratory results.

- Focussed support to patients as they self-monitor their symptoms, particularly if symptoms deteriorate.
- Potential sharing of contacts so that they may be anonymously contacted and encouraged to quarantine and monitor their symptoms.
- More efficient use of health resources as the system automates monitoring of cases and contacts.

Figure 12: Screen, Test, Isolate, Quarantine Care Pathway



COVID-19 Care Interventions

Global evidence indicates that certain categories of the population are at higher risk like the elderly and those with reduced immunity such as cancer and HIV, as well as other co-morbidities such as hypertension, diabetes and heart disease. Ensuring that people with long-term conditions are well managed during the epidemic is essential to reducing COVID related mortality. Its particularly important that measures are in place for child health, while COVID-19 has less serious consequences for children, the health of children is nevertheless at huge risk of being adversely affected by the epidemic in multiple ways, including economic hardship; inadequate routine care; failure of immunization programmes; failure of feeding and social support programmes; bereavement; and failure of child protection services. In this context it is important to make sure that the needs of pregnant mothers and children are not forgotten, and that adequate provision is made to care for COVID-19 exposed and infected and affected mothers, new-born babies and children, while maintaining optimal routine care of these vulnerable groups in the population.

Table 4 provides a broad description of the Department's approach to COVID-19 care provisioning and it is clear that the corner stone of the epidemic response is prevention. These prevention interventions are primarily aimed at reducing person to person spread of the virus by limiting exposure through public health measures like mask wearing, hand and surface hygiene, respiratory etiquette and physical distancing. For this to be successful, social change is required to alter unhealthy or unsafe behaviours and where exposure risk is high a number of measures need to be put in place to protect people.

Table 4: COVID-19 Service Matrix

SERVICE MATRIX	Health Promotion ¹	Prevention	Treatment	Palliation
Asymptomatic, no known exposure	Interventions: <ul style="list-style-type: none"> Enable the necessary social change to minimise the spread of the virus Positively influences environmental² and personal³ factors, in supporting people to take the necessary actions to maintain health and wellbeing, minimising the risk of infection Risk communication strategies to ensure people have the correct information available about epidemic. 	Primary prevention ⁴ interventions: <ul style="list-style-type: none"> Public health measures are communicated frequently with practical, context sensitive advice on how to implement these measures in the living, learning, working and social/cultural environments; using the most appropriate communication mediums Risk communication strategies Opportunistic screening and testing 		
Asymptomatic with exposure		Primary and secondary ⁵ interventions: <ul style="list-style-type: none"> 14-day self-quarantine or at a quarantine facility, vulnerability will be considered where resources are limited Regular monitoring of vulnerable people for early detection and remediation of symptoms 		
COVID-19 Positive with mild symptoms		Primary prevention interventions: <ul style="list-style-type: none"> Self-isolation or at an isolation facility, vulnerability will be considered where resources are limited Practical support to implement hand hygiene, respiratory etiquette and physical distancing Minimising exposure for family members providing care and vulnerable members in the household 	Interventions: <ul style="list-style-type: none"> Supported self-care provided primarily by the PHC platform Mechanisms to refer timeously when symptoms become more serious Regular monitoring of vulnerable people for rapid escalation if symptoms become more serious 	
COVID-19 Positive with moderate to severe symptoms		Intervention: <ul style="list-style-type: none"> Minimise the risk of spread in the inpatient care setting, with protocols for IPC in place 	Interventions: <ul style="list-style-type: none"> Inpatient care with a focus on symptom management and minimising secondary complications Provide critical care for patients who can best benefit from these clinical interventions 	Interventions: <ul style="list-style-type: none"> Provide proactive symptom management, ensuring comfort Support patients and their families to coping with death and dying

¹ **Health promotion** is the process of enabling people to increase control over, and to improve, their health. To reach a state of complete physical, mental and social well-being, an individual or group must be able to identify and to realize aspirations, to satisfy needs, and to change or cope with the environment. Health is, therefore, seen as a resource for everyday life, not the objective of living. Health is a positive concept emphasizing social and personal resources, as well as physical capacities. Therefore, health promotion is not just the responsibility of the health sector, but goes beyond healthy life-styles to well-being. (World Health Organisation, 1986).

² **Environmental factors** make up the physical, social and attitudinal environment in which people live and conduct their lives. The factors are external to the individuals and can have a positive or negative influence on the individual's performance as a member of society, on the individual's capacity or on the individual's body function or structure.

³ **Personal factors** are the particular background of a user's life and living, and comprise features of the individual that are not part of a health condition or health states. These factors may include gender, race, age, other health conditions, fitness, lifestyle, habits, up-bring, coping styles, social background, education, profession, past and current experience (past life events and concurrent events), overall behavior pattern and character style, individual psychological assets and other characteristics, all or any of which may play a role in user wellness at any level.

⁴ **Primary prevention** is creating an environment where certain challenges to health are eliminated, and thus no further preventative interventions are necessary.

⁵ **Secondary prevention** refers to the prevention of clinical illness through early and asymptomatic detection and remediation of certain diseases and conditions that, if left undetected, would become clinically apparent and harmful.

COVID-19 Care Continuum

The COVID-19 care continuum is integrated within the existing design of the provincial health system, see Figure 13. In preparation for the epidemic surge, capacity is being created by (i)de-escalating elective, non-urgent services; (ii) optimising existing space; and (iii) creating additional temporary capacity. The Department is mindful of the impact this is likely to have on non-COVID related services and has put in place care continuity measures with mechanisms to monitor the situation, intended to mitigate against the risk of an adverse health outcome.

In considering the risk of infection and ensuring person-centred care, the intention is to keep the care transitions for a confirmed positive patient to an absolute minimum, both within and between care settings. Exposure of health workers, for all categories including support personnel, and the general public is also to be kept to an absolute minimum. The collective efforts of the entire health system is required, to ensure the epidemic is well managed. This necessitates close communication between care settings, with respect to the demand for inpatient beds, this is likely to be crucial to ensuring the best outcome for as many patients as possible.

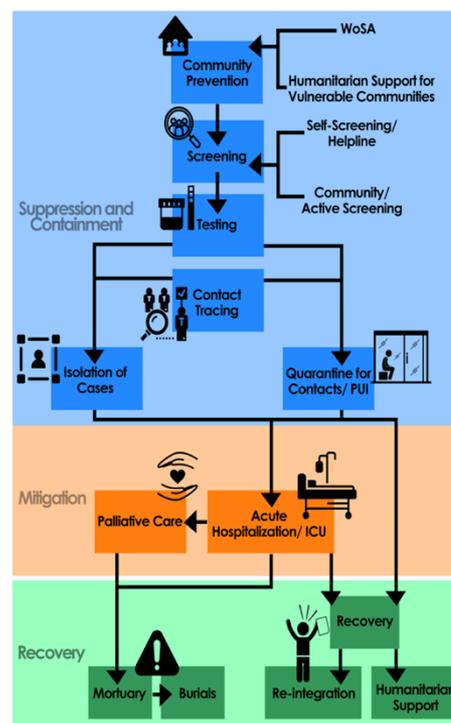
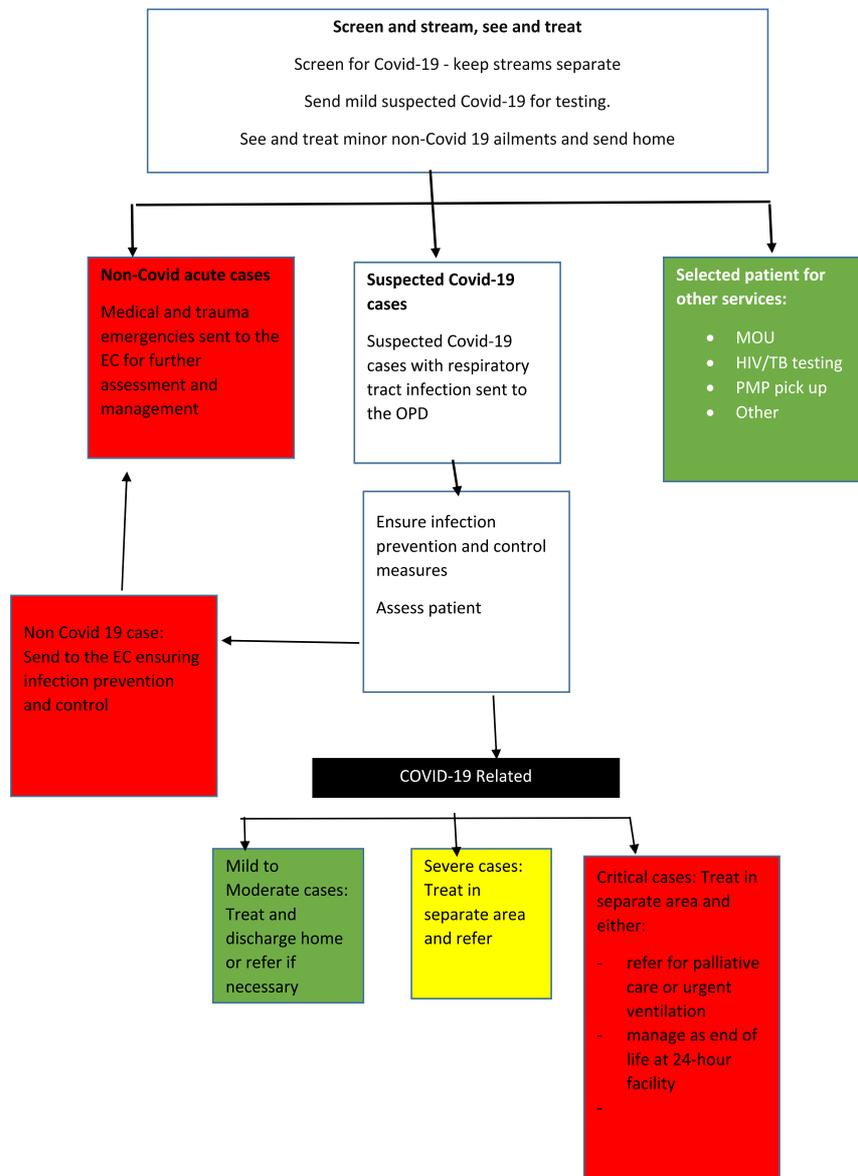


Figure 13: COVID-19 Care Continuum

Primary Health Care Capability

The PHC response to COVID-19 is embedded within the Community Oriented Primary Care (COPC) approach. A PHC preparedness plan has been developed and a rapid appraisal has been conducted to determine the state of readiness. A Practical Approach to Care Kit (PACK) has been created for COVID-19 to guide health professionals on the PHC platform and PACK Home has been developed to support households to self-care with the assistance of CHWs during the epidemic. A series of operational support policies have been drafted covering a range of topics from Personal Protective Equipment (PPE) for Community Health Workers (CHW) to patient flow in PHC facilities. A number of measures are also being put in place to minimise the exposure of those accessing non-COVID related services and health workers, see Figure 14 which illustrates how patient flow has been re-designed to this effect. Changes have been made to the built environment to accommodate physical distancing and temporary structures have been erected for triage and testing of COVID-19. In addition a number of mechanisms have been put in place for symptom monitoring and upward referral, particularly for vulnerable people.

Figure 14: Re-designed patient flow in PHC Facilities



EMS Capability

The EMS will play a central role in the distribution of patients across the platform and matching resource availability with demand in an equitable manner. Guidelines and checklists have been developed to assess readiness of EMS and ECs. Given the long turnaround times with test results, clinicians will have to make decisions on clinical probability to direct the flow of patients. Furthermore, clinical decision-making processes between triage and testing sites, ECs and the in-patient wards need to be simplified to avoid non-value adding repetitive steps at each touchpoint. The challenge will be to prevent access block and to make sure patients warranting admission are decanted from the ECs timeously.

Inpatient Care Capability

The Department originally estimated that approximately 5043 acute beds and 1261 critical care beds would be required across public and private health sectors to meet the demand during the epidemic surge. The MASHA model estimates that a total of 6300 acute beds and 1500 critical care beds will be required at the peak. The latest forecast estimates that 5450 acute beds are required and 950 critical care bed, based on current planning there is a surplus of 1033 acute general beds and a shortfall of 500 critical care beds (see Table 5) across the public and private hospital platform. Each hospital is expected to prepare for a quantum of COVID-19 patients and while beds have been used as the unit for inpatient capacity, the Department is keenly aware that a COVID-19 bed cannot exist without adequate staffing, Personal Protective Equipment (PPE) and medical equipment like ventilators.

Table 5: Inpatient Care Demand

	Original Western Cape Forecast	Previous MASHA Forecast	Latest NCEM Forecast	Planned Beds	Difference
Acute General Beds	5043	6300	4500	5533	1033 (surplus)
Critical Care beds	1261	1500	950	450	500 (deficit)
COVID-19 BEDS	6 304	7800	5450	5983	533 (surplus)

A total of approximately 5983 COVID-19 beds are being planned across public and private sectors to ensure the provincial health system is adequately able to meet demand at the peak, (see Table 5&6). The 1275 intermediate care beds are additional inpatient care capacity being created specifically for the epidemic to accommodate patients with mild to moderate symptoms. While infrastructure has been created for a total of 1275 beds, beds will be operationalised as demand dictates. The public sector is planning 1605 acute care beds for COVID-19, housed within the existing hospital footprint, and are for patients with moderate symptoms requiring hospitalisation. The private sector is planning to dedicate approximately 1935 acute care for COVID-19 patients.

Those patients with severe symptoms will require critical care, thus the Department has 150 critical care beds available at Regional and Central Hospitals in the province. Where demand exceeds this capacity the Department is planning to access up to 300 additional beds from the private sector, currently estimated to cost R251 million, thus 450 critical care beds are being planned for the peak.

Critical care, particularly ICU capacity is likely to be a challenge as adequate staffing, and medical equipment are not readily available. The Department has thus created capacity for high flow nasal oxygen (HFNO) in intermediate care facilities and general hospital wards to minimise the critical care bed pressures and this has proven to be quite effective. The Department has also made provision for 718 palliative care beds (see Table 6) where patients who are unlikely to benefit from critical care will be provided with pain relief and other forms of less intensive care to be made comfortable. A significant proportion will pass on and must do so with dignity, respect and empathy to the patient and the family.

Clinical guidelines have been developed to support frontline clinicians with the clinical management and to guide appropriate rationing of care where required. While the clinical management of COVID-19 is fairly straightforward, the sheer demand for inpatient care expected with the surge is likely to overwhelm frontline clinicians who will have to make the clinical decisions to enable rationing of care on a daily basis. Mechanisms are being put in place to support frontline clinicians in this regard and senior clinicians have a central role to play in providing this support. Measures are also being put in place to minimise the risk of virus transmission by instituting more stringent IPC measures. IPC and Occupational Health and Safety (OHS) policies have been developed to provide guidance on how best to minimise the risk of COVID-19 transmission.

IPC and Occupational Health and Safety (OHS) policies have been developed to provide guidance on how best to minimise the risk of COVID-19 transmission.

In order to optimally utilise the inpatient capacity available in the province, the Department is collaborating with the private health sector to ensure a 'single integrated public/private' health system response to COVID-19. To enable this a Service Level Agreement has been developed with the hospital groups and certain clinician groups have also been engaged. Clinical guidelines have been endorsed by the College of Medicine for use across the public/private hospital platform, clinical ethics committees have been established to guide care rationing, administrative intermediaries are being appointed to manage the monitoring and billing interface; and tariffs are being negotiated nationally.

Behaviour Change Strategy

The transmission of COVID-19 primarily occurs when droplets expelled by COVID positive people through speaking, coughing and/or sneezing are inhaled or absorbed through the nose, mouth and/or eyes of another person. Preventing the spread of the virus thus depends on the adoption of 4 core personal protective behaviours:

- Physical distancing
- Respiratory etiquette to minimise the risk of contaminated droplets traveling in the air
- Mask wearing to minimise the risk of droplets being inhaled and/or absorbed

BED TYPE	No. of BEDs
Intermediate Care Beds	1275
CTICC	734
Brackengate	293
Thusong Centre	68
Tygerberg Hospital	30
Sonstraal Hospital	150
Acute Care Beds	3540
Public Sector	1605
Private Sector	1935
Critical Care Beds	450
Public Sector <i>(internal capacity)</i>	150
Public Sector <i>(purchased from private sector)</i>	300
Palliative Care Beds	718
Public Sector Hospitals	565
CTICC	116
Brackengate	37
Total COVID-19 Planned Beds	5983

Table 6: Planned Beds for COVID-19

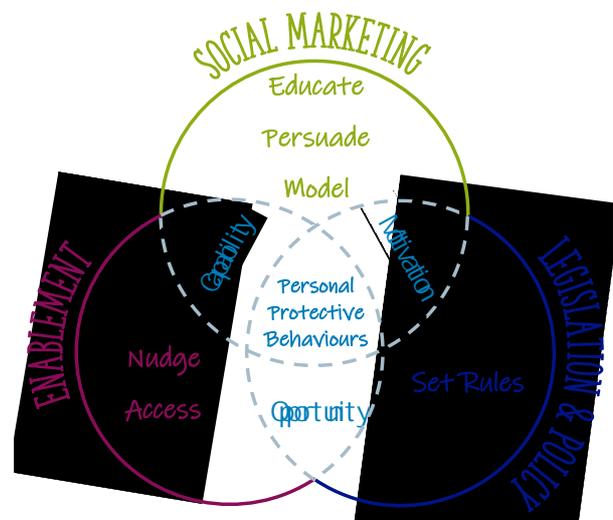
- Hand hygiene, to minimise the risk of transferring the virus via touch, particularly between contaminated surfaces and objects to the eyes, nose and mouth areas of the face

Research conducted by the Province indicates a growing awareness of these 4 behaviours, however a significant number of people still fail to adhere to these practices. Education based preventative interventions are unlikely to be successful by themselves unless coupled with interventions that address personal and environmental factors that can stop people from adopting these personal protective behaviours.

Personal factors refers to the particular background of a person's life and living, and comprise features of the person that are not part of a health condition or health states. These factors may include gender, race, age, other health conditions, fitness, lifestyle, habits, up-bringing, coping styles, social background, education, profession, past and current experience (past life events and concurrent events), overall behaviour pattern and character style, individual psychological assets and other characteristics, all or any of which may play a role in user wellness at any level. While environmental factors make up the physical, social and attitudinal environment in which people live and conduct their lives. These factors are external to the person and can have a positive or negative influence on the person's performance as a member of society, on their capacity or on their body function or structure.

A Three Pronged Approach to Behaviour Change

The Department is collaborating centrally, transversally and at a decentralised local level with behaviour change experts from the Higher Education Institutions in the province and has developed a three pronged approach to behaviour change. The approach includes social marketing, enablement and, legislation and policy. It is intended to enable behaviour change intervention designs that considers personal and environmental factors by ensuring the necessary capability, motivation and opportunity is created to support people in the practice of the behaviours that limits the spread of COVID-19.



Social Marketing

Social marketing focuses on educating, persuading and modelling, intended to create the capability and motivation for people to practice the desired personal protective behaviours.

Educate

To increase knowledge and understanding, by providing information that;

- Promotes physical distancing, respiratory etiquette, mask wearing and hand hygiene
- Creates awareness around situations that are high risk for virus transmission, like where there are many people, in an enclosed space with poor ventilation
- Creates awareness around who is most at risk of an adverse health outcome when infected
- Advises people on how to self-care and/or access medical care if they are symptomatic

Persuade

Figure 15: Three Pronged Approach to Behaviour Change

To use communication to induce positive and negative feelings or stimulate action by;

- Using emotive language and imagery to motivate people to adhere to personal protective behaviours
- Making people aware of the implications of their actions for the ones they care about and love

Model

To set an example that people will want to aspire to and imitate by;

- Identify local leaders, social influencers and celebrities to act as role models for adhering to personal protective behaviours

Enablement

Enablement involves nudges and access to tools that enables the desired personal protective behaviours by developing the necessary capability and opportunity. Access to tools is vital as asking people to do something they are unable to practically implement diminishes trust, creates frustration and alienates people; ultimately reducing adherence to personal protective behaviours.

Nudge

To prompt or cue the desired behaviours in public spaces by;

- Enabling people to maintain physical distancing with visual cues like demarcating where people need to stand to maintain a 1.5m distance in queues
- Using signage in the performance environment to alert people to high risk sites like public transport, schools, workplaces, retail shops; and high risk objects like trolley and basket handles, bank cards, money, hand railings, door handles
- Setting routine reminders like hourly announcements to remind employees to sanitise their hands or for customers to sanitise their hands once they have paid

Access

To increase the means and/or remove the barriers to practicing the desired personal protective behaviours by;

- Making tools like masks, hand sanitiser and water accessible to all citizens
- Making hand sanitiser available in high risk sites
- Providing food and financial aid to vulnerable households to cope with the socio-economic implications of lockdown

Legislative and Policy

Legislation and policy involves a combination of punitive measures and enforceable restrictions to discourage risky behaviours and ideally target high risk people, sites, times and objects; providing motivation and opportunity for people to adopt the desired behaviours.

Set Rules

To limit opportunities to engage in, and institute measures to punish undesirable behaviours by;

- Instituting policies that restrict access to public spaces when failing to adhere to the required personal protective behaviours, like “no mask no entry”
- Making certain personal protective behaviours mandatory, like mask wearing in public spaces
- Restricting access to allow for physical distancing, like limiting the number of people in public spaces (e.g. retail stores, schools, factories) and permissible social gathering (e.g. funerals).
- Prohibiting or limiting the sale of certain goods (e.g. alcohol) and services (e.g. event planning and hosting, international air travel, accommodation facilities)

- Instituting policies that mitigate against transmission risks, like work from home policies particularly for high risk individuals, leave policies that enable symptomatic employees to stay home without a doctor's note.

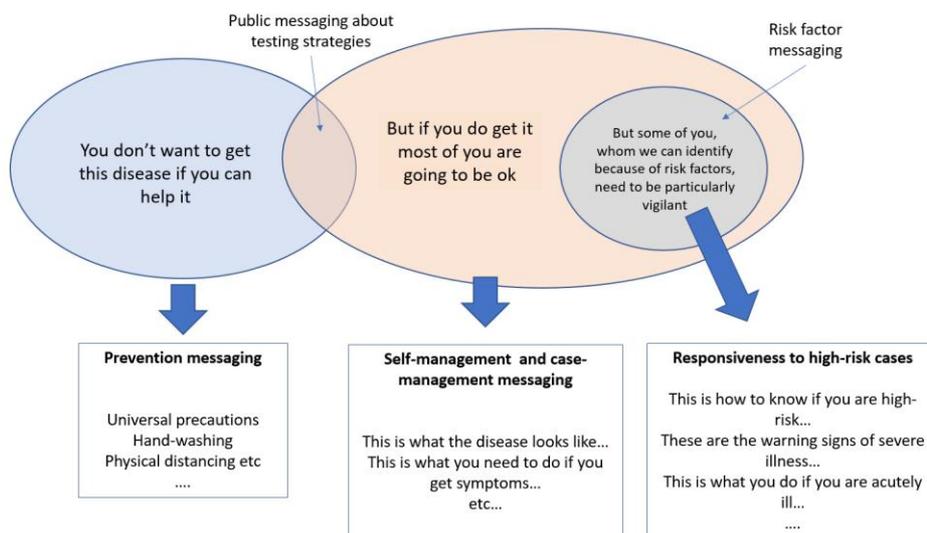
Targeting Epidemic Hotspots

Areas where there are 5 or more active cases per 100 000 population, are being classified as epidemic hotspots and each province is required by law to have a clear plan of action to reduce transmission and reduce morbidity and mortality for high risk population groups. In line with the whole of government, whole of society approach the Western Cape has developed integrated, inter-sectoral context sensitive interventions that have been designed and implemented based on the following principles:

- Behaviour change through individual and collective agency
- Building trust and ownership
- Transparency and honesty
- Addressing relational power
- Collective leadership
- Integrated approach
- Enabling bottom-up community led initiatives
- Sustainable resourcing
- Strengthening community structures and processes

An integrated, intersectoral approach to action requires clear collectively owned outputs, each with intelligence informed sets of actions; coupled with metrics to monitor progress and enable rapid social learning to adapt strategies and tactics. The risk communication strategy for hotspot areas addresses both primary and secondary prevention interventions, see Figure 16 below.

Figure 16: Messaging Design in Hotspot Areas



All sectors and community structures are being mobilised in support of the provincial communication strategy to enable community led initiatives. Table 7 provides a breakdown of key messages tailored to low and high risk groups in hotspot areas, these messages target the following:

- Getting people to stay at home unless absolutely necessary
- Maintaining physical distancing in public spaces
- Wearing a mask at all time in public spaces
- Maintaining hand hygiene and respiratory etiquette.

Table 7: Targeted Messaging

GROUP	OBJECTIVE	THEME	MESSAGE	HOW
LOW RISK GROUPS				
THE GENERAL PUBLIC <i>(Healthy)</i>	STAY HEALTHY PROTECT YOURSELF AND YOUR COMMUNITY	<input type="checkbox"/> 5 golden rules for keeping healthy and safe	<input type="checkbox"/> Keep safe, keep your loved ones safe. Particular care for vulnerable groups.	<input type="checkbox"/> Health Prevention Message <input type="checkbox"/> General and Hotspot comms <input type="checkbox"/> WCG Comms mediums (loud hailing, street poles, ATL, BTL) <input type="checkbox"/> Gathering points <input type="checkbox"/> In-home messaging <input type="checkbox"/> Local authoritative voices <input type="checkbox"/> Anti-stigma message
PUI's <i>(Without symptoms)</i>	ISOLATE	<input type="checkbox"/> 14 days isolation <input type="checkbox"/> 5 golden rules for keeping healthy and safe	<input type="checkbox"/> You need to assume you may have been exposed <input type="checkbox"/> Isolate accordingly <input type="checkbox"/> You should screen for symptoms daily, testing not indicated <input type="checkbox"/> 5 Golden Rules <input type="checkbox"/> Home or Facility isolation <input type="checkbox"/> Home care	<input type="checkbox"/> Isolation and quarantine <input type="checkbox"/> Anti-stigma message <input type="checkbox"/> Reintegration if recovered <input type="checkbox"/> Through Hotspot comms material (above)
SYMPTOMATIC <i>(90%, <55 years, no underlying conditions)</i>	RECOVERY / APPROPRIATE CARE	<input type="checkbox"/> Self-management <input type="checkbox"/> Self-screening <input type="checkbox"/> Identify risk	<input type="checkbox"/> If you have flu symptoms, assume it may be COVID-19 <input type="checkbox"/> Follow health advice, isolate and self-medicate <input type="checkbox"/> Self-screening is NB, no testing indicated. <input type="checkbox"/> Correct usage of masks, gloves, hygiene, etiquette, social distancing, etc. <input type="checkbox"/> When to seek help – if condition worsen	<input type="checkbox"/> Self-care message <input type="checkbox"/> Recovery message <input type="checkbox"/> Risk monitoring message <input type="checkbox"/> Anti-stigma message <input type="checkbox"/> Reintegration <input type="checkbox"/> Through general media and Hotspot comms material (above)
HIGH RISK GROUPS				
>55 YEARS & PEOPLE WITH CO-MORBIDITIES	CAREFUL MONITORING AND CARE IF REQUIRED	<input type="checkbox"/> Active screening for symptoms <input type="checkbox"/> Testing if symptomatic <input type="checkbox"/> Seek care	<input type="checkbox"/> If you have flu symptoms, assume it may be COVID 19 <input type="checkbox"/> This group will be actively screened <input type="checkbox"/> If symptomatic, require a test <input type="checkbox"/> Testing will be prioritised <input type="checkbox"/> When to seek care before becoming too ill	<input type="checkbox"/> Preventative message: Local Hot spot comms <input type="checkbox"/> Screen and test message <input type="checkbox"/> WCG Comms mediums (loud hailing, street poles, ATL, BTL) <input type="checkbox"/> In-home messaging (CHW's) <input type="checkbox"/> Risk monitoring
PUI'S IN HOSPITAL	DIAGNOSIS	<input type="checkbox"/> Isolate	<input type="checkbox"/> You will be actively screened and tested. <input type="checkbox"/> Testing will be prioritised <input type="checkbox"/> Isolate while awaiting results <input type="checkbox"/> If positive you will be moved to COVID area in hospital	<input type="checkbox"/> Prevention message: In-facility messaging <input type="checkbox"/> Recovery message of hope
HEALTH CARE WORKERS	PROTECT	<input type="checkbox"/> Safeguarding health force	<input type="checkbox"/> You require special care: Flu vaccine workplace etiquette (ie avoid gatherings, hygiene, etc) <input type="checkbox"/> You will be tested if PUI <input type="checkbox"/> You will be tested if symptomatic <input type="checkbox"/> Your test results will be prioritised	<input type="checkbox"/> Information message with HCW and unit <input type="checkbox"/> Institutional communicate (updates on infections, decontamination, PPE) <input type="checkbox"/> BTL <input type="checkbox"/> Support message <input type="checkbox"/> Recovery message

Approach to High Risk Groups

There should be targeted promotive and preventative strategies in place to minimise risk for people with co-morbidities and those who are 55 years and older in the Hotspot area. Households and living environments like Old Age Homes, should be supported to implement the necessary public health measures to limit person to person spread and have contingency plans in place for containment and mitigation in the event that residents become infected. The health services in the area needs to have robust care continuity plans in place for people with long-term conditions to reduce the risk of COVID-19 related morbidity and mortality. Standard Operating Procedures (SOPs) have been finalised with regards to identifying and protecting the high risk groups, using screening, testing, isolation and quarantine. A risk stratification approach has been developed to inform how we manage COVID-19 positive people, in the context of established community transmission where the primary strategy is to protect the vulnerable, see Figure 17. There needs to be targeted screening and testing of households with vulnerable people with clear mechanisms to access quarantine and isolation; and active case management to minimize clinical risks.

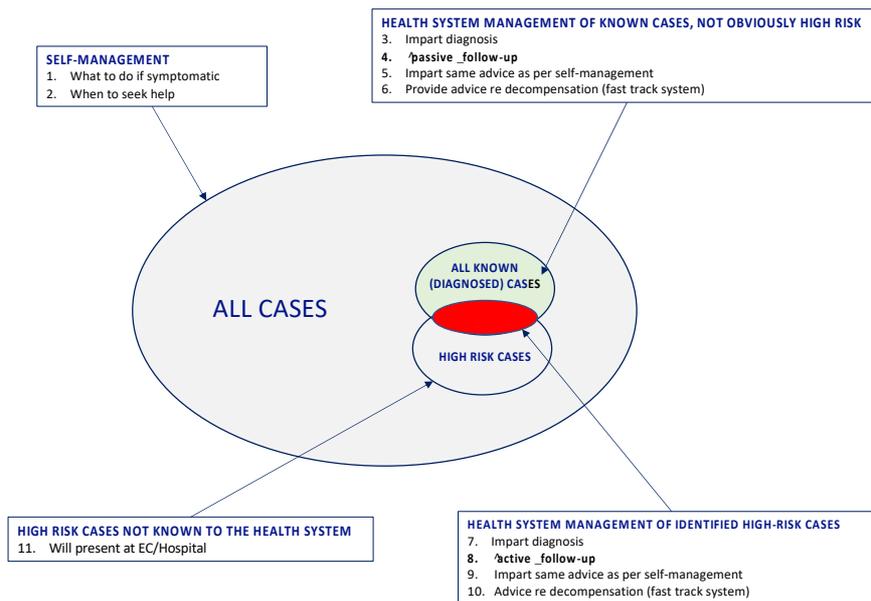
Hotspot Team

A multi-sectoral team has been established for each hotspot under the leadership of one of the provincial Heads of Department (HoDs). The team will include representative from sector departments, municipalities, community structures and civil society. The local PHC teams will play an

integral role in these teams and public health expertise will also be made available to each team. The public health colleagues will provide technical support and advice, monitor trends in transmissions, hospitalisations and deaths; and map this information at geographical level.

Refer to the Hotspot Strategy for more detailed information.

Figure 17: Case management of high risk groups



Occupational Health and Safety (OHS)

To mitigate the health risks to workers in health facilities associated with COVID-19, control measures should be selected according to the hierarchy of controls, see Figure 19. Elimination and substitution are impractical as risk mitigation strategies for COVID-19, the risk mitigation strategies are engineering controls, administrative controls and the use of PPE.

Engineering Controls

Engineering controls involve strategies designed to isolate and protect employees from work-related hazards. These are the most effective control measure to implement as they reduce exposure through creating a barrier or improving ventilation or installing physical structures that provide protection without relying on worker behaviour.

Recommended engineering controls for COVID-19 may include:

- A separate partitioned space/waiting room for persons under investigation (PUI)/suspected of COVID-19 infection

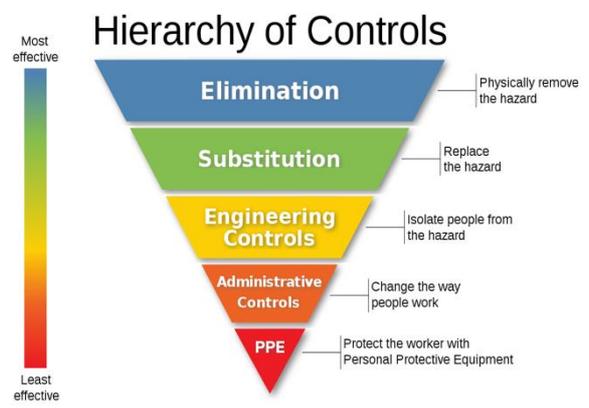


Figure 18: IPC Controls

- Installing physical barriers, such as clear plastic sneeze guards especially in areas like reception, triage or pharmacy
- Increasing ventilation rates in the work environment particularly in isolation rooms and designated waiting room
- Installation of high-efficiency particulate air filtration measures where mechanical ventilation is used (specific to operating theatres and certain highly specialized locations).
- Specialized negative pressure ventilation in some settings (e.g. labs, airborne infection isolation rooms and autopsy rooms in mortuaries).

Administrative Controls

Some of the administrative controls may already be in place in the form of policies and procedures but may need to be reviewed and updated in line with risk posed by COVID 19 infection. These include:

- A comprehensive risk assessment and workplace plan of action/SOP for preparedness.
- Updated occupational health policies.
- Policies on containment and management of patient suspected or confirmed to have COVID-19 infection.
- Providing a COVID-19 screening facility outside the main facility to ensure symptomatic individuals are not required to enter the main facility and potentially infect other vulnerable patients
- Clearly marked pathways that guide movement of patients from the point of entry to the waiting room, restrict unnecessary movement of PUI or persons confirmed to have COVID-19.
- Access control at entrances/exits and signage indicating PPE required to enter to high risk areas and laboratories.
- Ensure appropriate staff to patient ratios, and working hours are maintained.
- Training of health workers on evidence-based IPC measures and appropriate use of PPE as per provincial guidelines.
- Enable access to mental health and psychological support through the employee wellness programme.
- Appropriate and updated travel policies to ensure safety of staff.
- Evidence based cleaning and disinfection procedures.
- Health risk waste management policies and procedures.
- Ensure public health reporting/notification procedures are followed accordingly.

Personal Protective Equipment

Clear PPE guidelines have been developed for different situations to ensure that the most appropriate and effective PPE is used by health workers depending on their risk of exposure:

- Inpatient services (hospital wards, ICU, overnight/holding wards, step-down facilities)
- Services at PHC, outpatients, emergency units and temporary facilities
- COVID-19 patients care for at home (or hostels)
- Emergency Medical Services (EMS)
- Community Health Worker (CHW) services
- Forensic Pathology Services (FPS) and mortuary services

Resource Management

COVID-19 Health Workforce

Our people management strategies and policies are being translated into practice to secure adequate staffing levels in preparation for the surge. What is emerging as significant is the rise in COVID-19 infected staff members which further reduces our existing capacity to match demand. Strategies include redeployment of existing staff, reskilling, procuring agency staff, using volunteers, hiring unemployed bursars and retirees, and contracting private sector clinical staff. A Cuban delegation of 28 doctors, epidemiologists and technologists will also assist.

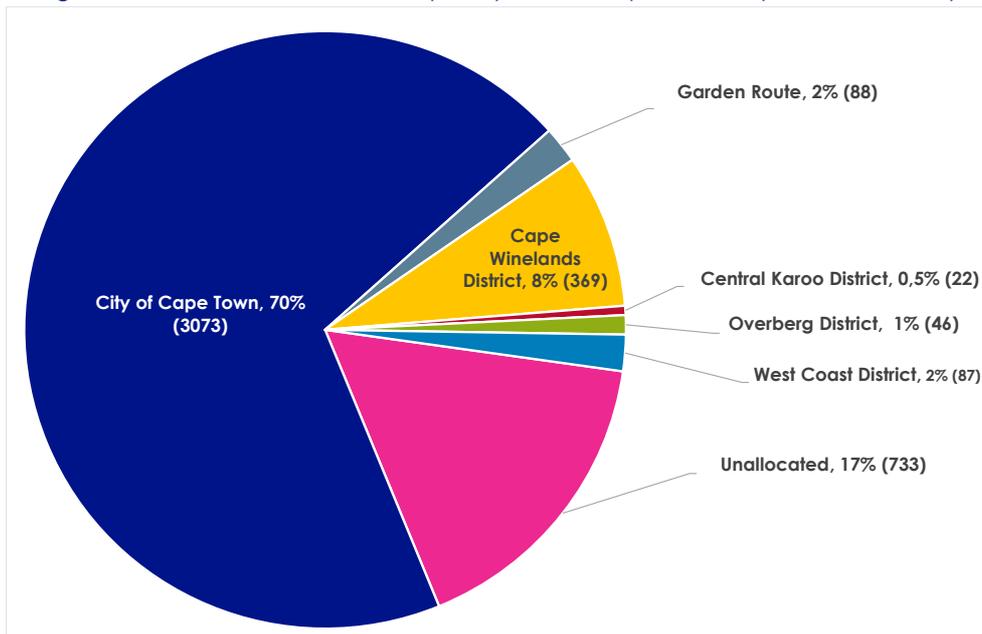
Health Worker Infections

Health care workers are at greater risk of being infected as they come into direct contact with cases on the frontline of service delivery. On the 21st July there were a totals of 4418 cases across the public (4020), private (378) and not for profit (9) health sector, with 11 cases unallocated. In the public sector 3452 health workers have recovered, there are 533 active cases and 30 have passed on. Table 8 provides a breakdown of infections per staff category in the public sector, nursing staff have been most affected by the epidemic, with 2012 infections. The City of Cape Town District accounts for 70% of health worker infections in the province, see Figure 19.

STAFF CATEGORY	NO. COVID +
Nursing	2012
Medical	277
Other clinical professionals	455
Management	483
Support	365
Laboratory	9
Care Worker	23
EMS	162
Other	114
Technical	36
Unallocated	78

Table 8: Public Sector HCW infections per staff category

Figure 19: All Health Care Worker (HCW) infections per District (Public & Private)



Implications for Workforce Capability

The health system's ability to respond to epidemic depends on having adequate human resources available. Table 9 shows the additional posts required in to operationalise the additional health system capacity being created.

Assuming an absenteeism rate of 20%, the full time equivalent posts potentially lost due to staff illness during the epidemic is 3 929. Together with the 1 992 additional posts required, the total demand is 6 749. Given the supply of 1 477 posts, there is a total requirement of 5 272 posts, including 373 clinical doctors, 3 365 nurses and 250 allied health workers, see Table 10.

Table 9: COVID-19 Workforce Demand

Recommended post type	Intermediate care	Critical care	Additional acute	Total
Administration	12	-	-	12
Clinical	91	21	44	156
Nursing	696	148	378	1 222
Allied Health	125	-	46	171
Total clinical	924	169	468	1 561
Admin and support	123	2	30	155
Outsourced	259	17	-	276
Grand total	1 306	188	498	1 992

Table 10: Total Posts Required to meet the Demand

Recommended post type	New posts required	20% Absenteeism	Total demand	Total supply	Required
Administration	12	8	15	-	15
Clinical	156	461	681	308	373
Nursing	1 222	2 478	4 186	821	3 365
Allied Health	171	363	598	348	250
Total clinical	1 561	3 311	5 481	1 477	4 004
Admin and support	155	255	464		464
Outsourced	276	363	804	-	804
Grand total	1 992	3 929	6 749	1 477	5 272

Current Working Conditions

People management interventions to address the current working conditions have been put in place for all categories of staff as follows:

- A PPE policy and a provincial occupational health policy has been finalised. Appropriate PPE ensures that staff are protected and kept safe when they are conducting their duties.
- An employee wellness capacity has been activated to ensure staff have a resource for emotional support during the current working and living conditions.
- A People Management desk has been established to assist and support staff with administrative queries and uncertainties.
- A call for volunteers has been advertised widely. This has been well-responded to and a database of volunteers has been established.

- A People Management policy has been finalised which addresses flexible working arrangements, leave, travel, employee support, and most importantly staff safety. This policy is broad enough to allow for local discretion and customisation.

Due to the rapidly-evolving nature of the Covid-19 epidemic, the People Management response will have to adapt accordingly. The current circumstances are challenging and call for a more flexible and adaptive way of working, which may be quite different from the usual way of doing business. It is therefore imperative for each staff member to be mindful, flexible and supportive of the health system response to this crisis. Staff may be required to be redeployed due to operational requirements. This calls on each staff member to take primary responsibility for their own safety and to raise and address concerns with their immediate supervisors. The accommodation and transport needs of staff are being addressed in partnership with the Department of Transport and Public Works. Organized labour are recognized as essential stakeholders and partners.

Financing the COVID-19 Response

As at the 26th May 2020, the Department had spent R251,259 million on COVID related activities and has made additional commitments of R542,4078 million. Expenditure and commitments are now accelerating sharply and the Department has exceeded its planned expenditure by R336 million in April 2020 alone. Opportunities for savings and reprioritisation within the Department have been identified and amounts to R853 million that can be offset against the additional expenditure requirement. However, the extent of broader savings and opportunities for reprioritisation across the provincial government is not yet known as the adjustment budget process is still underway. This process will also have to account for reductions in transfers from national government and provincial own revenue reductions that are both not yet known. The scope of any additional national financing for disaster response is also not yet known.

Interventions being covered by reprioritising of the budget includes palliative care beds, infrastructure and equipment. Expenses that will require additional funds include PPE, community screening, contact tracing and testing, intermediate beds (offsite), additional beds in existing facilities and private sector critical care beds. The supplies especially of PPE is critical for the protection of the workforce and all means possible will be deployed to secure adequate stocks, see Table 11 for a breakdown of the estimated PPE costs involved. A dashboard of stock on hand is being created for the identified items provided per facility in near real-time with Geographic Information System (GIS) mapping capabilities. Stock on hand will be closely monitored daily via the appropriate electronic systems e.g. LOGIS, SYSPRO and MEDSAS. The centrally appointed team will proactively supply stock once levels reach minimum acceptable levels. A central store has been created for bulk supplies which will be distributed based on the evolution of the pandemic.

	ESTIMATED COST
Gloves (sterile)	R14 730 372,47
Surgical Masks (Health Care Workers)	R83 383 661,80
Aprons	R7 926 305,81
Gowns	R188 782 380,94
Heavy duty glove	R1 280,38
Boot covers	R2 433 924,11
Surgical masks (patient)	R71 493 469,77
Coveralls	R196 254,00
Sanitiser / Liquid Soap	R75 343 890,37
Biocide & Bleach (FPS only)	R1 710 735,00
Biohazard Bag	R1 231 834,79
Waste bags (FPS only)	R138 746,40
Goggles / Face-shield / Vizor	R50 235 748,19
Particulate respirator (Grade N95)	R151 753 333,18
Body bags	R1 343 284,80
Sleeve protectors	R51 439,05
Apron PVC	R16 926,00
Examination gloves	R42 151 301,11
Scrubs	R376 634,95
Disinfectant	R4 183 514,41
Digital Thermometer	R4 033 411,00
TOTAL	R701 518 448,53

Table 11: Estimated PPE Costs

Donations are being coordinated through the Department of Social Development, via the JOC. Local manufacturing opportunities are being coordinated with the Department of Economic Development and Tourism to secure local supplies for PPE. Over and above the re-prioritisation through de-escalation of services within our current platforms, additional interventions to manage the demand are currently projected to be approximately R3bn in the current financial year, see Table 12. This represents the costs incurred by the Department of Health (R2,432 billion) and Transport and Public Works (R642 million).

Table 12: Projected Cost of the COVID-19 Response in the current financial year

	DTPW	DOH	TOTAL
Q&I Accommodation	R343 000 314		R456 484 314
Q&I beds	R379 484 314		R379 484 314
<i>SAPS 2000 beds</i>	R84 000 000		R84 000 000
<i>PetroSA</i>	R8 400 000		R8 400 000
<i>CoCT Resorts</i>	R21 084 000		R21 084 000
Red Dot transport			
<i>Transport Services</i>	R44 000 000		R44 000 000
<i>Transport ICT and Sanitation</i>	R33 000 000		R33 000 000
Medical Accommodation		R779 807 087	R863 440 670
<i>Public sector beds</i>		R528 522 947	R528 522 947
<i>CTICC1 & Brakengate</i>	R83 633 583		R83 633 583
<i>Private sector beds</i>		R251 284 140	R251 284 140
Additional medical staffing	R102 000 000		R102 000 000
<i>Staff costs (5272)</i>			
<i>Medical staff accom</i>	R102 000 000		
Medicial Equipment & PPE		R1 653 111 991	R1 653 111 991
<i>PPE</i>		R698 257 317	R698 257 317
<i>Testing and screening</i>		R502 739 674	R502 739 674
<i>Infrastructure and equipment</i>		R452 115 000	R452 115 000
TOTAL	R642 117 897	R2 432 919 078	R3 075 036 975

Intelligence

The Department needs to keep abreast of developments and experiences globally to inform our strategies. Integrated Health Intelligence must be available daily, presented in a user friendly manner to enable sound decision-making. Epidemiological health evidence and intelligence is critical to re-shaping our interventions as the epidemic evolves. The Department has developed an information system to track the cohorts of cases in the province that includes the private sector, however access to private sector information has been a challenge. In this period, transparent sharing of information is important to build public confidence. A public dashboard has been launched in this regard and is updated daily. The cases within the province have been geo-located to suburb level and are aggregated to a sub-district level.

Over and above monitoring progress, the culture and systems of rapid learning has to be embedded to enhance the Department's ability to manage emergence. Staff from similar settings are being encouraged to share experiences and lessons, that enables the department not only to rely on explicit but also tacit knowledge inherent in the health system. Learning from implementation will inform policy reviews at a system level. The pace of an epidemic demands rapid learning and our academic colleagues within the HEIs, the MRC and other organizations such as Institute of Health Improvement have been engaged to provide expertise as well as strengthen collective learning in the health system. The department recognised the need to expand its intelligence network beyond the traditional learning institutions and include communities and civil society organisations to leverage bottom-up learning, COVID-19 offers the particular opportunity to strengthen these relationships.

COVID-19 M&E Framework

The COVID monitoring and evaluation framework adopted by the Department is framed by the COVID-19 care continuum and the following principles informed indicator selection:

- Limit additional reporting requirements from the services
- Centralise all reporting as much as possible.
- Utilise our existing electronic systems. The department already has a wealth of electronic systems in place that provides a good basis for M&E.
- Source information from various partners and stakeholders to obtain a holistic view of the patient and the province at all levels.
- Develop indicators and monitoring tools using or building on existing data collection tools.
- Monitor from a geographical perspective so data sources need to be geospatially rich.

COVID-19 Surveillance

Epidemiological surveillance is the systematic collection, analysis and dissemination of health data, in this case data on COVID-19, for the planning, implementation and evaluation of public health programmes. As per the WHO interim guidance on surveillance strategies for COVID-19, the aims of surveillance are to limit the spread of disease and enable public health authorities to manage the risk of COVID-19, thereby enable economic and social activity to resume to the extent possible. Key objectives of COVID-19 surveillance include:

- enable rapid detection, isolation, testing, and management of suspected cases especially in areas without widespread community transmission
- guide the implementation of control measures especially targeted strategies to limit transmission in hotspots
- detect and contain outbreaks among vulnerable populations
- evaluate the impact of the pandemic on health-care systems and society
- monitor longer term epidemiologic trends and evolution of COVID-19 virus

The Provincial Approach

A key underlying principle of the provincial approach to COVID-19 surveillance is to use, adapt and strengthen existing surveillance and data systems, such as the Provincial Health Data Centre (PHDC) platform and involves the following 3 overarching approaches.

Case-based surveillance

Surveillance for COVID-19 in the WC already includes testing at primary care level, monitoring of hospital admissions and deaths with daily reporting into a PHDC dashboard and automated management reports. More in-depth epidemiologic analyses are conducted on a regular basis. A key aspect includes rigorous geocoding of addresses of all cases to allow for identification of hotspots and targeted testing of households around a case. In addition, using the existing comorbidity data in the PHDC platform, we are able to assess the association between different comorbidities and the following outcomes:

- being diagnosed as a COVID-19 case
- COVID-19 hospital admission
- COVID-19 death

Key challenges of case-based surveillance include:

- Limited laboratory capacity such that many cases will only be diagnosed clinically
- Slow laboratory turnaround times which make it difficult to trace all cases and contacts in a short enough time to meaningfully reduce transmission
- Lack of access to data on out of facility deaths both in the Western Cape and nationally, which make it impossible to do accurate surveillance of COVID-19 mortality, the single most important patient outcome. This challenge is being actively addressed with the Minister of Home Affairs.

Population-level surveillance

The main approach for population-level surveillance will be to conduct serologic testing on a subset of samples that are already routinely sent to our NHLS laboratories for syphilis testing from pregnant women attending antenatal facilities. This is a similar approach to that used for antenatal HIV surveillance and requires no additional specimen collection. These specimens are currently stored by the laboratory for a few days after syphilis testing is complete. For a given time period in each month (e.g. 1st 3 week days of each month) COVID-19 serology testing will be undertaken on these specimens in the same laboratory. The proportion of positive tests from each area in each month will be compared over time to identify areas of transmission and will be correlated with the number of cases that were present at the same time in each area as detected by diagnostic PCR testing for SARS-CoV-2. Although a serological test is not yet available, storage of antenatal serum can commence almost immediately and these can be tested once serologic tests have been approved and are available, so that we can track the growth of the epidemic both retrospectively and prospectively.

Surveillance in high risk/vulnerable groups

WHO recommends dedicated enhanced surveillance for some high-risk groups to ensure the prompt detection of cases and clusters. We will develop specific strategies for surveillance of people who live in closed environments, such as prisons, or residential facilities, such as retirement communities or care homes for persons with disabilities. Surveillance for these groups will include active case finding, as can be done through daily screening of signs and symptoms, and referral for SARS-CoV-2 PCR testing if indicated. In addition, in particularly vulnerable communities, testing of all residents/workers in that group using serologic tests /rapid test will be considered to allow for detection of more cases than would be possible using PCR testing alone, and to assess the proportion of each community that has been infected

We are currently investigating possible use of the following innovative approaches to COVID-19 surveillance:

- Wastewater surveillance to identify communities without transmission that could be protected or, in the post peak period, to identify resurgence of transmission in particular communities. These

tools are not yet developed but it is hoped that they might be useful for vigilance in the post-peak period.

- Pooled PCR testing of specimens may be useful in communities where positivity is expected to be <5% to reduce demand on test resources. This could be used in subdistricts where the number of cases remains low to identify the emergence of new areas of transmission with reduced test resource requirements.
- Molecular analyses of positive SARS-CoV 2 specimens to assess (a) whether earlier and more frequent seeding of the epidemic in the Western Cape is a reason for the more rapid increase than has been seen in other provinces and b) the contribution of workplace and essential service clusters to spread in geographic hotspots in the Western Cape.

Governance Arrangements for COVID-19 Response

Governance of the Health System

Mechanisms to co-ordinate the COVID-19 health system response have been integrated into existing governance structures within the Department. The Strategic Governance Executive (SGE), on behalf of TEXCO, is providing oversight and direction during the epidemic. The Head of Department (HOD) reports daily to the Provincial Transversal Management (PTM) team to co-ordinate collective provincial responses. There is a Gold Command which operates at provincial level within the Department and membership includes Top Management Executive (TEXCO), representation from the Provincial JOC, the City of Cape Town and additional technical colleagues from the strategic cluster and operations; it is chaired by the HOD and meets daily.

Silver command operates within the operations component of the Department with the Chief of Operations leading in this space. Its core members are the Operations Management Executive (OPEXCO) and representatives from Emergency Medical Services (EMS), Corporate Services, Disaster Management, the City of Cape Town, National Health Laboratory Services (NHLS), and the private health sector. Bronze command operates at institutional level and in 4 geographically organised teams. In addition to this arrangement a clinical governance mechanism is being put in place with representation from senior clinicians, EMS and Disaster Management with the intended purpose of managing service pressures during the epidemic surge. This mechanism will coordinate service access across public and private health sectors and will be supported by the senior management team to unblock any obstacles. These governance arrangements have had to evolve as the health system absorbs, adapts and transforms, in response to the emergent nature of the epidemic.

Governance for Health

An effective provincial response to the COVID-19 global pandemic strongly relies on the Department's ability to govern for health, as it requires collective action necessitating a whole of government, whole of society approach. Provincial government has taken collective responsibility, with all Departments working formally and informally across portfolios to stop transmission, provide optimised care for those infected, and minimise the impact on the pandemic on the health system and the people of the province. The Department plays an integral role as the health system response anchors the collective provincial government response.

Sector Engagement

Enabling a whole of society approach requires each provincial department to take the lead in their respective sectors, guiding and supporting sector stakeholders to comply with the public health strategies to limit transmission of the virus. The following principles have been established in this regard:

- All departments are expected to assist stakeholders in their respective sectors to create the necessary capability to mitigate against the risk of transmission in their operating environments. The provincial department of health will provide intelligence on the status of transmission and technical support on implementation of public health measures.
- National departments such as Home Affairs, SARS and Justice, are to engage directly with the department of health for assistance.
- Every employer takes responsibility for occupational health and safety in their places of business, as per the relevant regulations. Workplace policies are not enough, each employer must undertake to enable change in employee behaviours
- A well-researched, generic guideline is available with support from the relevant provincial department, in partnership with the health department to respective sector stakeholders.

Community Engagement

Community engagement is an integral part of any epidemic response and is premised on trust and co-operation. The Department's approach to working with communities is based on the principles that follow.

- Trust
- Transparency and honesty
- Relational power
- Collective leadership
- Integrated approach
- Sustainable resourcing
- Strengthening community structures and processes

Community structures are being mobilised to develop COVID-19 preventative strategies that are context sensitive and community led. The HODs from provincial departments are being deployed to lead initiatives aimed at controlling and mitigating against the virus in hotspot areas. They are being supported by the district / sub-structure management teams and a public health expert, who will assist with data analysis and technical support to inform local interventions. Risk communication content is being shared in these areas using CHWs and the networks of faith based organisations, local councillors, community leaders and local influencers.

Ports of Entry & Environmental Health

Ports of entry are a national competence, please refer to the National Plan.

Mitigating the Risks

Are we under-planning and under-preparing for this pandemic and its impact?

We are using emerging health intelligence globally and locally, closely monitoring actual data from local reality to calibrate our health system response. Modelling and scenario planning is being used

to forecast demand options. Management will use its collective wisdom, the best data and health intelligence available to make pragmatic judgements around the health system response and resource planning requirements. We also recognise the need for agility to modify our responses. Resources are finite and we also need to prioritise the most cost effective interventions in keeping with the departmental pledge.

Will there be a resurgence after the Lockdown is eased and how do we prepare to mitigate this?

There is a recognition that the decision to ease the lockdown must consider a range of public health and other socio-economic considerations. As the lockdown is eased, there is a need for targeted interventions to manage high risk areas as well as populations. This will include, amongst others, public gatherings, public transport, other areas of concentrated populations such as supermarkets, prisons and old age homes. Also measures such as social distancing, universal hygiene measures like hand washing, cough etiquette, and the use of cloth masks must be continued. Social distancing in informal settlements is particularly challenging and will require more innovative thinking.

How do we align our efforts between scaled up community screening, testing, isolation and quarantine capacity in this containment phase?

This requires integrated resource planning on the supply side as each component of the care continuum is inter-related and has knock-on effects on the others. We are in close engagement with NHLS regarding the expansion of testing capability and this is being addressed. We are in engagement with Public Works regarding the capacity for Isolation and Quarantine and revised estimates have been tabled. The impact of all of these interventions must also be reviewed in the light of emerging evidence and adjusted accordingly.

What surveillance mechanisms do we put in place over and above the CST to be vigilant about transmission of this pandemic?

This aligns with stage 8 focus on vigilance and surveillance identified in the national strategy. Over and above the CST, regular testing of samples of staff within health facilities and other high-risk areas such as schools, prisons, large workplaces will be conducted to closely monitor any potential transmission that may be occurring.

How do we manage when the created capacity is overwhelmed by demand?

This risk is mitigated by a three-pronged approach:

1. Firstly, capacity will be ramped up to provide a system response through all components of the care continuum. This will include, amongst others:
 - Community screening, testing, I & Q
 - Combining resources optimally from the private and public sectors in a single health system response who will also de-escalate non-emergency services, add additional capacity where feasible and create additional off-site facilities that can be equipped and staffed appropriately.
 - Volunteers, including health professional, and students are being called for to assist.
 - Extra-ordinary measures to secure additional supplies including re-purposing local industry and robustly exploring alternative, innovative options to developing PPEs
 - Tight controls over the supplies and appropriate utilisation of PPE
2. Secondly, rationing of care will have to be implemented using ethical principles and developing of clinical guidelines in this regard including which patients will be admitted to the limited intensive care beds available. Clinicians working in both public and private sector from the critical care society are addressing this matter.

3. Thirdly, public messaging to manage expectations and create a good understanding of the challenges to be faced will be important.

How do we cope with a significant proportion of health staff becoming ill which reduces capacity to provide a health service?

The protection of staff is a critical imperative. Numerous related policies have been developed including on the appropriate use of PPEs, staff safety framework, vulnerable staff and an overarching Occupational Health Policy. The frontline staff are going to be working under difficult circumstances and need to be physically and emotionally supported. Risk assessments and workplace preparedness plans including the streaming of COVID and non-COVID patients will be developed. When cases are identified in health facilities, rapid responses to identify and manage contacts and cases will be implemented. Volunteer staff, staff from the private sector, agency staff and bursars who are not employed will be hired or approached to assist. 28 Cuban health workers have been deployed to the provinces and the Department has engaged with the National Minister of Health with regards to redeploying health workers from other provinces.

What are the complications of the coincidence of the Flu season and how do we mitigate?

Many of the symptoms of Flu and COVID overlap and this complicates the clinical identification of COVID cases. It will also mean that many patients with flu may be anxious and present themselves at health facilities for testing and management. Enhanced public education and messaging, supporting self-management and developing clinical guidelines to better manage this situation will be implemented. The Department has prioritised staff and vulnerable groups to be immunised with the flu vaccine as a preventative measure.

How do we share health intelligence and actual data in the public domain without creating alarm and panic and compromising patient confidentiality?

The Department has recommended and the provincial cabinet has endorsed greater sharing of information in the public domain. Identifiable patient level data will be confidentially managed and only shared for the clinical management of patients and a health service response such as contact tracing. A public facing dashboard has been launched that shows the metrics per sub-district in the province and the Premier conducts weekly digicons to share updates with the public.

How do we address the Non - COVID backlogs and mitigate any adverse outcomes?

A review of the data has identified a significant drop in the utilisation of non-COVID services for the months of April and May 2020. This includes immunisation rates, screening, testing and treatment of HIV and TB and other chronic conditions including mental health as well as elective surgery. The Department is busy developing strategies to remedy this pattern and provide comprehensive services within a COVID context.

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