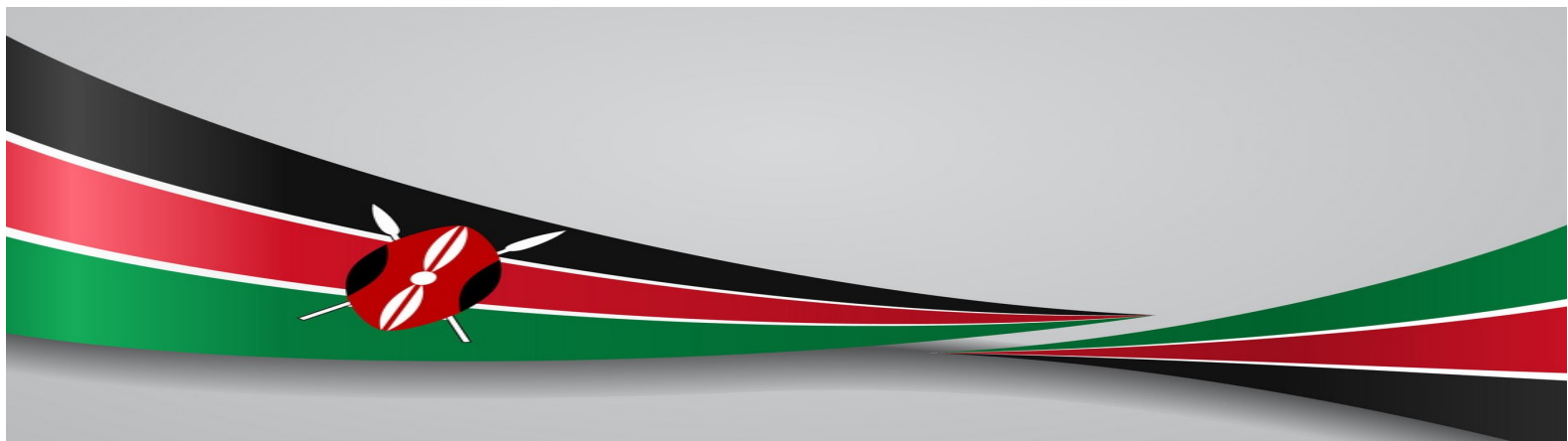


MINISTRY OF HEALTH

Interim Guidance on Provision of Services for Non communicable Diseases (NCDs) During the COVID-19 Pandemic

July 2020



Contents

Foreword.....	ii
List of Abbreviations and Acronyms.....	iv
CHAPTER 1: Introduction.....	1
1.1 COVID-19: A brief background.....	1
1.2 Impact on NCDs.....	1
1.3 Purpose of the Guidance.....	1
1.4 General management of NCDS.....	2
1.5 Universal infection prevention and control (IPC) strategies/measures	2
CHAPTER 2: Managing Diabetes During COVID-19 Pandemic.....	3
2.1 Introduction.....	3
2.3 Specific points relating to diabetes mellitus and COVID-19 infection	4
2.4 Recommended service provision during COVID-19 period	8
Chapter 3: CANCER.....	10
3.1 Introduction.....	10
3.2 Cancer prevention	10
3.3 Cancer screening	11
3.4 Cancer diagnosis.....	15
3.5 Cancer treatment	15
3.6 Improving Staff Preparedness	17
3.7 Palliative care	18
Chapter 4: Cardiovascular Diseases	20
4.1 Introduction.....	20
4.2 Management of CVD patients with and without COVID-19 infection	21
4.3 Specific recommendations for health care providers.....	22
4.5 Specific recommendations on use of personal protective equipment (PPE) for HCP and patients	24
4.6 Care for Acute Coronary Syndrome and Stroke	26
Chapter 5: Sickle Cell Disease.....	29
5.1 Managing Sickle Cell Disorders During the COVID-19 pandemic.....	29
5.2 Reducing the risk of COVID-19 in PLWSCD	29
5.3 Shielding for PLWSCD	29
5.4 Health and Wellness.....	29
5.6 Living with Others.....	30
5.8 Sickle Cell Trait.....	31
5.10 Routine Sickle Cell Disorder in the Context of COVID-19	31
5.11 Recommended service provision during COVID-19 period	33
List of Contributors.....	35

Foreword

Evidence shows that persons living with Non Communicable Diseases (NCDs) are more Susceptible to COVID-19 infection, have more severe COVID 19 infection and have higher case fatality rates. Additionally, the pandemic has resulted to delays in diagnosis of NCDs resulting in more advanced disease stages while those previously diagnosed are experiencing incomplete or interrupted therapy.

This guide serves to inform the clinical teams and all other stakeholders countrywide on the approaches to ensure continuity of key Non Communicable Diseases: Diabetes, Cancer, Cardiovascular and Sickle Cell Diseases services across the continuum of care. This is meant to minimize disruption of services and enable the healthcare teams to protect themselves and their clients during the period of this pandemic. As the pandemic evolves, we will continue to provide further Guidance on Provision of Services for Non communicable Diseases (NCDs) in Kenya.



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A handwritten signature in black ink, appearing to read 'P. Onyancha', with a large, stylized initial 'P'.

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List of Abbreviations and Acronyms

ACS	Acute Coronary Syndrome
BSE	Breast self-examination.
CBE	Clinical breast examination.
CBE	Clinical breast examination.
COVID-19	Coronavirus disease-2019.
CVDs	Cardiovascular Diseases
DNA	Deoxyribonucleic acid
FOBT	Fecal occult blood test.
HPV	Human papilloma virus.
IPC	Infection prevention and control.
MOH	Ministry of Health.
NCDs	Non-Communicable Diseases
PPE	Personal protective equipment.
SHS	Second-Hand Tobacco Smoke
UON	University of Nairobi
VIA	Visual inspection with acetic acid.
VILI	Visual inspection with lugol's iodine.

CHAPTER 1: Introduction

1.1 COVID-19: A brief background

Coronavirus disease 2019 (COVID-19) is a novel infection caused by a corona virus type that has previously not been seen in humans. It was first identified in Wuhan, China towards the end of 2019. The rapid spread of COVID-19 globally has great impacts on the socio-economic environment and on health systems. While most people infected with the Coronavirus experience mild to moderate respiratory illness and recover without needing specialized treatment, it has been reported that persons aged 60 years and above, and those with underlying NCDs are at higher risk of developing severe forms of the illness. The virus spreads mainly through respiratory droplets from an infected person through coughing or sneezing. There are currently no vaccines or specific treatments for COVID-19. Prevention or slowing down of transmission through simple hygiene measures remains the best approach to the disease at this time.

1.2 Impact on NCDs

Covid-19 poses new challenges for the NCD agenda globally and in Kenya. It has been shown that the infection spreads fast and that the severity and outcomes are worse among high-risk persons, including older persons and those with NCDs such as diabetes, cardiovascular diseases, respiratory conditions, or NCD risk factors exist, such as obesity and smoking. In addition, the mitigating actions and responses to the outbreak jeopardize access to and quality of essential health services for NCDs and disrupt lifestyle approaches for NCD prevention & control. Supply of medicines and commodities is also disrupted, while the re-prioritizing of funding, including donor funds, may affect the continuity of NCDs responses both locally and internationally. Further to this, there is a higher prevalence of mental health conditions being reported.

1.3 Purpose of the Guidance

COVID-19 poses new challenges to NCD service delivery across the continuum of care. The infection has been shown to spread fast with worse outcomes in persons with pre-existing conditions including cancer. The ability to maintain delivery of essential health services in COVID-19 will depend on the local COVID-19 transmission scenario (no cases, sporadic, clusters or community transmission) and the health system capacity as the pandemic evolves. This guide seeks to propose strategies to optimize diagnosis and care of NCD patients while at the same time offering potential options to alleviate the burden to the

healthcare system when resources may need to be diverted to the direct care of patients affected by COVID-19. These recommendations are intended for use as a guide to be applied through a patient-centered approach and should therefore not substitute clinical judgement. They should be adapted with consideration of the situation of the outbreak and impact on the health system in respective counties at different points in time. Once the COVID-19 outbreak is contained, patients should again be managed as per the current disease specific screening and treatment guidelines.

1.4 General management of NCDs

- Increase awareness of patients with NCDs about their heightened susceptibility to COVID-19 and ways to reduce the risk of transmission and recognize COVID-19 symptoms: this activity should also include information regarding the implications for self-management of NCDs.
- Create self-management plans, and support self-monitoring of disease, if appropriate, that is backed up by health care workers using alternative delivery mechanisms
- Increase home supplies of medication and stocks of monitoring devices. Patients should have a minimum of one-month supply
- Modify routine clinical reviews (e.g. frequency, means of delivery), as appropriate
- When treating patients affected by NCDs and COVID-19, it is critical to monitor the side-effects and interactions of medicines

1.5 Universal infection prevention and control (IPC) strategies/measures

The basic principles of IPC and standard precautions should be applied in all health care facilities as outlined in the existing MOH *Interim Infection Prevention and Control Recommendations for Coronavirus Disease 2019 (COVID-19) in Health Care Settings (3-27-2020)* – In particular, recommendations for Outpatient Care and for rational use of PPEs.

CHAPTER 2: Managing Diabetes During COVID-19 Pandemic

2.1 Introduction

People living with diabetes mellitus (PLWDM) are at increased risk of serious illness from COVID-19. Understanding this risk and the best ways to mitigate it is key to enabling patients, care givers, and healthcare professionals to make informed choices about ways to manage PLWDM during the COVID-19 pandemic. PLWDM should be alerted on the illnesses most likely to have an effect on blood glucose levels (especially if these conditions are followed by a fever or high temperature):

- Common cold or flu, including COVID-19
- Sore throat
- Urinary tract infections
- Bronchitis or chest infections
- Stomach upsets and diarrhea
- Skin infections such as abscesses

2.2 Reducing the risk of COVID-19 in PLWD

PLWD should be advised follow general guidance on risk reduction, including social distancing, coughing hygiene and hand washing. They should also ensure that they practice good glycaemic control during the COVID-19 pandemic as it may help in reducing the risk of infection and severity.

Planning Ahead

People living with diabetes, their care givers, and parents of children living with diabetes should work with their healthcare team to make an illness plan. They should discuss the following aspects of care:

- Their target blood sugar goal during the stay at home period
- How to adjust their medicines (for example how to adjust their insulin dosage and when to take insulin)?
- When to contact their healthcare team for help
- How often to check their blood sugar and ketone levels.

When to contact a health care provider

People living with diabetes should contact their healthcare team:

- If they are not sure what to do

- If they vomit repeatedly (not able to hold down any food or drink for more than six hours), as they can quickly become very dehydrated
- If their blood glucose stays high for more than 24 hours
- If they develop symptoms which could be indicative of their developing diabetic ketoacidosis. Such symptoms are Vomiting, Rapid breathing with fruity-smelling breath, Abdominal pain and Reduced level of consciousness (drowsiness)

The following Individuals with diabetes are considered most vulnerable:

- Those with inadequately controlled diabetes mellitus, specifically with a HBA1c reading > 7.6% or those with recently fluctuating sugars.
- Patients more than 55 years of age.
- Patients with diabetes and concomitant comorbidities such as heart failure, hypertension, chronic obstructive pulmonary disease, chronic kidney disease, cancer and HIV who are already known to have a significant impairment in their immune function.

2.3 Specific points relating to diabetes mellitus and COVID-19 infection

- It is important to note that those patients living with diabetes who are well controlled with no significant comorbidities have a significantly lower risk of developing severe complications of COVID-19 and their risk is comparable to that of the general population.
- The risk associated with COVID-19 infection is similar in individuals who have either type 1 or type 2 diabetes excluding other risk factors such as age, micro and macro vascular complications, comorbidities and glycemic control.
- COVID-19 infection in individuals who have either type 1 or type 2 diabetes can put them at a higher risk of developing diabetic ketoacidosis. The same standard treatment protocol for managing diabetic ketoacidosis as outlined by the American diabetes association (ADA) is used to treat patients with diabetes who develop diabetic ketoacidosis secondary to COVID-19 infection.

3 Routine Diabetes in the Context of COVID-19

Outpatient care

- Sensitization of patients with diabetes for the importance of optimal metabolic control
- Optimization of current therapy if appropriate and ensuring that the patients have adequate supply of essential drugs (3 months' supply)
- Caution with discontinuation of established therapy without consulting the health care

provider

- Where possible, utilization of Telemedicine and Community Health Workers strategy to maintain maximal self-containment
- Counseling of healthy diets and physical activity be provided to all PLWD
- To ensure maximum social distancing
 - Establish separate consultation areas for people living with diabetes.
 - Provide PPEs to health care workers and patients
 - The queuing system should ensure that patients are at least 2 meters from each other

Inpatient care

It is important to Monitor all new patients for new onset diabetes in infected patients and Management of infected patients with diabetes to be done in the ICU where possible. It is also important to monitor Plasma glucose, electrolytes, pH, blood ketones to rule out DKA or HHS

Diabetes emergencies in the inpatient

Diabetic KetoAcidosis (DKA)

Diabetic ketoacidosis (DKA) is an acute, major, life-threatening complication of diabetes characterized by hyperglycemia, ketoacidosis, and ketonuria

Management of DKA

Check for **clinical signs of DKA** include: Dehydration, tachycardia, tachypnea, deep sighing respiration, breath smells of acetone, nausea and/or vomiting, abdominal pain, blurry vision, confusion, drowsiness, progressive decrease in level of consciousness and, eventually, loss of consciousness (coma).

Confirm the diagnosis

- Capillary blood glucose test >15 mmol/L
- Urinary or plasma ketones
- PH < 7.3 or bicarbonate < 15 mmol/L

Investigations

- Blood
 - Urea/electrolytes
 - Glucose
 - Bicarbonate
 - Liver function tests
 - Full blood count

- Arterial/ venous blood gases
- Cardiac enzymes
- Blood cultures
- Chest radiograph (CXR)- preferably portable
- Electrocardiogram (ECG)
- Cultures: Mid-stream urine (MSU) and other appropriate cultures e.g. cerebrospinal fluid (CSF) if meningitis suspected

Management of DKA

- **Fluids** are a critical part of treating DKA. Adults with DKA generally need an average of 6L rehydration. Keep a fluid balance chart ± urinary catheter if output poor. Consider CVP if fluid status difficult to assess clinically or likely to need ICU support.
- **Insulin** is needed to help switch from a catabolic to an anabolic state which will result in uptake of glucose into tissues and the reduction of gluconeogenesis. The end result is to switch off the production of free fatty acid and ketones.
- **Potassium replacement:** Hypo and hyperkalaemia are potentially life-threatening conditions during the treatment of DKA. Check K⁺ after 2 hours and at 4, 8, 12, 16 and 24 hours or until transfer to subcutaneous insulin. Check magnesium levels at 12-24 hours.
- **Oxygen:** should be given and oxygen saturations monitored (aim for > 96%).
- **Nasogastric tube** should be inserted as gastric dilation common with increased risk of aspiration
- **Conscious level.** If GCS reduced, position patient in recovery position and consider intubation for airway protection (less than 8 intubate)
- **Antibiotics** if infection suspected (see antibiotic protocol)
- **Heparin prophylaxis**

Diabetic Hyperosmolar Hyperglycemic State

Hyperosmolar Hyperglycemic State (HHS) is characterized by the slow development of marked hyperglycemia (usually >30mmol/L or 540 mg/dl) and usually reading 'unrecordable' on the glucometer), dehydration and pre-renal azotemia (elevated blood urea and creatinine). Ketonuria may be slight or absent. Two-thirds of cases are in previously undiagnosed cases of diabetes

Treatment

Initial treatment is the same as for Diabetic Ketoacidosis; but usually insulin requirements are lower than in DKA and individuals respond well to rehydration. Owing to its high mortality, immediate referral for relevant specialist care is recommended. ECG should be done and

Heparin/anti-thrombotic agents should be given in the absence of contraindications.

Hypoglycemia

Hypoglycemia is a medical emergency and should be treated promptly if serious complications are to

be avoided. It is characterized by blood glucose levels <4 mmol/L. Some patients might experience hypoglycemic symptoms at higher blood glucose levels and clinicians should individualize care.

Management of Hypoglycemia

	Blood glucose	Description	Action
Level 1 <i>Hypoglycaemia alert</i>	≤ 3.9 mmol/L but ≥ 3.0 mmol/L	Requires treatment with fast-acting carbohydrate Patient alert and able to eat	<ul style="list-style-type: none">• Treat with oral glucose• Give a sugary snack and recheck blood glucose in 15 min• If blood glucose remains ≤ 3.9 mmol/L, repeat the previous step• Give a carbohydrate meal when blood glucose is ≥ 5.0 mmol/L
Level 2 <i>Clinically significant hypoglycaemia</i>	< 3.0 mmol/L	Indicates serious, clinically significant hypoglycaemia Patient may be alert or may have reduced consciousness	<ul style="list-style-type: none">• Treat with iv glucose• Give 10 ml 50% glucose iv and recheck blood glucose in 2 min• If blood glucose remains < 5mmol/L, repeat the previous step• Give an infusion of 10% glucose iv if more than 2 doses of iv glucose required• Give a carbohydrate meal when blood glucose is ≥ 5.0 mmol/L and the patient is alert and able to eat• Observe for 4 hrs, checking blood glucose every 1 hr
Level 3 <i>Severe hypoglycaemia</i>	No specific value	Associated with severe cognitive impairment requiring external help for recovery Patient has reduced consciousness	<ul style="list-style-type: none">• Treat as for Level 2 hypoglycaemia• Likely to need hospital admission

Source: Adapted from ADA Guidelines, 2018

2.4 Recommended service provision during COVID-19 period

Category of service	Description of services
Essential Services to be maintained	<p>Inpatient Diabetes Support</p> <ul style="list-style-type: none"> • To maintain patient safety and patient flow as above • Including support for diabetes foot emergencies <p>Virtual support (use of CHWs, Peer educators or telephone helplines)</p> <ul style="list-style-type: none"> – For admission prevention by providing safety advice – Proactive support for high risk groups in the community <ul style="list-style-type: none"> ○ Recurrent hospital admissions ○ Recurrent severe hypoglycaemia ○ HbA1c over 11% – Provision of support following discharge <p>Diabetes foot clinics (For prevention of amputation)</p> <p>Antenatal diabetes services</p> <ul style="list-style-type: none"> – To maintain safety for similarly high risk groups – should be virtual appointments wherever possible <p>Urgent face to face reviews</p> <ul style="list-style-type: none"> – New diagnosis type 1 diabetes – Urgent insulin start (where alternative medication cannot be used) <ul style="list-style-type: none"> ○ Patient is symptomatic ○ Ketones are elevated ○ HbA1c above 10% – Urgent training for glucose monitoring <p>Other Blood test monitoring is essential</p> <ul style="list-style-type: none"> – Declining renal function – Significant hyponatraemia – Significant hyperkalaemia
Services to be put on hold or provide spaced consultations	<ul style="list-style-type: none"> – All face to face structured education – All non-urgent diabetes reviews

2.5 References

1. Ministry of Health Kenya, 2018: Kenya National Clinical Guidelines for Management of Diabetes Mellitus
2. Diabetes UK 2020: Maintaining Acute Diabetes Services in response to COVID19
3. International Diabetes Federation 2020: How to manage diabetes during an illness “SICK DAY RULES”
4. Joseph I. Wolfsdorf et al 2017: Diabetic Ketoacidosis and Hyperglycemic Hyperosmolar State: A Consensus Statement from the International Society for Pediatric and Adolescent Diabetes
5. Stefan R Bornstein et al 2020: Practical recommendations for the management of diabetes in patients with COVID-19
6. Press release. ‘American Diabetes Association® Update on COVID-19 and ADA Events.’ March 13, 2020. Arlington, Virginia.

Chapter 3: CANCER

3.1 Introduction

Approximately 70-80% of cancer patients in Kenya are usually diagnosed at the advanced stages due to low awareness of signs and symptoms, inadequate screening, poor access to diagnostic and treatment services. The COVID-19 pandemic has had significant effects on demand and capacity to deliver cancer services across the care continuum. Health workers across all levels of care should continue to prioritize cancer symptom recognition and referrals for diagnosis and management while implementing the COVID-19 infection prevention measures.

3.2 Cancer prevention

Healthcare providers should advise the public that they should continue taking the following measures to reduce their cancer risk:

- *Avoiding tobacco* in all its forms, including exposure to secondhand smoke.
- *Having a healthy diet*: Reduce your consumption of saturated fat and red meat, which may increase the risk of colon cancer and a more aggressive form of prostate cancer. Increase your consumption of fruits, vegetables, and whole grains.
- *Exercising regularly*. Physical activity has been linked to a reduced risk of colon cancer. Exercise also appears to reduce a woman's risk of breast and possibly reproductive cancers. Exercise will help protect you even if you don't lose weight.
- *Maintain healthy body weight*: Obesity increases the risk of many forms of cancer. Calories count; if you need to slim down, take in fewer calories and burn more with exercise.
- *Limit alcohol intake*: Excess alcohol increases the risk of cancers of the mouth, larynx (voice box), esophagus (food pipe), liver, and colon; it also increases a woman's risk of breast cancer.
- *Avoid unnecessary exposure to radiation*. Get medical imaging studies only when you need them. Protect yourself from ultraviolet radiation in sunlight, which increases the risk of melanomas and other skin cancers.
- *Avoid exposure to industrial and environmental toxins* such as asbestos fibers, benzene, aromatic amines, and polychlorinated biphenyls (PCBs).

3.3 Cancer screening

The covid-19 situation has negatively affected health-seeking behavior among the general population. It is therefore essential to increase awareness campaigns through media and other feasible means to encourage the general public to seek consultation if they have possible symptoms of cancer.

3.3.1 Breast cancer screening services

Breast health awareness and education are important in the early detection of breast cancer and can be emphasized at community and primary healthcare level within the context of COVID-19. Although mammography is the recommended mode of breast cancer screening, breast self-examination (BSE), clinical breast examination (CBE) and ultrasound are complementary to mammography and aid in early diagnosis of breast cancer and should therefore be used for breast cancer screening and early diagnosis whenever possible.

- **Asymptomatic women:** Breast cancer screening is not considered urgent for women who are asymptomatic and therefore mammography screening services for this group of women should be temporarily suspended. Asymptomatic women should therefore be advised to wait for between 3 to 6 months, or until the pandemic situation is contained. Clients with appointments should be contacted and informed of the postponement of their appointments and later on be informed of their new appointment dates when services resume.
- **Symptomatic women:** Women who have breast cancer symptoms should be attended to and referred appropriately for triple assessment (clinical breast examination, biopsy and a diagnostic mammogram) in line with the *National Cancer Treatment Protocols 2019*, but taking into consideration the necessary precautions against COVID-19. Pre-triaging symptomatic patients to screen for respiratory symptoms through telemedicine or telephone consultation should be considered as appointments are made.
- Over 80% of breast cancer cases in Kenya occurs in women in the average risk population (women without a family history of breast cancer) and recommendations per age category for women with average risk are as tabulated below:

Age Group	Recommendation	Interval
25 - 34 years	CBE every 3 years <i>Mammogram is not recommended</i>	1 to 3 years
35 - 39 years	CBE and Ultrasound OR mammography*	1 to 3 years
40 - 55 years	CBE + mammography	Annual
56 - 74 years	CBE + mammography	Every 2 years
75 years and older	Consider individual health factors and woman's preference to continue screening	Discuss with patient

Notes:

* The balance of benefits and risks is not great enough to recommend routine screening.
Clinical judgment may be used to adjust the frequency of screening considering individual differences.

Women who have had surgery for breast augmentation, breast reduction or sex-reassignment should follow the same recommendations below for mammographic screening as those in the average risk population. The clinician should clearly state presence of breast implants in the mammography requisition form.

Source: National Cancer Screening Guidelines, 2018

3.3.2 Cervical Cancer Screening

Any woman who has ever had sexual intercourse is eligible for screening but the target age group for population-based screening is women aged between 25 to 49 years. Women aged 50 to 65 years are still at risk of cervical cancer and can receive screening every five years. The Human Papilloma Virus (HPV) test is recommended as the gold standard screening method although, Visual Inspection with Acetic acid (VIA) alone, or combined with Visual Inspection with Lugol's iodine (VILI) and Pap smear tests can also be used as primary screening methods where facilities for HPV testing are not available.

The guidance for cervical cancer screening is as follows:

- Continuation of routine cervical cancer screening services will depend on the stage of the outbreak in respective counties at different points in time, as recommended in the *MOH Interim Guidance on Continuity of Essential Health Services During the Covid-19 Outbreak*, as follows:
 - Scenario 1: Ongoing community transmission but with few predominantly mild cases in key hotspots (no evidence of widespread community COVID-19 infections)
In this case, ensure that any woman who comes to the health facility seeking cervical cancer screening services receives the screening services and, as much as this is possible, is not turned back.
 - Scenario 2: Rising number of cases in counties (widespread community covid-19 infections)

As the number of COVID-19 cases rise, routine cervical cancer screening should be strategically adapted to allow safe service delivery. The following specific adaptations should be undertaken:

- Encourage self-sampling for HPV testing, where HPV testing services are available. Community Health Workers and Health Care Workers can be trained to offer appropriate counseling and proper instructions on cervical sample collection to the clients to allay any fears and ensure collection of a good quality sample.
- Promote appropriate and adequate management of clients with a positive screening test and use of telephone communication to relay negative screening test results to clients.
- Employ a single-visit approach to screening and treatment of precancerous lesions, where the capacity exists and services can be safely delivered.
- Prioritize access to screening for all women living with HIV.

The outbreak situation should be monitored regularly in the county, with a view to reverse the adaptations and transition to restoration of activities as before. However, some adaptations may be continued for a limited time, while others that are seen to be effective, safe and favorable can be integrated into routine practice after the pandemic. Campaigns can also be organized after the outbreak to make up for missed opportunities.

- Treatment for premalignant cervical lesions should be provided while implementing appropriate infection prevention measures.
- Processing of HPV DNA & Pap smear samples: Laboratories should continue processing any HPV and Pap smear samples they receive and to relay the results to the relevant health providers.
- Defer any cervical cancer screening outreaches but consider expansion of access to these services within the facility through integrated care approaches.

Symptomatic women: Ensure that any woman with symptoms of cervical cancer (such as per vaginal bleeding during sexual intercourse, bleeding between periods, postmenopausal bleeding, abnormal foul-smelling discharge) is counseled and referred appropriately in a timely manner for colposcopy and biopsy for diagnosis and further management.

- At referral, ensure communication with the receiving facility to avoid patients being turned back.

- Ensure follow-up & linkages to care for all clients who are found to have invasive cancer before the onset or during the COVID-19 pandemic to ensure early diagnosis and treatment for better outcomes. Follow-up appointments should be scheduled in such a way as to avoid crowding at the health facility.

3.3.3 Colorectal cancer screening

The following risk-stratified approach is recommended for colorectal cancer screening:

- Average-risk population: Screening should be initiated from 45 years of age with annual fecal occult blood test (FOBT) or colonoscopy every 10 years where available.
- Increased-risk population (family history of colorectal cancer) and high-risk population (hereditary/genetic predisposition or inflammatory bowel disease): Screening should be initiated earlier every 5 -10 years. Colonoscopy is the recommended screening modality.

In Asymptomatic clients, it is recommended that:

- Routine screening procedures should be suspended and postponed to a later date
- Clients with booked appointments for follow up on benign conditions should be rebooked. All attempts should be made including through the use of tele-medicine to ensure patients are not lost to follow up.
- Clients on follow up for diagnostic procedures or review for malignancy or suspected malignancy should be evaluated in a timely manner by a gastroenterologist/ surgeon, and managed through a multi-disciplinary team approach.

Symptomatic clients should be referred appropriately for colorectal cancer screening using colonoscopy or FOBT on a case by case basis. However, pre-screening of patients through telephone interview for respiratory symptoms is advised.

3.3.4 Retinoblastoma

Health care workers at the Maternal and Child Health clinics are requested to appropriately fill the retinoblastoma section in the MCH booklet after eye examination for detection of white reflex/cat's eye reflex, squint or proptosis in all children less than 5 years presenting at the MCH clinics. Those with any abnormalities should be referred immediately to the next level of care with an ophthalmologist for further management.

The *MOH Guidelines on Management of Paediatric Patients During Covid-19 Pandemic* (March, 2020) recommends that routine pediatric services should continue countrywide while ensuring that risk of transmission of Coronavirus infection to children, their care givers and

healthcare workers is minimized, through preferential use of smaller less crowded levels 2 and 3 facilities, set up separate space akin to an out-reach post service at high volume facilities, use of specific scheduled appointments, etc.

Referral to an Eye Clinic: The child should be referred to the nearest eye clinic for evaluation, accompanied by a referral letter (**in certain cases where eye clinics in county hospitals have been shut down in response to the COVID-19 pandemic, the child should be referred to the nearest open eye clinic*). As far as possible, the healthcare worker referring the patient should establish prior linkage with referral facility informing them of the referral and advise the parent/guardian on measures to minimize exposure of the child to COVID-19 disease by following the MOH guidelines on IPC.

3.4 Cancer diagnosis

- There is currently no evidence to withhold cancer diagnosis and delaying diagnosis can have negative effects for cancer patients.
- Increase campaigns to encourage the general public to seek consultation and diagnosis for possible symptoms of cancer.
- In a patient newly diagnosed with cancer, it may be reasonable to limit staging procedures and pretreatment evaluation only to those that are most necessary to inform development of the initial care plan.
- Adoption of virtual consultations is encouraged for patients not requiring a physical exam, or in-office diagnostics. This includes routine surveillance in patients who have completed treatment or those on active surveillance considered to be at relatively low risk of recurrence or disease progression, and those who are asymptomatic during the follow-up period.
- In the context of COVID-19, facilities are encouraged to establish digital diagnostic platforms to allow for telepathology and telereporting of pathology specimens to mitigate against longer waiting times for cancer diagnosis that may worsen should cancer diagnostic services be halted. It should be noted that already, majority of cancer patients in Kenya are diagnosed late leading to poor treatment outcomes and high mortality rate. Telepathology, therefore, offers an innovative solution for prompt diagnosis, knowledge exchange and sharing among the relevant pathologists and in the setting of the multidisciplinary team meetings.

3.5 Cancer treatment

The following cancer patients are at a higher risk of having severe disease if infected with the novel SARS-COV 2 virus:

- Those who are undergoing active chemotherapy, immunotherapy, targeted cancer treatments or radiotherapy
- Those with cancers of the blood or bone marrow such as leukaemia, lymphoma or myeloma at any stage of treatment
- Those who have had recent surgery, bone marrow or stem cell transplants
- Those taking immunosuppression drugs.
- Those advanced in age (age over 60 years)
- Those with pre-existing cardiovascular, respiratory or kidney diseases.

There is currently no evidence to withhold cancer treatment and delaying treatments can have negative effects for cancer patients. These guidelines should not replace clinical judgement and individualized decision-making is encouraged. Kenya is currently experiencing a rising number of COVID-19 cases in counties (widespread community covid-19 infections). Although the guidance for this scenario is evolving, the following are recommended:

1. In counties with high community transmission, any clinic visits for follow-up patients that can be postponed without any risk to the patient should be postponed.
2. Ensure follow-up patients are aware of where and how to access telehealth or online services for monitoring and self-care. Where clinic visits are absolutely necessary, ensure proper timing of appointments to reduce time spent at the facility.
3. Prioritize care for newly diagnosed cancer patients, patients on active treatment and patients with life-threatening conditions or clinically unstable patients including those with oncological emergencies.
4. For those who need to attend particularly for treatment, schedule appointments to reduce waiting times. Encourage patients not to arrive too early.
5. Consider systemic therapies that can be given in alternative regimens, different locations or via other modes of administration including:
 - Changing intravenous treatments to subcutaneous or oral if there are alternatives.
 - Selecting regimens that are shorter in duration.
 - Consider using 4-weekly immunotherapy regimens
 - Dispensing longer periods for oral medications.
6. For patients undergoing radiotherapy continue treatment to completion and explore options for hypo-fractionation where possible

7. Develop oncology care plans and consider referring patients to their nearest county cancer center for care that can be provided there to reduce unnecessary travel.
8. Consider home delivery of oral medication where possible
9. Use of GCSF or empirical antibiotics as primary prophylaxis to protect patients at risk of neutropenia and reduce admission rates is encouraged where appropriate.
10. Cancer patients with active COVID-19 infection: Consider withholding all immunosuppressive oncology treatment until after recovery. Treatment may resume after a negative COVID-19 result.
11. Cancer patient with suspected COVID-19 infection: consider delaying immunosuppressive treatment for 14 days and prioritize COVID-19 testing.

Cancer patient with known COVID-19 exposure without symptoms: Consider delaying treatment for 14 days, request for a COVID-19 test and allow self-isolation as per guidelines. Routine COVID-19 testing for all cancer patients 48-72 hours before immunosuppressive therapy may be considered where feasible.

3.6 Improving Staff Preparedness

- Ensure oncology clinic staffs receive additional COVID-19 training to screen patients for possible COVID-19 infection.
- Develop Standard Operating Procedures for isolating potentially infected staff and patients in consultation with the hospital's COVID-19 surveillance team.
- Ensure adequate supplies of PPEs for the Oncology clinic.
- Staff working at high risk areas such as those performing aerosol generating procedures especially for head and neck cancers or bronchoscopy will need to don full PPE.
- Establish a triage desk. At every appointment, screen patients and ask questions about overall health and recent travel.
- All persons at the clinic should wear a mask and practice social distancing.
- Patients may be asked to reschedule until they are feeling better if they have respiratory symptoms.
- Frequently clean and disinfect surfaces with 0.5% chlorine throughout the clinics. Make sure to discard any remaining disinfecting solution within 24 hours.
- Provide “sanitation stations” at all entrances. These stations should have soap and water, tissues, hand sanitizer with 60% alcohol, and provision of a mask, if possible.

3.7 Palliative care

The following should guide palliative care to cancer patients during this period:

- Palliative care should continue to be available to cancer patients at all stages of their illness.
- Increase psychosocial support for cancer patients and their caregivers during this difficult period.
- Attend to the nutritional needs, symptoms & psychological/spiritual needs of the patient as well.
- Identify those who need to receive information about the patient's illness as well as how and where you will deliver information.
- Ensure appropriate & prompt management of distressing symptoms and maintain patient confidentiality.
- Make sure you debrief - attend to your own mental, physical and spiritual health.
- Both COVID-19 and non-COVID-19 conditions (for example, advanced lung cancer, lymphangitis, carcinomatosis, etc) may cause severe breathlessness/distress toward end of life. Opiates (morphine) may reduce the perception of breathlessness. They should be prescribed on the treatment chart and the timing of doses written in the chart.
- Innovative solutions can be adopted to overcome health system challenges during this period including using telemedicine, home drug delivery, encouraging phone communication between clients, families and staff, allowing patient relatives to pick up prescriptions for opioids for a longer period of time and giving social support for the relatives by phone.
- Palliative care needs for cancer patients can be assessed and provided at the community level.
- Cancer patients with active COVID-19 infection: patients who are older, with advanced disease and significant co-morbidities in need of mechanical ventilation will usually have dismal outcomes. Proactive discussions should therefore begin with the palliative care specialists on goals of care and advanced care planning .Optimize provision of end-of-life care and bereavement services for cancer patients and their caregivers within capabilities in accordance with COVID-19 infection prevention measures.

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Chapter 4: Cardiovascular Diseases

4.1 Introduction

The analysis of epidemiologic characteristics among the early cases in China showed that older individuals, and people who have serious chronic medical conditions like cardiovascular disease are at risk of severe illness once infected by COVID-19 (WHF, 2020). Globally, there is a high prevalence of cardiovascular disease, >7% of patients experience myocardial injury from the infection and up to 22% of critically ill patients have a CVD (Clerkin Kevin J. et al., 2020).

Considerations for management of Patient with CVD during COVID 19 Pandemic:

- Patients with underlying conditions are at higher risk for complications or mortality—up to 50% of hospitalized patients have a chronic medical illness (40% cardiovascular or cerebrovascular disease)³.
- Individuals with CVDs and associated risks such as hypertension, diabetes and smoking are at higher risk of severe disease and death ^{2,3}.
- Covid-19 infection has been associated with multiple direct and indirect cardiovascular complications including acute myocardial injury, myocarditis, arrhythmias and venous thromboembolism¹.
- With the increase in focus towards response to COVID-19, potential for compromise in the rapid triage of non-COVID-19 patients with cardiovascular conditions may result².
- Cardiovascular health care workers are at the frontline of managing COVID-19 infected patients and therefore measures should be put in place to minimize this risk².
- COVID-19 infection may have longer-term implications for overall cardiovascular health however long-term follow-up data concerning the survivors of respiratory virus epidemics are scarce³.

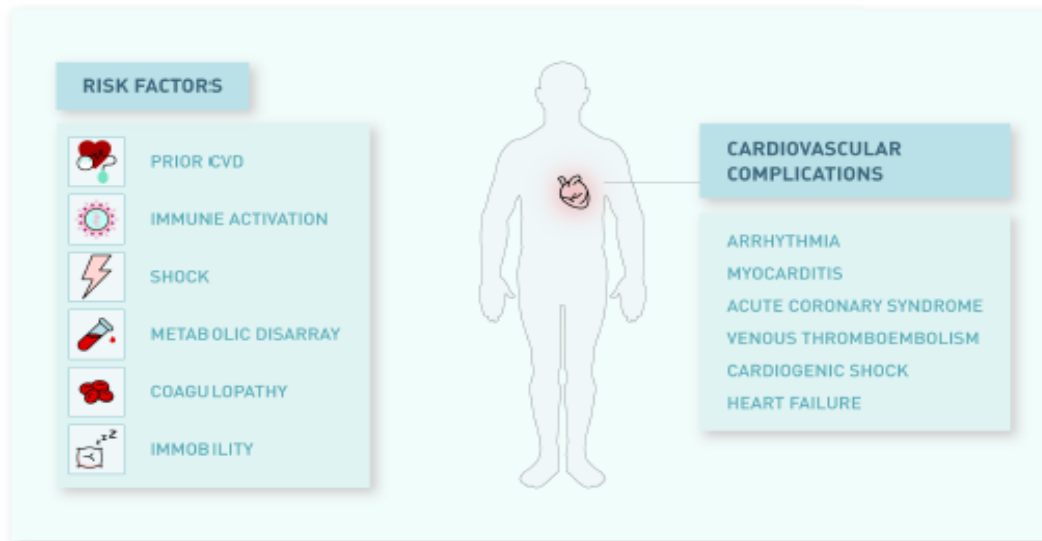


Figure 1: Risk factors and potential CV sequelae which may result from COVID-19 infection²

Specifically, this guidance provides recommendations for the following:

- I. Management of CVD Patients with and without COVID-19 infection
- II. Use of personal protective equipment (PPE) for HCP and patients Provision of cardiac procedures
- III. Safe Provision of cardiac procedures (Echocardiography, Cardiac catheterization)
- IV. County preparedness for the provision of CVD services during the COVID-19 Pandemic

4.2 Management of CVD patients with and without COVID-19 infection

Specific recommendations for prevention of infection in CVD Patients

- a) Continue taking your medication and ensure you have enough drugs to last a month or more.
- b) Measure your blood pressure regularly at home and contact your health provider in case of elevated blood pressure.
- c) Always wear a mask when in public places or in contact with other people
- d) Keep a distance of at least one meter when in public places.
- e) Avoid touching your eyes, nose, and mouth with unwashed hands.
- f) Avoid close contact with others (at least 2 meters social distance) especially those who are sick.
- g) Clean and disinfect frequently touched surfaces daily. This includes tables, doorknobs, light switches, countertops, handles, desks, phones, keyboards, toilets,

faucets, and sinks. If surfaces are dirty, clean them using detergent or soap and water prior to disinfection.

- h) Immediately contact a health care worker or the nearest health facility if you have been exposed to COVID-19 and develop a fever and symptoms, such as cough or difficulty breathing
- i) Eating healthy diets, with plenty of fruits and vegetables (MOH)
- j) Wash your hands often with soap and water or alcohol-based sanitizer for at least 20 seconds.
- k) Be aware of your health state and if you experience symptoms, visit the nearest hospital.
- l) Avoid foods high in salt and eat a balanced diet.
- m) Keep physically active – undertake regular exercises, walk around, and stretch at home
- n) Avoid unnecessary visits.
- o) Do not attend public gatherings.
- p) Get in touch with friends and family over telephone.
- q) If possible, send others to shop for your food, medicine, and other requirements.
- r) Avoid alcohol and smoking (Ref: WHO, WHF)
- s) In case you experience difficulty in breathing, headache, swelling of the legs, face puffiness, dizziness, increased heartbeat, chest pain, altered speech and general weakness, call the health facility or health care provider
- t) Follow any additional instructions from the Ministry of Health

4.3 Specific recommendations for health care providers

- a) Minimize non-essential/non-urgent in-person provider-patient interactions as much as possible.
- b) Consider temperature screening before clinic/facility entry.
- c) Review current schedules days in advance with a goal of identifying established patients that:
 - a. Can be safely rescheduled >3 months
 - b. Can be seen virtually (e.g. telephone, telemedicine) for active issues
 - c. Must be seen face-to-face (traditional visit)
- d) Stagger or space out appointments for those who must be seen face-to-face to reduce the number of patients in the office and waiting areas.

- e) Utilize telemedicine or e-visits to consult and triage patients especially those with pre-existing CVD who are higher risk. This will be minimizing exposure of patients and HCPs (especially elderly) to potential infection.
- f) It is important for patients with CVD to remain current with vaccinations, including the pneumococcal vaccine given the increased risk of secondary bacterial infection with COVID-19.
- g) Limit elective cardiac procedures such as cardiac catheterization, operations, and echocardiography to only those that are necessary.
- h) For procedures that are necessary, numbers of personnel should be kept at minimal.
- i) Triage of patients with COVID-19 should take into consideration underlying cardiovascular disease as well as other comorbidities such as diabetes, cancer, respiratory and renal.
- j) Considering the anticipated increase in numbers of patient infected with COVID-19, hospital protocols should be developed for the care of acute and chronic CV patients with and without COVID-19 considering the stretched resources

Figure 2 below summarizes the key considerations when managing CVD patients with and without COVID-19 infection.

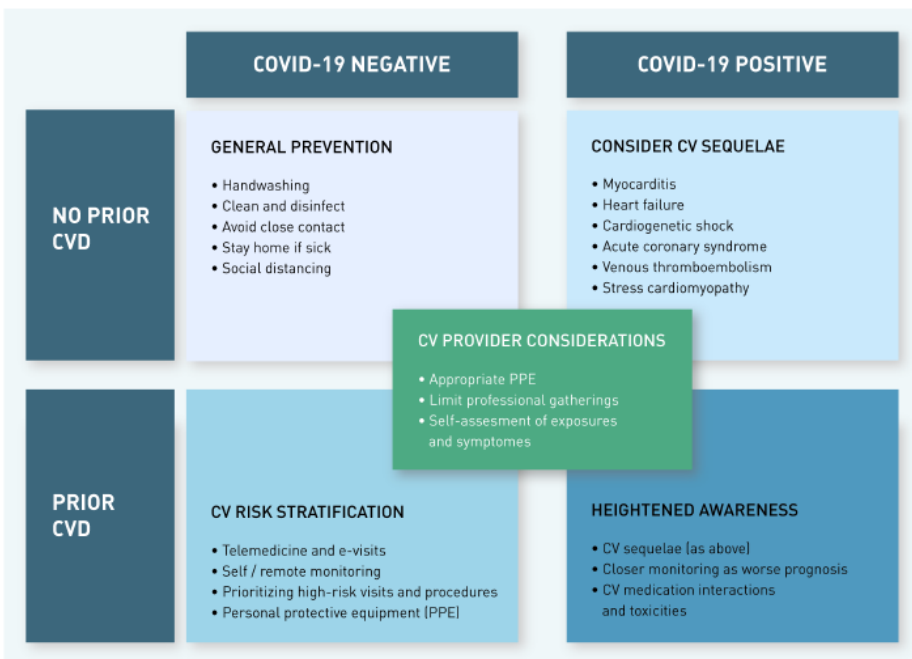


Figure 2: Key considerations for management of patients with and without CVD ¹

4.5 Specific recommendations on use of personal protective equipment (PPE) for HCP and patients

- a) Patients with suspected/probable or confirmed infection should wear disposable surgical masks when in a room with other persons
- b) CVD patients accessing diagnostic or therapeutic services at the health facilities should wear surgical masks to protect themselves
- c) The level of protection of HCP depends on patient risk status, setting and procedure performed. This is clearly outlined in the table below.
- d) Every health facility should triage patients and categorize them as either probable/suspected or not probable/suspected or negative case. For the former, HCPs should use level II protections while for the latter, level I.
- e) Patients admitted in the cardiology ward should be considered possible infected and managed with level II or III protection as they await test results. They should preferably be managed in a dedicated area/ward.
- f) It is recommended that confirmed/probable and suspected cases have dedicated equipment including BP cuffs, stethoscopes, and thermometers. If this is not possible, the equipment should be appropriately disinfected.
- g) Before providing consultation in the ED, if possible, perform quick triage on phone and establish if the patient has suspected COVID-19 symptoms or risk factors. If the consult is urgent and there is not time to wait for the results, the HCP should consider the patient positive and use Level II protection (Level III is performing aerosol generating procedure). Otherwise, the other ED patients can be seen with level I protection.
- h) Catheterization Laboratory
 - i. All patient accessing this should have surgical masks
 - ii. ST-Segment Elevation Myocardial Infarction (STEMI): Due to urgency, immediate reperfusion strategy should be implemented with precautions for COVID infection until proven otherwise. Facilities that are able to do primary PCI should offer this treatment while Pharmacoinvasive approach with thrombolysis and later catheterization and PCI can be used in those not getting primary PCI. Either strategy/procedure should be performed even before results of the tests are available. Where community transmission is high, assume all patients are COVID-19 positive and use appropriate PPE.
 - iii. Non-ST-Segment Elevation Myocardial Infarction –: If high risk, manage as STEMI. All others should have a swab done immediately and kept in a dedicated area. When 2 tests are negative and there are no suspicious symptoms, perform coronary

angiography and PCI in a catheterization laboratory for COVID-19 negative patients. If the test is positive and an invasive approach is required, use a dedicated laboratory. Perform as many routine procedures at the bedside before transporting the patient to the laboratory. Minimize the staff in the laboratory and have them wear Level II or III PPE.

- iv. Transesophageal Echocardiography, Continuous Positive Airway Pressure and Orotracheal Intubation Patients: These patients should be tested for COVID-19 and if there are two negative tests and no suspicious symptoms, the procedure should be performed using standard protocols. For positive COVID-19 patients, performing a focused ultrasound (POCUS) exam at the bedside if preferred.

Table 1: Summary of COVID-19 Personal Protection Management ⁶

Protection level	Personal Protective Equipment (PPE)	Application Setting/procedures
Level I protection	<ul style="list-style-type: none"> • Disposable surgical cap • Disposable surgical mask • Work uniform • Latex gloves 	<ul style="list-style-type: none"> • Pre-examination triage, outpatient department (not suspected/not probable SARS-CoV-2 patients)^a • SARS-CoV-2 negative in-patient
Level II protection	<ul style="list-style-type: none"> • Disposable surgical cap • Medical protection mask (N95/FFP2) • Work uniform • Gown • Disposable surgical gloves • Goggles 	<ul style="list-style-type: none"> • All suspected/probable or confirmed SARS-CoV-2 patients should wear a disposable surgical mask^b • Outpatient department (suspected/probable or confirmed SARS-CoV-2 patients) • Isolation ward and ICU areas • Nasopharyngeal swab • Non-respiratory specimen examination of suspected/probable or confirmed SARS-CoV-2 patients • Percutaneous invasive procedures (coronary angiography, PCI, EP procedures) in suspected/probable or confirmed SARS-CoV-2 patients. • Cleaning of surgical or diagnostic instruments (TTE/TEE transducers, stethoscope) used in suspected/probable or confirmed SARS-CoV-2 patients
Level III protection	<ul style="list-style-type: none"> • Disposable surgical cap • Medical protection mask (FFP3) • Work uniform • Gown • Disposable surgical gloves • Full-face respiratory protective devices or powered air-purifying respirator, if available 	<ul style="list-style-type: none"> • TEE in suspected/probable or confirmed SARS-CoV-2 patients • Aerosol generation procedures (AGP): nasopharyngeal swab, endotracheal intubation or other procedures during which the suspected/probable or confirmed SARS-CoV-2 patient may spray or splash respiratory secretions, body fluids or blood

4.6 Care for Acute Coronary Syndrome and Stroke

- 1) Maintain emergency care systems and protocols for managing ACS and stroke.
- 2) Modify ACS and stroke networks (hub and spoke + differentiated pathways), according to patient's COVID-19 status.
- 3) Maintain time-sensitive interventions (e.g. thrombolysis, thrombectomy).
- 4) Develop safe options for rehabilitation during inpatient care.
- 5) Recognize potential medicine interactions and cardiovascular toxicities of several off-label medicines used for COVID-19 treatment.
- 6) Prioritize follow-up consultations with stroke survivors because they are at higher risk of pneumonia.

4.7 Specific recommendations for county health facilities preparedness

- Health system managers should ensure that the following steps are taken during preparation.
- Adequate Supplies and Commodities
- Counties need to map supplies and supply chains for CVD essential medicines, and other health products and technologies.
- They should ensure that forecasting and quantification of essential drugs and nutrition commodities to ensure minimal disruption of essential services.

- Adequately quantify and make available supplies of PPEs, sanitizers, soap and disinfectants for the Primary care facilities is done.

4.8 Reorganization of Patient Flow

- Organize patient flow to ensure physical distancing, and provide guidance for patients and staff e.g. through drawings of clear areas
- Change protocols for key groups to allow for reduced patient-doctor contact e.g. bigger prescriptions for CVD patients.

4.9 Referral systems

- There should be an effective and readily available referral system/ protocol for the Cardiovascular Disease patients.
- Separate ambulance services so that vehicles used for COVID-19 response are not used for other responses

Sensitization and Training of all Staff on management of cardiovascular disease patients, who tested positive for COVID-19.

There are various virtual trainings currently running at the National level through the Ministry of health, and stakeholders from other professional associations.

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Chapter 5: Sickle Cell Disease

5.1 Managing Sickle Cell Disorders During the COVID-19 pandemic

People living with Sickle Cell Disorders (PLWSCD) are at increased risk of serious illness from COVID-19. Understanding this risk and the best ways to mitigate it is key to enabling patients, caregivers, and healthcare professionals to make informed choices about ways to manage PLWSCD during the COVID-19 pandemic.

5.2 Reducing the risk of COVID-19 in PLWSCD

PLWSCD should be advised follow general guidance on risk reduction, including social distancing, coughing hygiene and hand washing. Here is an overview of the types of guidance and who they apply to:

- For everyone: Staying alert and safe (social distancing) – this includes anyone with sickle cell trait (sickle cell carriers)
- For all patients with a sickle cell disorder (e.g. HbSS, HbS Beta thalassaemia, HbSC, HbSD, HbSO)- shielding (see below)

5.3 Shielding for PLWSCD

Shielding is a measure to protect clinically extremely vulnerable individuals by minimising interaction between those who are clinically extremely vulnerable and others. This includes all patients with sickle cell (e.g. HbSS, HbS Beta thalassaemia, HbSC, HbSD, HbSO).

- Strictly avoid contact with someone who is displaying symptoms of coronavirus (COVID-19) – high temperature and/or new and continuous cough
- Do not leave your house for any unnecessary visit
- Do not attend any gatherings (including gatherings of friends and families in private spaces for example family homes, weddings and religious services)
- Do not go out for shopping, leisure or travel
- Keep in touch using remote technology such as phone, internet, and social media

5.4 Health and Wellness

Given the very unusual circumstances that shielding creates, it is important to be aware of ways to keep oneself as fit and healthy as possible. Foods that contain Vitamin D such as oily fish and eggs are important as Vitamin D deficiency is very common not only in the general population but also in sickle cell disorder and may exacerbate bone pain. Sunlight

on bare skin is a good way to increase Vitamin D intake so every opportunity should be taken to benefit from the sun, if only at an open window or on a balcony, if sitting in a garden is not feasible.

Taking regular moderate exercise is not only good for physical health but also improves general mood and helps overall mental health. Very rigorous exercising is not recommended in sickle cell disorders and if the weather is hot care should be taken to drink plenty of fluids.

5.6 Living with Others

For people living with others there may be concerns about how to effectively shield oneself whilst sharing living quarters. Below is guidance if you have a sickle cell disorder and you live with other people.

Although the other people you live with do not need to follow shielding guidelines (unless they also fall into a clinically extremely vulnerable category), everyone in the house should do what they can to support you in shielding and strictly follow the specific advice below and general social distancing advice.

- Try to minimize the time spent with other people in shared spaces (kitchens, bathrooms, sitting areas)
- Keep shared spaces well ventilated
- Aim to keep 2 meters distance between household members, and sleep in a separate bed where possible
- If possible, use a separate bathroom from the rest of the household
- If you do share a toilet and bathroom with others, it is important that they are sanitized after every use.
- If you share a kitchen with others, avoid using it while they are present

5.7 Hospital Appointments

- Health facility appointments should be scheduled, and confirmations done by telephone if possible, to avoid patients crowding in the waiting area.
- Hospital care teams should try as much as possible to offer patients telephone or video consultations during the COVID-19 outbreak.
- Health facilities should offer emergency care for sickle crisis and other complications on 24-hour basis

5.8 Sickle Cell Trait

Patients with sickle cell trait may follow the guidance given to the general public. Sickle Cell Trait Patients are not more vulnerable to coronavirus infection than the general population

5.9 Specific points relating to Sickle Cell Disorders and COVID-19 infection

- Patients with sickle cell disease are prone to acute chest syndrome whose symptoms mirror those of COVID-19 infection. These two conditions may also superimpose over each other worsening either condition. A high index of suspicion is required with the clinician being required to test for both and manage the conditions appropriately
- Differentials to fever include other viral infections, bacteremia and urinary tract infections
- Sickle Cell Disease patients tend to be very young and this should not be overlooked in investigation for COVID-19

5.10 Routine Sickle Cell Disorder in the Context of COVID-19

Outpatient care

- Optimization of current therapy if appropriate and ensuring that the patients have adequate supply of essential drugs (3 months' supply)
- Caution on discontinuation of established therapy without consulting the health care provider
- Where possible, utilization of Telemedicine and Community Health Workers strategy to maintain shielding
- Counseling on healthy diets and physical activity be provided to all PLWSCD
- To ensure maximum social distancing
 - Establish separate consultation areas for people living with diabetes and cancer. (?)
 - Provide PPEs to health care workers and patients
 - The queuing system should ensure that patients are at least 2 meters from each other

Inpatient care

It is important to identify which complication has precipitated the patient's admission and manage the sickle cell disease while the management for COVID-19 is ongoing. PLWSCD / COVID-19 should be managed in the ICU where possible by multispecialty teams in the case of abnormal chest radiographs in patients suspected to have acute chest syndrome.

Sickle Cell Disease emergencies in the inpatient setting

Acute Pain Crisis

If a patient present with pain it is imperative to treat the pain first and make the patient comfortable as

the management for COVID-19 continues. This can be done with analgesics such as NSAIDs and if the pain is severe opioids such as codeine can be used but respiratory function must be monitored. Because patients with SCD have a history of many admissions over their lifetime, and because dehydration is a common problem, venous access may be limited warranting use of subcutaneous injections and / or infusions where needed as a short-term alternative. Encourage patients to register with palliative care units for pain medication and psychosocial support.

Chronic Pain Crisis

This tends to be neuropathic in nature and can be managed by a combination of pharmacologic as well as other therapies such as massage and muscle relaxation depending on the localization and character of the pain.

Acute Chest Syndrome

This is characterized by fever and/or respiratory symptoms and a new pulmonary infiltrate on chest radiograph which may mimic COVID-19 symptoms

In children this can have a multifactorial causation ranging from vaso-occlusive crises to infections, fat embolism and infarction. Management includes intravenous fluids, analgesics, incentive spirometry, supplemental oxygen with arterial blood gases monitoring, respiratory support, antibiotics and transfusion therapy. In adults hydroxycarbamide (hydroxyurea) may be useful in severe cases in addition to the above measures, in order to decrease the risk of recurrence after the patient has recovered. Hydroxyurea does not provide benefit in the acute setting.

Splenic Sequestration Crisis

In this crisis there is a rapid drop in hemoglobin due to vaso-occlusion combined with increase in spleen size due to pooling of red blood cells in the spleen. It is common in children where it can cause hypovolemic shock with a palpable spleen and left upper quadrant pain among other signs and symptoms. Aggressive fluid hydration and transfusion are the mainstays of treatment. Ultimately, splenectomy may be required

Hyper hemolytic Crisis

Due to abnormal shape of sickle cells there is ongoing hemolysis that results in low hemoglobin on a chronic basis. A combination of factors such as stress, infection or even medications can lead to the patient complaining of weakness, fatigue, or even exertional dyspnea. Management includes transfusion as the first line. Hyperhemolysis may occur as a manifestation of a delayed hemolytic transfusion reaction, in which case there is a history of preceding transfusion in the recent past. In these cases, there may be a role for intravenous immunoglobulins (IVIG) and steroids in addition to supportive care.

5.11 Recommended service provision during COVID-19 period

Category of service	Description of services
Essential Services to be maintained	<p>Outpatient Care</p> <ul style="list-style-type: none"> • Laboratory investigations • Provision of medication • Genetic Counseling • Rehabilitation services including physiotherapy <p>Inpatient Sickle Cell Disease</p> <ul style="list-style-type: none"> • To maintain patient safety and patient flow as above • Including support for emergencies <p>Virtual support (use of CHWs, Peer educators or telephone helplines)</p> <ul style="list-style-type: none"> – For admission prevention by providing safety advice – Proactive support for high risk patients <ul style="list-style-type: none"> ○ Recurrent hospital admissions ○ Recurrent severe anemia and other complications – Provision of support following discharge –
Services to be put on hold or provide spaced consultations	<ul style="list-style-type: none"> – All face to face structured education – All non-urgent sickle cell reviews

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