

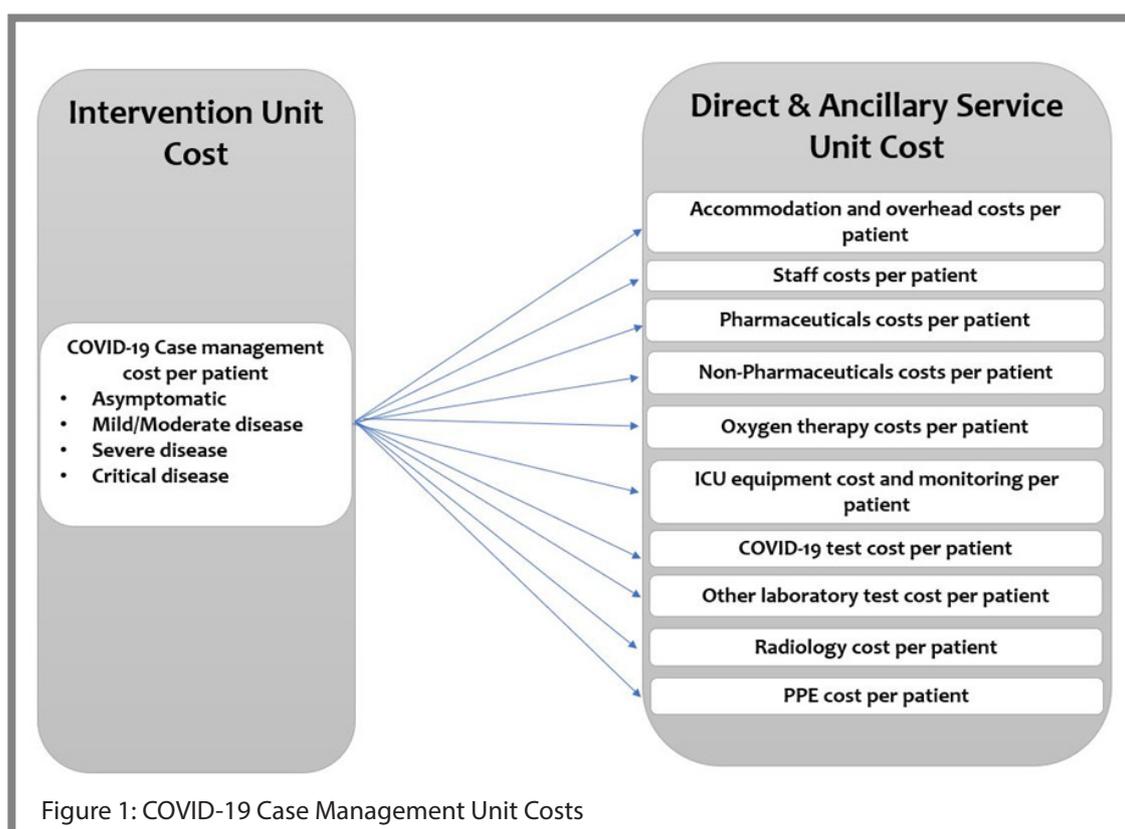
# What Does it Cost to Treat a COVID-19 Patient in Kenya?

## Key Messages

- Per patient COVID-19 case management costs in hospitals are substantial ranging from **KES 7,415** per day for asymptomatic patients, **KES 7,417** per day for patients with mild to moderate symptoms, **KES 12,571** for patients with severe disease and **KES 59,369** for critical COVID-19 patients in ICU's
- There is therefore an urgent need to develop a sustainable financing arrangement for COVID-19 for the country
- If these costs are passed on to patients to pay out of pocket, they will result in significant catastrophe and impoverishment
- It is imperative therefore for the country to develop a prepayment mechanism to provide financial risk protection to patients and households against the financial hardship that they will face if required to pay for COVID-19 case management costs out of pocket
- **Home based care** for asymptomatic and mild COVID-19 patients is **4 times cheaper** to the health system compared to institutional care (hospitals or isolation centers)
- Institutional care is driven by PPE, accommodation & overhead (hotel) costs, and staff costs
- The cost savings from home care should however be weighed against feasibility of home-based care and resultant impact on health outcomes (for COVID-19 patients, and transmission risk)

## Introduction

We costed the case management of COVID-19 patients from a health system perspective. We used a micro-costing approach, identifying all inputs required for clinical case management, their quantities and costs. We identified inputs and their quantities from the Kenya COVID-19 case management guidelines, Kenya COVID-19 human resource guidelines and record review from 3 public hospitals offering care for COVID-19 patients. We obtained input costs from a study of 20 healthcare facilities in Kenya, 3 health facility providing COVID-19 case management services, and market prices for selected inputs. Figure 1 outlines the unit costs we estimated.



## Key Findings

### COVID-19 patients that are asymptomatic or have mild to moderate disease

Table 1 and 2 outline unit costs for case management of COVID-19 patients that are asymptomatic and those with mild to moderate symptoms. In the first scenario, we assumed that these patients will be managed in hospitals or isolation centers. This scenario incurs accommodation and overhead costs (hotel costs), staffing and personal protective equipment (PPE) costs that are comparable with severe forms of disease.

**Table 1:** Unit costs for asymptomatic patients managed in hospitals or isolation centers

Inputs	Home based care Unit costs Per Case			Hospital/isolation center care costs per case		
	KES	USD	% of total cost	KES	USD	% of total cost
Health worker transport cost	1,000	9	3%	-	-	-
Accommodation and overheads	-	-	-	31,200	296	35
Staffing	2,243	21	7%	14,280	135	16
Pharmaceuticals (Medicines etc)	-	-	0%	-	-	-
None-pharmaceutical (fluids, devices etc)	-	-	0%	-	-	-
COVID-19 test (1 test)	1,817	17	7%	1,817	17	2%
Other laboratory tests	0	0	0%	0	0	0%
Radiology	0	0	0	0	0	0
Personal protective equipment	18,856	179	70%	41,687	395	47%
<b>TOTAL Cost per patient</b>	<b>23,916</b>	<b>227</b>		<b>88,983</b>	<b>844</b>	
<b>Patient cost per day</b>	<b>1,993</b>	<b>19</b>		<b>7,415</b>	<b>70</b>	

In scenario 2, we assumed that patients that are asymptomatic or have mild COVID-19 will be treated at home in line with the WHO and Kenya home-based care guidelines. This scenario is approximately 4 times cheaper compared to the scenario where these patients are managed in a hospital or an isolation center because of cost-savings on accommodation and overhead costs, staff costs and PPE costs.

**Table 2:** COVID-19 Case management unit costs for patients with mild to moderate symptoms

Inputs	Home based care Unit costs Per Case			Hospital/isolation center care costs per case		
	KES	USD	% of total cost	KES	USD	% of total cost
Health worker transport cost	1,000	9	4%	-	-	-
Accommodation and overheads	-	-	-	31,200	296	35%
Staffing	2,243	21	9%	14,280	135	16%
Pharmaceuticals (Medicines etc)	26	0.3	0.1%	26	0.3	0.03%
None-pharmaceuticals (fluids, devices etc)	-	-	-	-	-	-
COVID-19 test (1 test)	1,817	17	8%	1,817	17	2%
Other laboratory tests	-	-	0%	-	-	0%
Radiology	-	-	-	2,962	28	2%
Personal protective equipment (PPE)	18,856	179	79%	41,687	395	47%
<b>TOTAL cost per patient</b>	<b>23,942</b>	<b>227</b>		<b>89,009</b>	<b>844</b>	
<b>Patient cost per day</b>	<b>1,995</b>	<b>19</b>		<b>7,417</b>	<b>70</b>	

## Patients with severe and critical COVID-19 disease

We estimated unit costs for patients with severe COVID-19 disease and hence needing hospitalization in general hospital wards and oxygen therapy. We also estimated the unit costs for patients who develop critical COVID-19 disease and hence are hospitalized in ICU's with the option for mechanical ventilation. Table 3 outlines the unit costs for these scenarios.

**Table 3:** COVID-19 Case management unit costs for patients with severe and critical COVID-19

Inputs	Unit costs for Severe COVID-19 disease			Unit costs for critical COVID-19 disease		
	KES	USD	% of total cost	KES	USD	% of total cost
Accommodation and overheads	31,200	296	21%	48,000	455	7%
Staffing	19,835	188	13%	350,513	3,323	49%
Pharmaceuticals (Medicines etc)	55,224	523	37%	71,947	682	10%
None-pharmaceutical (fluids, devices etc)	2487	23	2%	4,527	43	1%
COVID-19 test (1 test)	1,817	17	1%	1,817	17	0.3%
Other laboratory tests	10,818	103	7%	21,818	207	3%
Radiology	2,962	28	2%	2,962	28	0.4%
Personal protective equipment (PPE)	44,292	420	29%	243,174	2,305	34%
Oxygen therapy	13,414	127	9%	15,677	149	2%
Equipment costs (including ventilator) and monitoring in ICU	-	-	-	12,888	122	2%
<b>TOTAL Cost per patient</b>	<b>150,849</b>	<b>1,430</b>		<b>712,433</b>	<b>6,753</b>	
<b>Patient cost per day</b>	<b>12,571</b>	<b>119</b>		<b>59,369</b>	<b>563</b>	

## Summary and Recommendations

- Per patient COVID-19 case management costs are substantial, requiring the development of a sustainable financing arrangement for COVID-19 for the country
- If these costs are passed on to patients to pay out of pocket, they will result in significant catastrophe and impoverishment
- There is therefore an urgent need to develop a prepayment mechanism to provide financial risk protection to patients and households against the financial hardship that they will face if required to pay for COVID-19 case management costs out of pocket
- Home based care for asymptomatic and mild COVID-19 patients is 4 times cheaper to the health system compared to institutional care (hospitals or isolation centers)
- Institutional care is driven by PPE, accommodation & overhead (hotel) costs, and staff costs
- The cost savings from home care should however be weighed against feasibility of home-based care and resultant impact on health outcomes (for COVID-19 patients, and transmission risk)

This brief was prepared by **Dr. Edwine Barasa** and **Dr. Angela Kairu** and supported by funding from the International Decision Support Initiative (IDSI).

Queries should be directed to [ebarasa@kemri-wellcome.org](mailto:ebarasa@kemri-wellcome.org)