

COVID-19 Health Facility readiness assessment

Oxygen availability

July 2020

Summary report by the Division of M&E and the COVID-19 Health Emergency Response Project (CHERP), Ministry of Health

Background

The continued spread of the COVID -19 virus poses a burden to an already weak health system in Kenya, characterized by inadequate health personnel, inequity in the distribution of health facilities, inadequate resources, inadequate equipment & commodities and a high burden of disease. It is important to ensure adequate availability of facilities and supplies to support COVID-19 prevention and treatment. Consequently, availability of Oxygen has become central in the management of COVID-19 critical patients. Oxygen is a critical commodity in the treatment pathway for COVID-19 patients who have Acute Respiratory Distress, one of the major complications in these patients that can determine treatment outcomes.

Main Objective

The COVID-19 health facility readiness assessment aimed to take stock of the status of health facilities in readiness to respond to the COVID 19 pandemic. Assessment of oxygen availability and was done along the criteria of availability in the OPD; isolation wards, ICU/HDU as well as oxygen supply and delivery systems.

Methodology

The COVID-19 health facility assessment took place between June 23 to July 8 2020 in all counties with a representative sample of 1,487 facilities. This included all facility levels from Level 2 to level 6 managed by the Government of Kenya (GOK), Private entities, Faith Based Organizations (FBO) or Non- Governmental Organizations (NGO). All public hospitals, Secondary (level 5) and Tertiary (level 6) hospitals were included while private level 4 hospitals and lower level facilities were sampled.

Data was collected electronically through an online tool filled by facility managers.

During analysis, data was weighted to ensure the results represent the actual situation in all Counties in the country. All indicators were generated using STATA software (version 14). Tables were generated using a combination of the Excel, STATA, and SPSS (version 20).

Findings

In this brief, we present findings on availability of Oxygen in health facilities characterised by availability in the OPD; isolation wards as well as in ICU/HDU wards. The findings also summarize oxygen supply and delivery systems representing the situation in Health facilities.

Oxygen availability in the outpatient department

A total of 18% of all facilities in the sample provided oxygen to patients in the OPD (Figure 1). Almost all level 5 and higher facilities (83%) provided oxygen in the OPD while only 6% of dispensaries provided this service (Table 1). Figure 2 shows oxygen availability by owner category.

Table 1: Oxygen availability in the OPD by facility type (n = 1,459)

Type	Yes
Dispensaries	6%
Medical clinics	18%
Health centres	30%
Private, NGO/FBO primary hospitals	84%
Public primary level hospital	59%
Secondary level hospital and above	83%

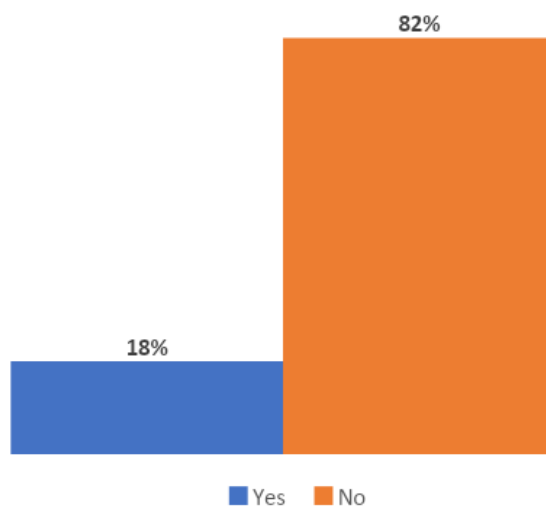


Figure 1: Oxygen availability in OPD (n = 1,450)

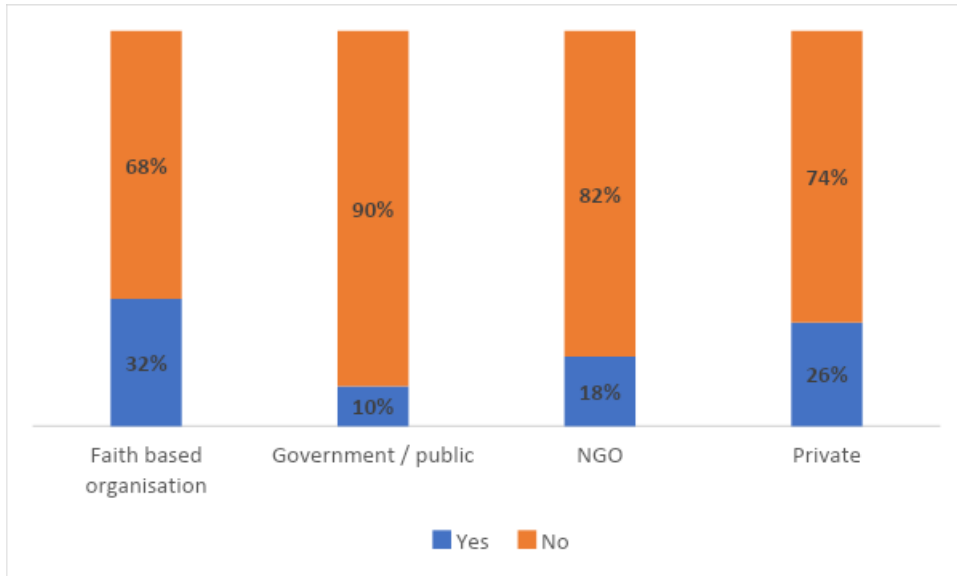


Figure 2: Oxygen availability in OPD by owner (n = 1,450)

Among the facilities that provided oxygen in the OPD, seven in every 10 (69%) were using oxygen tank/cylinder, 46% were using oxygen concentrators while **only 5% of facilities had piped oxygen supply in the OPD** (Figure 3).

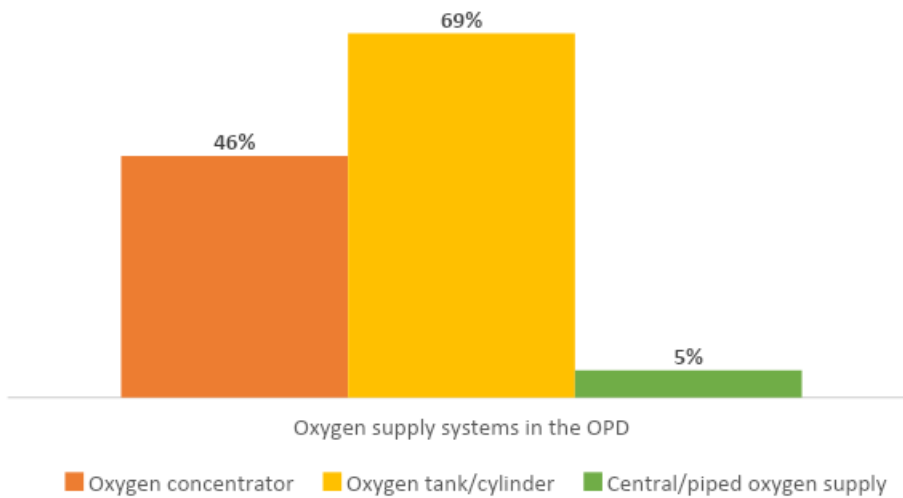


Figure 3: Oxygen supply systems in the OPD (n = 384)

Among Counties, availability of Oxygen in the OPD varied widely with Nairobi having about a half of facilities providing this service (56%), Laikipia (46%), Kajiado and Kirinyaga about a third of facilities each. On the other hand Nyandarua and West Pokot reported only 1% of facilities as providing Oxygen in OPD (Annex table 1)

Oxygen availability in isolation wards in hospitals

Slightly over a half (56%) of assessed hospitals (218 out of 418) reported to have isolation beds. Of these, 70% of the facilities ever provided oxygen to patients in the isolation wards. Figure 4 shows that 86% of isolation wards in Level 5 and above hospitals provided oxygen to isolation patients, while only half of public primary level 4 hospitals provided this service.

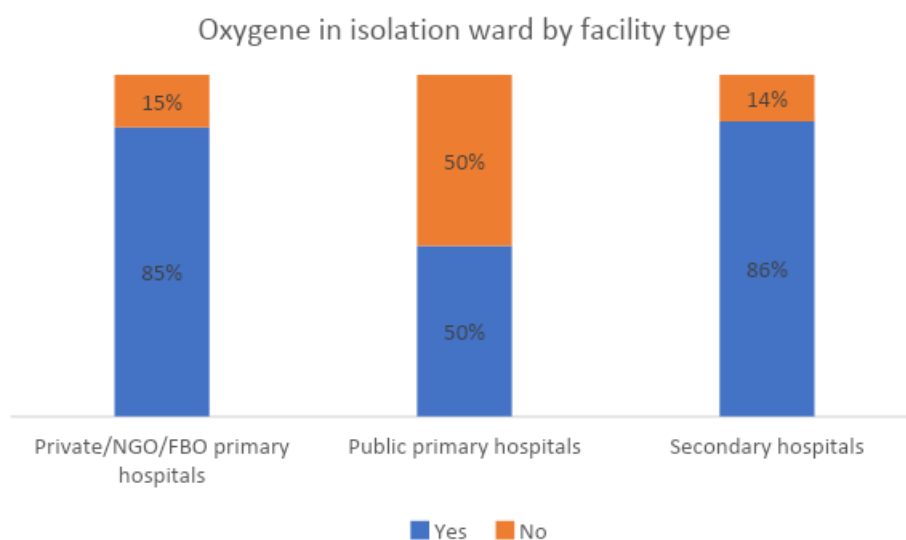


Figure 4: Oxygen in isolation ward by facility type (n = 218)

Figure 55 below shows that more than nine in every 10 private and Faith based hospitals with isolation beds provided oxygen to patients in these beds (93% and 91% respectively). On the other hand, only 39% of NGO/FBO hospitals with isolation beds provided this service.

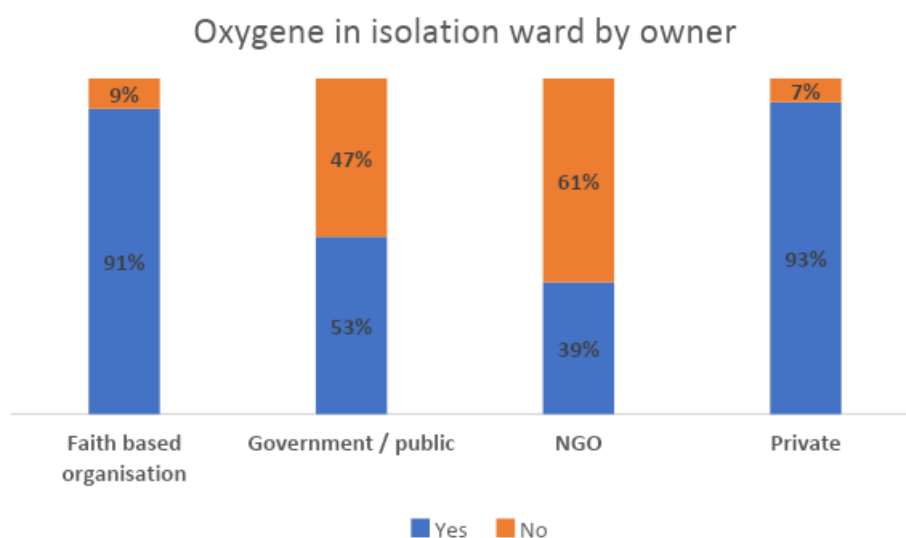


Figure 5: Oxygen in isolation ward by owner (n = 218)

The most common oxygen supply method in the isolation wards was oxygen tank/cylinder, which 78% of the hospitals who provided oxygen, used. A total of 42% of hospitals used oxygen concentrator and only a third of facilities (32%) had piped oxygen in the isolation wards (Figure 6).

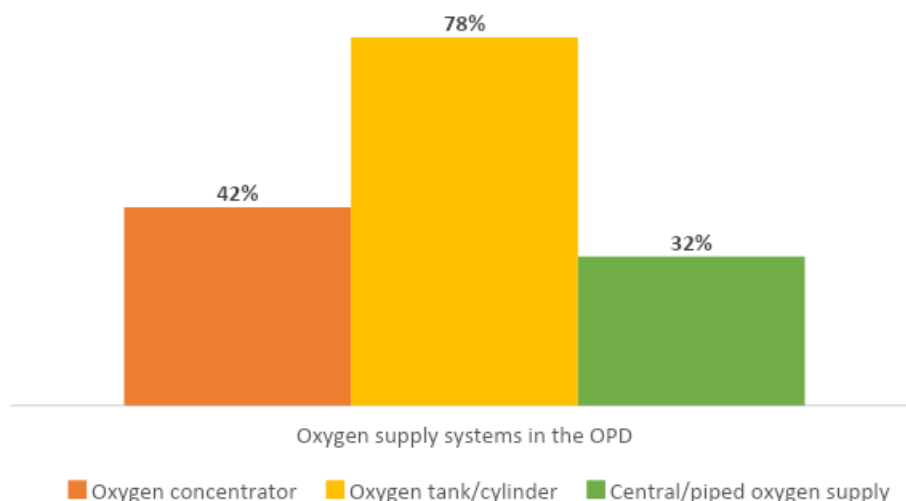


Figure 6: Oxygen supply systems in the isolation wards (n = 122)

Availability of oxygen in isolation wards varied by Counties with 11 Counties (Busia, Isiolo, Kilifi, Kirinyaga, Marsabit, Nyamira, Nyandarua, Nyeri, Tana River, Tharaka Nithi, Uasin Gishu) having all facilities providing oxygen in the isolation wards. Nairobi and Kiambu Counties had almost all facilities having oxygen in the isolation wards (98% and 96% respectively). On the other hand, Bomet, Embu and Lamu had no facilities providing oxygen in the isolation wards.

Oxygen availability in ICU/HDU wards

A total of 42 hospitals responded to have an ICU/HDU ward corresponding to 17% of all hospitals. Of those 37 (96%) were able to provide oxygen to patients in these wards. All Private/NGO/FBO primary hospitals provided the service while 90% of level 5, and 82% of public primary hospitals with ICU/HDU provided oxygen in these wards (Table 2).

Table 2: Oxygen availability in ICU/HDU wards by facility type (n = 42)

Type	Yes
Private, NGO/FBO primary hospitals	100%
Public primary level hospital	82%
Secondary level hospital and above	90%

While 96% of hospitals with ICU/HDU ever provided oxygen in ICU/HDU, the most commonly used supply system was oxygen tank/cylinder (83%) while central piped oxygen was available

in only one of every 10 facilities. Oxygen concentrators were available in 7 of every 10 hospitals. (Figure 7).

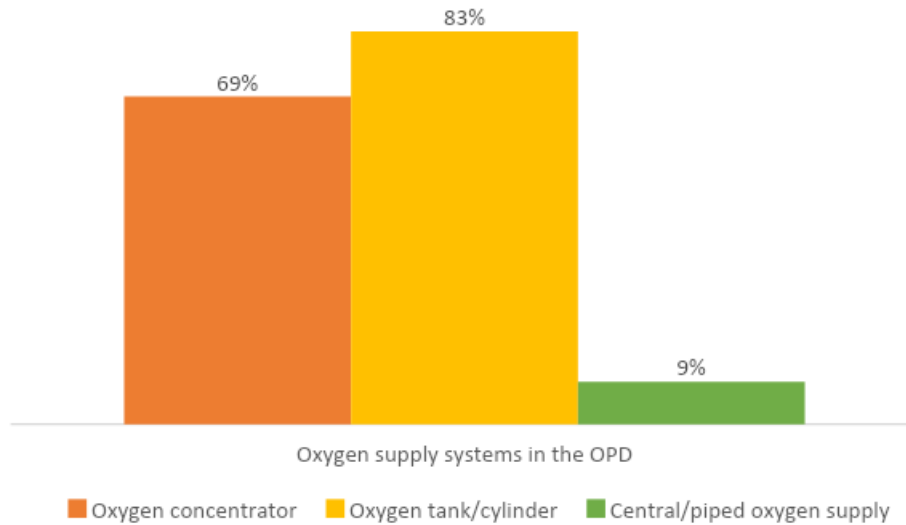


Figure 7: Oxygen supply systems in the ICU/HDU (n = 37)

There was variation among Counties in the availability of oxygen in ICU/HDU wards with 5 facilities in Nairobi and 2 each in Kisii, Mandera, Mombasa, Nakuru and Nyeri Counties having oxygen in these wards. An additional 22 Counties had one facility each having oxygen in ICU/HDU wards. On the other hand, 19 Counties had no availability of oxygen in ICU/HDU wards, also linked to lack of the critical care facilities in these Counties.

Conclusion

There was a high Oxygen availability in the OPDs, Isolation and ICU/HDU wards of FBOs, Privately owned facilities and Secondary Hospitals.

Recommendations

The Government through the Ministry of Health and the County Governments should;

- Scale up Oxygen availability in the OPDs, Isolation and ICU/HDU wards of public primary Hospitals
- Install Central/Piped Oxygen supply in all Hospitals.

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Annex 1: County availability of oxygen in OPD

County	Yes	(%)	No	(%)	Total
Baringo County	4	5%	26	95%	30
Bomet County	5	7%	21	93%	26
Bungoma County	10	20%	20	80%	30
Busia County	5	13%	24	87%	29
Elgeyo Marakwet County	9	15%	19	85%	28
Embu County	7	15%	23	85%	30
Garissa County	7	22%	24	78%	31
Homa Bay County	5	6%	33	94%	38
Isiolo County	6	24%	14	76%	20
Kajiado County	14	34%	17	66%	31
Kakamega County	10	7%	25	93%	35
Kericho County	8	12%	21	88%	29
Kiambu County	11	12%	26	88%	37
Kilifi County	9	24%	19	76%	28
Kirinyaga County	10	30%	18	70%	28
Kisii County	13	17%	31	83%	44
Kisumu County	9	18%	35	82%	44
Kitui County	14	23%	23	77%	37
Kwale County	3	5%	24	95%	27
Laikipia County	14	48%	15	52%	29
Lamu County	4	12%	16	88%	20
Machakos County	13	23%	24	77%	37
Makueni County	11	7%	26	93%	37
Mandera County	9	24%	20	76%	29
Marsabit County	3	4%	23	96%	26
Meru County	10	9%	30	91%	40
Migori County	5	10%	32	90%	37
Mombasa County	6	17%	17	83%	23
Muranga County	10	9%	22	91%	32
Nairobi County	24	56%	10	44%	34
Nakuru County	20	27%	19	73%	39
Nandi County	9	15%	23	85%	32
Narok County	4	6%	23	94%	27
Nyamira County	6	11%	24	89%	30
Nyandarua County	2	1%	21	99%	23
Nyeri County	8	13%	23	87%	31
Samburu County	5	17%	19	83%	24
Siaya County	12	21%	21	79%	33
Taita Taveta County	6	16%	20	84%	26
Tana River County	5	19%	16	81%	21
Tharaka Nithi County	4	6%	22	94%	26
Trans Nzoia County	6	18%	24	82%	30
Turkana County	4	6%	25	94%	29
Uasin Gishu County	12	29%	20	71%	32
Vihiga County	4	11%	21	89%	25

Wajir County	7	19%	23	81%	30
West Pokot County	2	1%	24	99%	26
TOTAL	384	18%	1046	82%	1430

Annex 2: County availability of oxygen in isolation wards

County	Yes	(%)	No	(%)	Total
Baringo County	2	67%	1	33%	3
Bomet County	0	0%	1	100%	1
Bungoma County	2	77%	3	23%	5
Busia County	3	100%	0	0%	3
Elgeyo Marakwet County	1	33%	2	67%	3
Embu County	0	0%	4	100%	4
Garissa County	3	50%	3	50%	6
Homa Bay County	2	20%	8	80%	10
Isiolo County	2	100%	0	0%	2
Kajiado County	4	52%	3	48%	7
Kakamega County	4	40%	6	60%	10
Kericho County	2	33%	4	67%	6
Kiambu County	5	96%	1	4%	6
Kilifi County	2	100%	0	0%	2
Kirinyaga County	2	100%	0	0%	2
Kisii County	6	27%	8	73%	14
Kisumu County	2	25%	6	75%	8
Kitui County	2	50%	2	50%	4
Kwale County	1	50%	1	50%	2
Laikipia County	3	75%	1	25%	4
Lamu County	0	0%	1	100%	1
Machakos County	2	40%	3	60%	5
Makueni County	5	71%	2	29%	7
Mandera County	3	75%	1	25%	4
Marsabit County	2	100%	0	0%	2
Meru County	2	33%	4	67%	6
Migori County	3	71%	6	29%	9
Mombasa County	3	92%	1	8%	4
Muranga County	2	80%	2	20%	4
Nairobi County	8	98%	1	2%	9
Nakuru County	8	89%	4	11%	12
Nandi County	1	50%	1	50%	2
Narok County	1	33%	2	67%	3
Nyamira County	2	100%	0	0%	2
Nyandarua County	2	100%	0	0%	2
Nyeri County	4	100%	0	0%	4
Samburu County	1	50%	1	50%	2
Siaya County	4	89%	2	11%	6
Taita Taveta County	2	50%	2	50%	4
Tana River County	2	100%	0	0%	2
Tharaka Nithi County	5	100%	0	0%	5
Trans Nzoia County	0	0%	0	0%	0
Turkana County	2	50%	2	50%	4
Uasin Gishu County	2	100%	0	0%	2
Vihiga County	1	11%	4	89%	5

Wajir County	5	88%	1	13%	6
West Pokot County	2	50%	2	50%	4
TOTAL	122	70%	96	30%	218

Annex 3: County availability of oxygen in ICU/HDU

County	Yes	(%)	No	(%)	Total
Baringo County	1	100%	0	0%	1
Bomet County	0	0%	0	100%	0
Bungoma County	0	0%	0	100%	0
Busia County	1	100%	0	0%	1
Elgeyo Marakwet County	0	0%	1	100%	1
Embu County	1	100%	0	0%	1
Garissa County	1	100%	0	0%	1
Homa Bay County	1	100%	0	0%	1
Isiolo County	0	0%	0	0%	0
Kajiado County	1	100%	0	0%	1
Kakamega County	0	0%	0	100%	0
Kericho County	1	0%	0	100%	1
Kiambu County	1	50%	1	50%	2
Kilifi County	0	0%	0	0%	0
Kirinyaga County	0	0%	0	0%	0
Kisii County	2	100%	0	0%	2
Kisumu County	1	100%	0	0%	1
Kitui County	0	0%	0	0%	0
Kwale County	1	100%	0	0%	1
Laikipia County	0	0%	0	0%	0
Lamu County	0	0%	0	0%	0
Machakos County	1	100%	0	0%	1
Makueni County	1	100%	0	0%	1
Mandera County	2	100%	0	0%	2
Marsabit County	0	0%	0	0%	0
Meru County	1	100%	0	0%	1
Migori County	0	0%	0	0%	0
Mombasa County	2	100%	0	0%	2
Muranga County	1	100%	0	0%	1
Nairobi County	5	100%	0	0%	5
Nakuru County	2	100%	0	0%	2
Nandi County	1	33%	2	67%	3
Narok County	1	100%	0	0%	1
Nyamira County	1	0%	1	100%	2
Nyandarua County	0	0%	0	0%	0
Nyeri County	2	100%	0	0%	2
Samburu County	0	0%	0	0%	0
Siaya County	1	100%	0	0%	1
Taita Taveta County	0	0%	0	0%	0
Tana River County	0	0%	0	0%	0
Tharaka Nithi County	1	100%	0	0%	1
Trans Nzoia County	1	100%	0	0%	1
Turkana County	0	0%	0	0%	0
Uasin Gishu County	1	100%	0	0%	1
Vihiga County	0	0%	0	0%	0

Wajir County	1	100%	0	0%	1
West Pokot County	0	0%	0	0%	0
TOTAL	37	96%	5	4%	42