Right to care
Treating Health Seriously

USAID
FROM THE AMERICAN PEOPLE

HIGH DEPENDENCY CARE UNIT SCOPING REPORT

HLATIKULU GOVERNMENT HOSPITAL ESWATINI

08/04/2022

Table of Contents

1. INTRODUCTION

Right to Care has been allocated three hospitals to develop a High Dependency Care Unit [HDCU]. A team of experts from Right to Care visited the three assigned hospitals in Eswatini to assess their facilities to establish the HDCU. The team consisted of the following members:

- Mr. Willie Nieuwoudt: Disaster Medicine Consultant for Right to Care
- Mrs. Heelna Nieuwoudt: ICU advisor for Right to Care
- Mr. Molefe Sematlane [Pr. Eng]: Professional Civil Engineer for Right to Care
- Mr. Cliffs Wagbafor: Mechanical Engineering Technologist for Right to Care

2. PURPOSE FOR SCOPING EXERCISE

The scope aimed to assess the Hlatikulu Government Hospital facility's suitability for establishing a High Dependence Care Unit [HDCU]. The scoping exercise took place on Wednesday, the 8th of April 2022.

The team's scoping brief consisted of the main guidelines as listed below:

- HDCU space should be able to accommodate 2-4 beds with an oxygen supply of 15-30 l/min for each bed
- Electricity in the HDCU should be able to power main medical equipment and suctioning without interruption.
- The identified space should be easily accessible and within an acceptable distance from essential areas.

3. INTRODUCTORY MEETING WITH HOSPITAL MANAGEMENT

An introductory meeting was held between the Right to Care team and the Hlatikulu Government Hospital management. The hospital management team was formed by the Senior Medical Officer [Dr. Phula Dlamini], the hospital Matron [Ms. Lindiwe P. Dlamini], and the biomedical technician [Doctor Motsa]. The hospital's management team was receptive and positive to our presence and confirmed the need for HDCU.

4. SCOPING EXERCISE

The hospital's management team identified space in the Gynaecology section for the possibility of establishing the High Dependency Care Unit. This unit was concluded to be suitable due to its ability to fulfill all criteria set for HDCU compliance except for allowing zoning into red, yellow, and green areas necessary for creating a temporary isolation facility.

The selected unit in the Gynaecology section was deemed suitable due to the fulfillment of the following factors:

- Ability to accommodate three beds
- Ability to permit adequate airflow
- Proximity to essential nursing areas
- Ability to allow sufficient lighting for observation procedures
- Enough space for keeping patients' records
- Already having oxygen and vacuum ports
- Availability of patient toilet
- Proximity to the x-ray, theaters, and Casualty Department
- Easy access for ambulance off-loading

The Figure below shows the outlook of the selected room for the development of the HDCU.

Figure 1: Identified Unit for HDCU development in Gynaecology Section

Due to the limited space to allow doffing and donning in the identified area in the gynaecology ward, the hospital management requested for an upgrade of one room in the covid isolation ward to a High Dependency Care Unit. The requested room in the covid isolation ward will be used to treat patients with infectious diseases. It is suitable for a one-bed high care unit and can fulfill all criteria set for HDCU almost immediately, except for a few equipment items that will need to be provided. The figure below shows the outlook of the selected unit for the additional HDCU in the Covid Isolation ward.

Figure 2: Identified Room for the second HDCU establishment in the Covid Isolation ward

5. PROPOSED HDCU OXYGEN SUPPLY

All wards at Hlatikulu hospital are reticulated and receive oxygen from a 2 x 10 [i.e. 20 cylinders in the image below] cylinder manifold bank except for the Outpatient Department [OPD] and screening ward, where cylinders are placed at patients' bedsides.

Figure 3: Hlatikulu Government Hospital 2 x 10 Oxygen Cylinder Bank Manifold

It is recommended that an additional manifold system should consist of a 2 x 6 of 10.2Kg cylinder bank; this will allow the need to replace cylinders daily at a maximum flow rate of 15l/min.

The manifold bank size is calculated as follow:

4-bed HDU one oxygen Terminal Unit (TU) per bed.

The total flow rate of oxygen required in the three Tus is 15l/min x (4Tus) x (60min) x (24Hrs) = 86400 l/day

A 10.2kg oxygen cylinder contains an average of 7650 liters of oxygen.

The number of Cylinders required for the manifold bank is: 86400 ÷ 7650 = 12 cylinders

The number of cylinders per side of manifold bank = 12 ÷ 2 = 6 cylinders per side.

Therefore, a 2 x 6 Oxygen cylinder manifold system is required specifically for the HDU in Hlatikhulu Government Hospital.

6. PROPOSED HDCU VACUUM/SUCTION SYSTEM FOR HDCU

There is a central vacuum system at the hospital, but it's currently not functioning well. It needs urgent maintenance attention and consequently, they prefer to switch it off to avoid further damage. The two identified units for the HDCU have the vacuum points but won't be functional until the hospital fixes the current central vacuum system. It is recommended that an electrical suction machine be procured that will remain as a backup after the central vacuum system is fixed. See figure 4 below to see the central vacuum system that is not working.

Figure 4: Hlatikulu Government Hospital Central Vacuum System

7. POWER SUPPLY AND BACKUP GENERATOR

There is a 400kVA backup generator with an automatic changeover that powers the entire hospital when the main power from the grid is down. See the figure below that shows the backup power generator.

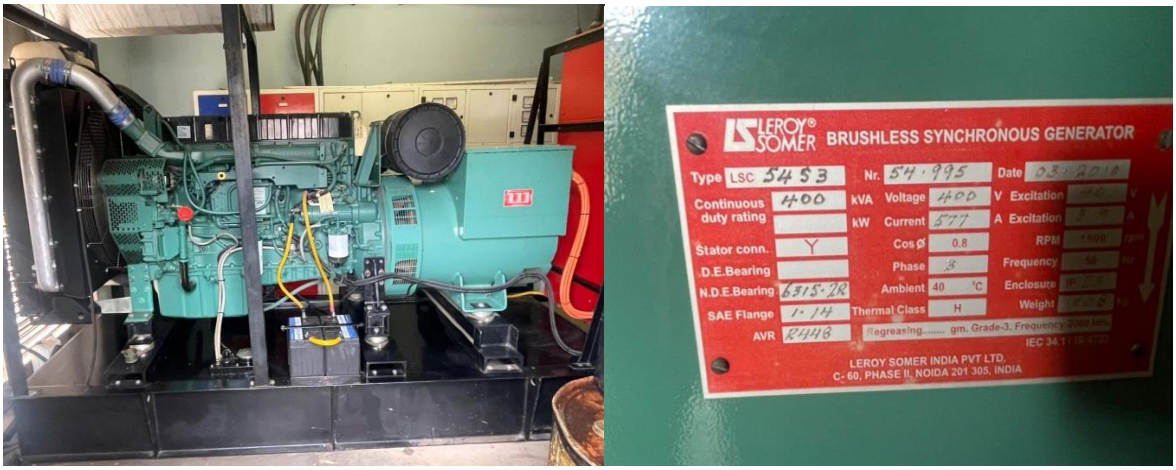

Figure 5: 400kVA Back-Up Generator with an Automatic Changeover

8. STORAGE FACILITY IN THE HDCU'S

The two selected rooms for establishing the HDCUs have storage capacity for medicines and consumables and can accommodate scheduled medicine cupboards. It is recommended that both facilities be provided with refrigerators for medicine storage and lockable boxes suitable for scheduled drugs that need to be stored in refrigerators.

9. EQUIPMENT FOR THE HDCU

The hospital does not have extra medical equipment to equip both HDCUs. Most medical equipment will have to be procured as part of the program to establish HDCUs. (Refer to completed scoping tool for detail)

10. CONCLUSION

The following conclusions hold:

- The teams [i.e., both RTC and Hlatikulu hospital Management] successfully identified two units; one in the Gynaecology ward and the second in the Covid Isolation ward, suitable for establishing the High Dependency Care Units.
- The existing central vacuum will not be able to support the two HDCUs operations. It is therefore recommended that an electric suction machine be procured.
- An additional 2 x 6 of 10.2Kg oxygen cylinder manifold bank should be erected to specifically supply the oxygen needed in the proposed HDCUs.
- The report should be read in conjunction with the appended Scoping instrument containing information on the findings and interventions.