



Good Shepherd Mission Hospital Scoping Report

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1. Purpose

The scoping visit aims to identify where a High Dependency Care Unit (HDCU) could be developed or incorporated into Good Shepard Mission Hospital facilities.

2. Scoping Team

The RTC project team consisted of:

- William Nieuwoudt, the Disaster Medicine Consultant for Right to Care
- Helena Nieuwoudt, The RTC ICU Nursing Advisor
- Molefe Sematlane [Pr. Eng], the professional civil engineer for RTC
- Cliffs Wagbafor, the Mechanical engineering technologist for RTC

3. Meeting with the Hospital CEO and Management Team

- An introductory meeting was held with the hospital CEO [Mr. Muzi Dlamini], hospital matron [Ms. Mandisa Ndlovukazi], Senior Medical Officer [Dr. Gerald Kayondo], Senior Anaesthetist [Mr. Peferct Nkala], biomedical technician [Mr. Peter Tfwala] and the other hospital's nursing management team members.
- The team was receptive and positive to our presence and – indeed confirmed a need for the HDCU

4. Proposal for a HDCU Facility

In conjunction with the hospital management team and the scoping team, the hospital facilities were visited and assessed. Four areas were assessed and the first two were outright unsuitable due to their lack of adequate space. It was then proposed that Unit 4 in the Male Surgical Ward and the private ward [i.e rooms 32 and 33] would be suitable for the HDCU purpose and the hospital management was advised to decide and revert with their final decision on the matter.

4.1. Unit 4 Male Surgical Ward

The male surgical ward currently consists of seven beds. The space is suitable for establishment of a HDCU. It is not reticulated for medical oxygen and does not have a central vacuum system. Oxygen source in the entire hospital is through mobile cylinders placed at patient's bedside. These cylinders are rented from Afrox and Air Liquide. To use this facility for the development of the HDCU, identification of an alternative space in which the current patients in the ward would need to be transferred need to take place.

This ward meets the requirements for the development of a 3-Bed HDCU in terms:

- bed space capacity
- The layout of this ward will support the creation of a temporary isolation facility zoning into red, yellow, and green areas.
- distance from the ward's sluice facility, the laboratory and X-rays

- Has desk space for staff to administer and keep patient records

The figure 1 and 2 below shows the outlook of Unit 4 Male Surgical Ward.



Figure 1: Unit 4 Male Surgical Ward



Figure 2: Unit 4 Male Surgical Ward left side

4.2. Private Surgical Wards

The private surgical ward was considered as a second option for developing the HDCU, and it consists of two rooms that are adjacent to each other. This ward is suitable for its space, but it will require additional construction and provision of alternative space to accommodate its current patients. Access to the facility is difficult as it requires movement of patients up a steep ramp in the open. This option is **not recommended** due to the difficult access and building alterations required. This private wards also serves as an income generator for the hospital as private clinicians use it for private patients.

4.3 Proposed HDCU Oxygen Supply

A manifold oxygen bank system will need to be implemented to perform oxygen supply source purposed specifically for the HDCU. It may be expanded or redesigned to feed the whole facility in the future when dealing with the entire oxygen need for the whole hospital. The male surgical ward unit is envisaged to take 3 HDCU beds and the manifold system should consist of a 2 x 5 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:

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

The total flow rate of oxygen required in the three Tus is $15\text{l}/\text{min} \times (3\text{Tus}) \times (60\text{min}) \times (24\text{Hrs}) = 64800 \text{ l}/\text{day}$

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

The number of Cylinders required for the manifold bank is: $64800 \div 7650 = 9$ cylinders

The number of cylinders per side of manifold bank = $9 \div 2 = 4.5$ which is rounded up to 5 cylinders per side.

Therefore, a 2 x 5 Oxygen cylinder manifold system is required specifically for the HDU in Good Shepard Mission Hospital.

4.5. Proposed HDCU Vacuum System

The facility does not have a central vacuum system. A mobile suction system for the HDCU is proposed as the best option.

4.6. Electricity and Backup Power

The entire hospital has a 400KVA backup generator with an automatic change-over. The back-up generator is wired to support the whole hospital power demand as reported by the biomedical technician. The male ward currently has three plugs. There will be a need to install six inbuilt plugs per bed to have the Unit 4 suitable for HDCU electrical compliance. Refer to the figure below to see the standby generator.



Figure 3: Hospital's backup generator

4.7. Storage facilities

The proposed unit has storage capacity for medicine and consumables and can accommodate scheduled medicine cupboard. It is recommended that the facility be provided with a refrigerator for medicine storage and lockable boxes in the fridge for scheduled drugs that need refrigeration. Refer to the figure below to see the existing storage facility.



Figure 4: Existing storage facility

4.8 Medical Equipment

The hospital does not have extra medical equipment to equip a HDCU. Majority of the medical equipment will have to be procured as part of the programme to establish a HDCU. (See completed scoping tool for detail)

5. Conclusion

The team has identified Room 4 in the Male Surgical Ward as the most suitable unit for establishing the HDCU. We are currently awaiting the decision of the CEO and the hospital's management staff to decide on the matter. The success in identifying the alternative unit to transfer the current patients in the ward will shape this decision. The report should be read in conjunction with the appended Scoping instrument containing information on the findings and interventions.