



SETTING UP A SURGICAL HIGH DEPENDENCY UNIT IN A DISTRICT HOSPITAL WITH SPECIALIST; OUR EXPERIENCE.

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INTRODUCTION

Hospital Sultan Haji Ahmad Shah (HoSHAS) is a district hospital with specialists in Temerloh, Pahang. HoSHAS caters to the needs of patients from west and central Pahang. Due to the high volume of patients relative to the hospital capacity, the demand for ICU beds may exceed supply. Statistics from the 2017 Malaysian Registry of Intensive Care Annual Report revealed that from 2013 till 2017, ICU occupancy rates ranged from 76.6% to 127.0%^[1]. Data from the department census revealed that for the year 2021, 89 patients (1.56% of total admissions for 2021) were ventilated in the male surgical ward and 33 patients (1.85% of total admissions in 2021) were ventilated in the female surgical ward. To improve monitoring and care of critically ill surgical patients, the department of General Surgery HoSHAS converted a cubicle in the surgical male ward into a High Dependency Unit (HDU). This poster will showcase our experience in setting up the HDU; from idea inception, paperwork, funding, renovation works, advantages and limitations of running the HDU. The aim of this poster presentation is to inspire and provide some insight to other departments that are considering setting up a HDU in their unit.

Idea for an HDU

The intention for establishing a HDU within the surgical ward arose from the need to monitor critically ill surgical patients who required close monitoring. Ideally all patients who meet the requirement for ICU admission should be admitted to the ICU, but due to various reasons, this is hardly the case. In some instances, there are a cohort of patients who are too ill for regular monitoring but aren't ill enough to warrant ICU admission. Seeing there is a need to cater to these patients, a proposal to set up a HDU was formally made to the hospital administration.



HDU site in male ward Kenanga 8

The paperwork (*kertas kerja*) included:

- Site of HDU
- Number of beds
- Renovations required
- Equipment list
- Expected budget and funding sources
- Gantt chart and timeline of project



Site visit by hospital admin and engineer

Funding

This is arguably the biggest hurdle when embarking on any project. Although the hospital administration and finance department approved and allocated some funds for the project, it was not enough to cover the cost of several pieces of equipment and miscellaneous items needed to complete the HDU (e.g. air-conditioners, bracket and wall mount for monitors). With the generous donations from department staffs, and their family members, the budgetary requirements were met.

Renovation works

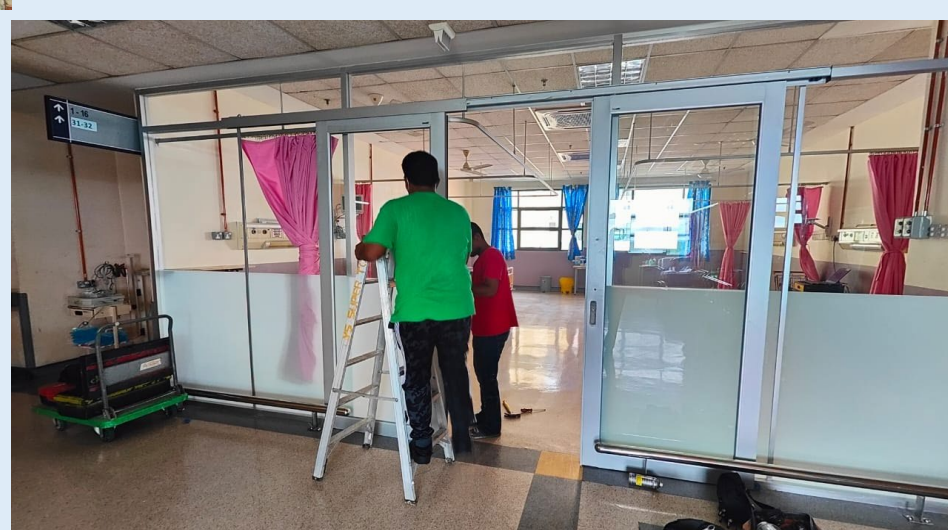
Renovation works took approximately 3 weeks. During that period, the cubicle adjacent to the upcoming HDU was also cleared of patients; they were lodged in the female ward, kept separate from the resident female patients in their own 4-bedded room.

Renovation by contractors included:

- Installation of ceiling mounted air-conditioners
- Fitment of sliding doors



Ceiling clearance to install air-conditioners



Fitment of sliding doors

Once the contractors were done with the major renovation work, the department staffs (Surgeons, medical officers, house officers, and allied healthcare workers) pitched in over a weekend to paint the new HDU, as well as applying some aesthetic touch-ups to complete the look of the HDU.



Staffs diligently painting the HDU

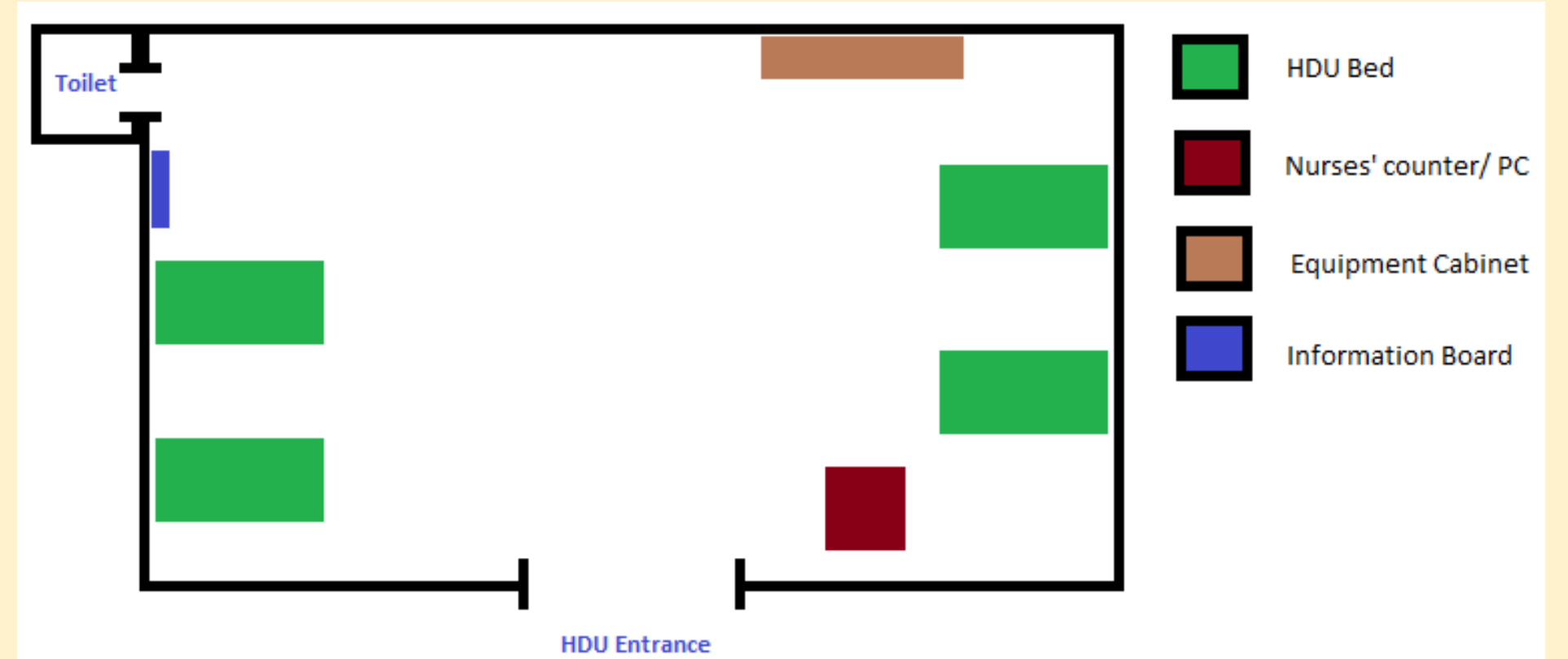


Surgeons setting up monitors

Final touches

Once the renovation works were completed, all the necessary equipment were kept in the HDU. This included:

- Non-invasive monitors for each patient
- Stethoscope
- Intubation trolley and emergency drugs
- Notice board with critical care information and emergency drugs dilution and dosage.
- Cabinet for consumable items (gloves, needles, syringes etc.)



Schematic Diagram of HDU layout



HDU in Use

Advantages, Limitations and future plans

Advantages:

- Dedicated space for continuous monitoring outside ICU setting.
- Placing all ill patients (**regardless of gender**) makes rounds easier for surgical team, and other relevant departments, like anaesthesia.
- Groundwork for future upgrades (equipment, monitors, etc) in place.

Limitations:

- No increase in nursing staff in department; unable to achieve 1:2 patient to nurse ratio if HDU is full. Workaround achieved by emphasising teamwork among nurses to cover each other's patients during busy times.
- No invasive monitoring apart from central venous access for CVP monitoring.
- Lack of dialysis facilities. Patients have to be transported to dialysis unit if dialysis is needed.

Future plans:

- Paperwork requesting upgrade of available piping to accommodate dialysis in HDU has been submitted.
- Upgrading existing sliding doors to automatically open and closed

Reference:

- Tai Li Ling, Lim Chew Har, Mohd Ridhwan Mohd Nor, Nahla Irtiza Ismail, Wan Nasrudin Wan Ismail Malaysian Registry of Intensive Care 2017 report