



RIGHT TO CARE  
COVID-19 DATA ANALYSIS AND ADVICE GROUP

# TECHNICAL ADVICE DOCUMENT DISASTER MEDICINE:

## HOSPITAL PREPARATION ACTION PLAN 4

### BED STATISTICS

(THESE ACTION PLANS WILL BE RELEASED AS SEQUENTIAL NUMBERED ACTION PLANS TO BE USED BY HOSPITALS TO PREPARE FOR THE COVID-19)

The Actions Plans are presented as a free service to hospitals by the panel and by Right to Care

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## 2 ACTION PLAN 4

Based on the Disaster Medicine literature and personal experience the following action plan is recommended for hospitals AT THIS STAGE by the Consultancy Panel while preparing for the Pandemic.

This technical advice document must be read in conjunction with the Plan to Manage COVID-19: Spatial Response Strategy for the Epidemic (Republic of South Africa, 2020).

**DISASTER MEDICINE ALGORITHM<sup>1</sup>**  
**C: Command and Control**

The various steps of this Algorithm will be addressed in the follow-up Action Plans.

### 2.1 PHASED APPROACH

The Phased Approach relies, amongst others, on accurate bed occupancy monitoring. To enable hospitals to be able to decant patients in an emergency/shortage of beds for COVID-19 patients, a continuous updated classification of patients is essential.

Statistics is an enabling component of Command that was discussed in Action Plan 3

<sup>1</sup> (Advanced Life Support Group, 2019)

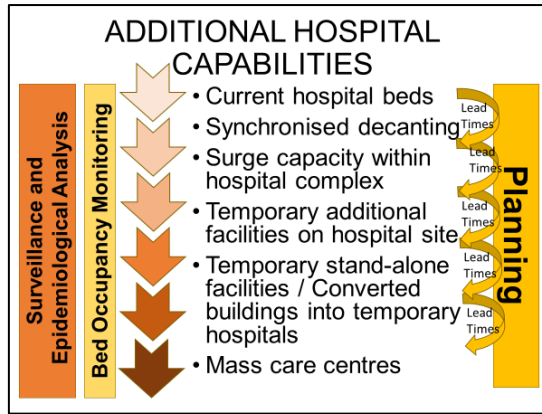


Figure 1: Phased Response

**2.2 PATIENT CLASSIFICATION AND BED OCCUPANCY**

It is recommended that hospitals expand their bed occupancy monitoring to provide accurate information for managing the Pandemic.

**2.2.1 PATIENT CLASSIFICATION SYSTEM**

It is recommended that continuous patient classification be implemented from the ward/unit level of hospitals, enabling Hospital Commanders and District Level (Bronze Level), Provincial Commanders (Silver Level and (if required) Nat JOC Level (Gold Level) to have an overall picture of available hospital beds on a live dashboard.

**2.2.1.1 CLASSIFICATION SYSTEM**

EACH hospital should, on a DAILY basis during the Pandemic, classify ALL patients in the hospital. This is done by the ward/unit staff (normally nursing staff in collaboration with clinicians). Classification should not only be done for COVID-19 patients but for ALL patients to enable Hospital Command to make informed decisions: Patients are classified as:

- **Can be discharged in an emergency (to avail additional beds)**
- **Can be moved to lower level of care facility**
- **Need to remain at the current level (therefore the bed remains occupied)**
- **Need to be transferred to a higher level of care (indicating need for beds at a higher level of care)**

Bed No	Name	Can be discharged when beds are needed	Can be moved to a lower level of care	Need to remain at current level of care	Need to be transferred to higher level of care	Empty Bed
<b>TOTALS</b>						

This classification is best done at a fixed time daily. (Experience has shown that the most sensible time is right after daily ward rounds and in previous situations 10:00 was an acceptable time for most hospitals.)

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### 2.2.1.2 HOSPITAL REPORT

This ward-classification system is rolled-up and grouped into:

- COVID-19 Red Isolation Area wards/units
- Green Non-COVID-19 wards/units.

The totals for the specific hospital, providing management information for:

- Total number of patients that can be discharged from the hospital to provide more beds
- Total number of patients that can be moved to lower levels of care
- Total number of patients that need care at the current level
- Total number of patients that need to transfer to higher levels of care
- Empty beds

These bed statistics and this patient classification may be worked into management indicators for Hospital Command:

#### 2.2.1.2.1 COVID-19 IDENTIFIED BEDS:

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- Adult:
  - ICU + Ventilator capable (*The total beds of ICUs and high care grouped for isolation*)
  - Standard/High dependency (not ICU) beds (*The total beds of all the wards grouped for isolation*)
  - Low dependency beds (*this will only be applicable if surge capacity beds or temporary facility beds are utilised*).
- Paediatric:
  - ICU + Ventilator capable (*only beds/spaces that will ONLY be suitable for paediatric COVID-19 patients if applicable*)
  - High dependency (not ICU) beds (*The total beds in the paediatric wards earmarked for isolation*)
  - Low dependency beds (*this will only be applicable if surge capacity beds or temporary facility beds are utilised*)
- The totals of the classification for:
  - discharge
  - down-graded care
  - stay at the level, and
  - up-graded care.

as discussed above, the totals are then worked into the bed-occupancy picture providing a dashboard of the hospital's situation to Hospital Command and must be included in the report to Silver Command.

- This management information will provide the Hospital Command with the tools to make decisions pertaining to the applicable time to expand the red COVID-19 isolation areas timeously, when to activate surge capacity; and when additional (temporary) facilities might be needed.

#### 2.2.1.2.2 NON-COVID-19 BEDS

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- Adult:
  - ICU + Ventilator capable
  - Standard adult beds

- Paediatric:
  - ICU + Ventilator capable (only beds/spaces that will only be suitable for paediatric non-COVID-19 patients if applicable)
  - Standard paediatric beds
- These totals are reworked into management information as indicated above.
- This information provides Hospital Command with the management tools on additional beds that may be available to accommodate more COVID-19 patients or to accommodate patients from areas now decanted to make space for COVID-19 patients.

### 2.3 HOSPITAL DASHBOARD

The management information can then be rolled-up into a daily dashboard for Hospital Command with colour indicators:

SEPSIS-PARADISE HOSPITAL		Occupancy	Status
COVID-19 RED ISOLATION AREA	Intensive Care / Ventilator capable	67%	Green
	Adult High Dependency beds	97%	Red
	Adult Low Dependency beds	84%	Yellow
	Paediatric High Dependency beds	68%	Green
	Paediatric Low Dependency beds	Not activated	White
GREEN NON-ISOLATION AREA	Intensive Care	77%	Yellow
	Adult beds	48%	Green
	Paediatric beds	74%	Yellow

Figure 2: Example of Hospital Bed Occupancy Dashboard

If this example dashboard is interpreted one can surmise that Hospital Command should pay urgent attention to adult high dependency area which is 97% occupied and the adult low dependency area which is 84% occupied, this could be addressed by one or more of the following:

- Checking on the total number of patients in the high-dependency areas who were classified to be moved to the low dependency areas;
- Ensuring that this move can be supported by discharging enough patients classified as “ready for discharge” from the low-dependency areas to accommodate the transfers;
- Activating of surge capacity in low dependency areas if not enough patients can be discharged;
- Evaluate the possibility of converting paediatric isolation bed space to adult bed space as the area only has a 68% occupancy;
- Consider converting a green non-isolation area into isolation area to address the shortage.

Colour code parameters can be set for every facility based on the facility’s occupation figures or nationally for the total system, for example:

90% > occupied
80-90% occupied
70-80% occupied
< 70% occupied

It is only through accurate bed-occupancy and daily patient classification that this type of bed management is possible in a Pandemic.

**It is recommended that hospitals initiate the daily classification of patients immediately to ensure staff understand the principles and the system is functional when the number of COVID-19 patients increases dramatically.**

This action plan will be followed by a sequentially numbered Action Plan continuing the preparation

### 3 REFERENCES

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# COVID-19 HOSPITAL PREPARATION

## CHECK-LIST FOR PREPARATION THIS FAR

Ser No	Action	Date Completed
1.	Training completed in triage Sieve and Sort for all personnel involved in screening and receiving patients and posters are printed and available for use.	
2.	Triage tags are available and support the Triage process	
3.	Posters for doffing and donning PPE from the NDOH Guidelines are printed and available	
4.	Screening, testing and triage facility was planned, and equipment is available	
5.	Surge capacity of the facility is calculated <b>and recorded</b> indicating: <ul style="list-style-type: none"> <li>• Additional space for ICU/ventilation capabilities</li> <li>• Additional patient care space for high dependency care</li> <li>• Additional patient care space for low dependency care</li> </ul>	
6.	Bed repairs / additional sources to provide beds to surge capacity in place	
7.	All available ventilators were identified and process to service the unserviceable ventilators is in place	
8.	Oxygen cylinders and regulators are checked and serviced	
9.	Supply line for oxygen cylinders refills were reviewed and checked, supplier can shorten turn-around time if required	
10.	The Red Area that will be used for patient care was identified and include all the levels of care available at the hospital	
11.	The Red Area is separated from the rest of the hospital by a Yellow Transit Area. The Yellow Area has adequate facilities to decontaminate staff and equipment coming out of Red Area.	
12.	Plan is in place to move COVID-19 patients from Red Area to and from x-ray department	
13.	The Green Support Area has been identified	
14.	All areas are demarcated, and signage is available to be placed when required.	
15.	The PPE guidelines from the National Department of Health was evaluated and needs determined.	
16.	PPE stock is ready and sufficient for at least seven (7) days	
17.	Temporary ventilation capability is planned for movement of patients if required and oxygen is available for transfers.	
18.	Planned beds can accommodate Fowlers position and oxygen administration.	
19.	Palliative Care is considered, facilities and staff were planned	
20.	Hospital Command is planned, and members of command identified	
21.	Command Centre is prepared	
22.	Communication capabilities are available for Command centre	