

Admission and Discharge from ICU: Do We Have any Protocol?

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Number of ICU beds is one in the important indexes of providing health care for the critically ill patients around the world. Lack of ICU beds may delay admission to ICU and causes patients' poorer prognosis [1]. There are 20 and 15 ICU beds/100,000 inhabitants in the USA and Canada respectively. In European countries including Germany, France and UK the number of ICU beds per 100,000 persons is 25, 10 and less than 5 respectively [2].

In Iran, based on the available data, the number of ICU beds per 100,000 population is 1-1.5. A neighboring country, Turkey has 2.5 beds per 100,000 inhabitants. In Asian countries including South Korea, Japan and China there are 10.5, 13 and less than 5 beds per 100,000 population, respectively [3]. Occupancy rate of ICU beds in Iran is 100%.

Regarding to the limitation of available resources, allocation of these resources in the best way for improvement of patients' care is mandatory. Two common approaches for ICU admission and discharge are based on the disease type and priority. However this approach may weaken physicians' clinical judgment. Based on these data, a local protocol following a multidisciplinary consensus is provided in Imam Khomeini Hospital Complex, Tehran, Iran, for an improvement in benefits from the ICU care. This is a local prioritization system that is implemented in Imam Khomeini Hospital.

For preparing the protocol, number of ICU beds, health care provider staff, financial resources, patients' family support and outpatient facilities have been considered. The primary goal of this protocol is identifying patients who will be receiving the highest (priority 1) and least (priority 4) benefits from the ICU care. In this protocol candidate patients for ICU care are categorized as following: [4-5]

1. This group is benefited more than the others. They have not any baseline disease. Thanks to trained staff and other

facilities such as fluid therapy and invasive monitoring, usage of vasoactive drugs or mechanical ventilation, they have high cure probability.

Example:

- I. Patient in hemodynamic instability or shock conditions who needs vasoactive drugs and invasive monitoring.
 - II. Patient who needs mechanical ventilation.
2. Patients in this group have a compensated state and do not need mechanical ventilation or invasive intervention but they are in an impending state of decompensation.

Example:

- I. High risk post-operative patients.
 - II. Ongoing (continuation of) Diabetic Keto Acidosis despite adequate therapy.
 - III. Drug overdosage.
 - IV. Acute pulmonary edema.
 - V. An acute asthmatic attack before intubation and a need for ventilator support.
 - VI. Iatrogenic complication following diagnostic or therapeutic intervention.
3. Acutely unstable patients with poor prognostic conditions due to concomitant chronic diseases or severity of acute illnesses. These patients benefit from the ICU care for a short time following intubation or cardiopulmonary resuscitation and they have poor chance of cure.

Example:

- I. End stage cardiac or pulmonary diseases complicated with an acute process.
 - II. Progressive cancer without improvement in spite of chemotherapy with an acute superimposed disease.
 - III. Progressive cirrhosis presented with sepsis
 - IV. Dialysis dependent renal failure patients presenting with sepsis
 - V. I.V. drug abusers who are presented with an acute medical or surgical disease.
4. Progressive irreversible disease that benefits only from palliative care.

- I. Incurable progressive cancer patient
- II. Severe irreversible brain damage
- III. Irreversible multi organ failure
- III. Permanent vegetative state

Discharge algorithm is shown in (Figure 1):

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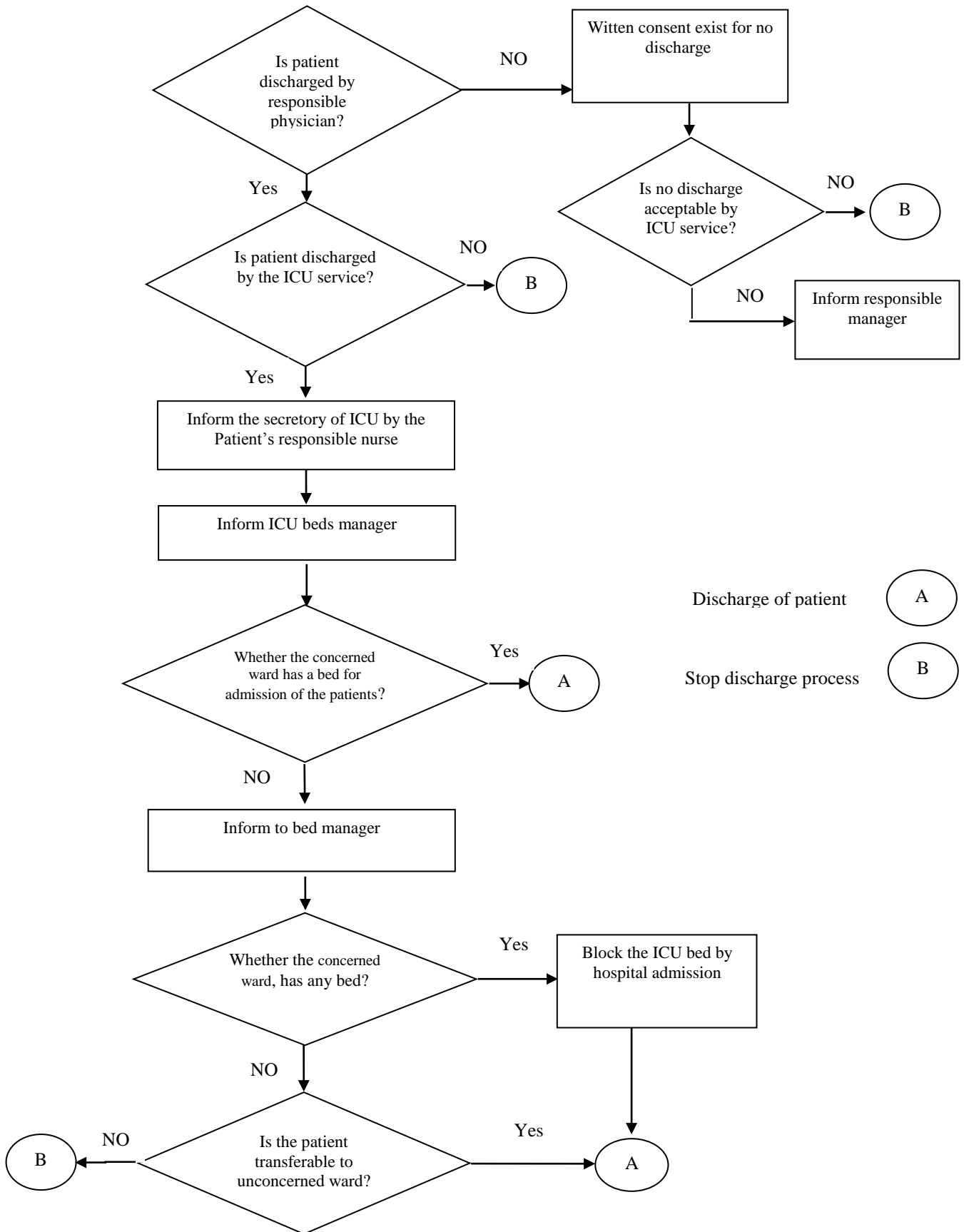
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Figure 1: Discharge algorithm from ICU



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