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للمستشفيات والمعاهد التعليمية
16 (أ) شارع قصر العيني بالقاهرة
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اللجان الاستشارية للأقسام العلمية

ICU Admission and Discharge criteria

DEPARTMENTAL POLICY AND PROCEDURE (DPP)			
DEPARTMENT: INTENSIVE CARE UNITS			
POLICY NUMBER	STANDARD NUMBER		POLICY NAME
			ADMISSION CRITERIA
VERSION NUMBER	REPLACES NUMBER	REVISION DUE	EFFECTIVE DATE
0	0		
APPLIES TO			NO. OF PAGES
MEDICAL AND NURSING ICU STAFF			

PURPOSE

To guide the healthcare team for evaluation, individualization and follow-up of a patient's admission or discharge -related needs (especially critically ill or complex patients) to preserve availability of needed & necessary critical & specialized care services

POLICY

GOTHI grants access to intensive care & specialized care units based on clear criteria

DEFINITION

Specialized care units = Inpatient units that are specifically designed, stuffed & equipped for continuous observation & treatment of critically ill or complex patients (intensive care units-intermediate care units)

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ICU ADMISSION CRITERIA

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Indications for admission to General ICU

CARDIAC SYSTEM:

1. Cardiac Arrest.
2. Cardiogenic Shock
3. Acute coronary syndrome (STEMI, NSTEMI, and unstable angina with hemodynamic instability or persistent chest pain)
4. Acute Congestive Heart Failure and/or requiring hemodynamic support.
5. Cardiac Arrhythmias requiring close monitoring & intervention :
   - Unstable with adeverse signs (at least one; SBP<90mmHg, recent syncope, acute heart failure, acute myocardial ischemia).
   - Sustained Ventricular Tachycardia (>30 seconds)
   - Brady arrhythmias (Complete Heart Block, Mobitz-II, and ventricular pause> 3sec.)
6. Cardiac Tamponade or Constriction with hemodynamic instability.
7. Dissecting Aortic Aneurysms.
8. Pulmonary Emboli with respiratory or hemodynamic instability
9. Hypertensive Emergencies (Blood pressure ≥180/120mmHg) with evidence of acutetarget organ damage requiring treatment
10. Post coronary catheter if there is a recent myocardial infaction, hemodynamic instability, arrhythmias, complex procedure requiring multiple stents or ballon pump insertion, complications during the procedure, severe comorbidities as swvere heart failure or chonic lung disease.

PULMONARY SYSTEM:

1. Acute Respiratory Failure requiring ventilator support (PaO_2 < 70mmHg on room air OR < 60mmHg on $FIO_2 \geq 0.6$ with PaO_2/FIO_2 200-300, or $PaCO_2$ >45-55mmHg, and PH <7.35-7.25 OR SpO_2 <90% or <88% in COPD on room air or requiring high-flow oxygen or non-invasive ventilation (NIV).
2. The risk of deterioration of respiratory failure requiring close monitoring (Severe tachypnea (>30 breaths per minute) or bradypnea (respiratory rate < 10), indicating potential respiratory fatigue. Significan respiratory distress with marked use of accessory muscles, retractions, and inability to speak fu sentences.
3. Respiratory Failure with imminent intubation.
4. Acurte airway obstruction
5. Acute cyanosis

NEUROLOGIC DISORDERS:

1. Acute Stroke with altered mental status.
2. Disturbed Conscious Level: metabolic, toxic or anoxic.
3. Acute unequal pupils
4. Intracranial Hemorrhage with potential for herniation.
5. Acute Subarachnoid Hemorrhage.

ICU Admission and Discharge criteria

6. Status Epilepticus, post ictal state
7. Acute Sagittal Venous Thrombosis
8. Moderate and Severe Head Injured patients GCS 9-11 & <9 respectively

GASTROINTESTINAL & Liver DISORDERS:

1. Life threatening Gastrointestinal Bleeding including hypotension; systolic BP<100mmHg, angina, continued bleeding, or with comorbid conditions.
2. Fulminant Hepatic Failure; PH< 7.3, INR >5, hepatic Enchephalopathy GCS ≤9
3. Severe Pancreatitis (Ranson score ≥3).

ENDOCRINE:

1. Diabetic Ketoacidosis complicated by hemodynamic instability, altered mental status (GCS ≤11) , respiratory insufficiency, or severe acidosis (PH<7.1).
2. Thyroid Storm or Myxedema (i.e. associated altered mental state,and /or hemodynamic instability, and/or respiratory failure and/or arrhythmia with adverse signs)
3. Hyperosmolar State with coma and/or hemodynamic instability.
4. Other endocrine problems such as adrenal crisis with hemodynamic instability.
5. Symptomatic Hypo or Hypercalcemia with altered mental status, requiring hemodynamic monitoring.
6. Symptomatic Hypo or Hypernatremia with seizures, altered mental status.
7. Symptomatic Hypo or Hypermagnesemia with hemodynamic compromise or dysrhythmias.
8. Symptomatic Hypo or Hyperkalemia with dysrhythmias or muscular weakness.
9. Symptomatic Hypophosphatemia with muscular weakness.

SURGICAL:

1. Post-operative patients requiring hemodynamic monitoring/ventilatory support or extensive nursing care.
2. Anesthetic complications.
3. Trauma patients prepared for surgery.

DRUG INGESTION AND DRUG OVERDOSE:

1. Hemodynamically unstable drug ingestion.
2. Seizures following drug ingestion

MISCELLANEOUS:

3. Septic Shock with hemodynamic instability.
4. Hemodynamic monitoring.
5. Clinical conditions requiring ICU level nursing care.

Clinical, laboratory and radiological findings requiring ICU admission:

VITAL SIGNS:

1. Pulse < 60 or > 100 beats/minute with adverse sign or risk of asystole.
2. Systolic Arterial Pressure < 80 mm Hg or 20 mm Hg below the patient`s usual pressure.
3. Mean Arterial Pressure < 60 mmHg despite adequate fluid resusciation (2 litres or the need of vasoactive agent to keep MAP above 60 mm Hg
4. Diastolic Arterial Pressure >120 mm Hg. systolic pressure >180 mm Hg with end organ damage
5. Respiratory Rate >35 breaths / minute or less than 8 cycles/min

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ICU Admission and Discharge criteria

ABORATORY VALUES (NEWLY DISCOVERED):

1. Acute change in serum sodium < 125 mEq/L or > 160 mEq/L or associated with moderate or severe symptoms
2. Serum Potassium < 2.5 mEq/L or ≥ 6.5 mEq/L.
3. Serum Bicarb. < 15 mEq/L PH < 7.25 or > 7.55
4. Serum glucose > 500 mg/dl or less than 70
5. Acute drop of hemoglobin level below 7g/dL with symptoms e.g. shortness of breath, chest pain).
6. Acute drop of platelet count below 50.000/uL with active bleeding

ADIOGRAPHY/ ULTRASONOGRAPHY/TOMOGRAPHY (NEWLY DISCOVERED):

1. Ruptured viscera, bladder, liver, oesophageal varices or uterus with hemodynamic instability.

Indications for Admission to Renal ICU

1. **Acute Kidney Injury (AKI)**:
   - Severe AKI with significant electrolyte imbalances (i.e. anuria≥12 hours, hyperkalemia≥6.5, metabolic acidosis PH<7.1).
   - Patients requiring continuous renal replacement therapy (CRRT) or intensive hemodialysis.
2. **Chronic Kidney Disease (CKD) Complications**:
   - Exacerbation of CKD with complications such as volume overload, severe hypertension, or heart failure.
3. **Severe Electrolyte Disturbances**:
   - Critical levels of potassium, sodium, or calcium that are life-threatening and require immediate intervention.
4. **Acid-Base Imbalances**:
   - Severe metabolic acidosis or alkalosis that cannot be managed in a general ward setting.
5. **Fluid Overload**:
   - Patients unable to manage fluid balance, leading to pulmonary edema or heart failure.
6. **Post-Operative Care**:
   - Patients with renal issues following major surgery (e.g., nephrectomy) requiring intensive monitoring.
7. **Renal Transplant Complications**:
   - Patients experiencing acute rejection, infection, or complications post-kidney transplant.
8. **Sepsis and Multi-Organ Dysfunction**:
   - Patients with renal failure secondary to sepsis or multi-organ dysfunction requiring close monitoring and support.
9. **Severe Urinary Tract Obstruction**:
   - Obstruction leading to significant kidney damage requiring surgical intervention or intensive

ICU Admission and Discharge criteria

monitoring.

Indications for Admission to Neurointensive Care

1. **Acute Neurological Events**:
   - **Stroke**: Ischemic or hemorrhagic stroke requiring immediate intervention and monitoring.
   - **Transient Ischemic Attack (TIA)**: High-risk TIAs with potential for progression to stroke.
2. **Traumatic Brain Injury (TBI)**:
   - Moderate to severe TBI with altered consciousness, neurological deficits, or needing surgical intervention.
3. **Seizure Disorders**:
   - Status epilepticus or recurrent seizures that are difficult to control.
4. **Intracranial Hemorrhage**:
   - Subarachnoid hemorrhage, intracerebral hemorrhage, or any bleeding requiring monitoring and potential surgical intervention.
5. **Post-Operative Neurological Care**:
   - Patients recovering from neurosurgery (e.g., tumor resection, aneurysm clipping) needing intensive monitoring for complications.
6. **Neurological Infections**:
   - Meningitis, encephalitis, or brain abscesses requiring close monitoring and aggressive treatment.
7. **Severe Neuromuscular Disorders**:
   - Conditions like myasthenia gravis or Guillain-Barré syndrome with respiratory compromise or rapid progression.
8. **Elevated Intracranial Pressure (ICP)**:
   - Patients with signs of increased ICP needing monitoring and intervention.
9. **Neurovascular Disorders**:
   - Aneurysms or vascular malformations requiring monitoring for potential rupture or intervention.
10. **Multi-Organ Failure with Neurological Implications**:
    - Patients with multi-organ dysfunction where neurological monitoring is crucial for management.

Indications for Admission to Obstetric ICU

1. **Severe Pregnancy Complications**:
   - **Eclampsia or Severe Preeclampsia**: Patients with significant hypertension and organ dysfunction.
   - **Hemolysis, Elevated Liver Enzymes, Low Platelets (HELLP) Syndrome**: A severe form of

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ICU Admission and Discharge criteria

preeclampsia requiring intensive monitoring.

2. **Cardiovascular Issues**:
   - Acute heart failure, severe arrhythmias, or other significant cardiac conditions during pregnancy.
3. **Respiratory Distress**:
   - Acute respiratory failure, severe pneumonia, or other respiratory complications requiring intensive monitoring and support.
4. **Severe Hemorrhage**:
   - Active hemorrhage (antepartum or postpartum) requiring blood transfusions and close monitoring.
5. **Sepsis**:
   - Suspected or confirmed sepsis, particularly in the context of pregnancy or postpartum, requiring intensive management.
6. **Obstetric Emergencies**:
   - Conditions such as uterine rupture, placental abruption, or significant fetal distress that necessitate immediate intervention.
7. **Multi-Organ Dysfunction**:
   - Patients exhibiting signs of multi-organ failure or dysfunction related to pregnancy complications.
8. **Neurological Complications**:
   - Severe headaches, altered mental status, or neurological deficits indicating potential complications like stroke or cerebral edema.
9. **Need for Intensive Monitoring**:
   - Patients requiring extensive monitoring for maternal or fetal well-being, particularly in high-risk pregnancies.

Indications for Admission to Infectious diseases ICU

1. Algid malaria, cerebral malaria, or severe malaria
2. Tetanus patients in need for midazolam infusion

Indications for Admission to Burn ICU

Burn Severity:

- **Total Body Surface Area (TBSA)**: Burns covering more than 10% TBSA in adults or more than 5% in children.
- **Full-Thickness Burns**: Any full-thickness (3rd degree) burns, regardless of size.

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ICU Admission and Discharge criteria

2. **Location of Burns**:
   - Burns on critical areas such as the face, hands, feet, genitalia, or major joints.
   - Circumferential burns that may compromise circulation or respiratory function.
3. **Inhalation Injury**:
   - Evidence of inhalation injury, such as singed nasal hair, soot in the oropharynx, or respiratory distress.
4. **Age Factors**:
   - Very young children (under 5 years) or elderly patients (over 65 years) with significant burns.
5. **Comorbid Conditions**:
   - Patients with underlying medical conditions (e.g., diabetes, cardiovascular diseases) that complicate management.
6. **Need for Surgical Intervention**:
   - Patients needing surgical procedures like escharotomy

Admission Criteria to intermediate care units

A. General

1. Need for monitoring more than 6h/day or every 4 h

B. Cardiac System

1. Exclusion of acute myocardial infarction
2. Arrhythmia, haemodynamically stable (if at least one sign of these signs is positive need intensive care ; syncopal attack, systolic blood pressure <90mmHg, acute heart failure, acute myocardial ischemia)
3. Acute heart failure without shock (Killip Class I, II)
4. Hypertensive urgency (Blood pressure ≥180/120mmHg) without evidence of acute target organ damage requiring treatment

C. Pulmonary System

1. Patients with mild to moderate acute respiratory failure (SpO2 between 90% and 92%, or <88% on COPD on room air or requiring low-flow supplemental oxygen), moderate tachypnea (25-30 breaths per minute) without significant distress, mild to moderate increase in work of breathing; the patient may use accessory muscles but is not in respiratory distress.
2. Patients who require close checks on vital parameters or intensive respiratory physiotherapy (e.g. nasotracheal/ or tracheostomy suctioning more often than 3 times/day)

D. Neurological System

1. Acute neurological (GCS 10-12) with the need for frequent neurological examination or frequent suctioning of the oral cavity or positioning

E. Gastro-intestinal Disorders

1. Gastro-intestinal bleeding with mild orthostatic hypotension that reacts to volume administration

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ICU Admission and Discharge criteria

2. Hepatorenal Syndrome requiring norepinephrine infusion.

F. Endocrine System

1. Diabetic ketoacidosis requiring continuous and constant intravenous insulin administration or more frequent insulin injections in the early phase once ketoacidosis has been controlled
2. Hyperosmolar syndrome (high blood sugar readings; >600mg/dl without ketoacidosis and with serum osmolarity >320mOsm/Kg, and a PH >7.3) with increased risk of coma
3. Thyrotoxicosis, hypothyroidism requiring close monitoring (i.e.fluid and electrolytes disturbance)

G. Others

1. Hypo/Hyper electrolytes associated with disturbed conscious level (GCS 10-12) or ECG changes related to the electrolytes abnormalities.
2. Acute drop of hemoglobin level below 8g/dL with symptoms e.g. shortness of breath, chest pain OR need for massive transfusion requiring close monitoring (in cardiac patients)).
3. Acute drop of platelet count below 75.000/uL with active bleeding

المسئول عن التنفيذ:

Physicians

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ICU Admission and Discharge criteria

ICU DISCHARGE/TRANSFER CRITERIA TO THE WARD

PURPOSE

To guide the healthcare team for evaluation, individualization and follow-up of a patient's discharge-related needs.

POLICY

- GOTHI grants discharge from intensive care & specialized care units based on clear criteria which are laid down for the establishment of the standards for all the staff in ICU and hospital.
- Discharge planning is a multidisciplinary, collaborative process involving the patient, patient's family & concerned team members; which is started on patient admission.
- Discharge criteria from Intensive Care Units should be similar to the admitting criteria for the next level of care such as intermediate care or ward. However, not all patients require intermediate care after ICU discharge.
- Discharge planning involves several activities:

A. Development of a care plan for post discharge care.

B. Arranging for the provision of services, including patient/family education and referrals.

DEFINITION

Specialized care units = inpatient units that are specifically designed, stuffed & equipped for continuous observation & treatment of critically ill or complex patients (intensive care units-intermediate care units

Hemodynamic = The study of the forces involved in the circulation of blood.

Vegetative State = A condition caused by injury, disease or illness in which a patient has suffered a loss of consciousness, with no behavioral evidence of awareness of self or surroundings in a learned manner, other than reflex activity of muscles & nerves for low level conditioned response; & from which to a reasonable degree of medical probability, there can be no recovery.

Inotropic Support = Supporting a hypotensive patient with an agent(s) which increases the force or energy of muscular contractions specially of heart muscle.

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ICU Admission and Discharge criteria

PROCEDURES

1. Final discharge planning is to be initiated on the basis of the patient's condition by intensivist at least 24 hours before actual discharge in following conditions:

1.1 When a patient's physiologic status has stabilized & the need for ICU monitoring & care is no longer necessary.

1.2 When a patient's physiological status has been stabilized & active intervention is no longer planned; & discharge to a lower level of care is appropriate.

2. ICU physician in-charge shall also assess the patient considering the discharge criteria (given below); if patient fulfills the criteria then he/ she shall take a final decision for discharge of the patient from ICU, jointly with the treating physician.

2.1. Hemodynamically stable for ≥12 hours with no need of inotropic support (if the patient was on vasopressor for ≤48hours) and for≥ 24 hours (if the patient was on vasopressor for >48hours).

2.2. Oxygen requirement <40% FiO2 with SpO2 > 92% (>88% in COPD) and acceptable arterial blood gas.

2.3. Extubated for ≥6 hours if intubated for ≤48hours and for ≥24hours if the patient is intubated for >48hours with no significant upper airway problems i.e. good cough & no signs of respiratory distress.

2.4. Has no excessive fluid loss or requirements

2.5. Vegetative patients in whom active intervention is not likely, discharge to a lower level of care or floor is appropriate.

2.6. No frequent suction is required for a patient with tacheostomy.

2.7. Normal or baseline level of consciousness

3. Discharge assessment of the patient also includes assessment of functional, medical, medication, psychological and/or cultural needs.

4. Intensivisit endorse the patient to the treating physician and inform him/her with the last plan of care with any further recommendations.

5. Intensivist follows the task for assessment of the patient, communication and documentation.

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ICU DISCHARGE/TRANSFER CRITERIA TO THE WARD

1. The status of patients admitted to an ICU should be assessed continuously to identify patients who may no longer need ICU care.
2. When a patient's **physiologic status has been stabilized** and the need for ICU monitoring and care is no longer necessary.
3. When a patient's physiological status has improved with resolution of acute state & and active interventions are no longer planned, discharge to a lower level of care is appropriate.
4. **Discontinuation** for 12-24 hours of medications / treatments requiring hemodynamic monitoring
5. **LAB results and vital data within accepted range :**

GCS ≥13 , PULSE ≥50 ≤120 b/min , mean arterial pressure ≥65 mmHg , RR ≤25 ≥12 , Na ≥120 ≤150 , k≥3 ≤ 5.5 , paO_2 ≥ 50mmHg on FIO_2 0.4, $paCO_2$ ≤60mmHg 0r basal abg level in case of COPD patients , PH ≥7.3 ≤ 7.5 and serum glucose > 70 < 300mg/dL.

ICU DISCHARGE/TRANSFER CRITERIA TO THE INTERMEDIATE CARE

Are the same indication for admission to the intermediate **(see page 8)**

Transfer/Discharge Criteria from IMC:

1. If the patient's condition does not require intensive monitoring and treatment is possible on an SCU
2. If the patient's condition has deteriorated to the extent that active organ replacement is required or probably required, transfer should be made to the ICU based on a unit-specific protocol

المسئول عن التنفيذ:

ICU Physicians

Responsible for making a decision for patient discharge from ICU, considering the discharge criteria given.

Provides opinion about patient recovery and discharge, and take a decision about discharge of the patient from ICU in the time of acute emergency for ICU bed.

المراجعة:

- دوري كل سنتين أو عند حدوث أي مستجدات كصدور لوائح جديدة أو تغيير ألية العمل بالقسم.

النماذج المستخدمة:

ICU Admission , Discharge Criteria and Transfer form

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ICU Admission and Discharge criteria

الاختصارات:

GOTHI=General Organization For Teaching Hospitals & Institutes
NSR=NATIONAL SAFETY REQUIREMENTS AND PROCEDURE
ACT= ACCESS, CONTINUITY, AND TRANSITION OF CARE

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ICU Admission and Discharge criteria

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مراجعة		مراجعة		إعداد	
	الاسم :		الاسم :		الاسم :
	الوظيفة :		الوظيفة :		الوظيفة :
	التوقيع :		التوقيع :		التوقيع :
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ICU Admission and Discharge criteria

Checklist Of ICU Admission Criteria

Hospital			Date	
Source Of Admission	ED	In Hospital	Referral	Admitting Consultant

Patient Name Age	Gender	Diagnosis Expected Length Of Stay

Check the indication/s for ICU admission

- □Requires mechanical ventilation , specify
- □Oxygen saturation SpO_2 < 90% on > 50% FIO_2 or > 8 litres oxygen
- □Labored breathing, respiratory ditress tachypnea
- □ABG with PH < 7.3 or PCO2 > 50 mm Hg, or above patient's baseline
- □Lactate >2.5 mmol/L not improving with fluid resuscitaiotn
- □Requiring cardiac monitoring, specify
- □Requirnig close neuro/vital sign monitoring, specify
- □Hemodynamic instability despite fluid resuscitation
- □Vasoactive drug requirement
- □Patient with new decreased conscious level or decreased from baseline
- □Status epilepticus
- □Acute organ failure with specific consideration, specifiy
- □Patient with new ECG findings, including ischemia, arrhythmias, heart block
- □Critical lab value or radilolgical finding, specify
- □Others, please specify

Admitting physician **Signature** **Date**

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ICU Admission and Discharge criteria

توصيات التنفيذ

1- ارسال نسخة من المواصفات وعلامات الدخول والخروج لمديري الوحدات التابعة للهيئة ورؤساء الاقسام داخل كل وحدة

2- التدريب والتوعية:إجراء دورات تدريبية للفرق الطبية حول أهمية الالتزام بهذه البروتوكولات وكيفية تطبيقها

3- استخدام التوثيق: ارفاق نموذج checklistللملف الطبي الخاص بورقة دخول المريض الي الرعاية للتأكد من دواعي الدخول

4- عند حدوث رفض لخروج الحالات من الرعاية رغم التواصل الفوري مع التخصص الاخر(الاخصائي اةاو الاستشاري او رئيس القسم المراد تحويل المريض له) يتم ابلاغ نائب المدير بالوحدة للشئون الفنية للتدخل والتأكد من اتباع العلامات الخاصة بالبروتكول والموافقة علي الخروج

5- قياس فعالية اتباع المواصفات بعد ثلاثة الي ستة اشهر من التطبيق والتفعيل ببعض المعايير مثل قياس نسبة دوران أسرة الرعاية في الوحدات المختلفة ونسبة اعادة دخول المرضي الذين تم خروجهم من الرعاية المركزة في اقل من 24 ساعة

Prof. Dr. Eman El-Dessouki