

M-Safety Lab: Hospital Unit Guide

This guide describes medical equipment generally found in the **Intensive Care Unit (ICU)** and **ICU Step Down Units**. The ICU is a unit in the hospital where seriously ill patients are cared for by specially trained staff.^[1] A Step Down Unit is another type of unit where patients need higher level of care and services, but patients are not as critically ill as in an ICU. Both of these units have access to advanced medical resources and equipment that is not routinely available elsewhere in the hospital.

Patients

Patients in ICUs and Step Down Units have severe and life-threatening illnesses and often require a form of life support or a ventilator. Their blood pressure may be too high or too low and requires medication. Additionally, they may be having arrhythmias (improper beating of the heart) and need continuous monitoring.

Staffing

These units are staffed by highly trained doctors and nurses who are trained in caring for critically ill patients. There is often a lower staff-to-patient ratio in an ICU or Step Down Unit than in other units in a hospital.^[2] The ratio may be as low as 1 nurse to 1 patient or 1 nurse to 2 patients, depending on patient acuity.

Equipment

The exact equipment present in an ICU will vary from hospital to hospital. Below are the names of common equipment found in ICUs, their basic function, and a photo of the equipment:

Bedside monitor

- Displays heart rate, blood pressure, and oxygen saturations
- May include other vital signs
- May include telemetry
- May also be called “Cardiac monitor”



Intravenous (IV) Pump

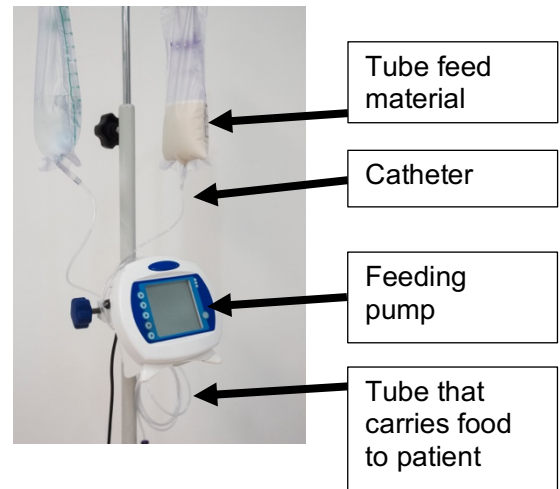
- Delivers fluid and nutrients to patients
- Infuses medication into circulatory system



This guide was developed as part of the University of Michigan M-Safety Lab with grant funding from the Agency for Healthcare Research and Quality. The purpose of this guide is to orient non-clinical collaborators to an ICU or ICU Step Down setting. For more information, please contact Dr. Jennifer Meddings at meddings@umich.edu.

Feeding pump/tube

- Bag of fluid (nutritional supplement)
- Fed by a catheter by a feeding pump on a pole to deliver the liquid as food to the patient, in a tube that enters the patient's nose or abdomen



Restraints

- Soft cloth ties
- Prevents patients from pulling out tubes



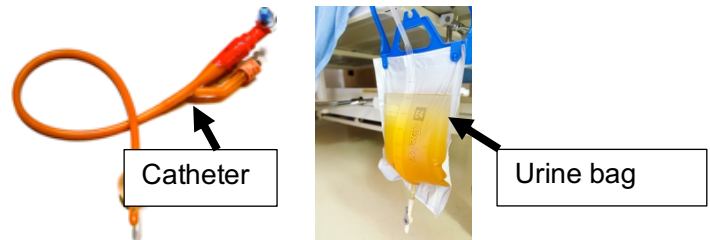
Compression boots

- Placed on patient's legs
- Periodically squeezes legs
- Prevents blood clots



Foley Catheter

- Thin sterile tube
- Inserted into bladder to drain urine
- May also be called "indwelling catheter"



Pulse Oximeter

- Measures oxygen saturation of blood
- Also measures changes in blood volume in the skin
- Placed on patient's finger



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Central Venous Catheter

- Long, thin flexible tube
- Inserted through the arm or chest into a large vein
- Gives medicines, fluids, nutrients, or blood
- May also be called “central line”



Electroencephalogram (EEG)

- Detects abnormalities in the brain
- Related to electrical activity
- Displays results of test



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Ventilator

- Assists with or completely breaths for patient through
 - Endotracheal tube (enters mouth) or
 - Tracheostomy tube (enters throat)

Tracheostomy tube



Ventilator

EEG Box/Electrodes

- Records brain wave patterns
- Small metal discs with thin wires placed on the scalp
- Signals are sent to the computer



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External Pacemakers

- Provides time electrical pulses to the heart
- Helps control abnormal heartrhythms



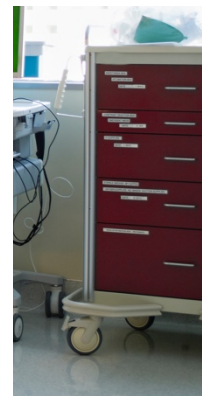
Defibrillators

- Gives an electric shock to the heart
- Helps reestablish normal rhythms



Crash Cart

- Where the defibrillator is located



Intracranial Pressure (ICP) monitor

- Probe inserted through skull
- Used to measure pressure
- May also be used to drain fluid

Hemedex monitor

- Measures blood flow in the brain
- Provides real-time data

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Diagram of Equipment in ICU ^[3]

Ventilator

Machine that assists with or completely breathes for patient.

IV pump

Delivers fluid and nutrients to patients. Infuses medication into circulatory system.

Bedside monitor

Displays heart rate, blood pressure, and oxygen saturations. May include other vital signs.



Restraints

Soft cloth ties that prevent patients from pulling out tubes.

Central Venous Catheter (“central line”)

Long, thin flexible tube inserted through the arm or chest into a large vein. Gives medicines, fluids, nutrients, or blood.

Pulse oximeter

Placed on patient’s finger. Measures oxygen saturation of blood and changes in blood volume in the skin.

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References

- [1] <http://www.cpmc.org/learning/documents/icu-ws.html>
- [2] https://en.wikipedia.org/wiki/Intensive_care_unit
- [3] Image: Calleamanecer [CC BY-SA 3.0 (<https://creativecommons.org/licenses/by-sa/3.0/>)], from Wikimedia Commons