PATIENT MONITOR(MULTIPARA MONITOR)

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1 ABOUT PATIENT MONITOR:

A Patient Monitor (also known as Multi-Para Monitors) are a medical monitor, is an electronic medical device that measures a **patient's vital signs and displays the data** so obtained, which may or may not be transmitted on a monitoring network. Physiological data are displayed continuously on a CRT or LCD screen as data channels along the time axis,

2 WHEN IT IS USED?:

Patient monitors are used when-

- Patients with unstable physiological regulatory systems, Or under drug overdose.

- Patients with a suspected life-threatening condition.
- Patients at high risk of developing a life-threatening condition
- Patients under ICU and Surgeries.

3 VITAL PARAMETERS MEASURED BY MULTIPARA-:

- Electrocardiogram(ECG)- Working Of the Heart
- Blood Pressure
- Blood Oxygen(SPO2)
- Heart Rate/ Pulse Rate
- Neurological monitoring, such as Intracranial pressure(ICP)
- Blood Glucose
- Body Temperature

4 COMPONENTS AND WORKING:

4.1 Sensors:

Sensors of medical monitors include biosensors and mechanical sensors. It requires different sensors for measuring different vital parameters. **Eg: Pressure sensors, flow sensors, temperature sensors, etc.**

4.2 Transducers:

Various transducers are used for measuring blood pressure and body temperature.

4.3 Display Monitor:

Physiological data are displayed continuously on a CRT, LED or LCD screen as data channels along the time axis.

4.4 The Capital Equipment :

As the patient monitoring device itself collects vital patient data, that data is then sent to the capital equipment where it is processed, stored, and displayed The Capital Equipment uses a complex interconnected system of circuits and **Printed Circuit Board(PCB's)** To process and display the data.

4.5 Translating component :

The translating component of medical monitors is responsible for **converting the signals from the sensors to a format that can be shown on the display device** or transferred to an external display.

4.6 Softwares:

Softwares used for processing data and displaying to the screen.

All the sensors and transducers are connected to the body, **The pulse clip for SPO2 and Heart rate, Transducer for temperature, Leads for ECG,** are connected at their respective positions. The data collected by them is then processed in the **Capital Equipment** and Translated into digital compatible signals by **Translating component**, and then processed by softwares. Then the processed data is sent to the **Display Monitor** where different paramters are displayed.

Communication Networking: A further development has been made in the field by introducing networking to

Patient monitoring systems. The system is connected to Hospital's Private Network, and the data collected by it can be seen At the Nursing stations or directly to the Doctors.

5 SCOPE OF FUTURE INNOVATIONS:

Many developments can be made in the field of multipara monitors. Patients's t real time data can be monitored by doctors **wirelessly using cloud computing. Advanced alarms and sensors** can be used to inform doctors if there is a change in parameters. Many developments can be made to measure **hormones level** in the body. **Real time drug management system** can be further developed in Monitoring system. **Advanced AI and ML** can be used to suggest the methods of solution for sudden change in parameters.