■ Medical Safety Information
Pharmaceuticals and Medical Devices Agency
http://www.pmda.go.jp/english/service/medical_info.html

No. 29 December, 2011

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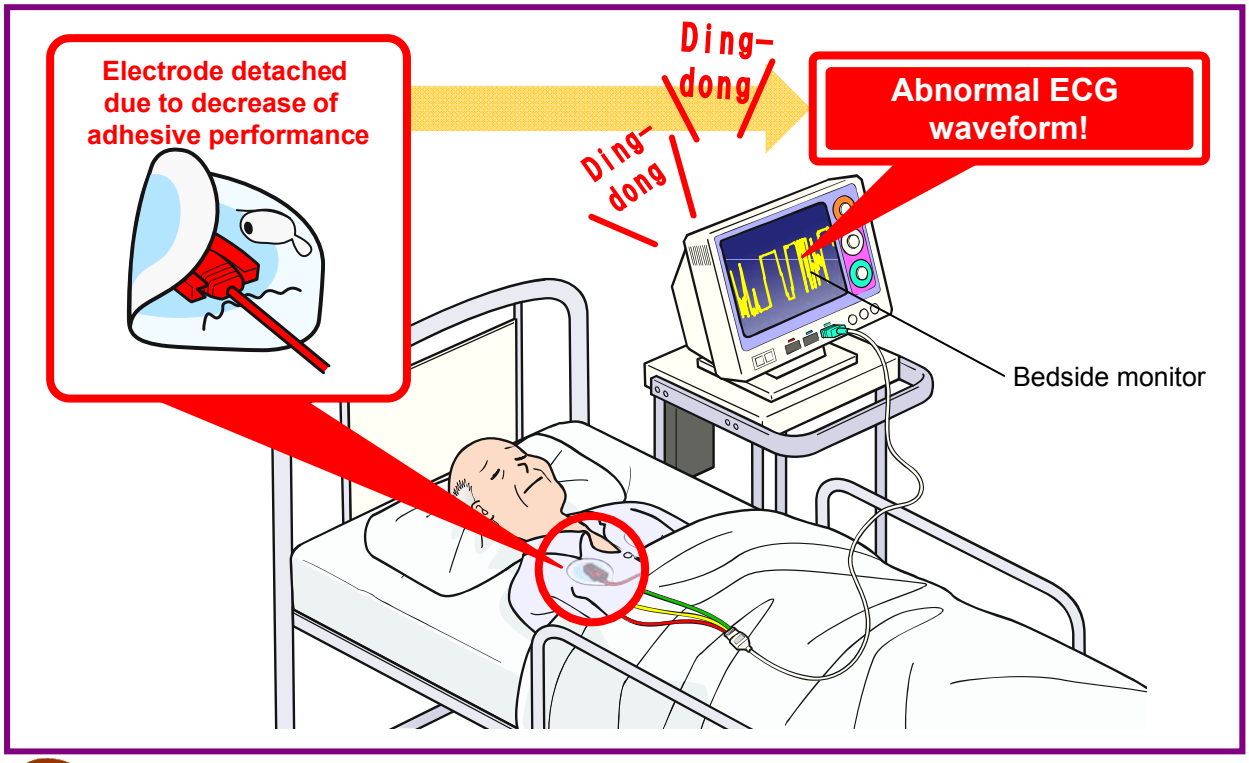
Precautions in ECG Monitoring

POINT Key points for safe use

(Case 1) The alarm in the bedside ECG monitor went off. The medical staff visited the patient's room and found an abnormal waveform on the monitor. After checking, it was found that the electrode, which was attached to the patient, had come off.

1 Precautions for the technical alarm (electrode detachment)

- **The electrode should be changed periodically before the adhesive performance decreases.**

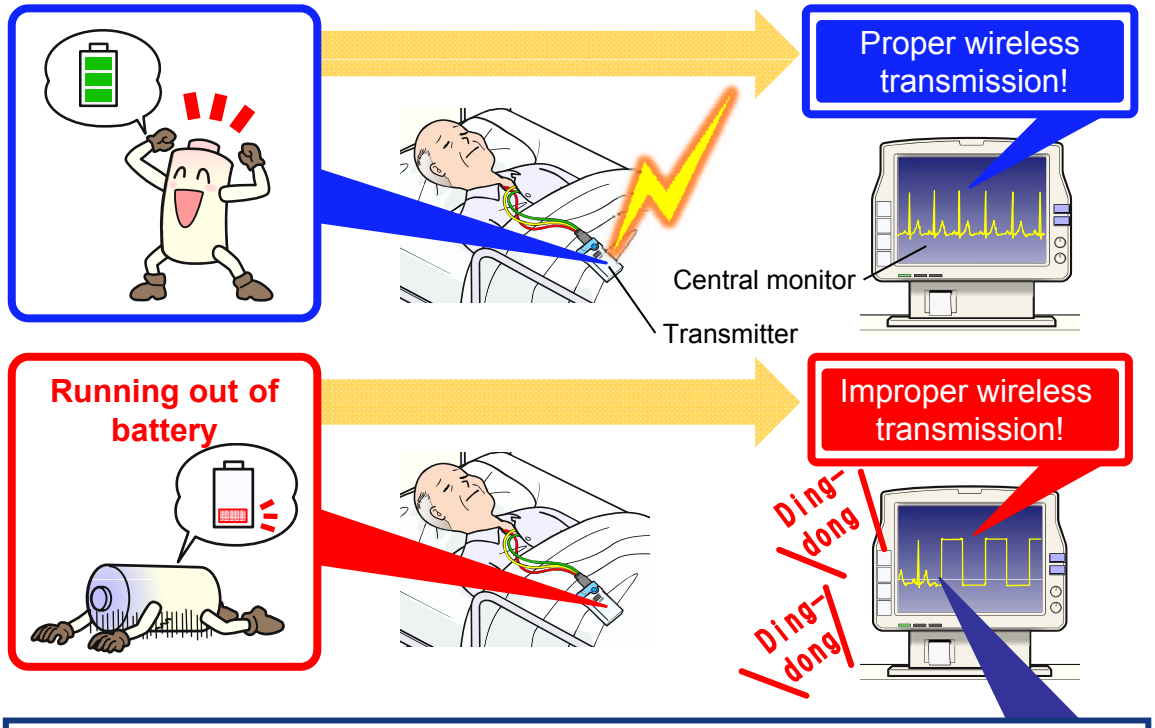


The adhesive performance of electrodes decreases with long-term use and patients' sweating, etc. Establishing rules for the electrode change schedule and changing electrodes before they come off will help avoid needless alarm notification.

(Case 2) An alarm related to incomplete wireless transmission went off. Medical staff checked the ECG system and found that the battery of the transmitter worn on the patient was running out and the signals were not received by the central monitor.

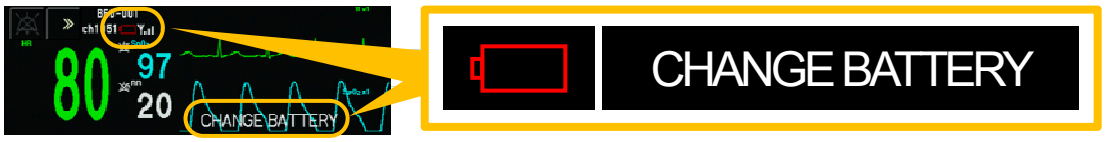
2 Precautions for the technical alarm (running out of battery)

- **Change the battery of the transmitter immediately when the central monitor shows the battery change indicator, regardless of whether there is an alarm or not.**



Examples of battery change indicators

Nihon Kohden Corporation



WEP-5200 series

Fukuda Denshi Co., Ltd.

DS-7780W

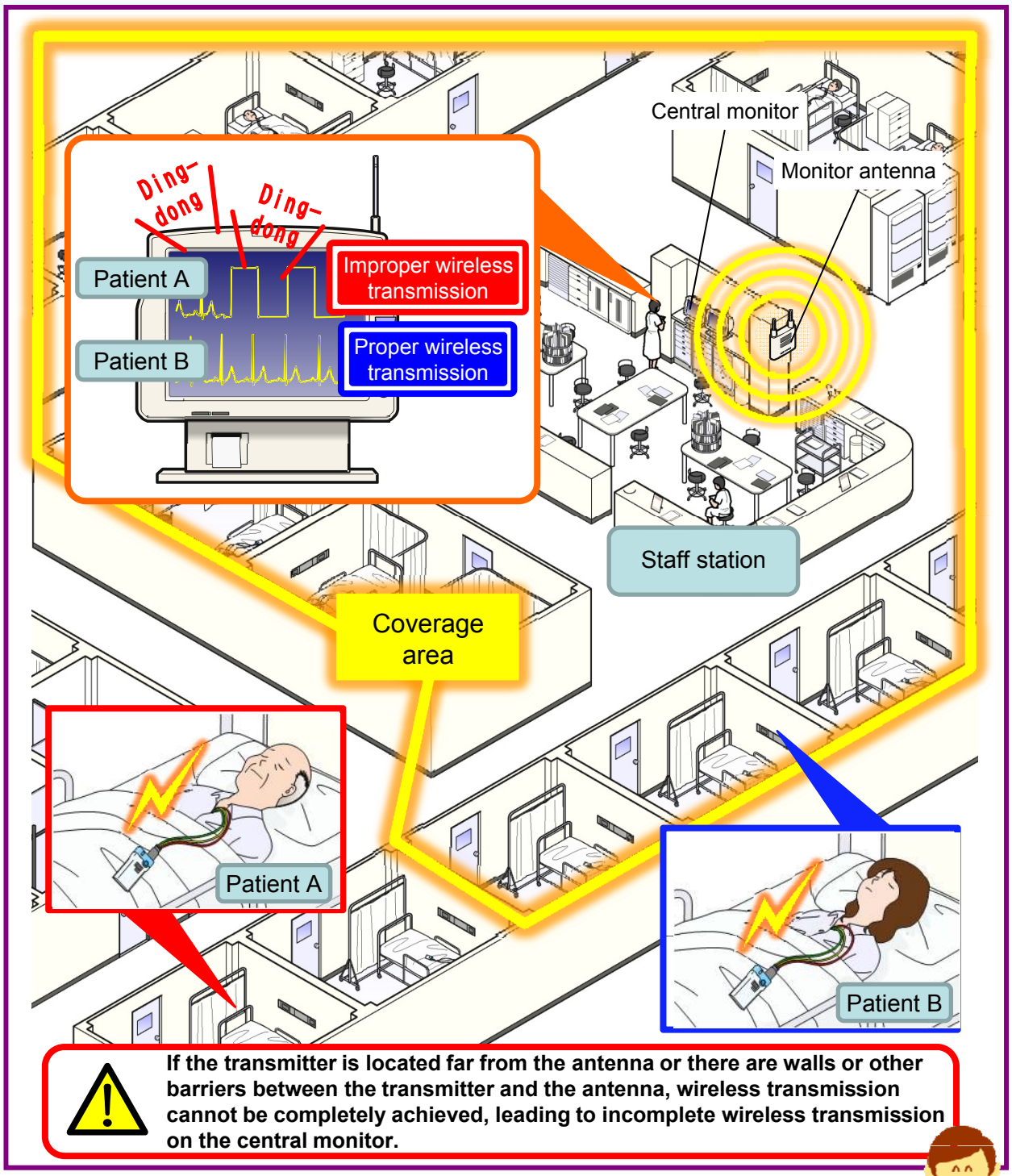
Philips Electronics Japan, Ltd.

IntelliVue Information Center

(Case 3) Since the patient was monitored in a hospital room located far from the monitor antenna, the central monitor failed to receive signals and the alarm frequently alerted incomplete wireless transmission.

3 Precautions for the technical alarm (signal reception)

- **Check and see what area of the hospital rooms the monitor antenna covers.**



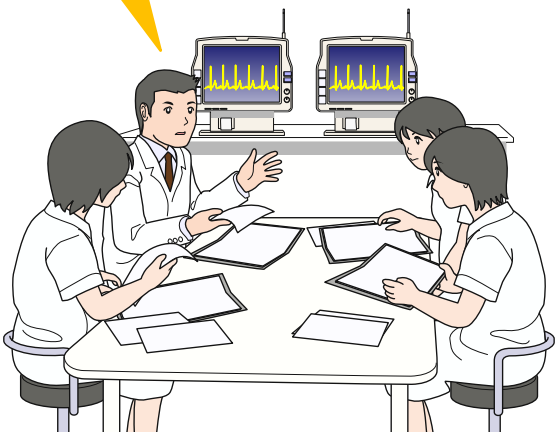
If the transmitter is located far from the antenna or there are walls or other barriers between the transmitter and the antenna, wireless transmission cannot be completely achieved, leading to incomplete wireless transmission on the central monitor.

The environment for the ECG monitor should be improved to avoid needless alarm notification such as lead disconnection from the electrode, electrode detachment, running out of battery, improper wireless transmission and printer's paper-out status, etc.

4 Other information on proper use of the ECG monitor

Necessity of the ECG monitor

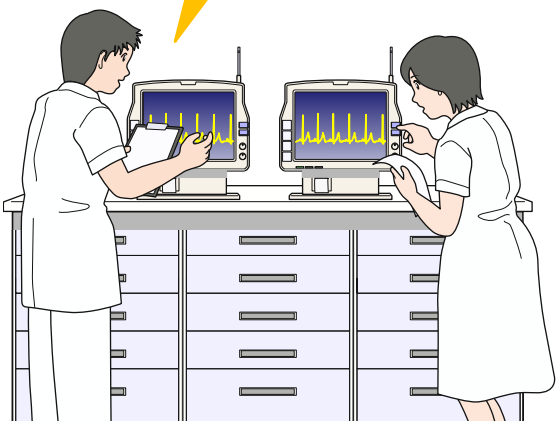
Since the condition of Patient A has become stable, let's remove the ECG monitor and change it to a pulse oximeter.



To discuss the purpose of using the ECG monitor for each patient with the team is important.

Appropriate settings of the alarms

The settings of the alarms for heart rate threshold, arrhythmia, etc. should be changed as appropriate according to the condition of patients.



Setting the alarms appropriately for each patient helps to avoid needless alarm notification.

Notice from organizations and groups that are related to this medical safety information is available at the Pharmaceuticals and Medical Devices Information website (in Japanese)
http://www.info.pmda.go.jp/anzen_gyoukai/file/nurse01.pdf

About this information

* PMDA Medical Safety Information is issued by the Pharmaceuticals and Medical Devices Agency for the purpose of providing healthcare providers with clearer information from the perspective of promoting the safe use of pharmaceuticals and medical devices. The information presented here has been compiled, with the assistance of expert advice, from cases collected as Medical Accident Information Reports by the Japan Council for Quality Health Care, and collected as Adverse Drug Reaction and Malfunction Reports in accordance with the Pharmaceutical Affairs Law.

* We have tried to ensure the accuracy of this information at the time of its compilation but do not guarantee its accuracy in the future.

* This information is not intended to impose constraints on the discretion of healthcare professionals or to impose obligations and responsibility on them, but is provided as a support to promote the safe use of pharmaceuticals and medical devices by healthcare professionals.

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