Also, in accordance with applicable patient data privacy provisions of the Health Insurance Portability and Accountability Act of 1996 (HIPAA), communication of information between the monitored medical devices and the central monitoring location must be done securely.

SUMMARY OF THE INVENTION

[005a] According to a first aspect of the present invention, there is provided a wireless relay module comprising:

a first receiver capable of wirelessly receiving medical device data over a wireless relay network from at least one medical device;

a first transmitter capable of wirelessly transmitting the medical device data over the wireless relay network; and

a second transmitter capable of wirelessly transmitting the medical device data over an internet-accessible wireless communications network;

a controller coupled to the first and second transmitters, said controller capable of controlling said wireless relay module to select one of said first or second transmitter for transmitting medical device data received by said first receiver, wherein said first transmitter is further capable of transmitting information to the at least one medical device indicative of a status of network communications of at least one of the wireless relay network and the internet-accessible wireless communications network.

[005b] According to a second aspect of the present invention, there provided a wireless relay module comprising:

a first receiver capable of wirelessly receiving medical device data over a wireless relay network from at least one medical device;

a first transmitter capable of wirelessly transmitting the medical device data to a second wireless relay module over the wireless relay network;

a second transmitter capable of wirelessly transmitting the medical device data over an internet-accessible wireless communications network;

a controller coupled to the first and second transmitters, said controller capable of controlling said wireless relay module to select one of said first or second transmitter for transmitting the medical device data received by said first receiver, and

a display coupled to the controller, said display capable of displaying information indicative of status of network communications of at least one of the wireless relay network and the internet-accessible wireless communications network.

[005c] According to a third aspect of the present invention, there is provided a process for operating a relay module in a medical device wireless network, comprising the steps of:

receiving medical device data from at least one medical device over a wireless relay network;

determining a status of an internet-accessible wireless communications network in communication with a first transmitter of said relay module;

transmitting said medical device data from said at least one medical device over said communications network by said first transmitter if said determined status satisfies a particular criteria;

transmitting said medical device data from said at least one medical device by a second transmitter in communication with the wireless relay network to a second relay module over the wireless relay network if said determined status fails to satisfy the particular criteria; and

determining information indicative of status of network communications of at least one of the wireless relay network and the internet-accessible wireless communications network.

[006] Embodiments of ~~T~~the present invention ~~is~~ are directed to a wireless relay module for providing networked communications between a series of medical devices and remote monitoring devices. In accordance with an embodiment of the invention, one or more medical devices (including but not limited to including for example, respirators, enteral feeding devices, pulse oximeters, blood pressure monitors, pulse monitors, weight scales and glucose meters) are provided at a patient facility. An interface circuit is coupled to each medical device, and is configured for communicating with one of a plurality of the wireless relay modules via one of a plurality wireless relay networks. The wireless relay modules are advantageously further configured to communicate with a remote monitoring device over one or more internet-accessible wireless communication networks, and preferably, wireless wide-area networks (WWAN) such as a mobile telephone data network (including for example, based on a Global

System for Mobile Communications (GSM) or Code Division Multiple Access (CDMA) cellular network or associated wireless data channels, or WiMAX networks). Also, for compliance for example with HIPAA regulations, communications over each of the wireless networks are preferably conducted securely using, for example, encryption of data and/or commands.

[007] Each of the wireless relay modules includes a receiver capable of wirelessly receiving medical device data from at least one medical device via the wireless relay network, a first transmitter capable of wirelessly transmitting medical device data to another one of the wireless relay modules over the wireless relay network, a second transmitter capable of wirelessly transmitting data over an internet-accessible wireless communications network, and a controller coupled to the first and second transmitters. "Medical device data" as generally used herein means data from or about the medical device including, for example, medical device identification, medical device software, medical device settings or status information (including alarm information and/or alarm priority), patient identification information, patient personal identification number(s) "PIN(s)", patient prescriptions, and/or patient medical and/or