SUMMARY OF THE INVENTION

[007a] According to an aspect of the present invention, there is provided a system for enabling the remote monitoring of a plurality of medical devices, the system comprising: a device integrator server in communication with at least one wireless relay device, wherein said wireless relay device is configured to transmit control packets containing control commands for the medical devices, wherein the control packets comprise device control commands for remotely controlling the medical devices from a remote terminal, to receive a reply from at least one of the medical devices that confirms execution of the control command, and to transmit data packets containing information provided by the medical devices, wherein each said data packet includes data identifying at least a medical device ID, a patient ID and medical device data; a data manager system coupled to said device integrator server, said data manager system comprising at least a device control database, and a web server configured for providing web pages for receiving at least the medical data and, subject to verification of the patient ID and medical device ID, transmitting the medical device data to a remote monitoring computer via a secure internet connection for displaying the medical device data by the remote monitoring computer.

[007b] According to another aspect of the present invention, there is provided a system for enabling the monitoring of a plurality of medical devices, the system comprising: a device integrator server in communication with at least one wireless relay device, wherein said wireless relay device is configured to transmit control packets containing control commands for the medical devices, wherein the control packets comprise device control commands for remotely controlling the medical devices from a remote terminal, to receive a reply from at least one of the medical devices that confirms execution of the control command, and to transmit data packets containing information provided by the medical devices, and said device integrator server is configured to receive the transmitted packets, to extract a packet type, a medical device ID and medical device data from each received packet, to identify a registered location associated with the extracted medical device ID, and to store the extracted medical device data with the extracted medical device ID and registered location in a device control database; a web server configured for hosting web pages for display on a user computer, said web server being coupled to a patient data management system via a secure communications link; and a data

management component coupled to said device integration component and said web server, said data management component comprising said device control database, an applications database and a secure device server, wherein said device integration component is configured to reply to said wireless relay via said mobile communications network when said packet type for a received data packet matches a predetermined packet type, and said web server is configured to retrieve a destination address from said application database according to said registered location data, to retrieve patient data and medical device ID data from said patient data management system via said secure communications link according to said destination address, to retrieve said medical device data from said device control database via said secure device server according to said registered location data and said medical device ID data, and to prepare a web page for displaying said retrieved medical device data and patient data at the user computer.

[008] The example embodiments provide~~present invention is directed to~~ a remote monitoring system and method for monitoring the status of a plurality of medical devices located remotely from the monitoring system at a patient care or home care facility. In accordance with one embodiment as disclosed~~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 care or home care 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 a wireless relay network. The wireless relay modules are further configured to communicate with the remote monitoring device over an internet-accessible wireless communication network, and preferably, a wireless wide-area network (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). Also, for compliance for example with HIPAA regulations, communications over each of the wireless networks are preferably conducted securely.

[009] The remote monitoring system and method includes a device integration server in communication with the wireless relay modules for receiving data packets from the wireless relay modules including information provided by the medical devices. This information includes identification of an associated medical device and data of the medical device, and is preferably encrypted or otherwise securely transmitted, for example, in compliance with HIPAA patient data privacy provisions. In addition, the information may include encrypted or otherwise securely transmitted patient identification information, which in addition may preferably be coded in its unencrypted state to avoid any reference to the patient's identity.

[0010] The remote monitoring system also includes a data management system including a secure device web server and a device control database, and an outbound web server. The data management system is configured to log information provided to the device integration server concerning the medical devices. The web server is configured to provide webpages including the data of the medical devices for display on a remote monitoring computer, subject to authentication of an associated data request originating from the monitoring computer.