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(54) **TREATMENT REGIMEN COMPLIANCE AND EFFICACY WITH FEEDBACK**

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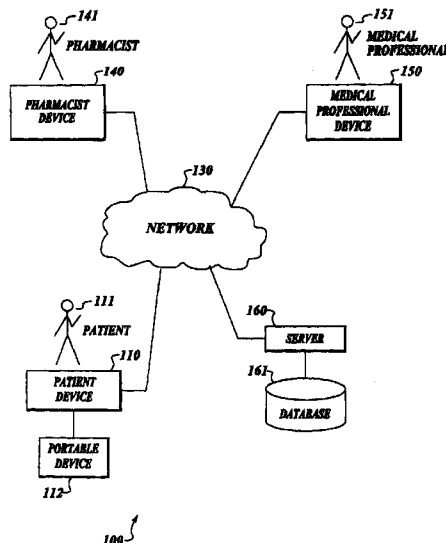
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(57) **ABSTRACT**

A method and system for interaction with a community of individuals, relating to compliance with and effectiveness of treatment regimens, including supply and use of pharmaceuticals, using a protocol or other intelligent message which acts in place of a service provider and which is capable of collecting or imparting information to patients in place thereof. Individuals interact with the protocol or intelligent message to provide assistance in all aspects of treatment regimen compliance, data collection, supply or delivery, review and modification.

20 Claims, 3 Drawing Sheets

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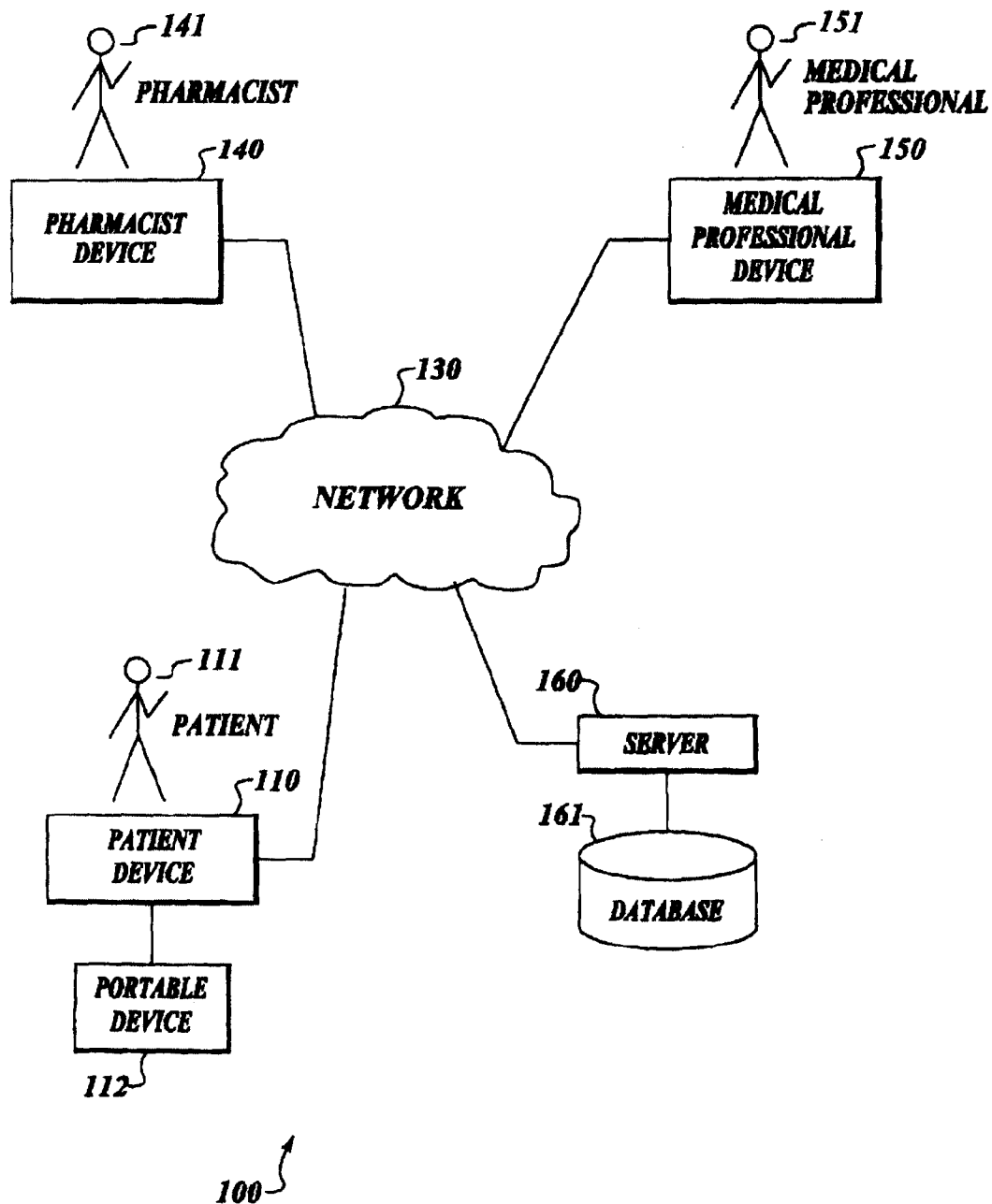| EP | 0320749 | 6/1989 |
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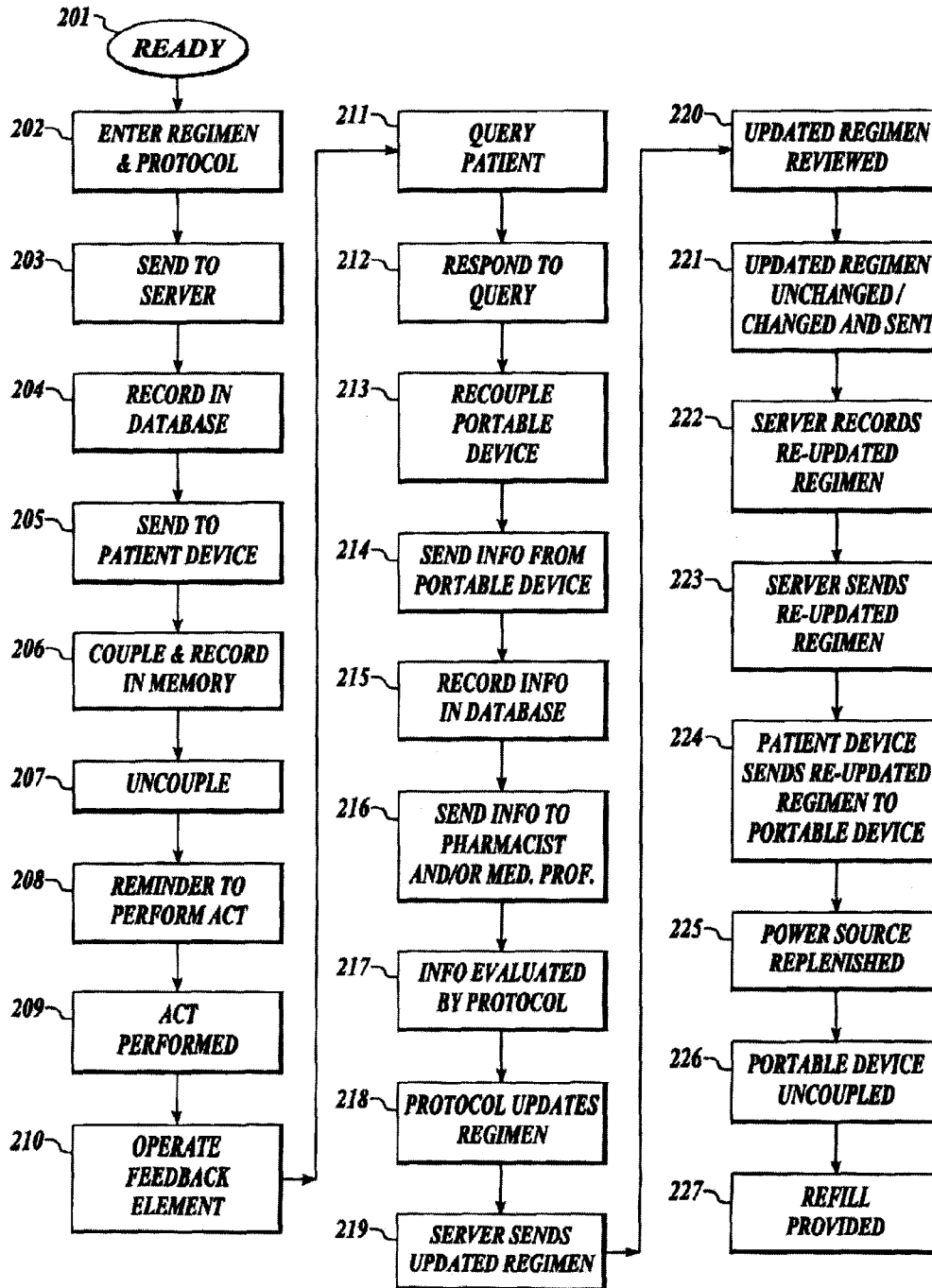
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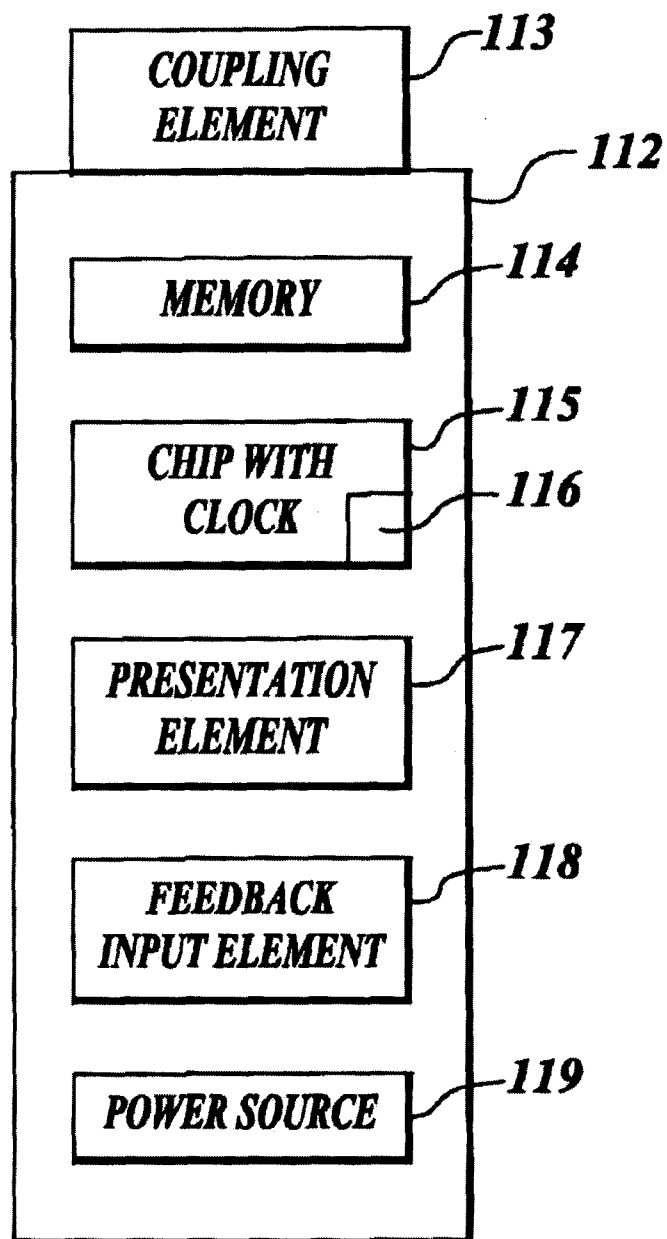
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141

PHARMACIST

151

MEDICAL
PROFESSIONAL

140

PHARMACIST
DEVICE

150

MEDICAL
PROFESSIONAL
DEVICE

130

NETWORK

111

PATIENT

110

PATIENT
DEVICE

160

SERVER

161

DATABASE

PORTABLE
DEVICE

112

100

Fig. 1

201 — READY

202 — ENTER REGIMEN & PROTOCOL

203 — SEND TO SERVER

204 — RECORD IN DATABASE

205 — SEND TO PATIENT DEVICE

206 — COUPLE & RECORD IN MEMORY

207 — UNCOUPLE

208 — REMINDER TO PERFORM ACT

209 — ACT PERFORMED

210 — OPERATE FEEDBACK ELEMENT

211 — QUERY PATIENT

212 — RESPOND TO QUERY

213 — RECOUPLE PORTABLE DEVICE

214 — SEND INFO FROM PORTABLE DEVICE

215 — RECORD INFO IN DATABASE

216 — SEND INFO TO PHARMACIST AND/OR MED. PROF.

217 — INFO EVALUATED BY PROTOCOL

218 — PROTOCOL UPDATES REGIMEN

219 — SERVER SENDS UPDATED REGIMEN

220 — UPDATED REGIMEN REVIEWED

221 — UPDATED REGIMEN UNCHANGED / CHANGED AND SENT

222 — SERVER RECORDS RE-UPDATED REGIMEN

223 — SERVER SENDS RE-UPDATED REGIMEN

224 — PATIENT DEVICE SENDS RE-UPDATED REGIMEN TO PORTABLE DEVICE

225 — POWER SOURCE REPLENISHED

226 — PORTABLE DEVICE UNCOUPLED

227 — REFILL PROVIDED

Fig.2

COUPLING ELEMENT — 113

112

MEMORY — 114

CHIP WITH CLOCK — 115

— 116

PRESENTATION ELEMENT — 117

FEEDBACK INPUT ELEMENT — 118

POWER SOURCE — 119

Fig.3

TREATMENT REGIMEN COMPLIANCE AND EFFICACY WITH FEEDBACK

RELATED APPLICATIONS

This application is a continuation of application Ser. No. 10/233,296, filed Aug. 30, 2002, which is a continuation in-part of application Ser. No. 09/304,477, filed May 3, 1999, now abandoned. All of the above-identified applications are incorporated herein by reference in their entirety. This application is also a Continuation-in-Part of U.S. Ser. No. 09/237, 194 filed on Jan. 26, 1999, which is a Continuation of Ser. No. 08/481,925, filed Jun. 7, 1995, now U.S. Pat. No. 5,899,855 issued on May 4, 1999, which is a Continuation of U.S. Ser. No. 08/233,397 filed on Apr. 26, 1994 now abandoned.

BACKGROUND OF THE INVENTION

1. Field of the Invention

This invention relates to interaction with a community of individuals, relating to treatment regimen compliance and efficacy, including supply and use of pharmaceuticals.

2. Related Art

When medical personnel prescribe treatment regimens for patients or "patients" undertake non-prescription treatment regimens (whether such regimens are prescribed or undertaken for medication, physical therapy, psychological therapy, self-improvement, or other purposes), a problem can arise in assuring that the patients comply with the requirements of the treatment regimen. For example, some patients are disorganized, forgetful, or simply unwilling to comply. When the treatment regimen has potential side effects, or when the treatment regimen is to be followed under stated conditions (for example: taking medicine with meals, not with alcohol, or in the evening), patient compliance can be relatively reduced even further. When the treatment regimen is relatively complex, some patients are even unable or unwilling to manage that treatment regimen.

Known methods for monitoring and controlling treatment regimens are relatively costly and limited in capability. Some known methods are described in the following patents:

U.S. Pat. No. 5,408,443, "Programmable Medication Dispensing System," issued Apr. 18, 1995 in the name of Edward D. Weinberger.

U.S. Pat. No. 5,642,731, "Method of and Apparatus for Monitoring the Management of Disease," issued Jul. 1, 1997 in the name of Bruce A. Kehr.

U.S. Pat. No. 5,752,235, "Electronic Medication Monitoring and Dispensing Method," issued May 12, 1998 in the name of Bruce A. Kehr, et al.

While these known methods generally achieve the goal of monitoring and controlling a treatment regimen, particularly a medication regimen, they suffer from several drawbacks and limitations.

First, there is a need to provide a portable system to monitor and encourage compliance, and facilitate data collection, so that patients are restricted as little as possible regarding their activities and movements.

Second, there is a need to determine if patients are actually complying with treatment regimens at times when the patients are relatively remote to client devices for the system. Known methods do not provide adequate feedback to determine whether patients are complying with the treatment regimen unless they remain relatively local to client devices.

Third, there is a need to determine whether treatment regimens have the desired and intended effects. Known methods do not provide adequate feedback to determine whether treat-

ment regimens are effective, or whether patients are suffering any untoward side effects. Using known methods, medical personnel must generally wait for patients to complain, or for medical tests to show, that prescribed treatment regimens are inadequate or are producing side effects. Similarly, using known methods, patients undertaking non-prescribed treatment regimens generally do not have effective or convenient systems to monitor and record whether non-prescribed treatment regimens are producing intended results.

Fourth, there is a need to inform patients to follow treatment regimens, particularly when patients are forgetful or treatment regimens are complex. Although known methods do include reminders to patients, it would be advantageous to tailor those reminders to patients' actual compliance history (thus, providing fewer reminders when they are relatively less necessary and more reminders when they are relatively more necessary).

Fifth, there is a need to leverage expert knowledge to improve response to feedback from patients, and to reduce the time and expense required for medical personnel to individually monitor, evaluate and modify treatment regimens.

Sixth, there is a need to broaden application of reminder and expert knowledge leveraging systems beyond medication regimens, to include physical, psychological, self-improvement and other treatment regimens.

Accordingly, it would be advantageous to provide a portable device that can be coupled and uncoupled to a communication system with feedback to monitor patient compliance with, and effectiveness of, treatment regimens, so that input from patients regarding treatment regimens can be recorded, reviewed, analyzed and otherwise generally acted upon. Medical personnel and/or patients can thus (1) monitor compliance with treatment regimens, (2) monitor effectiveness or side effects of treatment regimens, (3) remind patients no more than necessary, and (4) possibly alter treatment regimens in response to feedback from patients. These advantages are achieved in embodiments of the invention in which a portable device is intermittently coupled to a client device in a client-server system, the patient enters information to the portable device about following the treatment regimen while the portable device is uncoupled, and medical personnel or the patient can receive that information and possibly alter the behavior of the portable device when the portable device is re-coupled to the system.

SUMMARY OF THE INVENTION

The invention provides a method and system for interaction with a community of individuals, relating to compliance with and effectiveness of treatment regimens, including supply and use of pharmaceuticals, using a protocol or other intelligent message which acts in place of a service provider and which is capable of collecting or imparting information to patients in place thereof. Individuals interact with the protocol or intelligent message to provide assistance in all aspects of treatment regimen compliance, data collection, supply or delivery, review and modification. These aspects can include (1) reminders regarding compliance with a selected treatment regimen for medication, physical therapy, psychological therapy, self-improvement, or some combination thereof, (2) data collection of facts regarding patient compliance, symptomology, possible drug interactions or side effects of medication if required by the treatment regimen, and other facts relevant to evaluation and possible modification of the treatment regimen; (3) networked integration with workstations

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for medical professionals to automate approvals and modifi-cations, and refills and delivery of medication if required by the treatment regimen.

A system includes a set of client devices and a server device. A service provider determines a treatment regimen for selected patients, determines a protocol to be followed by the client devices to assist the patient in complying with that treatment regimen [in assisting with that medication regimen] and to maximize effectiveness of treatment, and sends that protocol to the server device. The server device can update (responsive to the protocol) selected instructions at the client devices, and can receive (responsive to selected instructions) information from the client devices regarding their associated patients.

In a first preferred embodiment, a client device, located locally to a patient, couples to a portable device (such as a cellular telephone, pager, "Palm Pilot" or other handheld computer, or watch), capable of being carried away by the patient to locations relatively remote from the client device. The client device can interact with the portable device: (1) to provide the portable device with the capability of reminding the patient regarding the treatment regimen, or (2) to provide the portable device with the capability of further data collec-tion regarding the patient. The client device can interact with the portable device using a docking connection, an infrared connection, a radio-frequency connection, a plug-in connec-tion, or another suitable connection.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 shows a block diagram of a system for interaction with a community of individuals to encourage and monitor compliance with a treatment regimen, using a protocol or other intelligent message which acts in place of a service provider to collect and impart information relevant to the treatment regimen;

FIG. 2 shows a process flow diagram of a method for operating a system for interaction with a community of indi-viduals to encourage and monitor compliance with a treat-ment regimen, using a protocol or other intelligent message which acts in place of a service provider to collect and impart information relevant to the treatment regimen; and

FIG. 3 shows a first preferred embodiment of a portable device used by the system to encourage and monitor compli-ance with a treatment regimen, and to collect and impart information relevant to the treatment regimen.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

In the following description, a preferred embodiment of the invention is described with regard to preferred process steps and data structures. Embodiments of the invention can be implemented using general purpose processors or special purpose processors operating under program control, or other circuits, adapted to particular process steps and data struc-tures described herein. Implementation of the process steps and data structures described herein would not require undue experimentation or further invention.

System Elements

FIG. 1 shows a block diagram of a system 100 to encourage and monitor compliance with a treatment regimen using a protocol or other intelligent message which acts in place of a service provider to collect and impart information relevant to the treatment regimen, including a patient device 110, a phar-macist device 140, a medical professional device 150, and a server device 160, said devices being coupled using a com-

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munication network 130, and a portable device 112 which can be coupled to the patient device 110 to receive information regarding the treatment regimen and send feedback from the patient 111 responsive thereto.

For further information regarding a data structure and sim-plified patient interaction interface, and preferred embodi-ments of the patient device 110, pharmacist device 140, medi-cal professional device 150, and the server device 160 including database 161 of treatment regimen information, see related application Ser. No. 09/201,323, filed Nov. 30, 1998, in the name of Stephen J. Brown, titled "Leveraging Interac-tion with A Community of Individuals," assigned to the same assignee, and other related applications incorporated by ref-erence therein.

For further information regarding the protocol or other intelligent message used by the system, see related applica-tion Ser. No. 09/203,882, filed Dec. 1, 1998, in the name of Stephen J. Brown, titled "Remote User Data Collection Pro-tocols Including Data Structures and User Interface," assigned to the same assignee, and other related applications incorporated by reference therein.

For further information regarding a medicine dispenser which can be used by the system, see related application Ser. No. 09/203,880, filed Dec. 1, 1998, in the name of Stephen J. Brown, et al., titled "Using A Computer Communication System With Feedback to Dispense Medicine," assigned to the same assignee, and other related applications incorpo-rated by reference therein.

Portable Device

FIG. 3 shows a first preferred embodiment of a portable device 112 used by the system 100.

In a first preferred embodiment, the portable device 112 includes a coupling element 113 for coupling the portable device 112 to the patient device 110, a memory element 114, a processor chip 115 including a clock circuit 116, a presen-tation element 117, and a patient feedback input element 118.

A service provider determines a treatment regimen for selected patients 111 and a protocol to be followed by their portable devices 112 to assist the patients 111 in following the treatment regimen. The service provider sends the treatment regimen and protocol to the server device 160 where it is recorded in the database 161. The server device 160 sends the treatment regimen and protocol information to the patient device 110, and optionally to the pharmacist device 140 and the medical professional device 150.

The portable device 112 is coupled to the patient device 110 using the coupling element 113. The coupling element 113 may couple using a docking station, an infrared connec-tion, a radio-frequency connection, a plug-in connection, other suitable means or any variant thereof

While coupled, the treatment regimen and protocol infor-mation received by the patient device 110 is sent to the por-table device 112 and recorded in the memory 114. In a first preferred embodiment, the power source 119 is rechargeable and the charge can be replenished by the patient device 110 while the portable device 112 is coupled to it. In alternative embodiments, the power source 119 is rechargeable and the charge can be replenished by some other device, or includes one or more disposable batteries.

After the treatment regimen and protocol information is recorded in the memory 114, the portable device 112 can be uncoupled from the patient device 110 and taken with the patient 110 to locations relatively or logically remote from the patient device 110. Whether the portable device 112 coupled or uncoupled to the patient device 110, when the patient 111 is due to perform an act according to the treatment regimen, the portable device 112 uses the presentation element 117 to

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provide a reminder message instructing the patient **111** to perform that act. In a first preferred embodiment, the act to be performed is related to compliance with a medication regimen including, without limitation, obtaining medicine, taking medicine, taking medicine with another substance such as food or water, not taking medicine with another substance such as alcohol or incompatible medications, or obtaining a prescription refill. In alternative embodiments, the act to be performed may be pursuant to a physical therapy regimen including, without limitation, exercising, stretching, changing position, or changing work routine; pursuant to a psychological therapy regimen including, without limitation, repeating an affirmation, meditation, self-hypnosis or other mental activity; or pursuant to a self-help regimen or other type of treatment regimen such as weight loss including, without limitation, drinking water or eating a snack.

The patient **111** performs the indicated act and enters a message into the portable device **112** confirming performance of the act using the patient feedback input element **118**. Operation of the patient feedback input element **118** causes the processor chip **115** to cancel the reminder message, check the clock **116**, and record the time and fact of performance in the memory **114**. In a first preferred embodiment, the patient **111** also enters additional information relevant to monitoring and evaluating the treatment regimen in response to queries by the presentation element **117** in accordance with the treatment regimen and protocol.

The number of reminder messages provided to the patient **111**, and the number of messages from the patient **111** confirming performance of the indicated acts and/or providing other information relevant to compliance with and effectiveness of the treatment regimen, is limited only by the memory capacity of the portable device **112**.

In a first preferred embodiment, the presentation element **117** is a human-readable visual display using LCD's, LED's, or other suitable devices. In alternative preferred embodiments, the presentation element **117** can be a device which produces human-intelligible sound, or a combination of devices which produce human-intelligible visual and audible signals.

At some later time, the portable device **112** is re-coupled to the patient device **110** using the coupling element **113**, causing the contents of the memory **114** to be downloaded into the patient device **110** and sent to the server device **160** for recording in the database **161**. Such a time may be as is convenient to the patient **111**, or according to a selected maximum time interval dictated by the treatment regimen and protocol, or as is required to replenish the power source **119** of the portable device **112**, or in accordance with other requirements of the system **100**.

At the server device **160**, the protocol or other intelligent message reviews and compares the information provided by the patient **111** to the requirements of the treatment regimen in order to evaluate the effectiveness of the treatment regimen towards achieving treatment objectives and as to compliance of the patient **111** with the treatment regimen. The protocol may then leave the treatment regimen unchanged or modify it as needed to increase effectiveness and/or compliance; in either case, the server device **160** sends a message to the patient device **110** as to the regimen to be followed from that time forward. In a preferred embodiment, the server device **160** also sends that message to the pharmacist device **140** and the medical professional device **150**. For additional information regarding the protocol used by the system **100** and interaction of the protocol with other elements of the system **100**, see discussion above at System Elements regarding related applications.

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In a first preferred embodiment, information regarding the entire course of the treatment regimen, such as each updated regimen and its effectiveness and relative compliance by the patient can be stored by each of those devices and displayed on demand. In alternative embodiments, only the server records the entire course, or only selected devices, or some combination thereof.

In a preferred embodiment, when a treatment regimen requires a patient **111** to take one or more medications, the portable device **112** can be coupled to a medication dispenser containing medication specified by the treatment regimen. In an alternative embodiment, the portable device **112** also controls the medication dispenser so as to release only the correct dosage of the correct medication at the correct time responsive to the treatment regimen. In a further alternative preferred embodiment, the dispenser automatically provides feedback to the portable device **112** when the correct medication is removed, canceling the reminder message and storing the feedback for subsequent downloading to the patient device **110** on the next occasion that the portable device **112** is coupled to the patient device **110**.

The patient device **110** can be any device for electronic communication including, but not limited to, an application specific device, a hard-wired telephone, a cellular telephone, a pager, a personal desktop computer, a personal notebook computer, a hand-held computing device, an internet appliance, an internet-enabled television such as WebTV, personal digital assistant such as the Palm III, or any variant thereof.

The portable device **112** can be any portable device for electronic communication which is capable of being coupled to the patient device **110** including, without limitation, an application specific device, a cellular telephone, a pager, a personal notebook computer, a hand-held computing device, an internet appliance, a personal digital assistant such as the Palm III, a watch, or any variant thereof.

The feedback input element **118** can be any means of providing input to an electronic communication device including, but not limited to, a button, a telephone key, a computer keyboard key, a voice-response activator, or any variant or combination thereof.

Method of Operation

FIG. **2** shows a process flow diagram of a method for operating a system for leveraging expert interaction with a community of individuals to encourage compliance with a treatment regimen and for collecting and imparting information relevant to that treatment regimen.

A method **200** is performed by the system **100**, as follows:

At a flow point **201**, the system **100** is ready to proceed.

At a step **202**, a service provider enters information concerning a treatment regimen and protocol to be followed by the patient **111**.

At a step **203**, the treatment regimen and protocol information is sent to the server device **160** using the communications network **130**.

At a step **204**, the server device **160** records the treatment regimen and protocol information received from the service provider in the database **161**.

At a step **205** in a preferred embodiment, the server device **160** sends the treatment regimen and protocol information to the patient device **110**, the pharmacist device **140** and the medical professional device **150** using the communication network **130**. In alternative embodiments, the server device **160** may send the treatment regimen and protocol information only to the patient device **110**.

At a step **206**, the portable device **112** is coupled to the patient device **110** and the treatment regimen and protocol information is copied into the memory **114** of the portable device **112**.

At a step **207**, the portable device **112** is uncoupled from the patient device **110** and is taken with the patient **111** to a location relatively remote from the patient device **110**.

At a step **208**, responsive to the treatment regimen and protocol information stored in the memory **114** in conjunction with input from the clock **116**, the patient device **110** uses the presentation element **117** to provide a reminder message to the patient **111** that an act is required to be performed by the patient **111** and instructs the patient **111** regarding the act to be performed.

At a step **209**, the patient **111** performs the indicated act as directed.

At a step **210**, the patient **111** operates the feedback input element **118** on the portable device **112**, canceling the reminder message.

At a step **211**, the portable device **112** uses the presentation element **117** to query the patient **111** to provide information responsive to the protocol for evaluating the effectiveness of the treatment regimen.

At a step **212**, the patient **111** operates the feedback input element **117** to provide information responsive to the queries, and that information is recorded in the memory **114**.

At a step **213**, the portable device **112** is re-coupled to the patient device **110**.

At a step **214**, the information stored in the memory **114** is sent to the patient device **110**, which in turn sends that information to the server device **160** using the communication network **130**.

At a step **215**, the information received by the server device **160** is recorded in the database **161**.

At a step **216**, in a preferred embodiment the server device **160** sends the information received from the patient device **110** to the pharmacist device **140** and to the medical professional device **150** using the communication network **130**. In an alternative embodiment, the server device **160** does not send the information received from the patient device **110** to the pharmacist device **140** or to the medical professional device **150**, whether using the communication network **130** or otherwise.

At a step **217**, the information received by the server device **160** from the patient device **110** is evaluated by the protocol.

At a step **218**, the protocol updates the treatment regimen and either leaves it unchanged or modifies it in accordance with the protocol logic.

At a step **219** in a preferred embodiment, the server device **160** sends the updated treatment regimen information to the patient device **110**, to the pharmacist device **140** and to the medical professional device **150**, using the communication network **130**. In an alternative embodiment, the server device **160** does not sent the updated treatment regimen information to the pharmacist device **140** or the medical professional device **150**.

At a step **220** in a preferred embodiment, the pharmacist **141** and/or the medical professional **151** review and compare the original treatment regimen, the compliance and other information input by the patient **111**, and the updated treatment regimen, and either leave the updated treatment regimen and protocol information unchanged or modify it as necessary. In an alternative embodiment, step **220** does not take place.

At a step **221** in a preferred embodiment, the treatment regimen and protocol information as unchanged or as modified by the pharmacist **141** and/or the medical professional

151 is sent to the server device **160** using the communication network **130**. In an alternative embodiment, step **221** does not take place.

At a step **222**, the server device **160** records the treatment regimen and protocol information as unchanged or as modified by the pharmacist **141** and/or the medical professional **151** in the database **161**. In an alternative embodiment, step **222** does not take place.

At a step **223** in a preferred embodiment, the server device **160** sends the treatment regimen and protocol information as unchanged or as modified by the pharmacist **141** and/or the medical professional **151** to the patient device **110** using the communication network **130**. In an alternative embodiment, step **223** does not take place.

At a step **224**, the patient device **110** sends the updated treatment regimen information to the portable device **112** and it is recorded in the memory **114**.

At a step **225**, the patient device **110** replenishes the charge of the power source **119**.

At a step **226**, the patient **111** uncouples the portable device **112** from the patient device **110**.

At a step **227**, the pharmacist **141** provides a refill or new medicine to the patient **111** responsive to the treatment regimen and protocol information. In an alternative embodiment, step **227** does not take place.

Alternative Embodiments

Although preferred embodiments are disclosed herein, many variations are possible which remain within the concept, scope, and spirit of the invention, and these variations would become clear to those skilled in the art after perusal of this application.

The invention claimed is:

1. A portable device comprising:
a signal interface configured to wirelessly communicate with a client device;
a memory configured to store information about a treatment regimen, a program related to a protocol to be followed by the portable device, and an identification code associated with said program;
an output user interface comprising a multi-line presentation element, said multi-line presentation element capable of displaying multiple lines of text and configured to display (i) said information regarding said treatment regimen and (ii) data received from a patient based on said information regarding said treatment regimen, wherein said information regarding said treatment regimen is displayed as alphanumeric messages of at least one line of text;
an input user interface configured to receive said data from said patient; and
a processor configured to record a time said data is received from said patient in said memory and send said data received from said patient along with said identification code to said client device.

2. The portable device of claim **1**, wherein said information about a treatment regimen, said program related to said protocol, and said identification code associated with said program are received from said client device.

3. The portable device of claim **1**, wherein said input user interface is further configured to notify said patient when to follow said treatment regimen.

4. The portable device of claim **1**, wherein said input user interface is further configured to receive data that patient has followed said treatment regimen.

5. The portable device of claim **4**, wherein said display comprises a liquid crystal display (LCD).

6. The portable device of claim **1**, wherein said signal interface comprises a docking station and said client device comprises a personal desktop computer.

7. The portable device of claim **1**, wherein said signal interface comprises an infrared connection and said portable device further comprises a personal digital assistant.

8. The portable device of claim **1**, wherein said signal interface comprises a radio-frequency connection and said portable device further comprises a cellular telephone.

9. The portable device of claim **1**, wherein said signal interface comprises a plug-in connection and said client device comprises a hard-wired phone.

10. The portable device of claim **1**, wherein said portable device comprises a hand-held computing device.

11. The portable device of claim **1**, wherein said portable device comprises an application specific device.

12. The portable device of claim **1**, wherein said portable device comprises a pager.

13. The portable device of claim **1**, wherein said portable device comprises a personal notebook computer.

14. The portable device of claim **1**, wherein said portable device comprises an Internet appliance.

15. The portable device of claim **1**, wherein said client device comprises an Internet-enabled television.

16. The portable device according to claim **1**, wherein said memory comprises a Flash memory.

17. A system comprising:

a portable device configured to receive a first information about a treatment regimen and send a second information about compliance with said treatment regimen, wherein said portable device comprises (a) a memory configured to store said first information regarding said treatment regimen, a program related to a protocol to be followed by the portable device, and identification data associated with the program and (b) a multi-line presentation element, said multi-line presentation element capable of displaying multiple lines of text and configured to display (i) said first information regarding said treatment regimen and (ii) said second information, wherein said first information is displayed as alphanu-

meric messages of at least one line of text and said second information comprises data received from a patient based on said first information; and

a client device configured to (i) receive said second information and said identification data associated with said program from said portable device and (ii) send said second information and said identification data associated with said program to a server, wherein said server compares said first information with said second information.

18. The system according to claim **17**, wherein said client device receives said second information and said identification data associated with said program from said memory of said portable device.

19. A method comprising the steps of:

(A) receiving a first information about a treatment regimen by a portable device and inputting a second information about compliance with said treatment regimen into said portable device, wherein said portable device comprises (a) a memory configured to store said first information regarding said treatment regimen, a program related to a protocol to be followed by said portable device, and an identification code associated with said program and (b) a multi-line display, said multi-line display is capable of displaying multiple lines of text and configured to present (i) said first information regarding said treatment regimen and (ii) said second information regarding compliance with said treatment regimen, and said first information is displayed as one or more alphanumeric messages of at least one line of text, and wherein said second information comprises data received from a patient based on said first information; and

(B) receiving said second information and said identification code associated with said program by a client device from said portable device and sending said second information and said identification code associated with said program to a server.

20. The method according to claim **19**, wherein step (B) further comprises comparing said first information with said second information by said server.

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