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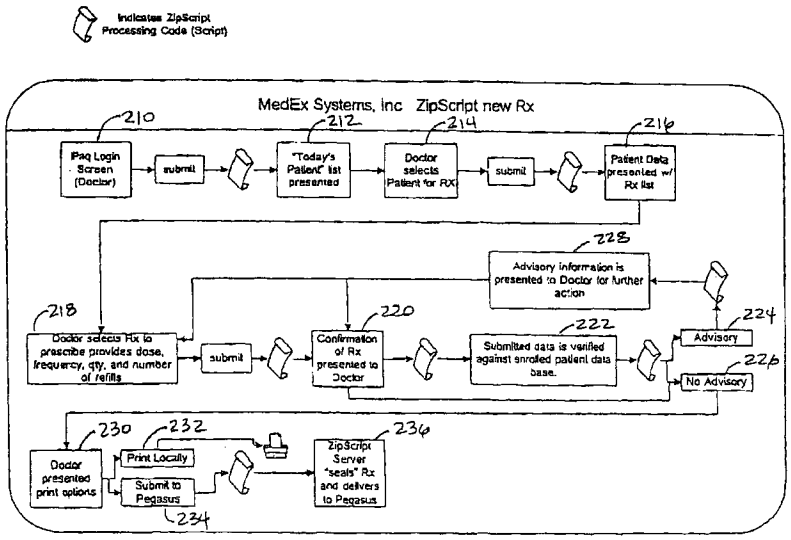
[Continued on next page]

(54) Title: METHOD AND SYSTEM OF PROVIDING MEDICAL PRODUCTS



(57) Abstract: The invention provides for a consolidated provider system that bypasses the typical prescription ordering process and enables a physician to enter a medical product order, such as prescriptions (218), directly to a product provider, such as a pharmacy, to correlate an initial prescription order against a database of recommended products for a given medical condition, to make choices on medical products, to receive feedback on the choices(228), cross check a patient's medical history for potential adverse effects from the product recommendations, and fulfill reorder requests requiring a physician's approval. In at least one embodiment, the invention utilizes secure, broadband, wireless technology and a portable handheld computing device. The invention can include a centralized call center that offers reauthorization and new prescription requests for management services.

WO 03/023681 A1

APPLICATION FOR PATENT

INVENTORS: LAURENCE I. SOLOW
ANN E. RAU

TITLE: METHOD AND SYSTEM OF PROVIDING MEDICAL PRODUCTS

SPECIFICATION

FIELD OF THE INVENTION

The present invention relates to providing products. More particularly, the present invention relates to providing medical products, such as prescriptions.

BACKGROUND OF THE INVENTION

Many medical products, and particularly prescription drugs, are ordered after a visit to a physician's office. A physician usually examines a patient and recommends a regimen of health care, often including prescription drugs. The physician will write out on a piece of paper in a scrawl that only a physician can imitate the prescription drug, dosage, frequency, quantity, and number of refills available, if any. The physician generally relies on his experience and/or memory regarding the particular drug, dosage, and any conflicts with other drugs that may be prescribed or that the patient may already be taking.

The patient then typically takes the handwritten prescription to a pharmacy of their choice, where a pharmacist must correctly interpret the physician's handwriting and correctly dispense the prescription drug with appropriate notation. For physician-controlled refills, the patient contacts the physician's office. The physician's office employs staff to take the requested information and seek the approval of the physician for the refill. Often, the physician must review the patient's file history to determine

wishes to prescribe a newer drug, the physician may consult a physician's reference manual to determine appropriate uses, conflicts with other drugs known as "drug allergy" conflicts. With today's time limits, physicians are reticent to perform such additional analyses.

Further cultural changes include an aging population, transportation problems, working parents, and busy schedules that have increased the need for finding a more efficient method of obtaining prescription drugs other than taking the prescription to a pharmacy, standing in line, and purchasing the prescription drug.

Therefore, there remains a need for providing medical products, such as prescriptions, more efficiently and with less error than conventional methodologies.

SUMMARY OF THE INVENTION

The invention provides for a consolidated provider system that bypasses the typical prescription ordering process and enables a physician to enter a medical product order, such as prescriptions, directly to a product provider, such as a pharmacy, to correlate an initial prescription order against a database of recommended products for a given medical condition, to make choices on medical products, to receive feedback on the choices, cross check a patient's medical history for potential adverse effects from the product recommendations, and fulfill reorder requests requiring a physician's approval. In at least one embodiment, the invention utilizes secure, broadband, wireless technology and a portable handheld computing device.

In one embodiment with a few simple keystrokes, the system permits a physician to securely access a list of scheduled patients, select the appropriate medication and dosage from a customized list of most prescribed medications (or add a new medication to this list), confirm the order, and electronically transmit the

Figure 6 is an exemplary flowchart schematic of another portion of the provider system for refilling orders for the medical products.

Figure 7 is an exemplary flowchart schematic of another portion of the provider system for refilling orders for the medical products.

DETAILED DESCRIPTION OF THE INVENTION

I. Overview

The description herein is provided in the context of a method and system for providing prescription products, which can include providing a prescription order for a patient at a physician's office through delivering the product to the patient through the use of a pharmacy. It is to be understood that the invention is limited only by the claims, as various medical products besides prescriptions and pharmacies can be used and are meant to be included within the scope of the present invention. Thus, the terms "prescriptions", "pharmacies", and the like, while offering a context to one embodiment of the system, are to be used broadly and to include medical products and associated provider services therefor, as would be apparent to one with ordinary skill in the art given the understanding of the disclosure contained herein. Further, the term "physician" is used broadly and includes any health care provider authorized to perform the applicable health related duties, such as nurses, associated staff, clinicians, pharmacists and their associated staff, and others so situated.

In one embodiment, the present invention provides a prescription provider system that allows a physician to select a prescription, confirm the appropriateness of the prescription, and order the prescription in some examples, "on the fly" without having to write the prescription by hand on paper, deliver to the paper to the patient or a staff member to place the order, and then those persons communicate the order to

producing tasks. Thereafter, the provider system can also provide physicians and patients at the point of care with other healthcare-related services, such as electronic medical records management, supply management, third-party billing services and more.

The provider system can further operate a full-service pharmacy that has been located and designed in one embodiment to facilitate a rapid, such as a same-day, delivery service at a nominal-cost. This business model, which creates centralized operations using automated prescription dispensing technology instead of the placing the traditional pharmacy-in-every-neighborhood, enables the provider system to absorb the costs associated with offering same-day, nominal-cost home delivery by eliminating the need for maintaining multiple physical locations, along with duplicate inventory, personnel and the like.

Its centralized operations were also designed to facilitate its role in coordinating the orders of products. The provider system is responsible for receiving, dispensing, promptly delivering to patients, collecting applicable co-payments and billing third-party payors for all prescriptions that patients of member physicians elect to have filled electronically. In other words, the provider system can serve as the exclusive provider of substantially all prescriptions that patients choose to have electronically filled at the point of care and delivered, usually within hours, to the location of the patient's choosing.

Using the ordering database, the provider system can also determine when the patient may need a refill. The provider system contacts each customer prior to their current prescription running out to inquire as to whether they would like the prescription refilled and delivered. This role may assist in increasing patient compliance with the prescribed course of treatment.

- Electronically screening new prescriptions against the patient's diagnosis to minimize errors resulting from look-alike and sound-alike drugs;

- Reduce the burden on themselves and their staff by:
  - Relieving key personnel from the non-revenue producing tasks associated with phoned-in reauthorization and new prescription requests; and
  - Reducing the amount of calls received from pharmacies seeking clarification of illegible handwritten prescriptions;

- Increase their cost savings by:
  - Eliminating the need for dedicated personnel to handle phone-in reauthorization and new prescription requests; and
  - Minimizing their exposure to malpractice claims resulting from prescription-related errors, which should ultimately be reflected in reduced medical malpractice insurance premiums;

- Increase patient safety and satisfaction by:
  - Streamlining the frustrating process for phoned-in reauthorization and new prescription requests;
  - Minimizing—or, if home delivery is chosen, substantially eliminating—needless delays at the pharmacy, resulting from illegible handwritten

- Arranging for the preparation and submission of insurance claims on the patient's behalf;
- Streamlining the frustrating process of phoned-in reauthorization and new prescription requests; and
- Providing refill management services;

- Increased cost savings by:
  - Minimizing the unnecessary purchase of additional prescriptions by getting the prescription right the first time; and
  - Eliminating the need to take time away from work to travel to (and wait endlessly at) the pharmacy for prescriptions to be filled.

C. Benefits to the Workplace

Through the provider system, corporate employers can enjoy:

- Increased productivity and cost savings by
  - Substantially reducing the need for employees to leave work to deliver, wait for and pick up prescriptions at the pharmacy; and
  - Reducing sick leave taken by employees to treat problems related to preventable adverse drug events;
- Increased employee satisfaction by
  - Enriching the healthcare benefit package for the employees and their family members at little or no cost to the employee or the employer;

handwriting; and can screen prescribed medications against the patient's own medical history to minimize errors related to dosage, sound-alike or look-alike drugs, patient allergies and negative interactions with other medications taken by the patient.

In at least one embodiment, the provider system provides the solution through software and associated hardware that utilizes automated prescription dispensing technology to increase the volume of prescriptions that each pharmacist can accurately fill per shift by six fold or more; and centralizes its pharmaceutical operations and using same-day, nominal-cost home or office delivery of prescriptions and mail-order delivery of refills as the primary methods of delivering prescriptions to patients, thereby eliminating the need to have a pharmacist sited in every neighborhood, as all traditional walk-in pharmacies must do.

1. Electronic Prescribing Technology.

The provider system advantageously includes an electronic prescribing unit. The electronic prescribing unit in at least one embodiment includes a computer device, such as a lightweight, hand-held personal computer, for example, the iPaq by Compaq Computer, loaded with software to accomplish to the various aspects and options discussed herein, such as selecting, ordering, checking, confirming, and authorizing additional orders, such as refills.

Each electronic prescribing unit can be customized to meet the unique needs of its physician-user. This customization includes the incorporation of the physician's patient list and most prescribed medications to allow real-time access of this information right from the unit. The electronic prescribing unit is generally designed to be fast and user friendly, allowing physicians to order and confirm prescriptions in

will access the patient's medical history and record the patient's request for a reauthorization of an existing prescription or a new prescription.

For new prescription requests, the provider system call center technician can record the patient's reported symptoms and specific prescription requests, if any. At their convenience, perhaps at scheduled intervals throughout the day, the physician and his staff can review the pending phoned-in reauthorization and new prescription requests through a secure provider system webpage or other mode and efficiently respond to each request. The provider system can then, at the patient's option, either channel the prescription to a default product provided for prompt delivery of the prescribed medication directly to the patient's home or office or forward the prescription to another product provider, such as a local pharmacy, of the patient's choice. If the prescription request is denied by the physician, the provider system can promptly notify the patient and advise the patient to schedule an appointment with the appropriate physician. The provider system can relatively seamlessly transfer the patient between its own system and the physician's office during telephonic or other interactive communications.

4. Comprehensive Medical Record.

As an added benefit for patients who see more than one physician, the provider system database can compile medical information received from multiple physicians that are members of the provider system into a single, comprehensive medical history for each patient. Thus, even if an elderly patient forgets to notify his or her member cardiologist of a medication prescribed by a member general practitioner, the provider system's automatic screening process against the patient's updated medical history would alert the cardiologist to any potential negative

Alternatively, the provider system can provide VPN tunneling from a server at the physician's office or other site to each associated electronic prescribing unit.

In addition, security in the electronic transmission of data is also assured by the following:

- Providing physician-users with a confidential login and password in order to access the software on the electronic prescribing unit;
- Automatically disconnecting access to the software after 30 minutes of nonuse;
- Immediately disconnecting access to the software upon receiving a report of a lost or stolen electronic prescribing unit;
- Limiting the ability of the physician-user to prescribe only for those patients listed under "Today's Appointments" or another selected time period or criteria (the addition of "walk-in" patients is permitted only if the physician-user enters an additional password);
- Providing physician-users with a print-out of all prescriptions generated from the electronic prescribing unit;
- Utilizing firewalls and secured site layers (SSL) that meet industry standards of the medical and pharmaceutical communities; and
- Offering bio-security measures, such as thumb print verification, for maximum security.

7. Redundancy.

The provider system can also provide backups and redundancy, such as using an additional server in a remote location. In addition, the provider system can utilize related software from third parties, such as Oracle's Parallel Server System, to help ensure uninterrupted service, even during times of natural disaster.

6 can transmit to the central system prescription orders, updated medical history and patient lists, and other information as might be useful in maintaining the database, filling orders, and management of the services provided herein.

The product provider system 8 can be located at a product provider, such as a pharmacy. The central system 4 and/or the remote system 6 can communicate to the product provider system 8 orders for products transmitted from the remote system 6 or the central system 4 to tangibly provide the prescription product that is ordered to the patient or other recipient. The product provider system can provide for delivery of the prescription to a home or office of the recipient.

More specifically, the central system 4 can communicate with a router 28 in at least one embodiment. The router 28 can be provided by the communications company, such as the telephone company, or with the provider system. The router 28 accesses a network 26, such as a local area network (LAN), a wide area network (WAN), a global communications network such as the Internet, or other types of networks. Advantageously, the communication uses broadband technology, such as DSL, T1 lines and associated equipment, and other types. The internet 26 can provide a medium of communication information between the central system 4, remote system 6, and product provider system 8.

In at least one embodiment, the central system can include a hub 32 that can direct incoming data transmissions to various portions of the central system and outgoing data transmissions to the remote system 6 and/or product provider system 8. The hub 32 can be coupled to a server 34. The term "coupled" is broadly used herein, and includes any type of connection, whether the connection be physical, mechanical, as well as electrical, wireless, sonic, or other forms of electromagnetic connections. The server 34 can be a Hewlett Packard Netserver, in at least one embodiment.

more communication periods to communicate the information from the central system to the remote system and back. Alternatively, the central system can send large amounts of data as downloads that can be stored on the remote system's computing device 10 or other stored medium. Thus, a larger amount of time may be required initially, but can minimize the amount of communication periods.

In at least one embodiment, one or more electronic medical product devices 16, 18 are provided. It is to be understood that the medical product devices can be used to order and/or manage related information for any medical product, and especially prescriptions. Advantageously, the medical product devices include wireless handheld portable computers, such as an iPaq, presently available from Compaq Computer Corp., Houston, Texas, USA. Other appropriate portable units can include units manufactured by Casio, Palm Pilot, and others. In such an embodiment, the devices 16, 18 can communicate to the other components in the remote system through a transceiver 14. The devices 16, 18 can be carried with a position from patient to patient if the devices are portable or can be more stationary mounted in various offices where the patients are examined.

Depending on the selections made by the physician on the medical product devices 16, 18, the medical product devices can communicate an order through the transceiver 14, through the hub 20, and either to the computing device 12 or the computing device 10. In some cases, the patient and/or physician may elect to print out the medical product, such as a prescription, on a piece of paper, or other medium for the patient to take to a pharmacy. In such cases, a printer 11 may be used. In other cases, the physician may send the order directly from the physician's office to the central system 4, so that the order is processed without the need for intermittent

or other networks, as is explained in Figure 1 and assist in maintaining confidentiality. However, each embodiment may also use encryption to further maintain security of the data transmitted back and forth.

In some embodiments, the transceiver 50 and transceiver 54 may be sufficiently close that transceiver 52 is unnecessary. Thus, it should be understood that the number of transceivers shown is merely illustrative and can vary. Further, it is to be understood that the transceivers can also be coupled to the product provider system 8 for remote communication as well.

Figure 3 is a schematic view of another embodiment of a provider system. The embodiment of Figure 3 is similar to the embodiments shown in Figures 1 and 2 and comprises a central system 4, a remote system 6, and a product provider system 8. The central system 4 can communicate to the remote system 6 and the product provider system 8. In some embodiments, a product provider may not be located in sufficient proximity to the central system 4 to efficiently order products. In such cases, it may be advantageous to use a network 60 to link to one or more other product providers in system 8 that are at remote locations. This link may be in addition to or in lieu of the previously described link to the product provider more proximate to the central system 4. The remote product provider may also use a printer 46 or may use a direct link to computing devices (not shown) for receiving, filling, storing, and processing information. Although not shown, it is to be understood that the remote system 6 may be directly linked to the product provider system 8.

Figure 4 is an exemplary flowchart schematic of a portion of one embodiment of the provider system. The schematic diagrams of Figures 4-7 help show the various interactions of the software created to carry out the teaching of the present invention.

system 6. The term "physician" is used broadly herein and includes the physician's staff, aids, associated physicians, and other health care personnel. The database can have patients associated by clinic and/or a specific physician operating through the clinic. Further, the database can have the patients' medical history and other patient information. Upon login, a clinic and/or physician list is presented in step 112. The login can be performed at the central system 4 with operating personnel entering and processing the data. Alternatively, remote personnel, including the physicians and their staff, can access and process patient and appointment information.

Generally, the physicians' list will include registered members of the provider system 2. In step 114, a physician and/or clinic is selected that is appropriate to the entry of data or inquiries of the system. The selection helps the appropriate physician and/or clinic to isolate relevant patient data. In step 116, the patient data entry screen is presented. The patient data entry screen can be used to enter patient information and/or obtain information on selected patients, and other entry or retrieval of appropriate patient information. In step 118, a list of patients scheduled for a particular time period, such as the day's appointments, is entered into the system or modified if information already in the system has changed. Such selection can be based on information provided by the physician communicating with the call center through voice, facsimile, digital, use of a network, or other forms of communications. In some embodiments, a confirmation in step 120 may be requested.

The entered and/or selected patient information can be placed in a clinic and/or physician queue in step 122. The queued information can reside in one or more of the servers 34, 36 at the central system 4. Advantageously, the queue can be accessed periodically by the medical product device 16, 18. Alternatively, the information can be downloaded to a remote computer, for example, computing

a prescription in step 214. The physician can also receive and review relevant patient data, such as the patient's medical history in step 216, in selecting appropriate prescriptions. The patient data can be presented in such a manner that the physician can select specific prescription drugs for the particular patient, or can enter symptoms and diagnosis into the medical product device and receive possible options that may be correlated to the symptoms or diagnosis in selecting a prescription.

In step 218, the physician can select an appropriate prescription, prescribe a dose, frequency, quantity, and number of refills. Upon entry of the various selections, a physician can submit the information to the provider system 2, such as through the remote system 6 to the central system 4. In step 222, the submitted data may be correlated against patient data existing in the database element 44. The database may contain information that would suggest an alternative to the physician's recommendation. Such alternatives could include new drugs of which the physician may presently be unaware, drugs that might adversely interact with the particular patient, the patient's allergies, or other drugs that the patient may be currently taking.

Even if no alternatives are recommended, the database information may alert the physician of advisory information of potential hazards or other issues of which the physician may wish to know. Thus, an advisory in step 224 may be issued. In other cases, no advisory may exist or be issued in step 226. In step 228, the advisory information is presented to the physician for further action and can appear on the medical product device 16, 18. The advisory information can be linked back to requesting confirmation by the physician of the proposed prescription in step 220. Alternatively, the physician can revise his or her selection and select a different prescription, dose, frequency, and so forth, as in step 218.

data or otherwise accessing transmitted data and is considered a substantially secure transmission method. Further, one or more of the wireless transmissions in the remote system 6 can be sent using encryption protocol, such as 128-bit encryption methods, to add to the security of the information transmitted therein. In other embodiments, a VPN may be used to link the central system 4 to each medical product device 16, 18. Other security measures can be taken, including confidential logins and passwords, automatically disconnecting after periods of nonuse, limiting the physicians' abilities to prescribe for patients that are not in the physicians' queues without further authorization, firewalls, secured site layers (SSL), and other security measures.

Figure 6 is an exemplary flowchart schematic of another portion of the provider system for refilling orders for the medical products. The present invention can also provide for a refill request option. In step 310, a person entering patient refill information or a person seeking useful information may login to enter the central system 4. The person handling the information can be a staff person at a call center who handles call requests from patients or physicians, a patient seeking a refill, a physician (or staff member), or some other authorized person.

The entry can be manual, as can be done by a person audibly, through a dial- or voice-activated system, or through a data transmission, such as a local keyboard or some other input device. The entry can be local with personnel at for example the central system 6 or remote by personnel accessing the information over a network system.

Alternatively, the entry can occur automatically, such as may be programmed into a person's computing device. In step 312, a clinic and/or physician list is presented from the various members of a database. In step 314, the appropriate clinic

Figure 7 is an exemplary flowchart schematic of another portion of the provider system for refilling orders for the medical products. Figure 7 represents a flowchart that complements the flowchart shown in Figure 6. In Figure 7, the physician decides whether to grant the refill request entered in Figure 6.

In step 410, a computing device, such as the medical product device 16, 18 can be used to login to the provider system 2, such as in the remote system 6. In step 412, a prescription refill request or other medical product request, can be presented through a screen on the medical product device.

In step 414, the physician can review the prescription request by patient. Advantageously, a physician can review the request at the physician's convenience between patients, on break, at lunch, at a remote location, or other appropriate times. If appropriate, the physician can submit an approval in step 416. In some embodiments, the physician can be presented with relevant patient data before authorizing the refill in step 418, such as medical history, previous numbers of refills, other prescriptions being taken and so forth.

In step 420, the physician can approve the prescription base, frequency, quantity, and the number of refills at his or her discretion. In step 422, a confirmation of the prescription can be presented to the physician.

In step 424, the submitted data from the prescription can be compared with available patient information in the provider system's database, if the patient is a member of the provider system and has a medical history in the database.

The database can also check for advisories in step 426. If an advisory exists, the physician may wish to learn additional information. If no advisories exist in step 428, the process can continue based on the prescription already entered. If the advisory exists, it can be presented to the physician for further consideration in step

personnel at the call center can link the patient directly to the physician's office, such as transferring a telephone call so that the patient can make the requested follow up visit. Alternatively, the personnel can make an appointment, generally using the physician's calendar loaded into a database, or can instruct the patient to contact the physician, or other appropriate options. The communication can be telephonic, through recorded messages, in person, over data transmissions such as email and with networks such as the Internet.

In at least one embodiment, a patient can contact the physician's office, enter a selection menu from a list of options for refill requests and be transferred to a call center as part of the central system 4 of the provider system 2. The call center can explain that the call center handles the particular physician's refill requests. Refill information can be taken either manually or automatically as explained in the process steps of Figure 6. The call center can then allow the physician to access the information, make decisions, and receive a physician's instructions as explained in Figure 7. The call center then can recontact the patient, and explain the declination so that the center can contact the physician and reconnect the patient with the physician's office in a seamless manner.

Further, the patient can contact the physician's office, a call center, a product provider, or some other portion of the provider system 2 to request a refill, for example, over a network, such as the Internet. The refill information can be requested either through menus or emails. The physician can be informed of the request and answer at some appropriate time and manner through the provider system as described above. The refill approval or decline can be communicated to the patient. If granted, the physician and/or patient can direct the refill request to a product provider where

CLAIMS

What is claimed is:

1. A system and method for providing a medical product as described herein.

2. A system for providing a medical product, comprising:

a) a central system having a server coupled to a communications device and a database;

b) a remote system having at least one electronic medical product device, the device adapted to communicate a medical product order to the central system.

3. The system of claim 2, further comprising a product provider system coupled to the central system.

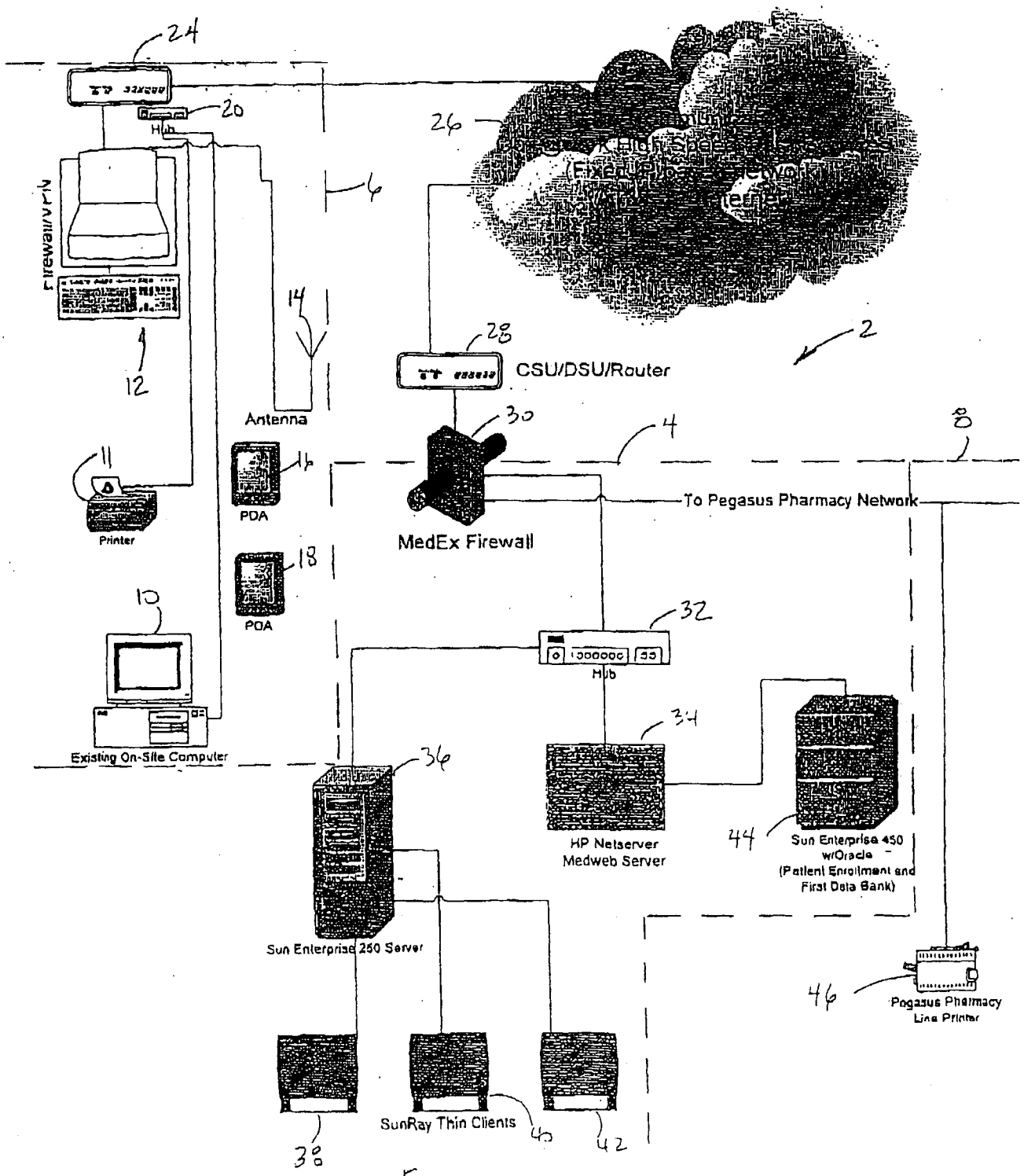
4. The system of claim 2, where the electronic ordering device comprises an wireless, handheld computing device.

5. A method of providing medical products, comprising:

a) providing at least one computing device having a database and a communications device;

b) providing a remote electronic medical product device;

c) reviewing patient information contained on the medical product device;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Hub
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Firewall/VPN
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CSU/DSU/Router
2
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PDA
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Printer
MedEx Firewall
18
PDA
10
32
Hub
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Existing On-Site Computer
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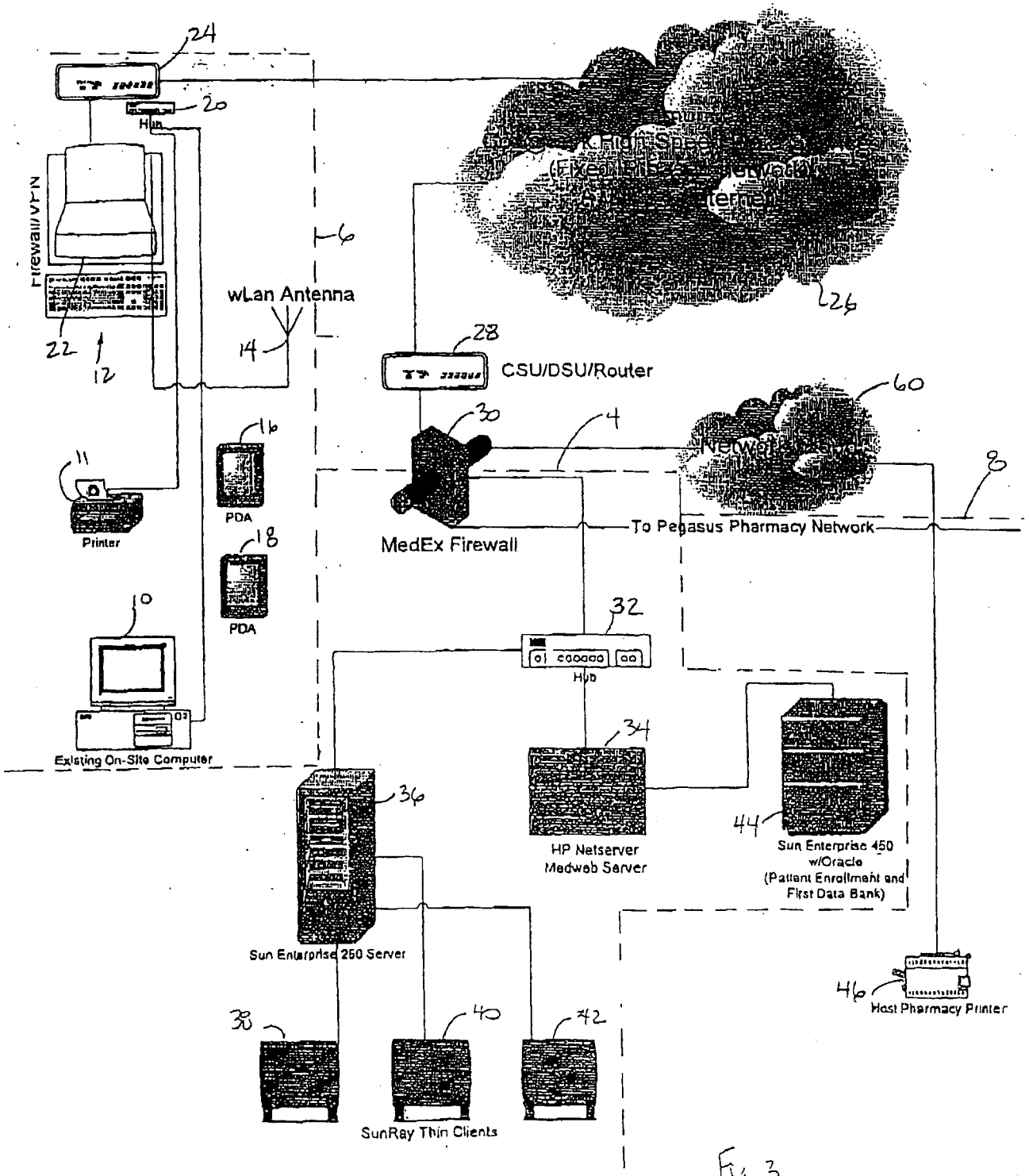
Fig. 1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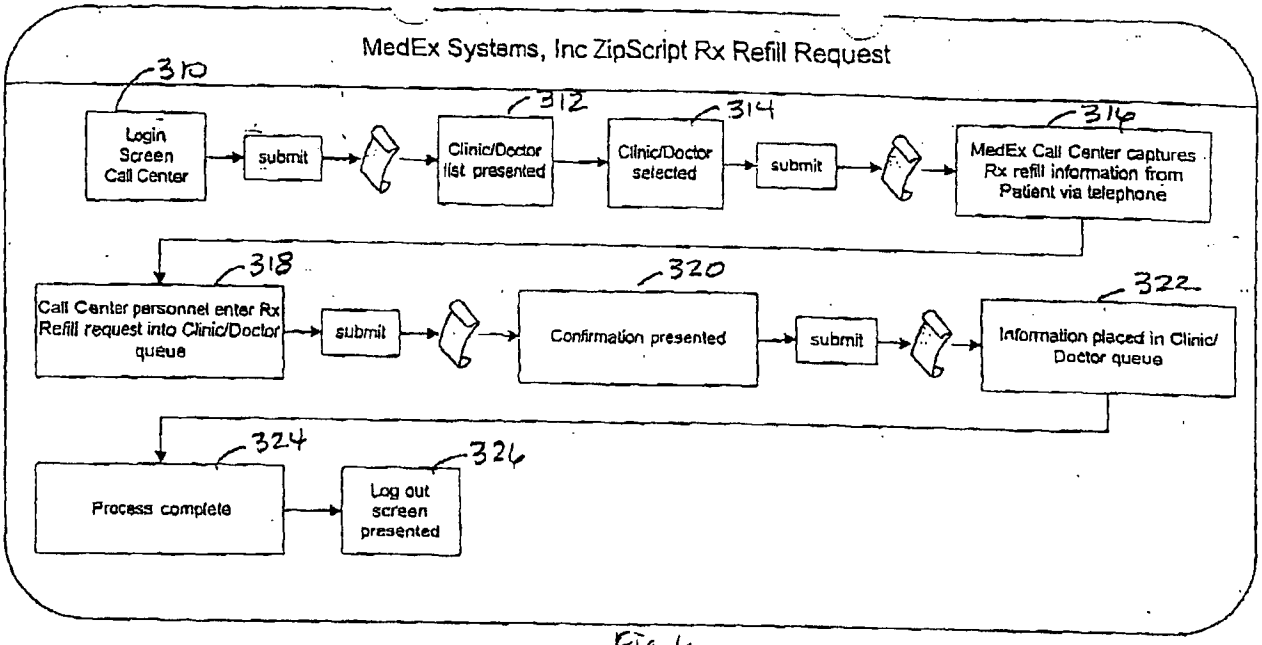
16
PDA
11
Printer
18
PDA
MedEx Firewall
To Pegasus Pharmacy Network
10
32
Hub
Existing On-Site Computer
34
36
HP Netserver
Medweb Server
44
Sun Enterprise 450
w/Oracle
(Patient Enrollment and
First Data Bank)
Sun Enterprise 250 Server
46
Host Pharmacy Printer
38
40
42
SunRay Thin Clients

Fig. 3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Clinic/Doctor list presented
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submit
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318
Call Center personnel enter Rx Refill request into Clinic/Doctor queue
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Confirmation presented
submit
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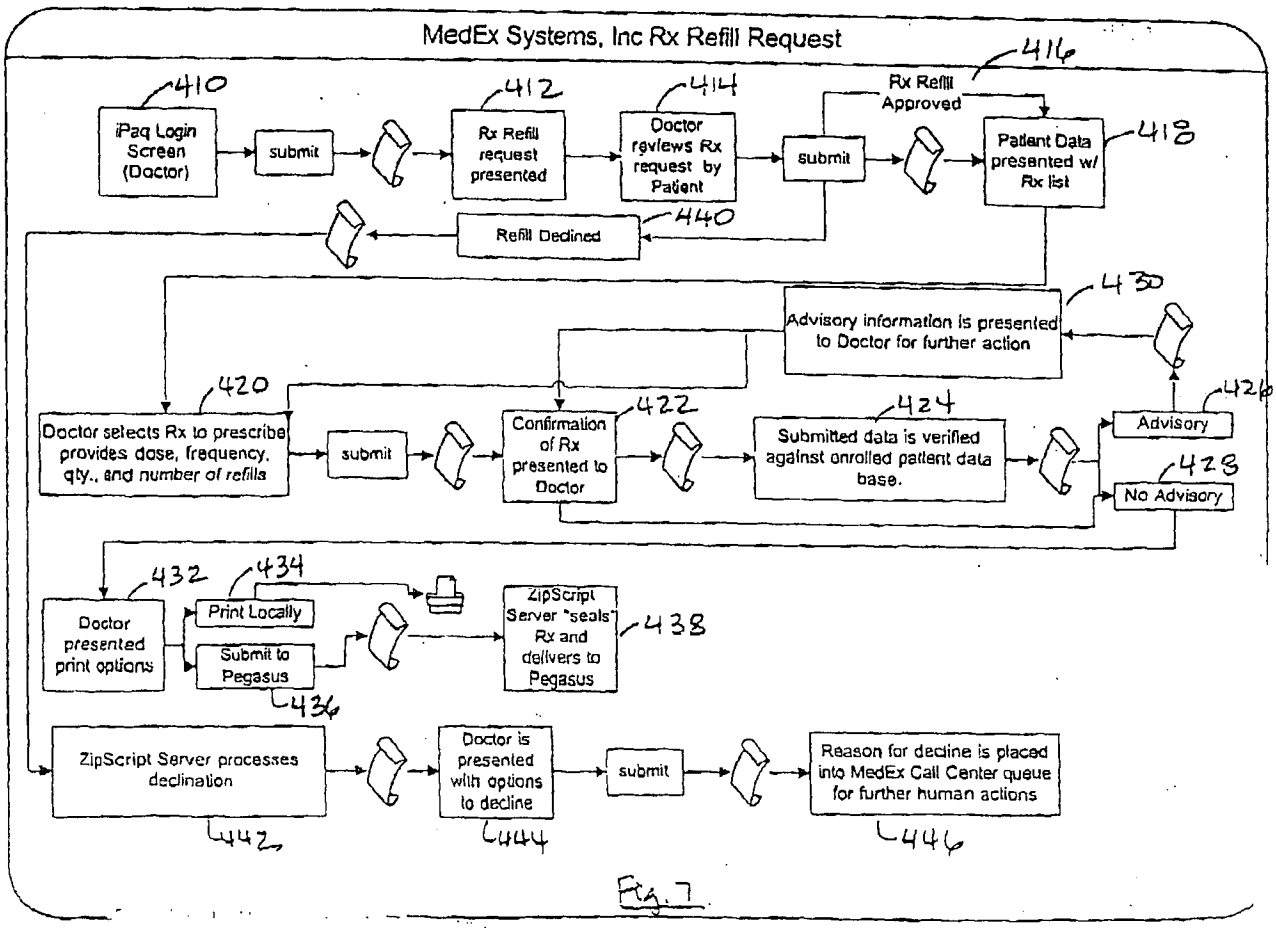
Information placed in Clinic/ Doctor queue
324
Process complete
326
Log out screen presented

Fig. 6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Rx Refill Approved
418
Patient Data presented w/ Rx list
440
Refill Declined
430
Advisory information is presented to Doctor for further action
420
Doctor selects Rx to prescribe provides dose, frequency, qty., and number of refills
submit
422
Confirmation of Rx presented to Doctor
424
Submitted data is verified against enrolled patient data base.
426
Advisory
428
No Advisory
432
Doctor presented print options
434
Print Locally
Submit to Pegasus
436
ZipScript Server "seals" Rx and delivers to Pegasus
438
ZipScript Server processes declination
442
Doctor is presented with options to decline
444
submit
Reason for decline is placed into MedEx Call Center queue for further human actions
446

Fig. 7

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C. (Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
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