

## MEDICAL RECORD MANAGEMENT SYSTEM AND PROCESS WITH IMPROVED WORKFLOW FEATURES

### 37C.F.R.1.71 AUTHORIZATION

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### BACKGROUND OF THE INVENTION

This invention relates generally to systems and methods of clinical information management and specifically to systems and processes by which electronic medical records may be maintained in an environment in which a patient encounter may involve multiple caregivers and in which a caregiver may have need to simultaneously access information for multiple patients.

The literature is replete with references to systems for maintaining electronic patient records. Such electronic records are touted as possible replacements for traditional paper patient records, permitting faster access to patient information, search capabilities, and facilities for immediate transmission of information from caregivers in one location (e.g., an attending physician's office) to another location (e.g., a hospital emergency room).

As medical records become ever more detailed and complex, the need for automated processes for collecting, storing, transmitting, and retrieving patient medical information becomes more critical. Historically, hand-entered medical records were very brief and were sometimes of limited value for future care, either because entries were illegible, used non-standard abbreviations, lacked sufficient detail, or were difficult to search. It has been widely reported in the literature that such difficulties resulted in negative effects on clinical judgment, patient care plans, medical record audits, medical education, and physician performance evaluation.

Early attempts at providing automated patient records typically used codes to represent a diagnosis or problem, with additional detail being provided in narrative form. These first-generation systems provided some advantages over traditional hard-copy records, but were never widely adopted by the medical community. It has been speculated that such systems never provided the practical ease of use required to convince caregivers to switch from paper-based records.

One example of a more advanced electronic patient record system was MEDAS, or Medical Emergency Decision Assistance System. MEDAS was developed starting in the 1970s at the University of Southern California and then at the University of Health Sciences/The Chicago Medical School. MEDAS included features for the capture of patient history, physical examination, and chief complaint information.

Another system, MEDRIS, or Medical Record Input System, employed a hypermedia approach to capture patient history and physical examination data. MEDRIS sought to guide physicians through the particular tasks used for these encounters, and also permitted the collection of data from other types of encounters, such as brief drop-in visits.

As smaller desktop computers, as well as notebook computers and pen-based computers, became widely

available, attention turned to multi-user systems to permit a network of caregivers to store and access patient information. One such system integrated MEDAS with an Intelligent Medical Record Entry module for data entry and also provided a portable patient file.

Despite the various advantages they provide over paper-based records, even current-generation systems have not enjoyed widespread acceptance by the medical profession. It is believed that a number of practical factors continue to limit the use of electronic patient records by physicians and other caregivers.

One problem that has not been fully addressed by known automated patient record systems involves caregiver workflow. The types of interactions that caregivers have with patients vary widely from hour to hour and from office to office. In some clinical environments, it is common for several caregivers to interact with a patient during a single visit. Similarly, it is common for a single caregiver to need to access several patient records at nearly the same time.

Due to data integrity concerns (e.g., that a patient record not be open for modification by two users at the same time), it can be confusing and difficult using existing systems to allow multiple caregivers to access information for the same patient or to access information for multiple patients at nearly the same time.

It has also been found that existing systems suffer certain inefficiencies as people in different positions access patient records. For example, a doctor may enter diagnosis information in one format, but insurance requirements may call for an administrator to enter redundant information in a different format.

Therefore, it would be advantageous if an improved patient medical record system and process could provide efficient workflow management by facilitating multiple caregiver access, multiple patient record access, and automatic formatting of diagnostic information.

No known solution adequately addresses these needs in a simple, flexible, robust, and inexpensive manner.

### SUMMARY OF THE INVENTION

In accordance with the present invention, a patient record system (100) includes a first caregiver's terminal (110), a second caregiver's terminal (112), and a patient record database with patient data coupled to the first and second terminals and selectively providing access to the patient data from one of the first and second terminals responsive to a predetermined set of access rules.

Further in accordance with the present invention, the predetermined set of rules includes a rule that access to a predetermined portion of the patient data by a first caregiver is terminated before access to the same predetermined portion by a second caregiver is allowed.

Still further in accordance with the present invention, the predetermined set of rules includes a rule arbitrating access to a portion of the patient data when more than one caregiver seeks access to the portion of the patient data.

In yet another aspect of the invention, a patient record system includes a patient chart workflow subsystem configured to allow a caregiver to engage in a first patient encounter corresponding to a first patient while also engaging in a second patient encounter corresponding to a second patient.

In still another aspect of the invention, the patient chart workflow subsystem is configured to allow a caregiver to open encounters for a plurality of patients upon commencing a round of activities.