

**HEALTH CARE MANAGEMENT SYSTEM  
FOR MANAGING MEDICAL TREATMENTS  
AND COMPARING USER-PROPOSED AND  
RECOMMENDED RESOURCES REQUIRED  
FOR TREATMENT**

This patent is a continuation of Ser. No. 08/449,288 filed May 24, 1995 entitled "Health Care Management System," which is a file-wrapper continuation of Ser. No. 07/901,642 filed Jun. 22, 1992 entitled "Health Care Management System." This patent is related to Ser. No. 08/478,273 filed Jun. 7, 1995 "Health Care Management System" which is continuation of Ser. No. 08/449,288 filed May 24, 1995 entitled "Health Care Management System," which is a file-wrapper continuation of Ser. No. 07/901,642 filed Jun. 22, 1992 entitled "Health Care Management System," and to Ser. No. 08/475,207 filed Jun. 7, 1995 entitled "Data Structure for Health Care Management System" which is a continuation of Ser. No. 08/449,288 filed May 24, 1995 entitled "Health Care Management System," which is a file-wrapper continuation of Ser. No. 07/901,642 filed Jun. 22, 1992 entitled "Health Care Management System."

**BACKGROUND OF THE INVENTION**

The present invention pertains to the field of data processing systems for health care management. More specifically, the present invention pertains to a health care management data processing system for use by hospitals, physicians, insurance companies, health maintenance organizations (HMO's), and others in the health care field to serve as a diagnostic, evaluation, and utilization tool for health care provided to individuals. The system is implemented in computer hardware and software.

Due to the increasing complexity and cost of providing health care, there is an ever increasing emphasis on managing the health care process. The process extends from an individual presenting a health concern to a health care provider and continues through diagnosis, therapeutic selection, resource selection, treatment, and follow-up. This process could be extended further to include proactively identifying or preventing health concerns and planning for anticipated resource needs at one end of the process, and daily nursing management and disability management at the other end of the process.

Previous efforts to manage health care included manual-historical systems where individual files recording actual treatment provided were manually reviewed to collect statistics on general categories of care or to review the appropriateness of in a given case. Such methods are labor-intensive and inefficient. Efforts have been made to standardize data collection forms, descriptions of conditions, descriptions of treatment, and treatments in order to more efficiently collect and evaluate health care data. Other efforts have been made to automate the analysis of historical health care data for persons with particular health care conditions. These efforts focus mainly on collecting financial data and serve accounting and administrative functions.

At least one known automated prior art health care management system addresses therapeutic selection by starting with a selected treatment and, based on patient information provided by the user, evaluating whether or not that treatment is appropriate. See "Guideline-based Utilization Management Program", *Benefits Quarterly* (4th Quarter 1991). Such systems do not develop a treatment based on various data describing an individual's health condition; the

user must first select a predefined treatment. Also, these systems do not have the flexibility to modify or add treatments based on an individual's changing health condition. Further, these systems do not have an integral component whereby explanatory information is elicited from the health care provider or reviewer to facilitate analysis of the difference between actual or proposed treatment and developed treatment.

It would be a decided improvement over the prior art to have a health care management data processing system that could be used by various health care participants, including doctors, nurses, health care administrators, payor administrators, employers, and evaluators at multiple stages of the health care process. It would be a further improvement for such a system to collect information on individuals having a health concern, to guide the user to a system-selected treatment based on the information collected, and to compare an actual or proposed treatment with the system-selected treatment. The prior art systems also leave an unsatisfied need for explanatory information on differences between the actual/proposed treatment and a system-selected treatment and for obtaining systematic reviewer input as to any differences between the actual/proposed treatment and a system-selected treatment.

It would be a further improvement over the prior art for such a system to permit continuous updating and modification of the experience base, using the information input into the process for each case. For example, the information on actual treatment provided can be used to reassess the decision path for system-selected treatments.

A system implementing the above process should ideally have several qualities. It should be cost-effective, i.e., lead to reducing the total cost of health care. It should be usable in real-time, i.e., the information input into the system should be immediately processed and available for further use. It should be interactive, allowing a variety of health care participants (doctors, nurses, administrators, quality evaluators) to understand and effectively use the system. It should be flexible enough to adapt to changes in and evolution of health care professional knowledge and health care treatment methods.

A health care management data processing system designed to manage the health care process, using a data base of health care records and health condition guidelines, that includes providing diagnosis, evaluation, and utilization information, would be a decided improvement over the prior art.

**SUMMARY OF THE INVENTION**

To overcome these and other problems in the prior art, the present invention provides a health care management data processing system that is a real-time, interactive system to manage the health care process described above. The system can be used by hospitals, physicians, insurance companies, HMO's, and others in the health care field to promote cost-effective health care.

The present invention builds from a data base of diagnosis-based guidelines developed by medical professionals and provides a diagnosis-based system that can be used during various steps of the clinical decision process: (1) prospectively, before treatment, when an individual presents a health concern; (2) concurrently, at any stage of existing treatment; and (3) retrospectively, after treatment has been provided. The diagnosis-based guidelines are structured to work with an interactive question and answer methodology that ensures