

METHOD AND SYSTEM FOR GENERATING STATISTICALLY-BASED MEDICAL PROVIDER UTILIZATION PROFILES

MICROFICHE APPENDIX

This specification includes a Microfiche Appendix which includes 1 page of microfiche with a total of 37 frames. The microfiche appendix includes computer source code of one preferred embodiment of the invention. In other embodiments of the invention, the inventive concept may be implemented in other computer code, in computer hardware, in other circuitry, in a combination of these, or otherwise. The Microfiche Appendix is hereby incorporated by reference in its entirety and is considered to be a part of the disclosure of this specification.

BACKGROUND OF INVENTION

1. Field of the Invention

The invention relates to methods and systems for analyzing medical claims histories and billing patterns to statistically establish treatment utilization patterns for various medical services. Data is validated using statistical and clinically derived methods. Based on historical treatment patterns and a fee schedule, an accurate model of the cost of a specific medical episode can be created. Various treatment patterns for a particular diagnosis can be compared by treatment cost and patient outcome to determine the most effective treatment approach. It is also possible to identify those medical providers who provide treatment that does not fall within the statistically established treatment patterns or profiles.

2. The Background Art

It is desirable to compare claims for reimbursement for medical services against a treatment pattern developed from a large body of accurate medical provider billing history information. Although in the prior art some attempt was made to compare claims for reimbursement for medical services to a normative index, the prior art did not construct the normative index based on actual clinical data. Rather, the prior art based the normative index on a subjective conception (such as the medical consensus of a specialty group) of what the proper or typical course of treatment should be for a given diagnosis. Such prior art normative indices tended to vary from the reality of medical practice. In the prior art, automated medical claims processing systems, systems for detecting submission of a fraudulent medical claims, and systems for providing a medical baseline for the evaluation of ambulatory medical services were known. Documents which may be relevant to the background of the invention, including documents pertaining to medical reimbursement systems, mechanisms for detecting fraudulent medical claims, and related analytical and processing methods, were known. Examples include: U.S. Pat. No. 4,858,121, entitled "Medical Payment System" and issued in the name Barber et al. on Aug. 15, 1989; U.S. Pat. No. 5,253,164, entitled "System and Method for Detecting Fraudulent Medical Claims Via Examination of Service Codes" and issued in the name of Holloway et al. on Oct. 12, 1993; U.S. Pat. No. 4,803,641, entitled "Basic Expert System Tool" and issued in the name of Hardy et al. on Feb. 7, 1989; U.S. Pat. No. 5,658,370, entitled "Knowledge Engineering Tool" and issued in the name of Erman et al. on Apr. 14, 1987; U.S. Pat. No. 4,667,292, entitled "Medical Reimbursement Computer System" and issued in the name of Mohlenbrock et al. on May 19, 1987; U.S. Pat. No. 4,858,121, entitled "Medical

Payment System" and issued in the name of Barber et al. on Aug. 15, 1989; and U.S. Pat. No. 4,987,538, entitled "Automated Processing of Provider Billings" and issued in the name of Johnson et al. on Jan. 22, 1991, each of which is hereby incorporated by reference in its entirety for the material disclosed therein.

Additional examples of documents that may be relevant to the background of the invention are: Leape, "Practice Guidelines and Standards: An Overview," *QRB* (Feb. 1990); Jollis et al., "Discordance of Databases Designed for Claims Payment versus Clinical Information Systems," *Annals of Internal Medicine* (Oct. 15, 1993); Freed et al., "Tracking Quality Assurance Activity," *American College of Utilization Review Physicians* (November, 1988); Roberts et al., "Quality and Cost-Efficiency," *American College of Utilization Review Physicians* (November, 1988), Rodriguez, "Literature Review," *Quality Assurance and Utilization Review—Official Journal of the American College of Medical Quality* (Fall 1991); Elden, "The Direction of the Healthcare Marketplace," *Journal of the American College of Utilization Review Physicians* (August 1989); Rodriguez, "Literature Review," *Quality Assurance and Utilization Review—Official Journal of the American College of Medical Quality* (Fall 1991); Roos et al., "Using Administrative Data to Predict Important Health Outcomes," *Medical Care* (March 1988); Burns et al., "The Use of Continuous Quality Improvement Methods in the Development and Dissemination of Medical Practice Guidelines," *QRB* (December, 1992); Weingarten, "The Case for Intensive Dissemination: Adoption of Practice Guidelines in the Coronary Care Unit," *QRB* (December, 1992); Flagle et al., "AHCPR-NLM Joint Initiative for Health Services Research Information: 1992 Update on OHSRI," *QRB* (December, 1992); Holzer, "The Advent of Clinical Standards for Professional Liability," *QRB* (February, 1990); Gottlieb et al., "Clinical Practice Guidelines at an HMO: Development and Implementation in a Quality Improvement Model," *QRB* (February, 1990); Borbas et al., "The Minnesota Clinical Comparison and Assessment Project," *QRB* (February, 1990); Weiner et al., "Applying Insurance Claims Data to Assess Quality of Care: A Compilation of Potential Indicators," *QRB* (December, 1990); Wakefield et al., "Overcoming the Barriers to Implementation of TQM/CQI in Hospitals: Myths and Realities," *QRB* (March, 1993); Donabedian, "The Role of Outcomes in Quality Assessment and Assurance," *QRB* (November, 1992); Dolan et al., "Using the Analytic Hierarchy Process (AHP) to Develop and Disseminate Guidelines," *QRB* (December, 1992); Hadorn et al., "An Annotated Algorithm Approach to Clinical Guideline Development," *JAMA* (Jun. 24, 1992); Falconer et al., "The Critical Path Method in Stroke Rehabilitation: Lessons from an Experiment in Cost Containment and Outcome Improvement," *QRB* (January, 1993); Reinertsen, "Outcomes Management and Continuous Quality Improvement: The Compass and the Rudder," *QRB* (January, 1993); Mennemeyer, "Downstream Outcomes: Using Insurance Claims Data to Screen for Errors in Clinical Laboratory Testing," *QRB* (June, 1991); Iezzoni, "Using Severity Information for Quality Assessment: A Review of Three Cases by Five Severity Measures," *QRB* (December 1989); Kahn, "Measuring the Clinical Appropriateness of the Use of a Procedure," *Medical Care* (April, 1988); Wall, "Practice Guidelines: Promise or Panacea?," *The Journal of Family Practice* (1993); Lawless, "A Managed Care Approach to Outpatient Review," *Quality Assurance and Utilization Review—Official Journal of the American College of Utilization Review Physicians* (May, 1990); Dragalin et al., "Institutes for Quality: Prudential's Approach to