What is disease management?
The term ‘disease management’ falls strangely on the ears of the practicing physician, because managing disease is a good phrase to describe a large portion of his/her work. Historically, disease has been managed on a one-on-one arrangement between physician and patient. As managed care systems have developed in response to the need to regulate total spending on health care, a need arose to assist the process of medical decision-making that could be driven by data, and not by personal experience and knowledge alone. Managed health care aims at maximizing value of medical services to all parties, the payer as well as the consumer. It includes initiatives for preventive services and flexible algorithms to optimize treatment of diseases. Disease management (DM) and pharmacy benefit management (PBM) have been perceived and developed as components within managed health care. DM focuses on specific (often common) illnesses, and includes the identification of the population at risk as well as therapeutic guidelines. Because DM (and PBM as well) is based on data and includes elements of control and/or decision making for the provider involved, an information infrastructure is an essential element. Although this infrastructure would be most efficiently handled by computers, computers are enablers rather than essential elements of DM.

This chapter will discuss why management solutions were needed for health care, how they developed initially, why the drivers for DM development were (and continue to be) economic, how DM works, and how it can be implemented. The chapter will discuss DM only, as it is the part of the managed care approach in which physicians can play a role. DM was initially directed to those chronic conditions that accounted for the largest portion of health-care expenses, i.e. diabetes, depression, coronary artery disease, congestive heart failure, osteoporosis, osteoarthritis, benign prostatic hypertrophy, asthma, cancer, and peptic ulcer disease. These are mostly diseases that have (or had) a large impact on hospital costs. Thus, most of gastroenterology, aside from gastrointestinal bleeding or peptic ulcer disease [1], would be excluded from the initial focus of DM. Yet such a focus has begun and will continue. The end of the chapter outlines the progress that has been made to date on inflammatory bowel disease.

Why was a management solution needed for health care?
When governments or large health-care organizations have imposed standards or recommendations of care, it has usually been in areas of public health or preventive medicine (e.g. vaccines, fluoridated water). In recent decades, as the largest payers have incurred increased financial risk, economic pressures have developed to direct/control management of diseases in a population of patients, rather than in individuals [2]. The reasons for this shift in emphasis have been many [3]. The most important of these reasons have been the increasing expenses, the resultant increased financial risk to both payers and patients, the more widespread availability of information on the cost of health care, and increased patient and payer education. These factors have created a market demand for better value without sacrificing quality of care. The two models that developed for DM were the ‘carve-out’ and ‘primary care-based’ models.

The pharmaceutical industry initiated the first widespread thrust into DM. Because drug costs were easily identified, and a large component of total health-care costs, pharmaceutical companies were among the first groups to find it in their interest to become involved in DM programs. Drug spending represented a significant percentage of total health-care, which was a large enough component to attract the attention of large health-care organizations. Thus, the first wave of DM focused on pharmaceuticals. However, the successful nature of the first wave of DM led to the development of a whole new industry devoted to disease management. Many companies have developed programs to assist clients in managing chronic conditions. The most common conditions targeted have been diabetes, hypertension, and asthma. Other conditions targeted have included coronary artery disease, congestive heart failure, osteoporosis, and chronic obstructive pulmonary disease.
care spending (ranging from ~8.8% in the US to 16.8% in France), and the data on prescription drug use were relatively easy to identify. Other problems associated with drug use also added to the total expense of health care, the resolution of which would lower the costs. These problems included prescription errors [4], complications of drug therapy [5], and non-utilized drugs once prescribed [6]. The most common prescription errors were lack of knowledge of the drug, lack of information about possible drug interactions or allergies, and incomplete or poorly legible prescriptions [7]. The largest expense by far related to drug complications was from hospital admissions [8]. Similar figures for levels of error have been reported from Australia, Israel, and the United Kingdom [9]. In Sweden the average difference in cost between prescribed and dispensed medications was about 20% [10].

To address these issues, and to save money, PBM companies were created to manage the reimbursement of pharmaceutical products, normally including only prescription drugs (a ‘carve-out’ model). A prerequisite for an effective PBM is a well-established network of pharmacies and an infrastructure enabling interventions at the point of service. These companies were very successful in driving down the costs by negotiating with pharmaceutical manufacturers for price discounts, by providing services to payers such as drug utilization review (DUR), formulary management, prior authorization, and physician profiling [11]. Many of these features improved care as well as controlling costs.

PBM could address a broad spectrum of problems, and their economic value became apparent early. The DM strategy started later, and focused on common chronic illnesses that accounted for a majority of the hospitalized care, the major expense in any healthcare system. Initially the idea was to deliver ‘comprehensive’ DM for these disorders. Because the illnesses were chronic, and because they were many, demonstrating economic value for DM has been more difficult to demonstrate across an entire health-care system. DM aimed to assist in identifying and monitoring long-term care of patients with chronic diseases at high risk for hospitalization (e.g. diabetes, coronary artery disease, congestive heart failure, osteoporosis, depression, asthma, cancer, benign prostatic hypertrophy, osteoarthritis, and peptic ulcer disease) [12]. Although some companies have attempted to take over management of such patients (another example of a ‘carve-out’ model), most programs have aimed at providing assistance to the physician, based on evidence-based algorithms and/or on nationally accepted guidelines for management of specific disorders. Up to this point there was little direct involvement with physicians, who were not themselves at financial risk from the changes that were introduced.

However, the legislative climate is changing rapidly. The Balanced Budget Act of 1997 in the US includes a possible change in reimbursement to providers who do not follow standards of care. Medicare may be called on to enforce these standards and withhold payment when they are not followed [13]. In the UK the white paper on the National Health Service (NHS) created primary care groups who would be responsible for accepting some of the financial risk, in that they would be cash limited, but able to move money from one service to another [14, 15]. These groups will be responsible for commissioning secondary care, and tackling the variations in quality of care [16]. However, the health authorities, the regional organization responsible for the performance of general practice, face many barriers to implementing the new NHS. Among these barriers are the poor quality of the data, the unclear roles and responsibilities of physicians and managers, and the fact that doctors and health authority managers do not work sufficiently closely together to improve the quality of practice [17]. In the US group-model and staff-model health maintenance organizations, such as Group Health Cooperative of Puget Sound and Kaiser Health Plan, have developed in house programs of DM (the ‘primary care-based’ model) [3]. This model provides electronic information systems that allow viewing of an information spreadsheet for specific diseases, e.g. diabetes.

Clearly the time has come for physicians to be better informed about the solutions being proposed for health care, the reasons behind those solutions, and the role that they can play in improving their practice before changes are imposed upon them. The rest of this chapter will cover these areas based on published information relating to primary-care physicians, the group most often targeted for DM programs. Because of the magnitude of the problems, the most practical and successful approaches have been very focused. ‘Comprehensive’ DM, if it becomes a reality, will be composed of a group of smaller, more focused, and successful programs that all deal with a given disease entity.