The first underlying theory of the ACA is the use of systems analysis to change how each element in the system interacts with other elements to achieve the desired outcomes. The systems approach is used to promote one of the most significant changes to the American healthcare system—the improvement of the care for those with chronic disease.

The ACA contains a number of policy initiatives that focus on improving care for these patients. Chronic care comes with a high cost and high variability in treatment. Knowledge on best practices in chronic disease management has accumulated over the past 30 years, and the ACA contains many new policies that promote the application of this knowledge throughout the provider community.

Exhibit 1.1 illustrates the distribution of costs associated with the care of patients with chronic diseases. Note the high cost for people with three or more chronic conditions (89 percent). In addition, the costs of chronic disease care vary greatly throughout the country (Exhibit 1.2).

The Chronic Care Model

Dr. Edward Wagner of the MacColl Institute for Healthcare Innovation, a leader in the improvement of chronic care, has developed one of the most widely accepted models for chronic disease management. The first important element of Wagner’s model is population-based outreach, which ensures that all patients in need of chronic disease management receive it. Next, treatment plans are created that are sensitive to each patient’s preferences. The most current evidence-based medicine is employed—this process is
**Exhibit 1.1** Medicare Spending for Chronic Conditions

![Pie chart showing the distribution of Medicare spending for chronic conditions](chart.png)


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**Exhibit 1.2 Costs of Care for Medicare Beneficiaries with Multiple Chronic Conditions**

<table>
<thead>
<tr>
<th></th>
<th>Average Annual Reimbursement</th>
<th>Ratio of Percentile Groups</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>10th Percentile</td>
<td>25th Percentile</td>
</tr>
<tr>
<td>All 3 Conditions</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2001</td>
<td>$31,792</td>
<td>$20,960</td>
</tr>
<tr>
<td>2005</td>
<td>$38,004</td>
<td>$25,732</td>
</tr>
<tr>
<td>Diabetes + Heart Failure</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2001</td>
<td>$18,461</td>
<td>$12,747</td>
</tr>
<tr>
<td>2005</td>
<td>$23,056</td>
<td>$16,144</td>
</tr>
<tr>
<td>Diabetes + COPD</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2001</td>
<td>$13,188</td>
<td>$8,872</td>
</tr>
<tr>
<td>2005</td>
<td>$15,367</td>
<td>$11,317</td>
</tr>
<tr>
<td>Heart Failure + COPD</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2001</td>
<td>$22,415</td>
<td>$15,355</td>
</tr>
<tr>
<td>2004</td>
<td>$27,498</td>
<td>$19,787</td>
</tr>
</tbody>
</table>

COPD = chronic obstructive pulmonary disease.

*Source: Commonwealth Fund National Scorecard on U.S. Health System Performance, 2008. Data from G. Anderson and R. Herbert, Johns Hopkins University analysis of Medicare Standard Analytical Files (SAF) 5% Inpatient Data. Used with permission.*
aided by clinical information systems with built-in decision support. The patient is encouraged to change risky behaviors and to manage himself better. The actual clinical visit changes in the Wagner model to allow more time for interaction between physicians and patients with complicated clinical issues. Visits for routine or specialized matters are delivered by other healthcare professionals (e.g., nurses, pharmacists, dieticians, lay health workers). Close follow-up supported by clinical information system registries and patient reminders is also characteristic of effective chronic disease management (Improving Chronic Illness Care 2010; Wagner 2000).

THE HITECH ACT AND MEANINGFUL USE

Chronic disease management is information intensive and information dependent. The American Recovery and Reinvestment Act of 2009 (ARRA) includes the Health Information Technology for Economic and Clinical Health Act (HITECH Act), which established programs under Medicare and Medicaid to provide incentive payments for the “meaningful use” of certified electronic health records (EHR) technology.

The goals of the HITECH legislation are to improve healthcare outcomes, facilitate access to care, and simplify care. These goals are particularly important to patients with chronic disease. As regulations were contemplated for the payment of incentives for the installation of health information technology, two perspectives were apparent. Many vendors felt that technical specifications and requirements should be used to certify these new systems for federal incentive payments. However, many clinicians with experience in informatics felt that this new government incentive should only be paid if the EHR systems were used in a meaningful manner to improve patient care. This latter view prevailed. Therefore, the goals of HITECH will be met when the EHR is used in a meaningful way.

Three components of Stage I Meaningful Use have been identified:

1. Use of a certified EHR in a meaningful manner such as e-prescribing
2. Use of certified EHR technology for the exchange of health information (exchange data with other providers of care or business partners such as labs or pharmacies)
3. Use of certified EHR technology to submit clinical quality and other measures to the Department of Health and Human Services (HHS)

Thus, the first stage of meaningful use is capturing and sharing the data. Meaningful Use Stage II involves using the technology in advanced clinical
processes, and Stage III involves the meaningful use of an EHR in the context of improved healthcare outcomes. More details on meaningful use are at www.himss.org/ASP/topics_meaningfuluse.asp (HIMSS 2010).

POLICIES TO SUPPORT CHRONIC CARE IN THE ACA

The designers of the ACA included a number of tools that can be used to improve the quality of care for patients with chronic disease and for emergency care:

- Comparative effectiveness research
- Healthcare homes
- Shared decision making

Another ACA tool for improved chronic care is the accountable care organization (ACO); because the ACO is more of a financial incentives–based tool it is addressed in Chapter 5.

The system elements of comparative effectiveness and healthcare home can be located clearly on the healthcare systems map (Exhibit 1.3).

Comparative Effectiveness

The “product line” of American healthcare is immense. The ICD-9 contains a multitude of codes—currently over 13,600 diagnosis codes and 3,700 procedure codes. ICD-10 will increase the number of codes significantly. In this mix of tools for diagnosis and treatment, many common clinical approaches have never been adequately tested as to their efficacy.

To address this problem, the ACA and the ARRA established and fund a nonprofit corporation called the Patient-Centered Outcomes Research Institute (ACA §§6301, 6302):

The purpose of the Institute is to assist patients, clinicians, purchasers, and policymakers in making informed health decisions by advancing the quality and relevance of evidence concerning the manner in which diseases, disorders, and other health conditions can effectively and appropriately be prevented, diagnosed, treated, monitored, and managed through research and evidence synthesis that considers variations in patient subpopulations, and the dissemination of research findings with respect to the relative health outcomes, clinical effectiveness, and appropriateness of the medical treatments, and services. (from §6301)
This institute complements the work of the National Institutes of Health and the Agency for Healthcare Research and Quality (AHRQ)—both a part of HHS. One of AHRQ’s responsibilities is to assist users to incorporate these research findings into their clinical practice through the use of clinical decision support health information technology.

A major focus for the research topics addressed by the institute is related to chronic disease management.

**Healthcare Home**

The healthcare home has emerged as an effective tool in the delivery of care to patients with chronic disease. The American Academy of Pediatrics (AAP
COPP 1967) introduced the medical home concept in 1967; it then referred to a central location for archiving a child’s medical record. In its 2002 policy statement, the AAP expanded the medical home concept to promote care that is accessible, continuous, comprehensive, family-centered, coordinated, compassionate, and culturally effective. Because this concept now involves many additional types of health professionals it has been renamed the healthcare home.

In 2007, the four major primary care associations (American Academy of Family Physicians [AAFP], American Academy of Pediatrics [AAP], American College of Physicians [ACP], and American Osteopathic Association [AOA]) developed a joint statement on the principles for the patient-centered medical home (AAFP 2010):

- **Personal physician:** each patient has an ongoing relationship with a personal physician trained to provide first contact and continuous and comprehensive care.
- **Physician-directed medical practice:** the personal physician leads a team of individuals at the practice level who collectively take responsibility for the ongoing care of patients.
- **Whole person orientation:** the personal physician is responsible for providing for all the patient’s healthcare needs or taking responsibility for appropriately arranging care with other qualified professionals. This includes care for all stages of life and involves acute care; chronic care; preventive services; and end-of-life care.
- **Care is coordinated and/or integrated:** care is coordinated across all elements of the healthcare system (e.g., subspecialty care, hospitals, home health agencies, nursing homes) and the patient’s community (e.g., family, public and private community-based services). Care is facilitated by registries, information technology, health information exchange, and other means to ensure that patients get the indicated care when and where they need and want it in a culturally and linguistically appropriate manner.
- **Quality and safety:** quality and safety are hallmarks of the medical home, and evidence-based medicine is emphasized.
- **Enhanced access:** care is facilitated through systems, such as open scheduling and expanded hours, and communication between patients, their personal physicians, and practice staff.
- **Payment:** payment appropriately recognizes the added value provided to patients who have a patient-centered medical home.
A recent study on the effectiveness of healthcare homes found three key components needed for success:

- Individualized and intense caring for patients with chronic illness
- Efficient service provision
- Careful selection of specialists (taking into consideration quality and cost)

By carefully implementing these aspects of care, the healthcare homes studied reduced the total cost of care by 15 percent and improved quality, and providers reported a “less frenetic clinical pace” (Milstein and Gilbertson 2009).

The ACA builds on this framework of care delivery and expands the concept to include teams of practitioners in addition to physicians. Section 2703 provides states with the authority to make payments for healthcare homes through their Medicaid systems. Each state will develop rules and payment systems to support the healthcare home; the joint principles mentioned in the previous bulleted list will likely be the basis for the regulatory framework.

Because primary care is delivered by small-group or solo practitioners in some regions of the United States, §3502 provides for the establishment of community health teams to support healthcare homes. These interdisciplinary teams will “collaborate with local primary care providers and existing State and community based resources to coordinate disease prevention, chronic disease management, transitioning between health care providers and settings and case management for patients, including children, with priority given to those amenable to prevention and with chronic diseases or conditions” (from §3502).

Community Care, which began in North Carolina as a pilot project in 1998, is one of the oldest and largest community health team projects specifically designed to support healthcare home programs. “By focusing on improving chronic illness treatment, Community Care has chalked up some big wins. The program reduced asthma patients’ emergency department inpatient admissions by 40% between fiscal year 2003 and 2006 and its diabetes monitoring has also seen notable gains” (from §3502) (Community Care of North Carolina 2011).

Finally, Title V of the ACA has numerous provisions to increase the supply, quality, and distribution of primary care physicians and other health professionals. In addition, §5501 provides for increased Medicare payment for primary care; in 2013 all states must set their Medicaid rates
of payment for primary care services at Medicare rates or higher. Whether these policies will increase the supply of these professionals is explored in the scenario analysis in Chapter 4.

**Shared Decision Making**

Patient engagement is a key feature of successful primary care and chronic disease management. The ACA provides a new tool for patient engagement: §3506 “Program to Facilitate Shared Decision Making.” Shared decision making is a concept that effectively empowers patients and reduces unnecessary costs in the system. This section provides funding to create patient educational and decision support materials and to disseminate these aids to providers and patients.

The focus of shared decision making is surgery where no single treatment option is right or wrong; rather, the patient and caregivers consider whether one option or another is right for the patient. For example, among women with early-stage breast cancer, both mastectomy and lumpectomy followed by radiation yield similar mortality benefit. Many women have strong preferences for one or the other, so the quality of care extends beyond the surgeon's technical skills to the decision-making process.

Traditionally, patients have delegated treatment decisions to their physicians: The physician diagnoses the patient’s illness and recommends treatment, and then the patient gives informed consent. Policymakers, in turn, have assumed that physicians’ decisions reflect medical need and patient demand. However, the remarkable degree of variation in the utilization rates of discretionary surgery raises questions about these assumptions.

For example, Wennberg and colleagues (2007) found that in 2002 and 2003 among the 306 US Hospital Referral Regions (HRRs), the incidence of joint replacement for chronic arthritis of the hip or knee and of surgery for low-back pain varied 5.6-, 4.8-, and 5.9-fold, respectively, from the lowest to the highest region. Wennberg found that the pattern of variation was remarkably stable over time; for most common procedures, variation among regions was highly correlated with the pattern a decade before the study was completed.

Shared decision making is a tool that can be used to address this problem. Highly sophisticated and evidence-based patient decision aids inform the patient of the benefits and risks of a procedure. Trained health professionals counsel patients on use of the decision tools and support the
patient’s decision. Performance monitoring is also part of a shared decision-making program.

Total system costs can be reduced dramatically through the use of shared decision making. A Cochrane review\(^2\) identified trials of seven conditions commonly treated surgically among the Medicare population: arthritis of the hip and knee; low-back pain from a herniated disc; chest pain (stable angina); enlarged prostate (benign prostatic hypertrophy, or BPH); and early-stage prostate and breast cancers. The review documented that although the decision to have surgery following shared decision making (compared to control groups) varied from study to study, a 21 to 44 percent decline was typical. Patients in shared decision-making arms of the trials were better informed about treatment options and made choices more consistent with their values (Wennberg et al. 2007).

**SUMMARY**

Chronic disease is an important cost driver in the US healthcare system, and 89 percent of Medicare spending is for people with three or more chronic conditions. Fortunately, a chronic care model has been developed and tested that reduces costs and improves quality for patients with chronic disease.

The ACA (and the ARRA) legislate a number of policies to improve chronic care. The knowledge base for best approaches to the treatment of various chronic diseases increases with comparative effectiveness research. Funding for the acquisition and meaningful use of health information technology to care for chronic patients was included in the HITECH act. An increase in training and payment for primary care providers and the use of the healthcare home is also designed to improve chronic care. Shared decision making is a new tool that improves patient engagement and has been shown to dramatically lower costs in many situations.

**NOTES**

1. The ICD-9 system is a standardized classification of disease, injuries, and causes of death, by etiology and anatomic localization and codified into a six-digit number.

2. The Cochrane Collaboration, established in 1993, is an international network of people helping healthcare providers, policymakers, patients, and patient advocates make well-informed decisions about human healthcare by preparing, updating, and promoting the accessibility of Cochrane Reviews: over 4,000 evidence-based medicine studies so far, published online in *The Cochrane Library*. 
ANOTATED REFERENCES


   The Community Care of North Carolina program (formerly known as Access II and III) is building community health networks organized and operated by community physicians, hospitals, health departments, and departments of social services. By establishing regional networks, the program is establishing the local systems that are needed to achieve long-term quality, cost, access, and utilization objectives in the management of care for Medicaid recipients.


   The American Recovery and Reinvestment Act of 2009 (ARRA), included significant Medicare and Medicaid incentive payments to providers and hospitals for the “meaningful use” of certified health IT products. The legislation requires the US Department of Health and Human Services to take regulatory action in several areas, including electronic health record (EHR) incentives for eligible professionals and hospitals (Meaningful Use), standards and certification criteria, an HHS Certification Program, and privacy and security. The Health Information Management Systems Society’s website contains extensive documentation of this new federal resource.

Improving Chronic Illness Care. 2010. Website. [Online information; retrieved 12/30/10.] www.improvingchroniccare.org/

   This website, provided by the American Academy of Family Physicians, offers resources and information for practitioners on the implementation of the Chronic Care Model. The site includes an exploration of the elements of the Chronic Care Model (www.improvingchroniccare.org/index.php?p=The_Chronic_Care_Model&s=2); a step-by-step video that walks professionals through the model (www.improvingchroniccare.org/index.php?p=The_Model_Talk&s=27); and a practice assessment tool to gauge how a practice is performing on the six dimensions of the Chronic Care Model (www.improvingchroniccare.org/index.php?p=ACIC_Survey&s=35).

