Issues and Challenges in Quality Assurance of Health Care

JOHN W. WILLIAMSON

Director, Salt Lake Regional Medical Education Center, Salt Lake Veterans Affairs Medical Center; and Professor of Medicine and of Medical Informatics, University of Utah School of Medicine, Salt Lake City, Utah, USA

In this paper I review the health care crisis in the United States and conclude that fundamental changes must be made. I then present: (1) an organizational approach that might be encompassed in President Clinton's program for health care reform; (2) my "dream" of a national quality improvement system for reform, based on The Netherlands Model; and (3) a suggestion that strengthening primary care will be the key to the success of this reform in the coming years.

Key words: Quality assurance; primary care; health care reform; United States of America.

INTRODUCTION

US health care in crisis

At the present time few will argue that our United States health care system is less than optimal. Public servants such as Dr C. Everett Koop and health services researchers at our most prestigious academic institutions are pointing out concrete facts that give cause for alarm. For example, the exponential increase in US health costs is shown in Figure 1.

Note that since the late 1940s, it has taken over 40 years to achieve a 7.5% increase in the proportion of the gross national product that was spent on health care [1,2]. In 1990 it was projected that costs would have increased by another 2.8% by the turn of the century. The US Department of Commerce now estimates that we will hit the 15% mark sometime in 1994 six or seven years ahead of schedule!

An assessment of whether the growing share of the nation's resources dedicated to health care is too high or too low can only be made by determining the value society is getting from these increased expenditures. One approach is to compare health status and satisfaction in the US with those in other countries; such as has been done in the comparative studies at Harvard and Johns Hopkins [3,4] (Figure 2, Table 1). These findings indicate that, in terms of health outcomes and satisfaction/cost, the US ranks among the worst of the nations studied, compared to, for example, The Netherlands, which is among the best.*

Recent surveys indicate that an increasing majority of our citizens are demanding that fundamental changes be made. President Clinton has given health care reform, particularly cost-containment, high priority for his administration. He states that we will not be able to

Received 1 September 1993; accepted 12 October 1993.


Correspondence: Dr Williamson, Saltlake Regional Medical Education Center (11R), Salt Lake Dept of Veterans Affairs Medical Center. 500 Foothills Blvd, Salt Lake City, UT 84148, USA.

*This evidence is based on two carefully designed studies by internationally recognized health services researchers. For example, Starfield's health status index used 12 indicators similar to those developed by the "health status indicator consensus work group" sponsored by the Centers for Disease Control (CDC) in this country. The data were compiled from diverse and reliable sources such as the US National Center for Health Statistics, the World Health Organization and the Organization for Economic Cooperation. The essence of Starfield's findings demonstrate that health care systems which are primary care oriented have both better health care status and cost/satisfaction indexes.

5
Another example is the rather ineffective quality “court of last resort”, our legal system, where most malpractice suits tried probably do not involve negligent medical behavior, and where most true negligent behavior rarely gets into court [5-7].

To achieve fundamental change, we in the United States require a major redesign of our entire health care system. To sustain these changes and assure ongoing improvement of our health industry, we will need an effective national health care quality improvement program. Finally, the key to success of overall reform will be major strengthening of our primary care infrastructure. The following paper outlines my personal conceptualization of these developments.

HEALTH CARE REFORM IN THE UNITED STATES

This spring I spent three months in Washington DC working on the Interagency Task force for Health Care Reform, headed by Hillary Rodham Clinton. This group produced the policy options and background materials from which the President will establish a final plan to present to both Houses of Congress in October 1993. Based on material that has already been released to the press, I will present my conceptualization of what will probably be major elements of the reform plan that has yet to be finalized.

Health care reform will require accomplishment of three overriding goals, namely: quality, cost-control and access. To achieve these goals, a major organizational restructuring of the health industry is required. Overall this national reform plan will provide a national framework of a standard benefit package of required universally available services to be provided, together with suggested guidelines for their achievement and financing, federal fiscal subsidies and tax credits, and a common language and reporting formats. Otherwise, the main power and responsibility will be given to the individual states to develop their own reform plans. This policy is based on the assumption that no one knows, or can know, what one plan would work best for everyone in every part of the country. Each state has different circumstances, values and resources that must be

solve our economic crisis until health care costs are under control. Few objective observers now dispute the fact that our health care system is in crisis. What immediate actions are needed?

Fundamental changes are needed

I suggest that fundamental change is required. Overall, there are numerous areas where reform is critical for improving the performance of our health care system. For example, our chaotic, discriminating methods of health care reimbursement that leave at least 38 million citizens uninsured, and a similar though increasing number underinsured.
recognized locally if they are to provide successful access to quality care at an affordable price for all of their citizens.

Consequently, the President will probably recommend that we have 50 different health reform experiments conducted under common guidelines. In this way we can learn from each other, having the flexibility to make whatever changes will be essential to assure continuing success. Note that a federal mandate for "managed competition" is out. Each state can elect any approach they choose, be it single payer, managed competition or business as usual. However, they must guarantee universal access to a standard set of services at a pre-established premium cost.

The approach will include the following elements:

- a federal health care board,
- state autonomy,
- Health Alliances,
- Accountable Health Plans,
- provider teams.

Figure 3 outlines my concept of this probable organizational framework.

The National Health Board will be organized on the model of the Securities Exchange Commission that has worked so successfully for business and industry in our country. The group will be appointed from both the private and public sectors and will probably report directly to the President. They will refine the standard benefit package and establish national policies regarding financing, quality management and reporting.

Each state will be charged with developing their own health reform plan for their own citizens, under the above established guidelines. They will be responsible for financing health care, with subsidies from a national risk pool of funds to cover poverty groups, low income families and small businesses as needed. The states will be free to incorporate any combination of three organizational approaches: namely, managed competition plans, private fee-for-service indemnity plans and large corporation managed plans.

The managed competition approach will be based on the organization of Health Alliances, probably one per state and run by a major insurance carrier in collaboration with health provider representatives. The Health Alliance will facilitate development of multiple Accountable Health Plans (AHPs) which will compete with each other for consumer membership. The Health Alliance will be responsible for compiling information provided by AHPs and other data sources to facilitate consumer choice regarding which plan to join. AHPs will organ-
ize provision of the standard benefit package at a stated premium price. Each AHP will have to guarantee open access to any citizen, with no limitations in regard to prior health conditions or personal income. They will be financed on a per capita basis, with a sliding scale based on severity related costs. Each plan will hire or contract with practitioners or provider groups who will actually care for the patients who join that plan.

The second major option for state consideration will be private insurance plans that would operate with their own fee-for-service practitioners in offering the standard benefit package at a stated annual premium. These services would follow guidelines for deductibles, co-payments and possible need for subsidies to facilitate consumers selecting their own fee-for-service practitioners. Current economic projections indicate these plans might be as much as 400% higher in cost than managed care. If consumers can manage the added expense, fine.

The third major state option will be to allow large corporations (over 1000–5000 employees) to establish their own health plans, filling the role of a Health Alliance. However, if a corporation provided subsidies to pay premiums that were higher than the minimum premium of a state Accountable Health Plan, the difference would be considered taxable income to employees, and non-deductible expenditure for the corporation. Finally, corporate health plans would have to accept non-employee applicants who elected to join their plan. Likewise, corporate employees who wished to join an outside plan would have the right to do so.

Thus, it is possible that consumers could elect to join a plan under conditions of managed competition, or a private insurance indemnity plan, or a large corporate sponsored health plan. In each case, a standard information package would be available to explain premium costs, coverage, co-payments and deductibles. Likewise any services offered in addition to the standard benefit package would be explained. In addition, standard information regarding the fiscal viability of each plan would be mandated, together with succinct reports of outside independent consumer satisfaction surveys, grievance reports, and a limited number of variables such as performance indicators (e.g. vaccination rates or mammography rates) and finally several outcome variables (e.g. post-surgical mortality rates or complication rates).

National quality improvement program

To achieve the first goal of health care reform, namely facilitating ongoing quality assessment and improvement, “I have a dream” that the premises of “The Netherlands Quality Improvement Model” will be incorporated into a program designed to achieve the following three goals, namely to provide:

- ongoing quality improvement,
- patient and consumer protection,
- information for consumer/provider decisions.

The strategic approach will be: (1) to have everyone responsible and accountable for quality improvement; (2) to provide valid information, technical assistance and resources to facilitate improvement; and (3) to involve the total community, especially the government to provide “tools, not rules”. Note that these elements are the premises of “The Netherlands Model” for quality management.

Figure 3 outlines a suggested organizational structure to facilitate implementation of a national quality improvement program. The National Quality Plan would be administered by a board that would report directly to the National Health Board. The quality board would be responsible for establishing overall quality guidelines, standards, formats and language to facilitate state and local quality management activity. In addition, they would determine the 30–50 variables that would constitute a formal report card to be completed annually by each plan. The report card would specify fiscal variables, satisfaction variables, performance variables and outcomes to be reported through the state quality center to the national quality board.

Each state would be mandated to organize a State Quality Plan that would be responsible for all “external quality assurance” activities. These would include compiling, validating and analysing routinely collected report card data; data related to any local state-wide studies that seemed indicated. The state plan would probably be administered by an organization spon-
Issues in Quality of Health Care

TABLE 2. Starfield study—Hopkins

<table>
<thead>
<tr>
<th>Primary Care</th>
<th>Satisfaction/ Cost</th>
<th>Health Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>High</td>
<td>Netherlands</td>
<td>Netherlands</td>
</tr>
<tr>
<td></td>
<td>Netherlands</td>
<td>Netherlands</td>
</tr>
<tr>
<td></td>
<td>Canada</td>
<td>Sweden</td>
</tr>
<tr>
<td></td>
<td>Canada</td>
<td>Canada</td>
</tr>
<tr>
<td></td>
<td>Sweden</td>
<td>Australia</td>
</tr>
<tr>
<td></td>
<td>Australia</td>
<td>West Germany</td>
</tr>
<tr>
<td></td>
<td>West Germany</td>
<td>Australia</td>
</tr>
<tr>
<td>Low</td>
<td>United States</td>
<td>United States</td>
</tr>
<tr>
<td></td>
<td>United States</td>
<td>UK</td>
</tr>
<tr>
<td></td>
<td>United States</td>
<td>UK</td>
</tr>
</tbody>
</table>

Source: Starfield B, JAMA 266: 2268, 1991 [4].

sored by both state and private organizations independent of official government channels. Using federally developed reporting forms, they would elicit data related to fiscal, performance and outcome variables directly from each accountable health plan. They would draw representative samples of the population to measure satisfaction, out-of-pocket costs and health outcomes for analysis. The state quality plan would be responsible for coordinating all external quality assurance activities. These activities might include facility accreditation, personnel licensure and certification, and OSHA reviews, and activities to minimize redundancy and intrusiveness.

An independent Quality Improvement Resource Center would be subsidized to facilitate internal quality improvement activity. The center would provide QI technical assistance, education, measurement instruments, health science information, such as technology assessments, and other resources judged to be valid, reliable and needed. This center would be independent of all official agencies or data-gathering organizations such as the State Quality Plan. They would operate on a fee-for-service basis and in part thrive as they added value to the system.

STRENGTHENING PRIMARY CARE — KEY TO SUCCESS

Strengthening our primary care system would have a profound impact on improving both the

benefits and cost-effectiveness of our overall health care system. This development would directly support stated administration policy regarding health care reform. Most important, achieving this task will likely prove politically neutral for nearly everyone concerned. To enhance our primary care system, we suggest: (1) an evidence-based rationale establishing the primacy of primary care, highlighting several factors immediately amenable to quality improvement; and (2) ideas for planning a strategy to achieve these improvements.

Establish the primacy of primary care

Most objective observers agree that subspecialists are most likely to keep up with recent advances in their subspecialty. Even more important, few will argue that they probably achieve the best medical outcomes. Why then in the US where we have the greatest number and proportion of specialists and subspecialists with the finest and most advanced technology, are we among the worst in terms of cost, satisfaction and national health status? To answer this question we need to look at the distribution of medical care skill level to medical care need.

In her classic multinational study, Starfield [4], a former Chairman of the Department of Health Policy and Management at Johns Hopkins, points out that the strength of primary care may be a major determinant of the success of a total health care system, particularly as measured by cost, satisfaction and health status of the population (Table 2).* A number of

*We also note that the Starfield study contains an apparent paradox of its own given the above conclusion. That is, the apparent anomaly between the high level of primary care in the UK and the low ranking of the UK for satisfaction/cost and overall health status. Starfield attributes this exception to the chronic underfunding of the UK health care system under more than a decade of Conservative leadership whereby subsidies for such programs as preventive care and nutritional supplements (e.g. school milk programs) were cut.
different studies conducted during the past two decades support and reinforce Starfield's conjecture. Each of these studies independently examines a single facet of the health care delivery process. Taken together they may provide the basis for changing our system. The Payne–Lyons study, as analysed by Rhee [8], indicates a narrow domain specificity of specialty and subspecialty competence (Figure 4).

Note that certified sub-specialists had the highest proficiency scores, nearly double that of generalists, as long as they managed patients within their specialty domain. However, as soon as these subspecialists provided care outside of their domain, their proficiency was among the worst measured. These classic findings have been strongly supported by Elstein [9] in the US, and Schmidt and Norman [10] in The Netherlands and Canada. Their inferences regarding the domain specificity of medical expertise have been confirmed by over 30 years of study of the determinants of medical problem-solving skills.

In this country the problem is further compounded by the fact, as Starfield points out, that unlike nearly all other industrialized nations, patients in the US can select a subspecialist directly and be accepted for care, rather than having to be screened by a primary practitioner. Unless the patient's judgment is astute, he or she may end up with a doctor in the wrong domain and receive inferior care with possibly less than optimum results at an exceedingly high cost.

The National Ambulatory Medical Care Survey [11] has shown that in ambulatory care, most reasons for visits are for common complaints possibly associated with self-limited illness (Table 3). Simple skin rashes, muscle aches, upper respiratory infections, and various aches and pains are a major part of office practice. These conditions usually do not need subspecialty care. However, among these patients with common complaints are those with serious illness who may require higher levels of care (e.g. hospitalization or subspecialty referral). The problem is identifying and accurately diagnosing this critical minority. Identifying these patients requires inductive reasoning based on a large and expanding data base of medical knowledge including community disease prevalence across all medical domains, and the totality of proven medical advances of expanding health care technology.

In addition to the fact that most patient visits do not require the services of a specialist, let alone a subspecialist, is the fact that there is an insufficient patient base for a substantial proportion of practicing specialists and subspecialists. Years ago White [12], in an article among the first to formalize the concept of primary, secondary and tertiary care, estimated the population base needed to maintain specialty care competence and income. He estimated that it requires a 0.5–5.0 million population base to support a regional tertiary center; 25–500 thousand to support a community secondary care center; and 5–25 thousand to support a primary care health center. An increasing proportion of primary care is probably being provided by specialists practicing outside their domain of expertise. White [12] further pointed out that most physicians are trained in tertiary medical centers with patients having rare and

### Table 3. Patient reasons for visit*

<table>
<thead>
<tr>
<th>Complaint type</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Common</td>
<td>87.6</td>
</tr>
<tr>
<td>No symptoms</td>
<td>28.4</td>
</tr>
<tr>
<td>Skin/Muscular</td>
<td>19.1</td>
</tr>
<tr>
<td>EENT</td>
<td>16.5</td>
</tr>
<tr>
<td>Visceral</td>
<td>15.9</td>
</tr>
<tr>
<td>Vague</td>
<td>7.7</td>
</tr>
<tr>
<td>All Other</td>
<td>12.4</td>
</tr>
</tbody>
</table>

*National Ambulatory Medical Care Survey (1.7 billion visits).
EENT, eye, ear, nose and throat.
complex problems that do not represent community practice. For example, his studies indicated that of 1000 people at risk in the total population in a given year, 720 will seek ambulatory care at least once, 100 will be admitted to a hospital and 10 (1%) will end up in a tertiary center.

Both the National Ambulatory Medical Care Survey and the study by White indicate a need for greater numbers of primary care physicians as opposed to more specialists. However, the trend for the past 25 years has been an increasing number of specialists and subspecialists and a sharply decreasing number of primary care practitioners (Figure 5). Consequently, increasing numbers of patients are probably receiving primary care from specialists and subspecialists.

A result of specialists and subspecialists practicing primary care may be an upsurge in the number of diagnostic errors. Recent studies indicate that the problem is both significant and growing (Table 4). The three studies shown indicate 33 - 64% of patients seeking medical care will have one or more serious diagnostic errors made in their care [13-15]. In Medline, during a five-year (1985-1990) period, there were less than 2500 articles indexed on all non-diagnostic quality issues, and nearly 6000 on diagnostic errors alone.

The evidence of these studies, when taken together, may explain the paradox of the current US health system where we often provide the best specialty care in the world, but end up with a national health status that may be among the worst in the industrialized world. The lynchpin to a sound health care system is the primary care physician. Unfortunately, a 1992 study by Colwill [16] indicates that the number of medical students going into primary care is continuing to decline. This loss of supply of future generalists will undoubtedly exacerbate the problem.

Another major problem of the imbalance between primary and specialty practitioners is the substantial increase in the overall cost of medical care. Davis [17], also a former Chairman of the Department of Health Policy and Management at Johns Hopkins, demonstrated that physician oversupply leads directly to higher per patient costs and increased unnecessary care as physicians do more for each person to maintain their income. Additionally, specialists and subspecialists, having been trained in the use of sophisticated technology in both diagnostics and treatment, might be making increased use of this technology with their patients. Figure 6 illustrates this point from a recent study by Berenson and Holahan [18] which suggests that laboratory tests, particularly imaging technology, may be among the leading sources of increased physician Medicare-Medicaid costs. It may be that the glut of specialists and subspecialists is directly related to current reduction in overall quality of
care, and is contributing to the spiraling health costs that now threaten our entire national economy.

*Suggested strategy for change*

Improving the quality of the overall health system of the US, particularly in terms of outcomes such as national health status, will depend on a strong primary care system. Strategies to strengthen national primary care include: (1) correction of the imbalance in the ratio between the number of primary care physicians and specialists; (2) enhancing the status, contribution and rewards of primary practitioners; and (3) strengthening primary care scholarship and scientific knowledge through research and education. In this section, we discuss each of these suggested policy initiatives.

Improving the balance of primary and specialty physicians will involve two elements: (1) medical student motivation to select primary care housestaff positions that are available; and (2) increasing the availability of *attractive* primary care residency opportunities. Considering factors that motivate students to value primary care as a career opportunity, ultimate professional income may be of major importance. Colwill's study [16] clearly indicates that medical students decisions on specialty selection is influenced by the financial rewards associated with a given specialty (Figure 7). Major policy change will be needed to enhance both the status and income of primary practitioners to make this career role more attractive to medical students and housestaff. As Budetti [19] so cogently points out, federal reimbursement policies encourage medical schools and teaching hospitals to devalue primary care. “There are very weak, albeit explicitly favorable, policies in PHS Act and very powerful, albeit implicit, negative policies under Medicare. The net result is federal policy that provides specialty-oriented training incentives and creates major disincentives for primary care training”. Budetti also points out that current activity for health system reform, with emphasis on “managed health care” may provide opportunities to correct this situation.

We judge that another important area where policy change influences primary care career decisions is in undergraduate medical education. Students are often encouraged early in their medical school years to identify a future specialty area other than primary care. The pervasive subliminal message frequently given is that only those who are not “good enough” to get in top specialties or those with “little ambition” go into primary care. Students are further led to believe that they cannot practice competent medicine with only a broad but shallow base of knowledge. Finally, students often mistakenly consider the status of primary care faculty role models to be low in terms of their scholarly contribution, salary and influence, as compared to specialists. Faculty in both medical schools and teaching hospitals must be encouraged to recognize the critical importance of improving the status of primary care as a profession. If these talented specialists were to be part of planning teams to effect this change, there might be a growing recognition of the necessity of primary practitioners. One result might be that arrogant attitudes towards generalists in teaching institutions as well as in the community (e.g. the lowly “LMD”), may become as out of place and unwarranted as gender harassment. All of these changes could encourage students to value primary care career opportunities more highly.

The number of attractive primary care residency slots available could have a direct bearing on influencing medical students to select this field as a career choice. We suggest that the best place to start is strict control of the number and types of residency and fellowship training positions available. The Department of Veterans Affairs (VA) is in an exceptional position to facilitate this change. The VA subsidizes a substantial proportion of residents in this country,
and provides rotational training experience for an even greater proportion of housestaff in training. The VA could do the nation a great service by exerting its influence in encouraging an immediate enhancement of the primary care residencies they support.

If US primary care change is to have impact, we will need to go far beyond merely increasing the number of generalists in this country. I suggest that strategies are required that will enhance the status, contribution and rewards of these vitally needed practitioners. One of the most immediate targets for such policy change relates to the profile of new skills these practitioners must acquire to make a unique and substantial contribution to improving the quality and cost-effectiveness of clinical care.

First, the clinical experiences available to students choosing a primary care career must be changed from a predominance of patients requiring in-patient subspecialty care to a more balanced mix of ambulatory and in-patients. This change will provide a more realistic epidemiological understanding of the prevalence and severity of disease and illness in the community as a whole. Such knowledge is essential for developing diagnostic skills that cut across all primary and specialty domains. Current housestaff acquire a skewed notion of a priori probabilities of disease that may be a leading determinant of future diagnostic error. Finally, emphasis on diagnosing and treating patients with simple common complaints where caring and health education are likely more important than curing will more frequently require major educational experience in the ambulatory setting.

Both undergraduate and graduate primary care programs should include specific training in the principles and tools of health care quality management. This emphasis will facilitate their playing a central role in “managed health care”, which is becoming more popular. Such skills must include familiarity with and expertise in both medical informatics and executive management. Medical informatics would include the use of expert systems to aid in clinical and administrative decision-making. By this means, a broad base of validated knowledge of specialists and subspecialists throughout the country can be focused on a specific primary care patient to assure an accurate diagnosis and more appropriate referral when needed. Computerized expert systems enhancement of patient history taking alone could substantially improve the accuracy and cost-effectiveness of diagnosis as shown by Peterson et al. [20] as noted in Table 5. In this study, the investigators followed a group of patients for up to a year to establish a “gold standard” diagnosis. Then, going back through the medical record, they identified at what point in the medical workup when the “gold standard” diagnosis was established by the local physician. In more than three out of four cases the diagnosis was made after the history alone was taken. Unfortunately, practitioners often short circuit history taking and rely more on laboratory tests that require less of their time, but cost the system far more.

Another educational enhancement of the primary practitioner should be an understanding of the concepts and processes of managed health care. Training in executive management would include expertise in health care cost and benefit measurement as well as effecting organizational change. Such skills will enable the primary care physician to optimize both health and economic benefits (e.g. reduced out-of-pocket costs for all of the patients for whose care he/she is responsible). As noted by Budetti [19] this training is essential if primary care physicians, not insurance clerks, are to be the managers of future care under any health care reform.

Improving the rewards of primary care will initially be a major problem. Federal reimbursement policy could provide for enhancement of reimbursement for primary practitioner services. The new Medicare Resource-based Relative Value Scale (RBRVS) is perhaps a good start. However, arbitrary small enhancements of payment will pale in view of the value primary physicians are likely to add to our overall system. The savings possible by more accurate diagnoses, more appropriate referrals

### Table 5. History: key to diagnosis

<table>
<thead>
<tr>
<th>Final diagnoses based on</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>History alone (Hx)</td>
<td>76</td>
</tr>
<tr>
<td>Hx and physical exam (PE)</td>
<td>12</td>
</tr>
<tr>
<td>Hx, PE and Lab tests</td>
<td>11</td>
</tr>
</tbody>
</table>

to specialty and subspecialty care, let alone more appropriate hospitalizations, will produce a reduction of present waste that is estimated to be over $200 billion per year. Further, based on the likely health care benefit improvement they would eventually achieve, primary practitioners would clearly earn substantial enhancement of their income as the nation starts to recognize their true economic value.

A more difficult strategy will be required to improve the status and prestige of primary practitioners. Their role in managed care will be an immediate and powerful enhancement, but as a profession, they will also need to make an academic contribution through research and education. I suggest that research in the field of quality management should be a major focus. Further enhancement of the Robert Wood Johnson Clinical Scholars Program, and especially their new Generalist Physician Faculty Scholars Program, would be essential to produce the professional skills needed for this task. For example, primary practitioner scholars could focus on developing needed health care outcome and benefit measures as suggested by Williamson [21] and later by Ellwood [22]. Utilizing such measures with available national and local epidemiological data could provide immediate priorities for health systems improvement emphasis. These scholars could produce information syntheses to identify clinically relevant and valid information for developing guidelines encompassing proven medical advances. Dissemination of new knowledge could be enhanced by use of expert systems that would compare specific patient management with valid guidelines to identify where care improvement was required to achieve enhanced outcomes. In the aggregate, such research effort will provide the means for improving our health system as a whole, enhancing the status of primary care academic faculty and provide role models for increased numbers of students motivated to select primary care as their career goal. This accomplishment would contribute to whatever health systems organizational framework we finally adopt in this country. This accomplishment, alone, would be worth the entire investment needed to achieve this enhanced value of primary care scholarship and the resulting enhanced prestige of primary care scholars.

SUMMARY AND CONCLUSIONS

In summary, I have reviewed the basic elements on health care reform in the United States and have concluded that fundamental changes in our overall system are critical. I have examined evidence that supports inferences regarding the critical role of primary care in determining the ultimate quality and success of our health care system as a whole. It seems clear that this nation has a critical need to correct the rapidly eroding structure and impact of our primary care system. I have suggested several strategies necessary to effect improvement. We need to correct the numeric balance of generalists to specialists by enhancing motivation to enter this career field. To enhance primary care as a career choice, we must increase the status, contribution and rewards of primary practitioners. Finally, to facilitate the future growth and success, we must enhance the scholarly base of knowledge in this field, particularly as related to quality improvement technology and managed health care.

From the above discussion I conclude that primary care professionals must have a major role in facilitating ongoing quality improvement of the US health care system. This opportunity may be realized by the important role they will fill in facilitating the coming era of managed health care. Finally, to achieve this vision I suggest three critical strengths that will underlie the success of primary practice, namely that primary care practitioners must have:

1. the training and experience for developing inter-domain diagnostic expertise cutting across all specialty areas, to make these clinicians the major referral source for access to the specialties and higher levels of care;

2. appropriate training and skills to manage the majority of patients having common, uncomplicated or self-limited health problems, or those requiring more caring than curing to improve their health status;

3. the most salient opportunity to provide preventive care, assure continuity of care, coordinate health education, and facilitate monitoring and improving quality in terms of health, economic and satisfaction outcomes for all of their patients.
Acknowledgements: The author wishes to acknowledge the invaluable assistance provided by Charlene Weir, Shelley Wood, and Charles Turner in searching references, Michael Lincoln in rerunning a National Ambulatory Medical Care data summary from public use tapes, Kirt Cundick in preparing the figures, Evelyn Cope in assisting with manuscript preparation, and William L. Hodson whose generous help and support made this project possible.

REFERENCES