Does a universal health care system cause a decrease in quality of care?: A comparison of American and British quality in primary care.

N Brzezinski

Citation

Abstract
Introduction: With the high costs of health insurance premiums, many Americans are looking for ways to improve the current health care system. To consider universal insurance as an option, a closer comparison should be performed of the American and British healthcare systems.

Background: Quality of care encompasses an array of definitions, dependent on the author or institute defining the term. The British National Health Service represents a universal care system run by the government's Department of Health in a structured and uniform manner. The United States' health care system, however, is very confusing and is operated by several different entities, including the government, managed care organizations, and insurance companies.

Methods: A comparison of studies examining the quality of primary care in America and Great Britain. A computerized search for relevant studies was conducted in the PubMed and CINAHL databases, from January 2000 to February 2008. This review includes systematic and observational reviews.

Discussion: The American authors of the first study conclude that on average, Americans receive about half of the recommended medical care processes required according to their individual needs. The British authors conclude that the quality of care for all three conditions studied increased substantially in association with the systems based strategy of clinical governance.

Conclusion: Assessing the entire health care system of a country is a large undertaking that few researchers are willing to address. Without a study directly comparing the two countries' health care systems, a true assessment of quality cannot be performed. It is doubtful that a truly perfect health care system can ever be developed, but the global trend has been towards the universal system.

INTRODUCTION
An unequivocal truth in today's society is healthcare's necessity to survival, whether the care is preventative or reactionary. When healthcare is treated as a commodity, however, it can become more of a luxury than a necessity. In a country where over 45 million people live without healthcare insurance, too many Americans find that proper care is often out of reach.1 Most Americans are insured through private means such as an employer, therefore allowing millions of children, part-time employees, and the unemployed to fall through the cracks due to the rising cost of coverage.

The United States government's Centers for Medicare and Medicaid Services (CMS) do provide healthcare insurance for those over age 65 (Medicare) and those living in poverty (Medicaid). There are also numerous individual state programs that offer assistance, many for children. However, in a free market economy, insurance premiums are certain to rise, causing employers across the country to determine that their employees' health plans are no longer cost effective.

This is the environment in which many Americans are questioning whether or not universal healthcare is a probable solution. Americans have grown tired of paying out huge chunks of their paychecks every month, and receiving little to nothing in return when the insurance companies deny their claims. The cost efficiency of a universal system is certainly a valid concern, but many argue that the quality of care in health systems in countries such as Canada or England is simply not on par with that of the United States. But how true are these allegations? Do the Canadian people really wait six months for surgery? Are the British less...
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healthy than Americans? Are American doctors more competent?

All of these questions are legitimate. Americans demand nothing but the very best, and this paper intends to find out if a universal system is truly inferior. Virtually every Western country has a universal healthcare system in place; however, not all of them can be discussed here. The National Health Service of England will provide the example of a universal system for comparison. The following paper will provide an overview of the American and British healthcare systems. It is in no way intended to be a comprehensive evaluation of either system because both are far too complex to explore every detail fully.

BACKGROUND

Quality of care is a difficult term to define. Deficiencies of quality are most often categorized as overuse, underuse, and misuse of healthcare services.2 But the definitions of quality are as varied as the people and organizations offering them. The American Medical Association defined high quality care in 1984 as care “which consistently contributes to the improvement or maintenance of quality and/or duration of life”.3 In 1990, the Institute of Medicine claimed that “quality consists of the degree to which health services for individuals and populations increase the likelihood of desired health outcomes and are consistent with current professional knowledge”.4

Some authors do acknowledge that quality will always differ from person to person, largely dependent on “where we are located in the system of care and on what the nature and extent of our responsibilities are”."5 In a scaled down sense, however, many healthcare practitioners will rely on definitions of quality that emphasize the “technical excellence with which care is provided and the characteristics of interactions between provider and patient”.4

According to Bodenheimer, quality can be divided into five components: access to care, adequate scientific knowledge, competent healthcare providers, separation of financial and clinical decisions, and organization of healthcare institutions to maximize quality.6 When any one of these aspects is lacking, it allows quality to slip below the standards. Some of these components, however, are highly subjective. Outside of emergencies, few medical treatment options are undertaken without considering the financial burden. Too often, “who will pay for it?” becomes more important than “what is the appropriate option?”

Every healthcare organization provides a different level of quality, with higher levels of quality always correlating with the experience of those providing the care.7 High quality standards do rely heavily on a well-organized system, with real improvement in quality dependent on “continuous improvement throughout the organization through constant effort to reduce waste, rework, and complexity”.8 The more efficient and content the work environment is, the higher the quality of care experienced by the patient.

The two distinct systems whose quality will be examined are America's and Britain's. Although these systems are arranged and operate differently, their fundamental “topography” is similar. Primary care involves common health problems and preventative measures. Secondary care constitutes more specialized problems, both in outpatient and inpatient settings. Tertiary care refers to the management of rare and complex disorders as well as severe trauma.

The British healthcare system is known as the National Health Service, or NHS. This system is arranged in pyramid-like structure with primary care at its base. Ambulatory care and referrals are overseen by general practitioners (GPs) who also serve as gatekeepers for access to the rest of the healthcare system. All people wanting access to NHS services must be enrolled with a GP, and all patients must have a referral from their GPs to see specialists. Secondary care is compromised of physicians in specialties such as psychiatry, neurology, and surgery. All specialty physicians are located at hospital-based clinics, seeing outpatient referrals and inpatients. Tertiary care involves subspecialties such as cardiothoracic surgery and pediatric oncology, located at regional tertiary care facilities.

American healthcare follows a more dispersed model. The topographic levels of healthcare still exist similarly to those in the UK, but the American system is much more fluid. The American patient may enter the healthcare system at any level he pleases, essentially eliminating the need for a primary care physician (PCP). Instead of seeing a PCP for an initial evaluation, Americans “have become accustomed to taking their symptoms directly to the specialist of their choosing”.”6 This has led to a decrease in the number of PCPs “as only 13% of physicians in the United States are general or family practitioners”.9 The NHS, in contrast, has a system where two-thirds of all physicians are GPs.10
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to the comparatively low numbers of PCPs in America, the healthcare system's topography resembles a diamond more than a pyramid. Adding to this structure is the tendency of specialists such as internists or pediatricians to take on the role of primary care provider to their patients.

Since its inception, the British NHS has followed a very structured pattern. The Department of Health (DOH) and its secretary of state for health operate the administration of the NHS. The country is then regionalized into Strategic Health Authorities (SHAs). Ten SHAs are responsible for managing, monitoring, and improving local services in their regions.11 The next level down in the NHS is comprised of trusts, which organize and manage specific areas of medicine, such as mental health, primary care, ambulance services, acute care (hospitals), and social services.

All physicians must belong to a trust, whether they practice in primary or specialty medicine. Primary care trusts are responsible for “collectively planning primary care and community health services in their areas, contracting with hospitals and hospital consultants for specialty care, scrutinizing GP practice patterns, and implementing quality improvement activities”.12 The NHS believes that the trusts will increase GP involvement in budgetary planning and promote greater GP accountability for quality of care. Although these trusts are similar to the US's independent practice associations, the NHS's trusts are directed more towards “planning for their population's health needs and improving quality of care”.6

Any resident of the UK wanting to take advantage of the government-funded healthcare system must be enrolled with a local GP. Patients do have a choice of GPs, and they may switch at any time. If a patient is wealthy enough, he or she may opt to buy private medical insurance and see GPs who operate private practices outside of their NHS employment. This supplements the income of doctors who are traditionally paid via capitation, or a set amount of funding per patient. Specialists were traditionally salaried employees of the NHS, but with recent reforms, they are now paid through a negotiated contract with both the primary care trusts and the SHAs. The NHS limits the number of specialist slots and controls the supply of personnel and facilities and the budget for medical resources.6

Unfortunately, America's healthcare system is much more complex, full of the alphabet soup of HMOs, PPOs, IPAs, and MCOs. As stated earlier, America's system is a dispersed model, with more emphasis on the second tier, or specialty medicine. Both payment and receiving services has become increasingly confusing. Most patients have the option of paying for services via out of pocket payments, individual private insurance, employment-based private insurance, and government financing.

Out of pocket payment is the simplest form of payment but also the most unrealistic with today's healthcare costs. Private insurance can either be owned individually or through an employer. Individuals paying for their own insurance pay a premium to an insurance company for a plan, and when services are used, insurance reimburses the provider. Employment-based insurance is similar to individual, only the employer pays the premium to the insurance plan. Some employers may pay the entire amount to the plan, but most employers require their employees to pay part of the premium. The government began financing Medicare and Medicaid programs for the elderly and poor, respectively, in 1965 via taxes. Medicare is a complex system, so to simplify greatly: Part A covers hospital services, Part B covers physician services, Part C or “Medigap” covers some who fall into a gap of non-coverage, and the recently introduced Part D contains a prescription drug plan. Medicaid is a federal program, but it is operated and administered by individual states.

Providers receive payment or reimbursement for services rendered in several different ways. Fee-for-service is payment per visit or procedure, and can apply to both physicians and hospitals. Hospitals may also be reimbursed on a per diem basis, paying for all services rendered delivered in one day. Reimbursement by episode of illness is one sum for all services rendered during one illness. This applies to global surgical fees for physicians and diagnostic-related groups (DRGs) for hospitals, among other examples. Capitation is one payment made for each patient's treatment within a month or a year. Salaries for providers and global budget reimbursements for hospitals are the all encompassing payment options.

Physicians and hospitals were traditionally paid on a fee-for-service basis, but the advent of managed care organizations (MCOs) changed the landscape of services and payment in the attempt to control costs. Three major forms of MCOs in America are utilization review, preferred provider organizations (PPOs), and health maintenance organizations (HMOs). Utilization review is a fee-for-service payment based on a third party payer (insurance company or
government agency) who assumes the power to authorize or deny payment for expensive medical interventions such as hospital admissions, extra hospital days, and surgeries. PPOs are loose-knit organizations in which insurers contract with a limited number of physicians and hospitals who agree to care for patients, usually on a discounted fee-for-service basis with utilization review. HMOs are organizations which require their patients (except in emergencies) to receive care from providers, physicians and hospitals, within the organization.

In this system of confusing payments and insurance plans, the patient has several options. Choosing an insurance plan becomes extremely complex when one must consider what services and providers the plan may cover, how high deductibles and copayments are, and a provider’s participation with certain insurance groups. Many Americans do not have the luxury of choice and must accept the insurance that is offered by their employers.

Barring limitations from insurance companies, Americans do have the choice of seeing any PCP they want, or not enrolling with one at all. The U.S. healthcare system allows patients the freedom of seeing secondary and tertiary specialists without the referral from a PCP first, with a few exceptions from some doctors and insurance plans. Patients who never see a PCP will never be educated on preventative measures for chronic diseases and will always be utilizing reactionary medicine. The structuring of a country’s healthcare system can have extraordinary effects on the quality experienced by patients.

METHODS

A computerized search for relevant studies was conducted in the PubMed and CINAHL databases, from January 2000 to February 2008. The search was limited to English language studies and journal articles. The keywords “American healthcare system” and “quality of healthcare” were used to search for articles based on studies of American quality of care. The keywords “study,” “quality of care,” “Britain,” and “NHS” were used to search for articles based on studies of British quality of care. Due to a lack of articles studying quality over the spectrum of the British NHS, the qualifier “primary care” was added. No articles were available to compare the two countries’ systems directly. Articles based on specialties, such as mental health, or the treatment of a specific disease process, such as colon cancer, were not included. This review includes systematic and observational reviews.

DISCUSSION

STUDY NUMBER ONE

In “The Quality of Health Care Delivered to Adults in the United States,” Barbara McGlynn, et. al claim that there are no comprehensive views on the quality of care for the average American patient. The authors set out to assess the “extent to which the recommended processes of medical care – one critical dimension of quality – are delivered to a representative sample of the U.S. population for a broad spectrum of conditions”. They worked in conjunction with the Center for Studying Health System Change (CSHSC), which monitors changes in health care markets of the U.S. via the Community Tracking Study (CTS).

The authors randomly polled adults living in 12 metropolitan areas using random-digit-dial telephone surveys from October 1998 to August 2000. The cities included were Boston, MA; Cleveland, OH; Greenville, SC; Indianapolis, IN; Lansing, MI; Little Rock, AR; Miami, FL; Newark, NJ; Orange County, CA; Phoenix, AZ; Seattle, WA; and Syracuse, NY. Participants were asked to complete a telephone interview regarding their health history and to provide a listing of all individual or institutional health care providers whom they had seen during the previous two years. Participants who agreed to provide access to their medical records were then asked to sign a written consent before sending photocopies of their records in for central abstracting.

Initially 20,028 adults were contacted; 2,091 were deemed ineligible due to leaving their areas of residence after the start of the study. From the remaining 17,937 eligible adults, 10,404 participated in the phone interview, had seen a healthcare professional in the past two years, and agreed to provide access to their medical records. The final count of those whose records were received was 6,712, or 37% of the eligible adults originally polled.

The authors’ quality indicators were derived from a selection of acute and chronic conditions that represented the leading causes of illness, death, and utilization of health care in each age group, as well as preventative care related to these causes (see Table 1). For each condition, a panel of physicians reviewed established national guidelines and the medical literature and “proposed indicators of quality for all phases of care or medical functions (screening, diagnosis, treatment, and follow-up).” Measures of processes were primarily chosen as indicators due to their representation of...
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The authors developed computer-assisted abstraction software to allow the manual abstraction of charts to be tailored to the specific record being reviewed. This software provided interactive checks of the quality of the data, calculations, and classifications during abstraction. The software then determined which indicators applied to each patient. Each indicator was scored at one of three levels: the individual participant, the participant-provider dyad, or the episode. A score was kept of how many times an indicator was used and its appropriateness to the patient's history. Quality was based on appropriate services received for patients' chronic or acute conditions.

Of the participants, the authors claim that their characteristics “parallel the profile of persons receiving medical care” in the National Ambulatory Medical Care Survey. The average age was 44.7. Women, whites, and the well-educated tended to visit their physicians more often. Forty-three percent of participants had one or more of the chronic conditions assessed, and 34% had one or more of the acute conditions.

The overall results of the study showed that participants received “54.9% of recommended care.” This level of performance was similar in the areas of preventative, acute, and chronic care. The level of performance for medical function was 52.2% for screening and 58.5% for follow-up care. The authors' definition of “mode” refers to the mechanism of care delivery required for the provision of the indicated process, and was found to have greater variation than among functions in adherence to the processes studied. Any care requiring a provider-patient encounter or other intervention had the highest rates of adherence whereas processes involving counseling or education, such as smoking cessation education, had the lowest rates of adherence.

The study also found a greater problem of underuse of care than overuse. Forty-six percent of patients did not receive recommended care when 11.3% received care that was not recommended and potentially harmful. There was also variability in the quality of care scores among 25 of the medical conditions included. Participants with senile cataracts received 78.7% of the recommended care, while those with alcohol dependence received only 10.5% of recommended care.

The authors proceeded to list many of their findings, including statistics such as “only 61 percent of participants with a myocardial infarction who were appropriate candidates for aspirin therapy received aspirin.” They came to the conclusion that “on average, Americans receive about half of recommended medical care processes…[with] the gap between what we know works and what is actually done…substantial enough to warrant attention.”

Little time was spent analyzing the study, with the authors only mentioning a potential limitation when referring to the size of the panel. They acknowledged that due to its small size, the results may be biased, but “the direction of the bias is not clear.” They went on to state that because most participants were more likely to use the healthcare system, the results may be “biased toward an underestimation of deficits in quality related to underuse.” They suggested that in order to start improving the quality of care, routine availability of information on performance at all levels, with a “focus on automating the entry and retrieval of key data for clinical decision making and for the measurement and reporting of quality” is needed.

If carried out properly, this ambitious study could have been a major milestone for assessing the quality of healthcare in America. The first problem is the size of the participant panel. Six thousand, seven hundred twelve people are simply not enough to make a serious representative comparison to the entire population of the United States – over 252 million people. McGlynn, et. al also get bogged down in a complex and confusing system of variables and software analysis. The inclusion/exclusion criteria of the quality indicators, which are not even explained within the context of the article, are hazy at best.

Any study should have a proper self-critique, but the authors do not seem to believe that it is necessary. Too much remains either unexplained or not explained well enough. The quality indicators and statistical analysis remains difficult to grasp, and the process of “chart abstraction” is unexplained. The authors made a noble attempt to study an immensely important topic, but fall short of the mark. Too much is lacking to label this an appropriate study.
STUDY NUMBER TWO

In “Improvements in quality of clinical care in English general practice 1998-2003: longitudinal observational study,” Campbell, et. al examine how the quality of care for three chronic conditions has changed over a five year period. In recent years, the NHS and primary care trusts have been focusing more on improving quality of care. Their attempts have included introducing “several national guidelines (national service frameworks), which set minimum standards for the delivery of health services in England.”

The study was begun in 1998 and measured the quality of care for coronary heart disease, diabetes, and asthma. A stratified random sample of 60 general practices was included from the six different geographical areas of Avon, Bury/Rochdale, Enfield, South Essex, Oldham, and Somerset. As of 2003, 57 of the practices were still in existence, and 42 of them (74% of the original) were still actively participating in the longitudinal study. Table 2 shows the characteristics of the sample practices in 1998 and 2003, as compared to the rest of the nation.

Research staff extracted data from medical records on computer and paper to assess the quality of clinical care for the three disease processes. The data were collected based on a previously developed evidence based review criteria. Coronary heart disease had 15 quality indicators, diabetes had 22 indicators, and asthma had 13. Patients were randomly selected using a list of relevant drugs. The authors then “checked individual records to ensure that the patient did have the relevant condition.” Data were obtained for up to 20 patients per condition per practice in 1998, and 12 patients per condition per practice in 2003.

Each patient was given a quality score based on “a simple ratio of the number of chronic disease indicators for which care was provided divided by the number of indicators for which care should have been provided (this number differed between patients, as not all indicators applied to all patients).” Practice level quality scores were based on the average of the scores for the individual patients. Statistical analysis was performed using Stata 8.1 to investigate individual quality indicators and several predictors of the change in quality scores from 1998 to 2003.

According to the authors, the first sample of 60 practices in 1998 was “nationally representative of all English practices.” Eighteen of the practices did not participate in the 2003 study due to the retirement of three doctors and 15 others declining to take part. The authors state that the more recent sample was no longer nationally representative, according to the characteristics in Table 2. Due to this change in sample size, mean quality scores were estimated for the full sample of 60 practices by using probability and statistical modeling. The probability was based on the characteristics of the three disease processes, practice size, training status, and socioeconomic deprivation score. The authors included results with and without the adjustments. The summary of results is shown in Table 3.

The results showed significant improvement in the quality of treatment for coronary heart disease. On average, patients in 1998 received 60.5% of care recommended, or 60.5% of indicators applicable to the patient were met. By 2003, patients received 78.2% of care. The percentage of recommended care that was provided increased for all the individual coronary heart disease indicators except prescription for aspirin or recorded advice to take it. The increase was statistically significant for 11 out of the 15 indicators. Additionally, in 1998, only “four out of 15 indicators were achieved for more than two thirds of patients. By 2003 this had increased to 10.”

In 1998, asthma patients received 60.2% of care that they should have received. By 2003, this figure increased to 70.3%. There was an increase in all indicators with the exception of peak flow taken during a consultation and recording of speech/pulse/respiratory rate during an exacerbation. The increase was only significant for four out of 13 of the indicators: action taken in relation to exercise induced bronchospasm, and recording of smoking advice, peak flow, and symptoms.

The diabetic patients in 1998 received an average of 70.4% of recommended care. In 2003, 77.7% of care was received. Eighteen of 22 indicators increased, but only seven had statistically significant increases. The increased indicators included measurement of serum cholesterol, control of serum cholesterol to 5.0 mmol/L or below, control of blood pressure to 140/85 mm Hg or below, and the recording of creatinine, weight, and hemoglobin A1c.

The authors found no significant association between any one variable and the change in care for asthma or diabetes. The care for coronary heart disease, however, was positively associated with practice size and negatively associated with socioeconomic deprivation score; therefore, heart disease...
was treated more successfully in larger practices and those practices in more affluent areas.

After adjustment for the 18 practices that left the study, the overall mean scores for 2003 were “not substantially different from the unadjusted score for any of the three conditions.” The authors’ only acknowledgment of a limitation in the study was that the “analysis assumes that the reasons why practices left the study were not related to their performances.”

The authors claimed they could not attribute the increases in care for the three disease processes to any one intervention, but did note that general improvements in the standard of data recording have occurred in the practices. Quality indicators were partly chosen, however, based on clinical necessity and the aspects of care that should be recorded routinely in medical records. The authors then went on to say that successful quality improvement was likely to require “focus on close team working within practices, a combination of clinical and organizational approaches, and strategies that widen to include the practice team, the primary care trust, and central government initiatives.” They acknowledged that the quality of care for all three conditions studied increased substantially in association with the systems based strategy of clinical governance.

Campbell, et. al also stated that samples of patients were not large enough to provide reliable estimates of the change within individual practices, so they “cannot say whether these results are due to parallel improvements in all practices or if the pattern of change is more complex.” In their final analysis, they also recognized that if a trend towards improvement continued, “a reduction in practice level variation is to be expected, simply because some practices will begin to hit the ceiling of quality scores.”

This final assessment, however, was based on the authors’ own quality indicators. In any other study, it is likely that the practice level variations would be as different as the researchers studying them. This is hardly the only limitation, though, despite the authors’ admission of only one shortcoming. The most obvious problem from the beginning is that the authors neglect to tell the reader what the quality indicators are for the three disease processes. The only mention of them comes later when a few are mentioned as examples of indicators that either increased or decreased. The entire study is based on the activity of these indicators, and they should ideally be displayed prominently. The authors also state that data were collected using a “previously developed evidence based review criteria;” however, no mention of this criteria is ever made. A final piece of information that is not included is the “list of relevant drugs” from which the authors chose the individual patients. Although it is noted that the reader may contact the researchers for this list, a more appropriate option would be to include it.

Another important limitation is the fewer number of practices from the 1998 study to the 2003 study. Numerous research studies have differing amounts of people from sample group to sample group, for it is extremely difficult to obtain perfectly equal numbers of subjects. This study, however, is focused specifically on the same practices in a longitudinal study. The most important aspect of a longitudinal study is the maintenance of the same subjects for the sake of accuracy. Although the authors attempt to recover from the loss of 18 practices with statistics, probability is a poor substitute for the actual numbers.

Finally, no attempt is made to understand the resulting data. The authors simply say there is no way to assess if any specific interventions affected the quality outcomes. It is not only important to know whether or not quality is rising or falling, but also why it is going in either direction. The increase or decrease is only the first step. To truly understand the increase – or decrease – in quality, we must know why it occurred, so that the same principles leading to increased quality can be applied to other quality indicators.

CONCLUSION

Quality hardly represents a new challenge in the health care field. The means of assessing and improving quality, however, are shifting almost yearly. Assessing the entire health care system of a country is a large undertaking that few researchers are willing to address. A much simpler approach is analyzing the treatment of a specific disease process or specialty of medicine, such as mental health or emergency. This approach is so much more common, in fact, that no research studies were found that assess the quality of care in the NHS as a whole in Britain. Although a primary care slant was not the original intention of this paper, it was necessary.

Unfortunately, no studies were found comparing the American and British health care systems directly. These evaluations will inevitably be based on anecdotal evidence alone until a proper research study is performed. The
American system will continue to be criticized for its skyrocketing costs and third party insurance carriers, and the British NHS will be judged for its delay in care. Although recent reforms made by the British government have brought down waiting times by allowing patients the right to choose the hospital in which they receive care,11 waiting times for nonemergent procedures such as colonoscopies still take weeks longer than in the United States.

Without a study directly comparing the two countries' health care systems, a true assessment of quality cannot be performed. Both systems have their triumphs and flaws. It is doubtful that a truly perfect health care system can ever be developed, but the global trend has been towards the universal system. However cliché it may seem, only time can judge which health care system is the more appropriate and the more successful in providing quality care for its patients.

**Figure 1**

Table 1

**Figure 2**

Table 2: Practice characteristics in 1998 and 2003, compared with all practices in England. Values are numbers (percentages)

<table>
<thead>
<tr>
<th>Variable</th>
<th>1998</th>
<th>2003</th>
<th>% Difference</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Training</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Still whole equivalent GPs</td>
<td>10/54</td>
<td>11/54</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Single-handed practitioners</td>
<td>18/30</td>
<td>18/31</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Percentage of patients waiting</td>
<td>94/100</td>
<td>90/100</td>
<td></td>
<td>0.001</td>
</tr>
</tbody>
</table>

**Figure 3**

Table 3: Change in clinical quality scores 1998-2003

<table>
<thead>
<tr>
<th>Condition</th>
<th>No of patients</th>
<th>Mean (SD) quality score</th>
<th>Change (95% CI for change)</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coronary heart disease (1 practice)</td>
<td>737</td>
<td>62.4 (29.7)</td>
<td>7.1 (18.1)</td>
<td>0.001</td>
</tr>
<tr>
<td>Asthma (42 practices)</td>
<td>783</td>
<td>60.1 (29.2)</td>
<td>7.5 (17.9)</td>
<td>0.030</td>
</tr>
<tr>
<td>Diabetes (42 practices)</td>
<td>774</td>
<td>70.4 (21.7)</td>
<td>11.7 (18.5)</td>
<td>0.001</td>
</tr>
</tbody>
</table>

**References**

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Author Information

Nicole Brzezinski
B.S. King's College, King's College Department of PA Studies