Benefits of Primary Care in Healthcare Reform

Barbara Starfield, MD, MPH

Sommer Memorial Lecture (Portland, OR, 2010) and Herbert Vaughn Lecture (Boston, MA, 2010)
There is now good evidence, from a variety of studies at national, state, regional, local, and individual levels that good primary care is associated with better health outcomes (on average), lower costs (robustly and consistently), and greater equity in health.
Evidence for the benefits of primary care-oriented health systems is robust across a wide variety of types of studies:

- International comparisons
- Population studies within countries
  - across areas with different primary care physician/population ratios
  - studies of people going to different types of practitioners
- Clinical studies
  - of people going to facilities/practitioners differing in adherence to primary care practices


Comparisons of health systems involve two aspects: those that concern the nature of the system and the policies that characterize the system and those that concern the nature of the services themselves. In the comparisons of the primary care orientation of several OECD health systems, 9 characteristics of the system were hypothesized to be related to the primary care orientation of the system, as were 6 characteristics previously identified as related to primary care health services.
During the 1990s, two successive international comparisons involved rating different countries on the strength of primary care within the country. Ratings of primary health care were obtained by rating 6 (and 9 in the later study) characteristics of policy in each country: efforts to distribute resources according to where they were most needed; maintaining low or no cost-sharing; financial access controlled or regulated by government; the type of primary care practitioner (family physician or a mixture of types including also general internists and general pediatricians); and the presence of patient lists by primary care practices. In the second study, the following were added: low or no copayments for primary care; strength of academic departments of family medicine; the presence of patient lists by primary care practices; and 24-hour availability of primary care practices. Extent of achievement of the clinical features of first contact care, person-focused care over time, comprehensiveness (breadth) of services, coordination of care, family centeredness, and community orientation were also rated. Each characteristic was rated on a scale of 0 to 2, then all scores were averaged to obtain a systems score, a practice score and a combined overall primary care score. Eleven, and then 13 industrialized countries were compared; this comparison led to three groups of countries: those with low scores, those with intermediate scores, and those with high scores. These three groupings were unchanged over the decade between the two studies.
This slide shows the four main policy characteristics related to effectiveness and equity of primary health care services: distribution of resources according to extent and type of health needs, progressivity of financing, degree of cost sharing, and breadth of services provided in primary care. Scores range from zero (0), where the policy characteristic is absent, to a score of 1, where the characteristic is present but poorly developed, to a score of 2, where the characteristic is well developed. Belgium, France, Germany, and the US have weak primary health care systems; Denmark, Finland, The Netherlands, Spain, and the UK have strong primary healthcare; and Australia, Canada, Japan, and Sweden are in-between. With few exceptions, countries with equity-focused health policy are countries with strong primary care; countries with weak policy characteristics have weak primary care health systems.

Sources:

Primary health care oriented countries

- Have more equitable resource distributions
- Have health insurance or services that are provided by the government
- Have little or no private health insurance
- Have no or low co-payments for health services
- Are rated as better by their populations
- Have primary care that includes a wider range of services and is family oriented
- Have better health at lower costs

Sources:
The primary care score has two parts: the first reflects the strength of primary health care (that is, policies oriented towards primary care), and the second reflects the practice of primary care at the clinical level. In this chart, the countries are ranked by each of their two sub-scores. The country with the best sub-score is ranked #1, and the one with the worst sub-score is ranked #13. The better the policies (systems rankings), the better the practices, indicating the importance of governmental policy to good practice.


An international comparison of industrialized nations found a statistically significant relationship between per capita health care expenditures and the extent to which the health system was oriented around strong primary care policies and practices*. The stronger the primary care, the lower the total health care expenditures. This was the case even when the United States, with its high expenditures and poor primary care infrastructure, was removed from the analysis.

In an international comparison of 18 OECD countries, they were rated* according to whether their primary care systems were strong (high scores) or weak (low scores). Trends in potential years of life lost were examined after also taking into account other influences on health. Even after considering changes in gross domestic product, percentage of elderly people, total number of doctors per capita, average income, and smoking and drinking percentages, people in countries with strong primary care had fewer years of life lost than people in the poor primary care countries, and the differences widened over time.


A time series (1985-95) analysis with 18 OECD countries examined the relationship between the strength of primary care and mortality, while controlling for other possible influences such as Gross Domestic Product per capita, total physicians per 1000 population, percentage of elderly people, average number of ambulatory care visits, per capita income, and alcohol and tobacco consumption.

The stronger the primary care orientation in the country, the lower the all-cause mortality, all-cause premature mortality, and cause-specific mortality from asthma and bronchitis, emphysema and pneumonia, cardiovascular disease, and heart disease.

These indicators of health system “outcome”, included low birth weight, neonatal mortality, postneonatal mortality, years of life lost associated with suicide, with all-cause mortality excluding external causes such as injuries, and higher life expectancy at all ages (birth, age 15, age 40, and at age 65, but to a much lesser degree at age 80.

Sources:

### Technology Use: Relative Ranking
(Rates per Million Population)

<table>
<thead>
<tr>
<th>Country</th>
<th>CT scanner†</th>
<th>MRI scanner‡</th>
<th>CABG procedures*</th>
<th>PTCA procedures*</th>
<th>Allogeneic bone marrow transplant**</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australia</td>
<td>6</td>
<td>3</td>
<td>4</td>
<td>3</td>
<td>6</td>
</tr>
<tr>
<td>Germany (West)</td>
<td>5</td>
<td>6</td>
<td>2</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td>US</td>
<td>7</td>
<td>7</td>
<td>7</td>
<td>7</td>
<td>4</td>
</tr>
<tr>
<td>Canada</td>
<td>2</td>
<td>1</td>
<td>6</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>Denmark</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Netherlands</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>5</td>
<td>2</td>
</tr>
<tr>
<td>Sweden</td>
<td>4</td>
<td>5</td>
<td>3</td>
<td>3</td>
<td>8</td>
</tr>
<tr>
<td>UK</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>5</td>
</tr>
</tbody>
</table>

**Sources:**

Ranks are depicted so that #1 is the country with the least use across the countries and #6 is the highest user. Technology use varies widely across industrialized countries. In this chart, procedures that use medical devices (on the left of the chart) contrasted with those that require a higher use of personnel. It appears that countries with poorer primary care infrastructures (countries on the top of the slide) use relatively more devices and relatively less personnel dependent interventions than countries that are more primary care oriented.

Sources:


Countries, even industrialized countries, vary in their frequency of reported adverse events reported by people in surveys. Countries with higher rates of technologic intervention have higher adverse events rates.
Seeing a large number of different physicians, including specialists, is potentially dangerous for people. This chart shows that a much larger percentage of people in the US have seen four or more doctors in the most recent two years. Increased frequency of adverse events is at least partly a result of the prescription of large numbers of medications, some of which are very powerful recent additions to the armamentarium of available medications. These new medications have relatively high unintended effects. As the frequency of adverse events rises with increasing number of physicians seen, the practice of frequent referrals and self-referrals to specialists is likely to be detrimental to health, particularly in view of evidence that inappropriate specialty care often is associated with worse health.

Comparisons of Policy (PHC) and Clinical (PC) Characteristics

<table>
<thead>
<tr>
<th>System characteristics related to primary care</th>
<th>Canada</th>
<th>UK</th>
<th>US</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type of system</td>
<td>1.0</td>
<td>2.0</td>
<td>0.0</td>
</tr>
<tr>
<td>Financing</td>
<td>2.0</td>
<td>2.0</td>
<td>0.0</td>
</tr>
<tr>
<td>Cost sharing for primary care</td>
<td>2.0</td>
<td>2.0</td>
<td>0.0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Primary care practice characteristics</th>
<th>Canada</th>
<th>UK</th>
<th>US</th>
</tr>
</thead>
<tbody>
<tr>
<td>First contact</td>
<td>1.0</td>
<td>2.0</td>
<td>1.0</td>
</tr>
<tr>
<td>Longitudinality</td>
<td>1.0</td>
<td>2.0</td>
<td>0.0</td>
</tr>
<tr>
<td>Comprehensiveness</td>
<td>2.0</td>
<td>2.0</td>
<td>0.0</td>
</tr>
<tr>
<td>Coordination</td>
<td>0.5</td>
<td>1.0</td>
<td>0.0</td>
</tr>
<tr>
<td>Family-centeredness</td>
<td>1.0</td>
<td>2.0</td>
<td>0.5</td>
</tr>
<tr>
<td>Community orientation</td>
<td>0.5</td>
<td>2.0</td>
<td>0.0</td>
</tr>
</tbody>
</table>


This slide compares the characteristics of primary health care (including both structural and process features) of three English-speaking industrialized countries as of the early 2000s. The United Kingdom (UK) has the strongest primary care, as shown by its high scores for all three of the most important structural characteristics (attempts to distribute resources equitably, relatively progressive financing, and no cost sharing for primary care services). Except for the coordination features of services delivery (a “process” of care), it achieves the maximum attainable level for the processes of care. The United States has uniformly poor performance on both structural and process features associated with good primary care. Scores for Canada are intermediate; it makes only moderate efforts to distribute resources equitably and, apart from comprehensiveness of care, does not do as well as the UK on other processes of care.
Of the widely accepted measures of health outcomes, Canada does better than the United States for most of the 12 indicators. Consistent with its better primary care scores in both systems (structural and process characteristics, Canada ranks higher than the United States on 10 of 12 major health measures. Although Canada has surpassed the United States in its health levels for most of the 20th century, the gap between the two countries in international comparisons has widened since the passage of the Canada Health Act in the early 1970s. This act and subsequent provincial policies greatly strengthened the primary care underpinnings of the Canadian health services system.

### Health “Outcomes”: Canada vs. US* (Rank among OECD Countries, 2004-5)

<table>
<thead>
<tr>
<th>Measure</th>
<th>Canada</th>
<th>US</th>
</tr>
</thead>
<tbody>
<tr>
<td>LE birth</td>
<td>9</td>
<td>25</td>
</tr>
<tr>
<td>LE age 65 (males)</td>
<td>4</td>
<td>8</td>
</tr>
<tr>
<td>LE age 65 (females)</td>
<td>4</td>
<td>14</td>
</tr>
<tr>
<td>PYLL (age 70)</td>
<td>13</td>
<td>21</td>
</tr>
<tr>
<td>IHD mortality (males)</td>
<td>7</td>
<td>5</td>
</tr>
<tr>
<td>IHD mortality (females)</td>
<td>7</td>
<td>9</td>
</tr>
<tr>
<td>Stroke mortality (males)</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>Stroke mortality (females)</td>
<td>3</td>
<td>6</td>
</tr>
<tr>
<td>All cancer mortality (males)</td>
<td>12</td>
<td>7</td>
</tr>
<tr>
<td>All cancer mortality (females)</td>
<td>22</td>
<td>23</td>
</tr>
<tr>
<td>Infant mortality</td>
<td>24</td>
<td>26</td>
</tr>
<tr>
<td>Asthma mortality ages 5-39</td>
<td>18</td>
<td>21</td>
</tr>
</tbody>
</table>

*age standardized where appropriate

A review of 38 studies addressing diverse clinical problems found that, overall, quality of care is better in Canada than in the United States. Of 10 studies that included extensive statistical adjustment and enrolled broad populations, five favored Canada, two favored the US, and three showed equivalent or mixed results.

In British Columbia, every additional 1% increase in continuity of care is associated with a saving of about $81 per year per person with diabetes. A 5% increase would save about 85 million dollars in the care of people with high burdens of morbidity with their diabetes or congestive heart failure. The benefit of continuity of primary care is especially great for people with complex morbidity patterns.

A study of individuals seen in a year in large health care plans in the US found:

<table>
<thead>
<tr>
<th></th>
<th>elderly</th>
<th>non-elderly</th>
</tr>
</thead>
<tbody>
<tr>
<td>percent who saw a specialist</td>
<td>95</td>
<td>69</td>
</tr>
<tr>
<td>average number of different specialists seen</td>
<td>4.0</td>
<td>1.7</td>
</tr>
<tr>
<td>average number of visits to specialists</td>
<td>8.8</td>
<td>3.3</td>
</tr>
<tr>
<td>total visits to both primary care and specialists</td>
<td>11.5</td>
<td>5.9</td>
</tr>
</tbody>
</table>


In 5 large health plans in the US, the vast majority of individuals who sought care in a year saw at least one specialist; 19 of every 20 elderly individuals did so. The “average” user of health services saw almost 2 different specialists with an average of over 3 visits per year. The elderly saw an average of 4 different specialists in a year, with almost 9 different visits. Such a situation poses major problems for coordination of care, possible duplication of interventions, and greater likelihood of conflicting interventions and adverse effects.
A study of individuals (ages 20-79) seen over two years in Ontario, Canada, found:

<table>
<thead>
<tr>
<th>percent who saw a specialist</th>
<th>53.2</th>
</tr>
</thead>
<tbody>
<tr>
<td>median number of visits to specialists</td>
<td>1.0</td>
</tr>
<tr>
<td>total visits to both primary care and specialists</td>
<td>7.0</td>
</tr>
</tbody>
</table>


In Ontario, Canada, only about half of adults (under age 80) saw a specialist in a year, with most seeing no more than 1. Thus, the stronger primary care orientation of the Canadian health care system (as compared with the United States) and its greater comprehensiveness of services (shown on other slides) are associated with much lower use of specialists.
The United States and Canada have about the same number of primary care physicians per 100,000 population if general internists and general pediatricians are included with family physicians in the US. However, the supply of non-primary care specialists in the US is more than double that of Canada.
In both England and the US, each additional primary care physician per 10,000 population (a 12-20% increase) is associated with a decrease in mortality of 3-10%, depending on the cause of death. This is true even after adjusting for sociodemographic and socioeconomic characteristics.

Many other studies done WITHIN countries, both industrialized and developing, show that areas with better primary care have better health outcomes, including total mortality rates, heart disease mortality rates, and infant mortality, and earlier detection of cancers such as colorectal cancer, breast cancer, uterine/cervical cancer, and melanoma. The opposite is the case for higher specialist supply, which is associated with worse outcomes.

Sources:

Across the US states, there is a greater relationship between the presence of a good supply of physicians and life expectancy than there is either between high coverage with health insurance among the state population or affordability of health insurance coverage and life expectancy.

It is the availability of primary care resources that has the determining effect on access to the benefits of primary care. Insurance alone, without regulated benefits, copayments and deductibles under either direct provision of services (as in federally qualified community health centers), a single payer (generally the government), or government regulated private insurance is not sufficient to provide the benefits to health.

Data from:
Why Does Primary Care Enhance Effectiveness of Health Services?

- Greater accessibility
- Better person-focused prevention
- Better person-focused quality of clinical care
- Earlier management of problems (avoiding hospitalizations)
- The accumulated benefits of the four features of primary care

The preceding empirical demonstrations of the influence of a primary care orientation show that it is associated with greater effectiveness of health services. Does primary care also improve equity in health?
In the United States, an increase of 1 primary care doctor is associated with 1.44 fewer deaths per 10,000 population.

The association of primary care with decreased mortality is greater in the African-American population than in the white population.


As the effect of increasing primary care health professionals is greater in more deprived populations (in this case, the African American population in the US), it can be said that primary care is equity-producing.

In 60 representative US communities, better self-reported primary care experiences are associated with better self-reported mental health. This is particularly pronounced for poor white individuals and for African-Americans.

In 60 representative US communities, better self-reported primary care experiences are associated with better self-reported physical health. This is particularly pronounced for poor white individuals and for African-Americans.

A comparison of age-adjusted survival from breast cancer showed that

- Low SES is strongly associated with decreased survival in US, but not Canada.
- The survival advantage in Canada is present in low income areas only.
- The survival advantage in Canada is much larger at ages under 65.
- The Canadian survival advantage is larger for later stage diagnosis. That is, there is almost certainly a medical care benefit to equity in the Canadian context.


The survival advantage from breast cancer in Canada is limited to socially disadvantaged populations, and is greater under age 65 than over age 65 – the population groups that have financial access to care in Canada but not the US. Combined with other evidence, it is highly likely that it is better access to good primary care services in Canada that is responsible for greater effectiveness and equity in this as well as other measures of health amenable to medical care in that country. Thus, equity in diagnosis and management of breast cancer is greater in Canada than in the US. This superiority of age-adjusted survival is particularly evident when comparing socially disadvantaged populations and is less in population subgroups with universal, government sponsored insurance in the US, i.e., those of age 65 and over.
In Ontario Canada, family income is unrelated to either likelihood of seeking care or frequency of visits to either primary or specialist care, even after controlling for morbidity burden. However, higher levels of education were associated with higher likelihood of visiting a specialist and with more specialist visits.

Why Does Primary Care Enhance Equity in Health?

- Greater comprehensiveness of services (especially important in the presence of multimorbidity)
- Person-focused care over time (better knowledge of patient and better recognition of problems)
- Greater accessibility of services
- Better coordination, thus facilitating care for people of limited flexibility
- Better person-focused prevention

The positive impact on health of primary care resources is most notable in geographic areas that are socially inequitable. Thus, primary care reduces health disparities resulting from social inequity.

Conclusions
Both international comparisons and studies within countries document the beneficial impact of primary care on effectiveness (health outcomes), on efficiency (lower costs), and on equity of health outcomes (reducing disparities across population subgroups).

Health policy should be directed toward strengthening the primary care orientation of health systems.
Conclusion

Although sociodemographic factors undoubtedly influence health, a primary care oriented health system is a highly relevant policy strategy because its effect is clear and relatively rapid, particularly concerning prevention of the progression of illness and effects of injury, especially at younger ages.
This slide summarizes the conclusions of many studies. Primary health care is a worldwide imperative. Avoiding an excessive supply of specialists minimizes unnecessary care and reduces costs. Equity in health is facilitated by a primary care orientation and a reduction in specialty services, which are inequitably distributed almost everywhere. Responding to patients’ problems is a rate limiting step in achieving accurate diagnosis and management. Coordinating care reduces duplication and adverse events. Avoiding adverse events improves the safety of services. Certain payment mechanisms facilitate more appropriate care. Information systems (especially if electronic) improve care if the information in them is pursuant to better primary care over time. The increasing focus on prevention requires better coordination between public health and primary care. The following slides provide specificity for some of these imperatives.
This chart captures the essence of the difference between disease-oriented (vertical) health services and person-oriented (horizontal) health services. Disease-oriented programs are unable to deal with people’s health problems in the context of their evolution over time and, especially, with the evolution of other seemingly unrelated health problems and disabilities.

Good Primary Care Requires

- Health system POLICIES conducive to primary care practice: What can we learn from other countries about the relative merits of direct provision of services rather than just financing of services?
- Health services delivery that achieves the important FUNCTIONS of primary care: What can be done to enhance practitioners' recognition of and responsiveness to patients' problems (patient-focus) rather than on the professional priorities of diagnoses (diagnosis-focus)?
The Joint Principles were developed and advanced jointly by the four major primary care professional groups in the US: the American Academy of Family Practice, the American College of Physicians, the American Academy of Pediatrics, and the American Osteopathic Association. These principles recognize the evidence that the characteristics of primary care are well established and important to achieve in health systems. Enhanced access (to facilitate first-contact care), ongoing relationships for continuous care that is comprehensive and coordinated are the key facets of primary care and, when combined with attention to clinical quality and safety (features of all levels of care), are proposed as the underpinning of the patient-centered medical home in the United States.
At the same time the features of primary care were recognized as key to achieving good primary care, the proposals for certifying US practices as patient-centered medical homes focused heavily on structural features that cannot improve health without improving the processes of care. These include electronic health records, teams, and chronic care guidelines, none of which are either central to the joint principles nor known to enhance the achievement of the four principal features of primary care. Whether or not evaluations of these structural “innovations” are eventually supplemented or replaced by evaluation of the four key principles remains to be seen (at least as of 2009).
“Enhancements” to Primary Care

- Health information systems: primary care/system-wide
- Subspecialization in primary care
- Patient-centered primary care (poorly conceptualized)
- “Chronic care model”: self-management support; delivery system design; decision support; clinical; information systems
- A focus on specific chronic diseases rather than a focus on the combination of health problems experienced by people
- The patient-centered medical home

ALL REQUIRE EVALUATION.
We have instruments to assess the utility of health systems, the strength of primary care, and the outcomes as measured by morbidity burden. We need the political will to use them.
US Health Care Reform and Primary Care – March 2010
Primary Care and US Health Care Reform – Likely Benefits

• More primary care physicians (5-10 years); preference for primary care in unused residency slots paid by Medicare
• Better primary care training-teaching health centers and payment by Medicare for outpatient training
• More community health centers and NHSC physicians in socially deprived areas
• Higher Medicare reimbursement for 2 years; 10% increase in reimbursement for 5 years
Primary Care and US Health Care Reform – Likely Problems

- Increased pressure on ERs
- More problems with access to primary care (5-10 years)
- Increased pressure on primary care physicians
- Less availability for dealing with patients’ problems
- More focus on routine management
Primary Care and US Health Care Reform – Likely Problems

- More use, especially at ages 45-64
- More procedures, especially at ages 45-64
- Continued high administrative costs and/or reclassification as medical costs*
- Continued escalation of high technology interventions**
- Continued escalation of polypharmacy**

*Law requires insurers to spend at least 80% of premium on medical care.
**Law prohibits costs-effectiveness research from influencing payments for care.
What to Do – Fast

- Maintain state option for single payor
- Encourage routine care to be done by non-physician practitioners (would relieve up to half of the clinical time of primary care physicians)