

On Cost, Quality, and Access: Far Beyond a Focus on Physicians Robert C. Bowman, M.D.

The author has been on a journey to understand distributions. Given his health care background, studies of physicians were an important vehicle. One advantage of studies involving physicians is that they can be tracked from birth to admission to training to practice and to subsequent careers and practices. The author had the chance to examine these from a variety of perspectives: solo practice, rural practice, inner city, teaching, rural medical educator, primary care, and workforce researcher.

In the process of studying distributions, the author examined a number of relationships at local, county, type of county, state, and national levels. Types of medical students, types of physicians, types of medical schools, and health policy factors were examined.

Rather than focusing on shortages that tend to lead to small portions of the population left behind (rural, lower income, race), the focus became concentrations or who was doing very well. With concentrations established as one end of the spectrum, lack of concentration was seen at the opposite end in a variety of different dimensions. Shortages as seen in a vacuum can be confusing as they arise from a wide variety of deficits such as income, health insurance, physician preference, health policy errors, market forces focus, or even rapid growth.

Concentrations are more consistent. Concentrations of physicians arise from concentrations of income, physicians, professionals, people, and health resources. Concentrations usually arise from combinations of concentrations. Examples help describe these concentrations or combinations of concentrations as compared to distributions.

Primary care is often considered to be important for improved health care quality and lower costs. In some presentations and papers this has taken on somewhat causative interpretations. While a simplistic and direct comparison does link quality with primary care, such analysis ignores numerous interrelated factors. More is at stake. Investments in physicians or primary care can attempt direct solutions for quality. Many have made this attempt and many have failed. Also primary care to quality relationships are not always consistent using different types of primary care and different methods of measuring primary care. It is even possible that the current methods of analyzing and reporting and publishing studies on quality fail to capture the important relationships involving quality. Single variable priorities, limitations in word counts, and limited or established perspectives can be challenging to overcome.

Primary care interventions in physicians and in clinics have not been dramatically effective. This is the consensus of several experts at the Primary Care Methods and Statistics Conference in December of 2008 sponsored by AHQR. This is another reason to consider patient and environment factors more important with primary care able to facilitate change based on other areas that are impacted.

A much more complex model is required with interlocking matrices involving all of the experiences of the patient up until the quality evaluation, similar experiences in those delivering

care, health care delivery issues, and various distributions or concentrations set in place by societal decisions.

Grouped ratings such as child well being measures have the most consistent relationship to state health care quality rankings. Single measures of distributions such as employment ratios, high school outcomes, achievement scores, poverty, child poverty, Gini indexes, populations with more middle income Americans, ratios of income and education, and societal participation as measured by voting rates also correlate highly with health care quality. Generalist or primary care measures without including family physicians do not correlate with quality. Family physicians share higher correlations with better distribution while internal medicine and pediatric forms are associated with concentrations.

Complex concepts such as cost and quality should be considered as matrices of relationships. New equations for quality assessment are needed. These should include patient, environment, and care delivery factors with much less emphasis on physicians. Patients, nurses, and others who are more likely to be involved in health care encounters are shaped by child well being factors into better patients and better providers. Physician selection eliminates potential low quality from poor preparation but adds the potential for quality problems by selecting physicians that represent extremes. These extremes admitted to medical school and professional schools are very different than most Americans. Lack of awareness can impact patients, lower and middle income Americans, and societal system design beneficial to the entire nation rather than the top 35% as measured by concentrations.

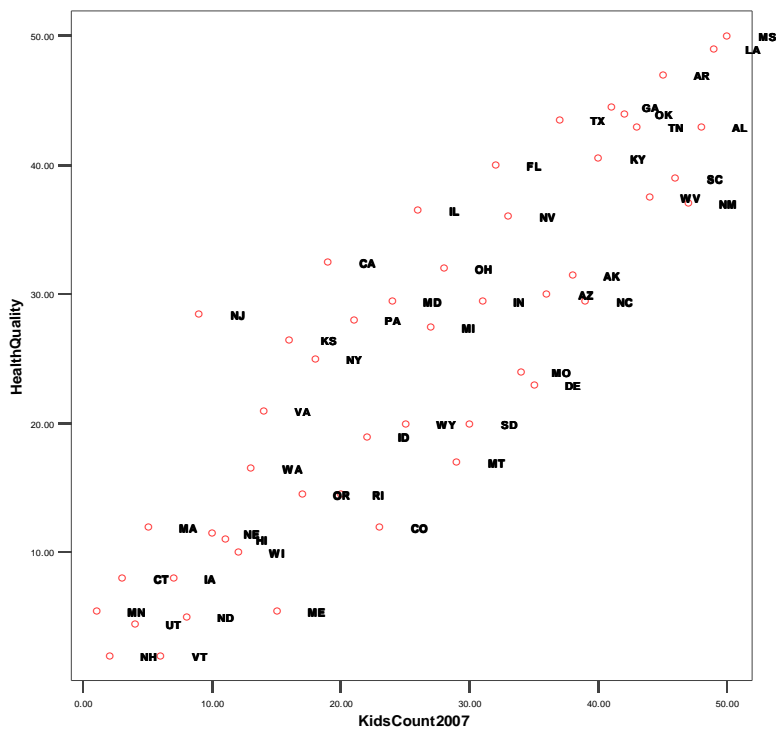
Cost, quality, and access research in health care will remain limited with unpredictable findings until patient, care delivery, and physician factors are considered. The physician factor is present in quality, but in the absence of consideration of those often more involved in outcomes, the physician gets far too much credit and far too much blame. This can be particularly damaging for the types of physicians most associated with the underserved who can get the blame for patient and environment factors in “guilt by association” types of studies. Studies that include multiple factors also have the potential for explaining the regional variations widely seen in quality and cost studies.

Correlation Table

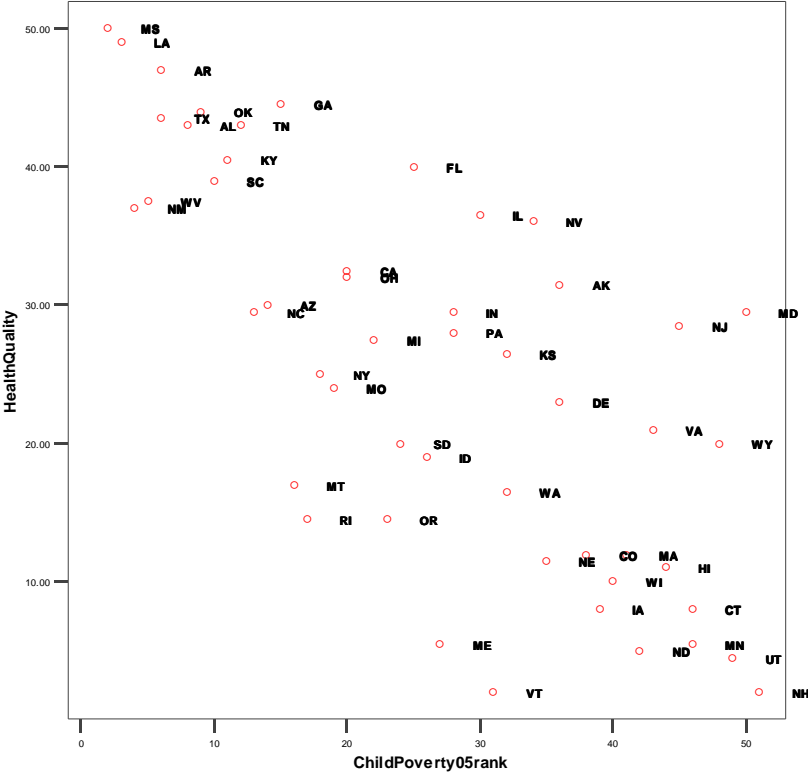
	Quality Hybrid	Project Hope Costs	Kids Count 2007	Child Well Being	PC in FM	PC Not FM	Generalists Area Resource File	All PC per 100k	Gini House 1999
Basics in Equation									
Quality Hybrid	1.000	0.603	0.880	0.800	0.410	0.112	0.430	0.658	0.667
Project Hope Costs	0.603	1.000	0.368	0.435	0.654	-0.339	0.538	0.228	0.669
Kids Count 2007	0.880	0.368	1.000	0.729	0.184	0.278	0.294	0.648	0.493
Child Well Being Rank	0.800	0.435	0.729	1.000	0.416	0.036	0.457	0.540	0.568
FM per 100,000	0.410	0.654	0.184	0.416	1.000	-0.604	0.826	0.311	0.702
PC Non FM per 100,000	0.112	-0.339	0.278	0.036	-0.604	1.000	-0.371	0.370	-0.351
Generalists ARF	0.430	0.538	0.294	0.457	0.826	-0.371	1.000	0.479	0.577

Active PC per 100,000	0.658	0.228	0.648	0.540	0.311	0.370	0.479	1.000	0.399
Equity Measures									
Gini House Income 1999	0.667	0.669	0.493	0.568	0.702	-0.351	0.577	0.399	1.000
Child Poverty % 2005	-0.735	-0.294	-0.817	-0.625	-0.169	-0.196	-0.263	-0.581	-0.631
Poverty % 2005	-0.709	-0.207	-0.806	-0.623	-0.096	-0.289	-0.198	-0.608	-0.578
Married Both Work 2005	0.695	0.338	0.635	0.743	0.417	-0.083	0.516	0.568	0.658
Employment Ratio 2005	0.824	0.477	0.753	0.776	0.395	-0.026	0.410	0.497	0.711
Physicians									
Underserved %	-0.515	0.018	-0.681	-0.402	0.189	-0.601	0.018	-0.567	-0.285
Major/Super Center %	-0.123	-0.407	0.065	-0.206	-0.639	0.705	-0.467	0.096	-0.405
Major/Super per 100000	0.160	-0.302	0.327	0.062	-0.502	0.880	-0.281	0.418	-0.270
Education and Degrees									
HS Graduates % 2000	0.686	0.394	0.709	0.812	0.427	-0.174	0.458	0.377	0.545
Bachelors Degree % 2004	0.516	0.072	0.642	0.334	-0.168	0.557	-0.039	0.545	0.141
Professional Related 2005	0.348	-0.164	0.440	0.249	-0.197	0.629	-0.023	0.546	-0.050
State Bioscience MCAT Matriculant Average 2007	0.628	0.133	0.717	0.419	-0.080	0.523	-0.026	0.556	0.257
Other									
Voting Rank	0.538	0.395	0.382	0.623	0.416	-0.266	0.532	0.390	0.506

Correlations 0.22 in magnitude are significant at $p < .05$



The correlation scatterplot for Kids Count and Health Quality is not surprising given the high degree of correlation. For those happier with a single variable rather than a constellation of ten variables as in Kids County, overall poverty or child poverty will suffice.



Single variable correlations reproduce the same relationships. Detailed studies can often identify states that are outliers where factors other than poverty or child well being impact quality. When considering health care, the locations with concentrations of physicians can be most interesting. In these states, federal funding for research and graduate medical education often is a major reason for the concentrations of physicians. These are also some of the highest cost states.

Understanding quality involves more than single variables. The understanding involves a matrix of complex relationships. Themes of concentration versus distribution appear to be consistent across these matrices.