

Lead Article from the May 1<sup>st</sup>, 2007 Issue.

## Small Numbers Matter

by Tim Size, RWHC Executive Director

A diverse crowd of clinicians, administrators, academics, consultants and policy makers met in Dallas-Fort Worth in late March at the wonky but well named National Conference on Small Numbers. Thanks to the Federal Agency for Health Research and Quality for being the primary sponsor as “small numbers” is an issue that rural health and rural health providers need to address in a big way (pun intended). “The purpose of the conference was to address the critical issue of accurately assessing the health status of populations through the measurement of indicators of quality of care and patient safety in small community hospitals and rural facilities that experience small cell size issues.”

Or said differently, our ability to address the statistical challenges related to “small numbers” will increasingly and significantly affect public opinion about rural health as well as how rural providers are paid; so pay attention. As noted by Dr. Steven Garfinkel, Managing Research Scientist at the American Institutes for Research, saying there is no good data for rural providers is not the answer, as “consumers typically view missing data as a negative, regardless of the reason.”

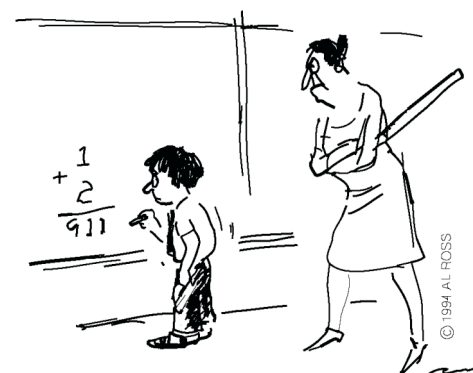
A pitch perfect keynote address was given by Dr. Nancy Dicky, President of the Health Science Center at Texas A & M (and the first woman ever elected

President of the American Medical Association). She emphasized that along with all of America’s healthcare providers, smaller rural hospitals, individual physicians and units within large hospitals are being called to demonstrate what they do makes a positive difference for their patients. Her talk addressed three interrelated themes: that the Value Based Purchasing (also known as Pay For Performance) movement was rapidly picking up steam; that the significance of physicians’ historic distrust of measurement needs to be addressed and creative solutions to the “small number” problem is absolutely critical for rural health. She challenged the meeting participants to ask themselves what information they would need as a patient or consumer as they like others are given the “opportunity” to make choices and share in the responsibility for their health care.

Dr. Dicky made it clear that many in Washington, DC, and around the country believe that the easiest thing they can do is (a) ignore the challenge of small numbers, (b) “blind out” the data or (c) simply dismiss the care in low volume settings as “immeasurable.” She challenged those of us in Dallas-Fort Worth saying we had the obligation to change current methods of measurement to assure that all clinicians and provider sites were included. She warned us, in words to the effect, that to continue to exempt low volume providers from public reporting of quality measures and the growth in “pay for performance” is like saying rural providers are not worth anyone worrying about or being foolish enough to visit as a patient.

At the same time she emphasized that it was absolutely necessary that clinicians and administrators

### RWHC Eye On Health



One solution to a “small numbers” problem.

who understand rural health be “at the table” as solutions are designed. Coincidentally, the very day she spoke was the deadline for the Rural Caucus in the House of Representatives to accept original sponsors for the MedPAC Rural Representation Act of 2007. The Act is designed to address the growing frustration with the failure of Congress’ Medicare Payment Advisory committee, MedPAC, to have anything close to representation proportional to the rural population in America. According to the National Rural Health Association, “only one of the seventeen Commissioners has solid rural credentials,” exactly the problem Dr. Dicky warned us about.

Dr. Dicky understands that while physician quality champions are active in many parts of the country, physicians and physician groups will push back in a major way unless their concerns are treated with respect; the deafer the ears of those advocating change, the stiffer will be the resistance. There is a fine line to walk between “waiting for perfect measures” and changing clinical processes now to incorporate what science already tells us is best for the patient. Ironically, the practice of Medicine has always been all about managing human variability and uncertainty so physicians are well prepared for the ambiguity inherent in this new age of measurement.

At the close of her talk, she made clear that we were not boxed in by the limits of statistics—when the numbers are too small to show the level of quality of care being provided, peer review mechanisms can and should be implemented to provide assurances that the care is excellent or where it can be improved.

The **Rural Wisconsin Health Cooperative (RWHC)** was begun in 1979 as a catalyst for regional collaboration, an aggressive and creative force on behalf of rural health and communities. RWHC promotes the preservation and furthers the development of a coordinated system of health care, which provides both quality and efficient care in settings that best meet the needs of rural residents in a manner consistent with their community values.

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Dr. Robert Baskin, a senior mathematical statistician at the Agency for Health Research and Quality shared his frustration with himself and his colleagues saying “we need to give better advice than to say ‘just increase the sample size.’ ” And if you ever thought mathematical statisticians couldn’t be really funny, you would be wrong. Or at least current Federal rules require him to be funny, as he had to recite upfront that the “views expressed in this Power Point presentation were the presenter’s alone and that no official endorsement by the U.S. Department of Health and Human Services is intended or should be inferred.” He then proceeded to help the many non-statisticians among the participants to get back in touch with Statistics 101, which in this writer’s case is unfortunately under forty years of dust.

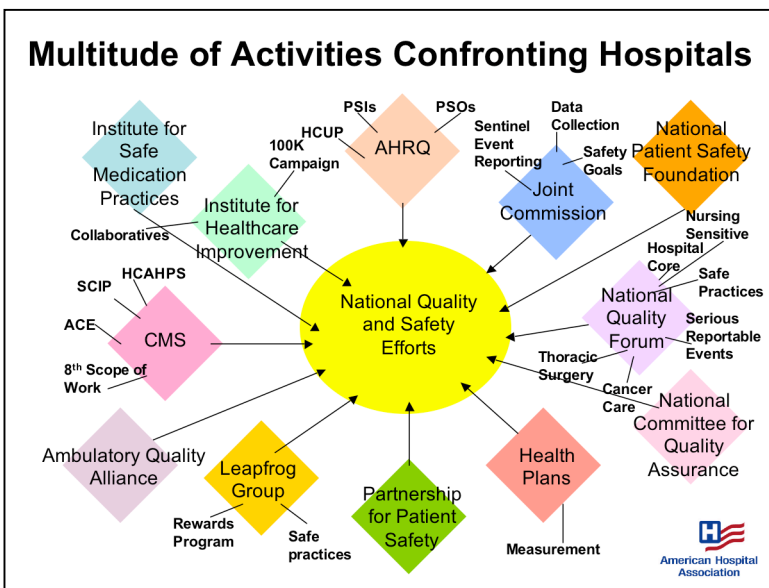
From a statistical perspective, “small counts” (typically thought of, depending on the situation, as less than 30 or 50 individuals or events in a reporting period) raise concerns about “reliability” or “validity.” Reliability looks at the consistency or repeatability of the measure and validity looks at whether the intended target population is being measured. Throughout the conference, there was a clear tension between two views. One view was that if you count all the patients in a rural hospital you have described everyone so the fact that there is a small number of observations doesn’t matter. The opposing point of view and seemingly the one in the majority, is that in small number situations you are typically describing what happens during the reporting period to one group of patients but whether the treatment received in the future by another group of patients at that location can reliably be predicted is in fact another matter. Unfortunately, advocates of the second school of thought seem to say there was no obvious or easy solution to the statistical challenge of improving reliability or validity of small numbers.

Dr. Jerod Loeb, Executive Vice President for Research at The Joint Commission, summarized another key tension in health care performance measurement with the following story. “A man is flying in a hot air balloon and realizes he is lost. He reduces his height and spots a man down below. He lowers the balloon further and shouts: ‘Excuse me, can you tell me where I am?’ The man below says: ‘Yes, you’re in a hot air balloon, hovering 30’ above this field.’ ‘You must be a performance measurement expert,’ says the balloonist.

‘I am,’ replies the man. ‘How did you know?’ ‘Well,’ says the balloonist, ‘everything you told me is technically correct, but it’s of no use to anyone.’ The man below says: ‘You must be a CEO.’ ‘I am,’ replies the balloonist, ‘but how did you know?’ ‘Well,’ says the man, ‘you don’t know where you are, or where you’re going, but you expect me to be able to help. You’re in the same position you were before we met, but now it’s my fault.’ ”

Many in the room seemed to murmur agreement when the above slide from the American Hospital Association was presented, graphically demonstrating the cacophony of measurement voices. Participants noted the critical need for national rivalries amongst dueling experts to be put aside in the interest of a coherent national strategy for quality accountability. Going beyond “lip service” to a national alignment of measures is particularly urgent for providers with small numbers as they simply do not have the resources to waste addressing multiple versions of similar demands.

Dr. Loeb offered a perspective that what you feel about performance measurement and related statistical challenges is often an issue of where you stand is where you sit. Many professionals trained to think critically and analytically say that there are “too many issues to be resolved, too costly without enhanced health information technology.” While many purchasers and public officials trained to not let “the perfect be the enemy of the good” are ready to move ahead with measurement and “want the data now.” Solutions suggested for the small number problem focused on increased sample size by aggregating data over time or creating composite measures amongst related measures. Aggregating data over time is relatively simple but then very much slows down the feedback needed by providers as part of quality improvement processes as well as slowing down how quickly that improvement can be reported to the public and payers. While there are also limitations to the



use of composite measures, this approach attracted much attention.

Dr. Paul Nietert from the University of South Carolina could have given a talk on how to make complex academic issues particularly understandable but in fact he talked about his team’s development of a system of performance measures for individual physicians, the

Summary Quality Index, SQUID for short. Their approach collapsed multiple process and outcome measures by determining the “number of measures for which the patient is eligible” (E) and the “number of eligible measures for which the patient has met his or her morbidity specific target.” The patient level SQUID is then simply M divided by E. A patient’s SQUID reflects the proportion of targets met for which he/she is eligible. A clinical practice’s SQUID reflects the average proportion of targets achieved by the practice’s patients. While Dr. Nietert spoke to both the strengths and limitations of this approach, many participants seemed excited by his work and its application to smaller physician practices.

Dr. Gulzar Shah, Director of Research at the National Association of Health Data Organizations, noted that an additional use of composite measures was that “consumers will use them to select a hospital, providers will use them to focus on drivers of quality, purchasers will use them to select hospitals to improve the health of their employees and policy makers will use them to address population health improvement.” But composite measures come with shortcomings such as “masking important differences amongst providers” and as “being less ‘actionable’ given the difficulty of identifying the root of a problem.” The best solution may be the use of composite measures along with sampling over a longer time.

Dr. Filardo Nicewander from the Baylor Health Care System spoke to three objectives which should frame our policy agenda as composite scores are developed: (1) composite scores should still provide the best

summary possible of the individual indicators, (2) combine counts across measures that give more statistical power for comparing differences between hospitals and (3) composite scores should be understandable to the non-statistical audience.”

Over the next few months the Federal Centers for Medicare and Medicaid Services (CMS) will be finalizing a Congressionally mandating plan for an inpatient hospital Value Based Purchasing (VBP) Program. In their second draft plan, CMS has indicated an interest to combine reporting on a minimum number of cases and/or minimum number of measures to determine whether a hospital could be scored for the VBP incentive payments. The rural health advocacy community must continue to engage with CMS on this and other options as CMS moves to adjust payments to all hospitals (except Critical Access Hospitals) based on a variety of performance measures.

Rural providers and clinicians as well as all hospitals with units facing the challenge of “small numbers” can’t afford to be left behind.

*Thanks to Dr. Josie Williams, Director of the Rural and Community Health Institute at Texas A & M, and her colleagues for organizing this timely and much needed national conversation.*