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Hearing on March 21, 1995
House Committee on Ways and Means
Health Subcommittee

I am Robert Brook. I am Professor of Medicine and Health Services at UCLA and Director of the RAND Health Sciences Program. I thank the Committee for inviting me to testify today on quality assessment and improvement in the context of the Medicare program. We are proud of having the most advanced health care system in the world, but we also are paying more than any other country to get that care. Market forces have played a major role in raising both cost and quality. However, the medical marketplace is much better informed about cost than quality, and consequently we get less value from our expenditures than we should.

My purpose is to provide some general comments with regard to maintaining quality of care in the Medicare population as well as in the private sector. Most of my comments are based on research we have done at RAND and UCLA over the last quarter century. I hope that our findings provide some insight into the importance of measuring quality, as well as ensuring that changes in the health care system — whether through competition, regulation, or cost containment — are accompanied by a determination to maintain and even improve quality of care.

It is critically important that we understand how changes in the way we deliver care affect the quality of care and the health status obtained by the American people. This testimony will describe the role the federal government should play to assure that the quality of the American health care system is at least as sound in the next century as it has been in this one, and to make individual patients better able to evaluate the quality of care they are receiving. In order to accomplish this, the federal government must provide funds to first, to improve the science of measuring and improving quality, second, to support evaluations of how changes in government policies and programs affect quality, third, to support efforts to make information about the level of quality in managed care plans and other organizational structures available to the public, and fourth, to foster quality-enhancing behavioral changes by both the providers and purchasers of care.

Quality of Care Varies Widely

The absolute need for the federal government to participate in the preservation and improvement of quality of care has been underscored by the research findings generated over the last 25 years in the quality of care field. Two of our most relevant findings are concerned with geographic variation in the use of medical procedures and whether or not a given procedure, when it is performed, is appropriate. For example, our research has demonstrated that where you live

determines to a large degree whether or not you receive a medical procedure.[1] Our research shows that the use of common therapeutic and diagnostic procedures such as hemorrhoid removal, coronary angiography, endoscopy, or even coronary artery bypass surgery varies as much as 300 percent, depending on the area of the country in which you live. This variation in use cannot be explained by differences in health status or clinical need. Rather, it reflects differences in physician style, and these differences in style have profound implications for both cost and quality of care. [2]

Variation in use, then, leads naturally into the second issue, the appropriateness of procedures. Although we would expect that high-use geographic areas have more inappropriate care than low-use areas, our data do not support this hypothesis. Instead, the proportion of patients receiving a procedure for less-than-appropriate reasons does not vary much among geographic areas. Thus, simply reducing the number of procedures by changing economic incentives (for example, the proportion of the bill the patient pays or the fee collected by the physician) will not reduce the proportion of inappropriate procedures. [3, 4] The RAND Health Insurance experiment, in which we randomly assigned relies to different health insurance plans that varied in the amount of out-of-pocket medical expenses people had to pay, supports this conclusion. [5,6,7] In this study, we found that if care was free, people used more of it, sometimes as much as 50 percent more than people who had to pay half of the cost, up to a preset amount related to their family income. We also found that some of the additional care in the free plan was beneficial and some was not. In fact, at the end of the study, we found that people who were enrolled in the cost-sharing plans had levels of health status similar to those who were enrolled in fee-for-service plans. On the other hand, increasing the amount that a person had to pay for care resulted in an indiscriminate decline in care. Some people did not receive care that was beneficial and thus suffered health consequences; others avoided receiving unnecessary care that would have been more harmful than helpful and thus improved their health status.

In sum, our research shows that if we are going to contain the growth of health care costs in the United States, as most people insist we must, mechanisms that rely solely on economic and administrative principles will result in the indiscriminate elimination of care that is both beneficial and not beneficial to the patient. We must therefore develop mechanisms and policies that eliminate care that is not needed (or even harmful) to patients while maintaining care that has been demonstrated to be clearly beneficial. In other words, we must work toward ensuring that quality, not just cost and access, is considered when the structure of the health system is altered by forces such as managed care and competition. [8,9,10,11,12] We are relying heavily on market forces to give us more for our health care dollar. However, no market — health care or other — functions well if it is ill-informed about quality. The federal government must play a central role in improving the science of quality measurement, in using that information to improve the programs it supports, and in fostering the availability of quality information in the private marketplace.

Providing the resources necessary to maintain a quality health care system will not be inexpensive. Our estimates show a need of two hundred and fifty million dollars a year in new money to improve the science of measuring care, to evaluate the impact of policy changes and market forces on quality, and to improve the science of how we change clinical and

organizational behavior to promote better quality of care. In addition, large sums of new operational money — between $5 and $10 a person — are needed to facilitate the American people's choice of health care plans and providers in a competitive marketplace.

However, compared to the trillion dollars a year this country will be spending on health care, it is a bargain if this money can help ensure that quality of care is maintained in the next century. If this money is not forthcoming, I can almost assuredly promise you that the quality and efficiency of the health care system in America will suffer.

Quality of Care Has Measurable Components

What exactly is quality of care and how can it be measured? Our research has shown that there are three components of quality. The first is appropriateness. By appropriateness I mean that when a person receives a procedure, its health benefit exceeds its health risk. An inappropriate procedure is one for which the benefit to the patient is less than the risk. And finally, if the benefit is about equal to risk, we define the care as equivocal. Clearly, the most desirable care is that for which the benefit to the patient is greater than the risk. Certainly, it would be preferable to discontinue procedures for which care is not beneficial. Some might even be willing to give up paying for care in the public sector if the cost of the care is very large in relationship to the benefit. At any rate, research has concluded that for many procedures, up to one quarter of those being performed could be eliminated without affecting the health status of the American people. [11-17] On the other hand, it is equally true that many people, including those enrolled in the Medicare program, do not receive procedures that would improve their health. [18,19]

The second important component in measuring quality is the technical excellence with which it is delivered. For instance, we want to be sure that when coronary artery bypass surgery is performed the mortality rate is low, there are few complications, and the inserted arteries and veins stay open for a long time. We want to be sure that if an X ray or mammogram is taken, it is of sufficient quality that important lesions can be detected. In essence, it is not enough for a procedure to be appropriate, it must also be performed well.

The third component of quality of care is patient satisfaction. All of us, when we visit a physician or health care facility, would like to be treated humanely and with dignity. Satisfaction is the component of care that is often most obvious and most easily measured. It simply involves asking patients about their experiences with care. However, it can also be the least valid measure of quality, because without better information about appropriateness and technical quality, patients can be fooled. They can be satisfied with the manner in which they are treated, but they actually may be receiving “care” that is inappropriate or technically very poor, and this may produce undue suffering and even death.

All three of these components of quality can be measured using tools developed over the past 25 years. However, the science of medical care does not stand still. If quality is to remain on the agenda while the health care system is radically changed by competition, cost containment, and

regulation, the tools to measure quality must be continuously improved and must be made available in the public domain. As the information base of medicine changes, so must the tools to measure the quality of that care.

Federal Government Can Help Preserve Quality of Care in Four Ways

1. Support the Development of Better Quality Measurement

What roles can the federal government play to make sure quality is maintained or even improved into the next century? The first priority of the federal government must be to ensure that the science of measuring quality is maintained at the highest possible level and that the resources necessary to do this are provided. Public sector funds must be available to improve and develop the tools for measuring quality. And, these tools must be made available to all who have a stake in maintaining quality health care, whether they be managed care organizations, businesses, labor unions, physicians, nurses, consumer groups, or individuals. Unless these tools are available to the public, it is likely that price considerations, not quality, will be shaping the health care system five or ten years from now. And as our research has demonstrated, this will result in the dismissal of a large percentage of care that is necessary and will encourage a flight toward mediocrity.

The government's role in developing tools to measure quality of care has been demonstrated at RAND on numerous occasions. For example, a large federally funded grant from the Health Care Financing Administration enabled us to evaluate how the introduction of the Prospective Payment System affected quality of hospital care for Medicare patients.[20-22] This new hospital reimbursement system was established in 1983 to help control rapidly increasing Medicare costs. Before 1983, Medicare reimbursed hospitals on a cost-plus basis for each component of inpatient care, but under the new system, Medicare now pays a single lump sum for each admission, based upon the patient's diagnosis. To date, the RAND evaluation is the only national clinical evaluation of this program. In our study, we developed tools to measure the process of care, that is, what health care providers did to patients with one of six common medical conditions — heart attack, heart failure, stroke, pneumonia, hip fracture, and depression. We also developed tools to measure how sick the patient was at the time of hospitalization and what happened to patients after the hospitalization was concluded. Our evaluation of the impact of the Prospective Payment System on these dimensions of quality indicated that, by and large, the reimbursement of hospitals prospectively did not result in an overall decline in patient outcomes or in what physicians did to patients while they were hospitalized. We did, however, find one disturbing result: Patients were discharged from the hospital more quickly and in a clinically more unstable condition than before, and a significant number of these patients died unnecessarily. We concluded that if Medicare is going to change how it reimburses hospitals, it is incumbent upon the federal government to ensure that this policy decision does not harm patients. An ongoing evaluation of the impact of the Prospective Payment System on quality is needed, and other studies such as the one I've described should be undertaken, especially if policies to further contain the cost of the Medicare program are implemented.

The tools we developed in this project enabled us to reach another important conclusion. We found that there are wide variations in the quality of care delivered in U.S. hospitals. A patient admitted with a heart attack to one of the hospitals rated in the top 25 percent of hospitals in terms of quality of care was much more likely to survive than was a patient admitted to one of the worst 25 percent of hospitals. After controlling for severity of illness at admission, we found that an additional six out of 100 patients admitted to a hospital in the bottom twenty-fifth percentile died. This increased mortality rate was due to a lower level of both physician and nursing quality as well as to a lack of available technology such as intensive care units. This research, when coupled with other studies, suggests that perhaps as many as one-quarter of hospital deaths for some common medical conditions, such as heart attack or pneumonia, could be prevented. [23]

The development of methods and tools for measuring and promoting quality of care has just begun to pay off We are making new breakthroughs every day, and it is absolutely imperative that the federal government provide substantial new monies to the federal agencies supporting this research. I'm thinking in particular of the Agency for Health Care Policy and Research (AHCPR), which bears the primary responsibility for ensuring that quality of care is maintained throughout the American health care system. The research community needs I 00 million dollars of new money a year to continue its research on the measurement of quality of care. I contend that the price is well worth the benefits we and our children will reap.

2. Monitor the Effects of Changes in Policy and Markets

The second role of the federal government, as partially illustrated by the above study, is to monitor continuously not only how changes in policy at both the state and national level, but also how developments in the health care marketplace, affect quality of care. In order to eliminate policies and programs that are harming people, or to improve upon policies that do work, we must know not only their effect on cost but also on quality, as assessed at a clinical level. The federal government is the only entity that can provide funding to answer many important questions. For example: Are market forces increasing or decreasing quality? Do African Americans receive lower quality of care than Caucasians? Is the likelihood of surviving a heart attack the same in rural America as it is in urban America? Are we implementing policies that are decreasing the level of quality, or increasing variations in quality, across regions of the country or across ethnic or racial groups? And finally, how do we stack up internationally? Is quality of care better in the United States or Switzerland? In what country would you have a greater likelihood of surviving a heart attack and why?[241 To answer these questions, the research community needs funding support in the amount of $50 million a year.

3. Develop an Information System

The third role for the federal government is to help stimulate in the private sector, or to develop in the public sector, an information system that will provide to the entire U.S. population information about how their choice of a health care plans, and perhaps even their choice of a hospital or doctor, affects the quality of care they receive. Provision of this information must

involve the private sector through a private-public partnership. However, its success is critically dependent upon improving the science of measuring quality and making the measurement tools available in the public domain, as described above. The cost for such a system will be 5 to 10 dollars per person per year. Again, research has demonstrated the need for such an activity. Although not relevant to the Medicare population, work we have done with managed care organizations has shown that the quality of prenatal care varies remarkably depending upon which organization one goes to.[25] Similarly, the likelihood that a woman receives an unnecessary hysterectomy varies by the managed care plan she chooses. [26] Finally, research in New York and Pennsylvania has shown that the likelihood of surviving a coronary artery bypass surgery depends not only on the hospital where the surgery is done, but also on the physician one chooses and that higher cost does not guarantee higher quality. [27,28] If such information were available to help people choose in which plan they should enroll, reform based on market forces would consider both quality and cost, and hopefully the better organizations, not necessarily just the cheaper ones, would survive as cost containment or reduction in the growth of the health care industry occurs.

4. Help Implement Behavioral Change

The final role for the federal government is to increase the fundamental scientific knowledge about how one helps organizations, physicians, or hospitals to change so that they can deliver better care and more cost-effective care. Research by sociologists, economists, clinicians, and psychologists is needed in this area to answer many important questions. For example: How can the productivity of a physician visit be measured? What behavioral techniques work best to produce cost-effective care? What incentives are effective in changing physician and nurse behavior? Do different organizational structures result in different levels of quality? Answers to these questions will help the health industry produce a better product. An investment of a 100 million dollars a year is needed to improve science in this area alone would not be too much.

Conclusion

The science of measuring quality of care has come a long way in the past quarter century. This scientific progress owes a lot to the Agency for Health Care Policy Research (AHCPR) and its predecessors. Health Care Financing Administration (HCFA) has sharpened the application of this science through its efforts to improve quality in Medicare and Medicaid, for example, through the PRO program.

It is feasible that within a few years, if our efforts in this area are expanded, the four goals of federal policy envisioned above could be achieved. However, to accomplish this the research community needs at least $250 million a year in new money to improve the science of quality measurement, to evaluate policy and program changes, and to make quality of care information available in the private marketplace. The natural home for these new monies should be the agency which has the mission to perform such tasks, namely the Agency for Health Care Policy and Research.

We can develop and implement policies to improve the efficiency and effectiveness and quality of our health care system. We must make a concerted effort to keep quality on the agenda and to make sure that quality and price receive equal consideration. In the absence of information on quality, it is cost that will drive decisions about changes in the health care system. If this is the sole engine by which we alter the health care environment, one thing is certain — mediocre organizations, mediocre physicians, and mediocre hospitals will be the ones that survive, rather than the organizations, physicians, and hospitals that can make the American health care system the best in the world and the ones to which, when we become sick, we would like to go. We can measure quality of care, we can evaluate how federal and state policies affect quality, and we can help to ensure that the best organizations are the ones that survive in a competitive marketplace, as opposed to those that merely contain costs and restrict the level of technical quality they provide to a level that may harm patients. We can do better, and the government has a vital roles in ensuring that we do so.

REFERENCES

1. Chassin MR, Brook RK Park RE. Variations in the use of medical and surgical services by the Medicare population. N Engi JMed. 1986;314:285-290.

2. Chassin MR, Kosecoff J, Park RE, et al. Does inappropriate use explain geographic variations in the use of health services?: a study of three procedures. JAMA. 1987;258:2533-2537.

3 . Leape L, Park RE, Solomon DK et al. Does inappropriate use explain small area variations in the use of health care services? JAMA. 1990;263:669-672.

4. Brook RK Lohr KN. Will we need to ration effective health care? Issues In Science And Technology. 1986;3:68-77.

5. Newhouse JP, Manning WG, Morris CN, et al. Some interim results from a controlled trial in health insurance. NEnglJMed. 1981;305:1501-1507.

6. Brook RK Ware JE, Rogers WH. Does free care improve adults' health?: Results from a randomized controlled trial. NEngl JMed. 1983;309:1426-34.

7. Lohr K, Brook RH, Kamberg C. Use of medical care in the RAND Health Insurance Experiment: diagnosis- and service-specific analyses in a randomized controlled trial. Med Care. 1986;24:9 Supplement.

8. Brook RH. Appropriateness: the next frontier. BrMedJ 1994;308:218-219.

9. Brook RH. Health Care Reform Is on the Way: Do We Want To Compete on Quality?Ann IntMed. 1994;120:84-86.

10. Siu AL, McGlynn EA, Morgenstern H, et al. A fair approach to comparing quality of care. HealthAff. 1991;10:63-75.

11. Brook RH. Quality of care: Do we care? Ann Int Med. 199 1; 1 15:486-490.

12. Kattlove H, Liberati A, Keeler E, et al. Benefits and costs of screening and treatment for early breast cancer. Development of a basic benefit package. JAAM. 1995;273:142-148.

13. Leape LL, lElbome LH, Park RE, et al. The appropriateness of use of coronary artery bypass graft surgery in New York State. JAMA. 1993;269:753-760.

14. Bernstein SJ, lElbome LH, Leape LL, et al. The appropriateness of use of coronary angiography in New York State. JAMA. 1993;269:766-769.

15. Elborne LH, Leape LL, Bernstein SJ, et al. The appropriateness of use of percutaneous transluminal coronary angioplasty in New York State. JAMA. 1993;269:761-765.

16. Kleinman LC, Kosecoff J, Dubois RW, et al. The Medical appropriateness of tympanostomy tubes proposed for children younger than 16 years in the United States. JAMA. 1994;271:1250-1255.

17. McGlynn EA, Naylor CD, Anderson GK et al. Comparison of the appropriateness of coronary angiography and coronary artery bypass graft surgery between Canada and New York State. JAAM. 1994;272:934-940.

18. Laouri K Yravitz RL, French WJ, et al. Are coronary angioplasty and bypass surgery underused among African Americans, women and poor and uninsured patients? Program and Abstracts of Original Contributions, 43rd Annual Scientific Session, American College of Cardiology, Atlanta, Georgia, March 13-17, 1994.

19. Laouri M, French WJ, Yravitz RL, et al. Is coronary angiography underused among women? Program and Abstracts of Original Contributions, 43rd Annual Scientific Session, American College of Cardiology, Atlanta, Georgia, March 13-17, 1994.

20. Kahn KL, Rogers WH, Rubenstein LV, et al. Measuring quality of care with explicit process criteria pre- and post-implementation of the DRG-based prospective payment system. JAMA. 1990;264:1969-1973.

21. Kosecoff J, Kahn KL, Rogers WK et al. Prospective payment system and impairment at discharge: The quicker-and-sicker story revisited. JAMA. 1990;264:1980-1983.

22. Kahn KL, Keeler EB, Sherwood MJ, et al. Comparing outcomes of care pre- and post-implementation of the DRG-based prospective payment system. JAMA. 1990;264:1984-1988.

23. Dubois RW, Brook RH. Preventable deaths: who, how often, and why? Ann Int Med. 1988;109:582-589.

24. Brook RH. Maintaining hospital quality: The need for international cooperation. JAMA. 1993;270:985-987.

25. Murata PJ, McGlynn EA, Siu AL, et al. Quality measures for prenatal care: a comparison of care in six health plans. Arch Fam Med. 1994;3:41-49.

26. Bernstein SJ, McGlynn EA, Siu AL, et al. The appropriateness of hysterectomy: A comparison of care in seven health plans. JAAM. 1993;269:2398-2402.

27. Pennsylvania Health Care Cost Containment Council. A Consumer Guide to Coronary Artery Bypass Graft Surgery. Harrisburg: Pennsylvania Health Care Cost Containment Council; November 1992.

28. New York State Department of Health. Coronary Artery Bypass Graft Surgery in New York State: 1989-1991. Albany: New York State Dept. of Health; 1992.