

Individual Physicians or Organized Processes: How Can Disparities in Clinical Care Be Reduced?

March 2005

Prepared for the Study Panel on
Sharpening Medicare's Tools to Reduce Racial and Ethnic Disparities
National Academy of Social Insurance

By

Lawrence P. Casalino M.D., Ph.D.
Department of Health Studies
University of Chicago
5841 South Maryland Ave., MC 2007
Chicago, IL 60637

EXECUTIVE SUMMARY

This paper addresses three questions: (1) How does clinical care contribute to health disparities among ethnic groups? (2) How could changes in clinical care reduce disparities? (3) What could Medicare do to encourage changes in clinical care that would reduce disparities? The paper will focus on physicians and outpatient care, but for the most part analogous points could be made for hospitals and inpatient care.

Stated another way, the paper focuses on the question: "Given a minority patient who has the same supplemental insurance and access to competent physicians and hospitals as a white patient, what can be done to reduce disparities in clinical care between the white and minority patient?"

The paper makes four basic arguments:

1. The extent to which disparities are reduced is a function of the incentives and the capabilities of a physician or organization to reduce them. At present, most physicians and physician organizations have few if any incentives and capabilities to reduce disparities.
2. Much attention is being given to increasing physicians' "cultural competence" and their use of "evidence-based guidelines" as means to reduce disparities. Cultural competence and the use of guidelines will be useful, but far from sufficient, to reduce disparities. It will be necessary to take an "organized process," not simply an "individual physician," approach to reducing disparities.
3. It is often argued that "a rising tide lifts all boats" – that improving the quality of care for all will reduce disparities. But it is likely that many types of efforts to improve

quality for all will increase rather than reduce disparities (though they may increase the absolute level of quality of care received by minorities). To reduce disparities, targeted, as well as general, efforts at quality improvement will have to be made.

4. Medicare is already making some important efforts to improve quality for all, as well as to reduce disparities. But it could, and should, do much more.

Based on these arguments, the paper recommends that Medicare do the following, with support from Congress as necessary:

1. Medicare should pay physicians differentially based on the overall quality of care they provide.

1a) quality measurements on which pay for performance are based should be carefully risk adjusted.

1a.1) Contrary to what is often assumed, risk adjustment should be done for process measures as well as for outcome measures.

1a.2) Risk adjustment should include not only adjustment for the patient's health, but also adjustment for the patient's race and economic status.

1b) Medicare should carefully consider whether to base pay for performance only on quality of care for all patients, or whether to base it in part specifically on quality for minority patients.

1c) Medicare should carefully consider whether it is possible, for individual physicians in most specialties, to make statistically valid and reliable measurements of quality. If it is not, then pay for performance for physicians in these specialties should be done only for medical groups that are of at least the minimum size for which valid and reliable measurements can be made.

1c.1) If pay for performance is based in part specifically on the quality of care for minority patients, it will be even more difficult to validly and reliably measure quality for minorities for individual or very small groups of physicians (due to problems with sample size).

1d) Pay for performance may include both cash payments to medical groups and public reporting of the quality of care they provide.

1d.1) Pay for performance can be budget neutral, with higher quality groups gaining and lower quality groups losing.

1d.2) Pay for performance can start by making a small percentage of medical group income contingent on quality – MedPAC recently recommended 1-2% – but this percentage should be rapidly increased to the point where it is clearly sufficient to give medical groups a “business case” for investing in improving quality and in reducing disparities.

1d.3) Before beginning public reporting, Medicare should, for several years, provide groups with information on their comparative performance on quality measures.

1e) Medicare should reward both improvement and absolute quality scores. If Medicare were to reward only the highest scoring medical groups, groups with the most resources would be likely to receive most of the reward dollars. The rich would get richer and the poor poorer, likely hurting medical groups that serve large numbers of minority patients.

1f) Medicare should improve its data on the race and also on the socioeconomic status of its beneficiaries.

2. Medicare should seek to increase the capabilities of medical groups to improve quality and reduce disparities.

2a) Individual physicians' overall competence and cultural competence are important. But the capabilities of medical groups to implement organized processes to improve quality and reduce disparities are probably more important, particularly for preventive care and for the care of patients with chronic illnesses.

2b) Medicare should decide to what extent to rely on giving medical groups direct incentives to improve their capabilities to improve quality and reduce disparities and to what extent to rely on rewards for scoring well on quality measures.

2b.1) Direct incentives to improve medical group capabilities could include cash payments for demonstrating the use of certain types of information technology (IT).

2b.2) It is probably preferable to use rewards for scoring well on quality incentives rather than paying for the use of specific types of IT. Rewards for quality will give medical groups the flexibility to design their use of IT and of organized processes to improve quality in the way that seems best adapted to their situation.

2b.3) For the same reason, rewards for quality are probably preferable to Medicare beginning to pay for specific services, such as paying for

providing nurse care management for patients who need it or paying for physician communication with patients via e-mail and/or via telephone.

2b.4) It is important that not only individual health care providers, but also provider organizations, be culturally competent. If Medicare chooses to reward not only overall quality but also the quality of care for minority groups, it will encourage medical groups to become culturally competent.

2b.5) Patient satisfaction should be a component of quality measures. As well as being an important measure in its own right, the use of patient satisfaction scores would encourage physicians and medical groups to increase their cultural competence.

2c) Medicare should consider using its leverage over medical education to encourage academic medical centers to educate medical students and house staff in cultural competency and in the use of organized processes to improve quality.

2d) Medicare should consider using its leverage over medical education to encourage medical schools to recruit more students from minority groups.

3. This paper focuses on Medicare's dealings with physicians. However, it is possible that Medicare can increase quality and reduce disparities in other ways – for example, by focusing on communicating with patients directly, by giving incentives to patients, by focusing communicating with patients through their communities, and/or by focusing on health plans. Medicare is already making some efforts in those directions. Research should evaluate both the effectiveness of each focus and their effectiveness compared to each other.

3a) Medicare should use the principles of pay for performance given above in its contracts with Medicare Advantage health plans in order to encourage them to improve quality and to reduce disparities.

3b) Medicare should implement demonstration programs to improve quality and reduce disparities at both the health plan/disease management company and at the medical group level.

3b.1) Current Medicare demonstration programs targeted at medical groups involve only very large medical groups. Medicare should consider demonstration projects that involve the smaller medical groups in which most patients receive their care.

INDIVIDUAL PHYSICIANS OR ORGANIZED PROCESSES: HOW CAN DISPARITIES IN CLINICAL CARE BE REDUCED?

This paper addresses three questions: (1) How does clinical care contribute to health disparities among ethnic groups? (2) How could changes in clinical care reduce disparities? (3) What could Medicare do to encourage changes in clinical care that would reduce disparities? The paper will focus on physicians and outpatient care, but for the most part analogous points could be made for hospitals and inpatient care.

Stated another way, the paper focuses on the question: "Given a minority patient who has the same supplemental insurance and access to competent physicians and hospitals as a white patient, what can be done to reduce disparities in clinical care between the white and minority patient?"

These are among the questions that the Institute of Medicine (IOM), responding to a Congressional request, explored in its recent report Unequal Treatment: Confronting Racial and Ethnic Disparities in Healthcare (Institute of Medicine 2003). The IOM noted that differences in access to care caused by the factors listed above – e.g. the difference between being an insured or an uninsured patient – are more important than clinical care as a cause of health disparities (p. 33). However, the IOM report presented a great deal of evidence that disparities in clinical care are also an important cause of health disparities among ethnic groups. The report's recommendations relating to clinical care were:

1. "Promote the consistency and equity of care through the use of evidence-based guidelines."

2. "Structure payment systems to ensure an adequate supply of services to minority patients, and limit provider incentives that may promote disparities."
3. Provide "financial incentives for practices that reduce barriers and encourage evidence-based practice."
4. "Support the use of interpretation services."
5. "Support the use of community health workers"
6. "Implement multidisciplinary treatment and preventive care teams."
7. "Implement patient education programs."
8. "Integrate cross-cultural education into the training of all current and future health professionals."
9. "Include measures of racial and ethnic disparities in performance measurement."

In this paper, I suggest that these IOM recommendations are necessary, but will not be sufficient to dramatically reduce ethnic disparities in clinical care. More precisely, I suggest that, notwithstanding some of the recommendations listed above (e.g. the recommendation to use multidisciplinary teams), the IOM report is framed largely in terms of the individual patient-physician encounter and of the personal characteristics that the patient and the physician bring to the encounter. This framing is shared by other important publications (American College of Physicians 2004; van Ryn and Fu 2003). It reinforces the traditional "individual physician" view of quality, which assumes that quality is what an individual physician does during a patient visit for whatever individual patient happens to present him or herself.

This "individual physician view" – a view that is very strongly emphasized during medical training – is necessary. It is critical that individual physicians feel that "the buck stops with me" in terms of responsibility for what happens to individual patients. But this view is not sufficient to systematically improve quality and reduce disparities. To achieve these goals, an "organized process" approach to quality will be needed. Such an approach is implicit in the IOM recommendations. The "organized process approach" stresses the use of organizational processes to improve care for populations of patients, not just for those who show up in front of a physician. It emphasizes that clinical care should include things that ought to be done both during the days, weeks, or months before a patient arrives for an office visit and after the patient leaves. It focuses on physician organizations, rather than individual physicians, and on the processes these organizations use to:

1. identify patients who need care
2. provide care by tailoring the methods used (e.g. via phone, Internet, e-mail, and group visits in addition to the traditional doctor-patient office visits) to the patient's needs
3. support physicians and multidisciplinary teams in their clinical decision-making
4. support patients in their ability to help manage their own illnesses
5. provide physicians, teams, and physician organizations with feedback on their performance.

This paper suggests that both an organized process approach and attention to individuals – to the selection and training of physicians and other health care workers – will be necessary to reduce health disparities among ethnic groups.

The next section of this paper describes the organized process approach. The following section asks whether this approach would in fact be likely to improve the quality of health care for the U.S. population as a whole. I then ask whether improving the quality of care is likely to reduce health disparities among ethnic groups. I then present the traditional model of the clinical encounter and contrast it with an expanded "4P" model of care that incorporates the organized process approach. Succeeding sections discuss the key elements of this model in some detail. The paper argues that organized processes to improve quality include the use of guidelines, but that guidelines alone are not sufficient to improve quality or to reduce disparities.

The fundamental proposition throughout is that performance = incentives + capabilities. The performance of individuals and organizations in improving quality and reducing disparities will depend on both their incentives and their capabilities for doing these things. The paper concludes with suggestions about actions Medicare might take to increase healthcare organizations' incentives to reduce disparities and to help them improve their capabilities for doing so.

THE ORGANIZED PROCESS APPROACH

Traditionally, U.S. health care has depended on the patient deciding to visit the physician and on the physician doing whatever things he or she can remember – during a seven to fifteen minute visit in which multiple issues are addressed – should be done for the patient. The physician may or may not remember, for example, that the congestive

heart failure patient being seen should be on a beta blocker, has not had his annual influenza immunization, and recently had a borderline low serum potassium level noted during an emergency department visit. The physician may not notice that one of the patient's medications could result in a dangerous elevation in the blood level of one of the patient's other six medications. Many – probably most – physician practices lack organized processes to increase the chances that action will be taken on these issues (Casalino, Gillies, Shortell et al. 2003). The result is predictable: the quality of the health care we deliver is far worse than the quality we could deliver, given the current state of knowledge. In the largest and best-designed study done to date – a national study of 439 quality indicators covering preventive care plus 30 acute and chronic medical conditions in 6,712 patients – patients received recommended care only 55% of the time (McGlynn, Asch, Adams et al. 2003).

During the past decade, two movements based on using organized processes to improve quality have emerged in the United States: the Chronic Care Model (CCM) and disease management (DM) (Casalino 2005). The two movements share many of the same processes and goals. They differ in their focus and in the industry sectors that support them. The CCM focuses on changing the processes through which physician practices provide health care (Bodenheimer, Wagner and Grumbach 2002; Wagner, Austin, Davis et al. 2001). Disease management focuses on direct contacts between the DM company and the patient, though the patient's physician is kept informed, to a greater or lesser extent, of the patient's condition and of the interventions that the DM company is making (Foote 2003; Mechanic 2002; Robinson and Yegian 2004). The CCM has received most of its financial support from foundations. It is promoted by the Improving

Chronic Illness Care project at the University of Washington, by the Institute for Healthcare Improvement in Boston, and by the United States Bureau of Primary Care, which has promoted its use in federally funded community health centers. Disease management has received most of its support from large employers and from health insurance plans (Bodenheimer 1999). Disease management is provided by health plans or by national corporations specifically created to provide DM services to health plans and employers.

With different emphases, and in some cases using different methods, both DM and the CCM share the goals of the organized process approach listed above:

1. Identify patients who need care:

Both medical groups using the CCM model and DM companies create and update "registries" – lists of patients with a given chronic illness. Disease management companies use sophisticated information technology (IT) to integrate claims data from multiple sources to classify patients into disease categories and also to classify them as at high, medium, or low risk for needing extra services to prevent complications. Medical groups in general have less sophisticated IT to identify and stratify patients, but are able – at least in theory – to use their direct contact with patients to help create registries (Casalino et al. 2003; Neil 2003).

2. Provide care by tailoring the methods used to the patient's needs:

Both DM companies and medical groups using the CCM communicate with patients outside the traditional office visit. They use the telephone, Internet, e-mail, and group visits, with the frequency of communication (as often as once a week or more) varying with the severity of the patient's need. Communication may come from

physicians, case management nurses, and other members of multidisciplinary teams (Grumbach and Bodenheimer 2004; Wagner 2000). DM companies' large size compared to all but the very largest medical groups gives them superior economies of scale that are useful for the development of sophisticated IT and for the employment of specially trained nurses whose only job is to provide DM services to patients. However, the multidisciplinary teams of medical groups using the CCM have the advantages of working together face-to-face, of having a personal relationship with patients, and of being physically near patients' homes (which makes group visits feasible).

3. Support physicians and multidisciplinary teams in their clinical decision-making:

DM companies monitor patients' status – on a daily basis when necessary – through the use of the communication tools discussed above, often in combination with biometric devices placed in the patient's home. Some of these devices are capable, for example, of weighing the patient, of asking the patient questions, and of electronically communicating the data generated to the DM company's data base, where it is instantly analyzed and an alert generated, when appropriate, to a DM company nurse. This nurse can then contact the patient and, if necessary, the patient's physician (by fax or, in urgent circumstances, by phone). DM companies can also use their IT to generate periodic reports for physicians (including, for example, a record of a diabetic patient's recent blood sugar levels, blood pressures, and weights, a list of the patient's medications, and guideline-generated suggestions for needed care – for example, that the patient is overdue for a retinal exam).

Medical groups using the CCM generally lack IT sufficient to match these physician support activities of DM companies. However, medical groups have several

advantages in supporting physicians and multidisciplinary teams: they are more likely to have their physicians support; their teams can meet face-to-face; they have personal relationships with their patients; and they can use their electronic medical record (if they have one, which most do not) to provide "decision support" for their physicians and teams (Miller and Sim 2004). Decision support might include reminders of recommended preventive and other services generated while the patient is seeing the physician as well as search capabilities for efficiently seeking the answers to clinical questions that the physician may have.

4. Support patients in their ability to help manage their own illnesses:

This can be done primarily through the communication methods described in #2, above.

5. Provide physicians, teams, and physician organizations with feedback on their performance:

Providing useful feedback requires the ability to collect accurate and complete information, to adjust this information for the severity of patients' medical conditions and for their socioeconomic status, and to analyze the information in a statistically reliable and valid way. Though feedback is being increasingly used by medical groups and by health plans, this set of requirements is at present difficult to fully meet, even for organizations with the most sophisticated IT systems. As a result, feedback may often be looked at with some skepticism by physicians, even when it comes from their own medical group.

Though the recommendations of the IOM report are compatible with the "organized process" approaches described here, the report focuses much more on

individual physicians and patients and the traditional office visit. *For example, the phrases "medical group," "chronic care model," and "disease management" do not appear anywhere in the IOM report.* The report has subsections on patient level and physician level sources of disparities, but no section discussing physician organizations. Similarly, in its most recent report to the Congress, the Medicare Payment Advisory Commission (MedPAC) focuses on paying individual physicians, rather than medical groups, for quality (Medicare Payment Advisory Commission 2005).

WOULD AN ORGANIZED PROCESS APPROACH IMPROVE THE QUALITY OF U.S. HEALTH CARE?

Elements of the CCM have been used by hundreds of medical groups around the U.S. (Wagner 2003) Disease management is now used by health insurance plans throughout the country (Welch, Bergsten, Cutler et al. 2002). However, research into the effects of the organized processes used in DM and the CCM is still a relatively new field – one in which methodologically strong studies are difficult to conduct (Cretin, Shortell and Keeler 2004; Rector and Venus 1999; Selby, Scanlon, Lafata et al. 2003; Shojania and Grimshaw 2004). A number of review articles evaluating studies of these processes and summarizing their results are now available (Bodenheimer 2003; McAlister, Lawson, Teo et al. 2001; Villagra 2004a). The most important findings to date are:

1. Many, if not all, of the organized processes used by DM and the CCM can improve the quality of care (Chin, Cook, Drum et al. 2004; Norris, Nichols, Caspersen et al. 2002; Sidorov, Shull, Tomcavage et al. 2002; Villagra and Ahmed 2004; Wagner, Grothaus, Sandhu et al. 2001). It remains an open question whether they can also reduce

costs, particularly when the costs of the organized processes themselves are included (Congressional Budget Office 2004).

2. However, evidence about which particular organized processes – or combinations of processes – work best is limited. Details matter. We know very little about which processes work best in which contexts. For example, do certain processes work better for certain types of patients, or when used by certain types of organization (e.g. a small medical group vs. a large medical group vs. a disease management company) (Sperl-Hillen, Solberg, Hroschikoski et al. 2004)?

3. Simply giving guidelines to physicians has little or no effect. However, prompting physicians with guideline-based reminders at the time they are providing care to a patient, and giving feedback to physicians on their performance, do improve physician use of guidelines (Balas, Weingarten, Garb et al. 2000; Bennett and Glasziou 2003; Grimshaw, Shirran, Thomas et al. 2001; Karson, Kuperman, Horsky et al. 1999).

4. Simply handing educational materials to patients or to physicians is not effective (Norris, Engelgau and Narayan 2001).

5. Programs that use multiple coordinated processes to improve quality are more effective than programs that use only one (Renders, Valk, Griffin et al. 2001; Weingarten, Henning, Badamgarav et al. 2002).

Taken together, these findings indicate that the use of organized processes to improve quality is likely to improve the overall quality of U.S. health care – not a surprising conclusion, compared to the unorganized way much care is provided at present.

WILL IMPROVING THE QUALITY OF CARE FOR ALL REDUCE HEALTH DISPARITIES?

This question is more subtle than appears at first glance. The IOM report advances three relevant propositions:

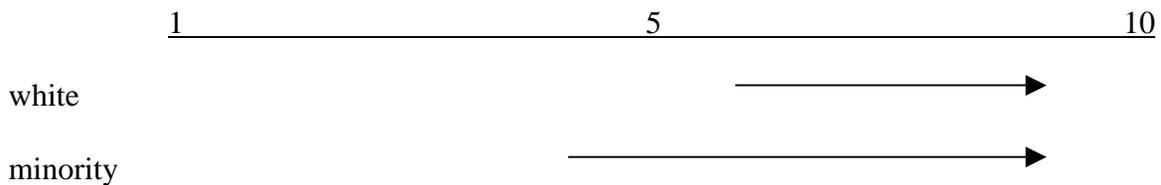
1. Increased use of guidelines and of evidence-based medicine will improve quality for all.
2. Improving quality for all will reduce disparities, because minorities are in general less healthy than whites, so will benefit to a greater degree from quality improvement.
3. Disparities can be further reduced by efforts that specifically focus on minority patients.

I will discuss the second of these propositions here, the third throughout the remainder of the report, and the first on page 17, where I will also present a basic model of the production of quality.

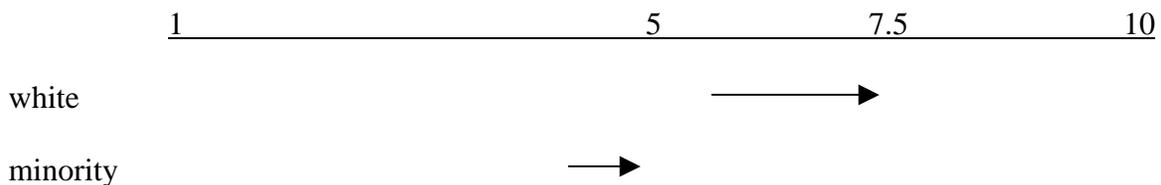
Will improving quality for all reduce disparities?

It is often assumed, or explicitly stated, that improving quality for all will reduce disparities. For example, one advocate states that "Increasing the use of evidence-based practices offers strategies aimed at assuring equal treatment for all and encompasses physician accountability, without the need for specific race-based intervention programs" (Owen, Szezech and Frankenfield 2002). This would be wonderful, if true. But it will only be true if the use of EBM results in equal quality for all patients. It can only do so if it increases quality proportionally more for minorities than for whites. If, for example, we rate quality on a scale of 1-10, and assume that whites are at 6, minorities at 4, and that use of EBM increases both to a quality level of 9, then the use of EBM would indeed

erase disparities in clinical care, by increasing quality for whites by 50% and for minorities by 125%. [Calculation: for whites $(9-6)/6 = 50\%$ and for minorities $(9-4)/4 = 125\%$.]

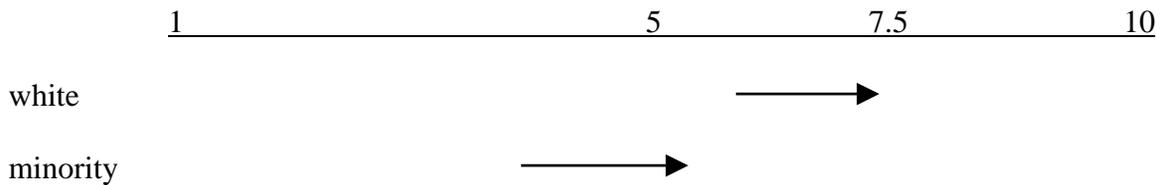


But it is almost certainly a mistake to simply assume that use of EBM will increase quality for minorities more than for whites, because, as will be discussed below, there are more barriers to the use of EBM with minorities. Unless specific attention is paid to minorities, it may be that use of EBM will, at best, increase quality by the same relative percentage for each group. If this were to happen, quality disparity would actually increase. If, for example, quality were increased by 25% of 6 for whites, and by 25% of 4 for non-whites, the gap would increase by 25%, from 2 points to 2.5 points. [Calculation: for whites $.25(6) = 1.5 + 6 = 7.5$. For minorities $.25(4) = 1 + 4 = 5$. $7.5 - 5 = 2.5$. $2.5 - 2 = 0.5/2 = 25\%$.]



Unless one assumes that use of EBM – or of any other quality-improving technique – can somehow get everyone to the same quality level without special attention to any disadvantaged group, then simply "improving quality for all" may increase, rather than reduce, health disparities.

There is a third possibility – if quality is increased more for minorities than for whites, but not to the point where quality for whites and minorities is equal, then quality improvement may have no effect on disparities. If, for example, quality were increased by 25% of 6 for whites, and by 37.5% of 4 for minorities, then the quality gap would hold steady at 2 points. [Calculation: for whites $.25(6) = 1.5 + 6 = 7.5$. For minorities $.375(4) = 1.5 + 4 = 5.5$. $7.5 - 5.5 = 2$.]



When quality improves, minorities may be better off in an absolute sense, even if disparities don't change or increase (Mechanic 2005). However, it would still be more desirable to both increase quality and reduce disparities. There are three ways in which quality might be increased proportionally more for minorities than for whites. First, all quality-improving efforts might be directed toward minorities – an unlikely scenario. Second, more effort might be directed toward minorities than toward whites – a scenario likely to provoke political opposition. Third, efforts to improve quality might proceed from two principles:

(1) equal help will be given to patients with the same type and severity of disease. Since minorities have a higher prevalence of many chronic diseases, acting on the basis of this principle would be likely to reduce disparities. This is the position espoused by Medicare in its major upcoming disease management demonstration program, titled "Voluntary Chronic Care Improvement Under Traditional Fee-for-Service Medicare" (Centers for Medicare and Medicaid Services 2004). The CMS RFP for the program does not explicitly ask DM companies to direct more attention to minorities. Rather, CMS hopes the program will reduce disparities because: "Minority populations suffer disproportionately from chronic diseases and will stand to benefit most from the program." (Medicare Chronic Care Improvement Program, Frequently Asked Questions, available at http://questions.cms.hhs.gov/cgi-bin/cmshhs.cfg/php/enduser/std_alp.php?p_cat_lvl2=76 accessed 11-3-04).

(2) for help to truly be equal, it is necessary that DM or other quality-improving programs have the capabilities to assist patients who have less education, less telephone and Internet access, and/or less ability to speak English. Again, the CMS RFP takes this position, requiring that the DM services provided be "tailored to the meet the needs of all participants, including those with limited reading skills, with diverse cultural and ethnic backgrounds . . . or primary languages other than English."

Research evidence on the effects of disease management and of the chronic care model on health disparities

In theory, as just shown schematically, overall improvements in quality may reduce disparities, increase them, or have no effect. There are no strong data to support one of these possibilities over another. As indicated above, many studies indicate that organized processes (which will be called "CMPs" – "care management processes" – throughout the remainder of this paper) can improve quality work for minorities as well as for whites. But there is no review article, and there are very few studies of any kind, that provide data on the question of the effects of overall improvements in quality on disparities (Cooper, Hill and Powe 2002).

I found two studies that suggested that overall improvements in quality had no effect on disparities. A recent British study involving 4,493 patients found that special clinics for asthma reduced the severity of symptoms for both "affluent" and "deprived" patients; there was a slight, not statistically significant trend toward greater reduction in deprived patients (Baker, Middleton and Campbell 2003). A national study in the U.S. found that patients in Medicare HMOs (many of which attempt to increase influenza immunization) had a higher rate of immunization than those in traditional Medicare. Disparity in immunization rates between African Americans and whites was smaller, but not statistically significant, for the HMO patients (Schneider, Cleary, Zaslavsky et al. 2001).

Four studies suggest that improving quality may reduce disparities. In a before-after study of 2,619 high risk CHF patients done by CorSolutions, a disease management company, disparities in functional status between whites and African Americans disappeared after participation in a disease management program (Walker, Stern and Landis 2004). In the well-known Diabetes Control and Complications Trial, less

educated patients had greater improvements in blood sugar control from being in the intensive therapy group than did more educated patients (Goldman and Smith 2002). When Medicare implemented guidelines for the adequacy of dialysis dosing for patients with end stage renal disease, a national study found that the percentage of patients meeting the benchmark urea reduction ratio increased from 43% to 72%, with a disproportionately large improvement in African Americans (Owen et al. 2002; Sehgal 2003). Finally, after a new pneumococcal vaccine for children was introduced in 2000, the incidence of pneumococcal disease declined among both blacks and whites – but more among blacks (Flannery, Schrag, Bennet et al. 2004).

In sum, the evidence is not sufficient to determine whether improving quality for all will reduce disparities, increase them, or leave them unchanged. In practice, at least some medical groups and disease management companies that use organized processes to improve quality attempt to design these processes to overcome the special barriers to improving quality for minority populations. It is to these barriers, and to possible ways to overcome them, that we now turn.

THE TRADITIONAL AND THE ORGANIZED PROCESS MODELS OF PATIENT CARE

Figure 1 shows the traditional model of patient care. This simple model is based on the individual physician view of quality – i.e. that quality is what an individual physician does during a face-to-face clinical encounter for whichever patients happen to decide to seek an encounter. This model has been and remains the norm in U.S. medical practice, though some physicians do make an extra effort – usually in a relatively

unorganized and limited way – to influence some patients to seek care, and to follow-up with some patients during the days or weeks after the clinical encounter.

The model in Figure 1 is consistent with the IOM model of healthcare disparities presented on p. 127 of the IOM report. In this model, quite a lot of attention is paid to the individual physician, but virtually none to the organization in which the physician practices. As the report says (p. 127): "Central to this model is the role of personal [physician, patient, and utilization manager] discretion in determining the care that patients receive." In one sense, this is true: people are, in the end, the only actors. But looked at another way, this individual view of quality and disparities is a mistake, if considered to be not only necessary but also sufficient: CMPs are a way of reducing the role of personal discretion in terms of the ability of such discretion to cause errors of commission or omission.

Figure 2 presents a more detailed model, which might be called the "4P model" of producing quality medical care. The four "P's" include patients, physicians, physician organizations, and processes used by the organization and its physicians. This model takes account of the medical environment and of the physician organization – the organization in which the physician practices. It also explicitly recognizes the possibility that the organization may use organized processes to communicate with the patient during the time periods before and after the face-to-face clinical encounter. The model also includes the concept that patients' ability to self-manage their medical conditions – not just the physician's skill in diagnosis and treatment, and not just the patient's adherence to the treatment plan – is important in producing high quality care. Though the IOM report mentions all of these factors, its focus remains on the components of the

traditional model – i.e. on what the physician and the patient bring to the face-to-face clinical encounter. The report has little to say about the physician organization or about the possible use, by the organization and/or by other organizations in the medical environment, of CMPs to improve quality.

The following sections of this paper will discuss each component of the 4P model presented in Figure 2. Because the IOM report discussed some of these components in detail, this paper will focus particularly on the components that are given little emphasis in Unequal Treatment.

THE MEDICAL ENVIRONMENT

I begin with the medical environment, which affects all four of the "Ps": patients, physicians, physician organizations, and processes (Figure 2). It can affect both patients' decision to seek care and their ability to self-manage their medical conditions. It affects physicians both directly and through the organizations in which they work. The medical environment includes the degree to which health insurance is available, the types of insurance available, the methods by which physicians are paid, the degree to which hospitals and physician offices are geographically accessible, government regulations, the malpractice environment, and the culture of health care. The IOM discusses many of these factors in detail; here I will discuss only health insurance (briefly) and physician payment methods (in more detail). I will also discuss a new and important type of organization that is part of the current medical environment: disease management companies, which may have strong effects on both patients and physician organizations.

Health insurance

This paper makes the artificial assumption that patients have adequate and equally good health insurance. In fact, disparities in health insurance are widespread and important (Committee on the Consequences of Uninsurance 2004). The IOM report documented the disparities between whites and minority groups in health insurance and the evidence that these insurance disparities lead to disparities in the quality of care. Patients with no insurance or inadequate insurance are less likely to seek care, less likely to receive care from high quality physicians, less likely to receive appropriate services when they do see a physician, and, probably, less likely to adhere to a treatment plan because of the financial costs of doing so. Nevertheless, the IOM report stated that although disparities in insurance are important, there appear to be white-minority disparities in quality even when patients have the same insurance.

The type of insurance patients have may also contribute to disparities. Insofar as "type" means adequate insurance vs. inadequate insurance, this is obvious. But by type I mean something more subtle: how difficult does a particular insurance plan make it for a patient to obtain services? For example, poorly educated patients and/or those from a different ethnic/language background are likely to find it more difficult than white middle class patients to obtain services when insured by a managed care plan that has a narrow physician network, extensive preauthorization requirements for many medical services, and difficult-to-access customer service. CMS estimates that 12 million of its nearly 40 million beneficiaries "may not be able to access the health care services they need as a result of cultural and language barriers" (CMS Initiatives Disparity Conference Opening Presentation, available at www.mass.gov/dph/omh/regionalconference/presentations/cms_initiatives.pdf. Accessed 11-30-04).

Physician Payment Methods

During the past few years, there has been an increasing volume of calls for "pay for performance" for physicians as a way to create a "business case for quality" for physicians to invest in quality-improving technologies and processes (Bringewatt 2001; Galvin 2001; Institute of Medicine 2002a). Large private employers, health plans, and Medicare have begun to experiment with pay for performance programs (Foote 2004; Leapfrog Group 2004; Rosenthal, Fernandopulle, Song et al. 2004). These programs are still new, and a methodologically strong research base showing that pay for performance increases quality is just beginning to develop. Skeptics argue that paying physicians for quality care will have many unintended and undesirable side effects (Vladeck 2003). However, it is expensive for physicians to invest in creating and maintaining organized processes to improve quality. Assuming such processes are needed, it is difficult to believe that large numbers of physicians will make large investments on which they expect no return (Casalino 2003; Leatherman, Berwick, Iles et al. 2003). Most – though not all – academic and business experts expect that pay for performance, if done well, will result in improved quality of care (Epstein, Lee and Hamel 2004). In its most recent report to the Congress, MedPAC recommends that Medicare begin to pay physicians differentially based on the quality of their care (Medicare Payment Advisory Commission 2005). However, almost nothing has been written about pay for performance as a way to reduce disparities, and there appears to be no research data on this topic.

Assuming that pay for performance – defined as providing incentives for quality – does result in improved quality of care, would we expect this to reduce disparities? As discussed above, increasing quality overall may reduce or increase or have no effect on

quality disparities. The specific type of pay for performance/quality incentives is probably important. There are many ways to give incentives to improve quality, including (1) public recognition for scoring well on quality measures; (2) extra pay for scoring well on quality measures; (3) quality "tiering" – i.e. requiring patients to pay more (e.g. to have a larger co-payment) if they see physicians ranked in a poor quality tier; and (4) payment for specific services thought to improve quality – e.g. for group visits for patients with chronic diseases, for case management services, for "non-visit-based communication" via telephone and e-mail, and/or for the use of an electronic medical record (Rosenthal et al. 2004). Would different incentives for quality be likely to have different effects on disparities?

Public recognition for scoring well on quality measures

Employers and health plans are increasingly providing patients with comparative rankings of how well physicians, medical groups, and hospitals score on specific measures of quality, including patient satisfaction with their physicians. Making quality rankings public could reduce disparities if minority patients are more likely (without these rankings) to seek care from lower quality physicians (perhaps because they are geographically closer), and if they are able to access and understand information on physician quality, and if they are able (in spite of possible language, culture, insurance, and transportation barriers) to switch to higher quality physicians. Unless all three of these rather difficult conditions are met, public quality rankings might increase disparities, because white patients and better educated patients may be able to make better use of the information provided (Davies, Washington and Bindman 2002).

It would be helpful if – as is already being done to some extent – quality rankings were made available in locations, formats, languages, and media that are easily accessible to minority patients (Lurie, Jung and Lavizzo-Mourey 2005; National Quality Forum, 2002). Providing quality rankings for the performance of physicians and hospitals specifically in caring for minority patients might also be helpful, but would be methodologically difficult (partly because of problems with the power of statistical analyses when smaller number of patients are involved) and possibly politically controversial. In addition, in some cases, quality rankings for care for minority patients might give a physician organization – e.g. a medical group – disincentives to be ranked high (Davies et al. 2002). If the group serves primarily white patients, it may fear that some white patients would be uncomfortable if more minority patients were seen in the group's facilities. The group may also believe that its scores on performance measures are not adequately adjusted for the level of illness and/or the socioeconomic status of minority patients (Fiscella 2000). In this case, attracting more minority patients would cause the group's performance scores to decrease. Similarly, to the extent that the group is paid via capitation rather than fee-for-service, it will want to avoid patients for whom the cost of care is likely to be higher than predicted by the inadequate forms of risk adjustment often used in capitation formulas.

Extra pay for scoring well on quality measures

Assuming that paying physicians, medical groups, and/or hospitals more when they score well on quality measures will raise the overall quality of care, the effect on disparities is unpredictable, as discussed above. If the quality measures chosen induce organizations to invest in increasing their use of CMPs, particularly CMPs whose focus is

enhanced communication with patients (especially outside of the clinical encounter), disparities could be reduced, since communication with minorities is often poor, if communications are tailored toward minority patients as needed. Providing added rewards for scoring well on measures of quality for minority patients (including such a simple measure as patient satisfaction) would be an inducement to physicians to improve their communications processes with minorities. However, if paying more for quality for minority patients were combined with public recognition for quality for these patients, and if a physician organization did not want more minority patients, quality pay might actually increase disparities.

There is another way in which paying more for high quality scores could increase disparities: it could cause rich physician organizations to get richer and poor ones to become poorer (Epstein 2004). Wealthier medical groups and hospitals located in more affluent areas are more likely to have higher quality scores for two reasons. First, they may have higher quality physicians, staff, and facilities, and more capital to invest in implementing CMPs. Second, to the extent that quality scores are not adjusted for patient illness, sociodemographic status, and race, physicians located in poor, primarily minority areas will be disadvantaged. All three of these factors will affect physicians' quality scores. This will be true – contrary to what is sometimes asserted – even if the quality measures are "process" measures. A physician whose patients are upper middle class, college educated white women is more likely to be able to achieve a higher score on "percentage of women who have received a screening mammogram" than a physician whose patients are poor, less educated, and of a minority ethnic group (Franks and Fiscella 2002). This point is very important to note, because it is usually thought that

process measures need not be risk adjusted. In its March, 2005 report to Congress, for example, MedPAC states that “Risk adjustment is primarily an issue for outcomes measures . . . Including measures that do not need risk adjustment, such as process measures, will allow quality measurement to go forward until better data are available to risk adjust outcomes” (Medicare Payment Advisory Commission 2005, p. 187).

If wealthier physician organizations are able to achieve higher quality scores and thus receive higher incentive payments, the income gap between providers in affluent areas and those in poor areas will increase. The wealthier providers will then be more able to invest in processes to improve quality, further widening the scoring gap between them and poorer providers – a process that could continue without end. A partial solution to this problem would be to base quality incentives partly on an organization's absolute score and partly on its improvement since the previous measurement.

Quality tiering – requiring patients to pay more if they choose to see lower quality providers

Quality tiering might reduce disparities by making it more inexpensive for minority patients, who tend to be poorer, to use high quality physicians and hospitals. However, tiering could increase disparities if white patients are better able than minorities to understand and act on the information that tiering provides (this argument is the same as the one in the section on public reporting of provider performance). In addition, there is one other way in which tiering might increase disparities. It is likely that tiering will be done not on the basis of quality alone, but on the basis of the quality and the costs of providers. It could easily be the case that many if not all of the providers in areas where minorities live are both low quality and low cost. If the tiering were

weighted in such a way that cost is more important than quality, then patients with less money would have less ability to use high quality, medium or high cost providers.

Payment for specific services thought to improve quality

Physicians could be paid for specific services thought to improve quality – e.g. for group visits for patients with chronic diseases, for case management services, for "non-visit-based communication" via telephone and e-mail, and/or for the use of an electronic medical record. Most if not all of these services could increase communication with patients. Since minority patients, compared to whites, may need more education and more trust-building (Doescher, Saver, Franks et al. 2000; Schillinger, Grumbach, Piette et al. 2002), and since both education and trust depend on communication, payment for such services could reduce disparities (Ashton, Haidet, Paterniti et al. 2003). However, disparities would be increased if unconscious bias on the part of the physician and/or more demand for these services from whites than minorities resulted in more of these services being provided to whites. Disparities could also be increased if minority patients are less likely to have telephones and/or e-mail and Internet access.

More generally, fee-for-service payment for services other than the traditional face-to-face physician-patient clinical encounter is not an optimal method of reimbursement, though it probably would be preferable to the present system of pure fee-for-service. These payments would be difficult to structure and monitor (e.g. would all phone calls be paid for? how would the payer know that any given phone call was a needed service?). More important, fee-for-service payment for services such as e-mail would mean that payers would, to a considerable extent, be deciding in advance which mix of services physician organizations should provide. It would be better for each

physician organization to decide, for itself, how much effort to put into physician-patient face-to-face visits, how much into e-mail communication, how much into phone communication, and how much into implementing other CMPs such as group visits, nurse case management, etc. Encouraging each organization to choose its own mix of quality-improving services might help reduce disparities, because organizations would be free to tailor the mix of services they offer to the population they serve. The same considerations apply to Med Pac's recommendation, in its recent report to the Congress, that physicians be paid directly for demonstrating that they use certain types of clinical information technology (Medicare Payment Advisory Commission 2005).

Either of two different payment methods would encourage organizations to invest in implementing a mix of quality-improving services of their choosing. First, payment might be via fee-for-service for clinical encounters, as at present, plus substantial rewards for performance on quality measures. For substantial money to be dedicated to quality incentives, fee-for-service payments would have to be reduced, at least in the long-run (at the start, "new" money might be put into the system to overcome physician resistance to quality measures, as in the Pay for Performance Initiative in California and the new Quality and Outcomes Framework in Great Britain) (Integrated Healthcare Association 2002; Smith and York 2004). The effect over time would be to increase the overall income of high quality providers and reduce the income of low quality providers.

An alternative would be to use capitation (of physician groups, not of individual physicians) plus substantial rewards for performance on quality measures. Proponents of capitation originally argued that this payment method would provide an incentive to physician groups and HMOs to "keep people healthier" (Ellwood, Anderson, Billings et

al. 1971). Their assumption was that healthier people would need fewer medical services, so that physician groups and HMOs would be able to expend less of their capitation fee on providing services and to keep more as profit. However, this assumption proved to be oversimplistic. Since many investments to improve quality do improve quality but do not reduce costs, at least not in the short term, capitation alone provides more of an incentive to focus on reducing the services provided than it does on investing in implementing CMPs. Furthermore, as Unequal Treatment suggests, capitation without quality incentives is likely to increase disparities if there is bias on the part of providers and/or any superior ability of whites to "work the system" to gain services.

Capitation plus substantial rewards for quality would encourage physician groups to invest in CMPs and to choose the mix of services that seem most efficient in their individual situations. The IOM report, which does not discuss this possibility, appears quite critical of capitation for the reasons just stated and because capitation may result in physicians shortening the time spent with patients. The IOM suggests, quite plausibly, that shorter clinical encounters could increase disparities even if physicians do not shorten their time with minority patients more than with whites. Shorter visits may be particularly damaging for minority patients, for whom more time is necessary to overcome educational and cultural barriers to care, and because when physicians have less time to spend with patients, they are more likely to rely on stereotypes when making diagnostic and treatment decisions.

In criticizing capitation, Unequal Treatment fails to note that fee-for-service payment methods also induce physicians to see patients quickly. Fee-for-service

payment rewards physicians for seeing as many patients as possible. Most physicians work in organizations that are paid by health insurance plans and by Medicare on a fee-for-service basis, and most of these organizations base physicians' income on how many patients they see. It is critical to recognize that both capitation and fee-for-service, when they are not combined with payments for quality performance, give physicians strong incentives to see patients quickly.

In any case, thinking of "time spent with the patient" as the time spent in the traditional face-to-face clinical encounter is too limited. Physicians and other staff may also spend important time communicating with patients outside the office visit – most notably through the use of CMPs. "Pure" fee-for-service payment (i.e. payment without rewards for quality) also lowers quality and may increase disparities because it does not give physician organizations an incentive to use CMPs. Simply put, pure fee-for-service does not encourage organizations to invest in implementing CMPs, because implementation costs the organization money, and fee-for-service payment does not reimburse the organization for this investment.

Disease Management Companies

Disease management was described earlier in this paper. When disease management (DM) started, during the mid-1990s, health plans provided most DM, but the trend at present is for plans to contract with DM companies. Disease management companies accumulate data from many sources to stratify patients into risk categories – i.e. into categories that predict which patients are likely to generate the highest costs during the coming months. These patients, of course, tend to be the sickest – often people who have multiple chronic illnesses. The companies then use a variety of means –

including biometric monitoring devices in patients' homes; frequent phone calls from nurse case managers; postal, e-mail and Web-based communication; and generation of periodic patient reports and real-time clinical alerts for the patient's physician – to improve the health of the sickest patients. The focus of DM is direct contact with patients to help them better manage their disease; DM company communications with physicians are an important but decidedly secondary function. It is too soon to know whether DM services will be a competitor/substitute for medical group CMPs or a complement to them (Villagra 2004b). To date, health plans and Medicare have been more willing to pay for DM services than for medical group use of the Chronic Care Model.

The discussions above suggested that the enhanced communication provided to patients by DM companies is likely to improve the quality of care, that DM is likely to reduce disparities only if it improves the quality of care for minorities by a greater percentage than for whites, and that to do so it may be necessary for DM companies to pay special attention to their work with minority patients. The same line of argument holds for CMPs/the Chronic Care Model when used by physician groups.

While enhanced communication is likely to benefit minority patients, it may benefit white patients more if the staff of DM companies have conscious or unconscious biases about minorities and/or if whites are better able to "work" the DM system and/or if whites have better phone and Internet access. However, DM companies may be able to overcome these obstacles. Because of their large size, it is likely that they have the financial and management resources to modify their programs for minorities as needed. Also because of their size and conspicuousness, DM companies are easy places for

purchasers to focus efforts to reduce disparities. For example, the RFP for the Medicare Voluntary Chronic Care Improvement disease management program requires that the services be "tailored to the meet the needs of all participants, including those with limited reading skills, with diverse cultural and ethnic backgrounds . . . or primary languages other than English".

The vast majority of physician groups are much smaller than DM companies, and have fewer financial and management resources to tailor their programs for minorities as needed. However, physician groups that serve large minority populations might be better able to reduce disparities to the extent that they can develop special skills for their specific population and can take advantage of their face-to-face relationship with patients (Casalino 2005).

PHYSICIAN ORGANIZATIONS

The physician organization could be a key factor in attempts to increase quality and reduce disparities. This is where patients actually receive their most of their medical care. Patients will be affected not only by the quality of the diagnoses and treatments of the organization's physicians – i.e. not only by clinical encounters – but also by characteristics of the organization such as its location, its size, the ethnicities of its staff, the languages spoken by the staff, and whether the organization's culture makes it easy for patients to gain access to the care they need (Johnson, Saha, Arbelaez et al. 2004). In other words, the provider organization, and not just the characteristics of the patient and of the physician, is likely to influence whether a patient decides to seek care and whether a patient decides to adhere to a treatment plan. Cultural competence in communicating with patients is a characteristic which is not only important for physicians (Betancourt et.

al. 2005), but for the organizations in which they practice as well (Taylor and Lurie 2004).

Furthermore, a physician organization – far more than an individual physician – has the potential to implement the use of organized processes to improve quality and reduce disparities. These processes may help physicians and teams identify and reach out to patients who should be seeking care, improve the quality of the clinical encounter, and provide the ongoing contact with the patient that will increase the patient's ability to adhere to a treatment plan and to effectively "self-manage" chronic illnesses. Performance in improving quality depends on incentives and on capabilities; a physician organization can develop more capabilities than an individual physician (or, probably, than a very small physician group).

The incentives the physician organization gives its physicians are also likely to affect quality and disparities. For example, if the organization pays its physicians based on the volume of services they deliver, physicians will work fast. Physicians who are working fast are not only more likely to make errors and to omit preventive care [Norwalk article in proposals file, p. 17] and patient education, they are also more likely to depend on quick categorizations – i.e. on stereotypes. Stereotyping may lead to disparities. Physicians in a hurry are less likely to take the time to build the trust and provide the amount and types of communication and education that may be especially important for minorities. Physicians working in an organization that pays them at least in part based on patient satisfaction and on the quality of care they provide may be more likely to take the time to improve the quality of their clinical encounters with patients.

The incentives physician organizations give their physicians appear to depend to a considerable extent on the medical environment. If health plans, Medicare, and Medicaid use fee-for-service as their primary payment method, physician organizations are more likely to base physician pay on the volume of services the physician provides (Robinson, Shortell, Li et al. 2004). If payment is via capitation, physician organizations are more likely to pay physicians via a salary or based on the size of their capitated panel of patients. If quality incentives are added to either fee-for-service or capitated patients, physician organizations are likely to give quality incentives to their physicians, though there has been very limited research on this topic to date.

Unfortunately, to date most physician organizations have done little or nothing to implement organized processes to improve quality, and probably even less to reduce disparities (though there is very little data on this latter question). The National Survey of Physician Organizations (NSPO), which recently surveyed 1,040 medical groups and independent practice associations (IPAs), found that on average these organizations used less than one-third of 16 organized care management processes to improve quality for patients with asthma, congestive heart failure, depression, and diabetes (Casalino et al. 2003). The NSPO also found that these organizations used only 1.4 of six clinical information technology (IT) processes covered by the survey. Fifty percent reported having none of the IT about which they were questioned.

The NSPO also asked about "external incentives" – such as public recognition and/or bonuses for scoring well on quality measures – given by employers and health plans to physician organizations to improve quality. Everything else being equal, each

incentive given to a PO was associated with a 20% increase in CMP use by the PO. However, on average, POs reported that they had 1.7 of the eight incentives in the survey.

Because the organizations in the NSPO are larger than the small practices in which most physicians still work, and are presumed to have more capital and more management expertise available to implement IT and CMPs, these figures probably represent an optimistic estimate of the use of these processes to improve quality in U.S. medical care. However, there are exceptions. During recent years, both the Veterans Administration system and the Kaiser Permanente system have invested heavily in clinical IT and in the use of CMPs, and have shown improved quality compared to the health care system as a whole, though little research has been done to date on the question of whether they have succeeded in significantly reducing disparities (Kerr, Gerzoff, Krein et al. 2004). These systems do not appear to assume that improving quality for all will necessarily improve disparities; they are focusing special attention on delivering quality care to ethnic minorities. Kaiser, for example, has a new national policy to collect "racial, ethnic and language preference data" from its patient population as part of its new electronic medical record (personal communication from Joel Selby, MD, Director, Division of Research, Kaiser Permanente Northern California, 10-29-04). Kaiser also has seven Centers of Excellence in Culturally Competent Care, a National Diversity Council, and a National Disparities Workgroup. Kaiser is also one of eleven organizations participating in a national learning collaborative aimed at reducing disparities (the collaborative is funded by the Robert Wood Johnson Foundation and the Agency for Healthcare Research and Quality).

Though large organizations like Kaiser or the V.A. have more ability to develop large-scale organized processes to improve quality and to reduce disparities, evidence is lacking on whether large organizations provide better care – and better reduce disparities – than small physician groups. There is a trade-off between intimacy of physician and organization relations with patients and economies of scale in creating organized processes. Though the thrust of this paper is that processes of the kinds described are important, it is conceivable that smaller organizations can develop smaller scale processes and use these to reduce disparities by combining them with their personal knowledge of patients, their convenient locations near patients, and their ability to be specially oriented to a surrounding ethnic population. For example, the Bureau of Primary Health Care is supporting many of its community health centers – typically small organizations – to take part in collaboratives for improving quality and reducing disparities in chronic disease care. The results from these Collaboratives are not yet known.

PHYSICIAN AND TEAM AND GUIDELINES

The importance of the characteristics of individual physicians – and of individual physicians being culturally competent – is stressed in the IOM report and will not be further described in this paper. As for patient care teams, I will simply note that, generally speaking, an individual physician will identify himself or herself as being of one ethnicity, whereas the members of a team may represent at least several ethnicities. Multi-ethnic teams may therefore be better able than individual physicians to be culturally competent in their dealings with patients.

In its emphasis on individual physicians, the IOM focuses a great deal of attention on ways in which uncertainty in diagnosis and treatment can interact with stereotyping of patients to lead to disparities in care. This is likely to be true for the diagnosis of new, acute problems, but uncertainty should be much less of a problem in preventive care and in the treatment of chronic illnesses, for which clear guidelines (e.g. "diabetic patients should have a retinal exam annually") often exist. Minority diabetic patients may receive fewer retinal exams, but this is unlikely to be due to uncertainty on their physicians' part. Stated another way: it is precisely for preventive care and for the care of patients with chronic diseases – both very significant areas of health care – that the use of organized processes to improve quality may be more important than the characteristics of the individual physician. CMPs are specifically aimed at routine preventive care and at the routine, ongoing treatment of patients with chronic diseases.

THE CLINICAL ENCOUNTER

The quality of a clinical encounter will depend on the characteristics of the physician organization, the health care team, the individual physician, and the individual patient. The IOM report presents a detailed discussion of patient characteristics and the ways in which the patient-physician interaction may lead to disparities emerging from the clinical encounter – a discussion that there it is unnecessary to duplicate here. I will simply emphasize two points:

First, anything that makes access to clinical encounters more difficult is likely to disproportionately affect minorities (Institute of Medicine 2003; Venus, Rector and Shah 2003). Other things being equal, minority patients may find it more difficult to deal with large, bureaucratic organizations, for example, than with small physician practices. in

large or small practices, "open access" appointment systems may benefit minority patients even more than they benefit others, because they do not require the ability to maneuver one's way through a telephone triage system and they make it easy for patients to be seen on the same day on which they call. Access may also be made more difficult by insurance products that make patients pay a substantial amount for seeing the physician. Patients in general have a difficult time distinguishing between visits that they really should make and those that are not important (Newhouse 1993). Patients who are less sophisticated about health care may be less likely to visit their physicians for preventive care, for appropriate follow-up of chronic problems, and even for potentially serious acute problems. If they must pay a substantial amount out-of-pocket to see the physician, it is likely that patients will forego some care that they should have, especially if they are in a lower income group.

Second, the clinical encounter is generally conceived of as the main situation in which evidence-based clinical guidelines would be applied. Guidelines are sometimes presented as if they could virtually eliminate disparities resulting from the clinical encounter: "Because every individual is receiving care derived from the same evidence-based guidelines, there is little room for conscious or unconscious biases to affect the quality of care" (Trubek and Das 2003). However, there are many problems with relying too much on guidelines to reduce disparities (Cabana, Rand, Powe et al. 1999):

1. A physician cannot apply a guideline unless he or she recognizes that the clinical situation is one to which the guideline applies. But biases make this recognition less likely. If the physician does not perceive that the patient may be having an acute coronary syndrome, guidelines

appropriate to the syndrome will not be used. Furthermore, "Even simple and relatively straightforward guidelines can be interpreted in different ways, depending on one's perspective or specialty" (Maviglia, Zielstorff, Paterno et al. 2003). The clinical encounter often presents physicians (particularly primary care physicians), with an undifferentiated mix of vague symptoms, rather than with a neatly defined situation to which a guideline can be easily applied. In these very common situations, physicians' conscious or unconscious biases can lead to disparities in diagnosis (Balsa, Seiler, McGuire et al. 2003).

2. If the physician does recognize that the situation is one to which a guideline applies, following the guideline for all patients in that situation would in general help to reduce disparities. But this may not always be true: guidelines tend to be one-size-fits-all, and it may be that in some cases guidelines should be different for different ethnic groups. For example, it has been suggested that more aggressive screening guidelines for diabetes should be used in minority groups that tend to develop this disease at younger age (Dallo and Weller 2003).

3. It is not enough for a physician to correctly recognize that a specific guideline should apply in a particular situation. That physician must also succeed in convincing the patient to cooperate with the diagnostic or therapeutic measures indicated by the guideline. This will be more difficult for physicians who lack cultural competence, lack the ability to speak the patient's language (or to have an interpreter on hand), and/or

who lack sufficient time to talk with patients about what should be done and why (Carter-Pokras, O'Neill, Cheanvechai et al. 2004).

4. It is not easy for physicians to keep up with changing guidelines. The National Guidelines Clearinghouse currently includes over 1,400 guidelines (from www.guideline.gov; accessed 11-30-04) A recent review concluded that more than three quarters of AHRQ guidelines needed updating, and recommended reassessing guidelines every three years (Shekelle, Ortiz, Rhodes et al. 2001).

5. Despite the large number of guidelines available, there are still many clinical encounters to which they do not apply (Ely, Osheroff, Ebell et al. 2002).

6. Simply presenting guidelines to physicians and having them available somewhere in the office does not increase guideline use. Physicians are much more likely to use guidelines if reminders appear at the time of the clinical encounter (either in the electronic medical record or in a paper form placed on the patient's chart for that visit) and if the guidelines have teeth – that is, if physicians are rewarded for using guidelines (Armour, Friedman, Pitts et al. 2004; Balas et al. 2000; Demakis, Beauchamp, Cull et al. 2000).

7. Guidelines may be particularly useful for preventive care, for certain commonly occurring acute problems, for some acute exacerbations of chronic diseases, and for routine ongoing care of patients with chronic diseases. But it should not be assumed, as it often is, that the primary site

of guideline use should be the face-to-face clinical encounter. Both disease management programs and the Chronic Care model emphasize guideline-based care outside the clinical encounter. In other words, guidelines can and should be used in organized processes such as group visits, sending reminders to patients, communicating with them via phone and e-mail, and screening on an ongoing basis for exacerbations of chronic illnesses before they become bad enough to bring the patient to the emergency room. The use of such processes may be particularly important for minority patients who may have more difficulty understanding what they should do (e.g. for diabetic patients to arrange their diet properly) and whose social and environmental situation may make it harder to do things once they do understand (for example, it is hard to exercise if there is no place in one's apartment to do so and if the streets outside are dangerous) (Goldman and Smith 2002).

In other words, emphasizing the use of guidelines during face-to-face clinical encounters is far from enough. The 4P model in Figure 2 shows this schematically. The clinical encounter is only one factor among many that lead to high quality care and that can reduce disparities.

Fundamental Redesign of the Clinical Process

Physicians (particularly primary care physicians) spend their days behind schedule – moving from patient to patient as fast as they can while trying to keep up with a deluge of phone calls and of incoming test results and consult letters from referring physicians. They often forget to provide much of the guideline-based preventive and

chronic disease care they should be giving, or they are not aware of it, or they simply have too little time to cover it all. They lack the time to adequately educate patients about their diseases or to engage in shared-decision making with patients about diagnostic and therapeutic decisions. As physicians struggle to keep up with the rapid flow of patients, they lack the time to attend properly to serious, unexpected problems when they occur – as they often do. They must either shoot from the hip – which can lead to mistaken diagnoses, improper treatments, stereotyping, and lack of patient cooperation – or fall seriously behind in their day's schedule, resulting in a waiting room full of angry patients. Meanwhile, patients whose problems could be easily handled via telephone or e-mail lose a half-day's work coming to the doctor's office, while patients who really should be seen in person that day have a difficult time gaining an appointment. For reasons discussed throughout this paper, each of these problems is likely to harm minority patients even more than it harms whites.

Every practicing physician is all too aware of these problems. Some physicians and physician organizations handle them better than others, but tinkering with them at the margins is unlikely to improve the quality of care or the lives of physicians and their staff. As long as clinical care is based unthinkingly on the face-to-face encounter and on the individual physician view that quality is simply what is done during that encounter, these problems will be insoluble.

As discussed above, disease management and the Chronic Care Model have explicitly recognized the importance of having non-physician staff use organized processes to track and to communicate with patients as often as necessary outside the clinical encounter. But further thinking is needed, especially thinking about the role of

physicians. It would be useful to start with a blank slate and ask: "We have all these physicians – highly trained and highly paid. What is the best way they can use their time?"

Once this question is asked, it becomes obvious that we should consider whether most patients with symptoms of upper respiratory infections, with low back pain, and with a host of other acute and chronic problems really do need to have a face-to-face clinical encounter. Many of these patients could be cared for via phone or e-mail, by the physician or by other staff. Many would be delighted not to have to take themselves away from work or their children to come to the physician's office to wait forty-five minutes for their ten minutes with a harried physician. The same holds true for routine visits for patients with chronic diseases – visits for which the communication processes used by disease management programs and the Chronic Care Model are in many cases likely to be more than adequate substitutes.

Physicians might be able to take far better care of their patients – and particularly their minority patients – if they spend their time on face-to-face visits with the very limited number of patients who, on any given day, present diagnostic problems or for whom extensive discussion and trust-building appears needed. If they saw only this limited number of patients in person, physicians would have much more time to spend communicating with a larger number of patients via e-mail and phone.

Perverse payment incentives

The author of this paper spent twenty years as a family physician in private practice. Inexperienced though he was, it was clear by his second year in practice that the best thing for him to do would be to spend much of the day on the phone with patients,

seeing patients face-to-face only when there was a good reason to do so. But of course, physicians are not paid for providing care in this way – they are, in general, rewarded for providing as much face-to-face care as possible. Nevertheless, he did a lot of telephone calling for free – as do many physicians – because it seemed the right thing to do. As a physicians' practice grows, the number of such phone calls (and e-mails), also grows – yet given current reimbursement methods it is still necessary to see a full schedule of patients in order to be paid. This can make for some unreasonably long and harried days – in fact makes such days routine.

Very recently, this problem has gained some recognition, and a few health plans are experimenting with paying on a fee-for-service basis for physicians' "non-visit-based communication" with patients via phone and e-mail. Such payments are probably better than nothing, but there are reasons for thinking that this is not an optimal direction in which to go. There are, of course, problems with determining the "medical necessity" for e-mails and phone calls, and with moral hazard on the patient's part (if insurance covers the cost of the communications) and with demand inducement on the physician's part. More fundamentally, though, fee-for-service payment by its very nature skews the services that physicians provide. How can payers determine the "right" amount to pay for non-visit-based communications compared to office visits? If too much is paid, there will be too many non-visit-based communications and too few visits. If too little is paid, the opposite problem will occur.

It was thought that paying physician organizations via capitation rather than via fee-for-service payment would solve this problem. In theory, a physician organization that has, in effect, a budget for patient care through capitation would provide the mix of

services that would most efficiently provide quality care for its patients. In practice, however, capitation without quality incentives led to efforts focused more on reducing the amount of unnecessary care than on improving quality by providing appropriate care that patients were not receiving. There is some evidence that focusing on reducing care rather than on making sure that all patients get the care they should have harmed minority patients more than others.

Payment methods will have to change if physician organizations are to have the financial freedom to provide the mix of services that seems to best suit their patients, to implement organized processes to improve quality, and to focus specifically on improving quality for minority patients. Either capitation or fee-for-service would work as a base payment method if, in addition, a large fraction of physicians' pay was based on the quality of the care they provide. Quality payments should be risk-adjusted – i.e. adjusted for the sociodemographic and illness status of the physician organizations' patients – to avoid penalizing organizations that care for large numbers of minority (and/or unusually ill) patients.

CONCLUSION

This paper has emphasized that CMS (and payers more generally) should move beyond a focus on the individual patient, the individual physician, and the clinical encounter to consider also the population of patients, patient care teams, pre and post-encounter care, and the use of organized processes to improve quality and reduce disparities. The paper's main points are summarized below. The evidence base for some of these assertions is strong; there is little or no evidence for or against the others. These latter assertions may be considered important research questions for CMS.

1. Both the "individual physician" and the "organized process" approaches to quality will be necessary if quality is to be improved as much as it can be.
2. Having physicians and multidisciplinary teams who are ethnically diverse and culturally competent is a necessary but not sufficient condition to improve quality for minorities.
3. The use of organized processes to improve quality will also be necessary. These processes will have to be tailored, as appropriate, to deal with cultural, language, and other barriers to good medical care (Institute of Medicine 2002b).
4. Increasing quality for all will not necessarily lead to a reduction in disparities. In fact, unless quality is increased more for minorities than for whites, increasing quality could actually increase disparities.
5. Physicians' use of guidelines is not a panacea for improving quality in general, and in particular will not in itself necessarily lead to a reduction in disparities.
6. Quality = incentives + capabilities. CMS should consider ways to increase both the incentives and the capabilities of physicians (and of hospitals and health plans) to improve quality.
7. At present, most physicians practice in organizations that lack both incentives and capabilities to use organized processes to improve quality.
8. Neither capitation nor fee-for-service payment methods – absent incentives for quality – give physicians an incentive to improve quality.
9. Unless incentives to improve quality are adjusted for the health and demographic characteristics of the population that a group of physicians (or a hospital or health plan)

serves, these incentives are likely to increase disparities. This is true for process as well as for outcome measures of quality

10. Incentives for quality must be designed in such a way that they do not simply make rich provider organizations richer and poor ones poorer.

11. Fundamental redesign of the clinical process and the ways in which physicians spend their time would be likely to help improve quality and reduce disparities.

Areas Not Covered by This Paper

This paper has assumed that minority patients have equal access to medical care in the sense that they have equally good insurance and that they can easily access equally good physicians and hospitals. Both of these assumptions are, of course, false, but useful for examining factors in clinical care itself that may lead to disparities.

The paper has focused on disparities in clinical care between whites and patients of other ethnicities. The paper has not addressed the problem with determining people's "ethnicity". Nor has it addressed the fact that minorities differ from each other, and that people differ greatly within each minority group as well. Nor has it addressed socioeconomic status, which is also strongly associated with disparities (Isaacs and Schroeder 2004). Much of what the paper says about ethnic disparities should also apply to socioeconomic disparities (Lavizzo-Mourey and Knickman 2003). Both race and class matter, and both should be taken into consideration when designing organized processes to improve quality and when risk-adjusting quality scores (Kawachi, Daniels and Robinson 2005).

Even a health care system that is ideally organized to reduce disparities in clinical care would not make health disparities disappear. To a considerable extent, these

disparities arise from factors outside the health care system – such as individuals' housing, income, type of job, and the type of neighborhood in which they live.

What Initiatives Might Medicare Consider to Reduce Disparities?

There are several significant barriers to CMS undertaking national initiatives to reducing disparities and to improving quality more generally (Berenson and Horvath 2003; Eichner and Blumenthal 2003). First and perhaps most important is that "by law it must pay all physicians the same amount for the same service; it can't pay differentially based . . . on performance . . . Exemplary performance cannot be rewarded, while poor performance is tolerated" (Berenson and Horvath 2003). CMS can pay for quality in demonstration programs, but would need legislative authorization to make pay for performance its national standard. Second, Medicare fee-for-service payment only covers certain services. Virtually all the services recommended in the Chronic Care Model – e.g. group visits, patient education, and case management – are not covered. Because of the "elaborate, statute-based review" CMS undertakes before it decides to pay for new services, it would be difficult to make these services covered benefits "without major legislative change" (Berenson and Horvath 2003).

Despite these barriers, CMS has already undertaken a number of initiatives to reduce disparities, only some of which will be mentioned here (for a more complete list, and a thorough discussion, see the Medicare Payment Advisory Commission 2005, p. 36, 39-40 and especially O'Brian 2005). Eight Centers for Population Health and Health Disparities have recently been created, with \$60.5 million funding over five years, to use a community-based approach to research in health disparities. CMS state Quality Improvement Organizations (QIOs) have been asked to focus on reducing disparities.

CMS has also used its Medicare Plus Choice Quality Assessment and Performance Improvement (QAPI) Project to encourage health plans to reduce disparities. Medicare is about to begin a large Cancer Prevention and Treatment Demonstration for Ethnic and Racial Minorities. CMS has made strides in improving its data on the race and ethnicity of beneficiaries, but should improve this data and also collect data on the socioeconomic status of beneficiaries (e.g. by using education as a proxy) (Eichner and Vladeck 2005).

The Medicare Plus Choice (now "Medicare Advantage") program, in which CMS works through health plans – Health Maintenance Organizations (HMOs) and a few Preferred Provider Organizations (PPOs) – can be used as one way to overcome these barriers. Health plans can pay physicians for higher quality, can choose to pay for additional services, and can use capitation instead of fee-for-service payment (capitation plus incentives for quality might induce physician groups to implement CMPs). CMS could push health plans harder to pay for quality and, perhaps, to pay for reducing disparities (Langwell and Moser 2002). If payment for reducing disparities is too controversial politically, CMS could at least push health plans to adjust quality measures for health status and for sociodemographic measures, so that organizations that attract many minority patients would not be penalized.

CMS has a number of broad choices to make in deciding what initiatives to take to improve quality and to reduce disparities:

1. Should CMS focus only on improving quality for all beneficiaries or should it also attempt to reduce disparities?
2. Should CMS attempt to work primarily through health plans to improve quality and reduce disparities (i.e. through encouraging growth of the

Medicare Advantage program) or should it work through traditional fee-for-service Medicare?

3. Should CMS focus on disease management (thus working through disease management companies), on the Chronic Care Model (thus working through physician practices), or on a social marketing approach in which CMC uses a variety of means to encourage beneficiaries to change their health habits and to seek needed health care? These options are not, of course, mutually exclusive.

4. Insofar as it targets initiatives to improve quality and reduce disparities at physicians, should it focus primarily on large medical groups, on smaller medical groups, or on individual physicians?

So far, CMS has not taken an either-or approach to the alternatives posed by these questions, but rather is trying initiatives – chiefly through demonstration programs – addressing all of them. In terms of the first and second questions, CMS has initiatives both through Medicare Advantage and through the traditional fee-for-service program to improve quality and to reduce disparities. In terms of the third question, CMS does some social marketing through its Horizon Program, and it has some relatively small demonstration projects targeted at physician practices. However, these projects involve only large medical groups – the Medicare Physician Group Practice Demonstration, for example, requires participating medical groups to have at least 200 physicians. Very few patients obtain their medical care in groups this large.

CMS is emphasizing disease management through its very large Chronic Care Improvement Program. If this program succeeds, disease management could become

CMS's (and the nation's) primary way to improve quality for patients with chronic illnesses. The program's focus is on improving quality for all beneficiaries with chronic illnesses, but the RFP also states that disease management programs should be "tailored to meet the needs of all participants, including those with . . . diverse cultural and ethnic backgrounds . . ." It is not yet clear how successful the disease management program will be. It is also uncertain whether disease management should be an alternative or a complement to the use of CMPs in physician practices. I will conclude this paper by suggesting some ways that CMS might increase physicians' capabilities to improve quality and reduce disparities and increase physicians' incentives to work toward these goals. I will not consider political obstacles and/or the possibility that CMS would have to obtain authorization from Congress to implement some of these suggestions.

Increasing Physician Capabilities to Improve Quality and Reduce Disparities

Improving quality and reducing disparities will require improvements in both the capabilities of individual physicians and the capabilities of the practices in which physicians work. CMS might seek ways, through its funding of medical education, to increase the ethnic diversity of the physician and non-physician health care workforce. It might also use its funding leverage to encourage academic medical centers to provide more training in cultural competence and in chronic disease care for physicians and staff (Holman 2004; Zeidel and James 2002). Cultural competence would also be promoted in CMS pay for performance demonstration projects by tying part of the incentives to patient satisfaction surveys that would measure patients' satisfaction with their physician's communication and patients' trust in their physician. CMS will be surveying patients' experience with care as part of its new Doctors' Office Quality (DOQ) project.

Physician groups' capabilities are based in their leadership, culture, and clinical IT infrastructure. It is not obvious that CMS could affect leadership and culture, but it could work to accelerate the development of clinical IT in physician practices. CMS has just begun its two year Doctors' Office Quality-Information Technology (DOQ-IT) demonstration project, which will operate in up to five states. The project will work through QIOs to encourage physician practices to adopt clinical IT and to provide them assistance in choosing and implementing an EMR. CMS has just announced that the Veterans Health Administration will make its VistA EMR, modified and enhanced for the physician office setting, publicly available for adoption by physician practices and for use by commercial EMR vendors. DOQ-IT does not include financial incentives for physician groups to implement an EMR. However, some physicians will receive rewards for adopting IT that meets the DOQ-IT standards through the Robert Wood Johnson Foundation funded Bridges to Excellence Program. If education, technical assistance, and market forces fail to stimulate physician implementation of clinical IT, CMS could use regulatory means – for example, by making more rapid or larger payments for services to physician groups that are able to electronically submit data useful for measuring quality. In addition, CMS is about to begin a three year, four site "Care Management Performance Demonstration" in which physicians will be paid for adopting clinical IT and meeting certain quality performance standards.

Enhancing physicians' capabilities to improve quality is attractive for two reasons. One, obviously, is that enhanced capabilities should lead to better quality in the areas of care where performance is measured (typically based on compliance with guidelines). Second, and somewhat less obviously, enhancing capabilities should lead to better quality

in all areas of care. Given the limitations of relying completely on guidelines (discussed above), and given the related possibility of unintended consequences of quality measurement (i.e. that quality will decrease in areas that are not and perhaps cannot be measured, because less time and attention will be devoted to those), this is a very desirable benefit of enhancing physician capabilities (Casalino 1999; Redelmeier, Tan and Booth 1998).

Enhancing physician groups' capabilities could, as pointed out above, improve quality overall while actually increasing disparities. Disparities could be reduced if these capabilities are put at the service of a more ethnically diverse and culturally competent workforce and if groups are given incentives to tailor the CMPs they use to the needs of minorities, as needed.

Increasing Incentives for Physicians to Improve Quality and Reduce Disparities

Because physicians must make considerable investments of time and money to implement CMPs, it is not realistic to expect that they will do so to any great extent, or any time soon, unless they can expect to recoup their investment. There are numerous technical and conceptual barriers to rewarding physicians for quality, not least of which are the possible unintended consequences discussed above. There are some ways to minimize these barriers. Giving incentives for physicians to enhance their clinical IT capabilities is one; incentives for patient satisfaction is another; risk-adjusting measures for patients' health status and sociodemographic status is a third; and using a wide variety of quality measures (and perhaps rotating them) is a fourth. Paying for outcomes (e.g. lowering risk-adjusted death rates), rather than for use of processes (like ordering a hemoglobin A1C level), or for "intermediate outcomes" (like keeping diabetic patients'

A1C levels below 7.0), would also minimize the likelihood of unintended consequences caused by physicians concentrating their efforts on incentivized processes and intermediate outcomes. Unfortunately, statistically reliable and valid measures of outcomes like death rates are likely to be possible only for the few extremely large physician groups.

It is difficult – perhaps impossible – to obtain reliable and valid measurements for most forms of quality (patient satisfaction is an exception) for individual physicians and very small physician groups (Eddy 1998; Hofer, Hayward, Greenfield et al. 1999; Landon, Normand, Blumenthal et al. 2003; Lee, Meyer and Brennan 2004; Nelson, Gentry, Mook et al. 2004). This presents a real problem for pay for performance initiatives by CMS (and by any other payer), since many physicians practice in such settings. It is perhaps one reason why CMS' Physician Group Practice Demonstration only includes groups of 200 or more physicians. It is not yet clear whether the upcoming Care Management Performance Demonstration will measure quality at the individual physician or the group level.

What might CMS do about the problem of pay for performance for physicians in solo or very small group practice? Further research into whether it is possible to devise reliable and valid measurements – perhaps by combining multiple measures – for these physicians would be useful. In the meantime, CMS could continue to try to foster increased capability in these practices – at least IT capability. However, it is an open question whether such small practices can ever adequately implement CMPs, and therefore whether expending resources to try to increase IT capability in them is worthwhile.

Still more difficult is the problem of using financial incentives to reward physicians for reducing disparities, in addition to simply improving quality. Measuring reductions in disparities would require even larger sample sizes, and may be difficult or impossible to do in any but the largest medical groups.

SUMMARY OF RECOMMENDATIONS

1. Medicare should pay physicians differentially based on the overall quality of care they provide.

1a) quality measurements on which pay for performance are based should be carefully risk adjusted.

1a.1) Contrary to what is often assumed, risk adjustment should be done for process measures as well as for outcome measures.

1a.2) Risk adjustment should include not only adjustment for the patient's health, but also adjustment for the patient's race and economic status.

1b) Medicare should carefully consider whether to base pay for performance only on quality of care for all patients, or whether to base it in part specifically on quality for minority patients.

1c) Medicare should carefully consider whether it is possible to make statistically valid and reliable measurements of quality for individual physicians in most specialties. If it is not, then pay for performance for physicians in these specialties should be done only for medical groups that are of at least the minimum size for which valid and reliable measurements can be made.

1c.1) If pay for performance is based in part specifically on the quality of care for minority patients, it will be even more difficult to validly and reliably measure quality for minorities for individual or very small groups of physicians (due to problems with sample size).

1d) Pay for performance may include both cash payments to medical groups and public reporting of the quality of care they provide.

1d.1) Pay for performance can be budget neutral, with higher quality groups gaining and lower quality groups losing.

1d.2) Pay for performance can start by making a small percentage of medical group income contingent on quality – MedPAC recently recommended 1-2% - but this percentage should be rapidly increased to the point where it is clearly sufficient to give medical groups a “business case” for investing in improving quality and in reducing disparities.

1d.3) Before beginning public reporting, Medicare should, for several years, provide groups with information on their comparative performance on quality measures.

1e) Medicare should reward both improvement and absolute quality scores. If Medicare were to reward only the highest scoring medical groups, groups with the most resources would be likely to receive most of the reward dollars. The rich would get richer and the poor poorer, likely hurting medical groups that serve large numbers of minority patients.

1f) Medicare should improve its data on the race and also on the socioeconomic status of its beneficiaries.

2. Medicare should seek to increase the capabilities of medical groups to improve quality and reduce disparities.

2a) Individual physicians' overall competence and cultural competence are important. But the capabilities of medical groups to implement organized processes to improve quality and reduce disparities are probably more important, particularly for preventive care and the care of patients with chronic illnesses.

2b) Medicare should decide to what extent to rely on giving medical groups direct incentives to improve their capabilities to improve quality and reduce disparities and to what extent to rely on rewards for scoring well on quality measures.

2b.1) Direct incentives to improve medical group capabilities could include cash payments for demonstrating the use of certain types of information technology (IT).

2b.2) It is probably preferable to use rewards for scoring well on quality incentives rather than paying for the use of specific types of IT. Rewards for quality will give medical groups the flexibility to design their use of IT and of organized processes to improve quality in the way that seems best adapted to their situation.

2b.3) Similarly, rewards for quality are probably preferable to Medicare beginning to pay for specific services, such as paying for providing nurse care management for patients who need it or paying for physician communication with patients via e-mail and/or via telephone.

2b.4) It is important that not only individual health care providers, but also provider organizations, be culturally competent. If Medicare chooses to reward not only overall quality but also the quality of care for minority groups, it will encourage medical groups to become culturally competent.

2b.5) Patient satisfaction should be a component of quality measures. As well as being an important measure in its own right, the use of patient satisfaction scores would encourage physicians and medical groups to increase their cultural competence.

2c) Medicare should consider using its leverage over medical education to encourage academic medical centers to educate medical students and house staff in cultural competency and in the use of organized processes to improve quality.

2d) Medicare should consider using its leverage over medical education to encourage medical schools to recruit more students from minority groups.

3. This paper focuses on Medicare's dealings with physicians. However, it is possible that Medicare can increase quality and reduce disparities in other ways – for example, by focusing on communicating with patients directly, by giving incentives to patients, by focusing on patients through their communities, and/or by focusing on health plans.

Medicare is already making some efforts in those directions. Research should evaluate both the effectiveness of each focus and their effectiveness compared to each other.

3a) Medicare should use the principles of pay for performance given above in its contracts with Medicare Advantage health plans in order to encourage them to improve quality and to reduce disparities.

3b) Medicare should implement demonstration programs to improve quality and reduce disparities at both the health plan/disease management company and at the medical group level.

3b.1) Current Medicare demonstration programs targeted at medical groups involve only very large medical groups. Medicare should consider demonstration projects that involve the smaller medical groups in which most patients receive their care.

References

- American College of Physicians. 2004. "Racial and Ethnic Disparities in Health Care: A Position Paper of the American College of Physicians." *Annals of Internal Medicine* 141(3): 226-32.
- Armour, Brian S, Carol Friedman, M Melinda Pitts, Jennifer Wike, Linda Alley and Jeff Etchason. 2004. "The Influence of Year End Bonuses on Colorectal Cancer Screening." *American Journal of Managed Care* 10(9): 617-24.
- Ashton, Carol M, Paul Haidet, Debora A Paterniti, Tracie C Collins, Howard S Gordon, Kimberly O'Malley, Laura A Petersen, Barbara F Sharf, Maria E Suarez-Almazor, Nelda P Wray and Richard L Street. 2003. "Racial and Ethnic Disparities in the Use of Health Services: Bias, Preferences, or Poor Communication." *Journal of General Internal Medicine* 18: 146-52.
- Baker, Deborah, Elizabeth Middleton and Stephen Campbell. 2003. "The Impact of Chronic Disease Management in Primary Care on Inequality in Asthma Severity." *Journal of Public Health Medicine* 25(3): 258-60.
- Balas, E. Andrew, Scott Weingarten, Candace Garb, David Blumenthal, Suzanne A Boren and Gordon D Brown. 2000. "Improving Preventive Care by Prompting Physicians." *Archives of Internal Medicine* 160(3): 301-308.
- Balsa, Ana I, Naomi Seiler, Thomas G McGuire and M Gregg Bloche. 2003. "Clinical Uncertainty and Healthcare Disparities." *American Journal of Law & Medicine* 29(2 & 3): 203-19.

- Bennett, John W and Paul P Glasziou. 2003. "Computerized Reminders and Feedback in Medication Management: a Systematic Review of Randomized Controlled Trials." *Medical Journal of Australia* 178: 217-22.
- Berenson, Robert A and Jane Horvath. 2003. "Confronting The Barriers to Chronic Care Management In Medicare." *Health Affairs* 22(4): web exclusive.
<http://www.healthaffairs.org>
- Betancourt, Joseph R, Alexander Green, J. Emilio Carrillo and Elyse R. Park. "Cultural Competence and Health Care Disparities: Key Perspectives and Trends." *Health Affairs* 24(2): 499-505.
- Bodenheimer, Thomas. 1999. "Disease Management - Promises and Pitfalls." *New England Journal of Medicine* 340(15): 1202-1205.
- Bodenheimer, Thomas. 2003. "Interventions to Improve Chronic Illness Care: Evaluating Their Effectiveness." *Disease Management* 6(2): 63-71.
- Bodenheimer, Thomas, Edward H Wagner and Kevin Grumbach. 2002. "Improving Primary Care for Patients With Chronic Illness." *Journal of the American Medical Association* 288(14): 1775-79.
- Bringewatt, Richard J. 2001. "Making a Business Case for High Quality Chronic Illness Care." *Health Affairs* 20(6): 59-60.
- Cabana, M. D., C. S. Rand, N. R. Powe, A. W. Wu, M. H. Wilson, P. A. Abboud and Rubin H.R. 1999. "Why Don't Physicians Follow Clinical Practice Guidelines? A Framework For Improvement." *Journal of the American Medical Association*. 282(15): 1458-65.

- Carter-Pokras, Olivia, Marla JF O'Neill, Vasana Cheanvechai, Mikhail Menis, Tao Fan and Angelo Solera. 2004. "Providing Linguistically Appropriate Services to Persons With Limited English Proficiency: A Needs and Resources Investigation." *American Journal of Managed Care* 10(Special Issue): SP29-SP36.
- Casalino, Lawrence P. 2005. "Disease Management and the Organization of Physician Practice." *Journal of the American Medical Association* 293(4): 485-488.
- Casalino, Lawrence. 2003. "Markets and Medicine: Barriers to Creating a Business Case for Quality." *Perspectives in Biology and Medicine* 46(1): 38-51.
- Casalino, Lawrence, Robin R Gillies, Stephen M Shortell, Julie A Schmittiel, Thomas Bodenheimer, James C Robinson, Thomas Rundall, Nancy Oswald, Helen H Schauffler and Margaret C Wang. 2003. "External Incentives, Information Technology, and Organized Processes to Improve Health Care Quality for Patients with Chronic Diseases." *Journal of the American Medical Association* 289(4): 434-41.
- Casalino, Lawrence P. 1999. "Unintended Consequences of Measuring Quality on the Quality of Medical Care." *New England Journal of Medicine* 341: 1147-1150.
- Centers for Medicare and Medicaid Services. 2004. "Medicare Program; Voluntary Chronic Care Improvement Under Traditional Fee-for-Service Medicare." *Federal Register* 69(79): 22065-22079.
- Chin, Marshall H, Sandy Cook, Melinda L Drum, Lei Jin, Myriam Guillen, Catherine Humikowski, Julie Koppert, James F Harrison, Susan Lippold and Cynthia T

- Schaffer. 2004. "Improving Diabetes Care in Midwest Community Health Centers With the Diabetes Health Disparities Collaborative." *Diabetes Care* 27(1): 2-8.
- Committee on the Consequences of Uninsurance. 2004. *Insuring America's Health: Principles and Recommendations*. Washington, D.C.: National Academies Press.
- Congressional Budget Office (2004). *An Analysis of the Literature on Disease Management Programs*. Washington, DC, Congressional Budget Office: 1-28.
- Cooper, Lisa A, Martha N Hill and Neil R Powe. 2002. "Designing and Evaluating Interventions to Eliminate Racial and Ethnic Disparities in Health Care." *Journal of General Internal Medicine* 17: 477-86.
- Cretin, Shan, Stephen M Shortell and Emmett B Keeler. 2004. "An Evaluation of Collaborative Interventions to Improve Chronic Illness Care: Framework and Study Design." *Evaluation Review* 28(1): 28-51.
- Dallo, Florence J and Susan C Weller. 2003. "Effectiveness of Diabetes Mellitus Screening Recommendations." *Proceedings of the National Academy of Sciences* 100(18): 10574-79.
- Davies, Huw T, A. Eugene Washington and Andrew B Bindman. 2002. "Health Care Report Cards: Implications for Vulnerable Patient Groups and the Organizations Providing Them Care." *Journal of Health Politics, Policy and Law* 27(3): 379-400.
- Demakis, John G. , Charles Beauchamp, William L. Cull, Robbin Denwood, Seth A. Eisen, Richard Lofgren, Kristen Nichol, James Woolliscroft and William G. Henderson. 2000. "Improving Residents' Compliance With Standards of

- Ambulatory Care: Results From the VA Cooperative Study on Computerized Reminders." *Journal of The American Medical Association* 284(11): 1411-1416.
- Doescher, Mark P, Barry G Saver, Peter Franks and Kevin Fiscella. 2000. "Racial and Ethnic Disparities in Perceptions of Physician Style and Trust." *Archives of Family Medicine* 9(10): 1156-1163.
- Eddy, David M. 1998. "Performance Measurement: Problems and Solutions." *Health Affairs* 17(4): 7-31.
- Eichner, June and Bruce C. Vladeck. 2005. "Medicare as a Catalyst for Reducing Health Disparities." *Health Affairs* 24(2): 365-375.
- Eichner, June and David Blumenthal, Eds. (2003). *Medicare in the 21st Century: Building a Better Chronic Care System*. Washington, DC, National Academy of Social Insurance.
- Ellwood, Paul, Nancy N. Anderson, James E. Billings, Rick J. Carlson, Earl Hoagberg and Walter McClure. 1971. "Health Maintenance Strategy." *Medical Care* 9: 291-298.
- Ely, John W, Jerome A Osheroff, Mark H Ebell, M Lee Chambliss, Daniel C Vinson, James J Stevermer and Eric A Pifer. 2002. "Obstacles to Answering Doctors' Questions About Patient Care With Evidence: A Qualitative Study." *British Medical Journal* 324: 1-7.
- Epstein, Arnold M. 2004. "Health Care in America: Still Too Separate, Yet Not Equal." *New England Journal of Medicine* 351(6): 603-05.
- Epstein, Arnold M, Thomas H Lee and Mary Beth Hamel. 2004. "Paying Physicians for High Quality Care." *New England Journal of Medicine* 350(4): 406-410.

Fiscella, Kevin. 2000. "Inequality in Quality: Addressing Socioeconomic, Racial, and Ethnic Disparities in Health Care." *Journal of the American Medical Association* 283(19): 2579-83.

Flannery, Brendan, Stephanie Schrag, Nancy M Bennet, Ruth Lynfield, Lee H Harrison, Arthur Reingold, Paul R Cieslak, James Hadler, Monica M Farley, Richard R Facklam, Elizabeth R Zell and Cynthia G Whitney. 2004. "Impact of Childhood Vaccination on Racial Disparities in Invasive Streptococcus Pneumoniae Infections." *Journal of the American Medical Association* 291(18): 2197-2203.

Foote, Sandra M. 2003. "Population-Based Disease Management Under Fee-for-Service Medicare." *Health Affairs* web exclusive posted July 30, 2003.

<http://www.healthaffairs.org>

Foote, Sandra M (2004). *Chronic Care Improvement in Medicare FFS: Cosmetic or Transforming?* Washington, DC, Health Insurance Reform Project: 1-13.

Franks, Peter and Kevin Fiscella. 2002. "Effect of Patient Socioeconomic Status on Physician Profiles for Prevention, Disease Management, and Diagnostic Testing Costs." *Medical Care* 40(8): 717-24.

Galvin, Robert S. 2001. "The Business Case for Quality." *Health Affairs* 20(6): 57-58.

Goldman, Dana P and James P Smith. 2002. "Can Patient Self-Management Help Explain the SES Gradient?" *Proceedings of the National Academy of Sciences* 99(16): 10929-10934.

Grimshaw, JM, L Shirran, R Thomas, G Mowat, r C Frase, L Bero, R Grilli, EL Harvey, A. D. Oxman and MA O'Brien. 2001. "Changing Provider Behavior: An Overview of Systematic Reviews of Interventions." *Medical Care* 39: 112-45.

- Grumbach, Kevin and Thomas Bodenheimer. 2004. "Can Primary Care Teams Improve Primary Care Practice?" *Journal of the American Medical Association* 291(10): 1246-1251.
- Hofer, Timothy P., Rodney A. Hayward, Sheldon Greenfield, Edward Wagner, H, Sherrie H Kaplan and Willard G Manning. 1999. "The Unreliability of Individual Physician 'Report Cards' for Assessing the Costs and Quality of Care of a Chronic Disease." *Journal of the American Medical Association* 281(22): 2098-2103.
- Holman, Halsted. 2004. "Chronic Disease: The Need for a New Clinical Education." *Journal of the American Medical Association* 292(9): 1057-1059.
- Institute of Medicine. 2002a. *Leadership by Example: Coordinating Government Roles in Improving Health Care Policy*. Washington, D.C.: National Academies Press.
- Institute of Medicine (2002b). *Speaking of Health: Assessing Health Communication Strategies for Diverse Populations*. Washington, DC, National Academy of Sciences.
- Institute of Medicine. 2003. *Unequal Treatment: Confronting Racial and Ethnic Disparities in Health Care*. Washington, DC: National Academies Press.
- Integrated Healthcare Association. 2002. *Pay for Performance Demonstration Program*. San Ramon, CA: Integrated Healthcare Association.
- Isaacs, Stephen L and Steven A Schroeder. 2004. "Class - The Ignored Determinant of the Nation's Health." *New England Journal of Medicine* 351(11): 1137-42.
- Johnson, Rachel L, Somnath Saha, Jose J Arbelaez, Mary Catherine Beach and Lisa A Cooper. 2004. "Racial and Ethnic Differences in Patient Perceptions of Bias and

- Cultural Competence in Health Care." *Journal of General Internal Medicine* 19: 101-110.
- Karson, AS, GJ Kuperman, J Horsky, DG Fairchild, JM Fiskio and David W Bates. 1999. "Patient-Specific Computerized Outpatient Reminders to Improve Physician Compliance With Clinical Guidelines." *Journal of General Internal Medicine* 14(suppl 2): 126.
- Kawachi, Ichiro, Norman Daniels and Dean E. Robinson. 2005. "Health Disparities by Race and Class: Why Both Matter". *Health Affairs* 24(2):343-352.
- Kerr, Eve A, Robert B Gerzoff, Sarah L Krein, Joel V Selby, John D Piette, J David Curb, William H. Herman, David G Marrero, Venkat Narayan, Monika M Safford, Theodore Thompson and Carol M Mangione. 2004. "Diabetes Quality Care in the Veterans Affairs Health Care System and Commercial Managed Care: The TRIAD Study." *Annals of Internal Medicine* 141(4): 316-318.
- Landon, Bruce E, Sharon-Lise T Normand, David Blumenthal and Jennifer Daley. 2003. "Physician Clinical Performance Assessment: Prospects and Barriers." *Journal of the American Medical Association* 290(9): 1183-1189.
- Langwell, Kathryn M and James W Moser. 2002. "Strategies for Medicare Health Plans Serving Racial and Ethnic Minorities." *Health Care Financing Review* 23(4): 131-47.
- Lavizzo-Mourey, Risa and James R Knickman. 2003. "Racial Disparities - The Need for Research and Action." *New England Journal of Medicine* 349(14): 1379-80.
- Leapfrog Group (2004). *Leapfrog Compendium*. The Leapfrog Group.
<http://www.Leapfroggroup.org>

Leatherman, Sheila, Donald M Berwick, Debra Iles, Lawrence S Lewin, Frank Davidoff,

Thomas Nolan and Maureen Bisognano. 2003. "The Business Case for Quality: Case Studies and an Analysis." *Health Affairs* 22(2): 17-30.

Lee, Thomas H, Gregg S Meyer and Troyan A Brennan. 2004. "A Middle Ground on Public Accountability." *New England Journal of Medicine* 350(23): 2409-2412.

Lurie, Nicole, Minna Jung and Risa Lavizzo-Mourey. 2005. "Disparities and Quality Improvement: Federal Policy Levers." *Health Affairs* 24(2): 354-364.

Maviglia, Saverio, Rita D Zielstorff, Marilyn Paterno, Jonathan M Teich, David W Bates and Gilad J Kuperman. 2003. "Automating Complex Guidelines for Chronic Disease: Lessons Learned." *Journal of the American Medical Informatics Association* 10(2): 154-65.

McAlister, Finlay A, Fiona Lawson, Koon K Teo and Paul W Armstrong. 2001. "A Systematic Review of Randomized Trials of Disease Management Programs in Heart Failure." *American Journal of Medicine* 110(5): 378-384.

McGlynn, Elizabeth A, Steven M Asch, John Adams, Joan Keeseey, Jennifer Hicks, Alison DeCristofaro and Eve A Kerr. 2003. "The Quality of Health Care Delivered to Adults in the United States." *New England Journal of Medicine* 348(26): 2635-2645.

Mechanic, David. 2005. "Policy Challenges in Addressing Racial Disparities and Improving Population Health." *Health Affairs* 24(2): 335-338.

Mechanic, Robert E 2002. *Disease Management: A Promising Approach for Health Care Purchasers*. Washington, DC, National Health Care Purchasing Institute: 1-4.

- Medicare Payment Advisory Commission. 2005. *March, 2005 Report to the Congress: Medicare Payment Policy*. Washington, DC, Medicare Payment Advisory Commission..
- Miller, Robert H and Ida Sim. 2004. "Physicians' Use of Electronic Medical Records: Barriers and Solutions." *Health Affairs* 23(2): 116-126.
- National Quality Forum. 2002. *Improving Health Care Quality for Minority Patients: Workshop Proceedings*. National Quality Forum, Washington, DC.
- Neil, Nancy. 2003. "Improving Rates of Screening and Prevention by Leveraging Existing Information Systems." *Joint Commission Journal on Quality and Safety* 29(11): 610-618.
- Nelson, Eugene C, Mary A Gentry, Kathryn H Mook, Karen L Spritzer, John H Higgins and Ron D Hays. 2004. "How Many Patients Are Needed to Provide Reliable Evaluations of Individual Clinicians?" *Medical Care* 42(3): 259-266.
- Newhouse, Joseph P. 1993. *Free for All? Lessons From the Rand Health Insurance Experiment*. Harvard University Press. Cambridge, MA.
- Norris, Susan L, Phyllis J Nichols, Carl J Caspersen, Russell E Glasgow, Michael M. Engelgau, Leonard Jack, George Isham, Susan R Snyder, Vilma G Carande-Kulis, Sanford Garfield, Peter Briss and David McCulloch. 2002. "The Effectiveness of Disease and Case Management for People with Diabetes." *American Journal of Preventive Medicine* 22(4S): 15-38.
- Norris, Susan L., Michael M. Engelgau and K. M. Venkat Narayan. 2001. "Effectiveness of Self-Management Training in Type 2 Diabetes: A Systematic Review of Randomized Controlled Trials." *Diabetes Care* 24(3): 561-587.

- O'Brien, Ellen. 2005. "*CMS' Programs and Initiatives to Reduce Racial and Ethnic Disparities in Medicare.*" National Academy of Social Insurance, Washington, DC.
- Owen, WF, LA Szezech and DL Frankenfield. 2002. "Healthcare System Interventions for Inequality in Quality: Corrective Action Through Evidence-Based Medicine." *Journal of the National Medical Association* 94(8 Suppl): 83S-91S.
- Rector, Thomas S and Patricia A Venus. 1999. "Judging the Value of Population-Based Disease Management." *Inquiry* 36(2): 122-126.
- Redelmeier, Donald A, Siew H Tan and Gillian L Booth. 1998. "The Treatment of Unrelated Disorders in Patients with Chronic Medical Diseases." *New England Journal of Medicine* 338(21): 1516-20.
- Renders, Carry M, Gerlof D Valk, Simon J Griffin, Edward H. Wagner, Jacques Eijk van and Willem J.J. Assendelft. 2001. "Interventions to Improve the Management of Diabetes in Primary Care, Outpatient, and Community Settings: A systematic review." *Diabetes Care* 24(10): 1821-1833.
- Robinson, James C, Stephen M Shortell, Rui Li, Lawrence P Casalino and Thomas Rundall. 2004. "The Alignment and Blending of Payment Incentives Within Physician Organizations." *Health Services Research* 39(5): 1589-1606.
- Robinson, James C and Jill M Yegian. 2004. "Medical Management After Managed Care." *Health Affairs* web exclusive. <http://www.healthaffairs.org>
- Rosenthal, Meredith B, Rushika Fernandopulle, Hyunsook Ryu Song and Bruce E Landon. 2004. "Paying for Quality: Providers' Incentives for Quality Improvement." *Health Affairs* 23(2): 127-141.

- Schillinger, Dean, Kevin Grumbach, John Piette, Frances Wang, Dennis Osmond, Carolyn Daher, Jorge Palacios, Gabriela Diaz Sullivan and Andrew B Bindman. 2002. "Association of Health Literacy With Diabetic Outcomes." *Journal of the American Medical Association* 288(4): 475-82.
- Schneider, Eric C, Paul D Cleary, Allen M Zaslavsky and Arnold M Epstein. 2001. "Racial Disparity in Influenza Vaccination: Does Managed Care Narrow the Gap Between African Americans and Whites?" *Journal of the American Medical Association* 286(12): 1455-60.
- Seghal, A. R. 2003. "Impact of Quality Improvement Efforts on Race and Sex Disparities in Hemodialysis." *Journal of the American Medical Association* 289(8): 996-1000.
- Selby, Joe V, Dennis Scanlon, Jennifer E Lafata, Victor Villagra, Jeff Beich and Patricia R Salber. 2003. "Determining the Value of Disease Management Programs." *Joint Commission Journal of Quality Improvement* 29(9): 491-499.
- Shekelle, Paul G, Eduardo Ortiz, Shannon Rhodes, Sally C Morton, Martin P Eccles, Jeremy M Grimshaw and Steven H Woolf. 2001. "Validity of the Agency for Healthcare Research and Quality Clinical Practice Guidelines: How Quickly Do Guidelines Become Outdated." *Journal of the American Medical Association* 286(12): 1461-67.
- Shojania, Kaveh G and Jeremy M Grimshaw. 2004. "Still No Magic Bullets: Pursuing More Rigorous Research in Quality Improvement." *American Journal of Medicine* 116(778-780).

- Sidorov, Jann, Robert Shull, Janet Tomcavage, Sabrina Girolami, Nadine Lawton and Ronald Harris. 2002. "Does Diabetes Disease Management Save Money and Improve Outcomes? A Report of Simultaneous Short-Term Savings and Quality Improvement Associated With a Health Maintenance Organization-Sponsored Disease Management Program Among Patients Fulfilling Health Employer Data and Information Set Criteria." *Diabetes Care* 25(4): 684-689.
- Smith, Peter C and Nick York. 2004. "Quality Incentives: The Case of U.K. General Practitioners." *Health Affairs* 23(3): 112-118.
- Sperl-Hillen, JoAnn M, Leif I Solberg, Mary C Hroschikoski, A Lauren Crain, Karen I Engebretson and Patrick J O'Connor. 2004. "Do All Components of the Chronic Care Model Contribute Equally to Quality and Safety." *Joint Commission Journal on Quality and Safety* 30(6): 303-309.
- Taylor, Stephanie L and Nicole Lurie. 2004. "The Role of Culturally Competent Communication in Reducing Ethnic and Racial Healthcare Disparities." *American Journal of Managed Care* 10(Special Issue): SP1-SP4.
- Trubek, Louise G and Maya Das. 2003. "Achieving Equality: Healthcare Governance in Transition." *American Journal of Law & Medicine* 29(2&3): 395-421.
- van Ryn, Michelle and Steven S Fu. 2003. "Paved With Good Intentions: Do Public Health and Human Service Providers Contribute to Racial/Ethnic Disparities in Health." *American Journal of Public Health* 93(2): 248-255.
- Venus, Patricia J, Thomas S Rector and Mona M Shah. 2003. "Insights Into Problems Obtaining Care Believed Necessary as Measured by the Medicaid Consumer

- Assessment of Health Plans Survey (CAHPS)." *American Journal of Managed Care* 9(12): 797-803.
- Villagra, Victor. 2004a. "Strategies to Control Costs and Quality: A Focus on Outcomes Research for Disease Management." *Medical Care* 42(4 suppl): III-24-III-30.
- Villagra, Victor (2004b). "Integrating Disease Management Into the Outpatient Delivery System During and After Managed Care." *Health Affairs* web exclusive.
<http://www.healthaffairs.org>
- Villagra, Victor G and Tamim Ahmed. 2004. "Effectiveness of a Disease Management Program for Patients With Diabetes." *Health Affairs* 23(4): 255-266.
- Vladeck, Bruce C. 2003. "If Paying for Quality is Such a Bad Idea, Why is Everyone for It?" *Washington & Lee Law Review* 60: 1345-1364.
- Wagner, Edward H. 2003. "Statement of Ed Wagner." Subcommittee on Health of the House Committee on Ways and Means. Washington, DC. February 25, 2003
- Wagner, Edward H. 2000. "The Role of Patient Care Teams in Chronic Disease Management." *British Medical Journal* 320(7234): 569-72.
- Wagner, Edward H, Brian T Austin, Connie Davis, Mike Hindmarsh, Judith Schaefer and Amy Bonomi. 2001. "Improving Chronic Illness Care: Translating Evidence Into Action." *Health Affairs* 20(6): 64-78.
- Wagner, Edward H. , Louis C. Grothaus, Nirmala Sandhu, Mary Sue Galvin, Mary McGregor, Karen Artz and Eric A. Coleman. 2001. "Chronic Care Clinics for Diabetes in Primary Care: A system-wide randomized trial." *Diabetes Care* 24(4): 695-700.

- Walker, David R, Patricia M Stern and Darryl L Landis. 2004. "Examining Healthcare Disparities in a Disease Management Population." *American Journal of Managed Care* 10(2): 81-88.
- Weingarten, SR, JM Henning, E Badamgarav, K Knight, V Hasselblad, A Gano and JJ Offman. 2002. "Interventions Used in Disease Management Programmes for Patients With Chronic Illness-Which Ones Work? Meta-Analysis of Published Reports." *British Medical Journal* 325(7370): 925-942.
- Welch, W. Pete, Christopher Bergsten, Charles Cutler, Carmella Bocchino and Richard I Smith. 2002. "Disease Management Practices of Health Plans." *The American Journal of Managed Care* 8(4): 353-361.
- Zeidel, Mark L and Brent C James. 2002. "Improving the Quality of Health Care in America: What Medical Schools, Leading Medical Journals, and Federal Funding Agencies Can Do." *American Journal of Medicine* 112(2): 165-167.