

**ESRD VASCULAR ACCESS PERFORMANCE INCENTIVE PAYMENT POSITION PAPER SUBMITTED BY THE
FISTULA FIRST BREAKTHROUGH INITIATIVE**

for Consideration by the Centers for Medicare and Medicaid Services and Other Payers

Summary Recommendations

To improve the quality of care, promote safe, effective, patient-centered, timely, efficient, and equitable care provided to individuals with end-stage renal disease, it is recommended that financial performance incentives be utilized to align efforts among patients, surgeons, nephrology practitioners, dialysis facilities, and other institutional providers to assure that native arteriovenous fistulas (AVFs) are the first choice for every medically-suitable patient.

In designing, implementing, and operating the performance incentive program, it is recommended that this incentive program be designed in a manner whereby:

Determining Financial Incentive

- ✘ Projected program savings rather than redistribution of withheld payments be utilized to fund performance improvement;
- ✘ Baseline costs and savings are calculated on a per patient basis for only vascular access related procedures (e.g., evaluation, placement, maintenance, revisions, treatment of complications, and costs for subsequent procedures);
- ✘ Financial incentives reward prevalent and incident patient outcomes for both current high performers as well as significant improvers and are sufficient to drive change; and
- ✘ CMS maintain an open, inclusive process for determining savings with allocation of a significant portion to those who deliver care and generate the savings with a reasonable portion allocated for effective program administration.

Performance Measures

- ✘ Performance measures are directly attributable to the desired change in provider processes of care or patient behavior, which are associated with improvements in patient outcomes;
- ✘ Thresholds of performance and improvement are determined by a consensus of stakeholders based on current, best evidence;
- ✘ Payment incentives encourage patient-centered, timely, equitable care by avoiding those that encourage adverse risk selection (e.g., include case-mix adjustment and performance measure denominator exclusions for patients where a fistula may be contraindicated); and
- ✘ Patient outcome measures assess the success and consequences of these changes, allowing for continuous improvement in the incentive program.

Program Operation/Administration

- ✘ Participation is voluntary, with no recourse for non-participation; and
- ✘ Electronic data collection systems and data sharing policies (crucial to the success of the program) are developed and implemented in a manner that ensures timely and efficient operation of the program, while minimizing the burden to the providers of care.

Applicability to Other Payers

- ✘ All payers (e.g., commercial, Medicaid, etc.) implement similar vascular access incentive programs and CMS share data and knowledge with other interested payers to help them develop and administer their programs.

I. Background

A fundamental strength of traditional fee-for-service payment is that it closely matches payment to actual resource use. What is done to a patient—the services the patient receives—determines payment. The more services a patient receives—for whatever reason—the higher the payment.

This strength of traditional fee-for-service payment becomes its fundamental weakness: it fails to create financial incentives that encourage and enable improvements in quality. Further, in this particular arena it rewards use of procedures in expensive inpatient settings and/or use of less medically recommended procedures.

II. Rationale

Vascular access is an ideal environment for P4P – having the potential to realign some of the problems in the current Medicare fee-for-service model, as well meet the goals, requirements, and considerations outlined by the Institute of Medicine and MedPac.

The P4P component can provide a means of aligning the incentives among the dialysis facility and other 'external' providers such as vascular surgeons and nephrology practitioners provided the incentive is attributed solely or predominately to one of these for a defined process or behavior. Further, data is available to administer and monitor a vascular access P4P program.

The following should be included in a vascular access P4P program:

1. Nephrology Practitioners

These individuals provide most patient guidance in medical matters and function as primary referral sources for care. Patient guidance for fistula placement involves education at various times to explain the complexity of care and procedures.

2. Surgeons Performing the Procedure

Since fistula creation and revision are not used as extensively as K/DOQI recommends, it is reasonable to expect that a transition period will occur and that expertise will soon follow in the majority of practitioners. It is unreasonable to continue to support payment schedules that provide a higher reimbursement for less desirable procedures (catheters) in more expensive settings (hospitals).

3. Dialysis Facilities

Fistulas can last for more than 30 years if well constructed, monitored and used according to best practices. Staff in dialysis units serve as the patient's first line of defense in protecting fistulas. Dialysis facilities should be rewarded for the prevalence of patients with functioning AV fistulas and early detection and referral of fistula problems to the appropriate interventional facility.

4. Patients

Patients should be empowered to play a role in decisions affecting their dialysis care, and economic incentives can be designed to make it possible for medically suitable patients to opt for AVF placement, and to reinforce such decisions once made. For example:

- ✓ Third party payers could reimburse health care providers for providing patients with information about selection of alternative vascular access options, preservation of access sites, care of the access that a patient selects.

- ✓ Insurers could reimburse patients for the cost of travel to and from centers where AV fistulas are created or those centers could be provided with a “safe harbor” so that they can cover the travel costs of patients who lack the resources for transportation to those centers.
- ✓ Waiving co-payments when AVFs are created and utilized. There is precedent for this approach in vaccination programs. However, this may not serve as an incentive for patients if Medicaid, Medicare Savings programs, or Medigap insurance covers their co-payments.
- ✓ Reward patients for AVF placement and utilization by paying a direct cash refund. (However, there is no precedent for this approach, and it might affect eligibility for other entitlements, e.g. Medicaid, housing assistance and food stamps.)

5. Hospitals & Ambulatory Care Centers

Although most vascular access surgery is performed on an outpatient basis, coordination in the processes of care must occur. Late referrals for care still occur at an undesirable rate, leaving practitioners no time to place a fistula and wait at least one month for it to mature. Catheters are placed in this instance as an inpatient procedure.

There exists a wide spectrum for cooperation in the hospital patient safety component, which is universally supported, and can include aspects of ESRD care including:

- ✓ Promote education for hospitalists, intensivists and phlebotomists in vein preservation for CKD patients. Especially emphasize the avoidance of PICC lines in patients with CKD and ESRD, and appropriate discharge planning.
- ✓ Promote a plan of vascular access management in CKD patients to include: fistula education, avoidance of catheters, promotion of vein mapping, and referral for an access creation plan.
- ✓ Promote fistula salvage procedures through interventional and surgical means: to be done outpatient or inpatient and in a timely fashion, to emphasize patients presenting to emergency rooms, to promote definitive repair/salvage of existing fistulas.

It is also recommended that additional practitioners/settings be included in a second tier vascular access P4P incentive program, based on the consideration that these could influence AV fistula care but will also fall under separate P4P models within the healthcare system, such as:

6. Interventionalists

It is proposed that vascular access salvage procedures for fistulas be incentivized in order to achieve more widespread interest in and availability of these valuable procedures. “Interventionalists” are defined as all medical practitioners who perform radiologically-based procedures involving evaluation and salvage of vascular access.

Cost analysis of projected savings realized through increased placement and use of fistulas shows that savings would be significant (\$500 million over 5 years¹). The savings accrue largely from decreased use of expensive inpatient care for fistula placement and the documented inpatient/outpatient care required for treatment of infections, salvage procedures for clotted accesses and on-call emergency room visits for complications.

III. Discussion

The community of renal practitioners and facilities involved in fistula placement/use meets each of the goals and operational requirements for P4P delineated by the Institute of Medicine and MedPac.

1. **Safety:** Does a payment method encourage or discourage efforts to reduce the risk of patient injury?

Lower mortality and morbidity has been demonstrated in all major studies. Catheters used for hemodialysis are prone to repeated infections, more frequent hospitalizations, less than adequate treatments and result in higher mortality rates.

In a prospective observational study of 538 new hemodialysis patients the risk of death was 1.73-1.75 times higher for either an unplanned initiation of dialysis or initiation with a temporary catheter compared with a planned start using an AV fistula. A combination of both risk factors was associated with a 2.89-fold higher mortality rate.²

The CDC issued guidelines for prevention of all catheter-related infections and stated:

The use of catheters for hemodialysis is the most common factor contributing to bacteremia in dialysis patients. The relative risk for bacteremia in patients with dialysis catheters is sevenfold the risk for patients with primary arteriovenous fistulas... Rates for bacteremia per 100 patient months were 0.2 for arteriovenous fistulas, 0.5 for grafts, 5.0 for cuffed catheters, and 8.5 for noncuffed catheters.³

The 2004 USRDS Annual Report notes *...in hemodialysis patients hospitalizations for vascular access infections have doubled in the past ten years... the mortality rate six months after a septicemia diagnosis is seven times higher than in the reference population, and remains 1.6 times higher after four years.⁴*

2. **Effective:** Does a payment method encourage the reduction of excessive treatment, i.e., use of drugs with little or no benefit for the patient?

Fistulas are recommended for all medically-suitable hemodialysis patients. Reliance on long-term catheter access as a permanent vascular access is dysfunctional for most patients unless all other alternatives have already been explored. Rewarding proper assessment for successful AVF placement should decrease the risk of inappropriate patients being subjected to fistula placement procedures.

Many studies have referenced the USRDS 1997 *Annual Data Report* including the publication *Blood Purification*:

Vascular access dysfunction remains a major source of morbidity and hospitalization for patients with end-stage renal disease (ESRD) resulting in annual expenditures in excess of USD 1 billion.⁵

The most recent USRDS 2005 Annual Data Report includes extensive analysis of the expenditures for the ESRD program as well as clinical aspects. The Report states: *...fistula use is clearly rising, and is associated with overall lower expenditures consistent with reduced complication rates.⁶*

By access type, costs per procedure for hemodialysis accesses are highest for catheters, at \$11,700 for an insertion only and \$14,251 for a combined insertion and complication; costs are lower for fistulas...Per person per year costs for outpatient vascular access services have, since 1993, grown at rates greater than those of the annualized Medicare expenditures: 145, 161, and 167 percent for fistulas, grafts, and catheters, respectively. Inpatient PPPY costs for fistulas and grafts, however, have increased less than 2 percent, while costs for catheters have risen nearly 14 percent.⁷

The results of two hemodialysis patient Staph aureus bacteremia studies conducted by Duke University were presented in 2003. In the first it was concluded that:

The mean initial hospitalization costs almost doubled for patients with complicated Staph aureus bacteremias...versus bacteremias without these complications (\$32,462 compared to \$17,011, $p=0.002$). The mean cost of treating Staph aureus bacteremia, including readmissions and outpatient costs, was \$24,034 per episode.

...patients with bacteremia caused by MRSA^{} proved to be at a higher risk of dying within 12 weeks and incurred higher costs than patients with bacteremia caused by MSSA[†]. MRSA infections are responsible for up to 60% of Staph aureus infections in the U.S. today.⁸*

3. **Patient-centered:** Does a payment method enhance or impede the extent to which patient preferences (e.g., for modality) and values guide care?

Dialysis patients must continue to be educated about the benefits of fistulas as the primary vascular access. In large part, patient preferences have contributed to the higher catheter rates since no needle sticks or prolonged treatment termination are involved. Those patients who have been educated and still choose an alternate access will not be penalized nor will the nephrology practitioner through adequate case mix adjustment and denominator exclusions in measurements to assess performance.

4. **Timely:** Does a payment method encourage prompt response to changes in patient needs?

Payment should be tied not only to pre-dialysis fistula placement, but post-dialysis placement via prompt catheter replacement, vein transposition, tributary vein ligation, arteriovenous anastomotic stenosis dilatation, and graft conversion. Both incident and prevalent patients would be assessed periodically for appropriateness of access. Access malfunction requires timely attention in order to continue life-saving treatments.

5. **Efficient:** Does a payment method encourage improvements in the productive use of the resources needed to provide care? Does it increase or decrease administrative expenses for providers, patients, or the Medicare program?

Administrative expenses as well as greater staff efficiency and improved patient medical status could be demonstrated. Inpatient hospitalizations for infections could be reduced and patient quality of life enhanced through fewer transfers from the ambulatory environment to inpatient status. Well-placed and maintained fistulas have a useful life far longer than other types of access. Younger patients at onset of treatment have maintained fistulas for more than 30 years.

6. **Equitable:** Does a payment method promote the availability of high quality care to all patients regardless of ethnicity, geographic location, or socioeconomic status?

In this case, fistulas are the 'gold standard' for medically appropriate patients who choose to have this type of access. The P4P incentive will promote fistula placement in more patients than exist currently. Existing quality improvement efforts would continue to monitor clinical indicators, determine adequate case mix adjustment and define denominator exclusions to support equitable care.

CMS and other federal departments as well as private organizations are supporting many studies about the disparities encountered in the treatment of specific diseases, by racial and socioeconomic groups. In 2000 the Health Care Financing Review noted that *...health insurance alone cannot ensure equal access to Medicare services.*⁹ ESRD treatment, dialysis in particular, has been made available to those in need, including the uninsured, through the efforts of all service providers.

The Agency for Healthcare Research and Quality supported a special study in hemodialysis to determine if quality improvement efforts also reduced disparities associated with race and

^{*} MRSA: methicillin-resistant *Staphylococcus aureus*.

[†] MSSA: methicillin-sensitive *Staphylococcus aureus*.

ethnicity. The study concluded that *...this improvement was accompanied by a 60% to 70% reduction in the white-black gap and the male-female gap for adequacy of hemodialysis.*¹⁰

MedPAC, organizations representing providers, and organizations implementing P4P programs delineate an additional set of operational requirements or considerations. These include:

- a. The **performance measures** used in a P4P system must be seen as reflecting the impact of provider actions on performance. A provider's performance cannot be determined by factors beyond his/her/its control.

Participants recommended for inclusion are those who have direct, measurable impact on performance, e.g. specific medical practitioners and patients.

- b. Related to this point, performance measures must be **adequately adjusted** to reflect clinically and administratively significant patient characteristics that affect performance and clinically appropriate care. These case mix adjustments must be widely accepted by the affected providers.

Medically unsuitable patients as well as those who prefer transplantation and peritoneal dialysis can be removed from performance expectations. A database of patient modality choices at onset exists that can be utilized to develop accurate utilization projections.

- c. The measures and performance standards that are adopted must allow providers to **demonstrate improved performance**. They must be applicable to a broad range of care and a substantial percentage of patients. They should focus on areas in which improvement is possible, not on areas in which performance is already high.

Placement and utilization of fistulas is not as widespread as is documented in other countries nor does it approach KDOQI™ recommendations that have been promulgated since 2002.

- d. The amount of payment under a P4P system must be **commensurate with the costs** incurred by the provider to achieve improvements (or specified levels) of performance, including the cost of measuring performance.

Several commercial plans already utilize P4P incentives. Projected savings should be utilized to incentivize the vascular access P4P system rather than withholding from partial payments which is generally viewed as punitive rather than a positive reinforcement.

- e. Recognition should be given for prevalent and incident patient outcomes to both **current levels of performance** (measured against an absolute or normative standard) and improvement in a **provider's own performance over time**.

Both elements can be utilized for all participants; some are solo/group practice while some are institutional (hospitals, outpatient facilities). The existing data system has some elements established and can accommodate expansion.

IV. Data Support

There are two primary sources for obtaining data to support measuring individual, group or organizational performance – through claims systems and/or a data system designed to capture quality-related information.

TM Kidney Disease Outcomes Quality Initiative, National Kidney Foundation, 2000 updates.

Currently, in the ESRD Network Program, dialysis facilities are required to track quality-related information monthly, and to report quarterly, on each individual with ESRD; however, the information is reported to the ESRD Networks and to CMS at an aggregate level. Use of quality related information would require a transition to reporting patient-level data. Additionally, it may be necessary to require additional data elements. This change to patient-level data, and potential increase in data elements and frequency in reporting, will result in an increased burden to those required to provide the requested elements. Sufficient resources must be devoted to development of systems, and creation of policies related to exchange of data and confidentiality, that ensures timely and efficient transmittal of data prior to implementation of the program.

Specific attention must be given to the use of a data system that includes all elements necessary to track performance as well as analyze data for outcomes, disparities in care and regional/local variations.

Performance Measurement / Monitoring

Performance measures must be evidence-based, current, and maintained for a specific period of time before adjustment. Analysis will occur against absolute values as well as relative improvement in time.

A vascular access P4P program will likely involve development of a “rate” which will require:

- ◆ Careful tabulation of data for some defined period of time;
- ◆ An effort to ensure complete reporting; and,
- ◆ Data analysis to compare performance measures to relevant standards and past performance.

Measurement of improvements will require the maintenance and analysis of serial data for individual providers, and provision will need to be made for the auditing and reconciliation of performance measures with participating providers.

V. Funding Alternatives

It is recommended to CMS and other payers that the vascular access P4P use the savings projected from increased fistula use rates and decreased rates of alternative methods such as catheters and grafts. Savings would be primarily realized in the hospital setting through reduced costs for treatment of complications although there are others, including within the dialysis facility, e.g. missed scheduled treatments due to hospitalization. Data does exist to suggest that a savings in excess of \$500 million¹¹ will be achieved if the KDOQI standards are achieved for fistula prevalence. These savings would be derived from decreased total costs per patient per year related to vascular access procedures, and a decrease in expected hospitalization rates from access-related complications.

Commercial payers and other government payers (e.g., Medicaid) are requested to integrate a vascular access P4P component into existing products. It is not anticipated that conversion to a CMS program would be required but that the characteristics of each product would be adapted to include a P4P element. Some commercial plans encompass all care settings and all practitioners. It is unreasonable to expect these to conform to plans that include only portions of the medical community that are not integrated into a comprehensive disease management program.

It is advised that performance payments be made close to the actual service rendered, preferably at six-month intervals, depending on the size of the practice or facility.

VI. Additional Discussion / Comments

Creating a pool from which to reward fistula creation may well further the behavior modification necessary to achieve the *Fistula First Breakthrough Initiative* goals. It must be recognized, however, that the total costs to the ESRD system from prolonged complication-free time on outpatient hemodialysis may increase as mortality attributable to complications from vascular access decreases on a per patient basis. Thus, increasing the total Medicare expenditure per patient lifetime while reducing the expenses for vascular access per patient per year with ESRD will need to be perceived as a desirable social goal.

An analysis of achievable behavioral change at each level of professional services will incrementally achieve a significantly greater cumulative goal. Such modifications would include and not be limited to:

- ✓ At the patient level, reward for obtaining and receiving adequate pre-ESRD education and allowing the creation of a fistula in time to be used for the initiation of dialysis or within the first 90 days.
- ✓ At the level of the nephrology practitioners, and concerning those patients first seen 12 months or more prior to the initiation of dialysis, having a fistula created in time to be utilized either at the start of dialysis or within the first 90 days.
- ✓ At the level of the surgeon for creation of a fistula which is usable at the initiation of dialysis or within the first 90 days.
- ✓ At the level of the dialysis facility for decreasing the loss of fistulas and to decrease the number of lost outpatient treatments related to complications attributable to vascular access. The role of the dialysis facility must be carefully defined with good outcome measures.
- ✓ At the level of the hospital for identifying patients with CKD stages 4 and 5, participating in efforts to secure timely, functional fistula placements, and monitoring catheter insertion without fistula placement.
- ✓ At the level of the interventionalist, to increase the percentage of newly created fistulas that are mature and successful within the first 90 days after initiation of ESRD or hemodialysis.

A fistula "used" or "utilized" within the first 90 days needs to be carefully defined. Suggestions include:

1. Primary access functional patency: able to deliver a flow rate of 350-400 mL/min without access recirculation to maintain a treatment time less than 4 hrs. (Sidawy)
2. ...functionality was defined by three things, achievable flow rate, recirculation, and time for effective dialysis. So there is more than one item to consider. I feel that we should accept this definition at this time and maybe tweak it in the future if we feel we need to (we may decide to consider a certain level of recirculation such as 10-12% beyond which recirculation is considered unacceptable). However, having said all that, a non-functional access is the one that is not delivering adequate dialysis. And that can be determined by the nephrologist and the nurse dialyzing the patient. (Sidawy)
3. I would suggest that we define successful fistulas pre-dialysis as functioning if they are patent. When dialysis starts, they can be subtracted from that surgeons total if they are not functional.

I would also suggest that the definition of functional include fistulas functional after angioplasty as a success. This encourages surgeons to create them even in marginal situations. It is the agreement I have currently with my best fistula surgeon. (Schon)

4. A fistula that was constructed timely, before dialysis was required, and that is "ready to use" by the new K-DOKI guidelines (the "6" rule), should be included in the functional group (successful fistulas). Maybe a term that includes functional and ready to use fistulas should be "mature fistula" as defined

by K-DOKI (>600 ml flow, 6 mm diameter, <6mm deep, 4-6 weeks old). I do not think that this discussion is irrelevant. I think that the issue of definitions goes to the heart of the potential success of any program for behavior modification, especially when financial considerations are involved. Finally, I agree with you that fine tuning will be always required. (Schanzer)

Method of Paying Incentives

P4P incentives could be paid to a single provider/practitioner type, split between any number of providers/practitioners, or paid as a single payment to a number of provider/practitioners collectively.

Because of the complexity of Medicare regulations governing financial arrangements among providers, it is likely that CMS and other payers will need to assume the responsibility of paying incentives to entities that have the legal authority to receive payment and allocate payment among individual providers. For example, it is generally illegal for one physician to directly pay another physician for providing (or not providing) a covered service. It is, however, legal for a physician practice to bill Medicare and receive payment and to establish a variety of compensation arrangements with individual members of the practice. These arrangements might include fee-for-service payment or payment based on a salary; they might include various 'bonus' or 'incentive' compensation provisions.

Two major approaches: **1) all-inclusive payment to group or affiliation.** Advantages include ability to hold group accountable for more complex outcomes, continuity of care, etc. Problems include exactly who to pay, when and how much; **2) payment to small group or individual.** Advantages include billing simplicity (single entity) and potential track ability if individual AVF data results.

Considerations: isolate specific behaviors at each step of the process and incentivize accordingly, pay groups only for what they can do/influence directly, need to define separate incident and prevalent catheters, and working AVF vs. AVF placed. In addition, payment for a specified number (volume) of fistulae can be an incentive for shifting access referrals to practitioners with an interest and established expertise in this area.

Payment needs to be tied to gradual improvement rather than an ultimate goal. Unreasonable goals can become disincentives since providers and practitioners may adopt a less aggressive approach to improvement because they perceive the goal to be unattainable. If P4P is to be with us for the long haul, it is extremely important for the first steps to be calibrated appropriately. Since overall costs of care will go up with patient age, the challenge will be to determine when the decrease or increase in costs of care are unrelated to access type or function or provider-specific behavior.

Financial Reconciliation

The calculation of incentive payments will also need to occur as an 'off-line' activity. That is, it cannot be integrated into the claims systems. To the extent that payments are subject to budget neutrality requirements and to the extent that the funds available for disbursement through P4P are dependent upon the demonstration of savings, methods of capturing the data needed to apply these requirements, performing the required calculations, and auditing the results will need to be established.

To the extent that a dialysis facility or other organization distributes incentive payments to individual providers, procedures for tracking and potentially auditing distributions will be needed.

Facilities and individuals are connected to one another by a variety of organizational affiliations, agreements, and formal or informal relationships. There is not a single corporate or organization model into which all possible arrangements can be subsumed.

It is not realistic, for example, to require all providers/entities that participate in a P4P program to establish a corporate entity or shell that will be used to administer P4P payments. Even if such an entity were established, it is unlikely that beneficiaries could or would be required to receive their care through the providers participating in the arrangement.

VII. References

1. Eggers, P. & Chen, S. *Total Medicare Expenditures for Vascular Accesses by Access Type*. Presentation at the CMS Fistula First Breakthrough Initiative Stakeholder Coalition Meeting, September 16, 2005, Hunt Valley Maryland.
2. Sherman, R., *Briefly Noted*, Seminars in Dialysis, 17:6, p.538
3. *Guidelines for the Prevention of Intravascular Catheter-related Infections*, MMWR Recommendations and Reports, August 9, 2002.
4. US Renal Data System, *USRDS 2004 Annual Data Report: Atlas of End-Stage Renal Disease in the United States*. National Institutes of Health, National Institute of Diabetes and Digestive and Kidney Diseases, 2004, p. 119.
5. Sands, Jeffrey J and Perry, Michael A., *Improving Vascular Access Outcomes: A Systems Approach to Eliminating Structural Barriers*, Blood Purification, 21:2003:111-117.
6. US Renal Data System, *USRDS 2005 Annual Data Report: Atlas of End-Stage Renal Disease in the United States*, National Institutes of Health, National Institute of Diabetes and Digestive and Kidney Diseases, 2005, p. 201.
7. Ibid. pp. 212-213.
8. Kureczka/Martin Associates, *Staph aureus bacteremia in ESRD patients associated with substantial illness and higher costs*, 43rd Annual Interscience Conference on Antimicrobial Agents and Chemotherapy, Chicago, IL, September 17, 2003.
<http://www.scienceblog.com/community/older/2003/F/20033524.html>
9. Gornick, Marian E, *Disparities in Medicare Services: Potential Causes, Plausible Explanations, and Recommendations*, Health Care Financing Review, Summer 2000, 2:4, p. 42.
10. Aaron, Kayturaa Felix, Clancy, Carolyn M, *Improving Quality and Reducing Disparities: Toward a Common Pathway*, JAMA, February 26, 2003, 289:8, p. 1033.
11. Eggers, P & Chen, S. op cit.