Implementing the New HEDIS Hypertension Performance Measure

By CARY SENNETT, M.D., Ph.D.

A description of the National Committee for Quality Assurance’s new measurement of HMOs’ success in treating hypertension, with a discussion of the importance of hypertension control and the need for careful monitoring of providers.

This report, based on the HEDIS Hypertension Summit held in Dallas in December 1999, qualifies for continuing education credit for pharmacists. It is intended primarily for:

- Medical directors
- Pharmacy/formulary directors
- Quality assurance directors
- Managed care executives
- Clinical/consultant pharmacists
About this publication

This MANAGED CARE Special Supplement, “Implementing the New HEDIS Hypertension Performance Measure,” was supported by an unrestricted educational grant from Bristol-Myers Squibb Co. It is based on information presented at the HEDIS Hypertension Summit, a meeting held in Dallas in December 1999, and attended by medical, pharmacy, and quality assurance directors from across the country. Opinions expressed in this supplement are those of the author and do not necessarily reflect the views of the sponsor or the publisher, editor, or editorial board of MANAGED CARE.

Disclosure of significant relationships:
The author acknowledges that he was executive vice president of the NCQA and now serves that organization as a consultant. He has also been a consultant to Bristol-Myers Squibb Co. The company does not perceive any conflicts of interest in the associations that he has disclosed.

The material in this special supplement has been independently peer reviewed.

Continuing education credit

Bristol-Myers Squibb Co. is approved by the American Council on Pharmaceutical Education as a provider of continuing pharmaceutical education. Upon successful completion of this program, 0.2 CEU, or 2.0 contact hours, will be awarded. ACPE ID #316-999-00-015-H04. This self-study monograph is effective from April 15, 2000 through April 15, 2003.

Program goal

To provide pharmacy directors, clinical pharmacists, and other pharmacists who practice in a managed care setting and wish to learn about the new HEDIS 2000 hypertension measurement and the rationale for it, along with details of its implementation in a managed care organization.

Learning objectives

After completing this monograph, the participant should be able to:
1. Explain the prevalence of uncontrolled hypertension in the United States.
2. List reasons for the high rate of uncontrolled hypertension.
3. Discuss the rationale for the selection of hypertension as a new HEDIS 2000 measurement.
4. List the criteria for selecting medical records for the HEDIS hypertension measure.
5. Provide suggestions for improving the management of hypertensive patients in the participant’s health plan or practice.
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Introduction
Although the importance of controlling high blood pressure (BP) has been appreciated for decades, efforts to control hypertension in the nearly 50 million Americans with the condition continue to be largely ineffective: Estimates from the most recent National Health and Nutrition Examination Study (NHANES III, phase 2) suggest that only 27 percent of patients with hypertension are adequately controlled, according to the definitions of hypertension and control advanced by the Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure (Sixth Report, 1997). Table 1 presents the BP classifications used in JNC VI.

The public health consequences of this failure are enormous. Hypertension is an important risk factor for myocardial infarction, congestive heart failure, ischemic stroke, and end-stage renal disease, all of which are significant sources of morbidity, mortality, and cost. Heart disease and stroke, the first and third leading causes of death, respectively, in the United States, represent a significant financial and social burden, accounting for an estimated $326.6 billion in direct and indirect costs in 2000 (American Heart Association, 2000). With the prevalence of hypertension expected to rise at an annual rate of 1.8 percent, reaching 58.1 million by 2007 (Hypertension, 1999) as the population ages, there is every reason to be concerned that things will only get worse. The prevalence of hypertension in the United States rises dramatically with age (Figure 1).

This is a problem of great consequence — and therefore an opportunity of great importance. Recognizing both the problem and the opportunity, the National Committee for Quality Assurance (NCQA), a not-for-profit organization that evaluates and accredits health plans, has introduced a measure into its HEDIS 2000 set designed to assess the rate at which managed care plans succeed at achieving JNC VI blood pressure control. NCQA believes that creating a mechanism for consumers and health care purchasers to compare the relative success of health plans at controlling blood pressure will stimulate health plans to improve the process of care for patients with hypertension. NCQA’s experience with other HEDIS measures supports this belief. At the same time, the new measure creates a way for health plans to distinguish themselves; demon-

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1 HEDIS, the Health Plan Employer Data and Information Set, is a set of standardized measures used by many purchasers of health insurance to compare health plans. HEDIS standards account for 25 percent of the accreditation score for a health plan that seeks NCQA accreditation. HEDIS is a registered trademark of the National Committee for Quality Assurance.

2 These are discussed in NCQA’s State of Managed Care Quality 1999, which is available at www.ncqa.org/pages/Main/toc.htm.
Stratifying clinical excellence provides a competitive advantage. The result should be better control of high BP — and reductions in the morbidity, mortality, and cost associated with poor control.

The implementation of this measure in managed care will be good for patients with hypertension — and beneficial for health plans that are committed to providing high-quality care to them. But that implementation will create challenges as well — challenges both to measurement and to improvement.

The purpose of this article is to help leaders in managed care plans prepare for those challenges, by providing a greater understanding of the problem of hypertension control, then explaining how measurement can help improvement efforts, what strategies might be helpful, and what implementation might require. The article is drawn from a summit that brought researchers together with health plan medical directors, pharmacy directors, and quality assurance (QA) directors to share knowledge and develop recommendations for others in the field. It is our hope that the findings here will help you understand what implementation of the HEDIS hypertension measure means for your organization, and how you can prepare to improve hypertension care in your health plan.

### The nature of the problem

The problem of hypertension control is not new. Data from NHANES II, conducted between 1976 and 1980, revealed a major public health problem: Only 51 percent of Americans with hypertension were aware they had hypertension, only 31 percent were being treated for it, and only 10 percent had their hypertension under control. During the next decade, the

<table>
<thead>
<tr>
<th>Category</th>
<th>Systolic (mm Hg)</th>
<th>Diastolic (mm Hg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Optimal</td>
<td>&lt;120</td>
<td>&lt;80</td>
</tr>
<tr>
<td>Normal</td>
<td>&lt;130</td>
<td>&lt;85</td>
</tr>
<tr>
<td>High-normal</td>
<td>130–139</td>
<td>85–89</td>
</tr>
<tr>
<td>Stage 1 Hypertension</td>
<td>140–159</td>
<td>90–99</td>
</tr>
<tr>
<td>Stage 2 Hypertension</td>
<td>160–179</td>
<td>100–109</td>
</tr>
<tr>
<td>Stage 3 Hypertension</td>
<td>≥180</td>
<td>≥110</td>
</tr>
</tbody>
</table>

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Health plans with the highest HEDIS scores have the most satisfied members, and health plans with the most satisfied members have the highest HEDIS scores.”

— NCQA, State of Managed Care Quality 1999

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FIGURE 1 Prevalence of hypertension in U.S. adults, by age

Adapted from Kannel WB. *Am J Cardiol* 1996 (suppl B)77:68–11B
National Heart, Lung, and Blood Institute (NHLBI) and other groups worked to raise public awareness of the need to detect and treat high BP. The results of NHANES III (1988–91) were encouraging: Rates of awareness had risen to 73 percent, rates of treatment to 55 percent, and rates of control to 29 percent. These improvements in hypertension control were reflected in dramatic declines in age-adjusted mortality rates for stroke and coronary heart disease (CHD). Some of these declines were owing to advances in medical care beyond those resulting from improved control of hypertension.

Despite significant improvements, though, the first phase of NHANES III indicated that fewer than one third of patients with hypertension were adequately controlled. Phase 2 of NHANES III, describing results in the interval from 1991 to 1994, suggested that even these modest gains were not sustained. Those data (Table 2) suggested that all rates had slipped: levels of awareness to 68 percent, treatment to 54 percent, and control to 27 percent. It probably is no coincidence that, since 1993, age-adjusted mortality rates for stroke have risen slightly, and the decline in CHD mortality has leveled off (Sixth Report, 1997).

The NHANES findings have been replicated in other settings and at other times. A study of hypertension awareness and control in 1,394 insured health care workers in New York City found that, of the 30 percent with hypertension, 71 percent were aware (or nearly one third were not); that 49 percent were being treated (or more than half were not); and that only half of those receiving treatment (or 12 percent overall) were adequately controlled (Stockwell, 1994). Such poor control in a population of health care workers — expected to be unusually knowledgeable about the consequences of the disease — points out the depth of the problem in the general population.

In a study in Olmsted County, Minn., investigators set out to determine whether the NHANES estimates applied at the community level (Meissner, 1999). Among 636 people with hypertension (fully 24 percent of whom were health care workers), only 61 percent were aware that they had hypertension, only 51 percent of those aware were treated, and less than half of those treated were controlled. The rate of control, overall, was 23 percent. In comparison with a study done a decade earlier in Rochester, Minn., these patients had a mean systolic BP that was 6.6 mm Hg higher (4.9 percent) and a mean diastolic BP that was 3.6 mm Hg higher (5.0 percent).

Recent evidence suggests that performance in managed care is no better. In anticipation of the new HEDIS hypertension measure, the Kaiser Permanente Medical Care Program in Northern California evaluated its methods of monitoring BP control among its members. Among those patients known to be hypertensive (approximately 20 percent of its population), rates of diastolic control were high (70

<table>
<thead>
<tr>
<th>National survey</th>
<th>New York City health care workers</th>
<th>Olmsted County, community population</th>
<th>Northern Calif. managed care population</th>
</tr>
</thead>
<tbody>
<tr>
<td>NHANES III, Phase 2 (1991–94) (%)</td>
<td>(%)</td>
<td>(%)</td>
<td>(%)</td>
</tr>
<tr>
<td>Aware</td>
<td>68</td>
<td>71</td>
<td>61</td>
</tr>
<tr>
<td>Aware, untreated, uncontrolled</td>
<td>15</td>
<td>22</td>
<td>10</td>
</tr>
<tr>
<td>Aware, treated, but not controlled</td>
<td>26</td>
<td>37</td>
<td>28</td>
</tr>
<tr>
<td>Controlled</td>
<td>27</td>
<td>12</td>
<td>23</td>
</tr>
</tbody>
</table>


“The [Olmsted County] study demonstrates that at the community level, rates of awareness and control of hypertension are suboptimal.” — Meissner, 1999
percent) but rates of systolic control were not (40 percent). Rates of overall control (both systolic <140 mm Hg and diastolic <90 mm Hg) were 30 percent — little different from the national experience (Alexander, 1999).

What accounts for such low rates of control? Clearly, failure to diagnose the condition is part of the problem — but rates of control are consistently low even in patients with known (and treated) disease. Although the problem of hypertension detection is real, there seems far more opportunity to improve health through attending to the care of those who are known to have the disease.

Access to care is not the problem. Recent data suggest there are 25 million office visits for the care of hypertension annually, and that hypertension is the second most common reason that Americans seek care (Schappert 1999, Table 3). Nor is it reasonable to suggest that no effective therapies exist; the clinical trials literature is replete with studies that establish efficacy of a large number of medications in a broad range of patients with hypertension. For example, data from the Framingham Heart Study show that only 2.3 percent of men and 5.7 percent of women used antihypertensives in 1950. By 1989, as new antihypertensives were developed and introduced, the rate of use had increased to 24.6 percent among men and 27.7 percent among women (Mosterd, 1999). These utilization increases were accompanied by declines in the prevalence of high BP and left ventricular hypertrophy, which may help explain the decline in CVD mortality in recent decades.

Rather, the roots of the problem are several, and they lie in the system of care. Perhaps chief among them are four that are amenable to health plan intervention: patient compliance, physician practice style, medication choice, and levels of investment in systems to support care for patients with hypertension.

**Patient noncompliance with medication regimens is high.**

Although effective medications for hypertension exist, they work only if patients take them. Unfortunately, they frequently do not. In one study, only 14 percent of patients with hypertension actually purchased their antihypertensive drugs continuously for one year. The highest rates of continuous compliance were observed among patients whose drug regimen began with angiotensin-converting enzyme (ACE) inhibitors (33 percent) and central adrenergic inhibitors (18 percent); the lowest compliance rate, 5 percent, was among patients whose initial therapy was a diuretic (McCombs, 1994).

Reasons for noncompliance vary. Because hypertension is asymptomatic, it often is difficult for patients who look and feel healthy to understand why they need to take a drug every day (or several times a day) to achieve benefits that may not be realized for years to come. Some patients do not understand the treatment regimen, especially if it involves several drugs. Side effects such as impotence, fluid retention, and constipation discourage some patients from taking their medications, although newer antihypertensive agents, such as the ACE inhibitors and the angiotensin II receptor blockers (ARBs, or sartans), are better tolerated than drugs of the past.

**Many physicians do not treat patients aggressively enough.**

Data suggest that despite frequent encounters with patients with diagnosed and poorly controlled hypertension, physicians rarely modify therapy. In a two-year study of 800

<table>
<thead>
<tr>
<th>Top 10 diagnoses rendered during office visits (percent of all visits)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute respiratory infections</td>
</tr>
<tr>
<td>Essential hypertension</td>
</tr>
<tr>
<td>Routine infant/child health check</td>
</tr>
<tr>
<td>Normal pregnancy</td>
</tr>
<tr>
<td>General medical exam</td>
</tr>
<tr>
<td>Otitis media/Eustachian tube</td>
</tr>
<tr>
<td>Malignant neoplasms</td>
</tr>
<tr>
<td>Diabetes mellitus</td>
</tr>
<tr>
<td>Chronic sinusitis</td>
</tr>
<tr>
<td>Bronchitis</td>
</tr>
</tbody>
</table>

Source: Schappert, 1999
male veterans with hypertension — who averaged six or more hypertension-related visits annually — 40 percent still had a BP \( \geq 160/90 \) mm Hg after two years of care (Berlowitz, 1998). Physicians appeared reluctant to change therapy even in the face of poor control — doses of antihypertensives were increased during only 6.7 percent of the hypertension-related visits. The only factor that was associated with an increased likelihood of an increase in therapy was the presence of coronary artery disease — and then only for patients with a BP of >165/90 mm Hg.

It is likely that there are many reasons for this. To begin with, physicians have very little time to spend with patients, and the care of chronic and asymptomatic disease may be a secondary priority in the face of more acute problems. In addition, patients may not want — or physicians may believe that patients do not want — adjustments to therapy, as those may increase side effects as well as the complexity of the regimen.

There may be other reasons, though, that physicians are not aggressive in their management of patients with hypertension, particularly those with isolated systolic hypertension (ISH). Poor control is largely related to systolic BP (Lapuerta, 1999; Figure 2). Historically, physicians have been trained to focus on diastolic BP, partly because it was considered more difficult to obtain reproducible and accurate measurements of systolic BP (Elliott, 1999). Such pragmatic reliance on diastolic BP gave rise to the myth that it is a stronger predictor of cardiovascular risk. Another myth is that elderly patients, in whom the prevalence of ISH is highest (Figure 3), do not tolerate reductions in systolic BP (and are put at risk for stroke by overly aggressive BP control).

These statements are untrue. The Framingham Heart Study established systolic BP as a primary risk factor for cardiovascular disease (Elliott, 1999). And, in 1992, the Multiple Risk Factor Intervention Trial (MRFIT) provided

"Inadequate control of blood pressure can no longer be ascribed solely to the lack of access to medical care and noncompliance with therapy; physicians themselves must accept some responsibility for the problem."
— Berlowitz et al., 1998
evidence that systolic BP is a stronger predictor of death from coronary heart disease than is diastolic BP, although the latter is unequivocally important (Neaton, 1992, Figure 4).

Access to the most effective drugs may be restricted.

As the health care system has faced increasing fiscal pressure, managed care organizations (MCOs) have appropriately responded with efforts to substitute equally effective but lower-cost therapies for higher-cost ones. This is increasingly true of pharmaceuticals, where tiered formularies have created strong incentives for such substitution. Unfortunately, the calculus of cost for patients on antihypertensive medications is complicated. Data suggest that the cost of the medication itself — that is, the “acquisition cost” — may correlate poorly with overall treatment cost. In fact, data suggest that apparently “higher-cost drugs” can reduce total treatment cost — even short term. In a study involving 32 different antihypertensive agents used to treat patients newly diagnosed with mild-to-moderate essential diastolic hypertension, Hilleman et. al. found that total treatment costs ranged widely both within and among drug classes (Hilleman, 1994). More importantly, drug-acquisition cost was a poor predictor of the total cost of treatment over one year of therapy. Rather, overall cost — which depended not only on drug acquisition cost, but also on the cost of supplemental drugs, the cost of lab tests and clinic visits necessary for monitoring therapy, and the cost of caring for side effects of treatment — varied unpredictably as a function of drug-acquisition cost. In one case, in fact, the drug with the highest acquisition cost within its class was associated with the lowest total cost over the year. To the extent that managed care organizations are focusing on acquisition cost — and restricting access to higher-cost medications as a result — there is at least some risk that patients are not as well able to gain access to the medications that are likely to work best for them.

Investment in care management systems for patients with hypertension.

Almost certainly, there are very limited systems in place to support efforts to improve the

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**FIGURE 3** ISH in individuals with untreated hypertension

care delivered to patients with hypertension. The reasons for this are likely to be different inside and outside of managed care. In fee-for-service practice, the opportunities to develop such systems are limited, while in managed care, there are apparent economic incentives to discourage it. Among these are the apparently long timelines over which returns on investments are likely to proceed. These long timelines are especially problematic, in light of the frequency with which employers and enrollees move from plan to plan.

There are data, however, indicating that cost-savings may result over much shorter timelines than are typically expected. A study of adult Medicaid patients in California showed that continuous use of antihypertensive medications resulted in a reduction in overall health care costs of $873 per patient during the first year of treatment, in comparison with patients who discontinued treatment (McCombs, 1994). These savings, of course, are in addition to those expected to accumulate over time as the incidence of cardiovascular, cerebrovascular, and renovascular complications is reduced.

The HEDIS hypertension measure
The opportunity to improve care for patients with hypertension is clear. It drove NCQA’s decision to develop a HEDIS measure that assesses the outcome of antihypertensive therapy: blood pressure control. The HEDIS hypertension measure is simply the percentage of plan members between ages 45 and 84 whose BP is strictly less than 140/90 mm Hg—normal or high-normal as defined by the criteria of JNC VI. The measure is limited to individuals who have been continuously enrolled in the plan for 12 months, and requires medical record review to confirm the diagnosis of hypertension and to evaluate control.

The process for calculating the measure is typically precise, to assure that health plan values can be compared reliably:

1. **Claims data are used to identify the universe of continuously enrolled persons suspected of having hypertension.** Use the claims data to scan for ICD-9-CM codes indicating the diagnosis of hypertension (401). Field studies showed that claims data are sufficiently accurate to capture most patients with hypertension this way.

![FIGURE 4 Effect of BP on mortality due to CHD: MRFIT](Neaton JD and Wentworth D: Arch Intern Med 1992;152:56–64)
2. **Identify a random sample of approximately 467 persons from the universe of enrollees identified by the claims data.** The sample size takes into account the likelihood that about 15 percent of claims will be false positives; oversampling by 15 percent is designed to assure a final sample size of 411.

3. **Pull medical records for the sample; select only one chart per patient.** Only one medical record may be drawn for each patient; in general, it should be from the primary care physician the patient saw most recently. If there are no PCP visits, the MCO must identify the practitioner with whom the patient had the most recent visit. If the member’s hypertension is managed by someone other than a PCP (e.g., by a cardiologist), the MCO may elect to pull the medical record from that provider instead.

4. **Confirm the diagnosis of hypertension, using data from the medical record.** The notation indicating a diagnosis of hypertension can be recorded in any of the following:
   - Problem list
   - Office note
   - SOAP note
   - Encounter form
   - Telephone call record
   - Diagnostic report
   - Hospital discharge summary
   - Billing data contained in the medical record

   Patients for whom no such documentation in the medical record exists are presumed to be “false positives” and excluded from further analysis. The remainder comprise the denominator for the HEDIS statistic.

5. **Use a “coded” representative BP to determine whether the patient is in control (systolic strictly less than 140 and diastolic strictly less than 90) or not in control (systolic greater than or equal to 140 or diastolic greater than or equal to 90).** This is the BP obtained at the most recent nonprocedural office visit during the measurement year. Patient-reported BPs, or BPs obtained at home through home BP monitoring, are not acceptable. Measurements on the same day as a major diagnostic or surgical procedure are excluded as well.

6. **Use NCQA’s algorithms if multiple BPs are present.** Because more than one BP may be obtained during an office visit, NCQA has provided rules to make the choice of BP reading consistent and unambiguous: The lowest sitting BP should be used first for purposes of determining control. If there is no sitting BP, the lowest supine measure should be used. If there is no supine measurement, the lowest standing measure should be used. (For the complete algorithm, refer to HEDIS 2000, Volume 2, Page 82.)

7. **The HEDIS statistic is the ratio of the number of persons with BP under control (the number of people identified in [5]) to the number of persons with hypertension (the number of people identified in [4]), times 100.**

**Rationale for this specification**

The specification for the hypertension measure is surprisingly simple and appears not to consider a number of important issues. To begin, there is considerable benefit to reducing BP in persons with very high pressures, even if BP is not brought finally to the JNC VI target. Furthermore, patients with high BP may vary with respect to the ease with which control is achieved — and some plans may serve populations that include disproportionate numbers of such persons.

These and other issues were not unconsidered.
ered. In fact, NCQA explored a range of alternative specifications, both theoretically and empirically. These were rejected in favor of a “simple” measure, for the following reasons:

- Alternative specifications were far more challenging to calculate.
- Measures that attempted to adjust for patient risk using “baseline” BP — or attempted to evaluate BP change by comparing the most recent BP to “baseline” — were infeasible, because baseline BP could not be determined reliably.
- Measures that attempted to look at BP control in newly diagnosed hypertensives (for whom a baseline BP was available) were problematic, because identifying newly diagnosed hypertensives is infeasible, and the incidence of hypertension is very low compared to its prevalence.

In addition, in empirical field studies, risk adjustment did not influence the relative rankings of plans. Although risk adjustment was a theoretical concern, it did not appear to be one practically.

In those field studies, no measure discriminated between health plans more effectively than the simplest specification. Although it seemed that more complex measures might capture more subtle differences among plans than the simplest one, the simplest measure worked just as well as the complex ones.

The simplest measure was believed to be the most compelling to consumers.

**Implementing the measure**

NCQA hopes that improvements in the care of patients with hypertension that are expected to follow implementation of the measure will lead to reductions in the cost of care for these patients, as therapy is optimized and complications averted. However, implementing the measure itself will involve some cost. In the pilot studies NCQA undertook, those costs were between $15,000 and $20,000, which included expenses for traveling, locating charts, abstracting, and reviewing data. NCQA recognizes that costs can be higher, particularly for plans that offer several managed care products.

The implementation of the measure will stimulate efforts to manage hypertension. It is important that health plans communicate the need to “treat the patient, not the pressure.” Optimal treatment of hypertension goes beyond simply treating everyone to below 140/90 mm Hg. Intermediate reductions in pressure produce significant benefit, and additional benefit accrues in some patients when BP is reduced even further. Indeed, in patients with other risk factors for vascular disease, JNC VI recommends more aggressive therapy.

A recent study suggests that more aggressive treatment of high-risk patients is likely to be cost-effective (Ogden, 2000). Using a reduction in systolic BP of 12 mm Hg — the average BP reduction achieved in major trials of antihypertensive drugs in connection with reduced risk of cardiovascular disease — the researchers calculated the number needed to treat (NNT) to prevent a death from any cause over 10 years among participants in the first NHANES. The participants were chosen on the basis of their baseline BP and presumed cardiovascular risk. The results are summarized in Table 5; figures are corrected for imprecision in the measurement of systolic BP.

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**Algorithm for identifying the medical record**

1. Identify member’s primary care physician.
2. If member had more than one PCP during the period, identify the PCP who most recently provided care.
3. If member has not visited a PCP during the period, identify the physician who most recently provided care.
4. If member’s hypertension is being managed by a provider other than the member’s PCP, the MCO may use the medical records of that provider instead. The MCO may use the medical records of only one provider team to assess BP control.

Source: HEDIS 2000, Volume 2
People who had no additional major risk factors for cardiovascular disease (Risk Group A) accounted for only 9 percent of the population with high-normal BP or hypertension. The NNT in this group was high, suggesting that lifestyle modification may be more appropriate than drug therapy (gray area of Table 5). In the other groups, the NNT was much lower, and they point to a need for more aggressive treatment of patients whose BP may be classified as controlled but who have one or more additional risk factors for CVD (yellow area of Table 5).

Meeting the HEDIS criterion is an important step toward best care for patients with hypertension, but care still needs to be individualized. The message to plans and providers should be clear and simple:

As a minimum, know what the JNC VI target is for your patients with hypertension, and treat to those. This will produce the greatest gains in health for those patients. Success on the HEDIS measure will naturally follow.

**Going beyond HEDIS: Measuring process in your organization**

As important as the HEDIS measure is to the improvement process, improvement will

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**TABLE 4** JNC VI recommendations for treatment according to risk stratification

<table>
<thead>
<tr>
<th>BP Stages</th>
<th><strong>Risk group A</strong></th>
<th><strong>Risk group B</strong></th>
<th><strong>Risk group C</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>High-normal</td>
<td>Lifestyle mod.</td>
<td>Lifestyle mod.</td>
<td>Drug therapy</td>
</tr>
<tr>
<td>(130–139/85–89 mm Hg)</td>
<td></td>
<td></td>
<td>for patients with heart failure, renal insufficiency, or diabetes</td>
</tr>
<tr>
<td>Stage 1</td>
<td>Lifestyle mod.</td>
<td>Lifestyle mod.</td>
<td>Drug therapy</td>
</tr>
<tr>
<td>(140–159/90–99 mm Hg)</td>
<td>(up to 12 months)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stages 2 and 3</td>
<td>Drug therapy</td>
<td>Drug therapy</td>
<td>Drug therapy</td>
</tr>
<tr>
<td>(≥160/≥100 mm Hg)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: Sixth Report, 1997

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**TABLE 5** Number needed to treat to prevent one all-cause death, NHANES I Follow-Up Study

<table>
<thead>
<tr>
<th>Risk Group A: No additional major risk factors for CVD (9.0%)</th>
<th>Risk Group B: One or more additional risk factors for CVD (71.7%)</th>
<th>Risk Group C: History of CVD or target organ damage (19.2%)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>High normal BP:</strong> 130-139/85-89 mm Hg</td>
<td>81</td>
<td>19</td>
</tr>
<tr>
<td><strong>Stage 1 hypertension:</strong> 140-159/90-99 mm Hg</td>
<td>60</td>
<td>16</td>
</tr>
<tr>
<td><strong>Stage 2 or 3 hypertension:</strong> ≥160/≥100</td>
<td>23</td>
<td>9</td>
</tr>
</tbody>
</table>

Source: Ogden, 2000

Risk group percentages do not add up to 100% because of rounding.
be difficult if it is not supplemented with other information. This HEDIS measure focuses on an "outcome"; as an outcome measure, it can help a plan determine whether there is a problem and if there is, how severe. But it provides no information about what to do when there is a problem; to inform action, one needs other (and other kinds of) measures.

In general, the relationship between process and outcome can be envisioned as an “information pyramid.” The peak of the pyramid is information about the outcome of interest. The base contains all the knowledge necessary to maximize the likelihood of achieving that outcome. In our case, the apex is the percentage of members whose hypertension is controlled. At the base are the answers to questions associated with the process of achieving control. Some relevant questions are set forth in Table 6.

There are many tools available to help your organization to understand what actions are most likely to result in improvements in blood pressure control in your organization. An instrument that seems very promising is being developed by the Rand Corp. This set of process measures — called the “QA Tool” — is being field-tested nationwide.

In developing the QA Tool, Rand selected areas for clinical measurement based on scientific literature. Five expert panels drafted more than 1,700 indicators of process for selected conditions, including hypertension. Microcomputers can be used to collect data efficiently, but data collection still requires medical record review.

The hypertension module of the QA Tool includes several measures of treatment intensity that are known to affect BP control. In keeping with the findings of studies discussed earlier, field tests have indicated that physicians could be much more aggressive in managing hypertension. These tests reveal that although 84 percent of new patients with high BP had their BP measured during every visit, only 61 percent had three BPs taken, as is recommended. Further, only 31 percent were given a complete physical exam, and only 7 percent were asked about family history. During follow-up visits, only 33 percent of hypertensive patients received information about lifestyle modification, and slightly more than half (55 percent) had their medication changed to improve the control of hypertension (Asch, 1999).

The field tests also showed that many physicians miss the opportunity to intensify treatment during hypertensive patient visits. Only one third of patients studied had chart evidence that physicians discussed lifestyle modifications with them, and only half of diabetics were offered an ACE inhibitor as first-line

<table>
<thead>
<tr>
<th>Patient treatment and compliance</th>
<th>Physician understanding and management</th>
</tr>
</thead>
<tbody>
<tr>
<td>Are patients with hypertension identified?</td>
<td>Does the physician understand the importance of BP control?</td>
</tr>
<tr>
<td>Once they are identified, do they see a physician regularly? How often?</td>
<td>Does the physician understand the importance of ISH?</td>
</tr>
<tr>
<td>Are patients sent reminders to schedule or keep key appointments?</td>
<td>In the exam room, does the physician counsel the patient about noncompliance?</td>
</tr>
<tr>
<td>When patients see a physician, are they properly medicated?</td>
<td>Are lifestyle issues addressed regularly?</td>
</tr>
<tr>
<td>If patients are properly medicated, are they compliant with their medication?</td>
<td>What is done between appointments to ensure patients are compliant or leading healthy lifestyles? Phone intervention? E-mail?</td>
</tr>
<tr>
<td>If patients are not compliant, do they understand the importance of BP control?</td>
<td>Is there appropriate managerial intervention if the physician does not follow proper clinical guidelines for hypertension?</td>
</tr>
<tr>
<td>If patients are not compliant, have they been offered educational materials to help them understand the importance of BP control?</td>
<td></td>
</tr>
</tbody>
</table>
treatment in the absence of contraindications. Further, only 55 percent of patients had any treatment change if their BP remained uncontrolled after six months.

This type of information should help health plans to focus their interventions. Once the QA Tool becomes available, it can be employed by a health plan (or a large physician group) to complement the HEDIS measure. If the HEDIS measure points to a problem with hypertension control, the QA Tool can help identify specific processes that need to be improved. The QA Tool is not meant to replace physicians’ judgment, nor will it reveal procedural flaws in a small practice. But at the level of the large group practice, the health plan, or the community, its developers hope that it will be able to identify systemic weaknesses in work processes. The QA Tool also can be used to compare the performance of one plan with the performance of another in considerable detail.

Unfortunately, the QA Tool is not yet routinely available. Until it — or a similar system — has been validated, health plans will need to use other tools. Fortunately, by bringing to bear the knowledge, creativity, and data routinely available at most health plans, considerable progress can be made toward understanding what needs to be done. No one should wait for the perfect set of process measures; the time to begin a critical examination of processes is the moment the results of the HEDIS measure are obtained — if not sooner.

The HEDIS hypertension measure: An opportunity to improve

MCOs that introduce the HEDIS hypertension measure are likely to discover that the management of hypertension among their enrollees falls short of ideal. This will challenge their organizations to respond with programs to address the problems we have discussed above. This need to respond has important implications for medical directors, pharmacy directors, and QA directors; these groups of individuals will need to craft and lead those responses, if they are to succeed.

Implications for medical directors

The HEDIS hypertension measure presents medical directors with an opportunity to act as advocates for positive change. In this capacity, they must act both as educators and as motivators. The educational component begins with the message that there is a problem with blood pressure control, and that the problem is serious and widespread. Data — such as the data in this report and the results that come from application of the HEDIS measure — will help to make those points.

Most physicians, faced with such data, will agree that there is a problem. And most physicians will maintain that the problem lies anywhere but in their own practice. The challenge will be to get beyond such defensiveness, which is human nature. Efforts should be directed at establishing that there is a problem — and that solving the problem will require both the participation of, and collaboration between, practicing physicians and the health plan and other members of the health care team.

That almost certainly will require the participation of thought leaders in the physician community, as well as other health care providers. Although grounding the message in data and focusing the message on improvements in patient care are essential, delivering the message through peers who are respected in the practice community is essential as well. Respected experts who can speak to the complexity of the problem will help physicians come to terms with the uncomfortable proposition that they may be part of the problem, and that they must be part of the solution.

It may be appropriate for the medical director to spearhead a health plan’s efforts to provide continuing education programs (perhaps in conjunction with local medical societies or other health plans) for practicing physicians. It may be especially important to involve physicians who account for a relatively large volume of patients with hypertension; the likelihood of their participation may be
enhanced through meaningful incentives for attendance. In addition, focus groups and advisory boards involving physicians within a health plan’s network may be useful to focus physicians’ attention on management of hypertension — and to solicit feedback from the front lines about impediments to care and suggestions for improving work processes.

The educational message should reinforce the systemic nature of the problem of hypertension control. The message should be developed with some understanding of what problems are especially prevalent in a particular area. For example, a program that focuses on educating physicians about the criteria for diagnosis and management of hypertension may be ineffective (and fractious) if the problem is that patients are not taking their medication as instructed. In this case, education should focus on strategies for improving patient compliance: how physicians can educate patients about the need for compliance, how they can choose an agent that has the most attractive side effect profile for different types of patients, and how they can elicit from a patient an honest answer about compliance and what may be limiting it.

A recent study suggests that the problem of management of adverse reactions to drugs may be particularly important: In a study of more than 2,000 patients from 11 general internal medicine practices in Boston, 18 percent of patients said they experienced an adverse event associated with a drug that was prescribed for them — but only 3 percent of their medical records reflected any such adverse events (Gandhi, 2000). This discrepancy could reflect a record-keeping problem, or it could reflect a problem with elicitation of important information. If it is the latter, though, the solution to the problem is not educating physicians about JNC VI guidelines; it is helping them understand that they must — and telling them how they can — elicit information from the patient about adverse events, during the course of a visit for hypertension control.

There are clear opportunities for medical directors to direct the feedback of information to practicing physicians. Their ability to do so may be limited by the cost of acquiring data on blood pressure control at the level of the individual physician, and by concerns about the lack of statistical power in measurements based on the small number of patients in a given physician panel. On the other hand, feedback is a powerful motivator for change. The challenge to the medical director is to provide that feedback in a manner that appears valid and nonthreatening.

That, of course, is far more easily said than done. But there are strategies that others have found useful. Collaboration with other health plans has the potential to increase the statistical power of the data that are fed back and to permit messages from others to be reinforced; collaboration with the local medical society or other community-based organizations that are responsible for improving community health (coalitions and health departments, for instance) can help to establish that feedback is intended to improve the care of patients with hypertension (and not to establish the source for blame).

Often, feedback can be absolutely anonymous; the fact of measurement (and not the public reporting of individual results) appears to motivate physician behavior change in some instances. For example, in a study of interventions to improve physician performance in colorectal cancer screening, providing individuals with their monthly performance ranked along with that of their peers, was found to produce positive changes in behavior that persisted for months after the intervention ceased (Winickoff, 1984). By contrast, in this study, conducting educational meetings and providing retrospective feedback of group compliance rates alone were not effective.

Similar results were obtained in a study of strategies for improving influenza immunization rates in an HMO (Barton, 1990). No significant increase in vaccination rates was observed until each physician was provided with retrospective feedback comparing the individual’s performance to the group’s performance.
Sending postcard reminders to high-risk patients, providing physicians with computer-generated reminders at the time of a visit by a high-risk patient, and providing the chiefs of service with performance feedback all failed to accomplish the positive change effected by the peer-comparison feedback.

However, this peer-comparison approach does not always succeed. In an attempt to control antibiotic expenditures in a hospital, each month attending physicians who were above the median for expenditures were notified of their status relative to their peers. After a year of such feedback, no significant reduction in expenditure was noted — but a pattern was revealed: Thirty percent of the attending physicians accounted for 80 percent of all antibiotic costs, suggesting that, in this hospital, most of the efforts should be concentrated on the relatively small group of physicians responsible for the bulk of antibiotics expenditures (Parrino, 1989).

Taken together, these studies suggest that providing physicians with peer comparison feedback may be an effective method to influence their behavior. If this approach fails, it may point to the need for a more rigorous analysis aimed at identifying pockets of entrenched patterns of behavior that impede overall improvement by the organization.

Finally, medical directors may be able to command the attention of physicians indirectly — but forcefully — by taking the message about the importance of hypertension control directly to patients (through, for example, public service messages and direct-to-consumer advertising). Pharmaceutical companies may be potential allies in these efforts. Collaboration with the pharmaceutical industry may in fact make sense — particularly when communications serve a generic public service objective rather than a specific brand-marketing one.

**Implications for pharmacy directors**

Hypertension control absolutely will have to involve pharmacy. As a result, pharmacy directors should be prepared to be part of any task force or leadership team developed to address improvements in the management of care for a hypertensive population. Pharmacists may already have experience with the HEDIS data-collection process, and their expertise in analyzing claims data and drug costs, developing guidelines, and helping with benefit design can be invaluable to the team dealing with the new hypertension measure.

Ideally, data about patients’ acquisition of prescription drugs, whether for hypertension or any other condition, should flow through pharmacy systems. Pharmacists can help to facilitate the movement of that data to others, who can build the information tools needed to support improvements in care. These data can be used to track missed refills and to help physicians to monitor for specific side effects. The data also can be used to identify patients on combinations of agents that might be simplified and to target patients who may require assistance with their medication management.

To leverage their expertise toward improvements in care, pharmacy directors will have the opportunity to establish relationships with community pharmacists. Community pharmacists can counsel patients effectively at the point of medication dispensing, and can help to communicate the importance of compliance and side-effects reporting. Some health plans have developed mechanisms to reimburse community pharmacists for these services. Typically, such programs require verification with a checkoff sheet that is completed by the pharmacist and signed by the patient.

**Community pharmacists can counsel patients effectively at the point of medication dispensing, and can help to communicate the importance of reporting compliance and side effects.**
Challenges for pharmacists

- Adding HEDIS hypertension measurement projects on top of full schedules and limited staff levels
- Identifying hypertensive patients at the time of refill without diagnosis data
- Lack of access to member and utilization data
- No efficient means to get refill or compliance information back to physicians and MCOs
- Little technology integration; information “silos” keep pharmacy, physician, and plan data separate

measure may present some unique problems: gaining access to medical records, training abstractors, and assuring that the data are accurate. These problems may be even more challenging in an open-access plan, in which several providers (including a specialist) may be involved in a patient’s care; therefore, there will be uncertainty as to what chart to review.

Once the proper records have been located, trained abstractors must be available to abstract the relevant data. The QA director may want to develop checklists, “cheat sheets,” and spreadsheets to increase the efficiency and consistency of the abstracting process. It may be more efficient to obtain trained and certified medical record abstractors from an outside source. If so, however, contracts must assure the confidentiality of patient data. The QA director may use this as an opportunity to educate physicians and their staffs about the importance of the data collection process. Concerned physicians and office personnel should be advised that the data collected for the HEDIS hypertension measure may not and will not be used for any purpose other than to allow the health plan to assess the extent to which hypertension is controlled across the entire health plan, and to inform its efforts to intervene to improve care on behalf of hypertensive patients.

The QA director should strive to communicate the message that the data-collection effort is collaborative and forward-looking (that is, directed toward improving future care), and in no way punitive and backward-looking (that is, directed toward assigning blame for past care). Successful communication of this message — reinforced by health plan actions that clearly “walk the walk” — will help not only to enable implementation of the HEDIS hypertension measure, but also to implement other health plan initiatives that require timely and efficient data collection.

Summary

There is a problem with blood pressure control in the United States — a problem with significant implications for the health and welfare of the populace. This problem is bigger than managed care, but managed care organizations have both unique opportunities and unique obligations to address it.

NCQA has responded to this problem, and to the opportunity for better care implicit in it, by introducing into HEDIS a measure that focuses on hypertension control. This measure will add pressure to health plans to address the problem of hypertension control, but it also will create the opportunity for positive recognition for those plans that succeed.

The HEDIS hypertension measure is well grounded in both the science of medicine and the science of measurement. But HEDIS measurement alone will not create change. To effect change will require analysis of the problems that limit the delivery of effective care to patients with hypertension. It will require measurement of the success of the key processes of care upon which effective care depends. And it will require response — rational, focused, and operationally effective.

These, in turn, will challenge key managers in health plans. Medical directors will have to influence provider behavior. Pharmacy directors will have to leverage pharmacy resources to support efforts to change provider and enrollee behaviors. And QA directors will have to manage a challenging set of measurement activities, from which plans’ efforts to improve will be launched.
The next few years will not be easy — demands for improvement increase annually, and resources are every year more scarce. Yet the goal is worth the struggle — to transform an industry that the public perceives to be interested in limiting care into one that the public turns to for assurance that care represents high value. Responding effectively to the HEDIS hypertension measure creates a unique opportunity for managed care — to demonstrate to the public that managed care is leading national efforts to improve quality for 50 million Americans needlessly at risk for heart disease and stroke, and in doing so, to demonstrate its commitment to health maintenance — the very foundation of managed care.

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Kannel WB. Cardiovascular and antihypertensive therapy: the key importance of addressing the associated coronary risk factors (the Framingham experience). *Am J Cardiol* 1996;77(6):6B–11B.


NCQA. *State of Managed Care Quality 1999*. Available at «www.ncqa.org/pages/Main/toc.htm».


Ogden LG, He J, Lydick E, Whelton PK. Long-term absolute benefit of lowering blood pressure in hypertensive patients according to the JNC VI risk stratification. *Hypertension* 2000;35:539–43.


1. The HEDIS hypertension measure applies to members of a health plan who are:
   a. Over 18 years old
   b. Over 45 years old
   c. Between 45 and 84
   d. Between 18 and 65

2. For the purposes of the HEDIS measure, hypertension is considered to be controlled if:
   a. Systolic BP is <140 mm Hg or diastolic BP is <90 mm Hg
   b. Systolic BP is <140 mm Hg and diastolic BP is <90 mm Hg
   c. Systolic BP is <160 mm Hg or diastolic BP is <90 mm Hg
   d. Systolic BP is <160 mm Hg and diastolic BP is <90 mm Hg

3. To be counted in the HEDIS measure, plan members with hypertension must have been:
   a. Continuously enrolled for 12 months
   b. Continuously enrolled for 12 weeks
   c. Continuously enrolled for 6 months
   d. Newly diagnosed with hypertension

4. The HEDIS hypertension measure is calculated by:
   a. Dividing the number of members whose hypertension is not controlled by the number of members with diagnosed hypertension
   b. Dividing the number of members whose hypertension is controlled by the number of members with diagnosed hypertension
   c. Dividing the number of members with diagnosed hypertension by the number of members whose hypertension is controlled
   d. Dividing the number of members with diagnosed hypertension by the number of members whose hypertension is not controlled

5. The first BP measurement that should be reported for the HEDIS measure is a patient’s:
   a. Supine BP
   b. Standing BP
   c. Seated BP
   d. Any of the above

6. In general, the acquisition cost of an antihypertensive agent is:
   a. A poor predictor of overall costs
   b. A good predictor of overall costs
   c. The best way to select a drug for a patient
   d. The best way to select a drug for a formulary

7. Hypertension is a risk factor for:
   a. Ischemic stroke
   b. Congestive heart failure
   c. Myocardial infarction
   d. All of the above

8. According to NHANES data, the percentage of hypertensive adults whose hypertension is controlled is roughly:
   a. 30
   b. 50
   c. 70
   d. 90

9. The number of adult Americans with hypertension is about:
   a. 100 million
   b. 75 million
   c. 50 million
   d. 25 million

10. Which of the following is not a reason hypertension is poorly controlled among many patients receiving pharmaceutical treatment for it?
    a. Patients fail to take their medication as instructed
    b. Physicians fail to increase doses
    c. Few effective antihypertensive agents are available
    d. Access to some therapies is restricted by MCOs’ cost-containment policies

11. Which of the following may be an effective strategy for improving physicians’ performance?
    a. Providing physicians with retrospective feedback of their compliance rates as a group
    b. Providing physicians with retrospective feedback of their individual compliance rates in comparison with their peers
    c. Providing chiefs of service with retrospective feedback about group compliance rates
    d. All of the above

Questions continue on Page 21
Implementing the New HEDIS Hypertension Performance Measure

Pharmacy  ACPE ID #316-999-00-015-HO4

IMPORTANT: Please print all information clearly. To receive a certificate of completion, provide the information requested below, as this will assure prompt and accurate issuance of your continuing education certificate. Fold the answer sheet and evaluation form and return them to: Program Management Services Inc., P.O. Box 490, East Islip, NY 11730. Alternately, you may complete your exam by using our toll-free telephone grading service. To use this service, call (800) 232-4422 between 10 a.m. and 5 p.m. Eastern Time, Monday through Friday. There is a $6.50 charge for this service; when calling, please have your Social Security number, completed answer sheet, and credit card ready.

Date: _______________________________________  Social Security number: _________________________
Name: _____________________________________________________________________________________
Home address: ______________________________________________________________________________
___________________________________________________________________________________________
Home phone: (_____ ) ___________________________ Business phone: (_____ ) ________________________
E-mail address: ______________________________[288x459] Please check this box if you would like to receive CPE monographs via E-mail
States licensed in: ____________________________ License(s) # ___________________________________
Area of practice (check all applicable):
□ Independent retail  □ Chain retail
□ Academia  □ Hospital
□ Managed care  □ Long-term care
□ Industry  □ Clinical pharmacy
□ Other ___________________________________

You may fax your completed answer sheet to (631) 563-1907, 24 hours a day, and receive same-day service. This service is available for $6.50 per program, and can be charged to Visa, MasterCard, or American Express.

Credit card name:  □ Visa  □ MasterCard  □ American Express
Credit card number: ____________________________  Expiration date: _______________________________
Your signature: ________________________________  Your fax number: ______________________________

If your fax is received before 2 p.m. E.T., your certificate is dated the same business day.

EXAMINATION: Place an X through the box of the letter that represents the best answer to the question. There is only ONE answer per question. Place all answers on the answer form provided below:

1. □ a  □ b  □ c  □ d
2. □ a  □ b  □ c  □ d
3. □ a  □ b  □ c  □ d
4. □ a  □ b  □ c  □ d
5. □ a  □ b  □ c  □ d
6. □ a  □ b  □ c  □ d
7. □ a  □ b  □ c  □ d
8. □ a  □ b  □ c  □ d
9. □ a  □ b  □ c  □ d
10. □ a  □ b  □ c  □ d
11. □ a  □ b  □ c  □ d
12. □ a  □ b  □ c  □ d
13. □ a  □ b  □ c  □ d
14. □ a  □ b  □ c  □ d
15. □ a  □ b  □ c  □ d
16. □ a  □ b  □ c  □ d
17. □ a  □ b  □ c  □ d
18. □ a  □ b  □ c  □ d
19. □ a  □ b  □ c  □ d
20. □ a  □ b  □ c  □ d
Evaluation Form

Implementing the New HEDIS Hypertension Performance Measure

ACPE ID #316-999-00-015-H04

To receive pharmacy credit, please answer ALL information requested below. This will assure prompt and accurate issuance of your continuing education certificate.

PLEASE PRINT CLEARLY

For question #1, please rank your answers using this table.

<table>
<thead>
<tr>
<th>Excellent</th>
<th>Very good</th>
<th>Good</th>
<th>Satisfactory</th>
<th>Fair</th>
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<tbody>
<tr>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
</tbody>
</table>

1. Extent to which this program met the learning objectives:
   ____ Explain the prevalence of uncontrolled hypertension in the United States.
   ____ List reasons for the high rate of uncontrolled hypertension.
   ____ Discuss the rationale for the selection of hypertension as a new HEDIS 2000 measurement.
   ____ List the criteria for selecting medical records for the HEDIS hypertension measure.
   ____ Provide suggestions for improving the management of hypertensive patients in your health plan practice.

2. Compared with other pharmaceutical education programs, this offering was:

<table>
<thead>
<tr>
<th>Excellent</th>
<th>Very good</th>
<th>Good</th>
<th>Satisfactory</th>
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<td>□</td>
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<td>□</td>
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</table>

3. Relative to other pharmaceutical companies, how would you rate Bristol-Myers Squibb in meeting the needs of pharmacists like you?

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<tr>
<th>Excellent</th>
<th>Very good</th>
<th>Good</th>
<th>Satisfactory</th>
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4. As a result of this offering, what changes, if any, will you make in practice?

   ______________________________________________________
   ______________________________________________________
   ______________________________________________________
   ______________________________________________________
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5. What topic(s) do you feel would be of interest for future CPE offerings?
   ____ Cardiovascular (HTN, MI, CHF, CAD)
   ____ Diabetes
   ____ Asthma/COPD
   ____ Women’s health
   ____ Dermatology
   ____ Infectious disease (HIV/AIDS)
   ____ Neuroscience
   ____ Law
   ____ Geriatrics
   ____ Nutrition
   ____ Herbals
   ____ Drug interactions
   ____ Lipid disorders
   ____ Oncology
   ____ Professional development (stress, management skills, etc.)
   ____ Other (specifics regarding the areas you checked above)

   ______________________________________________________
   ______________________________________________________
   ______________________________________________________
   ______________________________________________________

6. Please list any other specific CPE offerings that would be of interest to you?

   ______________________________________________________
   ______________________________________________________
   ______________________________________________________
   ______________________________________________________

7. Which vehicle is most useful to you to obtain CPE? Please prioritize from most useful (1) to least useful (6).

<table>
<thead>
<tr>
<th>Most Useful</th>
<th>Least Useful</th>
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</thead>
<tbody>
<tr>
<td>Monograph</td>
<td>1 2 3 4 5 6</td>
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<tr>
<td>Live program</td>
<td>1 2 3 4 5 6</td>
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<tr>
<td>CD-ROM</td>
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<td>Video</td>
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</tr>
<tr>
<td>Internet</td>
<td>1 2 3 4 5 6</td>
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<tr>
<td>Audio tape</td>
<td>1 2 3 4 5 6</td>
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8. Did you feel this offering was free from commercial bias?  Yes _____  No _____

9. Other comments:

   ______________________________________________________
   ______________________________________________________
   ______________________________________________________
   ______________________________________________________
   ______________________________________________________
12. Which of the following statements is true?
   a. The prevalence of hypertension increases with age as a natural consequence of aging
   b. Elevated systolic BP is a stronger predictor of cardiovascular disease than elevated diastolic BP
   c. Hypertension is an important risk factor for hemorrhagic stroke
   d. All of the above

13. The HEDIS hypertension measure is best described as:
   a. A bold prescription for action to address inadequate control of patients with hypertension
   b. A means of identifying individual physicians whose patients with hypertension are inadequately controlled
   c. A means of identifying individual patients whose hypertension is inadequately controlled
   d. A quantitative description of the extent to which hypertension is controlled within a managed care population

14. Conducting the HEDIS hypertension measure requires an MCO to:
   a. Examine the medical records of every member
   b. Examine the medical records of every member with hypertension
   c. Examine the medical records of a random sample of members with hypertension
   d. Examine the medical records of a random sample of all members

15. The National Committee for Quality Assurance (NCQA) is:
   a. Part of the National Institutes of Health (NIH)
   b. A not-for-profit organization that rates health plans
   c. A for-profit organization that rates health plans
   d. A lobbying group for the managed care industry

16. The measurement used to determine whether a member’s BP was controlled should be the:
   a. Most recent BP taken at a nonprocedural office visit during the measurement year
   b. Most recent BP taken in conjunction with an inpatient or an outpatient procedure during the measurement year
   c. Average of the three most recent BPs obtained in any setting
   d. Average of the four most recent BPs obtained in any setting

17. Which of the following BP measurements may not be used to calculate the HEDIS hypertension measure?
   a. BP reported by the patient
   b. BP obtained through home BP monitoring
   c. BP taken on the same day as a major diagnosis or procedure
   d. All of the above

18. In general, once a patient’s BP has been reduced to <140/90 mm Hg:
   a. No further attempts to lower the patient’s BP should be made because of the risk of orthostatic hypotension
   b. It may be beneficial to strive for further BP reductions only if the patient has diabetes or kidney disease
   c. It may be beneficial to strive for further reductions even if the patient has no other conditions because optimal BP is considerably less than 140/90 mm Hg
   d. No further attempts to lower the patient’s BP should be made because of the cost of antihypertensive medications

19. For the purpose of determining whether a patient’s BP was controlled, if multiple BPs are available from a single office visit, the BP that should be used is the:
   a. Lowest
   b. Highest
   c. Mean
   d. Median

20. Which of the following is not a class of antihypertensive agents?
   a. Angiotensin II receptor blockers (ARBs — the “sartans”)
   b. Angiotensin-converting enzyme (ACE) inhibitors
   c. Calcium-channel blockers (CCBs)
   d. Diuretics
   e. HMG-CoA reductase inhibitors (statins)