

ACC HEALTH POLICY STATEMENT

American College of Cardiology 2006 Principles to Guide Physician Pay-for-Performance Programs

A Report of the American College of Cardiology Work Group on Pay for Performance (A Joint Working Group of the ACC Quality Strategic Direction Committee and the ACC Advocacy Committee)

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STATEMENT OF PURPOSE

This document represents the first official American College of Cardiology (ACC) Health Policy Statement developed under ACC's revised Document Development Policy, which was approved by the ACC Board of Trustees in September 2006. This category of documents is intended to promote or advocate a position or is informational in nature and may offer guidance to the stakeholder community regarding the ACC's approach to health care policies and programs. Health Policy Statements are not intended to offer clinical guidance and do not contradict existing ACC clinical policy.

These documents fall under the purview of the ACC Quality Strategic Directions Committee (QSDC). The QSDC is responsible for developing and implementing all policies and procedures related to topic selection, commissioning writing committees, and defining document methodologies.

The ACC QSDC and the ACC Advocacy Committee initiated a joint Work Group on Pay for Performance (P4P). The Work Group developed this health policy statement as the official position of the ACC regarding P4P programs and to offer guidance to the stakeholder community in developing P4P programs. The guidance in this document was intended to contribute to the design of future P4P programs.

The ACC Work Group on Pay for Performance made every effort to avoid any actual, potential, or perceived conflict of interest that might arise as a result of an industry relationship or personal interest. Specifically, all members of the Work Group were asked to provide disclosure statements of all such relationships. Please see the Appendix for a listing of author relationships with industry.

This document was approved by the Quality Strategic Directions Committee and the Advocacy Committee of the American College of Cardiology in July 2006 and the American College of Cardiology Board of Trustees in September 2006.

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The quality of medical care is strongly influenced by the context and systems in which physicians practice (1). The traditional approaches to address persistent gaps in quality of care, including education and certification, have failed in accomplishing the desired improvements in part because these efforts commonly do not address problems embedded in complex and fragmented systems of care. Importantly, there are few incentives to modify the status quo and reward high performance.

The need to improve the quality of care through systems improvements comes at a time of spiraling national health care costs. Currently, medical care consumes 16% of the gross domestic product, and experts project that medical spending will increase to 20% of the gross domestic product

by 2015 (2). Undoubtedly, the economic burden of cardiac care will continue to rise because of the rising costs of cardiac technological advances (3) and the increasing prevalence of cardiac disease (4). Therefore, we can expect that public and private payers will increase their focus on both improving the quality and efficiency of cardiac care.

Current payment models do little to create a business case for investing in the systems that will provide reliable, high-quality care. Payment is not currently predicated on performance except in emerging demonstration projects. Rising overhead costs and declining revenues leave smaller margins and little incentive to invest in long-term system improvements. Traditional models of payment, such as fee-for-service, may tend to encourage overuse, and managed care arrangements may reward underuse. Payers have raised questions about the economic motivations of some practitioners, while many practitioners note that high-quality care does not always pay and sometimes can lead to less pay. Both payers and providers can agree that a medical payment system that consistently encourages and rewards appropriate, high-quality care has yet to emerge.

In this setting, many organizations have developed P4P pilot programs. These programs exist in different economic markets throughout the country, and full descriptions of these programs are not typically reported in the traditional medical literature (5-7). Med-Vantage, a health care consulting company with expertise in P4P, lists 115 P4P programs on its Web site (8), and Leapfrog, a consortium of large businesses, has a compendium of 91 plans of varying types and sizes (9).

This rapid movement toward P4P is occurring despite little experimental or empirical evidence that P4P achieves its intended effect in the short or long term (10). There are essentially no randomized controlled trials demonstrating the effectiveness of P4P programs and very few reports in the literature that analyze the existing programs (5,11-14). Because of the lack of health services research and solid supporting evidence regarding P4P programs, the ACC and other organizations (15-18) have developed principles to guide their members and payers through the transition to novel payment mechanisms.

The P4P programs are unlikely to improve patient care without a foundation in valid performance measures. Professional organizations are a trusted source of scientifically valid performance measures, and the ACC, along with the American Heart Association (AHA), is a leader in setting professional standards for cardiovascular care. The ACC, with other organizations, has worked for more than 20 years to define quality through clinical practice guidelines, performance measures, appropriateness criteria, and data standards (19-25). The ACC developed the National Cardiovascular Data Registry to help hospitals track and compare performance to external benchmarks (26). It sponsored the Guidelines Applied in Practice (GAP) initiatives to demonstrate how guideline recommendations can be more reliably implemented (27-30). The ACC has worked with

the AHA, the Agency for Healthcare Research and Quality, the Joint Commission on Accreditation of Healthcare Organizations, and the Centers for Medicare and Medicaid Services to create common national performance measures for cardiovascular disease, which are critical for the widespread implementation of P4P programs (31). Thus, the ACC is well positioned to provide the professional leadership and guiding principles necessary to design scientifically valid P4P programs.

The ACC recognizes that P4P programs should inspire greater focus on improving health care delivery systems. The ACC believes that P4P programs should support and facilitate the quality improvement process and strengthen the patient-physician relationship. The P4P programs that stimulate the use of continuous quality improvement methods can serve to unify multiple participants in the health care system to improve patient care and realize the full potential of the American health care system. The P4P programs that solely report performance and outcomes using outmoded quality assurance methods can be divisive and impede a coordinated effort to improve care.

The ACC supports the concept of P4P programs and has developed the following principles to guide the development of such programs. Physician P4P programs should (be):

1. **Built on established evidence-based performance measures.** The P4P programs should be anchored in valid and reliable measures of performance. The ACC is a member of the National Quality Forum and supports the efforts of this and other organizations to establish valid, reliable, and uniform measures of performance. Measures to be used in the P4P programs should have the following characteristics:
 - **Valid.** Performance measures used in the P4P programs should be consistent with those developed by professional organizations using rigorous methods, as outlined in "American College of Cardiology and American Heart Association Methodology for the Selection and Creation of Performance Measures for Quantifying the Quality of Cardiovascular Care" (21). Thus, performance measures should be valid, evidence-based, interpretable, actionable, reliable, and feasible.
 - **Current.** Performance process measures used in the P4P programs should be based on current clinical practice guidelines and should be rapidly responsive to changes in guidelines and performance measures developed by professional organizations. Real-time performance measures will ensure that payment policies reflect current science and do not reward outmoded patterns of care.
 - **Comparable.** Performance measures used in the P4P programs should provide reliable comparisons among providers. Performance measures should also provide reliable longitudinal comparisons for individual providers, recognizing that the need for

consistency should be balanced with the need for performance measures to remain current with advances in science. In addition, the measures should be resistant to gaming.

- **Risk-Adjusted.** Performance measures that assess outcomes (e.g., mortality) should make necessary adjustments for patient-level factors such as severity of illness and comorbidities. The risk-adjustment methods should be valid and transparent and should conform to the standards described in the AHA Scientific Statement on Standards for Statistical Models Used for Reporting of Public Outcomes (32). To provide the best assessment of inter-provider variability in outcomes, the P4P programs may require the use of specialized analytical approaches such as hierarchical modeling that account for clustering and multilevel organization of data.
- **Use Standard Data Definitions.** Performance should be measured using available standard data definitions. Using recognized data standards ensures that the P4P programs are consistent with other data collection efforts such as clinical trials and disease registries. This effort for consistency will enable comparisons among data sources and reduce the cost of data collection in institutions that are collecting data for multiple purposes. Where applicable, ACC/AHA Clinical Data Standards should be used (24,25).

2. **Create a business case for investing in structure, best practices, and tools that can lead to improvement and high-quality care.**

The P4P programs must seek to create a sustainable business case for quality by recognizing the true resource costs associated with achieving and maintaining high-quality care. Information technology systems must be in place in order to capture and report performance; therefore, the P4P programs should provide adequate margins over cost to create incentives for practitioners to invest in infrastructure and overcome overhead expenses, such as staff time, training, process change and technology hardware, software, and licensing fees. Inadequately accounting for the overhead costs will result in inadequate profit margins, insufficient incentives, and unsustainable programs.

- **Structure.** Implementing quality improvement systems requires substantial initial capital investments. The P4P programs should yield an adequate direct return on investment over a reasonable timeframe.
Data Collection. Collecting the data to drive a P4P program is costly. Generating data through participation in registries, maintenance of electronic health records, performing chart reviews, or from other sources requires equipment and staffing and generates ongoing expenses.

Organizational Structure. Whether hospital- or practice-based, the P4P program participants will need to convene groups of committed individuals to internally analyze performance data and to monitor continuous quality improvement efforts. In hospitals, this effort extends beyond routine medical staff responsibilities and should be rewarded through direct or indirect financial incentives. Such incentives should encourage physicians to participate in committees, monitor data collection, actively participate in data analysis, and work with hospital administration to create action plans that will result in continuous quality improvement. Shared accountability for quality should be matched with shared rewards.

- **Best Practices.** Ideal P4P programs should promote regional collaboration. Payers, in collaboration with physician organizations, should encourage and support the exchange of best practices, giving all participants maximum opportunity to improve. Programs should consider providing additional incentives to physicians who champion regional quality improvement programs.

Benchmarking. Benchmarking is an essential feature of data analysis and improvement. It is important for practices and institutions to have reliable and objective benchmarking against which to compare their performance. The ACC National Cardiovascular Data Registry provides a mechanism to benchmark performance of cardiac procedures. This registry and other databases are important resources for hospitals seeking to compare their performance to external benchmarks for the purpose of gauging performance and improvement. The P4P programs should encourage participation in national disease registries that allow for external benchmarking.

Tools. The ACC's GAP initiative, the AHA's Get With The Guidelines initiative, and others have developed tools and strategies for quality improvement. Standing orders, discharge instructions, and care management plans are examples of tools that can support improvement. The P4P programs should encourage participation in these types of programs, and should encourage the uptake of tools and strategies that facilitate improvement.

3. **Reward process, outcome, improvement and sustained high performance.**

- **Process.** Measuring processes of care (e.g., provision of evidence-based medications to eligible patients) offers the best opportunity to improve the quality of care and focus attention on improvement. The P4P programs that focus on process may be particularly important in the ambulatory care setting, where outcomes that result from those processes may not

be realized until many years later, and may be difficult to attribute to a specific provider.

- **Outcome.** Ultimately, patients care most about the results of their care and outcomes measurement can complement the more narrowly focused process measurement. Physicians can improve patient outcomes through interventions and medical management, but outcome measures are also influenced by patient factors such as disease severity, comorbidities, and patient adherence. Therefore, outcome measures are not completely under the physician's control, and use of outcome measures requires proper risk-adjustment. Also, the P4P programs that use outcome measures may need to use advanced methodological strategies such as hierarchical modeling for proper analysis of performance data. In addition, because outcome measures are also dependent on patient compliance, the P4P programs should consider the concomitant use of patient incentives to encourage patient participation and compliance.
 - **Improvement and Sustained High Performance.** The P4P programs should seek to reward programs and practitioners who show substantial improvement as well as those who are able to achieve and sustain high levels of performance. Limiting rewards to improvement alone creates a ceiling effect for providers who start at or achieve high levels of performance. On the other hand, limiting rewards to threshold levels of achievement would discourage providers who start at low levels from attempting to participate, perhaps exacerbating current disparities in care. Ideal P4P programs will reward participants who show substantial improvement, as well as participants who sustain high levels of performance.
4. **Assign attribution of credit for performance to physicians in ways that are credible and encourage collaboration.** It is often difficult to attribute a specific outcome measure to a specific physician or physician-group and these issues must also be addressed in any program. In general, the P4P programs should be based on aggregate performance data (e.g., by practice group or hospital affiliation) rather than individual physician-level measurement to avoid statistical limitations related to small populations, to engender cooperative team approaches, and to create shared accountability. Incentives should be structured to encourage collaboration between physician-groups, especially between specialty and primary care groups. It may be possible to use process measures to evaluate individual providers, but using outcomes measures may create difficulties in attributing accountability. Programs should attempt to overcome difficulties in assigning attribution through designs that create
- shared accountability and reward based on aggregate performance.
5. **Favor the use of clinical data over administrative claims data.** In general, administrative claims data sources will always raise questions and concerns regarding validity and reliability, although there may be some exceptions, such as pharmacy claims data or laboratory data. Administrative data sources usually do not supply adequate information about patient attributes or the care setting to properly adjust for risk or to adequately exclude inappropriate patients from the data set.
- **Physician Review and Correction.** The P4P programs should include a mechanism to allow for physician review and correction of data, particularly administrative data, before the data are used to determine performance levels and levels of reward. Physicians should be allowed to supplement or correct data deficiencies without the need for onerous appeals processes.
 - **Validation.** If administrative data sets are used for the P4P programs, they should be validated against a reliable source of clinical data. This validation can occur at the level of the data element or at the level of the result such that the inference from the administrative data source is shown to be similar to that from a clinical data source. Only data sources with a low misclassification rate should be used for the P4P programs.
6. **Set targets for performance through a national consensus process.** The P4P programs will require not only valid performance measures, but also will require reasonable and achievable targets or thresholds of performance to determine rewards. The P4P programs should set achievable targets through a realistic evaluation of current performance using benchmarks obtained from national databases. Furthermore, target levels should not create a disadvantage for participants that are starting from low starting points because they serve disadvantaged socioeconomic populations or because of baseline resource constraints.
7. **Address appropriateness.** The P4P programs should address not only what should be done and rewarded, but what should not be done and not rewarded; that is, there should be explicit consideration of what behaviors are to be discouraged as well as what behaviors are to be encouraged. These decisions should be based on solid clinical evidence and consensus statements such as the appropriateness criteria recently developed by the ACC and the American Society of Nuclear Cardiology (22,23). Where there is not sufficient evidence to determine appropriateness, clinical studies should be encouraged to determine the appropriate standard of care.

8. **Positive, not punitive.** The P4P programs should emphasize success and reward achievement. The P4P rewards should be funded through the cost savings that health plans may realize from the P4P programs, and not by shifting revenue from low performing providers. Taking funds from one group of providers to pay another group could have the unintended consequence of creating further resource restraints on providers who most need the resources to improve.
 - **Patterns of Care.** The P4P participants should be rewarded on the basis of patterns of care, not case-by-case specific care. The P4P programs should be based on a quality improvement model—looking at patterns of care across populations—as compared with a quality assurance model, which looks at care on a case-by-case basis. Improving the aggregate quality of care, including efficiency, should be the goal, rather than attempting to eliminate outliers.
 - **Local Resource Constraints.** Certain P4P program participants and some communities may have socioeconomic disadvantages, limited access to technology, and other local resource constraints. The P4P programs should attempt to avoid the unintended consequences of penalizing disadvantaged participants and should recognize that providing incentives for such participants may provide the best opportunity to improve overall quality of care.
 - **Efficient Targeting of Resources.** Efforts should be made to reward efficiency in improving care for populations of patients. Consideration should be given toward preferentially rewarding care teams, disease management programs, and programs that target populations most in need and who have the highest chance for marginal improvement.
 9. **Audit performance measure data.** The data used for the P4P-based programs should be submitted to an objective third party for periodic auditing. Mechanisms should be established to allow the P4P participants themselves to audit the performance data. The P4P programs should consider using the model of some disease registries such as ACC's National Cardiovascular Data Registry, which includes an auditing component and standardized quarterly reports for feedback to providers.
 10. **Establish transparent provider rating methods.** The provider rating method, including detailed measurement specifications and algorithms used to combine scores from individual measures and/or group providers into performance tiers, should be publicly disclosed. Such disclosures recognize that there may be variations in the methods by which entities transform results from provider performance measurement into provider ratings based on differences in populations, care interventions by third parties (e.g., disease management organizations), performance incentives, negotiated rates, and other considerations. Measurement program rules should be clearly delineated and disseminated prior to implementation. Furthermore, prior to implementation, plans should seek the participation of physician groups to ensure “buy-in,” participation, and successful implementation of these programs. If data are to be reported publicly, reporting entities should adhere to principles such as those outlined in the AHA Scientific Statement on Standards for Statistical Models Used for Reporting of Public Outcomes (32).
 11. **Not create perverse incentives.** The P4P programs have the potential to create perverse incentives such as adverse selection, gaming, and treating the metric, rather than treating the patient. The P4P programs should recognize the potential for perverse incentives and should be vigilant and ready to correct any design flaws that have unintended consequences.
 12. **Invest in outcomes and health services research.** The ACC recognizes that there are areas in which the evidence base is inadequate or for which accurate performance measurement is not feasible. These areas may be unsuitable for quality-based reimbursement at this time. The ACC encourages investment and participation in data collection efforts that enable analysis of the relationship between processes and outcomes and, thus, shed light on how to optimize care in those uncertain areas. In addition, there should be support of implementation research, that is, the study of the P4P itself, including its efficacy and safety.
 - **Evaluation and Assessment.** The P4P programs should undergo periodic assessments to test for intended and unintended impacts on access, costs, quality, health outcomes, and physician and patient satisfaction. Further research should attempt to assess the implications of the P4P and compare P4P programs with other quality improvement approaches.
- The P4P programs will introduce new payment models that have the potential to create better alignment of incentives. Aligned incentives could result in improvement in the quality and efficiency of medical care. The P4P programs that adhere to the principles presented here will have a greater chance of achieving their intended purpose.

REFERENCES

1. Committee on Quality of Health Care in America IOM. Crossing the Quality Chasm: A New Health System for the 21st Century. Washington, DC: National Academy Press, 2001.
2. Borger C, Smith S, Truffer C, et al. Health spending projections through 2015: changes on the horizon. *Health Aff (Millwood)* 2006;25:61-73.
3. Lucas FL, DeLorenzo MA, Siewers AE, Wennberg DE. Temporal trends in the utilization of diagnostic testing and treatments for cardiovascular disease in the United States, 1993-2001. *Circulation* 2006;113:374-9.

4. American Heart Association. Heart Disease and Stroke Statistics—2005 Update. Dallas, TX: American Heart Association, 2005.
5. Rosenthal MB, Frank RG, Li Z, Epstein AM. Early experience with pay-for-performance: from concept to practice. *JAMA* 2005;294:1788-93.
6. Epstein AM, Lee TH, Hamel MB. Paying physicians for high-quality care. *N Engl J Med* 2004;350:406-10.
7. Gosfield AG. P4P: transitional at best. *Manag Care* 2005;14:64-6, 69.
8. Med-Vantage. Pay for Performance. 2006. Available at: <http://www.medvantageinc.com/Content/solutions.p4p.php4>. Accessed November 16, 2006.
9. The Leapfrog Group for Patient Safety. Incentives and Rewards Compendium. 2006. Available at: <http://ir.leapfroggroup.org/compendium>.
10. Dudley RA. Pay-for-performance research: how to learn what clinicians and policy makers need to know. *JAMA* 2005;294:1821-3.
11. Kouides RW, Bennett NM, Lewis B, Cappuccio JD, Barker WH, LaForce FM. Performance-based physician reimbursement and influenza immunization rates in the elderly. *The Primary-Care Physicians of Monroe County. Am J Prev Med* 1998;14:89-95.
12. Fairbrother G, Hanson KL, Friedman S, Butts GC. The impact of physician bonuses, enhanced fees, and feedback on childhood immunization coverage rates. *Am J Public Health* 1999;89:171-5.
13. Amundson G, Solberg LI, Reed M, Martini EM, Carlson R. Paying for quality improvement: compliance with tobacco cessation guidelines. *Jt Comm J Qual Saf* 2003;29:59-65.
14. Roski J, Jeddeloh R, An L, et al. The impact of financial incentives and a patient registry on preventive care quality: increasing provider adherence to evidence-based smoking cessation practice guidelines. *Prev Med* 2003;36:291-9.
15. American Medical Association. Guidelines for Pay-for-Performance Programs. Chicago, IL: American Medical Association, 2005.
16. American College of Physicians. Linking Physician Payments to Quality of Care. Position Paper. Philadelphia, PA: American College of Physicians, 2005.
17. American Academy of Family Physicians. Shaping the future of pay for performance programs. *Ann Fam Med* 2005;3:562-4.
18. Bufalino V, Peterson ED, Burke GL, et al. Payment for quality: guiding principles and recommendations: principles and recommendations from the American Heart Association's Reimbursement, Coverage, and Access Policy Development Workgroup. *Circulation* 2006;113:1151-4.
19. Gibbons RJ, Smith S, Antman E. American College of Cardiology/American Heart Association clinical practice guidelines: Part I: where do they come from? *Circulation* 2003;107:2979-86.
20. Gibbons RJ, Smith SC, Jr., Antman E. American College of Cardiology/American Heart Association clinical practice guidelines: part II: evolutionary changes in a continuous quality improvement project. *Circulation* 2003;107:3101-7.
21. Spertus JA, Eagle KA, Krumholz HM, Mitchell KR, Normand SL. American College of Cardiology and American Heart Association methodology for the selection and creation of performance measures for quantifying the quality of cardiovascular care. *J Am Coll Cardiol* 2005;45:1147-56.
22. Patel MR, Spertus JA, Brindis RG, et al. ACCF proposed method for evaluating the appropriateness of cardiovascular imaging. *J Am Coll Cardiol* 2005;46:1606-13.
23. Brindis RG, Douglas PS, Hendel RC, et al. ACCF/ASNC appropriateness criteria for single-photon emission computed tomography myocardial perfusion imaging (SPECT MPI): a report of the American College of Cardiology Foundation Quality Strategic Directions Committee Appropriateness Criteria Working Group and the American Society of Nuclear Cardiology endorsed by the American Heart Association. *J Am Coll Cardiol* 2005;46:1587-605.
24. Radford MJ, Arnold JM, Bennett SJ, et al. ACC/AHA key data elements and definitions for measuring the clinical management and outcomes of patients with chronic heart failure: a report of the American College of Cardiology/American Heart Association Task Force on Clinical Data Standards (Writing Committee to Develop Heart Failure Clinical Data Standards): developed in collaboration with the American College of Chest Physicians and the International Society for Heart and Lung Transplantation: endorsed by the Heart Failure Society of America. *Circulation* 2005;112:1888-916.
25. Cannon CP, Battler A, Brindis RG, et al. American College of Cardiology key data elements and definitions for measuring the clinical management and outcomes of patients with acute coronary syndromes. A report of the American College of Cardiology Task Force on Clinical Data Standards (Acute Coronary Syndromes Writing Committee). *J Am Coll Cardiol* 2001;38:2114-30.
26. Brindis RG, Fitzgerald S, Anderson HV, Shaw RE, Weintraub WS, Williams JF. The American College of Cardiology-National Cardiovascular Data Registry (ACC-NCDR): building a national clinical data repository. *J Am Coll Cardiol* 2001;37:2240-5.
27. Eagle KA, Gallogly M, Mehta RH, et al. Taking the national guideline for care of acute myocardial infarction to the bedside: developing the Guideline Applied in Practice (GAP) initiative in Southeast Michigan. *Jt Comm J Qual Improv* 2002;28:5-19.
28. Mehta RH, Montoye CK, Gallogly M, et al. Improving quality of care for acute myocardial infarction: the Guidelines Applied in Practice (GAP) initiative. *JAMA* 2002;287:1269-76.
29. Montoye CK, Eagle KA. An organizational framework for the AMI ACC-GAP Project. *J Am Coll Cardiol* 2005;46:1-29.
30. Eagle KA, Montoye CK, Riba AL, et al. Guideline-based standardized care is associated with substantially lower mortality in Medicare patients with acute myocardial infarction: the American College of Cardiology's Guidelines Applied in Practice (GAP) projects in Michigan. *J Am Coll Cardiol* 2005;46:1242-8.
31. Douglas PS, Eckel RH, Gray DT, Loeb JM, Straube BM. Coming together to achieve quality cardiovascular care. *J Am Coll Cardiol* 2006;47:266-7.
32. Krumholz HM, Brindis RG, Brush JE, et al. Standards for statistical models used for public reporting of health outcomes: an American Heart Association Scientific Statement from the Quality of Care and Outcomes Research Interdisciplinary Writing Group: cosponsored by the Council on Epidemiology and Prevention and the Stroke Council. Endorsed by the American College of Cardiology Foundation. *Circulation* 2006;113:456-62.

APPENDIX. ACC Work Group on Pay for Performance Relationships With Industry—American College of Cardiology 2006 Principles to Guide Physician Pay-for-Performance Programs

Work Group Members	Research Grant	Speakers' Bureau/Honoraria/ Expert Witness	Stock Ownership	Consultant/Advisory Board/ Steering Committee
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Joseph P. Drozda, Jr., MD, FACC	None	None	• Centene	None
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This table represents the relationships of committee members with industry that were reported by the authors as relevant to this topic. It does not necessarily reflect relationships with industry at the time of publication.