Conflict of Interest in Medical Research, Education, and Practice

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Summary

ABSTRACT

Patients and the public benefit when physicians and researchers collaborate with pharmaceutical, medical device, and biotechnology companies to develop products that benefit individual and public health. At the same time, concerns are growing that wide-ranging financial ties to industry may unduly influence professional judgments involving the primary interests and goals of medicine. Such conflicts of interest threaten the integrity of scientific investigations, the objectivity of professional education, the quality of patient care, and the public’s trust in medicine.

This Institute of Medicine report examines conflicts of interest in medical research, education, and practice and in the development of clinical practice guidelines. It reviews the available evidence on the extent of industry relationships with physicians and researchers and their consequences, and it describes current policies intended to identify, limit, or manage conflicts of interest. Although this report builds on the analyses and recommendations of other groups, it differs from other reports in its focus on conflicts of interest across the spectrum of medicine and its identification of overarching principles for assessing both conflicts of interest and conflict of interest policies. The report, which offers 16 specific recommendations, has several broad messages.

• The central goal of conflict of interest policies in medicine is to protect the integrity of professional judgment and to preserve public trust rather than to try to remediate bias or mistrust after it occurs.
• The disclosure of individual and institutional financial relationships
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is a critical but limited first step in the process of identifying and responding to conflicts of interest.

- Conflict of interest policies and procedures can be strengthened by engaging physicians, researchers, and medical institutions in developing policies and consensus standards.
- A range of supporting organizations—including accrediting groups and public and private health insurers—can promote the adoption and implementation of conflict of interest policies and promote a culture of accountability that sustains professional norms and public confidence in medicine.
- Research on conflicts of interest and conflict of interest policies can provide a stronger evidence base for policy design and implementation.
- If medical institutions do not act voluntarily to strengthen their conflict of interest policies and procedures, the pressure for external regulation is likely to increase.

Physicians and researchers must exercise judgment in complex situations that are fraught with uncertainty. Colleagues, patients, students, and the public need to trust that these judgments are not compromised by physicians’ or researchers’ financial ties to pharmaceutical, medical device, and biotechnology companies. Ties with industry are common in medicine. Some have produced important benefits, particularly through research collaborations that improve individual and public health. At the same time, widespread relationships with industry have created significant risks that individual and institutional financial interests may unduly influence professionals’ judgments about the primary interests or goals of medicine. Such conflicts of interest threaten the integrity of scientific investigations, the objectivity of medical education, and the quality of patient care. They may also jeopardize public trust in medicine.

Surveys show the breadth and diversity of relationships between industry and physicians, researchers, and educators in academic and community settings. For example,

- gifts from drug companies to physicians are ubiquitous;
- visits to physicians’ offices by drug and medical device company representatives and the provision of drug samples are widespread;
- many faculty members receive research support from industry, and industry funds the majority of biomedical research in the United States;
- many faculty members and community physicians provide scientific, marketing, and other consulting services to companies; and some serve on company boards of directors or on industry speakers bureaus; and
- commercial sources provide about half of the total funding for accredited continuing medical education programs.
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Although certain of these financial relationships may be constructive, recent news reports, legal settlements, research studies, and institutional announcements have documented a variety of disturbing situations that could undermine public confidence in medicine. These situations include

- physicians and researchers failing to disclose substantial payments from drug companies, as required by universities, government agencies, or medical journals;
- settlements with the U.S. Department of Justice by medical device and pharmaceutical companies to avoid prosecution for alleged illegal payments or gifts to physicians;
- companies and academic investigators not publishing negative results from industry-sponsored clinical trials or delaying publication for over a year after the completion of a trial;
- academic researchers putting their names on manuscripts, even though they first became involved after the data were collected and analyzed and after the first drafts were written by individuals paid by industry; and
- professional societies and other groups that develop clinical practice guidelines choosing not to disclose their industry funding and not to reveal the conflicts of interest of the experts who draft the guidelines.

Although the causes of these situations are various and their extent is unclear, they highlight the tension that may exist between financial relationships with industry and the primary missions of medical research, education, and practice. In addition to these examples, research on industry gifts and other financial relationships has generated troublesome findings. For example, systematic reviews of the evidence sponsored by a pharmaceutical company are more likely than other reviews to present conclusions favorable to the company, even when the actual findings of the analysis are not favorable. In addition, articles based on company-sponsored clinical trials are more likely to draw conclusions favorable to the company’s product than articles trials not sponsored by industry. Although these findings do not necessarily show that the research is biased and other explanations can be offered (e.g., companies do not fund trials unless they see a reasonable likelihood of success), they do raise legitimate questions about possible undue influence.

To cite another example, the availability of drug samples may be associated with the prescription of new brand name drugs when they are not recommended by evidence-based practice guidelines or when appropriate but less expensive drugs or generic equivalents are available for the same indication. Although one argument for the use of drug samples is that they help low-income patients, research suggests that these individuals are not the
primary recipients of such samples. Also, although small gifts to physicians may seem to be inconsequential, some research suggests that small gifts can contribute to unconscious bias in decision making and advice giving. It also seems unlikely that companies would give such gifts to physicians if they did not believe that they would benefit the company in some way.

In addition to information that raises concern about the scope and consequences of industry financial ties in medicine, surveys and other studies have reported inconsistencies in the adoption and implementation of conflict of interest policies by medical institutions. Relationships and practices that are forbidden by one institution may be allowed and even encouraged by others. Reports also have described shortcomings in the oversight of conflicts of interest in research by federal agencies and medical institutions.

Unfortunately, the empirical evidence relevant to financial relationships and conflicts of interest is limited. On many topics related to conflicts of interest, no systematic studies are available. For other topics, data are suggestive rather than definitive. The studies that have been conducted have primarily been observational rather than interventional, in large part because the issues cannot be investigated using randomized controlled trials of the effects of different kinds of relationships or different approaches to identifying and managing conflicts of interest. A number of academic medical centers, professional associations, and other institutions have taken steps to strengthen their conflict of interest policies, but few data that can be used to assess the consequences—positive or negative—of these changes are available. Some prominent physicians and researchers have argued that concerns about conflicts of interest are far out of proportion to the evidence that they exist or are harmful, and some contend that measures designed to address conflicts of interest have interfered with beneficial collaborations with industry. Critics of conflict of interest policies have also charged that the great majority of individuals who have not acted in an unethical manner may be subjected to onerous regulations and tacit conclusions that they are culpable of misconduct until proven otherwise.

Responding to the situations and concerns outlined above, the Institute of Medicine appointed a committee to investigate and develop a consensus report on conflicts of interest in medical research, education, and practice and in the development of clinical practice guidelines. Consistent with its charge, the committee

- examined conflicts of interest in medical research, education, and practice and in the development of clinical practice guidelines and
- developed analyses and recommendations to inform the design and implementation of policies that identify and manage conflicts of interest in these contexts without damaging constructive collaborations with industry.
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Because the evidence on many issues is limited, the committee had to rely on its experience and judgment in evaluating the analyses and arguments presented in the literature and in statements submitted to the committee. During its work, the committee kept in mind the core goals of medical research, education, and practice guideline development, which include serving the best interests of patients and society through the generation of valid scientific knowledge, the independent evaluation of evidence and the application of critical thinking, and the creation and use of evidence-based recommendations for patient care.

Reflecting concerns that were raised during the planning of the project and the central issues in debates and policies on conflicts of interest in medicine, the committee focused on financial relationships involving pharmaceutical, medical device, and biotechnology companies. Although it did not investigate in depth the conflicts of interest associated with different physician payment arrangements or with physician referral of patients to facilities in which they have an ownership interest, the committee recognized the seriousness of those types of conflicts and the difficulties that policy makers have encountered in trying to eliminate or manage them. It also recognized other sources of conflicts of interest, for example, desires for professional advancement and recognition.

After examining a wide array of evidence, analyses, and perspectives on conflicts of interest, the committee reached several overarching conclusions. They are as follows:

- The goals of conflict of interest policies in medicine are primarily to protect the integrity of professional judgment and to preserve public trust rather than to try to remediate bias or mistrust after they occur.
- The disclosure of individual and institutional financial relationships is a critical but limited first step in the process of identifying and responding to conflicts of interest.
- Conflict of interest policies and procedures can be strengthened by engaging physicians, researchers, and medical institutions in developing conflict of interest policies and consensus standards.
- A range of supporting organizations—public and private—can promote the adoption and implementation of conflict of interest policies and help create a culture of accountability that sustains professional norms and public confidence in professional judgments.
- Research on conflicts of interest and conflict of interest policies can provide a stronger evidence base for policy design and implementation.
- If medical institutions do not act voluntarily to strengthen their conflict of interest policies and procedures, the pressure for external regulation is likely to increase.
Chapter 2 presents the principles and conceptual framework for identifying and assessing conflicts of interest. Conflicts of interest are defined as circumstances that create a risk that professional judgments or actions regarding a primary interest will be unduly influenced by a secondary interest. Primary interests include promoting and protecting the integrity of research, the quality of medical education, and the welfare of patients. Secondary interests include not only financial interests—the focus of this report—but also other interests, such as the pursuit of professional advancement and recognition and the desire to do favors for friends, family, students, or colleagues. Conflict of interest policies typically focus on financial gain because it is relatively more objective, fungible, and quantifiable. Financial gain can therefore be more effectively and fairly regulated than other secondary interests.

The severity of a conflict of interest depends on (1) the likelihood that professional decisions made under the relevant circumstances would be unduly influenced by a secondary interest and (2) the seriousness of the harm or wrong that could result from such an influence. The likelihood of undue influence is affected by the value of the secondary interest, its duration and depth, and the extent of discretion that the individual has in making important decisions.

Conflict of interest policies generally emphasize prevention and management rather than punishment. They do not assume that any particular professional will necessarily let financial gain influence his or her judgment. Likewise, a judgment that someone has a conflict of interest does not imply that the person is unethical. Such judgments assume only that some situations are generally recognized to pose an unacceptable risk that decisions may be unduly influenced by considerations that should be irrelevant. Chapter 2 presents criteria, described in the list that follows, that can be used to evaluate conflict of interest policies.

- Proportionality. Is the policy effective, efficient, and directed at the most important and most common conflicts? Conflict of interest policies and procedures may create harms or burdens as well as benefits. Do the policies and their implementation unnecessarily interfere with the conduct of legitimate research, teaching, and clinical practice?
- Transparency. Is the policy comprehensible and accessible to the individuals and institutions that it may affect? Such transparency is essential to determine if conflict of interest policies are reasonable and are being implemented fairly. Transparency can also help institutions learn
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from each other about more and less successful ways of handling particular situations.

- Accountability. Does the conflict of interest policy indicate who is responsible for monitoring, enforcing, and revising it? Leaders of accountable institutions explain institutional policies and monitor and accept responsibility for the consequences, both beneficial and harmful.

- Fairness. Does the policy apply equally to all relevant groups within an institution and in different institutions? In an academic medical center, the relevant groups would include faculty, medical staff, students, residents, fellows, members of institutional committees (e.g., institutional review boards, formulary committees, panels developing practice guidelines, and device purchasing committees), and senior institutional officials.

POLICIES ON CONFLICTS OF INTEREST: OVERVIEW AND EVIDENCE

Concerns about conflicts of interest in medicine have a long history, and responses to these conflicts have evolved as relationships with industry have grown more frequent and more complex and as different responses to such relationships have been tried and found in need of modification. Government regulations and voluntary codes of conduct often follow the discovery of instances of questionable or inappropriate relationships and conduct. Government scrutiny of financial relationships and conflicts of interest may also stimulate private, voluntary efforts by academic and other institutions to deal with problems and avoid regulation.

The conflict of interest policies of academic medical centers, professional societies, medical journals, and other institutions vary on many dimensions. It is not clear that all medical institutions have conflict of interest policies. Those that do have such policies vary in what they ask physicians and researchers to disclose about their financial relationships with industry. Such variations may create additional administrative burdens for physicians and researchers who act in multiple roles and make multiple disclosures of their financial relationships with industry to different institutions for various purposes related to medical research, education, and clinical care and clinical practice guideline development.

Institutions also vary in what relationships they prohibit because they view them as creating unacceptable risks of undue influence on primary interests, and they also differ in how they manage conflicts of interest that are not prohibited. The National Institutes of Health (NIH) has identified variations and deficiencies in how research institutions implement the 1995 U.S. Public Health Service (PHS) regulations on conflict of interest, and it has advised institutions on steps that they can take to strengthen their poli-
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cies. Similarly, the Association of American Medical Colleges (AAMC) and the Association of American Universities (AAU) have developed recommendations and guidance on conflict of interest policies governing research with human participants, but surveys indicate that research institutions have not fully implemented these recommendations.

Although the disclosure of financial interests or conflicts of interest is a necessary part of conflict of interest policies, it is not sufficient in itself to safeguard the integrity of professional judgment or to maintain public trust. For example, when a relationship or conflict of interest is disclosed to individual patients, students, or research participants, they often lack the knowledge and perspective to assess the relationship and may have no satisfactory options if they have concerns about it. Conflicts that are disclosed but not eliminated or managed can continue to pose risks to judgment and undermine public trust.

The recommendations in Chapter 3 establish the fundamental elements of an effective policy response to conflicts of interest in medical research, education, and practice. Recommendation 3.1 calls on all institutions engaged in these activities to establish conflict of interest policies and create conflict of interest committees to evaluate and manage conflicts. Recommendation 3.2 focuses on the essential policy step of requiring physicians, researchers, and senior officials to disclose to their institutions their financial relationships with industry. Unless institutions are informed of these relationships, they cannot identify conflicts of interest or determine whether additional steps—such as the elimination or management of the conflict—are needed to reduce the risk of bias or a loss of public trust. Recommendations 3.1 and 3.2 are similar to the recommendations made in other reports on conflict of interest; but they extend to all institutions that carry out medical research, medical education, clinical care, and practice guideline development.

The disclosure of financial relationships can be effective only if it provides sufficient information for others to use in assessing a relationship and judging the severity of a conflict. At the same time, disclosure can be burdensome, particularly for physicians who must make multiple disclosures for different activities. Recommendation 3.3 calls for the standardization of disclosures with the goals of providing institutions with the specific information that they need to assess relationships while reducing the reporting burdens on physicians and researchers. Such standardization is best pursued through a consensus development process that involves a broad array of concerned parties (e.g., academic medical centers, professional societies, public interest groups, and NIH and other public agencies). On the basis of the agreements resulting from this process, the next step would be for software developers to produce computer programs that allow an individual to fill out a standard questionnaire and then format the information for differ-
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ent institutions and purposes. This should reduce the burden on individuals and increase the consistency of the information disclosed.

Even with further policy development and standardization, institutions will still face questions about the completeness and accuracy of the information disclosed to them. Recommendation 3.4 calls for the U.S. Congress to create a national program that requires pharmaceutical, medical device, and biotechnology companies and their foundations to publicly report payments to physicians, researchers, health care institutions, professional societies, patient advocacy and disease-specific groups, providers of continuing medical education, and foundations created by any of these entities. Although many details will need to be worked out, the information should be readily available on a secure, searchable public website that allows the identification and aggregation of all payments that an individual or institution receives from all companies. Such a program of company reporting will enhance accountability by allowing universities, journals, and others to verify the disclosures that have been made to them. It may also discourage the formation of questionable relationships that individuals or companies would prefer not be widely known.

CONFLICTS OF INTEREST IN BIOMEDICAL RESEARCH

Research partnerships among industry, academia, and government are essential to the discovery and development of new medications and medical devices that improve the prevention, diagnosis, and treatment of health problems. Chapter 4 reports on evidence that relationships between academic researchers and industry are widespread and are associated with benefits, for example, greater research productivity. At the same time, evidence suggests that these relationships have risks, including decreased openness in the sharing of data and findings and the withholding of negative results. These kinds of risks justify additional requirements and incentives, as recommended in this report, for institutions to adopt and implement policies to identify and eliminate or manage conflicts of interest.

Consistent with the recommendations of AAMC and AAU, Recommendation 4.1 calls for a general rule that researchers may not conduct research involving human participants if they have a financial interest in the outcome of the research, for example, if they hold a patent on an intervention being tested in a clinical trial. Exceptions should be allowed only if an individual’s participation is judged to be essential for the safe and appropriate conduct of the research. An example might be the inventor of a complex new implanted medical device who has unique expertise and technical skills that are essential for the safe implantation of the device during pilot or early-phase studies. If a conflict of interest committee approves the involvement of such a researcher, it should take advantage of the full range of options...
for managing the conflict, including placing restrictions on the researcher’s role in the study.

Although Recommendation 4.1 does not cover nonclinical research, financial relationships in this arena may also create risks of undue influence that institutions should assess and manage as appropriate to protect the integrity of the science. Additional studies on financial relationships in nonclinical research, their risks and consequences, and the ways in which institutions identify and respond to these relationships would help establish an evidence base that could be used to guide judgments about policies in this area.

CONFLICTS OF INTEREST IN UNDERGRADUATE, GRADUATE, AND CONTINUING MEDICAL EDUCATION

Chapter 5 presents strong evidence that relationships with industry are pervasive in undergraduate, graduate, and continuing medical education. Most medical students and residents are exposed to lunches, gifts, and other interactions with pharmaceutical company representatives on a frequent basis. Faculty members have extensive relationships with these individuals as well.

In analyzing relationships with industry in the context of medical education, the focus should be on the learning environment, the development of core competencies, and consistency between the formal curriculum and the informal or hidden curriculum. The key goals of medical education include helping learners at all levels develop the ability to think critically and appraise the evidence for clinical decision making. In controlled situations, some interactions with representatives of medical device companies may foster the goals of appropriate training, patient safety, and device evaluation. Otherwise, the committee found no bases for concluding that educational goals are promoted by other relationships involving gifts, most visits by pharmaceutical company representatives, service as a marketing consultant, participation in an industry speakers bureau, or acceptance of credit for a ghostwritten article. Indeed, the evidence suggests that some of these relationships are associated with undue influence and thus undermine the goals of medical education. Overall, the risks of these relationships outweigh any possible benefits.

Recommendation 5.1 therefore calls on academic medical centers to prohibit faculty, students, residents, and fellows from accepting gifts (including meals), making presentations that are controlled by industry, and claiming authorship for ghostwritten publications. This restriction is not intended to exclude the acceptance of scientific materials from industry scientists under appropriate material transfer agreements or the payment of reasonable honoraria to speakers who present their own material. Recom-
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Recommendation 5.1 also calls for restrictions on the acceptance of drug samples and visits by drug and medical device sales representatives.

For academic medical centers and community physicians, drug samples present difficult issues. Caring for indigent patients who cannot afford needed drugs is frustrating for physicians who are trying to act in their patients’ best interests. Many physicians believe that drug samples allow some patients access to drugs that they could otherwise not obtain. Nonetheless, research suggests that most samples are not in fact given to patients who lack financial access to needed medications and that physicians who have access to samples may change their prescribing habits, for example, by not prescribing the drugs that they would prefer their patients to use or by prescribing drugs in ways that are not consistent with evidence-based recommendations. The committee concluded that the lack of access to affordable medications is serious and disturbing but that drug samples are not a satisfactory answer to this societal problem. Academic medical centers should, at a minimum, oversee and restrict their use.

Because faculty, students, residents, and fellows may not understand the risks posed by conflicts of interest and the rationale for conflict of interest policies, Recommendation 5.2 calls on academic medical centers and teaching hospitals, as part of their educational mission, to provide education on the avoidance of conflicts of interest and the management of relationships with pharmaceutical and medical device industry representatives. Organizations that accredit medical schools and residency programs should develop standards to reinforce this recommendation.

Questions about conflicts of interest have been particularly visible in continuing medical education. Most physicians are required to participate in accredited continuing medical education as a condition for relicensure, specialty certification, or granting of hospital medical staff privileges. Many commercial and academic providers of accredited continuing medical education receive half or more of their funding from industry, which raises concerns about industry influence over the selection of educational topics, the content of presentations, and the overall scope of educational offerings (e.g., whether they provide sufficient coverage of such issues as prevention and physician-patient communication).

Although individual continuing medical education providers and the accrediting organization for continuing medical education have taken steps to limit industry influence, the dependence of many programs on industry funding raises doubts about how successful these steps can be. Recommendation 5.3 calls for a broad-based consensus development process to propose a new system of funding accredited continuing medical education that is free of industry influence, enhances public trust in the integrity of the system, and provides high-quality education. Some members of the committee supported a total end to industry funding, but others were concerned
about the potential for unintended harm from such a ban. The committee recognized that changes in the current system likely would substantially reduce industry funding for accredited continuing medical education. Even if education providers trim their expenses, the costs of accredited continuing medical education would likely increase for many physicians, which could be an economic burden for some physicians, for example, those in rural areas.

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As is the case in medical research and education, evidence shows that relationships with industry are widespread among physicians in practice. Physician acceptance of gifts and meals from industry representatives is commonplace, as are visits with company sales representatives. Company marketing strategies are sophisticated. As part of these strategies, physicians may be used as marketing agents, physicians’ prescribing habits may be tracked through commercial databases, and companies may sponsor so-called seeding trials that are primarily designed to market products to participating physicians. Published studies of these strategies are limited but suggest the risk of undue industry influence on physician prescribing behavior with little or no benefit to patient care. Many physicians may view drug representatives as useful, but reliance on individuals whose charge is to increase sales is not a satisfactory solution to practitioners’ need for valid, reliable, and up-to-date medical information.

Several recent policy changes may affect the relationships between industry and physicians in practice. Several drug and device companies are voluntarily making public information on their payments to physicians by physician name and the purpose and the amount of the payment; other companies have been required to do so as part of legal agreements with federal prosecutors. The Pharmaceutical Research and Manufacturers of America also recently revised its code on interactions with health care professionals to prohibit the use of certain marketing tools and gifts (including well-paid speaking engagements) as inducements or rewards for prescribing or recommending a course of treatment. Compliance is voluntary, but the organization says that it will ask member companies to declare whether they have adopted its provisions and will then post the information on its website. The Advanced Medical Technology Association has included similar provisions in its revised code for medical device companies. In addition, some professional societies have recently revised their conflict of interest policies to restrict or manage certain relationships with industry and to make their policies public.

Taking into account the weight of the evidence and the recommendations and actions of other groups or institutions, the committee rec-
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ommended the elimination of some problematic relationships between practicing physicians and industry. In broad terms, Recommendation 6.1 calls on physicians in clinical practice not to accept gifts, including meals, from companies; to enter only into bona fide consultation arrangements with written contracts; to avoid presenting or publishing material whose content is controlled by industry or is ghostwritten; to set restrictions on meetings with company sales representatives; and to use drug samples only for patients who lack financial access to medications. This recommendation is generally parallel to Recommendation 5.1 (for faculty, students, residents, and fellows). Independent assessment of the evidence and the practice of evidence-based medicine are core competencies for physicians in clinical practice as well as academic practice; relationships with industry should not undermine those competencies.

Because recommendations directed to physicians are more likely to be adopted if other incentives are aligned with those recommendations, Recommendation 6.1 also calls on professional societies and institutions that provide health care (and that employ physicians or grant them staff privileges) to take actions to support physician acceptance of changes in their relationships with companies. Recommendation 6.2 calls for further revisions to industry practices to be consistent with those outlined in Recommendation 6.1. It is a separate recommendation to emphasize that relationships between physicians and industry are bilateral and that the expectations for givers and receivers in financial relationships should be parallel.

CONFLICTS OF INTEREST AND DEVELOPMENT OF CLINICAL PRACTICE GUIDELINES

Financial relationships with companies affected by clinical practice guidelines are common both for groups convening expert panels to develop guidelines and for the individuals serving on those panels. Groups often do not make public their conflict of interest policies, their sources of funding for guideline development, or the financial relationships of the panel members. This lack of transparency makes it difficult for the readers and users of guidelines to assess the potential for undue influence and bias.

The committee found examples of alleged undue industry influence on the development of clinical practice guidelines but little systematic research. The risks that result from the acceptance of industry funding and the inclusion of individuals with industry ties on guideline development panels include possible bias in the recommendations made in guidelines and possible harm to patients because guidelines may influence physician practice behavior, quality improvement measures, reimbursement incentives, and insurance coverage decisions.

Recommendation 7.1 calls on groups that develop guidelines not to
accept direct funding for guideline development from industry and generally to exclude individuals with conflicts of interest from guideline development panels. Because it may be impossible in some situations to obtain the needed expertise from individuals who have no conflicts, the recommendation also includes measures to limit the likelihood of undue influence if panels include members with conflicts of interest. These measures include requiring that chairs of guideline development panels have no conflicts of interest, limiting members with conflicts of interest to a small minority of the panel membership, and precluding such members from voting on topics in which they have a financial interest. The committee also calls for groups that develop guidelines to involve the public in attempts to identify experts without conflicts of interest, to make such efforts public, and to disclose publicly any conflicts of interest of those selected for membership on panels.

Recommendation 7.2 calls for organizations that have an interest in the use of evidence-based clinical practice guidelines to establish incentives to encourage the developers of guidelines to adopt the committee’s recommendations. For example, the National Guideline Clearinghouse could require that the guidelines that it posts include information about the sources of funding for a guideline, the sponsor’s conflict of interest policy, and the financial interests of the expert panel members. Similarly, public and private health plans and accreditation and certification bodies could avoid the use of clinical practice guidelines that lack information that allows users to identify conflicts of interest and assess the risks that they pose.

INSTITUTIONAL CONFLICTS OF INTEREST

Institutional conflicts of interest arise when an institution’s own financial interests or the interests of its senior officials pose risks to the integrity of the institution’s primary interests and missions. Institutional conflicts typically appear when research conducted within an institution could affect the value of equity that the institution holds in a company or the value of a patent that the institution licenses to a company. Institutional conflicts of interest have not received as much attention as individual conflicts of interest, but their consequences can also be damaging. If they are not properly identified and managed, institutional conflicts can undermine the work and reputation of an entire institution, including employees or members who are themselves strictly avoiding individual conflicts of interest.

Recommendation 8.1 calls for the boards of trustees of institutions to establish a conflict of interest committee to make judgments about institutional relationships with industry, including the relationships of senior officials. In their fiduciary role, members of the board oversee the long-term interests of the institution. They stand at a greater distance from the
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day-to-day pressures of decision making, which should help them assess more judiciously the potential risks posed by a particular financial interest to the institution’s core missions. This committee of the board of trustees could be supported by staff committees on institutional conflict of interest. Recommendation 8.2 calls for NIH to develop regulations requiring institutions covered by the 1995 PHS regulations to adopt institutional conflict of interest policies.

THE ROLE OF SUPPORTING ORGANIZATIONS

In carrying out medical research and education, providing patient care, and developing practice guidelines, physicians, researchers, and the institutions in which they work are part of complex intersecting systems. These systems can amplify or mitigate the pressures that individuals and institutions may experience to expose their primary professional obligations or social missions to undue influence from secondary interests, such as financial gain. Within these systems, a variety of organizations—public and private—can influence the policies and practices of institutions and support the norms of professional integrity. For example, accreditation and certification organizations set standards for medical schools, residency and fellowship programs, and individual physicians. State agencies license and relicense individual physicians, and specialty boards certify and recertify them. Journals publish medical research. The National Guideline Clearinghouse posts clinical practice guidelines. Public and private health insurers use a variety of financial and other incentives to influence the practices of institutions and individual clinicians. The U.S. Department of Justice and the Office of the Inspector General of the U.S. Department of Health and Human Services enforce laws limiting or prohibiting certain conflicts of interest, and NIH is responsible for overseeing compliance with PHS policies covering its grantees.

In addition to discussing incentives for policy adoption and implementation, the final chapter of the report discusses the roles of collaboration and consensus building in building conflict of interest policies that win acceptance and avoid needless burdens. Although the emphasis should be on preventing problems, policies should also be backed by enforcement and appropriate sanctions as well as assessment of their effectiveness.

Recommendation 9.1 proposes that groups such as accrediting organizations, public and private health insurers, and associations of medical journal editors develop incentives to make institutions more accountable for preventing, identifying, and managing conflicts of interest. The accompanying discussion gives examples of such incentives. The final recommendation, Recommendation 9.2, calls for more research to assess the positive and negative consequences of conflict of interest policies and provide a
stronger evidence base for improving conflict of interest policies and their application.

Society has traditionally granted the medical profession considerable autonomy to regulate itself. Society may be willing to continue do so in the case of conflicts of interest; but concern is growing in the U.S. Congress, state legislatures, federal agencies, and elsewhere that stronger measures are needed. Physicians and researchers can play a vital role in designing responsible and reasonable conflict of interest policies and procedures that reduce the risks of bias and the loss of trust while avoiding undue burdens or even harms. They and the institutions that carry out medical research, education, clinical care, and practice guideline development must recognize public concerns about conflicts of interest and take effective measures soon to maintain public trust.

OVERVIEW AND LIST OF RECOMMENDATIONS

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CONFLICT OF INTEREST

RECOMMENDATION 3.1 Institutions that carry out medical research, medical education, clinical care, or practice guideline development should adopt, implement, and make public conflict of interest policies for individuals that are consistent with the other recommendations in this report. To manage identified conflicts of interest and monitor the implementation of management recommendations, institutions should create a conflict of interest committee. That committee should use a full range of management tools, as appropriate, including elimination of the conflicting financial interest, prohibition or restriction of involvement of the individual with a conflict of interest in the activity related to the conflict, and providing additional disclosures of the conflict of interest.

RECOMMENDATION 3.2 As part of their conflict of interest policies, institutions should require individuals covered by their policies, including senior institutional officials, to disclose financial relationships with pharmaceutical, medical device, and biotechnology companies to the institution on an annual basis and when an individual’s situation changes significantly. The policies should

- request disclosures that are sufficiently specific and comprehensive (with no minimum dollar threshold) to allow others to assess the severity of the conflicts;
- avoid unnecessary administrative burdens on individuals making disclosures; and
- require further disclosure, as appropriate, for example, to the conflict of interest committee, the institutional review board, and the contracts and grants office.

RECOMMENDATION 3.3 National organizations that represent academic medical centers, other health care providers, and physicians and researchers should convene a broad-based consensus development process to establish a standard content, a standard format, and standard procedures for the disclosure of financial relationships with industry.

RECOMMENDATION 3.4 The U.S. Congress should create a national program that requires pharmaceutical, medical device, and biotechnology companies and their foundations to publicly report payments to physicians and other prescribers, biomedical researchers, health care institutions, professional societies, patient advocacy and disease-specific groups, providers of continuing medical education, and foundations created by any of these entities. Until the Congress acts, companies should voluntarily adopt such reporting.
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RECOMMENDATION 4.1 Academic medical centers and other research institutions should establish a policy that individuals generally may not conduct research with human participants if they have a significant financial interest in an existing or potential product or a company that could be affected by the outcome of the research. Exceptions to the policy should be made public and should be permitted only if the conflict of interest committee (a) determines that an individual’s participation is essential for the conduct of the research and (b) establishes an effective mechanism for managing the conflict and protecting the integrity of the research.

RECOMMENDATION 5.1 For all faculty, students, residents, and fellows and for all associated training sites, academic medical centers and teaching hospitals should adopt and implement policies that prohibit

- the acceptance of items of material value from pharmaceutical, medical device, and biotechnology companies, except in specified situations;
- educational presentations or scientific publications that are controlled by industry or that contain substantial portions written by someone who is not identified as an author or who is not properly acknowledged;
- consulting arrangements that are not based on written contracts for expert services to be paid for at fair market value;
- access by drug and medical device sales representatives, except by faculty invitation, in accordance with institutional policies, in certain specified situations for training, patient safety, or the evaluation of medical devices; and
- the use of drug samples, except in specified situations for patients who lack financial access to medications.

Until their institutions adopt these recommendations, faculty and trainees at academic medical centers and teaching hospitals should voluntarily adopt them as standards for their own conduct.

RECOMMENDATION 5.2 Academic medical centers and teaching hospitals should educate faculty, medical students, and residents on how to avoid or manage conflicts of interest and relationships with pharmaceutical and medical device industry representatives. Accrediting organizations should develop standards that require formal education on these topics.

RECOMMENDATION 5.3 A new system of funding accredited continuing medical education should be developed that is free of industry influence, enhances public trust in the integrity of the system, and provides high-quality education. A consensus development process that includes representatives of the member organizations that created the accrediting body for con-
Conflict of Interest in Medical Research, Education, and Practice

RECOMMENDATION 6.1 Physicians, wherever their site of clinical practice, should

- not accept of items of material value from pharmaceutical, medical device, and biotechnology companies except when a transaction involves payment at fair market value for a legitimate service;
- not make educational presentations or publish scientific articles that are controlled by industry or contain substantial portions written by someone who is not identified as an author or who is not properly acknowledged;
- not enter into consulting arrangements unless they are based on written contracts for expert services to be paid for at fair market value;
- not meet with pharmaceutical and medical device sales representatives except by documented appointment and at the physician’s express invitation; and
- not accept drug samples except in certain situations for patients who lack financial access to medications.

Professional societies should amend their policies and codes of professional conduct to support these recommendations. Health care providers should establish policies for their employees and medical staff that are consistent with these recommendations.

RECOMMENDATION 6.2 Pharmaceutical, medical device, and biotechnology companies and their company foundations should have policies and practices against providing physicians with gifts, meals, drug samples (except for use by patients who lack financial access to medications), or other similar items of material value and against asking physicians to be authors of ghostwritten materials. Consulting arrangements should be for necessary services, documented in written contracts, and paid for at fair market value. Companies should not involve physicians and patients in marketing projects that are presented as clinical research.

RECOMMENDATION 7.1 Groups that develop clinical practice guidelines should generally exclude as panel members individuals with conflicts of interest and should not accept direct funding for clinical practice guideline development from medical product companies or company foundations. Groups should publicly disclose with each guideline their conflict of
SUMMARY

interest policies and procedures and the sources and amounts of indirect or direct funding received for development of the guideline. In the exceptional situation in which avoidance of panel members with conflicts of interest is impossible because of the critical need for their expertise, then groups should

- publicly document that they made a good-faith effort to find experts without conflicts of interest by issuing a public call for members and other recruitment measures;
- appoint a chair without a conflict of interest;
- limit members with conflicting interests to a distinct minority of the panel;
- exclude individuals who have a fiduciary or promotional relationship with a company that makes a product that may be affected by the guidelines;
- exclude panel members with conflicts from deliberating, drafting, or voting on specific recommendations; and
- publicly disclose the relevant conflicts of interest of panel members.

RECOMMENDATION 7.2 Accrediting and certification bodies, health insurers, public agencies, and other similar organizations should encourage institutions that develop clinical practice guidelines to adopt conflict of interest policies consistent with the recommendations in this report. Three desirable steps are for

- journals to require that all clinical practice guidelines accepted for publication describe (or provide an Internet link to) the developer’s conflict of interest policies, the sources and amounts of funding for the guideline, and the relevant financial interests of guideline panel members, if any;
- the National Guideline Clearinghouse to require that all clinical practice guidelines accepted for posting describe (or provide an Internet link to) the developer’s conflict of interest policies, the sources and amounts of funding for development of the guideline, and the relevant financial interests of guideline panel members, if any; and
- accrediting and certification organizations, public and private health plans, and similar groups to avoid using clinical practice guidelines for performance measures, coverage decisions, and similar purposes if the guideline developers do not follow the practices recommended in this report.

RECOMMENDATION 8.1 The boards of trustees or the equivalent governing bodies of institutions engaged in medical research, medical education, patient care, or practice guideline development should establish their
own standing committees on institutional conflicts of interest. These standing committees should

- have no members who themselves have conflicts of interest relevant to the activities of the institution;
- include at least one member who is not a member of the board or an employee or officer of the institution and who has some relevant expertise;
- create, as needed, administrative arrangements for the day-to-day oversight and management of institutional conflicts of interest, including those involving senior officials; and
- submit an annual report to the full board, which should be made public but in which the necessary modifications have been made to protect confidential information.

RECOMMENDATION 8.2 The National Institutes of Health should develop rules governing institutional conflicts of interest for research institutions covered by current U.S. Public Health Service regulations. The rules should require the reporting of identified institutional conflicts of interest and the steps that have been taken to eliminate or manage such conflicts.

RECOMMENDATION 9.1 Accreditation and certification bodies, private health insurers, government agencies, and similar organizations should develop incentives to promote the adoption and effective implementation of conflict of interest policies by institutions engaged in medical research, medical education, clinical care, or practice guideline development. In developing the incentives, these organizations should involve the individuals and the institutions that would be affected.

RECOMMENDATION 9.2 To strengthen the evidence base for the design and application of conflict of interest policies, the U.S. Department of Health and Human Services should coordinate the development and funding of a research agenda to study the impact of conflicts of interest on the quality of medical research, education, and practice and on practice guideline development and to examine the positive and negative effects of conflict of interest policies on these outcomes.
CONFLICT OF INTEREST
IN MEDICAL RESEARCH, EDUCATION, AND PRACTICE

Bernard Lo and Marilyn J. Field, Editors

Committee on Conflict of Interest in Medical Research, Education, and Practice

Board on Health Sciences Policy

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—Goethe
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In preparing this report, the committee and project staff benefited greatly from the assistance and expertise of many individuals and groups. Important information and insights came from four public meetings that the committee organized to collect information and perspectives from a range of academic, professional, consumer, patient, and other organizations and individuals. A number of speakers at these meetings also shared their knowledge at other times during the course of the study. Appendix A includes the agendas of the public meetings and a list of organizations that submitted written statements of views.

The committee appreciates the contributions of the authors of the background papers that appear as Appendix C (Michael Davis at Illinois Institute of Technology and Josephine Johnston at the Hastings Center) and Appendix D (Jason Dana at University of Pennsylvania). Our project officer at the National Institutes of Health, Walter Schaffer, was always helpful in getting our questions answered. We also called on Daniel Wolfson at the American Board of Internal Medicine Foundation for information. In addition, Ariel Winter of the Medicare Payment Advisory Commission helped by answering questions about the commission’s work. Mary Nix at the Agency for Healthcare Research and Quality provided data from the National Guidelines Clearinghouse that we could not obtain online. An undoubtedly incomplete list of others who assisted the committee’s work includes David Atkins, James Bernat, Carol Blum, David Blumenthal, Deborah Briggs, Laura Brockway-Lunardi, Robert Campbell, Roger Chou, Vivian Coates, Allan Coukel, Bette Crigger, Susan Ehringhaus, Brian Eig,
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Reviewers

This report has been reviewed in draft form by individuals chosen for their diverse perspectives and technical expertise, in accordance with procedures approved by the National Research Council’s Report Review Committee. The purpose of this independent review is to provide candid and critical comments that will assist the institution in making its published reports as sound as possible and to ensure that the report meets institutional standards for objectivity, evidence, and responsiveness to the study charge. The review comments and draft manuscript remain confidential to protect the integrity of the deliberative process. We wish to thank the following individuals for their review of this report:

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Although the reviewers listed above have provided many constructive comments and suggestions, they were not asked to endorse the conclusions or recommendations, nor did they see the final draft of the report before its release. The review of this report was overseen by David Challoner, University of Florida, and Judith L. Swain, National University of Singapore and University of California, San Diego. Appointed by the National Research Council and the Institute of Medicine, these individuals were responsible for making certain that an independent examination of this report was carried out in accordance with the institutional procedures and that all review comments were carefully considered. Responsibility for the final content of this report rests entirely with the authoring committee and the institution.
Preface

Hardly a week goes by without a news story about conflicts of interest in medicine. While this committee met, colleagues and friends sent me many news reports and journal articles on the topic. These reports—even if one expects that initial news reports may not always have the stories quite straight—served as continual reminders that conflicts of interest create deep concerns about the integrity of medicine and medical research and raise questions about the trustworthiness of physicians, researchers, and medical institutions.

As I look back over our deliberations, several themes stand out. First, as with all Institute of Medicine (IOM) reports, the committee was charged with making recommendations that were based on evidence and convincing reasons. Although the committee members were aware of powerful anecdotes and had personal beliefs about the issues, we repeatedly asked whether the evidence supported our conclusions and recommendations. If it did not, we developed a reasoned case on the basis of the committee’s experience and the judgment of the committee members about the arguments for the use of different approaches presented in the literature or in statements submitted to the committee. Second, it is a challenge to craft policy recommendations that strike the right balance between addressing egregious cases and creating burdens that stifle relationships that advance the goals of professionalism and generate knowledge to benefit society. The committee tried to consider the possibility that well-intentioned policies may have unintended adverse consequences. Third, regulation alone may have limited effectiveness in the absence of a culture of professionalism.
and other incentives that are aligned to promote professional behavior. The committee considered how a variety of organizations—including those that accredit health care institutions and license health care professionals, publish the findings of medical research, use practice guidelines, and pay for medical care—can buttress the conflict of interest policies implemented by institutions that carry out medical research, provide education and patient care, and develop practice guidelines.

This report cannot and did not attempt to resolve all issues related to conflicts of interest in medicine. In view of our expansive charge, we tried to address central questions rather than the many details of this complex topic. For example, we focus on conflicts that involve financial interests because they are at the heart of concerns and debates about conflicts of interest. Furthermore, because relationships with pharmaceutical, medical device, and biotechnology companies have created the greatest concern and were central in the discussions that led the IOM to pursue this study, we focused on those relationships. The committee expects that many of the recommendations and analyses in our report will also apply more generally to professional and institutional relationships with other commercial entities, such as insurers and vendors of nonmedical products.

The committee could not resolve some important issues like harmonizing the different requirements for the disclosure of financial relationships because they would require much more time and additional expertise. Instead, to standardize aspects of disclosure policies and procedures, the committee recommended a focused consensus development process that would involve multiple stakeholders on the issue.

Our committee was diverse, involving members with different professional backgrounds and areas of expertise. These different perspectives led to spirited discussions and debates. Each of us listened to points of view and information that we had not previously considered. We tried to listen to and understand other viewpoints and be open to new perspectives, even if in the end we did not agree on all issues. Appendix F describes the different views on one issue, a proposal by some committee members for broader requirements for public disclosure. In general, the committee hoped that by explaining our reasoning on difficult issues our audiences would better appreciate the multiple considerations that a sound conflict of interest policy should address.

As chair, I want to personally thank the committee members for their hard work and their willingness to engage on difficult topics. I am deeply grateful to them for the time and effort that they took from their busy schedules to devote to this project. This report is truly a collaborative effort and is much the better, I think, for the back-and-forth discussions. I also want to personally thank our IOM staff for their tremendous efforts in making this report possible. Robin Parsell skillfully handled meeting
and other logistics, and Franklin Branch provided research assistance in many areas. Marilyn Field was unstinting in her background research, drafting and revising of the manuscript, and high standards for our work. And I want to thank Lindsay Parham, my research assistant at the University of California at San Francisco, for her expert help with background research.

Bernard Lo, M.D., Chair
Committee on Conflict of Interest in Medical Research, Education, and Practice
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