THE STUDY PROCESS

of the National Academies of
Sciences, Engineering, and Medicine

A GUIDE FOR **COMMITTEE MEMBERS**

The National Academies of
SCIENCES · ENGINEERING · MEDICINE

Welcome and Introduction

Study committees and panels* of the National Academies of Sciences, Engineering, and Medicine (the Academies) make distinctive and often indispensable contributions to the welfare of the nation by providing evidence-based counsel on complex questions in science, engineering, and health. The results of the study process are intended to inform government decision making and increase public understanding.

You have been invited to serve on a study committee of the Academies and you may be wondering what your role is as a committee member. This document provides an overview of the institution's committee process. It was assembled with help from a group of experienced study directors and committee chairs. No two projects are alike and people's experiences vary, but we think that the general guidance in this document will help make your time as a committee member productive and rewarding. We are grateful for your service to the Academies and to the nation.

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President
National Academy of Sciences

C. D. (Dan) Mote, Jr.
President
National Academy of Engineering

Victor J. Dzau
President
National Academy of Medicine

* Study committees are referred to as "panels" when they are overseen by a board that has "Committee" in its name, such as the Committee on National Statistics.

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Getting Started

The National Academies of Sciences, Engineering, and Medicine (the Academies) perform a unique public service by bringing together experts in all areas of scientific and technological endeavor. These experts serve as volunteers to address critical national issues and provide unbiased advice to the federal government, other policy and decision makers, and the public.

The core of the Academies' work consists of studies, usually of 6 months to 2 years in duration, performed under a grant or a contract from a sponsor or multiple sponsors, and conducted by a committee selected expressly for this purpose. Each committee investigates the many facets of the problem specifically described in its Statement of Task and develops a report of its findings, conclusions, and recommendations based on the available evidence. This guide does not cover all details or contingencies involved in consensus studies. In addition, it does not cover workshop reports or studies that include classified materials. The report is subjected to rigorous review by a second group of independent experts anonymous to the committee. After revisions are made by the committee to satisfy the Academies' review process, the report is transmitted to the sponsoring agency or organization and then it is released to the public.

The study process (see Figure below) aspires to produce a consensus report that represents the views of the entire committee and could not have been written by an individual or even a small subset of the committee members. Therefore, the consensus process must not only modulate diverse viewpoints, but also blend various types of expertise to achieve new insights or interpretations of relevant evidence presented with a single voice. This requires active participation by all committee members and strong leadership from a committee chair (see Box 1 for roles of the committee chair).

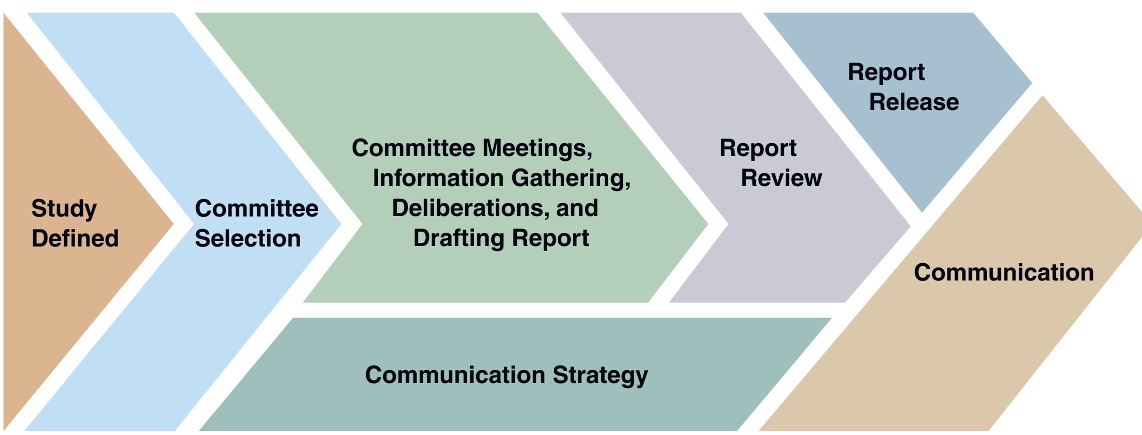

FIGURE **The Academies Study Process**

The Academies study process is designed to protect the integrity and independence of the committee's work. After the Statement of Task is agreed on, committees maintain an arm's-length relationship with the study's sponsor in order to preserve their independence. In particular, the sponsor will not have an opportunity to see draft materials or otherwise appear to influence the content of the report. The Academies will provide support to committee members if external groups or individuals try to inappropriately influence the study.

COMMITTEE SELECTION

The search for candidates for committee membership is initiated by the Academies staff. In defining areas of expertise that should be represented on a committee and identifying individuals who are qualified to serve, the staff reviews scholarly literature and consults widely with Academies members and volunteers, knowledgeable authorities, and professional associations. Sponsors may offer suggestions but do not select committee members. Committee members are chosen based on their knowledge and experience in the various aspects of the topics to be investigated; they serve as individuals, not as representatives of organizations or interest groups. After careful review, committee members are appointed by the president of the National Academy of Sciences. The names, affiliations, and short biographies of committee members are posted for public comment in the "Current Projects" area of the Academies website at www.national-academies.org.

BIAS AND CONFLICT OF INTEREST

The credibility of a report can be called into question if its committee is perceived to be biased or have conflicts of interest. Potential sources of bias and conflict of interest are significant issues taken into consideration in the selection of committee members and re-examined periodically throughout the study process.

Recognizing that each individual who is knowledgeable about a subject brings his or her own biases and experiences to any study effort, the Academies adopted specific procedures to achieve balance in the committee membership and to avoid conflict of interest. At the time of appointment, each committee member is required to list all professional, consulting, and financial connections, as well as to describe pertinent intellectual positions and public statements by filling out a confidential form, "Background Information and Confidential Conflict of Interest Disclosure." The committee appointment is not finalized until the Academies staff members complete a review of this information for potential conflict of interest and bias and the provisional committee members discuss this information in a closed session of the committee.

If a potential conflict becomes apparent after the committee is appointed, the committee member may be asked to resign. In exceptional circumstances, an individual may continue to serve on the committee if the Academies determine that the conflict is unavoidable and the conflict of interest is publicly disclosed on the Academies website. When a question of bias arises, the usual procedure is to add members to the committee to achieve appropriate balance.

OBJECTIVES FOR THE FIRST COMMITTEE MEETING

When committee members assemble for the first time, they are likely to have many questions about the study's purpose and the plan for completing it, about their colleagues on the committee, and about what they can contribute individually. The first meeting will be carefully planned by the Academies staff and the committee chair to answer these questions. The objectives of the first meeting almost always include the following:

- Introduce the committee to its charge by clearly conveying the Statement of Task and the study's origins and context.
- Describe the expectations for the study from the sponsors and other audiences of which the committee should be aware.
- Identify the core audiences and stakeholders for the study.
- Highlight issues that may be potentially controversial or contentious.
- Acquaint committee members with one another through discussion of the committee's composition and balance in light of its charge, including a discussion (which takes place in a closed session) of committee members' biases and conflicts of interest, if any.
- Explain the institutional study process, including report review and release.
- Discuss and adopt a work plan for the study that encompasses such elements as research methods (including defining "standards of evidence" on which the findings, conclusions, and recommendations will be based), writing assignments, topics for future meetings, schedule, and deadlines.
- Allow committee members to get better acquainted and begin the process of building mutual trust.
- Inform the committee about handling inquiries from the press (for high-visibility studies).

Box 1. The Roles of the Committee Chair

Each study committee is led by a chair who assumes four key roles in a study:

1. **Leader, facilitator, and team builder.** As leader, the chair helps to frame the issues, sets the tone for the committee's discussions, and encourages the expression and constructive discussion of diverse viewpoints. At every meeting, the chair strives to ensure that each committee member has the opportunity to express opinions and otherwise contribute to the study process. Throughout the process, the chair acts as a team builder in order to achieve consensus on key issues.
2. **Partner to the Academies study director and staff team.** The chair and the Academies study director are a management team with complementary roles. The chair serves as the study director's partner in managing the study—identifying problems, developing strategies to resolve them, and cooperating to keep the committee on schedule. The study director works with the chair to develop agendas for committee meetings, prepare background materials, write or edit portions of the report, and stay in regular contact with members of the committee.

3. **Intellectual leader during report development.** The chair directs a creative effort that starts with the development of a report's architecture and progresses through information gathering, analysis, and committee deliberations; development of findings, conclusions, and recommendations; and production of a final report. The chair also works with the study director on what is often a substantial challenge—integrating the various parts of the report so it speaks with a single voice.
4. **Spokesperson for the committee.** The chair is the chief spokesperson for the committee and its report. During the study process, inquiries from journalists can be sent to the study director, who will confer with the Academies Office of News and Public Information (ONPI) on how to respond. Often it is best to set up a brief interview with the committee chair, who can explain the committee's task and the study's purpose. After the committee's report is released, the chair often will be asked to represent the perspective of the committee through dissemination activities such as briefings, press conferences, and congressional testimony.

During the course of a study, the chair may delegate or share some of these roles with the Academies staff and other committee members. However, the chair remains the principal leader for the committee throughout the project. Studies that bridge disciplines or fields lend themselves to leadership by co-chairs who jointly carry out the roles described above. Other studies may designate a vice chair to support the chair in working with the committee and staff.

More detail about the chair's roles can be found in *The Study Process of the National Academies of Sciences, Engineering, and Medicine: A Guide for Committee Chairs.*

Gathering Information and Deliberating

Although each committee's work plan is specific to its Statement of Task and to the time and resources available, consensus studies have basic elements in common, as shown in the Figure on page 4. All committees begin by gathering information and reviewing the evidence base relevant to the questions at hand. Committees then deliberate in order to identify their findings and formulate their conclusions and recommendations.

INFORMATION-GATHERING ACTIVITIES

In gathering information and evidence to inform its findings, conclusions, and/or recommendations, the committee may undertake one or more of the activities described below, depending on the task and the resources available.

Literature reviews. The Academies staff, or in some cases a combination of committee members and staff, conduct a thorough review of scientific and technical literature relevant to the Statement of Task, including any previous Academies work in the same area. Literature reviews may also be commissioned in particular areas from experts or consultants not on the committee.

Public meetings. Committees may hold one or more public meetings to gather input from experts in the field, stakeholders, and members of the public. Such efforts can be as extensive as a multi-day workshop hosted by the study committee or as modest as an afternoon of presentations and panel discussions held during a committee meeting. Gathering input this way both increases the transparency of the study process and augments the committee's expertise. When the Statement of Task requires a committee to review the program of an agency, the leadership and technical staff of the sponsoring agency are asked to brief the committee on relevant aspects of the agency's programs.

Site visits. If a particular site or sites are relevant to a study, the committee may visit them, generally as part of a public portion of a committee meeting. For example, committees tasked with looking at the impacts of policies on particular ecosystems or species frequently visit the affected locations and speak with land and resource managers, local scientists, and members of the public.

Commissioned papers and analyses. Papers or data analyses from outside experts can provide valuable information and augment committee members' expertise. If the committee decides to commission papers or analyses, it should identify topics and authors early in the study process (with guidance from the study director about the number of papers possible from a budgetary perspective, as most commissioned paper authors are paid). The study director will then initiate contact with the commissioned paper author(s) and manage the contracting and drafting process.

Statements (written or oral). A committee may wish to solicit statements from individuals or organizations to inform its deliberations. Statements can be submitted in writing and/or presented orally as part of a discussion at a public meeting. In some cases, committees extend an open invitation for statements via an online form. Committees also may send invitations for statements to select groups as long as consideration is given to representing a balance of viewpoints from key groups in the field. All statements received should be considered during the committee's deliberations and included in the project's public access file. (It is important to distinguish between the informal solicitation of statements and a formal, structured representative survey. The latter is rarely conducted and raises concerns about methodology, appropriateness, and possibly whether institutional review board approval is needed.)

COMMITTEE DELIBERATIONS

Together, the information gathered through the activities described above provides an evidence base on which the committee's deliberative process builds. A successful report is the result of a dynamic group process, requiring that committee members be open to new ideas and be willing to learn from one another. Committees are expected to be evenhanded and to examine all evidence dispassionately. Although all interested parties should be heard and their views given serious and respectful consideration, one of the committee's primary roles is to distinguish fact from opinion and analysis from advocacy. Scientific standards of evidence are mandatory in evaluating all arguments and proposals.

Committee deliberations take place in closed, nonpublic sessions, free from outside influences. The process by which the committee deliberates confidentially is a cornerstone of the Academies studies (see Box 2 for information on responding to media inquiries during a study).

At the same time, the Academies study is designed to be open and transparent whenever possible. For example, although the committee can hold closed meetings to deliberate in private, any meeting in which committee members are gathering information from an outside party—anyone who is not a committee member or an official, agent, or employee of the Academies—must be open to the public, with limited exceptions. In addition, throughout the course of the study, any written materials provided to the committee by outside parties, including substantive e-mail communications, must be maintained in a public access file and made available to requestors through the Public Access Records Office of the Academies. For this reason, committees should not accept materials labeled as proprietary or for official use only, as those materials must thereafter be available to the public.

Box 2. Responding to Media Inquiries During a Study

Until the report is publicly released, the chair and committee members should not make public statements about the report's findings, conclusions, or recommendations. At no time—even after the report's release—should they discuss confidential elements of the process, such as closed meeting deliberations. If a committee member is contacted by a reporter prior to the report's release, he or she should contact the study director, who will coordinate with the Academies' Office of News and Public Information (ONPI) to arrange a specific time for an interview—either with the committee member contacted or with the chair, who serves as the committee's main spokesperson throughout the study. Comments in interviews during the study should be restricted to descriptive information about the study—the Statement of Task, members of the study committee, the sponsor, and the cost.

Of course, committee chairs and members have backgrounds, expertise, and opinions independent of their committee service and they may receive media requests for interviews during the course of the study. If they are contacted by the media for information that is not specifically related to the study's charge but would have implications for the study, there is a chance that responses given will be attributed to the committee or be interpreted as indicating a bias on the committee member's part. Therefore, committee members should be very cautious and conservative in any public comments made during the course of the study. Again, the study director and ONPI are able to assist with any questions about how to respond to the media.

DEVELOPING FINDINGS, CONCLUSIONS, AND RECOMMENDATIONS

As the committee reviews the information it gathered and deliberates, it strives to come to consensus around findings, conclusions, and recommendations. Not every report will have all three types of content, as this depends on the charge to the committee.

Findings. As the committee reviews the evidence gathered through literature reviews, public meetings, and other activities, the chair will lead members in discussions to identify findings, or statements of fact, based on the available scientific evidence. First, it will be important for the committee to come to agreement about what constitutes evidence and discuss ways to evaluate the strength of that evidence. Evidence typically comes from published literature, original analyses, or an explanation of the committee's reasoning.

For an example of an acceptable finding, see the statement below from *Best Care at Lower Cost: The Path to Continuously Learning Health Care in America*, a 2012 report from an Institute of Medicine committee charged with identifying priorities to accelerate continuous improvement in the value of health care:

> *Clinicians reimbursed for each service tend to recommend more visits and services than clinicians who are reimbursed under other payment methods.*

Conclusions. After a committee's findings are established, conclusions—inferences, interpretations, or generalizations—are based on findings drawn from the evidence. The strength and scope of the evidence determines the strength and scope of the allowable conclusions. Although committees sometimes rely on collective judgment to reach conclusions, objective evidence is a stronger basis for conclusions and, subsequently, recommendations. The following conclusion is drawn from the finding above:

The prevailing approach to paying for health care, based predominantly on individual services and products, encourages wasteful and ineffective care.

Recommendations. As a committee's findings and conclusions emerge from the evidence, the committee should identify opportunities for recommendations, *if called for* in the Statement of Task. Recommendations are specific actions directed to specific actors related to policy, practice, or subsequent research. Recommendations should be based on evidence and supported by the committee's findings and/or conclusions. The finding and conclusion above provided the basis for the following recommendation and corresponding strategies or sub-recommendations:

Recommendation: Financial Incentives
Structure payment to reward continuous learning and improvement in the provision of best care at lower cost. Payers should structure payment models, contracting policies, and benefit designs to reward care that is effective and efficient and continuously learns and improves.

Strategies for progress toward this goal:

- *Public and private payers should reward continuous learning and improvement through outcome- and value-oriented payment models, contracting policies, and benefit designs. Payment models should adequately incentivize and support high-quality team-based care focused on the needs and goals of patients and families.*
- *Health care delivery organizations should reward continuous learning and improvement through the use of internal practice incentives.*
- *Health economists, health service researchers, professional specialty societies, and measure development organizations should partner with public and private payers to develop and evaluate metrics, payment models, contracting policies, and benefit designs that reward high-value care that improves health outcomes.*

Because a study's findings, conclusions, and recommendations will be the most read portions of a report, they should be carefully worded so that they are not subject to misinterpretation and can stand on their own. The number of findings, conclusions, and recommendations should be limited to the essential points that the committee wishes to make, because too many may clutter the report's key messages and make it less likely that key recommendations will be implemented (see Box 3 for writing effective recommendations).

Box 3. Writing Effective Recommendations

The recommendation on the previous page, which has an overarching statement followed by specific strategies, reflects one possible format. Although committees have flexibility in determining the format of their recommendations, they should follow these guidelines as they develop actionable recommendations:

1. Express recommendations in the active voice. Specify an actor, an action, and (when feasible) a time frame for action in each recommendation.
2. Recommend actions that can be evaluated. Is there a way to tell whether the recommendation has been acted on? If acted on, is there a way to assess whether the recommendation had the intended effect?
3. Recommend a single way to accomplish the goal(s) of the recommendation if the evidence points to one best way. Recommend a set of acceptable means to carry out the recommendation if that is more in keeping with the evidence. If more than one way to achieve the goal(s) is offered, provide the pros and cons of each in the text of the report.
4. Remember that less is more. Only the most important ideas should be expressed as recommendations. Think very carefully about the need for each recommendation if the number of recommendations exceeds a dozen. Make recommendations as succinct as possible.
5. "Should" is almost always a more appropriate word than "shall" or "must" in a recommendation. Bear in mind that neither the committee nor the Academies is in a position to make its recommendations compulsory.
6. Identify recommended actions as recommendations and use boldface to highlight the essence of each recommendation. Burying the recommendation in background text causes confusion about the committee's intent.
7. For clarity of exposition, various recommendations may be clustered under subheadings.
8. Use parallel construction. For example, do not state some recommendations with action verbs and others with gerunds.
9. Avoid the obvious. If a recommendation would be immediately accepted by anyone who had not read the report, it is probably too obvious to be worth including.
10. Avoid making budgetary recommendations unless they are explicitly requested in the Statement of Task. Recommendations for organizational changes (i.e., creating a new government agency or commission) will also receive heightened scrutiny during review.
11. Avoid making recommendations for additional work by the Academies.

Writing the Report

Reports are the principal enduring products of the Academies studies. Creating, writing, and revising the committee's report can be the most challenging part of a study, and complications during report development are among the most common causes of project delays. Therefore, it is important to have a clearly defined approach to report development and a set of milestones against which progress can be gauged.

STARTING EARLY

Discussions with the committee about the structure of the report must get under way early. The chair and study director will typically spearhead such discussions with the preparation of a "straw man," or a draft working outline of the report, usually during the first committee meeting or shortly thereafter. Some key steps in developing a report outline include

1. Preparing a preliminary outline.
2. Expanding the preliminary outline of the report to flesh out the committee's messages.
3. Developing a report concept to highlight what each chapter of the report will cover, show how the chapters relate to each other, and demonstrate how the report will tell its "story."

DRAFTING AND REVISING TEXT

Writing and revising the report is an iterative process that continues throughout the information-gathering and deliberative phases of the study. As progress is made in the information-gathering phase, it is important to develop a first draft of the report, based on the report outline and concept, for consideration by the committee. The text may be drafted by committee members, Academies staff, a hired writer, or some combination, depending on the resources and time available. The committee and the staff should not delay starting on drafting the report because of lack of consensus on key issues. Beginning the writing process in a timely fashion will reveal areas of strength and weakness in the consensus that otherwise would not emerge until late in the study.

In cases in which committee members contribute to the writing, the chair, working with the study director, assigns the writing of chapters or sections to teams or individuals. Committee members should understand there is no exclusive ownership of specific issues. Drafting a chapter for an Academies report is not the same as writing a chapter in an edited book, where there is deference to the author's language. Committee members' writing—and even some of their conclusions—can undergo extensive modification through the committee's deliberative process. To ensure efficiency, clear parameters in terms of content, style and tone, and approximate page limits for each contribution should be agreed on before committee members start their assigned writing. Appropriate deadlines should be determined from the outset.

The chair often acts as intellectual leader and integrator during the report's development. On a study with sharp differences of view, the chair may compose a "neutral version" of sections, or a version that incorporates arguments from the opposing sides, rather than writing initial drafts. On the other hand, if a chair brings special expertise to particular topics, he or she may be the best choice as the initial writer on those topics. As the development of a report progresses, the chair and the study director will work with the committee to ensure that the report as a whole evolves as a consistent, well-reasoned, and coherent document.

ACHIEVING A HIGH-QUALITY REPORT

Some key principles and practices for developing a high-quality report with lasting value include the following:

- The report must respond to the Statement of Task in its entirety but should not go beyond it.
- The report's development should be guided by high standards for clear, scientific, scholarly writing and be appropriate for the intended audiences.
- Sources of information and data should be selected based on their quality and authoritativeness and cited appropriately.
- The report's tone and substance should be objective and free from prejudice and self-interest.
- The findings, conclusions, and recommendations of the committee should flow logically from the evidence base on which the report relies and from clear, coherent arguments presented in the report.
- The report should distinguish the committee's evaluations and judgments from the work of others.
- Judgments based on the committee's expertise rather than evidence presented are appropriate but should be identified as such and used sparingly. The rationale for the judgments should be explicit. The expertise and authority of the committee members should be demonstrated through analysis and reasoning rather than being presumed as sufficient foundation for findings, conclusions, or recommendations.
- Uncertainties in the evidence, in the lines of reasoning employed, or in the committee's judgments should be explicitly identified and addressed.
- Consensus on findings, conclusions, and recommendations is a highly desirable attribute of study reports. However, if coming to consensus would skew an important majority position of the committee, it is better to explain the lack of consensus than to obscure it through compromise.
- In the event of failure to reach consensus, it is important to clearly identify and bound the areas about which disagreements still remain on the committee. If properly explained, a minority opinion or position could help direct attention to issues or areas where additional knowledge is especially needed.

WRITING WITH IMPACT IN MIND

Although the Academies reports deal with complex subjects, conclusions and recommendations should be distilled and explained as clearly as possible—an effort that will increase the likelihood of successful dissemination and impact when the report is released. Many worthwhile reports received less attention than possible because their recommendations were too indirect or convoluted. Thus, a critical task for any committee is to decide exactly what its "message" is and to say it clearly. Reports with direct core messages are far more likely to receive attention from busy reporters, legislators, and others.

Related directly to the job of defining the message is the need to define the audience for a report or a project. Done as early as the first committee meeting, the audience should be considered throughout the study process. This requires the committee and staff to think through the expected consequences and impact of its work. Is the committee reviewing the technical programs of a single federal agency or devising solutions for a broader, pervasive problem? Which specific groups can carry out or will be affected by the committee's recommendations? With the report's audiences in mind, the committee can determine more easily whether its report is understandable to and useful for the right people.

DEVELOPING THE REPORT SUMMARY

The report must contain a summary of no more than 5,000 words. Because it must represent the content of the report, the summary is generally drafted last in the process. Despite this, it should not be given short shrift in terms of time or attention. Many of the report's eventual audience will read only the summary and not the chapters that follow, so it is important that the summary clearly and concisely convey the report's most important messages.

RECOMMENDING A REPORT TITLE

The report's title is the first opportunity to communicate the key messages beneath the cover, so the committee's input in the development of the title is important. Titles may take the form of a statement or a question and may include a subtitle or not. Titles should be descriptive, reflecting the content of the report. Additionally, titles should be concise, clear, discoverable by search engines, and memorable. Too many words of a generic nature in a title will render it forgettable and undiscoverable via search engines. Titles that are "too cute" and not reflective of the content may hinder the audiences' ability to recall and understand the purpose of the report. The committee's recommended title, like the report text, is subject to review.

Report Review

Report review is an integral part of the committee's deliberative process. All products of the Academies are reviewed by external experts who were not materially involved in the study process or in the manuscript's preparation. Input from a diverse group of reviewers with expertise in areas addressed by the report allows the authors to strengthen what, in most cases, is already a sound manuscript and to ensure the report conforms to institutional policies. Until a report draft clears report review, it is subject to change and it may change in important ways. A report is not finished and cannot be released to the sponsor or the public until the review process is completed.

GOALS OF REPORT REVIEW

Report review is the last opportunity a committee has to ensure its report is technically sound, clear, and objective before releasing it to the public. To that end, reviewers are asked to assess whether a consensus report:

- fully addresses the approved study Statement of Task without exceeding it;
- contains only statements, findings, conclusions, and recommendations supported by the evidence and arguments presented in the report;
- treats sensitive policy issues with appropriate care;
- maintains an impartial tone; and
- is effectively organized and well written.

The report review process is overseen by the Report Review Committee (RRC), a group composed of members of the National Academy of Sciences, National Academy of Engineering, and National Academy of Medicine. Each division executive office has designated staff members who work with RRC to manage the review process.

With input from the committee and others, the Academies staff members put together a slate of reviewers that reflects broad expertise and diverse perspectives on key issues considered in the report. The RRC and the Academies leadership have an opportunity to add specific reviewers or areas of expertise to the slate; for example, they may add members of one or more of the three Academies. A consensus study typically has from 8 to 12 reviewers, but the number varies depending on the complexity of the report.

COMMITTEE SIGN-OFF AND ENTERING REVIEW

Before a draft report can enter review, each member of the committee must agree that the draft report is ready. A committee member's sign-off indicates that he or she believes the report reflects the consensus views of the committee—not necessarily that it is the exact report he or she would have written individually.

Following committee sign-off, reviewers receive a copy of the draft report, including the front matter, summary, main text, and appendixes. Reviewers are asked to provide written comments on any and all aspects of the draft report and to pay particular attention to the review criteria bulleted in the "Goals of Report Review" section above.

ROLE OF THE MONITOR AND THE COORDINATOR

The review process is overseen by a monitor (appointed by the RRC) and a review coordinator (appointed by the relevant division) or sometimes by just one of the two. The monitor and the coordinator are volunteers who serve as impartial arbiters to ensure that the review is independent and rigorous and the revised report satisfies the Academies' review criteria and standards. They do not provide their own reviews of the draft, but carefully examine each reviewer's comments and compile a summary of key review issues for the committee's response.

RESPONDING TO REPORT REVIEW

The process for involving individual committee members in the response to review (often referred to as the RtR) is decided by the chair, committee, and staff. Often, the committee members delegate the preparation of responses to the bulk of the comments to the chair and staff, and specific technical comments may be addressed by particular committee members. However, all significant changes to the report—such as changes to the findings, conclusions, or recommendations—should be discussed with the entire committee, usually via e-mail and conference calls. It is the responsibility of the chair and the staff to ensure that each committee member has the opportunity to examine and concur with responses to reviewers' comments and that each committee member signs off on the revised report before it is delivered to the sponsor and released to the public.

The monitor and the coordinator evaluate the committee's responses and decide whether the revised draft adequately responds to the reviewer comments. For each reviewer comment, the monitor and the coordinator need to see the committee's written response, along with related revisions to the draft, if any are made. Often, further negotiations are required before the monitor and the coordinator are fully satisfied. Although it is uncommon, reports may have to go through a second round of review, particularly in the case of highly controversial topics or when a committee has difficulty reaching consensus. Once the monitor and the coordinator are satisfied with the response, they recommend signoff to the RRC and the relevant division, respectively, and the report can be prepared for release.

TIMELINE FOR REVIEW

The key to successful review is to establish and adhere to a reasonable timeline—one that allows adequate time for each step of the process. The goal is, ideally, to submit a manuscript to the RRC no later than 3 months prior to the date of expected release. The 3-month timeline allows for report review, including receipt of reviewers' comments, response to the comments, any further negotiations with the monitor and the coordinator, editing, and preparation of the manuscript for release. However, timing for report review is highly variable and review may need to be extended to ensure a high-quality final report that is responsive to reviewer comments or expedited for fast-track reports with urgent deadlines.

Report Release and Communications

Throughout the report process, the chair, committee, and staff should consider the target audiences' information needs and plan for effective dissemination and outreach with the desired impact in mind. While the report is in review, the chair and the staff will work closely with the Academies Communications Officers, the Office of News and Public Information (ONPI), the Office of Congressional and Governmental Affairs (OCGA), and the National Academies Press (NAP) to plan the report's release and subsequent communication activities. (See Table below for more information about the role of these supporting offices.)

Effective communication strategies are defined not by whether a report gains wide attention, but if it reaches its intended audience. Some report topics may be of interest to a select group of scientists and policy makers in a narrow field; others may have relevance for many stakeholders or a large segment of the public.

Both before and after release, the chair serves as the chief spokesperson for the committee and its report. The chair often will be asked to represent the perspective of the committee through such dissemination activities as briefing the sponsor(s), Congress, or the public; presenting at professional meetings; or providing congressional testimony. Select committee members are usually recruited to participate in such activities as well.

TABLE Supporting Offices and Their Role in Report Release and Dissemination

Academies Office	Role in Report Release and Dissemination
Division Communications Officers and Staff	Division communications staff handle Academies report review, report production, dissemination materials such as the report brief, coordination of dissemination activities with the offices listed below, division-level Web communications, and other strategic communications based on the report's audience.
Office of News and Public Information (ONPI)	ONPI is the liaison between the Academies and the news media. For reports that warrant a high level of public dissemination, ONPI works closely with staff to develop a release plan that may include a news release, public briefing, press conference, embargo arrangements, outreach to targeted journalists, social media, op-eds, and preparation for committee members to help them speak comfortably with journalists and handle potentially difficult inquiries.

Office of Congressional and Governmental Affairs (OCGA)	OCGA is responsible for dissemination and outreach to Congress and sometimes to the executive branch of government. Dissemination of reports that are congressionally mandated involves specific guidelines for briefing members of Congress. For other reports, OCGA informs concerned members of Congress and the appropriate congressional committees.
The National Academies Press (NAP)	NAP is the publisher for the Academies. NAP professionally produces the Academies reports and readies them for both online dissemination and distribution via print. NAP markets reports extensively to libraries, booksellers, and other intermediaries as well as to individuals. All reports published by NAP are available for sale in hard copy and also are posted online to read and to download as free PDFs. NAP's marketing staff members identify modes of reaching intended audiences for a report in conjunction with study staff, including through e-mail, social media, and traditional outlets.

REPORT RELEASE

The division communications staff members, ONPI, OCGA, and NAP work with the committee and program staff to determine the appropriate format in which to publicly release each report. Release typically involves transmitting the report and presenting its findings to a number of audiences, including the sponsor; policy makers in Congress and relevant government agencies; the media, which will reach many public audiences; and the targeted stakeholders identified early in the study process. When appropriate, dissemination materials—such as news releases, report briefs, short messages for social media, videos, infographics, or other products—may be developed to reach target audiences.

The study sponsor(s). Before the public release of a report, copies of the report are transmitted to the sponsoring organization(s). In addition, the Academies staff usually arrange a sponsor briefing—an opportunity for the chair and designated committee members to discuss the report's findings and recommendations with representatives of the sponsor.

Policy makers. Typically, OCGA offers briefings to members of Congress and/or their staff members prior to a report's public release; for congressionally mandated studies, offering pre-release briefings is mandatory. These Hill briefings typically occur shortly after the sponsor is briefed and before the report is released to the public. OCGA may also arrange briefings for federal agencies that may be affected by a report's recommendations. However, not all reports will require Hill or agency briefings.

The media and public. With rare exceptions that require approval from the Academies' executive office, reports must be released to the public within 10 business days after they are transmitted to the study sponsor; Congress is typically briefed after the sponsor and before the public release. Sensitive reports may need to be released within 1 day of delivery to the sponsor and Congress in order to minimize the risk of leaks. A report may be made public through a variety of communication channels; ONPI will work with the committee and the staff to determine the appropriate channel for each study. If a report's topic is narrowly focused or of a technical nature, it may be posted on the NAP website at a designated date and time without a news release or release event. Alternatively, ONPI may determine that a news release is necessary to pique media interest and give reporters succinct guidance about the key messages in the report. In some cases, a release event may be warranted. A release event may be open to interested stakeholders as well as media; this is called a public briefing. In rare cases, ONPI determines that there is a need to hold a telephone or an in-person press conference, which is an event open only to journalists. In either case, the event allows attendees to learn about the report and engage directly with the chair and selected members of the study committee, rather than through secondary sources. Committee members answer questions and provide context on the spot, reducing ambiguity and speculation. Some reports may also lend themselves to op-eds by committee members; these should be coordinated with ONPI.

BEYOND THE RELEASE

After the report is delivered to the sponsor and released to the public, the vast majority of the committee's work is done. However, in nearly every study, there will be opportunities to communicate about the report after release. It is important for the committee to discuss in advance potential opportunities, such as professional events on the topic of the report, and to identify members who have availability and interest in speaking about the report. The Academies staff and ONPI, OCGA, and NAP will make every effort within available resources to ensure that a report's message reaches the appropriate audiences and there is opportunity for its findings, conclusions, and recommendations to be heard and to inform decision making.

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