

ACC METHODOLOGY DOCUMENTS

2019 Methodology for Creating Expert Consensus Decision Pathways



A Report of the American College of Cardiology

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PREFACE

The American College of Cardiology (ACC) has a long-standing history of developing clinical policy documents to provide members with guidance on both clinical and nonclinical topics relevant to cardiovascular care. While clinical practice guidelines remain an important mechanism for offering evidence-based recommendations, such guidelines may contain gaps in how to make clinical decisions, particularly when equipoise is present in a topic.

To help inform clinicians about areas where evidence may be new and evolving or where sufficient data may be more limited, the ACC established Expert Consensus Decision Pathways as a format for addressing key questions facing members across a range of high-value clinical topics. Their methodology is grounded in assembling a group of clinical experts to develop content that builds consensus advice to support clinical decision(s) around an area where there is a need for guidance, but that has not yet been addressed elsewhere. This content is used to inform the development of various tools that accelerate real-time use of clinical policy at the point of care. Expert Consensus Decision Pathways seek to provide unified articulation of clinical practice guidelines, appropriate use criteria, and other related ACC clinical policy. In some cases, covered topics will be addressed in subsequent Clinical Practice Guidelines as the evidence base evolves. In other cases, these will serve as standalone policy.

To support the development of Expert Consensus Decision Pathways, member leaders determined the need for guidance as well as the standardized approach. A writing committee was then commissioned to provide important context behind the development of and framework for Expert Consensus Decision Pathways (Writing Committee and peer reviewer relationship with industry [RWI] are disclosed in [Appendixes 2 and 3](#),

respectively.). It is clear there may be multiple approaches to their creation; thus, the goal of this effort is to delineate a general process to support their execution.

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Expert Consensus Decision Pathways*

1. INTRODUCTION

1.1. Background

The concept of Expert Consensus Decision Pathways resulted from an effort led by an ACC Presidential Task Force in 2014 to appraise clinical policy documents, including expert consensus documents. The chief recommendations of this Task Force included the following: 1) focus on developing concise decision pathways as an alternative or complement to traditional longer documents; 2) develop criteria for identifying high-value clinical topics; and 3) leverage the innovative approach of collecting input from thought leaders via in-person multidisciplinary stakeholder meetings.

As a result of these recommendations, the publications previously known as “Expert Consensus Documents” were rebranded as “Expert Consensus Decision Pathways.” Expert Consensus Decision Pathways function as a complement to the knowledge provided by Clinical Practice Guidelines. If Guidelines are the “why” of treatment, the Expert Consensus Decision Pathways provide “the how”:

1. Practical guidance for transforming guideline recommendations into clinically actionable information (the “how”),
2. Clinical guidance that helps the clinician make sense of quickly-evolving scientific evidence, and
3. Dissemination of new information that has strong levels of evidence, but that might not have yet been incorporated into Clinical Practice Guidelines.

To date, Expert Consensus Decision Pathways have been focused across a spectrum of cardiovascular disease states, including lipid disorders, antithrombotic therapy and bleeding, valvular heart disease, heart failure, coronary artery disease, cardiovascular risk reduction in type 2 diabetes, and tobacco cessation (1-8); currently, the scope of Expert Consensus Decision Pathways is widening to include the development of guidance on the management of conduction disturbances for TAVR and same-day discharge after PCI, as well as various other topics.

As ACC continues to drive its vision of “a world where innovation and knowledge optimize cardiovascular care and outcomes” (9), the process for developing Expert Consensus Decision Pathways has evolved to accommodate the rapid translation of the latest cardiovascular science for real-time use at the point of care. The following methodology supports the evolution of Expert Consensus Decision Pathways development and reflects a process that has been adapted to accommodate the ACC’s new strategic plan (10).

1.2. Expert Consensus Decision Pathways and Solution Sets

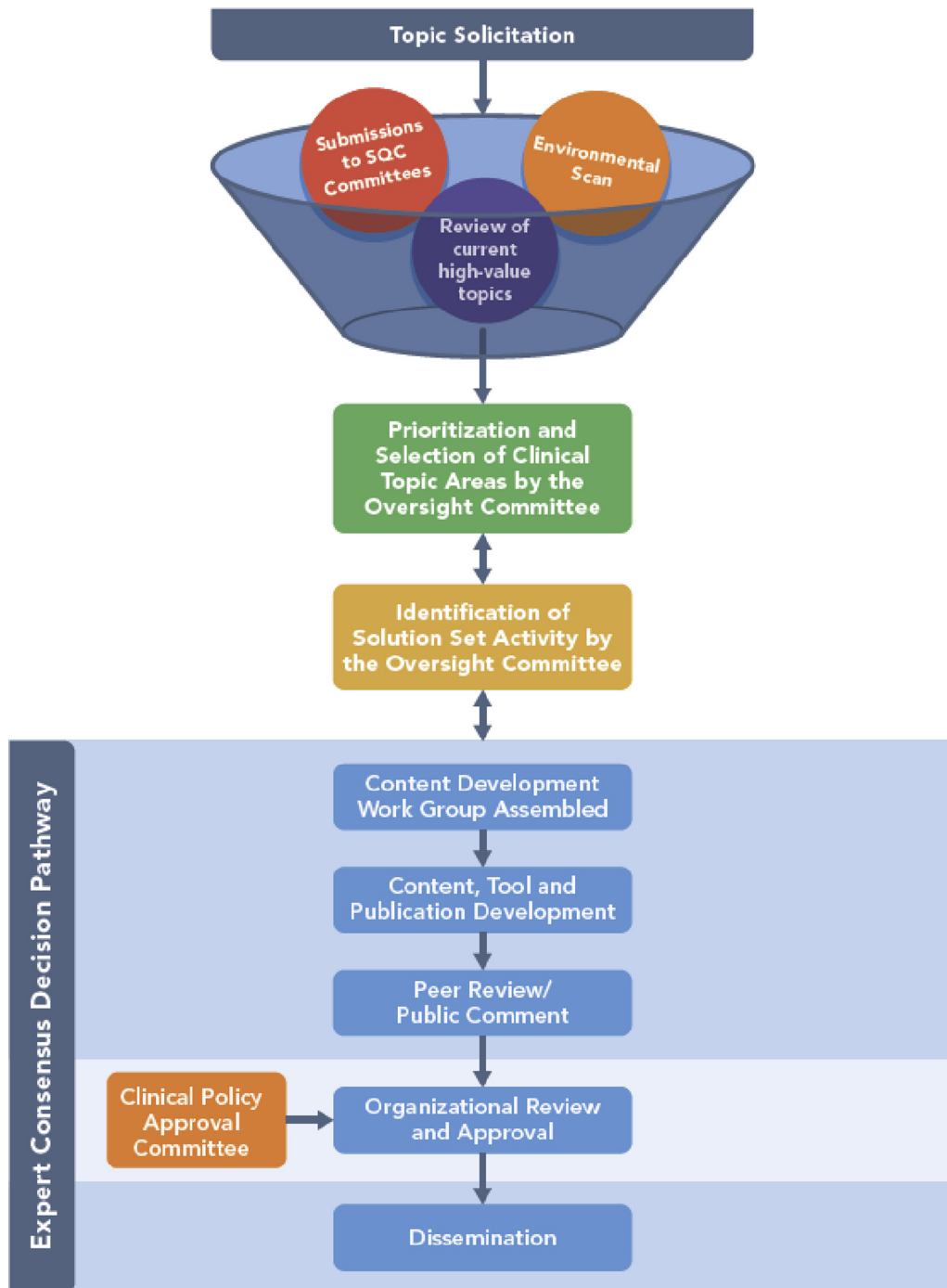
A key focus area of the College’s new strategic plan is “actionable knowledge,” a concept that places emphasis on making clinical information easier to consume, share, integrate, and update. One application of actionable knowledge is the development of “solution sets.” The Science and Quality Committee, one of the ACC’s major strategic committees, has established the concept of solution sets as closely related activities, guidelines, expert consensus pathways, health policy statements, mobile applications, appropriate use criteria, decision supports, and myriad other tools necessary to transform cardiovascular care and/or improve heart health. An oversight committee within the Science and Quality Committee determines how each high-value clinical topic should be addressed, through existing and evolving mechanisms, by empowering content development work groups with the appropriate expertise.

Expert Consensus Decision Pathways are an important component of solution sets. Expert Consensus Decision Pathways articulate concise and focused practical guidance around high-value clinical topics. Of note, the goal of an Expert Consensus Decision Pathway is not to provide a single correct answer, but to encourage clinicians to ask certain questions and consider key factors as they come to their own decision on a treatment plan to be recommended and discussed with their patients. Given the nature of clinical evidence, there may be multiple reasonable treatment options for physicians and patients to consider together.

2. SUMMARY GRAPHIC

Figure 1 summarizes both the process for identifying Expert Consensus Decision Pathway topics as well as how they are developed and published. The subsequent sections following the figure will provide a more detailed description of those processes.

FIGURE 1 Process for Topic Identification and Expert Consensus Decision Pathway Development



SQC = Science and Quality Committee.

3. TOPIC SELECTION AND PRIORITIZATION

3.1. Topic Selection

The Science and Quality Committee oversees topic selection and prioritization of solution sets, which include Expert Consensus Decision Pathways, as a means of providing appropriate alignment with its strategic goals. The committee determines high-value topics by drawing on the expertise and guidance of its members and conducting environmental scans of new scientific developments and member needs. An oversight committee within the Science and Quality Committee is charged with overseeing the development of Expert Consensus Decision Pathways, ensuring their alignment with the high-value topics determined by the Science and Quality Committee, and ensuring that their use in clinical practice drives meaningful outcomes.

3.2. Topics Determined by Heart House Roundtables

Heart House Roundtables have also served as a means of identifying topics that lend themselves to Expert Consensus Decision Pathways. Heart House Roundtables convene a group of multidisciplinary stakeholders to discuss gaps and address practical issues in cardiovascular care and work towards identifying solutions to overcome those issues and barriers to care. These meetings are focused on multiple high-priority topics in cardiology, such as anticoagulation, cardio-oncology, dyslipidemia, heart failure, and valvular heart disease. They have been pivotal in the formation of multidisciplinary stakeholder collaborations and in serving as the launching point for solution set activities.

Based on discussions and stakeholder input from these meetings, a number of high-value topics have been addressed in Expert Consensus Decision Pathways over the years (Table 1). It is important to note that roundtables or meetings are not required prior to each Expert Consensus Decision Pathway, but they may be useful for topics that require multidisciplinary stakeholder input and collaborative problem-solving.

3.3. Topic Prioritization

The Science and Quality Committee takes great care in topic prioritization, an important process and complement to existing tools and components of solution sets. High-value topics may already be addressed in Clinical Practice Guidelines, but additional expert consensus guidance may be needed where evidence is limited or evolving, and/or sufficient data is lacking to support practicing clinicians in making treatment decisions.

While no specific number of Expert Consensus Decision Pathways has been established for a given year, the

TABLE 1 List of Expert Consensus Decision Pathways Related to Heart House Roundtables

Expert Consensus Decision Pathways Published in 2016

Non-Statin Therapies For LDL-Cholesterol Lowering in the Management of Atherosclerotic Cardiovascular Disease Risk

Expert Consensus Decision Pathways Published in 2017

Transcatheter Aortic Valve Replacement in the Management of Adults With Aortic Stenosis

Periprocedural Management of Anticoagulation in Patients With Nonvalvular Atrial Fibrillation

Focused Update: Non-Statin Therapies For LDL-Cholesterol Lowering in the Management of Atherosclerotic Cardiovascular Disease Risk

Management of Mitral Regurgitation

Management of Bleeding in Patients on Oral Anticoagulants

Optimization of Heart Failure Treatment: Answers to 10 Pivotal Issues About Heart Failure With Reduced Ejection Fraction

Expert Consensus Decision Pathways Published in 2018

Role of Novel Therapies for Cardiovascular Risk Reduction in Patients With Atherosclerotic Cardiovascular Disease Risk and Type 2 Diabetes

oversight committee considers the limitations in resources and the acuity of the need for guidance in determining which topics will be pursued and which will be deferred or referred to other College committees for action.

4. CONTENT DEVELOPMENT WORK GROUPS

Content Development Work Groups support the creation of Expert Consensus Decision Pathways. Because Expert Consensus Decision Pathways are a type of ACC clinical policy, those selected to support these efforts will adhere to the same standards outlined in ACC's relationships with industry (RWI) policy for ACC-led clinical policy documents (see Section 4.3 Relationships With Industry for additional details). When the Work Group drafts the publication part of the Expert Consensus Decision Pathway, they are officially recognized as the Writing Committee for the policy document.

4.1. Content Development Work Group Chair(s) Selection and Responsibilities

Formation of the Work Group begins with the selection of co-chairs or a chair and vice chair. Chairs are identified by the oversight committee and are experts in the subject area of the Expert Consensus Decision Pathway, acknowledged leaders in the clinical community, and shall be skilled in consensus building. One of the primary responsibilities of the chairs is to facilitate conversation and consensus among the Work Group members with differing opinions. The chairs also accept the time commitment required to be available for ACC staff and Work Group members as the work progresses through

TABLE 2 Expert Consensus Decision Pathway Chair Responsibilities

- Assists with the identification of Content Development Work Group members
- Participates in and facilitating conference calls
- Delegates assignments to members of the Work Group
- Ensures that the content remains within the intended scope
- Responds to peer review and public comments
- Remaining free of relevant relationship with industry throughout the duration of the effort

content development and the peer review process. Responsibilities of the chair are detailed in [Table 2](#).

4.2. Content Development Work Group Selection

Content Development Work Groups are selected by the oversight committee chairs in coordination with the Chair of the Science and Quality Committee. Because of the varied subject matter of Expert Consensus Decision Pathways, the number of members differs from one to another, but is generally limited to 5 to 7 members. It is important that the following be taken into consideration when forming a Work Group:

1. Appropriate balance of RWI in accord with ACC’s RWI policy as well as other potential areas of bias, such as intellectual bias/perspectives or organizational relationships potentially competitive with the College.
2. Important factors such as specialty, geographic location, practice setting, career stage, demographics, and appropriate organizational/content expertise to ensure that content development Work Groups represent a diverse group of individual content experts.

Additional details concerning RWI is outlined in the next section.

4.3. Relationships with Industry

All ACC Content Development Work Groups must abide by [ACC’s RWI policy](#). As such, Work Groups are required to have at least 51% of their members (including the chair and co-chair) with no relevant RWI. Unlike the chair or co-chair, a vice chair may have relevant RWI. Consideration of RWI is reviewed throughout the progress of the Expert Consensus Decision Pathway and updated as necessary. Pathways follow the ACC RWI policy in determining what constitutes a relevant relationship, and all relationships are published, as is similarly done for Clinical Practice Guidelines and Appropriate Use Criteria documents.

All RWI must be vetted by the oversight committee. Once approved, the Content Development Work Group Chairs host an introductory call for the newly formed Work Group to begin the process of Expert Consensus

Decision Pathway creation. All Work Group tasks are supported exclusively by the ACC without commercial support.

5. EXPERT CONSENSUS DECISION PATHWAY DEVELOPMENT

One of the primary goals of an Expert Consensus Decision Pathway is to address key questions facing clinicians across a range of high-value clinical topics. Expert Consensus Decision Pathways consist of 3 components:

Clinical content: defined as the clinical decision(s) that we are trying to influence, and the information needed to influence that decision. (e.g., When and how should anticoagulation therapy be interrupted? What are the inputs to this decision? And what are the “answers” we’re providing based on those inputs?)

Tool: defined as an implement (e.g. mobile application, portable document format [PDF], checklist, decision aid, or electronic health record logic) to be used at the point of care and for the purposes of addressing specific clinical decisions.

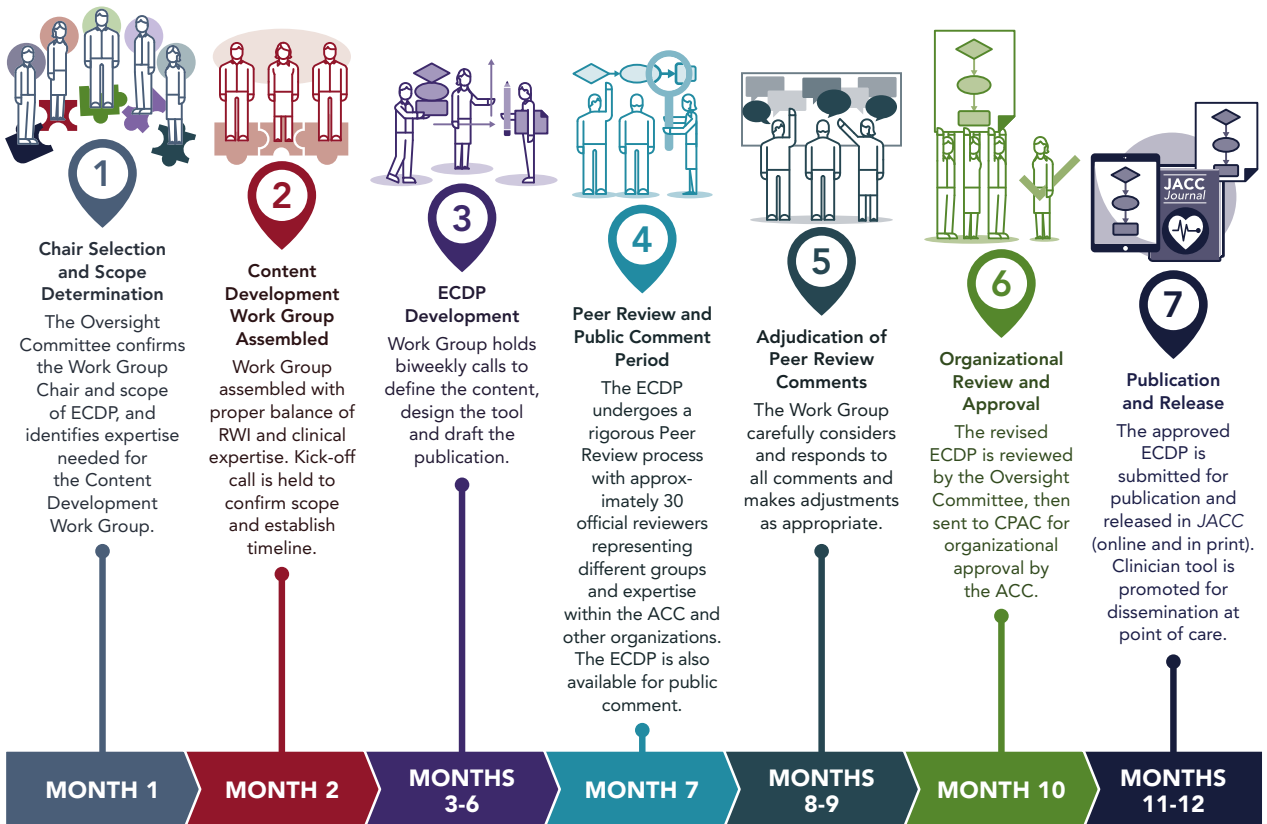
Publication: defined as the policy document providing rationale for the clinical content as well as guidance on how to use the tool in practice.

5.1. Timeline

Because Expert Consensus Decision Pathways often address areas in which clinical evidence is either evolving or in active development, timely completion is particularly important. The timeline for development is more compressed than a Clinical Practice Guideline, usually in the range of 8 to 12 months, during which time the Content Development Work Group remains vigilant in tracking new clinical evidence that emerges during the process and incorporates this evidence into the Expert Consensus Decision Pathway. A typical timeline is depicted in [Figure 2](#).

5.2. Pathway Scope

Determination of the scope of an Expert Consensus Decision Pathway is a critical early step in content development. Typically, a broad clinical topic or question is posed, and then the Work Group determines specific practice changes or clinical decisions they want to influence within the broader topic. It is important for the Work Group to work within a scope that is wide enough to provide guidance on the most important clinical questions to be addressed, yet not so broad as to be unmanageable within the narrow timeframe typically allotted for content development. Building on the solution set concept, the Science and Quality Committee recognizes that a series of policies and tools may be needed to adequately address

FIGURE 2 A Typical Timeline for Expert Consensus Decision Pathway Development

ECDP: Expert Consensus Decision Pathway

ACC = American College of Cardiology; CPAC = Clinical Policy Approval Committee; ECDP = Expert Consensus Decision Pathway; JACC = *Journal of the American College of Cardiology*; RWI = relationships with industry.

clinical topics and questions. An initial determination of scope may be made by the Work Group Chairs in conjunction with ACC staff and based on the charge provided by the oversight committee as well as the Science and Quality Committee. This initial determination is refined and agreed upon by the full Work Group early in the process, prior to development of the Expert Consensus Decision Pathway. Sometimes, minor modifications of scope are made when its development is already in process if key unanticipated questions need to be addressed.

5.3. Clinical Content Development

Once the Work Group is convened and project scope is determined and agreed upon, initial work focuses on assembling and reviewing key clinical studies, guidelines, and consensus statements, which will be needed to inform content development. This is done so that Work Group members are familiar with the key evidence used

to address the clinical decisions within the Expert Consensus Decision Pathway.

After the evidence base is determined, the Work Group then focuses on content development. As an important first step, the Work Group will outline the clinical decision-making process to address the questions identified. This is usually accomplished through biweekly phone calls and discussion among the group and ACC staff. These calls follow an iterative process that refines the scope of the content, as the pathway and supporting visuals are created, and clinical questions arise. In circumstances of disagreement regarding content, consensus is formed among the Work Group under the supervision of the co-chairs or the chair and vice chair.

5.4. Tool Development

To enhance the utility of the clinical content, the Work Group will coordinate with ACC staff to determine an

appropriate format that supports the content's use at the point-of-care. The selected format will be defined as a tool or tools. The tool may come in many forms, which may include but are not limited to a mobile application, PDF, checklist, decision aid, or electronic health record logic.

5.5. Publication

Once the clinical content and tool are determined, the Work Group then turns its attention to drafting the publication. The intent and purpose of the publication is to provide clinicians with informative and practical guidance in patient management to be applied at the point-of-care. It is not meant to be a comprehensive academic review; rather, it should be concise, clinically focused, and patient-centered.

Expert Consensus Decision Pathways provide practical guidance in "gray areas" in clinical decision-making, relying heavily on content that is actionable and can easily be used in a clinical practice setting. This is a fundamental feature differentiating them from other ACC clinical policy. The publication will validate the clinical decision-making process(es) and illustrate how the tool incorporates those decisions, and wherever possible, should focus on guiding clinicians through clinical considerations that easily lend themselves to being used at the point-of-care and helping clinicians make the best decision for their patients. Text is used to provide rationale for the clinical decisions and guidance for how to implement the tool into practice. References are limited to the most important and recent relevant articles. **Table 3** details a general "instructions for authors" to guide drafting of the publication.

5.5. Publication Template

The major sections of an Expert Consensus Decision Pathway publication generally include the following:

1. **Preface:** This section consists of standard text to introduce the reader to the concept and purpose of Expert Consensus Decision Pathways.
2. **Introduction:** This section introduces the reader to the specific clinical topic being addressed. It provides high-level background information to help the reader understand the clinical significance of the topic and the reason the Expert Consensus Decision Pathway Content Development Work Group was convened to address it. The overall scope and purpose of the Expert Consensus Decision Pathway is reviewed.
3. **Methods:** This section of text reviews the methods used by the Work Group, including use of specific background information and evidence review. It may include a timeline of meetings and more details on the specific scope of the Expert Consensus Decision Pathway tool.

TABLE 3 General Guidance for Drafting a Publication

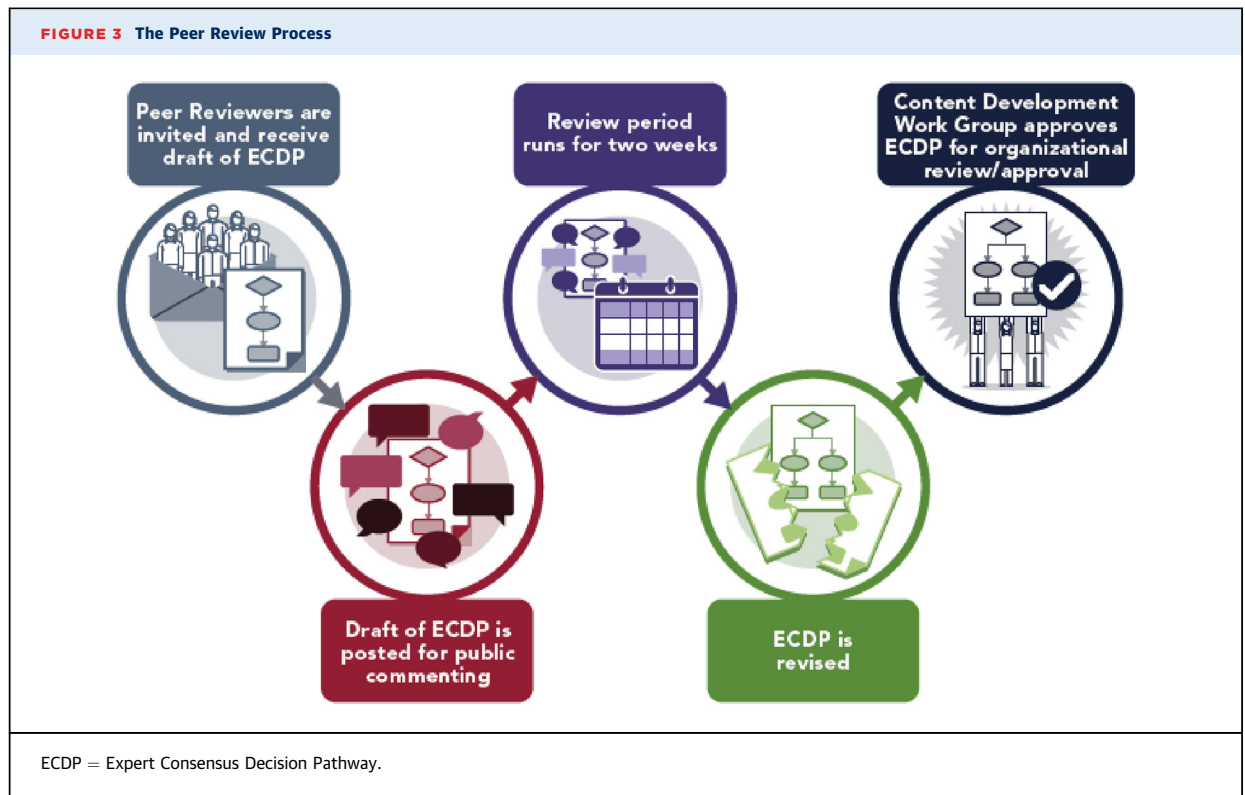
- Word count (includes text from the preface to the conclusion, plus references and figure legends; average): Approximately 10,000 words; length may vary if appropriate.
- Number of journal pages (average): 20
- Summary graphic (Central Illustration): Required
- Figure limit: None
- Table limit: None
- References (average): 60-100
- Reference format: Per *Journal of the American College of Cardiology* guidelines.

4. **Assumptions and Definitions:** This text is divided into 2 subsections. The Assumptions subsection reviews or lists key points that help to define the scope of the questions and decisions being addressed in the Expert Consensus Decision Pathway. Important limitations may be included here. The Definitions subsection discusses or lists the most important terms that will be used in the document and explains how the Work Group defines each term.
5. **Pathway Summary Graphic:** This is a required, critical central illustration, which graphically demonstrates the overall scope, the key questions and decisions being addressed, and the workflow through the decision(s). It necessarily lacks numerous details, which are addressed in supportive text and other areas of the publication.
6. **Description and Rationale:** This section describes 2 primary components of the Expert Consensus Decision Pathway—the clinical content and tool—by concisely reviewing the key decision points and rationalizing them using key references and their interpretation by the Work Group. It is not meant to be a comprehensive academic review; rather, it focuses on the scientific support underpinning the clinical content and use of the tool in practice.
7. **Discussion and Implication of Pathway:** This section consists of a concise summary. Included will be suggestions for how it could be used in clinical practice to improve care and workflows. Suggestions for important areas of future research may be included.

6. EXPERT CONSENSUS DECISION PATHWAY REVIEW

6.1. Peer Review and Public Comment

The Expert Consensus Decision Pathway undergoes rigorous peer review and a public comment period. This process combines the standard ACC peer review process for clinical policy development with a public comment period that re-engages those stakeholders who participated in the information gathering (such as during a Heart House Roundtable), as well as solicits new perspectives



from the public. The Work Group carefully reviews and responds to each comment and then revises the Expert Consensus Decision Pathway based on reviewers' comments.

6.2. Selection of Peer Reviewers

Peer reviewers are relied upon for expert, critical, and unbiased scientific and literary appraisals delivered in a timely manner. The peer review process requires that all reviewers enter all RWI and other entities as defined in the disclosure policy into ACC's online disclosure database. Invitations are sent to official reviewers comprising representatives from the College's Board of Governors, ACC Committees and Councils, Guideline Chairs of the Expert Consensus Decision Pathway's topic, participants from the roundtable (if applicable), other experts as identified, and organizational representatives. As with Work Group members, RWI information for reviewers is included in an appendix of the published pathway. While disclosure of RWI is required for reviewers, relevant relationships do not restrict participation in this review process. As the Expert Consensus Decision Pathway undergoes peer review, it is available for public comment during the same 2-week period. The public participates by entering comments via a dedicated page on the ACC website; RWI disclosure is not required for public commentators.

6.3. Comments Review and Expert Consensus Decision Pathway Sign-Off

After the peer review and public comment period, the Work Group Chairs review each comment and revise the Expert Consensus Decision Pathway based on the comments. ACC staff keeps track of the comments and revisions and ensures all relevant issues have been addressed. The revised Expert Consensus Decision Pathway is sent back to the Work Group for final sign-off prior to organizational review and approval. **Figure 3** shows the roadmap for the peer review process.

7. ORGANIZATIONAL REVIEW AND APPROVAL

After the Work Group reconciles all peer review comments and provides final sign-off, the chairs forward the revised draft for organizational review and approval. The Clinical Policy Approval Committee provides final approval of the Expert Consensus Decision Pathway and establishes it as an official ACC policy. This Committee serve as the central approval body for all ACC clinical documents and is charged with ensuring concordance and quality standards among the various documents the College approves. Its members comprise of ACC leaders with a balance of clinical expertise and previous service on the Board of Trustees or on clinical document oversight task forces and writing committees.

The Clinical Policy Approval Committee is given a 3-week period to review and vote on the pathway followed by a conference call to adjudicate any specific concerns that arise during the approval process. This call is led by the Clinical Policy Approval Committee Chair, and participants include the Work Group Chairs and any Clinical Policy Approval Committee members with concerns to discuss. Other organizational partners also are asked to approve the document at this time. Once approved, the ACC Board of Trustees is notified, the Expert Consensus Decision Pathway is then made available, and the publication is featured in *JACC*.

8. DISSEMINATION

The Expert Consensus Decision Pathway will be published on <https://www.acc.org> and in *JACC*. Copyediting and chairs' review of the publisher's proof with approval of final changes generally takes approximately 2 months before the publication is made available on *JACC* online, followed by publication in *JACC* in print form approximately 1 month later. The College utilizes multiple vehicles to promote the Expert Consensus Decision Pathway, including partnering organizations, social media, member group communications, the ACC website, and outside trade publications. In addition, the ACC team continues to explore opportunities to leverage ACC education activities, for example, the Clinical Focus Sessions at ACC's Annual Scientific Session, as additional platforms to bring the Expert Consensus Decision Pathway directly to clinicians.

9. UPDATES

Expert Consensus Decision Pathways focus on clinically relevant topics with new and evolving evidence. Given the nature of such content, the College recognizes the importance of maintaining relevance with current data. Accordingly, existing Expert Consensus Decision Pathways are reviewed for need of update. Such updates may range from focused changes to more extensive alterations (or potential retirement) based on availability of novel clinical data and/or to maintain alignment with Clinical Practice Guidelines, Appropriate Use Criteria, or other ACC policy statements. Review of previously published Expert Consensus Decision Pathways for modification or retirement occurs annually.

10. FUTURE DIRECTIONS

The mission of the ACC is to transform cardiovascular care and improve heart health. Integral to achieving this mission is ensuring that the appropriate evidence is available to the clinician to help the right patient, at the

right time, and in the right way. The work of the Science and Quality Committee is critical to this translation of appropriate evidence, encapsulated in the ACC Clinical Practice Guidelines and solution sets, to the relevant patients in clinical practice. The Expert Consensus Decision Pathway process, as outlined in this paper, is only one of many current and planned steps to achieve this translation and improve our patients' cardiovascular health.

To achieve these goals, recognition and accommodation of the increasingly complex nature of modern cardiovascular practice is important. More than ever, cardiovascular care teams practice within the context of large health care systems; care delivery is organized and overseen by health system leadership and cardiovascular service lines; local clinical pathways are developed and implemented within these systems; multiple providers and roles are involved in care delivery; and electronic health records or other information technology tools provide supportive technology to assist teams in care delivery.

This reality of modern clinical cardiovascular practice informs how the various related ACC entities should approach their goal of facilitating the transfer of evidence to practice. Generating and implementing useful tools that reflect the various components of cardiovascular practice will be necessary to maximize this translation. To that end, future directions for the Science and Quality Committee and various affiliated groups will include:

- **Developing guidance for health system leadership on structural and process needs that will enable delivery of optimal cardiovascular care.** For example, guidance could be provided to health systems on the specific staffing, equipment, and care pathways required for assessing and triaging chest pain patients in emergency departments, in line with current scientific evidence. This guidance would also be continually reviewed and updated as the scientific evidence evolves.
- **Tool development to support the various members of the cardiovascular team and their roles in providing optimal care.** For example, tools could be developed that orient the various members of a cardiac rehabilitation unit (e.g., dietitians, exercise therapists, tobacco cessation counselors) to best practices (e.g., latest dietary guidelines, optimal fitness programs, and motivational interviewing). In addition, support for optimal team communication and coordination techniques could be provided.
- **Integrating clinical guidance and decision support into the electronic health record and information technology tools of health systems.** For example, the latest heart failure guidelines could be incorporated

into the clinical decision support engines of a health system's electronic health record and provide point-of-care guidance about optimal therapies that are appropriate for the individual patient. Similar efforts could be undertaken with third-party IT tools (e.g., smartphone applications) that clinicians and patients use to support their care.

- **Engaging patients in their cardiovascular care.** For example, ACC tools that provide patient education about cardiovascular conditions and treatments (such as those currently available through CardioSmart) could be incorporated into standardized patient education and engagement pathways used by health systems. In addition, tools that provide ongoing behavioral modification support, using emerging techniques such as choice architecture and “nudges,” could assist patients in establishing and maintaining healthy habits.

Over time, the Science and Quality Committee and its subcommittees will continue to focus on building solution sets to aid in clinician decision-making and will

transform those processes as more data are available and systems of care evolve.

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KEY WORDS ACC Expert Consensus Decision Pathway, Expert Consensus Decision Pathways, clinical guidance, clinical policy, decision support expert consensus, methodology

APPENDIX 1. ABBREVIATIONS

ACC = American College of Cardiology

JACC = *Journal of the American College of Cardiology*

RWI = Relationships with Industry

**APPENDIX 2. AUTHOR RELATIONSHIPS WITH INDUSTRY AND OTHER ENTITIES (COMPREHENSIVE)—
 2019 METHODOLOGY FOR CREATING EXPERT CONSENSUS DECISION PATHWAYS**

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This table represents all relationships of committee members with industry and other entities that were reported by authors, including those not deemed to be relevant to this document, at the time this document was under development. The table does not necessarily reflect relationships with industry at the time of publication. A person is deemed to have a significant interest in a business if the interest represents ownership of ≥5% of the voting stock or share of the business entity, or ownership of ≥\$5,000 of the fair market value of the business entity; or if funds received by the person from the business entity exceed 5% of the person's gross income for the previous year. Relationships that exist with no financial benefit are also included for the purpose of transparency. Relationships in this table are modest unless otherwise noted. Please refer to <http://www.acc.org/guidelines/about-guidelines-and-clinical-documents/relationships-with-industry-policy> for definitions of disclosure categories or additional information about the ACC/AHA Disclosure Policy for Writing Committees.

*Significant relationship.

†Relationship with this company is limited to enrolling patients in clinical trials. This disclosure was entered under the Clinical Trial Enroller category in the ACC's disclosure system. To appear in this category, the author acknowledges that there is no direct or institutional relationship with the trial sponsor as defined in the ACC/AHA Disclosure Policy for Writing Committees.

ACC = American College of Cardiology; AHA = American Heart Association; DSMB = Data Safety Monitoring Board; UT = University of Texas.

APPENDIX 3. PEER REVIEWER INFORMATION—2019 EXPERT CONSENSUS DECISION PATHWAY METHODOLOGY

This table represents the individuals, organizations, and groups that peer reviewed this document. A list of corresponding comprehensive healthcare-related disclosures for each reviewer is available [online](#).

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ACC = American College of Cardiology; AHA = American Heart Association; VA = Veterans Administration.