

SCEQAS FOUNDATIONAL STANDARD SERIES

A Current Approach to Human–Artificial Intelligence Collaboration in Scientific Publishing

Foundational Standard (FS-1.0)

A Framework for Editorial Quality Assurance in Biomedical Publishing

SCEQAS

Scientific Editorial Quality Assurance System (SCEQAS)

"Scientific progress is rarely the product of a single perspective.

It emerges through the integration of experience, critical
thinking, evidence, and collaboration"

Prof. Dr. Hayrettin Öztürk

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**Scientific Editorial Quality Assurance System (SCEQAS)
Foundational Standard (FS-1.0)**

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Editorial Introduction

Building a Structured Editorial Quality Framework for the Future of Scientific Publishing

Scientific publishing is undergoing one of the most significant transformations in its history. The rapid growth of research output, increasing methodological complexity, expanding ethical responsibilities, and the emergence of artificial intelligence have fundamentally changed the environment in which journals, editors, and reviewers operate.

Despite these developments, the essential mission of scientific publishing remains unchanged: to preserve the integrity, reliability, and credibility of the scientific record.

Over the past decades, internationally recognized organizations have established valuable principles addressing publication ethics, reporting standards, authorship, transparency, research integrity, and editorial best practices. These initiatives have substantially strengthened biomedical publishing and remain indispensable references for journals, editors, reviewers, and authors worldwide.

However, these standards and recommendations generally address specific components of the editorial ecosystem. Some focus primarily on publication ethics, others on reporting standards, peer review, research integrity, or editorial practice. As a result, journals may need to implement multiple frameworks simultaneously, often without an integrated operational structure connecting these elements into a coherent editorial quality-management system.

The Scientific Editorial Quality Assurance System (SCEQAS) was developed in response to this practical challenge.

SCEQAS does not seek to replace internationally accepted editorial principles, reporting standards, or ethical guidance. It does not introduce a new ethical code or redefine the fundamental responsibilities of authors, reviewers, editors, or journals.

Instead, SCEQAS provides an integrated editorial quality-management framework that brings together reviewer education, scientific and methodological evaluation, research integrity, editorial governance, responsible artificial intelligence, standardized operational procedures, quality assurance, and continuous improvement within a single structured system.

The distinctive contribution of SCEQAS therefore lies not in claiming individual ownership of these established principles, but in their systematic integration into a coherent editorial quality-management architecture.

A central feature of this architecture is the relationship between human scientific judgment, artificial intelligence, and editorial decision-making.

SCEQAS defines artificial intelligence as an Editorial Quality Assurance Partner rather than an autonomous reviewer or editorial decision-maker. AI may assist in identifying technical inconsistencies, methodological or reporting concerns, and other issues requiring editorial attention. Scientific judgment, ethical reasoning, and editorial authority remain human responsibilities.

SCEQAS therefore proposes a complementary model based on three interacting domains:

- Human Intelligence, providing scientific expertise and professional judgment;
- Artificial Intelligence, supporting structured quality assurance and technical consistency; and
- Editorial Intelligence, integrating scientific evidence and professional judgment into responsible editorial decisions.

Within this framework, artificial intelligence is intended to expand editorial awareness without replacing editorial wisdom.

SCEQAS also adopts a quality-management perspective. Peer review is not treated as an isolated event but as one component of an interconnected editorial system that includes governance, education, operations, documentation, performance evaluation, risk management, and continuous improvement.

This systems-oriented perspective is intended to reduce unnecessary variability, strengthen transparency and documentation, support consistency in editorial practice, and preserve editorial independence.

Importantly, SCEQAS does not seek to standardize scientific opinion. Scientific disagreement is an inherent and valuable component of scholarly evaluation. Instead, SCEQAS seeks to standardize the quality of the editorial processes through which scientific evidence is evaluated.

SCEQAS is therefore designed as a living framework. Its principles and operational structures are intended to evolve alongside developments in biomedical research, publication ethics, editorial practice, research integrity, and responsible artificial intelligence.

The framework should consequently be understood not as a fixed endpoint, but as a structured foundation for continuous editorial learning and improvement.

The Original Contribution of SCEQAS

The principal contribution of SCEQAS is the integration and operationalization of established principles within a unified editorial quality-management architecture.

The framework defines interfaces between automated quality assurance, expert scientific assessment, and human editorial decision-making, while providing structured workflows, standard operating procedures, decision algorithms, quality indicators, and traceability mechanisms for their implementation.

SCEQAS is therefore intended to provide an operational framework through which established international principles can be systematically implemented, evaluated, documented, and continuously improved within biomedical editorial systems.

The detailed scientific, organizational, and operational contributions of SCEQAS are presented throughout this Foundational Standard and are further consolidated in the section addressing the Original Contributions of SCEQAS.

Ultimately, SCEQAS is founded upon a simple principle:

Scientific publishing is sustained by trust. Trust depends upon integrity. Integrity requires structured, transparent, and continuously improving editorial systems.

It is our hope that SCEQAS will contribute to strengthening this trust by providing journals, editors, reviewers, and institutions with a practical, evidence-informed, and ethically grounded framework for editorial quality assurance.

PREFACE

Scientific publishing is built upon trust.

Every published article contributes to the scientific record and may influence future research, clinical practice, public policy, and patient care. The responsibility of protecting the integrity of this record therefore extends across the entire editorial community.

Among the mechanisms that sustain this responsibility, peer review occupies a unique position.

Peer review is not simply an administrative step preceding publication. It is a professional and scientific responsibility through which evidence, methodology, interpretation, and the validity of scientific claims are critically examined.

For this reason, the quality of peer review depends not only on the expertise of reviewers, but also on the quality of the processes through which that expertise is applied.

The SCEQAS Foundational Standard has been developed to support such a structured approach.

It provides reviewers with a framework for scientific reasoning, methodological assessment, severity classification, ethical awareness, professional communication, and interaction with editorial processes. At the same time, it recognizes that scientific evaluation cannot be reduced to a checklist or an algorithm.

A reviewer is not expected merely to identify problems.

The reviewer is expected to understand the scientific question, evaluate whether the study design is appropriate to that question, assess the strength and limitations of the evidence, distinguish substantive concerns from correctable deficiencies, and consider whether the conclusions are proportionate to the evidence presented.

SCEQAS therefore places particular emphasis on **scientific reasoning rather than mechanical scoring**.

A structured review should improve consistency without suppressing scientific judgment. Different reviewers may legitimately reach different conclusions when evaluating the same manuscript. Agreement between reviewers is valuable, but reviewer agreement itself is not the objective. The objective is a scientifically defensible, transparent, proportionate, and constructive evaluation.

Within this approach, artificial intelligence may provide useful additional support. It can assist in identifying technical inconsistencies, reporting deficiencies, methodological signals, and other issues that may require further editorial attention.

However, AI-assisted assessment does not replace the independent scientific responsibility of the reviewer or the editorial responsibility of the editor.

The use of AI must also respect confidentiality, research integrity, and the policies of the journal or institution. Unpublished manuscripts and the ideas contained within them remain confidential scientific communications, and the use of an AI system must never be regarded as a substitute for appropriate confidentiality safeguards.

The reviewer therefore remains at the center of the scientific evaluation process.

The purpose of SCEQAS is not to make every reviewer think alike. It is to provide reviewers with a common framework within which independent scientific judgment can be exercised more systematically, transparently, and responsibly.

This Foundational Standard should consequently be read not as a collection of rigid instructions, but as a framework for developing a stronger culture of editorial quality.

The Editorial Board sincerely appreciates the time, expertise, independence, and professional commitment contributed by peer reviewers. Their voluntary contribution remains one of the foundations of trustworthy scientific publishing.

SCEQAS has been developed in the spirit of scientific collaboration. It is intended to be studied, critically evaluated, independently tested, responsibly implemented, and continuously improved by the scientific community.

Its value will ultimately depend not on the framework alone, but on how thoughtfully it is applied, questioned, evaluated, and improved in practice.

The goal is not to standardize scientific thought.

The goal is to strengthen the quality of the process through which science evaluates itself.

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PART I — THE PHILOSOPHY OF SCEQAS

CHAPTER 1 — THE PHILOSOPHY OF SCEQAS

“Scientific quality is not determined by the number of comments, but by the quality of reasoning, the strength of evidence, and the integrity of the decision-making process.”

1.1 Why Was SCEQAS Developed?

Scientific publishing has evolved substantially. Increasing methodological complexity, expanding publication practices, and growing emphasis on publication ethics, research integrity, transparency, and responsible editorial decision-making have made the editorial evaluation of scientific manuscripts increasingly complex. [1, 2]

Artificial intelligence is also becoming increasingly capable of supporting selected technical and editorial quality-assurance activities. However, the use of artificial intelligence in scholarly publishing introduces additional considerations related to validity, confidentiality, transparency, data governance, and human accountability. [1]

These developments have increased the need for structured approaches that support **consistent, transparent, comprehensive, and scientifically defensible editorial evaluation**.

The **Scientific Editorial Quality Assurance System (SCEQAS)** was developed in response to this need.

SCEQAS is designed as an integrated editorial quality-assurance framework that supports reviewers, editors, and editorial organizations while preserving human scientific judgment and editorial responsibility.

Its purpose is not to replace professional judgment with rules, checklists, or automated systems. Rather, SCEQAS seeks to provide a structured environment in which scientific evidence can be evaluated systematically, concerns can be assessed proportionately, editorial decisions can be supported by traceable reasoning, and quality can be continuously improved.

SCEQAS therefore approaches editorial quality not as an isolated outcome of individual peer-review reports, but as a **system-level process involving scientific evaluation, editorial judgment, research integrity, governance, quality assurance, and continuous improvement**.

1.2 Vision

The vision of SCEQAS is:

To establish a transparent, consistent, reproducible, and scientifically rigorous framework for editorial quality assurance in biomedical publishing.

SCEQAS seeks to promote high-quality editorial practice while remaining compatible with internationally recognized principles of publication ethics, peer review, research integrity, scientific reporting, and the responsible use of artificial intelligence. [1, 2, 3]

The framework is intended to support editorial systems in which scientific quality is assessed systematically while editorial independence and human accountability remain protected.

1.3 Mission

The mission of SCEQAS is:

To support reviewers and editors in producing fair, objective, transparent, and evidence-informed scientific evaluations and editorial decisions while promoting consistency and reducing avoidable variability throughout the editorial process.

SCEQAS does not seek to replace established international editorial or ethical standards. Rather, it seeks to **integrate, operationalize, and govern** applicable principles through structured reviewer guidance, editorial workflows, quality-assurance procedures, decision-support tools, documentation systems, and continuous improvement mechanisms. [1, 2]

Accordingly, SCEQAS distinguishes between two related but different functions:

- **established international standards provide principles and requirements;**
- **SCEQAS provides an operational architecture for their structured application within editorial systems.**

This distinction is fundamental to the identity of SCEQAS.

1.4 Core Principles

SCEQAS is based on the following core principles:

1. **Scientific integrity**
2. **Objectivity**
3. **Transparency**
4. **Consistency**
5. **Confidentiality**
6. **Editorial independence**
7. **Research integrity**
8. **Evidence-based decision-making**
9. **Continuous improvement**
10. **Human-centered artificial intelligence support**

These principles are intended to function together rather than as isolated requirements.

Scientific integrity provides the foundation for rigorous, honest, and evidence-based scientific evaluation, while research integrity safeguards the responsible conduct, reporting, and preservation of the scientific record. Objectivity and consistency support fair evaluation. Transparency and traceability strengthen accountability. Confidentiality protects the integrity of the peer-review process. Editorial independence protects the authority of appropriately authorized editors. Evidence-based decision-making connects assessment to the available scientific evidence. Continuous improvement allows editorial systems to learn from experience. Human-centered artificial intelligence support enables technical assistance without transferring scientific or editorial authority to automated systems.

SCEQAS therefore treats these principles as interconnected components of an **editorial quality-management architecture** rather than as a collection of independent recommendations.

These principles are intended to complement, not replace, internationally recognized standards for responsible scholarly publishing, peer review, research integrity, and scientific reporting. [1, 2, 3]

Editorial Principle

International standards define established principles and requirements; SCEQAS provides an operational framework for their structured, consistent, and traceable application within biomedical editorial systems.

PART II — THE ROLE OF THE REVIEWER

CHAPTER 2 — THE ROLE OF THE REVIEWER

SCEQAS Foundational Concept: Reviewer Identity

“The reviewer evaluates the evidence and its scientific validity; the reviewer does not replace the editor or assume responsibility for the final editorial decision.”

2.1 Introduction

Peer review is an independent scientific evaluation within the editorial process. Its primary purpose is to assess whether the scientific work presented in a manuscript is sufficiently reliable, valid, appropriately reported, and scientifically meaningful to warrant further editorial consideration.

The reviewer therefore occupies a specific position within the editorial system: **the reviewer evaluates the scientific work, while the editor integrates the available evidence and assumes responsibility for the editorial decision.**

This distinction is fundamental to SCEQAS.

2.2 The Fundamental Role of the Reviewer

A reviewer is not expected to rewrite the manuscript.

The fundamental role of the reviewer is to determine whether the manuscript provides sufficiently reliable scientific evidence to support its stated claims and conclusions.

Accordingly, the reviewer evaluates, as appropriate:

- the scientific question and its relevance;
- the study design and methodological appropriateness;
- the validity and reliability of the reported results;
- statistical reasoning within the reviewer's competence;
- interpretation of the findings;
- limitations of the study;
- originality and scientific contribution;
- transparency and completeness of reporting; and
- the relevance of the work to the journal's scope.

The reviewer should evaluate the manuscript according to the scientific requirements appropriate to its research question and study design.

2.3 The Reviewer as an Independent Scientific Evaluator

The reviewer serves as an **independent scientific evaluator**, rather than as an editor, language corrector, or co-author.

The review should focus primarily on whether the manuscript provides sufficiently reliable and appropriately reported scientific evidence for publication consideration.

A reviewer may identify deficiencies in language, organization, presentation, or statistical reporting when such deficiencies affect scientific interpretation, reproducibility, transparency, or evaluation.

However, the reviewer is not responsible for providing professional editorial services or for rewriting the manuscript.

The reviewer should also remain within the limits of their expertise. When a manuscript requires specialized methodological or statistical assessment beyond the reviewer's competence, the reviewer should alert the editor and, where appropriate, recommend additional specialist evaluation.

2.4 What a Reviewer Is Not

The role of the reviewer should not be extended beyond its scientific and evaluative purpose.

A reviewer is not:

- a co-author of the manuscript;
- a language or copy editor;
- a statistical consultant beyond their declared competence;
- an institutional investigator of alleged misconduct;
- the final decision-maker regarding publication.

The reviewer should not redesign a study solely according to personal preference, request experiments unrelated to the scientific objectives, or require changes simply because they reflect the reviewer's preferred methodology.

Likewise, scientific evaluation should not be influenced by the authors' institution, nationality, language, academic rank, reputation, or other personal characteristics.

The manuscript should be evaluated on the basis of its scientific evidence and its relevance to the journal.

2.5 What a Reviewer Should Do

An effective reviewer should:

1. **Understand the scientific argument**
Identify what the study is attempting to establish.
2. **Evaluate the evidence**
Determine whether the methods and results provide an adequate basis for the stated claims.
3. **Identify substantive concerns**
Distinguish scientifically important limitations from minor or correctable deficiencies.
4. **Explain why a concern matters**
A useful review should make the scientific significance of each substantive concern clear.
5. **Provide proportionate recommendations**
Recommendations should be directed toward improving validity, transparency, interpretation, or reporting.
6. **Recognize the limits of personal expertise**
Specialized concerns should be referred to the editor when additional expertise is required.
7. **Maintain professional independence**
The review should remain objective, respectful, confidential, and free from inappropriate personal or competitive considerations.

These functions are developed in greater detail in the subsequent chapters on reviewer responsibilities, scientific reasoning, reviewer professionalism, and research integrity.

2.6 The SCEQAS Core Principle

The reviewer evaluates the **scientific work**.

The editor evaluates the manuscript within the broader **editorial context**.

The reviewer identifies and interprets scientific concerns; the editor integrates the available evidence, considers journal policy and scope, and assumes responsibility for the editorial outcome.

Therefore:

The reviewer evaluates the science; the editor integrates the evidence and makes the editorial decision.

This principle establishes a clear boundary between scientific assessment and editorial authority.

2.7 Why This Distinction Matters

Confusing reviewer responsibility with editorial authority can lead to several problems.

A reviewer may identify a serious scientific limitation without having sufficient information to determine the final editorial outcome. Conversely, a manuscript may contain important limitations that are scientifically manageable in the context of its overall contribution.

For this reason, a reviewer recommendation should be understood as **expert scientific evidence within the editorial process**, rather than as an automatic publication decision.

SCEQAS therefore does not treat reviewer recommendations as isolated commands. Reviewer assessments are inputs into a broader process of evidence integration and editorial judgment.

This approach also supports a central SCEQAS principle:

No single reviewer report should independently determine the publication outcome.

The editor remains responsible for integrating reviewer assessments with methodological or statistical evaluations, research-integrity considerations, journal scope, scientific significance, and other legitimate editorial criteria.

2.8 Reviewer Identity in the SCEQAS Framework

Within SCEQAS, reviewer identity can therefore be summarized in five functions:

Evaluator — assesses the scientific work.

Interpreter — determines the scientific significance of identified concerns.

Communicator — explains concerns clearly and constructively.

Advisor — provides evidence-based recommendations within the limits of expertise.

Independent Scientific Contributor — contributes expert assessment without assuming editorial authority.

The reviewer is therefore neither a passive checklist operator nor a substitute editor.

The reviewer is an **independent scientific evaluator whose assessment contributes to, but does not replace, editorial judgment**.

You are not asked to produce a perfect manuscript. You are asked to evaluate the evidence fairly, explain your reasoning, identify the problems that matter, and distinguish limitations from their scientific consequences. When you encounter uncertainty, explain it. When you encounter a possible integrity concern, report it responsibly. When you use technology, verify it. When you make a recommendation, make sure your reasoning supports it. Review fairly, review critically, review constructively, protect confidentiality, respect scientific uncertainty, and always evaluate the evidence—not the authors.

Every review you complete becomes part of the invisible architecture of science.

Chapter Summary

The role of the reviewer is fundamentally scientific.

A reviewer should determine whether the evidence presented in a manuscript is sufficiently reliable, valid, appropriately interpreted, and scientifically meaningful for publication consideration. The reviewer should identify and explain substantive concerns, provide proportionate recommendations, and recognize when additional expertise is required.

The reviewer should not rewrite the manuscript, redesign studies according to personal preference, investigate authors independently, or assume editorial authority.

The central SCEQAS distinction is:

Reviewers evaluate scientific evidence. Editors integrate evidence and make editorial decisions.

This separation of functions protects scientific independence, strengthens accountability, and provides a foundation for consistent and defensible editorial quality assurance.

PART III — RESPONSIBILITIES OF REVIEWERS

CHAPTER 3 — RESPONSIBILITIES OF REVIEWERS

“Scientific peer review begins with understanding the research question and proceeds by testing whether the evidence supports the conclusions.”

Participation in the SCEQAS framework entails scientific, ethical, professional, and procedural responsibilities. These responsibilities are intended to protect the integrity of peer review, promote fair and scientifically meaningful evaluation, and support the reliability of the scientific record.

A reviewer participating in the SCEQAS framework shall:

1. Evaluate Objectively

Evaluate the manuscript objectively, impartially, and on the basis of its scientific merits.

Scientific assessment should not be influenced by the identity, institutional affiliation, nationality, language, reputation, academic status, or other personal characteristics of the authors. [2, 3]

2. Maintain Confidentiality

Maintain strict confidentiality regarding the manuscript, its contents, the review process, and unpublished information obtained through peer review.

Reviewers shall not publicly discuss the manuscript, retain or distribute confidential materials unnecessarily, or use unpublished information obtained through peer review for personal or professional advantage. [1, 2, 3]

3. Avoid Personal or Inappropriate Criticism

Comments should address the scientific work rather than the characteristics or identity of the authors.

Reviewers shall avoid personal, ad hominem, discriminatory, hostile, or otherwise inappropriate language. Scientific criticism should remain professional, specific, and evidence-based. [2, 3]

4. Disclose Conflicts of Interest

Disclose any relationship, activity, financial interest, academic relationship, competitive consideration, or other circumstance that could bias—or reasonably be perceived to bias—the review.

A reviewer should decline or withdraw from the review when a significant conflict of interest cannot be appropriately managed. [1, 2, 3]

5. Focus on Scientific Merit

Focus the evaluation on the scientific characteristics of the work, including, as appropriate:

- scientific validity;
- originality;
- methodological appropriateness;
- statistical reasoning within the reviewer's competence;
- interpretation of findings;
- limitations;
- relevance; and
- contribution to the scientific literature.

The reviewer should evaluate these elements according to the research question and study design rather than according to personal methodological preference. [1, 3]

6. Distinguish Major from Minor Concerns

Distinguish substantive scientific or methodological concerns from minor editorial, reporting, or presentation issues.

The severity of a concern should be determined by its potential effect on:

- scientific validity;
- reliability of the findings;
- interpretation of the results; or
- the conclusions supported by the evidence.

The number of comments should not be used as a proxy for scientific importance.

A single substantive methodological problem may be more consequential than numerous minor presentation deficiencies.

7. Provide Constructive Recommendations

Provide clear, constructive, evidence-based, and professionally communicated recommendations.

Where appropriate, recommendations should explain:

- what the concern is;
- why it matters scientifically; and
- what reasonable action may address or clarify the concern.

Recommendations should remain proportionate to the scientific issue and should not require changes solely because they reflect reviewer preference. [1, 2, 3]

8. Avoid Unnecessary Experimental Requests

Do not request additional experiments unless they are scientifically necessary to address a substantive limitation, methodological concern, or research question relevant to the objectives of the study.

Requests should not be based solely on:

- reviewer preference;
- expansion of the study beyond its stated objectives;
- duplication of work already adequately addressed; or
- an expectation that the manuscript conform to the reviewer's own research program.

When an additional experiment is suggested, the reviewer should explain its scientific rationale. [2, 3]

9. Avoid Inappropriate Citation Requests

Do not request citations solely to increase citation counts, promote the reviewer's own work, or support an unsupported preference.

References should be requested when they are scientifically relevant and necessary for:

- establishing appropriate context;
- supporting a scientific claim;
- documenting established knowledge; or
- enabling appropriate interpretation of the findings. [2, 3]

10. Protect Confidential Editorial Communications and Identities

Respect the confidentiality of editorial communications and the identities of reviewers, authors, and other participants according to the journal's peer-review model and applicable policies.

Reviewers should not disclose confidential communications or attempt to identify other reviewers unless this is permitted by the journal's review model. [1, 3]

11. Complete Reviews Within the Agreed Timeframe

Respond promptly to review invitations and complete accepted reviews within the agreed timeframe.

If timely completion becomes impossible, the reviewer should inform the editor as soon as reasonably possible.

A reviewer should not accept a review when they know that they cannot provide an adequate assessment within the required period. [1, 3]

12. Comply with the Journal's AI Policy

Reviewers shall comply with the journal's stated policy regarding the use of artificial intelligence in peer review.

Where journal policy requires permission before using an AI system, reviewers shall obtain such permission before using the technology.

AI should be treated as a support tool and not as a substitute for the reviewer's scientific judgment. [1]

13. Protect Manuscript Confidentiality When Using AI

Reviewers shall not upload submitted manuscripts, confidential review materials, or other protected editorial information into an AI system when confidentiality cannot be assured.

Such use is permissible only where it is explicitly authorized by the journal and consistent with applicable confidentiality, data-protection, contractual, and institutional requirements. [1]

The reviewer remains responsible for protecting confidential information regardless of whether an AI system is used.

14. Disclose Permitted AI Use

When AI technology is used in the peer-review process, reviewers shall disclose such use to the journal in accordance with journal policy and identify the tool and its purpose when required.

Reviewers remain responsible for evaluating the accuracy, validity, completeness, and appropriateness of any AI-generated output used during the review. [1]

AI-generated output should not be treated as independent evidence of scientific validity.

SCEQAS Reviewer Responsibility Principle

The responsibilities of a reviewer can be summarized as:

Evaluate objectively. Protect confidentiality. Disclose conflicts. Assess the science. Distinguish significance from quantity. Communicate constructively. Respect the limits of expertise. Use AI only within authorized and secure boundaries.

These responsibilities support a central SCEQAS principle:

The reviewer evaluates the scientific work, not the person.

The reviewer identifies concerns, explains their scientific significance, and provides constructive recommendations. The reviewer does not replace the editor, rewrite the manuscript, or determine the final publication decision.

PART IV — ETHICAL PRINCIPLES

CHAPTER 4 — ETHICAL FOUNDATIONS OF PEER REVIEW

SCEQAS Foundational Concept: The Ethical Purpose of Peer Review

4.1 Why Do We Review?

Every scientific publication becomes part of the scientific record. Once published, scientific findings may influence future research, clinical practice, health policy, education, and subsequent scientific interpretation.

Peer review is therefore an important component of the scientific publishing process. It provides an independent assessment of submitted work and assists editors in determining whether a manuscript is appropriate for consideration by the journal. Peer review may also help authors improve the clarity, completeness, and scientific presentation of their work.

The purpose of peer review is **not to determine whether a manuscript is perfect**.

Its purpose is to determine whether the scientific evidence presented is sufficiently:

- valid,
- reliable,
- appropriately reported,
- ethically acceptable, and
- scientifically interpretable

to warrant consideration for inclusion in the scientific record.

Peer review therefore serves not only the interests of the journal or the authors, but also the integrity of the scientific record.

4.2 The Ethical Purpose of Peer Review

Peer review carries an ethical responsibility because reviewers participate in a process that influences what becomes part of the scientific literature.

The reviewer should therefore approach the manuscript with the understanding that scientific judgment must be:

- independent,
- evidence-based,
- fair,
- proportionate,
- respectful, and
- focused on the scientific work.

The reviewer is not expected to eliminate every imperfection from a manuscript. Instead, the reviewer should identify concerns that may affect the validity, reliability, interpretation, transparency, or ethical acceptability of the work.

The significance of a scientific concern should be judged by its effect on scientific validity and interpretation, **not by the number of deficiencies identified**.

This principle is central to SCEQAS.

A manuscript may contain several minor deficiencies without a fundamental threat to its scientific validity. Conversely, a single methodological or interpretive problem may substantially affect the reliability of the conclusions.

Therefore:

The importance of a concern is determined by its scientific consequence, not by its numerical count.

4.3 The Mission of the Reviewer

A reviewer serves as an **independent scientific evaluator**.

The reviewer's primary responsibility is to assess whether the manuscript demonstrates:

- scientific validity;
- methodological rigor;
- appropriate statistical reasoning, within the reviewer's competence;
- ethical and research-integrity compliance;
- transparent and sufficiently complete reporting;
- appropriate interpretation of findings; and
- a meaningful contribution to existing knowledge.

The reviewer should evaluate the manuscript according to the scientific standards relevant to its study design and research question.

The reviewer's task is therefore not to impose a preferred scientific approach, but to determine whether the approach used is sufficiently appropriate and reliable to support the conclusions presented.

4.4 What Peer Review Is Not

Peer review is not intended to:

- rewrite the manuscript;
- provide line-by-line language editing;
- redesign a study solely according to the reviewer's preferred approach;
- request experiments unrelated to the study objectives;
- require citations solely to increase citation counts or promote the reviewer's own work;
- judge authors according to institution, nationality, language, gender, reputation, or academic status; or
- determine the final editorial decision.

The review should focus on the scientific work and its evidentiary basis rather than on the identity or characteristics of the authors.

This distinction protects both the fairness of the review process and the independence of scientific judgment.

4.5 Reviewer Judgment and Editorial Authority

Peer review and editorial decision-making are related but distinct functions.

The reviewer evaluates the scientific evidence and provides an informed assessment to the editor.

The editor integrates:

- reviewer assessments,
- methodological and statistical considerations where applicable,
- research-integrity concerns,

- reporting quality,
- journal scope,
- scientific significance, and
- other relevant editorial considerations

before making the final editorial decision.

Accordingly:

The reviewer evaluates the science; the editor integrates the evidence and makes the editorial decision.

This separation of functions is fundamental to SCEQAS.

A reviewer recommendation is therefore an important component of editorial judgment, but it does not independently determine publication.

4.6 The SCEQAS Ethical Boundary

SCEQAS establishes a clear boundary between **scientific evaluation** and **editorial authority**.

The reviewer is responsible for identifying and interpreting scientific concerns within the scope of the review.

The editor is responsible for integrating available evidence and determining the appropriate editorial action.

This distinction prevents two opposite errors:

1. treating reviewer recommendations as automatic editorial decisions; and
2. allowing editorial preferences to replace scientific evaluation.

SCEQAS therefore promotes a structured relationship in which scientific expertise, reviewer judgment, and editorial authority remain distinct while functioning within the same quality-assurance system.

4.7 Proportionality in Peer Review

Ethical peer review requires proportionality.

Not every deficiency has the same scientific significance, and not every concern requires the same editorial response.

Reviewers should therefore distinguish between:

- issues that threaten the validity or interpretation of the study;
- issues that require clarification or correction;
- issues that affect reporting completeness; and
- issues that represent preferences rather than genuine scientific deficiencies.

This principle provides the ethical foundation for the SCEQAS distinction between **major and minor concerns**, developed in subsequent chapters.

4.8 The SCEQAS Core Principle

The ethical foundation of peer review can be summarized as follows:

Peer review protects the scientific record through independent, evidence-based, fair, and proportionate scientific evaluation.

The reviewer evaluates the evidence.

The reviewer identifies and explains scientific concerns.

The reviewer provides a scientifically justified assessment.

The editor integrates the available evidence.

The editor makes the editorial decision.

Chapter Summary

Peer review is a responsibility to the scientific record.

Its purpose is not perfection, nor is it an opportunity for reviewers to impose personal preferences. Its purpose is to determine whether the scientific evidence presented is sufficiently valid, reliable, appropriately reported, and ethically acceptable to warrant consideration for inclusion in the scientific literature.

Within SCEQAS:

Peer review evaluates scientific evidence.

Reviewer judgment interprets scientific concerns.

Editorial judgment integrates evidence and determines action.

This separation of responsibilities provides an ethical and operational foundation for consistent, fair, and scientifically defensible editorial quality assurance.

CHAPTER 5 — PRINCIPLES OF AN EXCELLENT REVIEWER

SCEQAS Foundational Concept: Excellence in Reviewer Practice

An excellent reviewer is not defined by the number of comments provided, but by the **quality, fairness, clarity, scientific relevance, proportionality, and evidentiary basis** of those comments.

Reviewer excellence is therefore not primarily a matter of producing a longer review. It is the ability to identify what matters scientifically, explain why it matters, and communicate the assessment in a fair and constructive manner.

SCEQAS defines the following ten principles as the core characteristics of excellent reviewer practice.

5.1 Principle 1 — Scientific Objectivity

Evaluate the manuscript—not the authors.

The reviewer should evaluate the scientific work independently of the authors' identity, institutional affiliation, nationality, reputation, language, or academic status.

Personal characteristics of the authors should not influence scientific judgment.

The reviewer's assessment should be based on the manuscript's scientific content and evidentiary basis rather than on assumptions about who conducted the research.

SCEQAS Reviewer Principle

Scientific judgment must be directed toward the work, not toward the identity of the authors.

5.2 Principle 2 — Evidence-Based Criticism

Every substantive criticism should be supported by a clear scientific rationale.

Vague statements such as:

“The manuscript is weak.”

provide limited value unless the reviewer identifies the specific scientific problem and explains its significance.

A useful review should allow both the editor and the authors to understand:

1. what the concern is;
2. why it matters; and
3. what evidence or reasoning supports the concern.

For example:

“The primary outcome is inadequately defined, making interpretation of the reported results difficult.”

Specificity transforms criticism into scientifically useful assessment.

SCEQAS Reviewer Principle

A substantive concern should be explained, justified, and linked to its scientific consequence.

5.3 Principle 3 — Constructive Recommendations

The reviewer should provide clear and constructive recommendations whenever a substantive problem can reasonably be addressed.

Recommendations should be proportionate to the scientific concern and should not require authors to redesign a study solely to satisfy reviewer preference.

The purpose of a recommendation is to improve:

- scientific validity;
- transparency;
- interpretation; or
- reporting.

Recommendations should not be used to make a manuscript conform to the reviewer's personal expectations.

SCEQAS Reviewer Principle

Recommendations should improve the scientific work, not impose the reviewer's preferences.

5.4 Principle 4 — Proportionality

Not every weakness has the same scientific significance.

Reviewers should distinguish between:

- limitations that materially affect scientific validity;
- limitations that affect interpretation;
- reporting deficiencies that can be corrected; and
- minor editorial or presentation issues.

A manuscript should not be considered unsuitable for publication solely because it contains limitations that are appropriately acknowledged and do not invalidate its principal conclusions.

At the same time, proportionality does not mean that important methodological weaknesses should be overlooked.

The significance of a limitation should be judged in relation to its effect on the validity and interpretation of the scientific conclusions.

SCEQAS Reviewer Principle

The significance of a limitation is determined by its scientific consequence, not simply by its presence.

The detailed distinction between major and minor concerns is addressed separately in Chapter 6.

5.5 Principle 5 — Consistency

The reviewer's overall recommendation should be consistent with the reasoning presented in the review.

A reviewer should not describe a manuscript as scientifically strong while recommending rejection without clearly explaining the scientific basis for that recommendation.

Likewise, serious concerns that could materially affect the validity of the study should be reflected in the overall recommendation.

Consistency requires alignment among:

Evidence → Concern → Reasoning → Recommendation

When these elements are inconsistent, the review becomes difficult for the editor and authors to interpret.

SCEQAS Reviewer Principle

The recommendation should logically follow from the reasoning presented in the review.

5.6 Principle 6 — Confidentiality

Submitted manuscripts and the information they contain are confidential.

Reviewers shall not:

- distribute the manuscript;
- publicly discuss its contents;
- use unpublished information for personal or professional advantage;
- retain the manuscript for personal use; or
- disclose confidential information obtained through the review process.

Reviewers must also comply with the journal's requirements concerning the use of AI or other external technologies during peer review.

Confidentiality is not limited to the manuscript file itself. It also applies to unpublished data, methods, results, ideas, interpretations, and other information obtained through the review process.

SCEQAS Reviewer Principle

Information obtained through peer review remains confidential unless disclosure is explicitly authorized.

5.7 Principle 7 — Respect

Scientific criticism should always address the manuscript and its evidence.

It should never become personal criticism of the authors.

Review comments should remain:

- professional;
- honest;
- constructive; and
- respectful,

including when substantial scientific deficiencies are identified.

Strong scientific criticism and respectful communication are not contradictory. An excellent reviewer can identify serious problems without diminishing the professionalism or dignity of the authors.

SCEQAS Reviewer Principle

Scientific criticism may be rigorous without becoming personal.

5.8 Principle 8 — Transparency and Conflict Disclosure

Reviewers should promptly disclose relationships or activities that could bias, or reasonably be perceived to bias, their evaluation.

When a significant conflict exists, the reviewer should decline or withdraw from the review.

If permitted assistance is obtained from a trainee or colleague, that assistance should be disclosed to the editor while maintaining the confidentiality of the manuscript.

Transparency protects the credibility of the review process.

A conflict of interest does not necessarily imply misconduct. Its significance should be assessed in relation to the reviewer's ability to provide an independent and impartial evaluation.

SCEQAS Reviewer Principle

Potential conflicts should be disclosed so that editorial independence can be protected.

5.9 Principle 9 — Timeliness

Reviewers should respond promptly to invitations and complete accepted reviews within the agreed timeframe.

When a reviewer becomes unable to complete a review on time, the editor should be informed as soon as possible.

Timely peer review supports efficient scientific communication while preserving the quality of evaluation.

Accepting a review also represents a commitment to the editorial process. When that commitment can no longer be fulfilled, timely communication with the editor is part of responsible reviewer practice.

SCEQAS Reviewer Principle

A timely review is part of a responsible review.

5.10 Principle 10 — Scientific Integrity

Scientific integrity should take precedence over publication speed, personal preference, institutional reputation, or other non-scientific considerations.

Reviewers should identify credible concerns related to research integrity and communicate them to the editor.

However, reviewers should normally **raise concerns rather than independently conclude that misconduct has occurred**, unless the journal has explicitly assigned them an investigative role.

This distinction is essential.

The reviewer identifies and communicates a credible concern.

The journal determines its significance through the appropriate editorial or research-integrity process.

SCEQAS Reviewer Principle

A reviewer identifies scientific and integrity concerns; the journal determines their significance through an appropriate editorial or integrity process.

5.11 The SCEQAS Standard for Excellent Reviewer Practice

The ten principles can be summarized as an integrated reviewer standard:

Principle	Core Question
Scientific Objectivity	Am I evaluating the manuscript rather than the authors?

Principle	Core Question
Evidence-Based Criticism	Have I explained and justified each substantive concern?
Constructive Recommendations	Will my recommendations genuinely improve the scientific work?
Proportionality	Have I judged the concern according to its scientific consequence?
Consistency	Does my recommendation follow from my reasoning?
Confidentiality	Have I protected all information obtained through review?
Respect	Is my criticism rigorous but professional?
Transparency & Conflict Disclosure	Have I disclosed anything that could affect my impartiality?
Timeliness	Am I fulfilling my responsibility within the agreed timeframe?
Scientific Integrity	Have I communicated integrity concerns without exceeding my role?

Together, these principles define reviewer excellence not as a collection of isolated behaviors, but as a coherent professional practice.

Chapter Summary

An excellent reviewer does more than identify weaknesses.

An excellent reviewer:

- evaluates objectively;
- reasons from evidence;
- communicates clearly;
- provides constructive and proportionate recommendations;
- maintains consistency between reasoning and recommendation;
- protects confidentiality;
- communicates respectfully;
- discloses conflicts transparently;
- respects the agreed review timeframe; and
- protects scientific integrity while respecting the boundaries of the reviewer role.

The SCEQAS model therefore defines reviewer excellence through a combination of **scientific rigor, ethical responsibility, professional conduct, proportional judgment, and role clarity**.

The excellent reviewer does not merely find problems; the excellent reviewer helps the editorial system understand which problems matter, why they matter, and what should happen next.

CHAPTER 6 — UNDERSTANDING MAJOR AND MINOR CONCERNS

SCEQAS Foundational Concept: Severity Is Not Decision

Not all reviewer concerns have the same scientific significance.

A central responsibility of the SCEQAS reviewer is therefore to distinguish between **major concerns** and **minor concerns**.

This distinction allows reviewers to communicate the relative importance of their findings and helps editors determine which issues require substantive attention.

However, SCEQAS establishes an essential distinction:

Severity is an assessment of scientific significance; decision is an editorial action.

Therefore:

Severity ≠ Decision

A major concern does not automatically mean rejection.

A minor concern does not automatically mean acceptance.

The reviewer assesses the significance of the concern. The editor determines the appropriate editorial action after integrating the available evidence.

6.1 Why Classification Matters

Scientific manuscripts commonly contain limitations, reporting deficiencies, methodological weaknesses, and presentation problems.

Treating all deficiencies as equally important can distort scientific judgment.

A reviewer who describes every problem as “major” may fail to distinguish genuinely consequential scientific limitations from correctable deficiencies.

Conversely, a reviewer who treats a consequential methodological problem as minor may underestimate its effect on the scientific conclusions.

Classification therefore serves an important function:

It communicates scientific consequence.

The purpose is not to increase the apparent severity of a review, but to identify which concerns materially affect the scientific assessment.

6.2 What Is a Major Concern?

A **major concern** is a deficiency that may materially affect the:

- validity;
- reliability;
- interpretation;
- reproducibility; or
- ethical acceptability

of the research.

Examples may include:

- inappropriate study design for the research question;
- major methodological deficiencies;
- substantial statistical errors or inappropriate statistical methods;
- outcome definitions that prevent meaningful interpretation;
- conclusions that are not adequately supported by the presented evidence;
- missing information that prevents adequate scientific assessment; and
- serious ethical or research-integrity concerns requiring editorial investigation.

A major concern should therefore be evaluated according to its **scientific consequence**, not merely its presence.

The reviewer should explain:

1. **What is the problem?**
2. **Why is it scientifically important?**
3. **Can it reasonably be addressed?**
4. **What effect does it have on validity or interpretation?**

This approach prevents the label “major” from becoming a substitute for scientific reasoning.

SCEQAS Principle

A major concern is defined by its potential effect on scientific validity and interpretation—not by the number of comments associated with it.

6.3 What Is a Minor Concern?

A **minor concern** is an issue that does not materially alter the scientific validity or interpretation of the study and can generally be addressed without fundamental changes to the research.

Examples may include:

- typographical errors;
- minor grammatical problems;
- figure formatting;
- table presentation;
- reference formatting;
- minor wording problems; and
- limited clarification of methods that are otherwise adequately described.

Minor concerns should generally be separated from substantive scientific concerns so that the editorial system can distinguish essential revisions from desirable improvements.

SCEQAS Principle

A minor concern is one whose correction does not require fundamental alteration of the scientific work.

Minor concerns alone should rarely justify rejection.

6.4 Scientific Consequence Is the Key

The classification of a concern should be based on what the concern **does to the scientific conclusions**.

The reviewer should therefore ask:

If this issue remains unresolved, could it materially change the validity, reliability, interpretation, or reproducibility of the study?

If the answer is yes, the concern may be major.

If the answer is no and the issue can generally be corrected without fundamental changes to the research, it may be minor.

This reasoning is more useful than simply counting problems.

For example, ten minor presentation problems do not necessarily constitute one major scientific problem.

Conversely, one methodological flaw may be sufficient to undermine the interpretation of the principal findings.

SCEQAS Core Rule

One scientifically consequential concern may outweigh numerous minor deficiencies.

6.5 Concerns That Require Special Handling

Some concerns should not simply be classified as “major” or “minor.”

Examples include:

- suspected plagiarism;
- possible fabrication or falsification;
- serious image manipulation;
- undisclosed ethical approval problems;
- authorship disputes;
- serious undisclosed conflicts of interest; and
- duplicate publication.

Such concerns may require a **research-integrity assessment** rather than ordinary manuscript revision.

The reviewer should provide the evidence or rationale for the concern and notify the editor.

The reviewer should not presume misconduct solely on the basis of an unexplained anomaly.

This distinction is fundamental to fair research-integrity practice.

SCEQAS Integrity Principle

A signal of possible misconduct is an editorial alert—not a finding of misconduct.

The role of the reviewer is to identify and communicate the concern.

The responsibility for determining whether further investigation is warranted belongs to the appropriate editorial or research-integrity process.

6.6 Severity Is Not the Same as Editorial Outcome

A major concern may lead to different editorial actions depending on the nature of the problem and whether it can reasonably be addressed.

Possible outcomes may include:

- major revision;
- additional methodological review;
- statistical review;
- research-integrity assessment;
- reconsideration after revision; or
- rejection when scientific validity cannot reasonably be restored.

Therefore:

Major concern ≠ rejection

Likewise:

Minor concern ≠ automatic acceptance

The final editorial decision remains the responsibility of the editor.

The editor integrates the reviewer assessment with other relevant information before determining the appropriate action.

6.7 Severity–Action Relationship

SCEQAS conceptualizes the relationship between concern severity and editorial action as follows:

Scientific Concern

↓

Assessment of Scientific Consequence

↓

Severity Classification

↓

Assessment of Remediability

↓

Editorial Integration

↓

Editorial Action

This sequence is important because the editorial action should not be determined solely by the label assigned to the concern.

The same category of concern may result in different actions depending on:

- whether the problem is correctable;
- whether additional evidence can resolve it;
- whether the study's principal conclusions remain defensible;
- whether additional expertise is required; and
- whether an integrity process is necessary.

6.8 Major Concerns and Revision

A major concern does not necessarily mean that the underlying research is irreparably flawed.

Some major concerns can be addressed through:

- additional analysis;
- clarification of methodology;
- correction of statistical procedures;
- improved reporting;
- revised interpretation;
- additional methodological assessment; or
- other scientifically justified revisions.

The reviewer should therefore distinguish between:

a major concern that is potentially remediable

and

a major concern that fundamentally compromises the scientific validity of the work.

This distinction allows the editor to determine whether revision, additional assessment, or rejection is appropriate.

6.9 Minor Concerns and Editorial Efficiency

Minor concerns remain important, but they should not obscure substantive scientific issues.

A well-structured review should therefore present:

Major Concerns

Issues that may materially affect scientific validity, reliability, interpretation, reproducibility, or ethical acceptability.

Minor Concerns

Issues that can generally be corrected without fundamental changes to the research.

This organization allows authors to prioritize revisions and allows editors to evaluate the scientific significance of the review more efficiently.

6.10 The SCEQAS Severity–Decision Principle

The distinction can be summarized in four statements:

1. **Severity describes the scientific significance of a concern.**
2. Remediability describes whether and how the concern may reasonably be resolved.
3. **Editorial action reflects the integrated assessment of the manuscript.**
4. **No single severity label automatically determines the editorial decision.**

Thus:

Severity informs decision; severity does not determine decision.

This principle protects the review process from mechanical decision-making.

6.11 A Practical Reviewer Test

Before classifying a concern, the reviewer should ask:

Question 1

Does the issue affect scientific validity?

Question 2

Does it affect interpretation of the findings?

Question 3

Does it affect reliability or reproducibility?

Question 4

Does it prevent adequate scientific assessment?

Question 5

Can the issue reasonably be addressed?

Question 6

Does the concern involve research integrity and therefore require a separate process?

The answers should guide classification and communication.

6.12 The SCEQAS Concern Classification Model

Concern Type	Scientific Effect	Typical Handling
Major	May materially affect validity, reliability, interpretation, reproducibility, or ethical acceptability	Substantive scientific assessment or revision
Minor	Does not materially affect scientific validity or interpretation	Correction or clarification
Integrity-related	May indicate a breach requiring investigation	Editorial/research-integrity assessment

This table is a classification aid, not an automatic decision rule.

Chapter Summary

The distinction between major and minor concerns is fundamental to disciplined peer review.

A major concern is defined by its potential effect on scientific validity, reliability, interpretation, reproducibility, or ethical acceptability.

A minor concern does not materially alter the scientific validity or interpretation of the study and can generally be addressed without fundamental changes to the research.

Certain integrity-related concerns require separate handling and should not be reduced to ordinary severity categories.

Most importantly, SCEQAS establishes:

Severity ≠ Decision

The reviewer assesses the scientific significance of a concern.

The reviewer explains its consequence.

The reviewer indicates whether it may reasonably be addressed.

The editor integrates the evidence and determines the appropriate editorial action.

This distinction is one of the central safeguards of the SCEQAS framework against mechanical, disproportionate, or premature editorial judgment.

CHAPTER 7

THE REVIEWER'S DECISION-MAKING PROCESS

SCEQAS Foundational Concept: Structured Reviewer Reasoning

Peer review should follow a structured reasoning process.

The purpose of this process is not to turn scientific judgment into a mechanical checklist. Rather, it is to ensure that the essential scientific domains are considered systematically, consistently, and proportionately.

A structured review helps the reviewer move from **observation to interpretation, from interpretation to scientific assessment, and from assessment to a reasoned recommendation.**

Step 1 — Read Before Judging

The reviewer should initially read the manuscript without immediately formulating detailed criticisms.

The first reading should establish an overall understanding of:

- the research question,
- the study design,
- the scientific rationale,
- the principal findings, and
- the intended contribution of the study.

The reviewer should first understand what the authors attempted to investigate before evaluating how successfully they achieved it.

Step 2 — Evaluate the Research Question

The reviewer should determine whether the research question is:

- clearly defined,
- scientifically relevant,
- appropriately formulated,
- supported by a suitable hypothesis or objective, and
- appropriately addressed by the study design.

The central question is:

Does the study design adequately address the question the authors have formulated?

A scientifically interesting question does not compensate for a study design that cannot adequately answer it.

Step 3 — Evaluate the Methodology

The reviewer should assess whether the methodology is appropriate for the research question and study design.

Relevant domains may include:

- study design,

- participant or sample selection,
- inclusion and exclusion criteria,
- exposure or intervention definitions,
- outcome definitions,
- measurement methods,
- control or comparator groups,
- handling of missing data,
- statistical methods, and
- methodological reproducibility.

The level of methodological scrutiny should be appropriate to the study design and consistent with the reviewer's expertise. [3]

The reviewer should distinguish between a methodological limitation that can be addressed through clarification or revision and a methodological deficiency that fundamentally compromises the scientific validity of the study.

Step 4 — Evaluate the Results

The reviewer should determine whether the results are:

- adequately presented,
- internally consistent,
- appropriate to the methods used,
- sufficiently supported by statistical reporting, and
- capable of supporting the conclusions drawn by the authors.

Particular attention should be given to the relationship between the data presented and the claims subsequently made.

The reviewer should distinguish among:

- absence of evidence,
- imprecision or uncertainty, and
- evidence that directly contradicts the research hypothesis.

A result that does not confirm a hypothesis is not, by itself, evidence of scientific failure.

Step 5 — Evaluate the Conclusions

The reviewer should determine whether the conclusions are supported by the evidence presented.

The reviewer should specifically examine whether the authors:

- overstate causality,
- generalize beyond the studied population,
- ignore important limitations,
- confuse association with causation, or

- make claims that exceed the available data.

The appropriate question is not whether the reviewer agrees with the authors' interpretation, but whether the interpretation is **scientifically justified by the evidence**.

Step 6 — Identify and Classify Scientific Concerns

After evaluating the manuscript as a whole, the reviewer should identify concerns that could materially affect scientific validity, interpretation, or the reliability of the conclusions.

Not every imperfection constitutes a major concern.

Concerns should therefore be prioritized according to their **scientific significance and potential consequence**.

The reviewer should distinguish between:

- substantive scientific concerns,
- methodological concerns,
- statistical concerns,
- interpretive concerns,
- reporting deficiencies, and
- minor editorial or presentation issues.

The classification of a concern should reflect its scientific consequence rather than the reviewer's personal preference.

This principle is developed further in Chapter 6:

Severity informs decision; severity does not determine decision.

Step 7 — Write Constructive Recommendations

Each major concern should be presented in a manner that allows the authors and editors to understand both the problem and its scientific significance.

For each major concern, the reviewer should:

1. identify the specific problem;
2. explain why it matters scientifically;
3. provide the reasoning or evidence supporting the concern; and
4. indicate what clarification, analysis, revision, or additional evaluation may be necessary.

Minor concerns should be presented separately.

This distinction enables authors and editors to differentiate between **essential scientific revisions** and **desirable improvements**.

Reviewer comments should therefore be specific, evidence-based, proportionate, and constructive.

The purpose of a review is not simply to identify deficiencies, but to communicate clearly what those deficiencies mean for the scientific reliability of the manuscript and, where possible, how they may be addressed.

Step 8 — Provide a Scientific Recommendation

After completing the scientific assessment, the reviewer may provide an overall recommendation according to the journal's designated categories.

Possible categories may include:

- Accept
- Minor revision
- Major revision
- Reject

However, the reviewer's recommendation is **advisory rather than determinative**.

The reviewer evaluates the scientific work and provides a reasoned scientific recommendation. The editor integrates the reviewer assessments, the manuscript evidence, journal policy, and other relevant editorial considerations before making the final editorial decision. [1]

SCEQAS Decision Principle

The reviewer provides a scientific recommendation; the editor makes the editorial decision.

This distinction preserves both the independence of scientific review and the accountability of editorial governance.

The SCEQAS Structured Reasoning Sequence

The reviewer's reasoning can therefore be represented as:

Read → Understand → Evaluate → Identify → Classify → Explain → Recommend

More specifically:

Research Question

↓

Study Design & Methodology

↓

Results & Statistical Evidence

↓

Interpretation & Conclusions

↓

Scientific Concerns

↓

Severity & Scientific Consequence

↓

Constructive Recommendations

↓

Scientific Recommendation

The sequence is structured, but it is not mechanical.

Scientific judgment remains essential at every stage.

Chapter Summary

The SCEQAS reviewer should approach peer review as a structured scientific reasoning process rather than as a collection of isolated criticisms.

The reviewer should first understand the study, then evaluate its question, methodology, results, and conclusions; identify and classify scientifically meaningful concerns; communicate those concerns constructively; and finally provide a reasoned scientific recommendation.

The reviewer's task is therefore to transform manuscript evidence into a transparent and scientifically justified assessment.

SCEQAS does not replace scientific judgment with a checklist. It structures scientific judgment so that important considerations are addressed systematically and communicated clearly.

CHAPTER 8

COMMON REVIEWER MISTAKES

SCEQAS Foundational Concept: Recognizing and Preventing Review Errors

Effective reviewer development should not only describe what reviewers should do. It should also identify common forms of inappropriate, ineffective, or potentially harmful review behavior.

Recognizing these patterns helps reviewers improve the quality, fairness, consistency, and scientific usefulness of their assessments.

The following are among the most important reviewer mistakes addressed by SCEQAS.

Mistake 1 — Rejecting Because the Reviewer Disagrees With the Hypothesis

A reviewer should not recommend rejection simply because the findings contradict the reviewer's expectations, preferred hypothesis, or prior interpretation.

Scientific validity should be evaluated independently of whether the results confirm the proposed hypothesis.

Unexpected or negative findings may be scientifically valuable when the study design, methods, analyses, and interpretation are appropriate.

The relevant question is:

Are the findings scientifically credible and appropriately interpreted, rather than whether they agree with the reviewer's expectations?

Mistake 2 — Requesting Experiments Unrelated to the Study Objective

Additional experiments should not be requested merely because they would make the manuscript more interesting, comprehensive, or aligned with the reviewer's own research interests.

Additional work should be requested when it is scientifically necessary to address a substantive limitation or question relevant to the study. [2, 3]

Reviewer requests should therefore be:

- scientifically justified,
- relevant to the research question,
- proportionate to the identified concern, and
- feasible within the scope of the manuscript.

Mistake 3 — Confusing Language Problems With Scientific Problems

Language or presentation problems should not automatically be interpreted as evidence of poor scientific quality.

The reviewer should determine whether a language or presentation problem actually prevents:

- understanding,
- interpretation,
- evaluation of the methods or results, or
- reliable assessment of the scientific claims.

Minor language problems should generally be distinguished from substantive scientific deficiencies. The reviewer evaluates the scientific work, not the authors' writing style or linguistic background.

Mistake 4 — Ignoring Limitations Already Acknowledged by the Authors

A limitation should not be criticized merely because it exists.

The reviewer should assess:

- whether the limitation is appropriately recognized,
- whether its scientific significance is adequately discussed, and
- whether the conclusions remain appropriately cautious.

Scientific studies are rarely free of limitations. The relevant question is whether the limitations are adequately recognized, interpreted, and incorporated into the conclusions.

Mistake 5 — Providing an Inadequately Substantiated Review

A review consisting only of statements such as:

“Good study.”

or

“Poor methodology.”

does not provide sufficient scientific reasoning.

An effective review should explain:

- what the reviewer observed,
- why it matters scientifically,
- what evidence supports the assessment, and
- where appropriate, what may be done to address the concern. [2, 3]

A scientific judgment should be traceable to an identifiable observation or evidence.

Mistake 6 — Giving Contradictory Recommendations

The scientific assessment and the overall recommendation should be logically consistent.

For example:

Scientific quality: Strong
Recommendation: Reject

would require a clear explanation of the scientific or editorial reason for rejection.

Likewise, a reviewer should not describe a fundamental methodological flaw as a minor concern without explaining why it does not materially affect scientific validity.

The reviewer should therefore ensure consistency among:

Evidence → Assessment → Severity → Recommendation

This does not mean that every major concern requires rejection. Rather, the reviewer's recommendation should be understandable from the reasoning presented.

Mistake 7 — Attempting to Rewrite the Manuscript

The reviewer should identify scientific problems and recommend necessary improvements.

The reviewer should not assume responsibility for rewriting the manuscript.

This includes unnecessary:

- line-by-line editing,
- restructuring,
- stylistic rewriting, or
- modification based primarily on personal preferences.

Reviewer comments should improve scientific clarity without replacing the authors' responsibility for the manuscript. [2, 3]

Mistake 8 — Being Excessively Harsh or Dismissive

Strong scientific criticism does not require hostile, humiliating, or dismissive language.

A reviewer may recommend rejection when scientific validity cannot reasonably be established or restored. However, the explanation should remain:

- objective,
- evidence-based,
- professional,
- specific, and
- respectful. [1, 2]

Scientific rigor and professional respect are not competing principles.

Mistake 9 — Treating Suspicion as Proof

A reviewer may identify:

- an apparent inconsistency,
- an image concern,
- an unusual result,
- an unexpected pattern, or
- possible overlap with another publication.

However, the reviewer should distinguish carefully between an **editorial alert** and a **finding of misconduct**.

Appropriate:

“This finding requires editorial investigation.”

Inappropriate:

“The authors committed misconduct.”

The first is a scientifically and editorially appropriate alert. The second may constitute a conclusion that requires a formal investigation beyond the reviewer's role. [1, 2]

SCEQAS Integrity Principle

Concern about possible misconduct is not a finding of misconduct.

The reviewer identifies and communicates the concern; the appropriate editorial or institutional process determines whether further investigation is warranted.

Mistake 10 — Allowing Author Identity or Status to Influence Judgment

Scientific assessment should not be influenced by:

- institutional prestige,
- nationality,
- academic rank,
- reputation,
- language,
- perceived expertise, or
- the perceived status of the authors.

The manuscript should be evaluated on the scientific evidence presented. [2, 3]

The reviewer should therefore focus on the manuscript rather than assumptions about the people or institution behind it.

The SCEQAS Reviewer Error-Prevention Principle

The ten mistakes above can be grouped into five broader risks:

Risk	Typical Reviewer Error
Scientific Bias	Rejecting findings because they contradict expectations
Scope Distortion	Requesting unnecessary experiments or rewriting the manuscript
Reasoning Failure	Providing unsupported or contradictory assessments
Integrity Misjudgment	Treating suspicion as proof
Professional Bias	Allowing author identity, status, or language to influence judgment

These risks demonstrate why reviewer quality cannot be defined solely by subject-matter expertise.

A high-quality reviewer must also demonstrate **reasoning discipline, proportionality, integrity awareness, professional communication, and resistance to bias.**

Chapter Summary

The quality of peer review depends not only on what reviewers identify, but also on **how they reason, communicate, and act on what they identify.**

SCEQAS therefore treats reviewer error prevention as an essential component of reviewer quality assurance.

The reviewer should:

Evaluate the evidence objectively → distinguish scientific significance from personal preference → substantiate concerns → maintain proportionality → recognize the limits of the reviewer's role → separate suspicion from proof → communicate professionally.

The fundamental principle is:

A strong reviewer does not merely identify problems; a strong reviewer identifies the right problems, explains why they matter, and communicates them appropriately.

PART V — SCIENTIFIC EVALUATION & REVIEWER REASONING

CHAPTER 9

SCIENTIFIC THINKING DURING PEER REVIEW

SCEQAS Foundational Concept: Scientific Reasoning Before Scientific Judgment

9.1 Introduction

Peer review is not merely a checklist exercise.

It is a structured process of scientific reasoning in which the reviewer evaluates whether the research question, study design, methods, results, interpretation, and conclusions provide a sufficiently reliable basis for scientific consideration.

A reviewer should not simply identify errors. The reviewer should determine:

- what the study is attempting to establish;
- whether the methods are appropriate for that purpose;
- whether the reported results are sufficiently reliable;
- whether the conclusions are supported by the evidence; and
- what limitations affect the interpretation of the findings. [1, 3]

The reviewer should therefore evaluate the **scientific argument as a whole**, rather than assessing isolated elements without considering their relationship to one another.

Fundamental Question

Does the manuscript provide sufficiently reliable evidence to support its scientific claims?

A broader question follows:

Can this manuscript, in its present form or after appropriate revision, become part of the permanent scientific literature?

This question does not imply that the reviewer makes the final editorial decision. It defines the scientific responsibility of the reviewer.

9.2 The SCEQAS Scientific Thinking Pyramid

SCEQAS proposes a structured hierarchy for scientific reasoning:

Scientific Contribution



Interpretation of Findings



Validity of Results



Methodological Quality



Research Question

The model reflects the logical relationship among the principal components of scientific evaluation.

A study's scientific contribution can only be meaningfully interpreted when the underlying research question, methodology, results, and interpretation are sufficiently sound.

A weakness at a lower level may affect the reliability of conclusions at higher levels.

For example, if the study design is fundamentally inappropriate for the research question, even apparently precise results may not provide valid evidence for the stated conclusion.

The Pyramid as a Reasoning Framework

The SCEQAS Scientific Thinking Pyramid is a **reasoning framework, not a validated scoring instrument**.

It should not be interpreted as requiring every study to progress through identical levels, nor should one weakness automatically be assumed to invalidate every higher-level conclusion.

The reviewer should consider the scientific context, study design, and nature of the research when applying the framework.

Clinical relevance may be considered where applicable, but it is not a mandatory layer because not all scientific research is primarily clinical.

The pyramid should therefore guide **reasoning**, not mechanically determine judgment.

9.3 The Five Fundamental Questions

SCEQAS proposes five fundamental questions to structure reviewer reasoning.

Question 1

Is the research question clearly defined and scientifically relevant?

The reviewer should determine whether the study has a sufficiently clear scientific objective and whether the question is appropriate for investigation.

Question 2

Is the study design and methodology appropriate for the research question?

The reviewer should assess whether the selected design and methods are capable of addressing the stated scientific question.

Question 3

Are the reported results sufficiently reliable and appropriately analyzed?

The reviewer should consider the adequacy of the reported results, their consistency with the methods, and the appropriateness of the analyses used.

Question 4

Do the data support the conclusions and their level of interpretation?

The reviewer should assess whether the conclusions remain within the evidentiary boundaries established by the data.

Particular attention should be given to unsupported extrapolation, excessive causal interpretation, and claims that extend beyond the available evidence.

Question 5

What does the study add to the existing scientific literature, and what are the limitations of that contribution?

Scientific contribution should be considered in the context of both what the study establishes and what it cannot establish.

The reviewer should therefore evaluate contribution and limitation together rather than treating novelty or potential importance as independent of scientific reliability.

9.4 From Scientific Argument to Scientific Assessment

The five questions provide a high-level structure for reviewer reasoning.

They are not intended to replace detailed manuscript assessment.

Rather, they provide a framework within which detailed review questions can be organized.

The reviewer should move through the following reasoning sequence:

Research Question

↓

Study Design & Methodology

↓

Results & Analysis

↓

Interpretation & Conclusions

↓

Scientific Contribution & Limitations

At each level, the reviewer should ask whether the evidence supports the next level of scientific interpretation.

This creates a fundamental SCEQAS principle:

The reviewer should first understand the scientific argument, then test the evidence supporting that argument.

9.5 The SCEQAS Scientific Thinking Principle

Scientific peer review should not begin with the question:

“What is wrong with this manuscript?”

It should begin with:

“What is this manuscript trying to establish, and does the evidence support it?”

This distinction is important because it shifts the reviewer from an error-finding approach toward an **evidence-assessment approach**.

A reviewer may identify many imperfections without identifying a scientifically consequential problem. Conversely, a manuscript may appear well written and technically sophisticated while containing a fundamental weakness in design, analysis, or interpretation.

SCEQAS therefore prioritizes the relationship between:

Scientific Question → Evidence → Interpretation → Contribution

rather than the simple number of errors identified.

Chapter Summary

Scientific thinking during peer review requires the reviewer to understand the manuscript as a connected scientific argument.

The SCEQAS Scientific Thinking Pyramid provides a structured conceptual model, while the Five Fundamental Questions provide a practical framework for organizing scientific assessment.

Neither is intended to replace expert judgment.

The reviewer should determine:

What is being asked?

- **How was it investigated?**
- **What evidence was obtained?**
- **What do the data support?**
- **What does the study contribute?**

The fundamental SCEQAS principle is:

Understand the scientific argument first; evaluate the evidence second; judge the scientific contribution only within the limits of that evidence.

CHAPTER 10

SCIENTIFIC REASONING ALGORITHM

SCEQAS Foundational Concept: From Scientific Observation to Reasoned Recommendation

The SCEQAS Scientific Reasoning Algorithm provides a structured approach to scientific assessment during peer review.

Its purpose is not to replace expert judgment with a mechanical procedure. Rather, it is intended to reduce avoidable reviewer bias, improve consistency, and ensure that scientific concerns are evaluated according to their actual consequences. [2, 3]

The algorithm guides the reviewer from the initial observation of a potential problem toward a scientifically reasoned recommendation.

STEP 1 — Separate the Science From the Identity of the Authors

The reviewer should evaluate the manuscript independently of assumptions about the people behind it.

Assessment should not be influenced by:

- author reputation,
- institutional prestige,
- nationality,
- language,
- academic rank,
- previous publication record, or
- perceived scientific status. [2, 3]

The manuscript should be evaluated on the scientific evidence it presents.

SCEQAS Principle

Evaluate the manuscript, not the identity or reputation of its authors.

STEP 2 — Separate Scientific Assessment From Journal Prestige

The reviewer should evaluate the manuscript according to:

- its scientific merits,
- the journal's published scope,
- the journal's stated criteria, and
- the requirements applicable to the manuscript.

Journal impact factor, perceived prestige, or publication selectivity should not substitute for scientific evaluation.

A manuscript should be assessed according to the quality and relevance of its scientific evidence rather than assumptions about the status of the journal in which it may appear.

STEP 3 — Separate Language Problems From Scientific Problems

The reviewer should distinguish language or presentation problems from substantive scientific deficiencies.

The key question is:

Does the language or presentation problem actually affect scientific interpretation or evaluation?

If a language problem does not prevent understanding of the research question, methods, results, or conclusions, it should not be treated as a scientific deficiency.

This distinction supports proportionality and prevents unnecessary escalation of editorial or linguistic problems into scientific judgments.

STEP 4 — Separate Methodological Problems From Reporting Problems

A study may have:

- sound methodology but incomplete reporting;
- adequate reporting but inappropriate methodology; or
- both methodological and reporting deficiencies.

These situations should not be treated as equivalent.

Incomplete reporting may sometimes be addressed through clarification or revision, whereas an inappropriate study design may affect the fundamental validity of the evidence.

The reviewer should therefore identify whether the concern relates primarily to:

What was done

or

What was reported about what was done.

This distinction is essential for determining both scientific consequence and possible remediation.

STEP 5 — Determine the Scientific Consequence of Each Substantive Weakness

For each substantive concern, the reviewer should ask:

Does this weakness materially affect validity, reliability, interpretation, reproducibility, or ethical acceptability?

The answer should guide the severity assigned to the concern.

The reviewer should focus on **scientific consequence**, rather than the apparent seriousness of the wording or the reviewer's personal reaction to the problem.

A technically noticeable problem may have little scientific consequence, whereas a less visible methodological problem may substantially compromise the reliability of the findings.

SCEQAS Principle

Severity should reflect scientific consequence, not reviewer preference.

STEP 6 — Determine Whether the Concern Is Remediable

After identifying the scientific consequence of a concern, the reviewer should assess whether the problem can reasonably be addressed.

The reviewer should distinguish among:

1. a problem that can reasonably be corrected;
2. a problem requiring additional analysis or clarification;
3. a problem requiring independent specialist review; and
4. a problem that fundamentally prevents reliable interpretation.

This step is critical because **scientific severity and remediability are different dimensions**.

A major scientific concern may still be remediable through appropriate revision, additional analysis, or further methodological evaluation.

Conversely, a problem may be so fundamental that reliable scientific interpretation cannot reasonably be restored.

STEP 7 — Formulate the Scientific Recommendation

The reviewer should formulate the overall scientific recommendation only after completing the preceding assessment.

Revision may be appropriate when scientifically meaningful concerns can reasonably be addressed through:

- clarification,
- correction,
- additional analysis,
- methodological explanation,
- appropriate revision, or
- other scientifically justified measures.

Rejection may be appropriate when the manuscript is unsuitable for publication under the journal's criteria and the relevant deficiencies cannot reasonably be addressed.

Other legitimate editorial grounds, such as journal scope or ethical considerations, may also prevent publication.

The reviewer should therefore ensure that the recommendation is supported by the reasoning presented in the review.

Recommend rejection only when the manuscript's scientific validity cannot reasonably be restored, or when other legitimate editorial grounds preclude publication.

The final editorial decision remains the responsibility of the editor.

The SCEQAS Scientific Reasoning Algorithm

The complete reasoning pathway can be summarized as:

Separate Science From Identity

↓

Separate Scientific Assessment From Journal Prestige

↓

Separate Language Problems From Scientific Problems

↓

Separate Methodological Problems From Reporting Problems

↓

Determine Scientific Consequence

↓

Determine Remediability

↓

Formulate Scientific Recommendation

This sequence transforms a reviewer's initial observation into a structured scientific assessment.

The SCEQAS Evidence-to-Action Logic

The algorithm can also be expressed through the broader SCEQAS logic:

Observation

↓

Scientific Assessment

↓

Scientific Consequence

↓

Severity Classification

↓

Remediability Assessment

↓

Scientific Recommendation

↓

Editorial Integration

The final step belongs to the editor.

Thus:

The reviewer reasons and recommends; the editor integrates and decides.

Algorithmic Safeguards

The SCEQAS Scientific Reasoning Algorithm incorporates several safeguards against common reviewer errors:

- **Identity bias is separated from scientific assessment.**
- **Journal prestige is separated from scientific merit.**
- **Language problems are separated from scientific problems.**
- **Reporting deficiencies are separated from methodological deficiencies.**
- **Severity is based on scientific consequence.**
- **Severity is distinguished from remediability.**
- **Reviewer recommendation is distinguished from editorial decision.**

These safeguards are intended to make reviewer reasoning more transparent, proportionate, and reproducible without converting scientific judgment into a purely mechanical process.

Chapter Summary

The SCEQAS Scientific Reasoning Algorithm provides a structured pathway from identifying a potential problem to formulating a scientifically justified recommendation.

Its central purpose is to prevent premature judgment and ensure that concerns are evaluated according to:

What is wrong → Why it matters → How serious it is → Whether it can be addressed → What scientific recommendation is justified.

The algorithm does not eliminate expert judgment.

It provides a disciplined structure within which expert judgment can operate more consistently.

SCEQAS structures scientific reasoning without replacing scientific judgment.

CHAPTER 11 — SCEQAS SCIENTIFIC SEVERITY CLASSIFICATION

SCEQAS Foundational Concept: Severity Is Not Decision

Not all reviewer concerns have the same scientific significance. A central function of the SCEQAS framework is therefore to distinguish concerns according to their potential effect on the validity, reliability, interpretation, reproducibility, transparency, or ethical acceptability of the scientific work.

Severity classification is intended to structure scientific reasoning and communication. It is not a mechanical scoring system and does not independently determine the editorial outcome.

The fundamental SCEQAS principle is:

Severity identifies the importance of a concern; it does not determine the editorial outcome.

11.1 Level 1 — Editorial and Presentation Issues

Level 1 concerns generally do not affect the scientific validity of the study.

Examples include:

- Grammar
- Spelling
- Formatting
- Reference formatting
- Figure or table presentation
- Minor wording problems

Typical action may include editorial correction or minor revision.

A Level 1 concern should not normally justify rejection on its own.

11.2 Level 2 — Reporting and Transparency Problems

Level 2 concerns involve incomplete reporting or insufficient transparency.

Examples include:

- Missing methodological information
- Incomplete reporting of procedures
- Insufficient description of study methods
- Missing relevant declarations
- Inadequate description of statistical methods
- Incomplete reporting according to an applicable reporting guideline

The significance of a reporting problem depends on whether the missing information prevents meaningful scientific assessment.

Possible actions may include:

- Clarification
- Minor revision
- Major revision
- Additional methodological or statistical review

The appropriate response depends on the scientific consequence of the deficiency.

11.3 Level 3 — Substantive Scientific Problems

Level 3 concerns may materially affect the interpretation or reliability of the scientific findings.

Examples include:

- Inadequate sample or study population for the stated research question
- Inadequate handling of confounding
- Important analytical limitations
- Incomplete or inappropriate interpretation
- Substantive methodological weaknesses that may be remediable

A Level 3 concern may or may not be remediable.

Possible actions may include:

- Major revision
- Additional methodological or statistical review
- Further analysis or clarification
- Rejection when the problem cannot reasonably be addressed

Therefore, Level 3 classification does not itself determine the editorial outcome.

11.4 Level 4 — Critical Scientific Problems

Level 4 concerns involve deficiencies that may fundamentally compromise the scientific validity of the manuscript.

Examples include:

- A study design fundamentally inappropriate for the stated research question
- An analysis incapable of supporting the principal conclusion
- Major unsupported causal or clinical claims
- Severe methodological bias that cannot reasonably be corrected
- Critical inconsistency between the data and the conclusions

Possible actions may include:

- Major revision when the problem is scientifically remediable
- Additional specialist review
- Reanalysis where appropriate
- Rejection when scientific validity cannot reasonably be established

“Reject and Resubmit” should not be treated as an inherent Level 4 outcome. Journal-specific editorial categories should be used according to the journal's policies.

11.5 Potential Research Integrity Signals — Separate From Scientific Severity

Potential research-integrity signals are not assigned a higher scientific-severity level. They constitute a separate assessment pathway because a signal may require research-integrity review regardless of the scientific severity of the underlying manuscript concern.

Examples may include signals suggesting:

- Possible fabrication

- Possible falsification
- Possible plagiarism
- Possible duplicate publication
- Possible image manipulation
- Serious undisclosed ethical concerns

A reviewer identifies a potential integrity concern; the reviewer does not independently determine that misconduct has occurred.

Such concerns should be communicated to the editor and managed according to the journal's research-integrity procedures. [2]

SCEQAS Integrity Principle

Concern → Assessment → Evidence → Investigation → Conclusion

not:

Concern → Misconduct Finding

A potential integrity concern is therefore an editorial alert requiring appropriate assessment, not a conclusion of misconduct.

11.6 Severity Is Not Remediability

Scientific severity and remediability are related but distinct.

A serious scientific concern may be reasonably remediable through:

- additional analysis,
- clarification,
- correction of interpretation,
- improved reporting,
- methodological explanation, or
- appropriate specialist assessment.

Conversely, a less severe concern may become important when combined with other scientific, ethical, integrity, or editorial considerations.

Accordingly:

Severity answers: “How important is the concern?”

Remediability answers: “Can the concern reasonably be addressed?”

These questions should be answered separately.

11.7 Severity Is Not Editorial Decision

The SCEQAS framework therefore distinguishes three stages:

Scientific Severity

How serious is the concern?

↓

Remediability

Can the concern reasonably be addressed?

↓

Reviewer Recommendation

What scientific recommendation follows?

The final editorial decision remains the responsibility of the editor.

11.8 Practical Severity Test

Before assigning a severity level, the reviewer should ask:

1. Does the concern affect scientific validity?
2. Does it affect the reliability or interpretation of the findings?
3. Does it affect reproducibility or transparency?
4. Does it affect ethical acceptability?
5. Can the concern reasonably be addressed?
6. Does the concern require specialist assessment?

The reviewer should classify the concern according to its scientific consequence rather than according to the number of comments made.

11.9 SCEQAS Severity–Action Logic

The operational relationship is:

Concern Identified

↓

Scientific Consequence Assessed

↓

Severity Classified

↓

Remediability Assessed

↓

Reviewer Recommendation Formulated

↓

Editorial Integration

This sequence prevents severity from being converted automatically into an editorial decision.

Chapter Summary

SCEQAS classifies concerns according to their potential scientific consequence while preserving a clear distinction between severity, remediability, reviewer recommendation, and editorial decision.

The central principle is:

Severity informs decision; severity does not determine decision.

CHAPTER 12 — SCEQAS REVIEWER DECISION TREE

SCEQAS Foundational Concept: From Scientific Assessment to Reviewer Recommendation

The SCEQAS Reviewer Decision Tree provides a structured pathway for moving from scientific assessment to a reasoned reviewer recommendation.

It is not intended to replace scientific judgment with a mechanical decision rule. Rather, it organizes the sequence through which a reviewer examines the scientific argument, identifies concerns, assesses their significance and remediability, and formulates a recommendation.

12.1 The SCEQAS Reviewer Decision Pathway

Research Question

↓

Scientific Relevance and Clarity

↓

Study Design

↓

Methodological Adequacy

↓

Results and Analysis

↓

Are the Findings Sufficiently Reliable?

↓

Interpretation

↓

Are the Conclusions Supported by the Data?

↓

Are There Major Scientific Concerns?

↓

What Is Their Scientific Severity?

↓

Can the Concerns Reasonably Be Addressed?

↓

Reviewer Recommendation

↓

Editorial Integration

12.2 Step 1 — Evaluate the Research Question

The reviewer should determine whether the research question is:

- clearly defined,
- scientifically meaningful,
- appropriate to the study design, and
- relevant to the stated objectives.

A poorly defined research question may affect the interpretation of all subsequent components of the study.

12.3 Step 2 — Evaluate Study Design and Methodology

The reviewer should assess whether the methodology is appropriate for the research question.

The level of methodological scrutiny should be appropriate to the study design and the reviewer's expertise.

Where specialized statistical or methodological assessment is required, the reviewer should alert the editor and recommend specialist review when appropriate.

12.4 Step 3 — Evaluate Results and Analysis

The reviewer should determine whether:

- the results are sufficiently reliable,
- the analysis is appropriate,
- the reported findings correspond to the stated methods,
- statistical reasoning is appropriate within the reviewer's competence, and
- the results provide a reasonable basis for interpretation.

12.5 Step 4 — Evaluate Interpretation and Conclusions

The reviewer should determine whether the conclusions are supported by the available evidence.

Particular attention should be given to:

- unsupported causal claims,
- excessive clinical or scientific interpretation,
- inappropriate generalization,
- conclusions extending beyond the study design, and
- interpretations inconsistent with the reported data.

12.6 Step 5 — Identify and Classify Scientific Concerns

When a substantive concern is identified, the reviewer should determine its scientific consequence and classify its severity using the SCEQAS Scientific Severity Classification described in Chapter 11.

The reviewer should not classify a concern as major merely because it is personally important to the reviewer.

12.7 Step 6 — Assess Remediability

The reviewer should distinguish between:

- concerns that can reasonably be corrected,
- concerns requiring clarification or additional analysis,
- concerns requiring specialist methodological or statistical review, and
- concerns that fundamentally prevent reliable scientific interpretation.

This step is essential because scientific severity does not automatically determine the appropriate recommendation.

12.8 Step 7 — Formulate the Reviewer Recommendation

The reviewer should formulate a recommendation that logically follows from the scientific reasoning presented in the review.

Revision should generally be recommended when scientifically meaningful concerns can reasonably be addressed.

Rejection may be recommended when the manuscript is unsuitable under the journal's criteria and relevant deficiencies cannot reasonably be addressed, or when legitimate editorial grounds such as journal scope or ethical considerations prevent publication.

The reviewer should therefore be able to answer:

Why does my recommendation logically follow from my scientific assessment?

12.9 The Decision Tree Does Not Make the Editorial Decision

The SCEQAS decision tree ends at:

Reviewer Recommendation

It does not end at:

Publication Decision

The reviewer provides a scientific recommendation. The editor integrates the available evidence and makes the editorial decision.

ICMJE states that journals are not obligated to follow reviewer recommendations and that the editor has ultimate responsibility for content selection. [1]

SCEQAS Principle

The reviewer follows the scientific reasoning pathway; the editor follows the editorial decision pathway.

12.10 Reviewer Recommendation Consistency Test

Before submitting a recommendation, the reviewer should ask:

- Does my recommendation follow from my scientific concerns?
- Have I explained the scientific consequence of the major concerns?
- Have I considered whether the concerns are remediable?
- Have I avoided converting a personal preference into a scientific requirement?
- Would another qualified reviewer understand the reasoning behind my recommendation?

Chapter Summary

The SCEQAS Reviewer Decision Tree transforms structured scientific assessment into a reasoned reviewer recommendation while preserving the distinction between reviewer evaluation and editorial authority.

Its core sequence is:

Understand → Evaluate → Identify → Classify → Assess Remediability → Recommend → Editorial Integration

CHAPTER 13 — REVIEWER-AI COLLABORATION

SCEQAS Foundational Concept: Human-AI-Editorial Intelligence

Artificial intelligence may support selected aspects of editorial quality assurance, but it does not replace scientific expertise, reviewer judgment, or editorial responsibility.

The SCEQAS model therefore defines three distinct functional roles:

AI identifies and structures signals.

The reviewer interprets scientific significance.

The editor integrates evidence and makes the editorial decision.

This division of responsibility is fundamental to responsible AI use in peer review.

13.1 Fundamental Principle

AI may be used only as an authorized and secure quality-assurance support tool and in accordance with the journal's applicable policies.

AI does not replace:

- human scientific expertise,
- scientific reasoning,
- reviewer judgment,
- research-integrity assessment,
- or editorial responsibility.

AI-generated output should therefore be treated as an input for human assessment rather than as an independent scientific judgment. [1]

13.2 Appropriate AI-Assisted Functions

Where authorized and secure, AI may assist with:

- identification of applicable reporting guidelines,
- reporting completeness,
- statistical reporting completeness,
- table-text consistency,
- figure-text consistency,
- reference-format checking,
- identification of missing declarations,
- internal consistency checking,
- identification of potential reporting deficiencies,
- structured extraction of methodological information.

The appropriate reporting guideline should be selected according to the study design and research context. EQUATOR provides a resource for identifying applicable reporting guidelines; it is not itself a reporting guideline. [4]

13.3 Functions Reserved for Human Scientific Judgment

Human reviewers and editors remain responsible for:

- scientific originality,

- scientific reasoning,
- clinical or scientific significance,
- methodological appropriateness,
- interpretation of findings,
- assessment of scientific contribution,
- assessment of limitations,
- overall scientific recommendation,
- and editorial decision-making.

AI-generated output must not be treated as evidence of scientific validity merely because it is presented with high confidence.

AI systems may generate information that is incorrect, incomplete, or biased. [1]

Accordingly:

AI may assist the process; it cannot assume the judgment.

13.4 AI and Scientific Severity Classification

AI may assist in identifying or organizing potential concerns.

However, the final assessment of scientific consequence and severity remains a human responsibility.

For example, AI may flag:

- a possible methodological inconsistency,
- incomplete reporting,
- an unusual numerical discrepancy,
- a mismatch between tables and text, or
- a potentially unsupported statement.

The reviewer must determine:

- whether the signal is real,
- whether it is scientifically meaningful,
- what consequence it has,
- what severity it represents, and
- whether it is reasonably remediable.

Therefore:

AI signal ≠ scientific judgment

13.5 AI and Research Integrity

AI may assist in identifying potential integrity signals, including:

- apparent text overlap,
- inconsistent numerical information,
- unusual image features,
- conflicting declarations,

- inconsistencies between manuscript sections.

However:

An AI-generated integrity alert is a signal for human assessment, not a finding of misconduct.

AI should not independently classify an author or manuscript as having committed:

- fabrication,
- falsification,
- plagiarism,
- duplicate publication,
- image manipulation, or
- other forms of misconduct.

Potential integrity concerns should be referred to the editor and managed through the journal's established research-integrity process.

13.6 Confidentiality and Authorized AI Use

Reviewers using AI must comply with the journal's policy and applicable confidentiality requirements.

Submitted manuscripts, confidential review materials, and protected editorial information should not be uploaded to an AI system when confidentiality cannot be assured, unless such use is explicitly permitted by the journal.

Where AI use is permitted, reviewers remain responsible for:

- verifying AI-generated information,
- assessing its accuracy and completeness,
- ensuring that confidential information is appropriately protected, and
- disclosing AI use when required by journal policy. [1]

13.7 The SCEQAS Human–AI–Editorial Model

The functional relationship can be summarized as follows:

AI

Identify
Organize
Compare
Flag

↓

REVIEWER

Interpret
Assess
Classify
Explain
Recommend

↓

EDITOR

Integrate
Evaluate the complete editorial context
Decide

This model prevents automated assistance from being confused with scientific or editorial authority.

13.8 AI Does Not Replace Reviewer Expertise

The purpose of AI assistance is not to reduce the reviewer to a supervisor of automated output.

The reviewer remains the scientific evaluator.

AI can reduce repetitive technical tasks, identify inconsistencies, structure information, and support quality assurance. The reviewer must nevertheless independently determine the scientific significance of the information identified.

SCEQAS Human–AI Principle

AI identifies. Reviewers interpret. Editors decide.

13.9 Operational Boundary

The SCEQAS boundary is therefore:

AI assistance → Human scientific assessment → Editorial integration

and never:

AI output → Automated scientific judgment → Automated editorial decision

Chapter Summary

SCEQAS treats artificial intelligence as a supervised quality-assurance tool within a human-governed editorial system.

AI may identify and structure information, but scientific interpretation remains with the reviewer and editorial authority remains with the editor.

The fundamental model is:

AI identifies and structures signals; the reviewer interprets scientific significance; the editor integrates evidence and assumes editorial responsibility.

CHAPTER 14 — THE SCEQAS PHILOSOPHY OF EDITORIAL JUDGMENT

SCEQAS Foundational Concept: Scientific Assessment and Editorial Authority

Peer review and editorial decision-making are related but distinct processes.

Peer review is an expert scientific evaluation of the manuscript. Editorial decision-making is an institutional responsibility that integrates scientific evidence within the context of the journal.

The reviewer evaluates the scientific work.

The editor integrates:

- the scientific quality of the manuscript,
- reviewer assessments,
- methodological and statistical considerations,
- journal scope,
- ethical considerations,
- research-integrity concerns,
- and other legitimate editorial criteria. [1, 3]

The reviewer evaluates the scientific work. The editor integrates scientific quality, reviewer assessments, methodological and statistical considerations, journal scope, ethical considerations, research-integrity concerns, and other legitimate editorial criteria. [1, 3]

14.1 Scientific Evaluation Is Different From Editorial Decision

14.2 The SCEQAS Editorial Triangle

SCEQAS conceptualizes editorial quality assurance through three complementary functions:

REVIEWER

- Scientific expertise
- Methodological reasoning
- Interpretation
- Scientific assessment
- Evidence-based recommendation

AI-SUPPORTED QUALITY ASSURANCE

- Structured technical analysis
- Consistency checking
- Reporting checks
- Identification of potential signals

EDITOR

- Integration of evidence
- Resolution of substantive disagreement
- Consideration of journal context
- Ethical and integrity oversight
- Final editorial decision

These functions are complementary but not interchangeable.

SCEQAS Principle

Reviewers provide scientific assessment; AI provides quality-assurance signals; editors integrate the evidence and assume editorial responsibility.

The editor does not simply “vote” between reviewers and AI.

The editor evaluates the available evidence and determines the appropriate editorial action.

14.3 Editorial Independence

The editor remains the final authority in editorial decision-making.

No single element should independently determine publication, including:

- a reviewer recommendation,
- an AI-generated quality-assurance report,
- a quality indicator,
- a numerical agreement score,
- or the number of concerns identified.

Editorial judgment should remain independent, evidence-informed, and consistent with the journal's legitimate policies and scope. [1] [9]

14.4 Editorial Responsibility

The handling editor is responsible for:

- protecting scientific integrity,
- ensuring fair evaluation,
- assessing the reasoning provided by reviewers,
- resolving substantive reviewer disagreement,
- initiating appropriate ethical or research-integrity procedures,
- determining whether additional expert review is required,
- integrating relevant evidence,
- and communicating the editorial decision appropriately.

CSE similarly describes the editor's responsibilities in reviewer selection, conflict management, fair peer review, and editorial process oversight. [3]

14.5 The Editorial Boundary

The SCEQAS editorial boundary is:

AI identifies and structures signals.

Reviewers interpret scientific significance.

Editors integrate evidence and decide.

This boundary protects both scientific judgment and editorial independence.

Chapter Summary

Editorial judgment is not a vote, a numerical calculation, or an automated outcome.

It is the responsible integration of scientific evidence, reviewer reasoning, journal context, ethical considerations, and research-integrity information by an appropriately authorized editor.

CHAPTER 15 — THE SCEQAS SCIENTIFIC DECISION FRAMEWORK

SCEQAS Foundational Concept: Scientific Strengths, Limitations, and Proportional Judgment

A manuscript is not suitable for publication merely because it has few limitations.

Likewise, a manuscript should not be rejected merely because limitations have been identified.

Scientific judgment requires assessment of both strengths and limitations and their effect on the credibility and interpretation of the findings.

A manuscript is not accepted because it has no weaknesses; it is accepted when its scientific strengths and limitations support a sufficiently credible scientific contribution for publication consideration.

15.1 The Scientific Balance Principle

Reviewers should consider the manuscript's scientific strengths, including:

- a clearly defined research question,
- appropriate methodology,
- reliable results,
- appropriate analysis,
- supported conclusions,
- meaningful scientific contribution.

These should be considered together with limitations, including:

- methodological weaknesses,
- statistical limitations,
- reporting deficiencies,
- unavoidable sample limitations,
- residual uncertainty,
- limited generalizability.

The reviewer should then determine whether the limitations:

- materially affect scientific validity,
- materially affect interpretation,
- can reasonably be addressed,
- or remain acceptable within the context of the study.

15.2 Limitations Do Not Automatically Invalidate a Study

Scientific limitations must be interpreted in context.

A randomized trial with a minor reporting deficiency should not be evaluated in the same way as a study with a fundamentally inappropriate design.

Similarly, a pilot study may have an unavoidable small sample size.

A limited sample does not automatically invalidate a study when:

- the study is appropriately designed,
- the limitation is transparently acknowledged,

- the analysis is appropriate,
- and the conclusions remain proportionate to the available evidence.

SCEQAS Principle

A limitation becomes decisive when its effect on scientific validity or interpretation is material—not simply because the limitation exists.

15.3 Strengths–Limitations–Conclusion Relationship

The reviewer should ask:

Do the remaining limitations prevent the conclusions from being considered scientifically credible?

If the answer is no, revision or acceptance may be appropriate depending on the complete editorial context.

If the answer is uncertain, clarification, additional analysis, or specialist review may be appropriate.

If the answer is yes and the problem cannot reasonably be corrected, rejection may be appropriate.

This approach preserves proportionality without creating an automatic mathematical decision rule.

15.4 Scientific Balance Is Not Numerical Scoring

SCEQAS does not propose that strengths and limitations should be converted into a numerical score unless a specific validated instrument is being used for an appropriate purpose.

The purpose of the framework is to structure scientific reasoning rather than replace it with arithmetic.

The reviewer should therefore explain:

- what the principal strengths are,
- what the principal limitations are,
- which limitations are scientifically material,
- whether they are remediable,
- and how they affect the overall scientific credibility of the manuscript.

15.5 Relationship to Reviewer Recommendation

The scientific balance assessment contributes to the reviewer's recommendation.

The sequence is:

Scientific Strengths and Limitations

↓

Scientific Consequence

↓

Severity and Remediability

↓

Overall Scientific Assessment

↓

Reviewer Recommendation

↓

Editorial Integration

Chapter Summary

SCEQAS emphasizes proportional scientific judgment.

The existence of limitations does not automatically invalidate a manuscript. Their significance depends on their effect on scientific validity, interpretation, and the credibility of the conclusions within the context of the study.

CHAPTER 16 — SCEQAS REVIEWER MINDSET

SCEQAS Foundational Concept: Self-Audit Before Recommendation

Scientific peer review requires not only evaluation of the manuscript but also evaluation of the reviewer's own reasoning.

Before submitting a review, the reviewer should perform a brief self-audit.

16.1 The Reviewer Self-Audit

The reviewer should ask:

1. Did I evaluate the manuscript fairly and impartially?
2. Did I separate scientific problems from language and presentation problems?
3. Would I make the same scientific assessment regardless of who the authors are?
4. Did I request only revisions that are scientifically justified?
5. Did I explain the scientific significance of my major criticisms clearly?
6. Does my overall recommendation logically follow from my comments?
7. Would another scientifically qualified reviewer understand the reasoning behind my assessment?
8. Have I distinguished a potential concern from an established finding?
9. If I used AI, did I comply with the journal's AI policy, protect confidentiality, and independently verify the relevant information? [1]

16.2 The Final Reviewer Test

Before submitting the review, the reviewer should be able to answer:

Is my review scientifically justified, proportionate, constructive, and consistent with my recommendation?

And finally:

Am I evaluating the evidence—or am I evaluating the authors?

SCEQAS Reviewer Principle

Evaluate the evidence. Explain the reasoning. Respect the authors. Protect the scientific record.

16.3 The Recommendation–Comment Consistency Test

A reviewer recommendation should be traceable to the scientific reasoning presented in the review.

A recommendation should not be stronger than the scientific concerns described unless a clear rationale is provided.

Similarly, substantial scientific concerns should not be minimized merely because the reviewer has a general preference for acceptance.

The reviewer should ensure that:

Comments → Scientific Assessment → Recommendation

form a coherent chain.

Chapter Summary

Reviewer self-audit is a quality-control step within peer review.

The purpose is not to eliminate scientific disagreement but to reduce avoidable bias, unsupported criticism, disproportionate requests, and inconsistency between reviewer reasoning and recommendation.

CHAPTER 17 — THE REVIEWER OATH

SCEQAS Reviewer Commitment

As a reviewer, I recognize that my evaluation may influence the scientific record and, where applicable, clinical practice and future research.

I therefore commit to conducting every review with:

- honesty,
- objectivity,
- scientific rigor,
- professional respect,
- confidentiality,
- and ethical responsibility.

I shall:

- Evaluate the manuscript, not the authors.
- Critique evidence and reasoning, not individuals.
- Distinguish scientific concerns from language or presentation problems.
- Request revisions only when they are scientifically justified.
- Declare relevant conflicts of interest.
- Respect the confidentiality of the manuscript and information obtained through peer review.
- Avoid using unpublished information for personal or professional advantage.
- Identify potential ethical or research-integrity concerns without making unsupported allegations.
- Use AI or other external tools only in accordance with the journal's policies and applicable confidentiality requirements.
- Independently assess and verify information obtained through permitted external tools.
- Provide a recommendation that is consistent with the reasoning presented in my review.

I recognize that my responsibility is not merely to judge a manuscript, but to contribute to a fair, rigorous, transparent, and trustworthy scientific record.

SCEQAS Reviewer Commitment

I will evaluate the evidence objectively, explain my reasoning clearly, respect the authors, protect confidentiality, and uphold the integrity of the scientific record.

CHAPTER 18 — THE SCEQAS FOUNDATIONAL DECLARATION

The SCEQAS Foundational Declaration

The Scientific Editorial Quality Assurance System (SCEQAS) is designed to promote:

- objective scientific evaluation,
- transparent editorial processes,
- evidence-informed reasoning,
- ethical responsibility,
- reviewer professionalism,
- editorial independence,
- responsible use of artificial intelligence,
- and continuous improvement in editorial quality.

SCEQAS recognizes that scientific publishing depends on the appropriate interaction of human scientific expertise, responsible technological support, and accountable editorial governance.

SCEQAS therefore affirms the following principles:

1. Human Scientific Judgment

No checklist, algorithm, indicator, or artificial intelligence system can replace the scientific judgment of qualified reviewers or the editorial responsibility of qualified editors.

2. Human–AI Boundary

Artificial intelligence may support technical quality assurance, consistency checking, information organization, reporting assessment, and identification of potential concerns.

AI does not independently determine scientific validity or editorial outcome.

3. Reviewer Responsibility

Reviewers are responsible for interpreting scientific evidence, identifying and explaining scientifically meaningful concerns, assessing their significance, and providing evidence-based recommendations.

4. Editorial Responsibility

Editors are responsible for integrating scientific assessments, reviewer reasoning, journal context, ethical considerations, research-integrity information, and other legitimate editorial criteria.

The final editorial decision remains an editorial responsibility.

5. Proportionality

Scientific concerns should be assessed according to their effect on scientific validity, reliability, interpretation, transparency, reproducibility, and ethical acceptability.

Severity should not be confused with editorial outcome.

6. Integrity

A potential concern is not automatically evidence of misconduct.

Integrity concerns should be assessed through appropriate and proportionate editorial or research-integrity procedures.

7. Evidence-Based Reasoning

Editorial quality depends not on the number of comments or the apparent certainty of an automated output, but on the quality of scientific reasoning, the strength of the evidence, and the integrity of the decision-making process.

8. Continuous Improvement

Editorial quality is not a static endpoint.

SCEQAS therefore supports continuous learning, monitoring, evaluation, and improvement of editorial processes.

The Foundational SCEQAS Principle

AI identifies and structures signals. Reviewers interpret scientific significance. Editors integrate evidence and decide.

SCEQAS is intended to support—not replace—professional scientific and editorial judgment.

Its purpose is to make editorial quality processes more systematic, transparent, consistent, traceable, and continuously improvable while preserving human responsibility and editorial independence.

Chapter Summary

SCEQAS establishes an integrated framework in which scientific assessment, responsible AI assistance, editorial judgment, research integrity, and continuous quality improvement operate within clearly defined boundaries of responsibility.

The system is human-governed, evidence-informed, and designed for accountable editorial practice.

CHAPTER 19 — THE SCIENCE OF PEER REVIEW

SCEQAS Foundational Concept: Reasoned Disagreement

Scientific peer review does not require all qualified reviewers to reach identical conclusions.

Two competent reviewers may reasonably differ in their assessment of the same manuscript because of differences in:

- methodological expertise,
- scientific or clinical experience,
- familiarity with the literature,
- interpretation of scientific importance,
- assessment of external validity,
- tolerance of uncertainty,
- or evaluation of study limitations.

Reviewer disagreement should therefore not automatically be interpreted as reviewer error.

Likewise, reviewer agreement should not automatically be interpreted as evidence of correctness.

The quality of scientific reasoning is more important than the numerical degree of reviewer agreement.

19.1 Why Competent Reviewers May Disagree

Scientific judgment often involves interpretation under uncertainty.

Differences may arise because reviewers:

- emphasize different aspects of the evidence,
- have different areas of methodological expertise,
- interpret the clinical or scientific significance differently,
- assess limitations differently,
- or apply different but scientifically reasonable thresholds of uncertainty.

Such differences are not necessarily evidence of poor peer review.

19.2 Constructive Reviewer Disagreement

Reviewer disagreement becomes scientifically useful when each position is:

- clearly articulated,
- supported by evidence,
- relevant to the manuscript,
- proportionate to the identified concern,
- and open to editorial examination.

The purpose of editorial resolution is not to determine which reviewer “wins.”

The purpose is to determine which interpretation is better supported by the available evidence and the scientific context.

SCEQAS Principle

The purpose of resolving reviewer disagreement is not to identify a winner, but to determine which interpretation is better supported by the available evidence.

19.3 Reviewer Agreement Is Not the Objective

SCEQAS does not recommend maximizing reviewer agreement as an independent quality target.

A journal should instead seek:

Transparent reasoning + Appropriate expertise + Evidence-based assessment

Agreement may be useful as one indicator of consistency, but disagreement may also provide valuable information when it reveals uncertainty, methodological complexity, or different interpretations requiring editorial consideration.

19.4 Managing Substantive Disagreement

When reviewer assessments differ substantially, the editor should first characterize the nature of the disagreement.

The disagreement may concern:

- scientific interpretation,
- methodology,
- statistics,
- ethics or research integrity,
- journal scope,
- scientific significance,
- or the interpretation of limitations.

The editor should determine whether the disagreement can reasonably be resolved through examination of the existing evidence.

Additional specialist review may be appropriate when the disagreement concerns an area requiring expertise not otherwise available.

Chapter Summary

Reviewer disagreement is not inherently a defect in peer review.

SCEQAS treats disagreement as information that may require interpretation. The quality of reasoning, evidentiary support, relevance, and expertise should take precedence over numerical agreement alone.

CHAPTER 20 — THE CONTEXT-DEPENDENT USE OF SCIENTIFIC EVIDENCE

SCEQAS Foundational Concept: Evidence Is Question-Specific

The strength and usefulness of scientific evidence depend on the question being asked and the context in which the evidence is evaluated.

Evidence should therefore not be interpreted solely according to a universal ranking of study designs.

Relevant considerations include:

- the scientific question,
- study design,
- risk of bias,
- precision,
- consistency,
- directness or applicability,
- and transparency of reporting.

20.1 Evidence Hierarchy Is Question-Specific

The appropriate evidence hierarchy may differ according to whether the research question concerns:

- treatment effectiveness,
- diagnosis,
- prognosis,
- etiology or harm,
- prevalence,
- screening,
- qualitative experience,
- implementation,
- health services,
- or another scientific question.

A study design that is highly informative for one question may be less appropriate for another.

20.2 Study Design Does Not Equal Evidence Quality

A study should not be considered scientifically strong merely because it belongs to a traditionally higher evidence category.

Likewise, a study should not be dismissed solely because it uses an observational, descriptive, qualitative, or other design that may provide appropriate evidence for its specific research question.

The reviewer should consider:

- appropriateness of design,
- risk of bias,
- sample selection,
- measurement validity,
- confounding,

- statistical analysis,
- precision,
- consistency,
- directness and applicability,
- and transparency of reporting.

SCEQAS Principle

Study design informs the expected strength of evidence; it does not determine evidence quality by itself.

20.3 Illustrative Study-Design Spectrum

An illustrative spectrum may include:

Randomized Controlled Trial

↓

Prospective Cohort

↓

Case-Control

↓

Cross-Sectional Study

↓

Case Series

↓

Case Report

↓

Expert Opinion

This spectrum should not be interpreted as a universal hierarchy of evidence quality.

The appropriate design depends on the scientific question.

20.4 Evidence Hierarchy Is a Reasoning Aid

Evidence hierarchies should support scientific reasoning rather than function as automatic publication or rejection rules.

A reviewer should therefore ask:

Is this study design appropriate for the question being asked, and does the evidence generated by that design support the conclusions made by the authors?

Chapter Summary

Scientific evidence should be evaluated in relation to the research question, study design, risk of bias, precision, consistency, applicability, and reporting quality.

No single study-design hierarchy can replace contextual scientific judgment.

CHAPTER 21 — BALANCING INNOVATION AND METHODOLOGICAL RIGOR

SCEQAS Foundational Concept: Openness Without Lowering Standards

Innovation is an essential component of scientific progress.

Innovative research may initially involve:

- preliminary observations,
- exploratory designs,
- limited samples,
- emerging technologies,
- new hypotheses,
- or incomplete evidence.

Such characteristics should not automatically disqualify a manuscript.

However, innovation does not exempt scientific work from appropriate methodological standards.

21.1 Innovation May Begin With Uncertainty

Novel research may involve greater uncertainty than established research.

The reviewer should therefore distinguish between:

uncertainty inherent to innovation

and

deficiencies that prevent reliable scientific interpretation.

The presence of uncertainty alone should not be treated as evidence of scientific inadequacy.

21.2 The Innovation Principle

Novelty does not lower the standard of scientific evidence.

In some circumstances, novel claims may require particularly careful examination because established evidence may be limited.

The reviewer should therefore remain scientifically open while maintaining appropriate methodological rigor.

21.3 Innovation and Unsupported Claims

Reviewers should distinguish between:

Novel but adequately supported

and

Novel but insufficiently supported.

A manuscript should not be rejected merely because its findings challenge established understanding.

At the same time, novelty should never compensate for:

- inadequate methodology,
- unsupported conclusions,
- inappropriate analysis,
- or unjustified interpretation.

SCEQAS Principle

Evaluate novelty with scientific openness, but evaluate evidence without lowering scientific standards.

21.4 Avoiding Conservatism in Peer Review

Reviewers should be particularly cautious when evaluating findings that:

- challenge prevailing assumptions,
- use unfamiliar methodologies,
- introduce emerging technologies,
- or propose new scientific interpretations.

The relevant question is not:

“Is this consistent with what I already believe?”

but:

“Is the scientific evidence sufficient to support the claims being made?”

Chapter Summary

SCEQAS seeks to protect scientific innovation without compromising scientific rigor.

Novelty should neither receive preferential treatment nor be penalized merely because it challenges established understanding.

CHAPTER 22 — REVIEWER COGNITIVE BIAS

SCEQAS Foundational Concept: The Reviewer Must Audit the Reviewer

Scientific judgment can be influenced by cognitive biases even when reviewers are acting in good faith.

SCEQAS therefore recognizes the need for reviewers to examine not only the manuscript but also the reasoning process through which they evaluate it.

22.1 Major Reviewer Biases

SCEQAS recognizes at least the following forms of potential bias:

Confirmation Bias

Existing beliefs influence the interpretation of new evidence.

Prestige Bias

The reputation of authors, institutions, journals, or research groups influences perceived credibility.

Language Bias

Language quality is mistaken for scientific quality.

Conservatism Bias

Novel ideas or unfamiliar findings are judged negatively because they differ from established thinking.

Negative Bias

Weaknesses receive disproportionate attention while scientific strengths are overlooked.

Citation-Related Bias

Unnecessary or self-serving citation expectations influence the review, including inappropriate requests to cite the reviewer's own publications.

Outcome-Dependent Evaluation

Study quality is judged according to whether the results are statistically significant, positive, or otherwise preferred.

Familiarity Bias

Methods or concepts that are unfamiliar to the reviewer are perceived as less credible without adequate scientific justification.

22.2 Bias and Scientific Judgment

Bias does not necessarily imply intentional misconduct.

The purpose of bias awareness is to reduce avoidable distortion in scientific evaluation.

A reviewer should therefore distinguish:

Scientific criticism

from

personal reaction to the scientific work.

22.3 Reviewer Self-Audit

The reviewer should ask:

- Would I make the same assessment if the authors were unknown?
- Would I react differently if the results were statistically significant?

- Am I requesting a citation because it is scientifically necessary?
- Am I requesting citation of my own work without adequate justification?
- Am I confusing English quality with scientific quality?
- Am I rejecting the idea because it is scientifically weak—or because it is unfamiliar?
- Have I considered both strengths and limitations?
- Is my criticism proportional to its scientific importance?

SCEQAS Principle

A reviewer should critically evaluate both the manuscript and the reasoning process used to evaluate it.

22.4 Bias and Reviewer Responsibility

The objective is not to eliminate every form of human judgment.

Scientific evaluation necessarily involves expert interpretation.

The objective is to ensure that expert judgment remains:

- evidence-based,
- proportionate,
- transparent,
- and focused on the scientific work.

Chapter Summary

Recognition of cognitive bias is an essential component of reviewer professionalism.

SCEQAS encourages reviewers to treat self-audit as a routine quality-control step in scientific evaluation.

CHAPTER 23 — CONFLICT OF INTEREST

SCEQAS Foundational Concept: Independence Through Transparency

A conflict of interest exists when a reviewer's relationships, activities, interests, or circumstances may reasonably be perceived as capable of influencing—or creating a reasonable concern about influencing—the review.

Conflicts may be actual, potential, or reasonably perceived.

23.1 Types of Potential Conflict

Potential conflicts may include:

Financial

- consultancy,
- research funding,
- financial relationships,
- commercial interests.

Academic

- recent collaboration,
- shared publications,
- close professional relationships,
- direct scientific competition.

Personal

- friendship,
- family relationships,
- personal disputes,
- other close relationships.

Institutional

- employment at the same institution,
- competing institutional interests,
- administrative relationships.

Intellectual

A reviewer may have a strong commitment to a particular hypothesis, methodology, or interpretation that could affect—or reasonably appear to affect—the review.

Legal or Other Relevant Relationships

A legal or formal dispute may also be relevant when it could reasonably affect impartiality.

23.2 Conflict Does Not Automatically Mean Misconduct

The existence of a conflict of interest does not imply misconduct.

Appropriate responses may include:

- disclosure,
- editorial assessment,

- mitigation,
- or recusal.

The appropriate response depends on the nature and significance of the conflict.

23.3 Reviewer Responsibility

When a potential conflict exists, the reviewer should:

1. disclose it to the editorial office;
2. refrain from proceeding until the editor determines whether participation is appropriate;
3. recuse themselves when the potential for bias is substantial.

The reviewer should not independently determine that a disclosed conflict is harmless when the journal requires editorial assessment.

SCEQAS Principle

Transparency is preferable to undisclosed judgment.

23.4 Intellectual Commitment

A conflict of interest does not require a financial relationship.

A reviewer who has invested substantially in a particular scientific hypothesis or methodology should remain alert to the possibility that intellectual commitment may influence evaluation.

The relevant question is:

Would another qualified reviewer reasonably perceive this relationship or commitment as capable of influencing my judgment?

Chapter Summary

Conflict-of-interest management protects the independence and credibility of peer review.

Disclosure does not imply wrongdoing. It provides the editorial system with the information needed to determine whether participation is appropriate.

CHAPTER 24 — CONFIDENTIALITY

SCEQAS Foundational Concept: Protecting Unpublished Scientific Information

Submitted manuscripts and associated materials are confidential scientific communications.

Confidentiality protects:

- the manuscript,
- the authors,
- reviewers,
- editors,
- unpublished scientific information,
- and the integrity of the editorial process.

24.1 Materials Covered by Confidentiality

Confidentiality extends beyond the main manuscript.

It includes, where applicable:

- supplementary files,
- datasets,
- figures,
- videos,
- reviewer comments,
- editorial correspondence,
- author responses,
- statistical analysis plans,
- protocols,
- and other unpublished materials supplied during review.

24.2 Reviewer Responsibilities

Reviewers must not:

- distribute manuscripts,
- publicly discuss unpublished findings,
- use unpublished information for personal or professional advantage,
- disclose author or reviewer identities contrary to journal policy,
- retain manuscript materials for personal use,
- or share confidential material with unauthorized persons.

24.3 Confidentiality and AI

A reviewer must not upload confidential manuscript material into an AI system unless:

- such use is explicitly permitted by the journal,
- confidentiality can appropriately be assured,
- and applicable data-protection and institutional requirements are satisfied.

The existence of an AI system's own confidentiality statement does not by itself establish that journal policy permits its use.

Before using AI, the reviewer should determine:

- whether the journal permits AI use,
- whether explicit permission is required,
- whether the system is authorized,
- whether manuscript data are retained,
- whether data may be used for model training,
- whether information may be accessible to third parties,
- and whether an institutional or contractual data-processing agreement is required.

24.4 Confidentiality and Unpublished Ideas

Reviewers must not use unpublished:

- ideas,
- methods,
- data,
- findings,
- or scientific concepts

obtained through peer review for their own research, funding applications, publications, or other professional advantage.

24.5 Confidentiality Does Not Prevent Integrity Reporting

Confidentiality does not mean that potential research-integrity concerns should be ignored.

When a reviewer identifies a potential:

- plagiarism concern,
- data-integrity concern,
- image-manipulation concern,
- duplicate-publication concern,
- or ethical concern,

the reviewer should communicate the concern to the editor through the journal's confidential process.

Critical Principle

Report the concern; do not conduct an independent investigation.

24.6 Confidentiality and AI Output

AI output should not be assumed to be confidential merely because the AI system states that it will protect information.

The reviewer remains responsible for ensuring that the use of any external system complies with the journal's policy and applicable confidentiality requirements.

SCEQAS Principle

Confidentiality protects the manuscript, the authors, the reviewers, the editorial process, and the integrity of scientific communication.

Chapter Summary

Confidentiality is a continuing responsibility throughout peer review.

It includes protection of manuscript content, unpublished ideas, editorial communications, and any information processed through authorized technological systems.

CHAPTER 25 — PROFESSIONAL COMMUNICATION

SCEQAS Foundational Concept: Scientific Criticism Without Personal Criticism

The purpose of reviewer communication is to communicate scientific concerns clearly enough that the editor can evaluate them and, where appropriate, the authors can address them.

A high-quality review should be:

- professional,
- respectful,
- specific,
- evidence-based,
- constructive,
- proportionate,
- and clear. [1, 2, 3]

25.1 Criticize the Evidence, Not the Authors

Review comments should focus on:

- the research question,
- study design,
- methodology,
- analysis,
- interpretation,
- limitations,
- or conclusions.

They should not attack the:

- competence,
- intelligence,
- integrity,
- personality,
- or motivation

of the authors.

Avoid:

“The authors clearly do not understand statistics.”

Prefer:

“The statistical approach requires clarification because the current analysis does not appear to account for the repeated measurements.”

The second formulation identifies the scientific issue without making an unsupported judgment about the authors.

25.2 Explain the Scientific Consequence

A strong scientific criticism should answer three questions:

What is the problem?**Why does it matter?****Can it reasonably be remedied, and if so, how?**

For example:

“The primary outcome is not sufficiently defined. This makes it difficult to determine whether the reported analysis corresponds to the prespecified outcome. Please clarify the outcome definition and indicate whether it was prespecified.”

This formulation makes the scientific reasoning visible to both the editor and the authors.

25.3 Proportionate Language

Reviewers should avoid absolute statements unless the evidence clearly supports them.

Avoid:

- “This proves...”
- “The authors completely failed...”
- “This study is useless.”
- “The methodology is terrible.”

Prefer:

- “The data do not appear sufficient to support...”
- “This issue may substantially affect...”
- “Clarification is needed regarding...”
- “The current analysis does not adequately address...”

SCEQAS Principle

Strong scientific criticism does not require strong personal language.

25.4 Comments to Authors and Confidential Comments to the Editor

Where a journal uses separate fields for:

- comments to authors,
- confidential comments to the editor,

reviewers should understand that the two fields have different purposes.

Substantive scientific criticisms should generally be communicated to the authors when appropriate.

Confidential comments should be reserved for matters that genuinely require communication to the editor, such as:

- potential conflicts of interest,
- suspected research-integrity concerns,
- reviewer safety concerns,
- inappropriate contact,
- or other information that should not appropriately be communicated to the authors at that stage.

Confidential comments should not secretly introduce decisive scientific criticisms that are absent from the comments to the authors unless there is a legitimate reason for confidentiality.

25.5 Communication and Reviewer Recommendation

The language of the review should support the recommendation.

The reviewer should ensure that:

Scientific Concern → Explanation → Scientific Consequence → Recommendation

forms a coherent chain.

A recommendation should be the conclusion of the reasoning rather than an unexplained assertion.

Chapter Summary

Professional communication is an essential component of scientific peer review.

The objective is not to soften legitimate scientific criticism but to communicate it in a way that is evidence-based, proportionate, understandable, and useful to the editorial process.

INTEGRATED SCEQAS REVIEWER PROFESSIONALISM MODEL

Chapters 19–25 can be summarized as a single professional reasoning sequence:

Assess the Evidence

↓

Interpret in Context

↓

Remain Open to Innovation

↓

Audit Cognitive Bias

↓

Declare Conflicts

↓

Protect Confidentiality

↓

Communicate Scientifically and Professionally

This sequence supports the broader SCEQAS principle:

Scientific judgment should be evidence-based, context-sensitive, independent, proportionate, confidential, and professionally communicated.

CHAPTER 26 — THE TEN GOLDEN RULES OF SCEQAS

SCEQAS Reviewer Code of Practice

The following ten principles summarize the core responsibilities of an SCEQAS reviewer.

Rule 1

Evaluate science—not scientists.

Assess the scientific work rather than the identity, reputation, institution, personality, or status of the authors.

Rule 2

Protect scientific integrity without sacrificing fairness or appropriate consideration of innovation.

Scientific rigor and openness to new ideas should coexist.

Rule 3

Differentiate major concerns from minor concerns.

The significance of a concern should be determined by its potential effect on scientific validity, reliability, interpretation, transparency, or ethical acceptability.

Rule 4

Support substantive criticism with clear scientific reasoning.

A major criticism should be explained sufficiently for the editor to understand its scientific basis.

Rule 5

Request only revisions that are scientifically justified and proportionate.

Reviewers should not request additional experiments, analyses, citations, or revisions merely because they would improve the manuscript according to personal preference.

Rule 6

Respect innovation while maintaining appropriate evidentiary standards.

Novel findings should be evaluated with scientific openness, but novelty should not compensate for inadequate evidence.

Rule 7

Protect confidentiality throughout the review process.

Confidentiality applies to the manuscript, supplementary materials, unpublished information, editorial communications, and other protected materials.

Rule 8

Recognize and actively manage your own cognitive biases.

Reviewers should examine whether personal expectations, familiarity, prestige, language, citations, or study outcomes are influencing scientific judgment.

Rule 9

Use AI only as permitted and appropriate, as a quality-assurance aid—not as a substitute for scientific judgment.

AI-generated information should be independently evaluated and verified.

Rule 10

Remember that every editorial decision contributes to the scientific record.

Reviewer work is part of a larger system responsible for maintaining the quality and integrity of published science.

SCEQAS Golden Rule

Evaluate objectively. Reason scientifically. Communicate respectfully. Protect the scientific record.

CHAPTER 27 — THE ANATOMY OF AN EXCELLENT PEER REVIEW

SCEQAS Foundational Concept: The Review as a Structured Scientific Argument

An excellent peer review is not a list of disconnected criticisms.

It is a structured scientific argument that explains:

- what the study attempts to establish,
- what the principal strengths are,
- what the important limitations are,
- why those limitations matter,
- whether they can reasonably be addressed,
- and what scientific recommendation follows.

27.1 Overall Assessment

The review should begin with a concise overall assessment addressing:

- the research question,
- its scientific importance,
- the general quality of the study,
- and its principal strengths.

The opening assessment should provide context rather than determine the final recommendation prematurely.

27.2 Major Scientific Concerns

Major concerns should identify substantive issues that may affect:

- validity,
- reliability,
- interpretation,
- reproducibility,
- or ethical acceptability.

Each major concern should explain its scientific consequence.

27.3 Minor Concerns

Minor concerns may include:

- clarification,
- terminology,
- presentation,
- tables,
- figures,
- references,
- or limited reporting deficiencies.

Minor concerns should not obscure the major scientific issues.

27.4 Constructive Recommendations

Recommendations should explain how the concern may reasonably be addressed.

The reviewer should distinguish between:

What is scientifically necessary

and

What would merely be desirable.

This distinction protects both the authors and the efficiency of the editorial process.

27.5 Overall Recommendation

The overall recommendation should logically follow from the scientific assessment.

The reviewer should not begin by deciding:

“Accept” or “Reject”

and then construct arguments to support that decision.

Instead:

Overall Assessment

↓

Scientific Strengths

↓

Major Concerns

↓

Scientific Consequences

↓

Constructive Recommendations

↓

Minor Concerns

↓

Overall Recommendation

Fundamental Rule

A recommendation should be the conclusion of the reasoning—not the starting point of the review.

27.6 Internal Consistency

Before submitting the review, the reviewer should confirm that:

- the major concerns identified are reflected in the recommendation,
- the severity of the criticism is proportionate,
- requested revisions are scientifically justified,
- and the recommendation does not exceed what the scientific assessment supports.

Chapter Summary

An excellent review is a coherent scientific argument rather than a collection of comments.

Its quality depends on the connection between observation, reasoning, scientific consequence, constructive recommendation, and overall recommendation.

CHAPTER 28 — LEARNING THROUGH REVIEW EXAMPLES

SCEQAS Foundational Concept: Reviewer Competence Develops Through Practice

Scientific reviewing is not mastered solely by reading principles.

Reviewer competence develops through:

- practice,
- structured feedback,
- comparison of alternative reasoning,
- and reflection on completed reviews.

SCEQAS therefore uses review examples to demonstrate differences between inadequate, acceptable, and high-quality scientific reviews.

28.1 Example 1 — Inadequate Review

Reviewer Comment

“Good manuscript. I recommend acceptance.”

Why This Review Is Inadequate

It does not explain:

- whether the research question is appropriate,
- whether the methodology is adequate,
- whether the results are reliable,
- whether the conclusions are supported,
- or why acceptance is scientifically justified.

SCEQAS Lesson

A recommendation without reasoning provides limited value to the editorial process.

28.2 Example 2 — Overly Negative Review

Reviewer Comment

“The methodology is poor and the study should be rejected.”

Why This Review Is Inadequate

The reviewer does not identify:

- the specific methodological problem,
- its scientific consequence,
- whether it is remediable,
- or why rejection follows.

SCEQAS Lesson

Strong conclusions require strong scientific reasoning.

28.3 Example 3 — Constructive Scientific Review

Reviewer Comment

“The statistical analysis does not appear to account for the repeated measurements. This may affect the independence assumption and therefore the interpretation of the reported estimates. The authors should clarify the analytical approach and, if appropriate, provide an analysis that accounts for the repeated observations.”

Why This Review Is Stronger

It identifies:

1. the problem,
2. the scientific consequence,
3. and a reasonable pathway for addressing the concern.

28.4 Example 4 — Inappropriate Reviewer Request

Reviewer Comment

“The authors should perform three additional experiments to make the paper more complete.”

SCEQAS Assessment

The reviewer should explain why each experiment is scientifically necessary to address the research question or a substantive limitation.

Experiments should not be requested merely because they would make the manuscript more comprehensive or align it with the reviewer's own research interests.

28.5 Example 5 — Appropriate Treatment of an Integrity Concern

Reviewer Comment

“There appears to be an inconsistency between the reported sample size and the numbers shown in Table 2. I recommend that the editor request clarification.”

SCEQAS Assessment

The reviewer has identified a potential concern without making an unsupported allegation of misconduct.

SCEQAS Principle

Identify the concern. Explain the evidence. Allow the appropriate editorial process to assess it.

28.6 Learning Objective

The purpose of examples is not to provide formulaic language.

It is to demonstrate the reasoning structure underlying a high-quality scientific review.

Chapter Summary

Reviewer development requires practice and reflection.

Examples help reviewers distinguish unsupported criticism from evidence-based scientific assessment and transform abstract principles into practical reviewing skills.

CHAPTER 29 — REVIEWER SELF-ASSESSMENT CHECKLIST

SCEQAS Foundational Concept: Quality Control Before Submission

Before submitting a review, the reviewer should perform a structured self-assessment.

Scientific Assessment

- Did I understand the research question?
- Did I assess whether the study design is appropriate?
- Did I evaluate the methodology?
- Did I consider the reliability of the results?
- Did I assess whether the conclusions are supported?
- Did I consider both strengths and limitations?

Severity and Proportionality

- Did I distinguish major from minor concerns?
- Did I assess the scientific consequence of each major concern?
- Did I distinguish severity from remediability?
- Are my criticisms proportionate to their scientific importance?

Reviewer Independence

- Did I evaluate the science rather than the authors?
- Did I consider whether cognitive bias influenced my assessment?
- Did I avoid prestige, language, citation, familiarity, and outcome-dependent bias?
- Did I disclose relevant conflicts of interest?

Recommendations

- Are my requested revisions scientifically justified?
- Did I avoid unnecessary experiments or analyses?
- Did I avoid inappropriate citation requests?
- Does my recommendation logically follow from my scientific assessment?

Confidentiality and AI

- Did I protect the confidentiality of the manuscript?
- Did I comply with the journal's AI policy?
- If AI was used, was its use authorized?
- Did I protect confidential information?
- Did I independently verify relevant AI-generated information?
- Did I disclose AI use when required?

Communication

- Is my review professional and respectful?
- Are my comments specific and evidence-based?
- Did I explain why important concerns matter?
- Did I distinguish comments to authors from confidential comments to the editor?

Final SCEQAS Test

Before submission, ask:

Is my review scientifically justified, proportionate, constructive, and consistent with my recommendation?

And finally:

Am I evaluating the evidence—or am I evaluating the authors?

Chapter Summary

Self-assessment is a quality-control mechanism designed to reduce avoidable bias, unsupported criticism, disproportionate requests, confidentiality failures, and inconsistency between review comments and recommendations.

CHAPTER 30 — BECOMING AN SCEQAS REVIEWER

SCEQAS Foundational Concept: Reviewer Competence

An SCEQAS reviewer should possess not only subject-matter expertise but also the ability to apply structured, ethical, and evidence-based scientific reasoning.

Reviewer competence includes:

- understanding study design,
- evaluating methodology,
- interpreting scientific evidence,
- recognizing limitations,
- assessing scientific consequence,
- identifying potential integrity concerns,
- communicating constructively,
- managing conflicts of interest,
- protecting confidentiality,
- and using AI responsibly when permitted.

30.1 Core Competencies

An SCEQAS reviewer should demonstrate competence in:

Scientific Reasoning

Ability to understand the research question and evaluate whether the evidence supports the conclusions.

Methodological Assessment

Ability to identify important methodological strengths and weaknesses within the reviewer's area of competence.

Evidence Interpretation

Ability to interpret evidence according to the scientific question and study design.

Critical Thinking

Ability to distinguish:

- major from minor concerns,
- evidence from assumption,
- scientific limitation from personal preference,
- and suspicion from established finding.

Ethical Awareness

Ability to recognize and appropriately communicate:

- conflicts of interest,
- confidentiality issues,
- ethical concerns,
- and potential research-integrity signals.

Professional Communication

Ability to communicate criticism clearly, respectfully, constructively, and proportionately.

Responsible Technology Use

Ability to use AI or other technological tools only when permitted and to independently evaluate their outputs.

30.2 Reviewer Development Pathway

An SCEQAS reviewer may develop through the following pathway:

Scientific Expertise

↓

Reviewer Training

↓

Supervised or Mentored Reviewing

↓

Structured Feedback

↓

Self-Assessment

↓

Independent Reviewing

↓

Periodic Reassessment

The precise implementation may vary according to the journal or institution.

30.3 Reviewer Qualification Is Not Permanent

Reviewer competence should not be regarded as a one-time certification.

Scientific methods, reporting standards, publication practices, ethical expectations, and technological tools evolve.

Reviewer competence therefore requires continued development.

Chapter Summary

An SCEQAS reviewer is a scientific expert who can apply structured reasoning, ethical judgment, professional communication, and responsible technological practices within the limits of their competence.

CHAPTER 31 — CONTINUOUS REVIEWER DEVELOPMENT

SCEQAS Foundational Concept: Reviewer Excellence Is a Continuing Process

Reviewer quality should be maintained through continuous learning rather than treated as a one-time achievement.

Scientific methods, statistical approaches, reporting standards, research-integrity practices, and AI technologies continue to evolve.

Reviewer development should therefore be ongoing.

31.1 Components of Continuous Development

A reviewer development program may include:

- periodic reviewer training,
- methodological updates,
- statistical education,
- research-integrity education,
- AI and confidentiality training,
- review-quality feedback,
- self-assessment,
- peer discussion,
- and periodic competency reassessment.

31.2 Core Development Domains

Scientific Methodology

Reviewer development should periodically update knowledge of study design, bias, confounding, validity, reproducibility, and methodological limitations relevant to the manuscripts reviewed.

Statistics

Reviewer development should maintain competence in interpreting effect estimates, uncertainty, confidence intervals, statistical assumptions, appropriate statistical reporting, and the limitations of statistical inference.

Reporting Standards

Reviewers should remain familiar with reporting guidelines relevant to the study designs they assess, including CONSORT, STROBE, PRISMA, STARD, TRIPOD, CARE, SRQR/COREQ, ARRIVE, and SQUIRE. [4]

Publication Ethics

Reviewer development should include conflicts of interest, authorship, research integrity, corrections, retractions, confidentiality, and other publication-ethics responsibilities.

AI Literacy

Reviewers should understand appropriate uses of AI, limitations of AI-generated output, confidentiality and data-protection risks, hallucination and error risks, and applicable journal-specific AI policies.

31.3 Feedback as a Learning Mechanism

Feedback should focus not only on whether a reviewer recommendation agreed with the editor's decision.

It should also consider:

- quality of scientific reasoning,
- clarity of comments,
- proportionality,
- identification of substantive concerns,
- professionalism,
- consistency,
- and adherence to journal policy.

Reviewer disagreement with the final editorial decision does not automatically indicate poor reviewer performance.

31.4 Reviewer Performance and Continuous Improvement

Where appropriate, journals may monitor reviewer-quality indicators such as:

- timeliness,
- completeness,
- specificity,
- professionalism,
- consistency between comments and recommendation,
- and adherence to confidentiality and AI policies.

Such indicators should support development rather than become simplistic measures of reviewer quality.

SCEQAS Principle

Reviewer development should improve scientific reasoning—not merely increase agreement with editorial decisions.

31.5 Organizational Learning

Reviewer development should also contribute to institutional learning.

Patterns identified across reviews may reveal:

- recurring methodological problems,
- common reporting deficiencies,
- training needs,
- areas of reviewer disagreement,
- or weaknesses in editorial workflows.

These observations can inform broader SCEQAS quality-improvement activities.

Chapter Summary

Continuous reviewer development transforms peer review from an individual activity into a learning system.

The objective is not to produce uniform reviewers but to develop reviewers who are scientifically rigorous, ethically responsible, self-aware, and capable of constructive independent judgment.

PART VI — RESEARCH INTEGRITY & EDITORIAL GOVERNANCE

Scientific evidence informs editorial decisions, but editorial responsibility cannot be delegated to reviewers, algorithms, or artificial intelligence.

CHAPTER 32 — RESEARCH INTEGRITY & EDITORIAL GOVERNANCE

SCEQAS Foundational Concept: Integrity Across the Publication Life Cycle

32.1 Introduction

The responsibility of a biomedical journal extends beyond the publication of individual manuscripts.

A journal also has a responsibility to support the accuracy, reliability, transparency, and integrity of the scientific record.

Every editorial action should therefore be guided by a fundamental question:

Does this action appropriately protect the integrity and reliability of the scientific record?

Editorial decisions should prioritize scientific integrity over:

- publication volume,
- citation metrics,
- commercial interests,
- institutional prestige,
- personal relationships,
- or editorial convenience.

This principle is consistent with established editorial guidance emphasizing that editorial decisions should be based on the relevance, originality, quality, and contribution of scientific work rather than commercial or personal interests or whether findings are positive or negative. [1]

32.2 Integrity Is a Continuous Responsibility

Research integrity should not be treated as a single checkpoint during manuscript processing.

Within SCEQAS, integrity oversight extends across the publication life cycle:

Submission

↓

Editorial Screening

↓

Peer Review

↓

Editorial Decision-Making

↓

Publication

↓

Post-Publication Communication

↓

Correction or Retraction When Necessary

SCEQAS Principle

Research integrity is a continuous responsibility across the life cycle of a scientific publication.

32.3 Integrity Concerns Require Proportionate Response

Not every irregularity constitutes misconduct.

A journal should distinguish among:

- ordinary reporting deficiency,

- honest error,
- methodological problem,
- unresolved concern,
- potential integrity issue,
- established misconduct.

Each situation requires assessment according to its evidence, context, and potential effect on the scientific record. [1]

Fundamental Rule

Concern is not proof.

CHAPTER 33 — SCEQAS EDITORIAL GOVERNANCE MODEL

SCEQAS Foundational Concept: Differentiated Responsibility and Coordinated Oversight

SCEQAS proposes three complementary governance functions.

33.1 Layer I — Scientific Governance

This layer is responsible for the scientific assessment of manuscripts.

Depending on journal structure, it may include:

- editors,
- peer reviewers,
- statistical reviewers,
- methodological experts,
- subject-matter experts.

Its primary responsibility is to assess the scientific validity, methodological adequacy, interpretation, and contribution of the work.

33.2 Layer II — Research Integrity and Ethical Governance

This layer is responsible for the management of ethical and research-integrity concerns.

Depending on journal structure, it may include:

- Editor-in-Chief,
- Research Integrity Officer,
- ethics or integrity committee,
- designated editorial ethics personnel,
- appropriate institutional or external experts.

Its function is not to replace scientific peer review, but to ensure that potential integrity and ethical concerns are handled through an appropriate process.

33.3 Layer III — Quality Governance

This layer is responsible for monitoring and improving the quality of the editorial system.

It may include:

- Editorial Board,
- quality-assurance personnel,
- quality committee,
- editorial operations staff,
- appropriate technical or AI-quality expertise.

33.4 Independence and Coordination

The three layers should be functionally distinct but appropriately coordinated.

The purpose is not to create unnecessary bureaucracy.

The purpose is to prevent:

- scientific assessment from being replaced by administrative judgment,

- integrity concerns from being handled solely as ordinary peer-review comments,
- and quality assurance from becoming an extension of individual editorial preference.

SCEQAS Principle

Editorial governance requires differentiated responsibilities, coordinated oversight, and clear accountability.

33.5 No Mandatory Organizational Structure

SCEQAS does not require every journal to establish three separate committees or offices.

Governance functions may be combined or distributed according to:

- journal size,
- publisher structure,
- institutional resources,
- legal requirements,
- and editorial organization.

The model therefore defines **functions and responsibilities**, rather than imposing a single organizational structure.

CHAPTER 34 — RESEARCH INTEGRITY OFFICE

SCEQAS Foundational Concept: Coordinated Management of Integrity Concerns

34.1 Purpose

Where a journal has a designated Research Integrity Office or equivalent function, it may coordinate the editorial management of potential research-integrity concerns.

The function may include:

- receiving integrity alerts,
- conducting preliminary assessment,
- documenting concerns,
- requesting clarification,
- determining whether additional evidence is required,
- coordinating with appropriate experts,
- communicating with institutions or other responsible bodies when appropriate,
- and advising the editor on possible editorial actions.

34.2 Types of Concern

Potential concerns may include:

- plagiarism or inappropriate text reuse,
- duplicate or overlapping publication,
- fabrication,
- falsification,
- inappropriate image manipulation,
- undisclosed conflicts of interest,
- ethical approval concerns,
- authorship disputes,
- citation manipulation,
- problematic data availability,
- AI-related transparency or disclosure concerns.

However:

The presence of a signal does not establish misconduct.

34.3 Preliminary Assessment Versus Formal Investigation

SCEQAS distinguishes three different functions.

Preliminary Editorial Assessment

Determines whether a concern is sufficiently credible and relevant to require further action.

Formal Investigation

A structured investigation into alleged misconduct conducted by the appropriate authority, which may include the author's institution or another responsible body.

Editorial Assessment

Determines whether the available evidence affects:

- publication,
- correction,
- Expression of Concern,
- retraction,
- or another editorial action.

SCEQAS Principle

The journal manages the publication-integrity consequences; it should not automatically assume the role of an institutional misconduct investigator.

34.4 Authority and Cooperation

The Research Integrity Office or equivalent function provides coordination and advice.

Where institutional investigation is required, the journal should cooperate with the appropriate institution or responsible authority.

CHAPTER 35 — EDITORIAL INVESTIGATION FRAMEWORK

SCEQAS Foundational Concept: From Signal to Proportionate Action

SCEQAS organizes editorial integrity assessment into four phases.

Phase 1 — Identification

A concern may originate from:

- an editor,
- an author,
- a reader,
- an institution,
- research-integrity personnel,
- or an AI-assisted quality system.

AI should be regarded as a **signal-generating source**, not as an independent investigator.

Phase 2 — Preliminary Assessment

The journal asks:

Is the concern sufficiently credible and relevant to warrant further assessment?

The editor or designated integrity function may:

- examine available evidence,
- compare relevant documents,
- seek expert input,
- request clarification from authors,
- or determine that no further action is necessary.

Phase 3 — Integrity or Scientific Assessment

The concern should be characterized according to its primary nature.

A. Scientific or Methodological Reliability

Examples:

- analytical error,
- inappropriate methodology,
- inconsistent results.

B. Reporting or Transparency

Examples:

- missing declaration,
- incomplete reporting,
- inadequate disclosure.

C. Research Integrity

Examples:

- suspected fabrication,

- falsification,
- plagiarism,
- serious image manipulation.

D. Publication Ethics

Examples:

- authorship disputes,
- undisclosed conflicts,
- duplicate publication.

These categories may overlap.

Phase 4 — Appropriate Action

Possible outcomes include:

- no further action,
- author clarification,
- revision,
- additional peer review,
- statistical or methodological assessment,
- correction,
- Expression of Concern,
- retraction,
- referral to an institution or other appropriate authority. [1]

Critical Rule

The action should be proportionate to the evidence and to the effect of the concern on the reliability of the scientific record.

CHAPTER 36 — EDITORIAL RESPONSE MATRIX

SCEQAS Foundational Concept: Evidence–Concern–Action

The SCEQAS Editorial Response Matrix provides a structured framework for determining proportionate editorial actions in response to scientific, methodological, reporting, ethical, and research-integrity concerns.

It supports consistency without converting editorial judgment into an automatic decision rule.

36.1 Evidence–Concern–Action Sequence

Signal

↓

Concern

↓

Assessment

↓

Investigation, Where Required

↓

Finding

↓

Editorial Action

A signal or concern should not automatically be treated as an established finding.

This distinction is particularly important for potential research-integrity issues.

36.2 Editorial Response Matrix

Concern Type	Typical Response	Possible Escalation
Minor editorial or presentation issue	Correction / minor revision	—
Reporting deficiency	Clarification / revision	Additional review
Substantive methodological concern	Major revision	Methodological/statistical review
Unresolved scientific concern	Additional peer review	Editorial reconsideration
Potential research-integrity concern	Editorial assessment	Formal investigation
Integrity concern with evidence affecting reliability	Expression of Concern, where appropriate	Investigation / correction / retraction
Established error affecting published record	Correction	Retraction if reliability is compromised
Established unreliability of published work	Retraction	Retraction with republication where appropriate

The matrix is a **decision-support framework**, not an automatic decision algorithm.

This pathway is a decision-support structure. It does not replace editorial judgment or an appropriate integrity process.

36.3 Decision Pathway

Concern identified

↓

Evidence sufficient for preliminary assessment?

↓

Scientific/reporting issue OR integrity concern?

Scientific/reporting issue → Clarification → Revision → Additional review → Editorial decision

Integrity concern → Preliminary assessment → Is formal investigation required?

No → Editorial resolution

Yes → Appropriate investigation → Finding established → Proportionate editorial action

36.4 Proportionality Principle

Editorial response should be proportionate to:

1. the available evidence,
2. the nature of the concern,
3. its effect on the scientific record,
4. its remediability,
5. the need for further investigation,
6. and applicable journal policies.

A serious allegation does not automatically justify the most severe editorial action.

Likewise, an apparently minor issue may require escalation when it materially affects the reliability or integrity of the published work.

36.5 Role Separation

Reviewer

Identifies and explains a concern.

Editor

Determines whether further editorial assessment is required.

Integrity Function / Appropriate Authority

Coordinates or conducts the appropriate integrity process.

AI System

Generates or structures signals but does not determine misconduct.

Fundamental SCEQAS Principle

Editorial action should follow evidence and appropriate process—not suspicion alone.

CHAPTER 37 — POST-PUBLICATION EDITORIAL RESPONSIBILITY

SCEQAS Foundational Concept: Publication Is Not the End of Editorial Responsibility

Publication does not terminate editorial responsibility.

Credible post-publication concerns should be assessed through an appropriate editorial process.

Possible actions include:

- correction,
- updated version,
- editorial clarification,
- Expression of Concern,
- retraction,
- or another appropriate editorial notice.

37.1 Correction

A correction is appropriate when an error affects the published record but does not invalidate the overall scientific reliability of the article.

Correction notices should clearly identify the changes and link the correction to the original article, with appropriate version control and archiving. [1]

37.2 Retraction

Retraction may be appropriate when:

- serious errors invalidate the work,
- the results or conclusions are no longer reliable,
- or established misconduct or another legitimate basis warrants retraction.

Retraction does not necessarily imply misconduct.

An honest error may, in appropriate circumstances, lead to retraction or retraction with republication when the error materially changes the findings while the underlying science remains valid. [1]

37.3 Expression of Concern

An Expression of Concern may be used when there is a credible issue affecting the reliability of a publication, but the available evidence or ongoing assessment does not yet justify a final correction or retraction.

It should not be treated simply as a “milder retraction.”

Its purpose is to alert readers while the issue is being assessed and it may subsequently be followed by correction, retraction, or another appropriate outcome. [2]

37.4 Version Control and Transparency

When an article is corrected, the journal should maintain an appropriate record of:

- the original version,
- the corrected version,
- the nature of the changes,
- and the date of correction.

Prior versions should remain appropriately archived and the existence of a newer version should be clearly indicated. [1]

SCEQAS Principle

The scientific record should be corrected transparently rather than silently rewritten.

CHAPTER 38 — EDITORIAL TRANSPARENCY

SCEQAS Foundational Concept: Transparency About Rules, Not Disclosure of Protected Information

Authors, reviewers, and readers should be able to understand the principal rules governing the editorial process.

Journals should clearly describe, as applicable:

- peer-review model,
- reviewer-selection principles,
- editorial roles,
- conflict-of-interest policy,
- confidentiality,
- AI policy,
- research-integrity procedures,
- appeals and complaints,
- corrections and retractions,
- data-availability expectations,
- authorship and contributorship policies,
- and relevant publication fees.

38.1 Transparency Has Boundaries

Transparency does not require disclosure of:

- confidential reviewer identities where anonymity applies,
- confidential correspondence,
- protected personal information,
- or unpublished investigative material.

SCEQAS Principle

Transparency requires openness about the rules, not disclosure of protected information.

CHAPTER 39 — EDITORIAL GOVERNANCE AUDIT

SCEQAS Foundational Concept: Audit for Learning, Not for Punishment

SCEQAS recommends periodic assessment of the editorial system across several domains.

39.1 Editorial Process

Possible indicators include:

- decision timeliness,
- reviewer invitation efficiency,
- decision consistency,
- appeal handling.

39.2 Scientific Quality

Possible indicators include:

- reviewer quality,
- adequacy of methodological review,
- statistical review where appropriate.

39.3 Research Integrity

Possible indicators include:

- integrity concerns received,
- time to preliminary assessment,
- case resolution,
- correction and retraction processes,
- policy compliance.

39.4 Transparency

Possible indicators include:

- policy accessibility,
- disclosure compliance,
- correction and version-control practices.

39.5 AI Governance

Possible indicators include:

- AI-policy compliance,
- documented AI use where required,
- error detection,
- human verification,
- confidentiality safeguards.

39.6 Stakeholder Experience

The system may also consider:

- author feedback,
- reviewer feedback,
- editor feedback.

39.7 Interpret Metrics in Context

No single metric should be interpreted as a standalone measure of editorial quality.

For example:

High retraction frequency ≠ poor journal quality

and:

Low retraction frequency ≠ high journal quality

A journal with stronger post-publication surveillance may identify more problems than a journal with weaker surveillance.

SCEQAS Principle

Audit metrics are signals for organizational learning—not scores of institutional worth.

39.8 Purpose of the Audit

The purpose of the audit is:

Continuous improvement, not fault-finding.

CHAPTER 40 — THE EDITORIAL INTEGRITY CHARTER

THE SCEQAS EDITORIAL INTEGRITY CHARTER

Every editorial decision shall respect scientific integrity.

Every author shall be treated fairly and respectfully.

Every reviewer shall be treated with professionalism and respect.

Every credible concern shall receive an appropriate and proportionate assessment.

No allegation shall be treated as established misconduct without appropriate evidence and process.

Every substantive editorial decision shall be scientifically and procedurally defensible.

Every correction shall be transparent and appropriately linked to the published record.

Every retraction shall clearly communicate the reason for the action and protect the integrity of the scientific record.

Artificial intelligence may be used only as an authorized and secure quality-assurance support tool and shall not replace human scientific or editorial judgment or assume editorial responsibility.

Confidentiality shall be protected throughout the editorial process.

Scientific integrity is not a single editorial task.

It is the responsibility of the entire editorial system.

PART VII — PERFORMANCE EXCELLENCE & CONTINUOUS QUALITY IMPROVEMENT

Editorial quality is not a static state. It is a system capability that must be monitored, evaluated, learned from, and continuously improved.

CHAPTER 41 — THE PHILOSOPHY OF CONTINUOUS EDITORIAL EXCELLENCE

SCEQAS Foundational Concept: Quality as an Ongoing Organizational Process

41.1 Introduction

Editorial excellence is not achieved through isolated high-quality decisions.

It is achieved through a culture of:

- continuous evaluation,
- structured learning,
- evidence-informed improvement,
- transparent governance,
- and responsible use of technology.

Within SCEQAS, quality assurance is regarded as an ongoing organizational process rather than a periodic administrative exercise.

Every:

- manuscript reviewed,
- editorial decision made,
- reviewer interaction,
- correction published,
- appeal considered,
- integrity concern assessed,
- and quality-assurance event

may provide an opportunity to identify strengths, weaknesses, and opportunities for improvement.

41.2 Continuous Improvement

Editorial systems should evolve as:

- scientific methods evolve,
- publication ethics evolve,
- reporting standards evolve,
- peer-review practices evolve,
- technology evolves,
- and evidence concerning editorial processes accumulates.

Journals should periodically review their:

- policies,
- workflows,
- reviewer guidance,
- editorial procedures,
- research-integrity processes,
- and AI-assisted quality-assurance procedures.

SCEQAS Principle

Continuous improvement is not a project with an endpoint; it is a recurring function of editorial governance.

41.3 Improvement Should Be Evidence-Informed

Not every change represents improvement.

Before changing an editorial process, the journal should ask:

1. What problem has been identified?
2. What evidence supports the proposed change?
3. What unintended consequences might result?
4. How will the effect of the change be assessed?
5. When will the process be reviewed again?

Fundamental Rule

SCEQAS promotes measured improvement—not change for its own sake.

CHAPTER 42 — THE SCEQAS PERFORMANCE FRAMEWORK

SCEQAS Foundational Concept: Balanced Editorial Performance

SCEQAS proposes five complementary dimensions of editorial performance.

Domain I — Scientific Quality

This domain considers indicators related to:

- methodological review,
- scientific assessment,
- reporting quality,
- post-publication corrections,
- and other available signals of scientific quality.

Domain II — Editorial Efficiency

This domain considers:

- timeliness,
- reviewer invitation processes,
- decision turnaround,
- and publication workflow.

Domain III — Research Integrity

This domain considers the effectiveness of processes for:

- integrity concerns,
- ethical clarification,
- corrections,
- Expressions of Concern,
- retractions,
- and related editorial procedures.

Domain IV — Reviewer Excellence

This domain considers:

- reviewer participation,
- review quality,
- timeliness,
- reviewer development,
- and appropriate engagement.

Domain V — Continuous Development

This domain considers:

- organizational learning,
- policy improvement,
- training,

- workflow refinement,
- and implementation of evidence-informed changes.

42.1 Balanced Performance

No individual domain should be interpreted in isolation.

For example:

Faster editorial decisions are not necessarily better if scientific review quality deteriorates.

Likewise:

Higher reviewer agreement is not necessarily evidence of better scientific judgment.

And:

Fewer corrections or retractions do not automatically demonstrate higher editorial quality.

SCEQAS Principle

Editorial quality is multidimensional and should be evaluated through a balanced set of indicators.

CHAPTER 43 — THE SCEQAS EDITORIAL DASHBOARD

SCEQAS Foundational Concept: Monitoring the Editorial System

43.1 Purpose

The SCEQAS Editorial Dashboard is a monitoring tool designed to provide editorial leadership with a concise overview of the functioning of the editorial system.

It should help identify:

- trends,
- emerging risks,
- workflow bottlenecks,
- training needs,
- quality-assurance opportunities,
- and areas requiring further investigation.

It should **not** be used as an automatic mechanism for evaluating individual editors or reviewers.

43.2 Dashboard Domains

Scientific Performance

Possible indicators include:

- manuscripts received,
- manuscripts sent for review,
- manuscripts accepted,
- acceptance rate,
- rejection rate,
- reviewer-identified methodological concerns,
- reporting deficiencies identified.

Editorial Workflow

Possible indicators include:

- median time to first decision,
- median time to final decision,
- median time to publication,
- revision turnaround time,
- reviewer invitation acceptance rate.

Reviewer Performance

Possible indicators include:

- active reviewer pool,
- review completion time,
- review completion rate,
- reviewer development participation,

- structured review-quality indicators.

Research Integrity

Possible indicators include:

- integrity concerns received,
- preliminary assessments,
- corrections,
- Expressions of Concern,
- retractions,
- appeals.

AI Quality Assurance

Possible indicators include:

- manuscripts or processes in which AI-assisted QA was used,
- categories of issues flagged,
- proportion of AI flags subsequently confirmed by human assessment,
- false-positive patterns,
- false-negative patterns identified through subsequent review,
- documented AI-policy compliance.

43.3 Human Interpretation

Dashboard information should support editorial inquiry rather than replace editorial judgment.

AI-generated or automated indicators should remain subject to human interpretation and verification.

SCEQAS Principle

A dashboard is an instrument for seeing the system more clearly—not a substitute for understanding the system.

CHAPTER 44 — KEY PERFORMANCE INDICATORS

SCEQAS Foundational Concept: Indicators Are Signals, Not Definitions

44.1 KPI Principle

A KPI is a monitoring indicator, not a definition of editorial quality.

44.2 Scientific Quality Indicators

Possible indicators include:

- methodological review coverage,
- appropriate use of reporting guidelines,
- frequency and type of substantive methodological concerns,
- post-publication correction patterns,
- reviewer-assessed scientific concerns.

44.3 Editorial Efficiency Indicators

Possible indicators include:

- median time to first decision,
- median time to final decision,
- median time to publication,
- revision-cycle duration,
- reviewer invitation response time.

Efficiency should always be interpreted together with scientific quality.

44.4 Research Integrity Indicators

Possible indicators include:

- integrity concerns received,
- time to preliminary assessment,
- time to resolution,
- correction activity,
- Expression-of-Concern activity,
- retraction activity.

Critical Interpretation Rule

The frequency of corrections or retractions should not be interpreted as a simple measure of editorial quality.

A journal with stronger post-publication surveillance may identify more problems than a journal with weaker surveillance.

44.5 Reviewer Development Indicators

Possible indicators include:

- reviewer retention,
- training participation,

- review completion,
- review-quality feedback,
- participation in reviewer development activities.

The purpose is to identify educational and developmental needs rather than rank reviewers solely by numerical scores.

44.6 Organizational Learning Indicators

Possible indicators include:

- policy revisions implemented,
- reviewer guidance updated,
- editorial training completed,
- identified workflow problems resolved,
- lessons from appeals or integrity cases incorporated into procedures.

44.7 Reviewer Agreement

Reviewer agreement may be monitored descriptively.

However:

Agreement is a property of reviewer judgments; it is not, by itself, a measure of scientific correctness.

CHAPTER 45 — EDITORIAL RISK MONITORING

SCEQAS Foundational Concept: Risk Identification Before System Failure

Editorial risk monitoring is intended to identify conditions that may require attention before they produce significant effects on editorial quality or the scientific record.

45.1 Major Risk Domains

Scientific Risk

Potential signals include:

- declining methodological quality,
- inappropriate reviewer expertise,
- recurring reporting deficiencies,
- inadequate statistical assessment.

Operational Risk

Potential signals include:

- editorial delays,
- workflow bottlenecks,
- inadequate staffing,
- reviewer shortages.

Reviewer Risk

Potential signals include:

- reviewer fatigue,
- declining availability,
- concentration of reviews among a small group,
- inadequate reviewer development.

Integrity Risk

Potential signals include:

- recurring integrity concerns,
- inadequate response processes,
- delays in integrity assessment,
- repeated post-publication problems.

Technological Risk

Potential signals include:

- inappropriate AI use,
- confidentiality breaches,
- AI false positives,
- AI false negatives,
- data-security problems,

- workflow failures.

45.2 Risk Does Not Equal Failure

A monitored risk is not necessarily evidence that the editorial system is failing.

For example, increasing AI false-positive alerts may indicate a need to refine the tool rather than a decline in editorial quality.

SCEQAS Principle

Risks should be identified early, assessed systematically, and addressed proportionately.

CHAPTER 46 — ORGANIZATIONAL LEARNING

SCEQAS Foundational Concept: Turning Experience Into System Improvement

Editorial systems generate learning opportunities continuously.

Learning may arise from:

- reviewer disagreement,
- appeals,
- methodological disputes,
- integrity concerns,
- corrections,
- retractions,
- AI false-positive alerts,
- AI false-negative discoveries,
- editorial delays,
- repeated author complaints,
- and reviewer feedback.

46.1 The SCEQAS Learning Cycle

Event

↓

Analysis

↓

Root Cause / Contributing Factors

↓

Improvement Action

↓

Implementation

↓

Reassessment

The purpose is not simply to determine who was responsible for an event.

The central question is:

What in the system can be improved?

46.2 System Learning and Individual Accountability

Continuous improvement should not eliminate individual accountability where serious misconduct, negligence, or policy violation is established.

Therefore:

System learning and individual accountability are complementary, not mutually exclusive.

SCEQAS Principle

Learn from events without reducing every event to individual blame.

CHAPTER 47 — SCEQAS ANNUAL EDITORIAL REVIEW

SCEQAS Foundational Concept: Periodic System-Level Reassessment

The SCEQAS Annual Editorial Review provides a structured opportunity to assess the functioning of the editorial system over the preceding review cycle.

47.1 Annual Review Questions

Scientific Quality

Did the editorial system adequately support publication of scientifically reliable research?

Editorial Quality

Were editorial processes transparent, consistent, and appropriately documented?

Reviewer Quality

Did reviewers receive adequate guidance, support, feedback, and development opportunities?

Research Integrity

Were integrity and ethical concerns identified and managed through appropriate procedures?

AI Governance

Did AI-assisted quality assurance improve technical processes without compromising confidentiality or editorial independence?

Stakeholder Experience

What did authors, reviewers, editors, and editorial staff identify as important strengths or problems?

Strategic Development

What should be improved during the next review cycle?

47.2 Annual Review Output

The annual review should produce:

- identified strengths,
- identified risks,
- priority improvement actions,
- responsible owners,
- target timelines,
- and a plan for reassessment.

SCEQAS Principle

An annual review should produce actions and learning—not merely a report.

CHAPTER 48 — SCEQAS PROPOSED EDITORIAL MATURITY MODEL

SCEQAS Foundational Concept: Maturity as Organizational Capability

The SCEQAS Editorial Maturity Model describes progressive development of an editorial system.

It is intended to support organizational self-assessment and improvement rather than ranking.

Level 1 — Initial

Editorial procedures depend substantially on individual experience.

Policies and workflows may be:

- incompletely documented,
- inconsistently applied,
- or highly dependent on individual knowledge.

Level 2 — Standardized

Core editorial procedures are documented.

Basic policies exist for:

- peer review,
- conflicts of interest,
- confidentiality,
- research integrity,
- and editorial decision-making.

Level 3 — Integrated

Editorial workflows, reviewer management, research-integrity procedures, quality assurance, and appropriate technology operate through coordinated processes.

Level 4 — Optimized

Performance indicators are systematically monitored.

The journal uses evidence from:

- audits,
- reviewer feedback,
- appeals,
- integrity cases,
- and workflow data

to guide improvement.

Level 5 — Sustained Excellence

The journal demonstrates sustained capability in:

- transparent governance,
- research-integrity management,
- responsible technology use,
- organizational learning,

- and continuous improvement.

48.1 Level 5 Does Not Mean Error-Free

Level 5 does not mean that the journal is permanently “excellent” or free of errors.

It means that the organization demonstrates a mature and sustained capability for quality management and improvement.

48.2 Maturity Is Not a Ranking

The SCEQAS Maturity Model is intended for:

- organizational self-assessment,
- structured development,
- identification of gaps,
- and improvement planning.

It is **not intended for public ranking of journals**.

SCEQAS Principle

Maturity describes the capability to manage and improve quality; it does not certify perfection.

CHAPTER 49 — THE SCEQAS DECLARATION OF EDITORIAL EXCELLENCE

THE SCEQAS DECLARATION

Scientific publishing is a public trust.

Editors safeguard that trust through responsible editorial judgment.

Reviewers strengthen that trust through rigorous and fair scientific evaluation.

Authors contribute to that trust through accurate, transparent, and responsible reporting.

Readers sustain that trust through critical engagement with the scientific record.

Artificial intelligence may support appropriate editorial activities, but human responsibility remains essential.

The Scientific Editorial Quality Assurance System (SCEQAS) exists to support this trust through:

- transparent procedures,
- scientific rigor,
- ethical responsibility,
- human accountability,
- and continuous quality improvement.

Trust is not created by a single decision.

It is built through the integrity of the system that produces, evaluates, communicates, and corrects scientific knowledge.

PART VIII — SCEQAS IMPLEMENTATION FRAMEWORK

“Implementation should strengthen the editorial system rather than burden it with unnecessary complexity.”

CHAPTER 50 — IMPLEMENTATION PHILOSOPHY

SCEQAS Foundational Concept: Integration Over Disruption

50.1 Purpose

The purpose of the SCEQAS Implementation Framework is to provide a structured approach for integrating SCEQAS principles into an existing editorial system.

Implementation should be regarded as an **organizational improvement process**, rather than simply the introduction of new documentation, procedures, or technological tools.

Successful implementation requires, as appropriate:

- editorial leadership;
- reviewer engagement;
- editorial-office support;
- education and training;
- appropriate technical infrastructure;
- research-integrity procedures; and
- continuous evaluation.

50.2 Scope

SCEQAS may be adapted to journals with different:

- publication frequencies;
- editorial structures;
- peer-review models;
- disciplines;
- technical infrastructures; and
- organizational resources.

SCEQAS is therefore intended to be adaptable to journals of different sizes, structures, and levels of organizational maturity.

50.3 Guiding Principle

SCEQAS should strengthen effective editorial practices rather than replace them unnecessarily.

Implementation should therefore emphasize:

Integration over disruption.

Existing editorial procedures should be retained where they are effective and modified where evidence indicates a need for improvement.

SCEQAS Principle

SCEQAS implementation should strengthen existing editorial practice while introducing structured quality assurance where it adds demonstrable value.

CHAPTER 51 — ORGANIZATIONAL READINESS ASSESSMENT

SCEQAS Foundational Concept: Readiness Before Implementation

Before substantial implementation begins, the organization should assess whether the necessary governance, operational, technical, ethical, and confidentiality foundations are in place.

Readiness assessment identifies **implementation needs**; it is not a judgment of journal quality.

51.1 Readiness Domains

Governance Readiness

The organization should consider:

- Is editorial leadership clearly defined?
- Are responsibilities documented?
- Are decision-making procedures transparent?

Reviewer Readiness

The organization should consider:

- Is an active reviewer pool available?
- Are reviewer competencies appropriately considered?
- Is reviewer education available?

Technical Readiness

The organization should consider:

- Does the manuscript management system support structured workflows?
- Can quality-assurance information be incorporated into the workflow?
- Are editorial records securely maintained?

Ethical and Research-Integrity Readiness

The organization should consider:

- Are publication-ethics policies documented?
- Are procedures available for addressing integrity concerns?
- Are appeals and corrections managed consistently?

Data and Confidentiality Readiness

The organization should consider:

- Are confidential manuscript data appropriately protected?
- Are access permissions defined?
- Are AI-related data-processing risks addressed?
- Are retention and record-management practices defined?

51.2 Readiness Classification

Level A — High Readiness

Core governance and operational prerequisites are substantially established.

Level B — Moderate Readiness

Implementation may proceed with targeted preparatory improvements.

Level C — Limited Readiness

Foundational improvements are recommended before substantial implementation.

Level D — Insufficient Readiness

Minimum governance or operational requirements remain inadequate.

SCEQAS Principle

These readiness levels are implementation-planning categories and should not be interpreted as certification grades or measures of overall journal quality.

CHAPTER 52 — IMPLEMENTATION PHASES

SCEQAS Foundational Concept: Progressive Implementation

SCEQAS implementation should proceed through defined phases rather than attempting to introduce the entire framework simultaneously.

52.1 Phase I — Planning

The organization should:

- define implementation objectives;
- establish implementation leadership;
- assign responsibilities;
- define the scope of implementation;
- establish a realistic timeline; and
- prepare a communication plan.

52.2 Phase II — Preparation

The organization should:

- review existing editorial policies;
- review reviewer procedures;
- review research-integrity procedures;
- identify documentation and workflow gaps; and
- update relevant technical or administrative systems.

52.3 Phase III — Education

Training may be provided to:

- editors;
- reviewers;
- editorial-office staff;
- research-integrity personnel; and
- relevant technical personnel.

AI-related training should address:

- appropriate use;
- confidentiality;
- system limitations;
- human verification; and
- applicable journal policy.

52.4 Phase IV — Pilot Implementation

A limited number of manuscripts should be processed using selected SCEQAS components.

The pilot should assess, as applicable:

- usability;

- workflow burden;
- reviewer response;
- editor response;
- technical performance;
- AI false-positive and false-negative patterns; and
- unintended consequences.

52.5 Phase V — Expanded Implementation

SCEQAS components that have been appropriately evaluated through the pilot may be progressively incorporated into routine editorial operations.

Expansion should be based on evidence obtained during the pilot rather than on implementation volume alone.

52.6 Phase VI — Optimization

Optimization may include:

- reviewing performance data;
- revising policies;
- refining reviewer education;
- improving workflows;
- reassessing AI procedures; and
- continuing organizational learning.

SCEQAS Principle

Implementation should be progressive, evidence-informed, and proportionate to organizational capacity.

CHAPTER 53 — ROLES AND RESPONSIBILITIES DURING IMPLEMENTATION

SCEQAS Foundational Concept: Distributed Responsibility With Human Editorial Authority

Successful implementation requires clearly defined responsibilities across the editorial system. Different participants contribute to implementation, but their responsibilities are not interchangeable.

53.1 Editor-in-Chief

The Editor-in-Chief is responsible for:

- strategic leadership;
- approval of implementation;
- institutional coordination;
- authorization of policy changes; and
- overall implementation oversight.

53.2 Editorial Board

The Editorial Board:

- supports implementation;
- participates in education;
- evaluates workflow performance; and
- reviews improvement proposals.

53.3 Handling Editors

Handling Editors:

- apply relevant SCEQAS procedures;
- interpret scientific and technical findings;
- provide implementation feedback; and
- document workflow and implementation issues.

53.4 Editorial Office

The Editorial Office:

- coordinates implementation documentation;
- maintains implementation records; and
- supports integration of SCEQAS into routine editorial workflows.

53.5 Reviewers

Reviewers:

- participate in relevant education;
- apply SCEQAS reviewer principles; and
- provide feedback regarding usability and reviewer experience.

53.6 AI Editorial Quality Unit

Where such a function exists, an AI Editorial Quality Unit may:

- generate technical quality-assurance reports;

- identify predefined quality signals;
- monitor technical performance; and
- support workflow integration.

However, AI must not:

- make editorial decisions;
- determine whether misconduct has occurred;
- override qualified editors;
- independently communicate substantive editorial decisions to authors; or
- exercise editorial authority on behalf of the journal.

AI-supported functions should remain subject to human oversight, validation, confidentiality safeguards, data-protection requirements, and applicable journal policy.

SCEQAS Principle

AI may support workflow execution and quality assurance; editorial authority and accountability remain human.

CHAPTER 54 — CHANGE MANAGEMENT

SCEQAS Foundational Concept: Structured and Evidence-Informed Change

Editorial change should be managed as a structured organizational process rather than as an isolated administrative intervention.

54.1 Principles

Editorial change should be:

- planned;
- transparent;
- inclusive;
- evidence-informed;
- proportionate;
- iterative; and
- continuously evaluated.

Changes should generally be introduced progressively.

However, immediate action may be required when necessary to address a significant:

- ethical risk;
- legal or regulatory risk;
- confidentiality risk; or
- scientific-integrity risk.

54.2 Stakeholder Communication

Implementation should maintain appropriate communication among:

Editorial Leadership

↕

Editors — Reviewers — Editorial Office

↕

Authors — Technical and Integrity Functions

↕

Publisher, where applicable

Stakeholders should be informed about:

- why SCEQAS is being implemented;
- how implementation may affect current practice;
- what benefits are expected; and
- what training or support will be available.

54.3 Managing Implementation Challenges

Implementation difficulties should not automatically be interpreted as resistance to quality improvement.

They may indicate:

- unclear responsibilities;

- inadequate training;
- excessive workflow burden;
- insufficient technical support;
- poorly designed procedures; or
- unintended consequences.

Such problems should therefore be assessed before corrective action is determined.

SCEQAS Principle

Effective change management addresses both the intended benefits and the unintended consequences of implementation.

CHAPTER 55 — IMPLEMENTATION VERIFICATION

SCEQAS Foundational Concept: Verify Practice, Not Paperwork

Implementation should be verified to determine whether SCEQAS procedures are functioning as intended within actual editorial practice.

55.1 Verification Methods

Implementation verification may include:

- workflow observation;
- documentation review;
- reviewer feedback;
- editor interviews;
- quality-indicator analysis;
- pilot manuscript evaluation;
- audit of selected records; and
- corrective-action review.

55.2 Implementation Fidelity

The journal should assess whether:

The intended SCEQAS procedure is actually being performed as designed.

Verification should consider whether procedures are:

- understood;
- appropriately applied;
- consistently applied; and
- integrated into the relevant editorial workflow.

55.3 Verification Does Not Require Perfect Compliance

Implementation quality should not be defined by the absence of every deviation.

A mature quality system should be capable of:

1. detecting deviations;
2. determining their significance;
3. correcting important problems; and
4. learning from recurring problems.

SCEQAS Principle

Implementation quality is demonstrated by consistent and appropriate practice, not by perfect documentation.

CHAPTER 56 — IMPLEMENTATION SUCCESS CRITERIA

SCEQAS Foundational Concept: Sustainable Editorial Behavior

Successful implementation should be evaluated according to whether SCEQAS produces meaningful and sustainable improvements in editorial practice.

56.1 Core Success Domains

Successful implementation should establish, as appropriate:

- standardized procedures;
- consistent reviewer guidance;
- transparent documentation;
- appropriate AI-supported quality assurance;
- research-integrity procedures;
- performance monitoring; and
- continuous improvement.

56.2 Usability

SCEQAS should be usable without creating disproportionate administrative or workflow burden.

Implementation should improve quality assurance without unnecessarily increasing procedural complexity.

56.3 Sustainability

The system should be maintainable within the journal's available:

- human resources;
- technical infrastructure;
- financial resources; and
- organizational capacity.

56.4 Evidence of Effect

Where feasible, implementation should demonstrate meaningful improvement in identified target areas.

Evidence may include improvement in:

- workflow consistency;
- reviewer guidance;
- documentation;
- quality-assurance processes;
- research-integrity response;
- identified risk areas; or
- other predefined implementation objectives.

56.5 The Meaning of Successful Implementation

Successful implementation should not be measured by the volume of documents, checklists, forms, or procedures created.

Rather, successful implementation should be demonstrated through:

consistent, appropriate, and sustainable editorial behavior.

SCEQAS Final Implementation Principle

Implementation succeeds when SCEQAS becomes part of how the editorial system actually works—not merely part of what the organization has documented.

PART IX — STANDARD OPERATING PROCEDURES — SCEQAS-SOP

“A quality-assurance framework becomes meaningful when its principles can be translated into consistent, traceable, and reproducible editorial practice.”

CHAPTER 57 — INTRODUCTION TO STANDARD OPERATING PROCEDURES

SCEQAS Foundational Concept: From Principles to Operational Practice

The SCEQAS framework establishes principles for editorial quality assurance. Standard Operating Procedures (SOPs) translate these principles into defined and reproducible editorial processes.

An SOP should describe **how an editorial process actually operates**, including responsibilities, decision points, documentation, escalation, and quality controls.

57.1 Purpose

SCEQAS-SOPs are intended to:

- standardize recurring editorial processes;
- clarify responsibilities;
- reduce avoidable procedural variability;
- support traceability;
- facilitate staff and reviewer training;
- define appropriate escalation pathways; and
- support continuous quality improvement.

57.2 Standard SOP Structure

Every SCEQAS SOP should define, as applicable:

1. **Purpose**
2. **Scope**
3. **Definitions**
4. **Responsibilities**
5. **Preconditions**
6. **Procedure**
7. **Decision and Action Points**
8. **Exceptions and Escalation**
9. **Required Documentation**
10. **Quality Indicators**
11. **Records and Retention**
12. **Review and Revision Requirements**

57.3 Risk and Control

Each SOP should consider:

What can go wrong, and what control addresses the risk?

Where an exception or escalation is required, the SOP should identify:

- who is responsible for the decision;
- when escalation is required;
- what information should be documented; and

- which additional function or authority should be involved.

SCEQAS Principle

An SOP should describe how the process actually operates—not merely what the organization believes it should do.

CHAPTER 58 — SCEQAS STANDARD OPERATING PROCEDURES

SCEQAS-SOP-001 — Initial Manuscript Screening

1. Purpose

To establish a consistent initial screening process for manuscripts entering the editorial workflow.

2. Scope

This SOP applies to every newly submitted manuscript entering the journal's editorial system.

3. Step 1 — Submission Verification

Confirm the presence of required files, as applicable:

- manuscript;
- title page;
- figures;
- tables; and
- supplementary material.

4. Step 2 — Administrative Verification

Verify, as applicable:

- author information;
- corresponding author;
- ethics statement;
- conflict-of-interest disclosure;
- funding statement;
- author contributions;
- data availability statement; and
- AI disclosure statement where required by journal policy.

5. Step 3 — Journal Scope Assessment

The Handling Editor determines whether the manuscript falls within:

- the journal's aims;
- scope;
- article type; and
- applicable editorial criteria.

Out-of-scope manuscripts may be returned without external peer review.

Scope assessment is an editorial judgment, not an AI classification.

6. Step 4 — AI-Supported Administrative Screening

Where authorized and appropriately safeguarded, AI may identify:

- missing declarations;
- incomplete documentation;
- structural deficiencies;

- file inconsistencies; and
- formatting anomalies.

AI findings must be reviewed by an authorized human.

AI does not make the final screening decision.

7. Step 5 — Editorial Action

Possible outcomes include:

- proceed to technical screening;
- return for administrative completion; or
- make a desk decision based on scope or another legitimate editorial criterion.

SCEQAS Principle

Administrative and technical screening support editorial judgment; they do not replace it.

SCEQAS-SOP-002 — Technical Quality Screening

1. Technical Review

Check, as applicable:

- reference formatting;
- figure quality;
- table structure;
- abstract requirements;
- keywords;
- abbreviations;
- units; and
- journal formatting requirements.

2. Reporting Assessment

Determine whether an appropriate reporting guideline applies and whether relevant reporting information is present.

Possible examples include:

- CONSORT;
- STROBE;
- PRISMA;
- CARE;
- ARRIVE;
- STARD; and
- TRIPOD.

The appropriate reporting guideline should be selected according to the study design and research context.

Use of a reporting checklist does not itself establish methodological quality.

A reporting checklist supports reporting completeness; it does not replace scientific peer review.

3. AI-Supported Technical Quality Assurance

Where authorized, AI may assist in checking:

- structural completeness;
- section consistency;
- reference-number consistency;
- table–figure citation consistency; and
- mandatory statements.

AI-generated flags should be reviewed by a human before they influence editorial action.

SCEQAS Principle

Technical screening identifies reporting and structural issues; scientific peer review determines scientific validity.

SCEQAS-SOP-003 — Handling Editor Assignment

1. Purpose

To ensure that manuscripts are assigned to appropriately qualified and sufficiently independent editors.

2. Reviewer/Editor Independence

An editor should not be assigned to a manuscript where a significant conflict of interest exists.

3. Expertise and Workload

Workload balancing should occur within the pool of appropriately qualified editors.

Workload alone should never justify assignment to an inadequately qualified editor.

SCEQAS Principle

Editorial workload should be balanced without compromising scientific expertise or editorial independence.

SCEQAS-SOP-004 — Reviewer Selection and Invitation

1. Reviewer Selection Principle

Reviewers should be selected primarily on the basis of:

- scientific expertise;
- methodological expertise;
- relevance to the manuscript;
- independence;
- availability; and
- absence of significant conflicts of interest.

Academic rank and institutional prestige should not substitute for relevant expertise.

2. AI Assistance

AI may assist by:

- classifying manuscript topics;
- suggesting expertise categories; and
- identifying methodological domains.

AI should not:

- autonomously select reviewers;
- determine reviewer suitability;
- infer conflicts of interest without human verification; or
- make final reviewer assignments.

3. Reviewer Diversity

Where appropriate, reviewer selection may consider diversity of:

- scientific perspective;
- geographic background;
- institutional background;
- career stage; and
- methodological expertise.

Diversity should enhance scientific evaluation without becoming a quota system.

SCEQAS Principle

AI may assist reviewer discovery; the editor remains responsible for reviewer selection.

SCEQAS-SOP-005 — Peer Review Management

1. Purpose

To support timely, consistent, scientifically appropriate, and ethically conducted peer review.

2. Review Timeline

The journal should define target timelines for:

- reviewer invitation response;
- review completion; and
- revision review.

Target timelines should be appropriate to:

- manuscript type;
- reviewer workload;
- scientific field;
- journal publication schedule; and
- editorial resources.

Such targets are **journal-specific operational targets**, not universal SCEQAS standards.

3. Reviewer Guidance

Reviewers should assess, as applicable:

- scientific originality;
- methodological quality;
- ethical considerations;
- statistical reporting;
- clinical relevance, where applicable;
- validity of conclusions;
- limitations; and
- constructive recommendations.

Reviewers should not request additional experiments merely to satisfy personal preferences or to extend the manuscript beyond its research question.

4. Reviewer Withdrawal

A reviewer should consider withdrawal when:

- a conflict of interest exists;
- sufficient expertise is lacking;
- unexpected circumstances prevent completion;
- confidentiality cannot be maintained; or
- use of AI or another external tool would create an unacceptable confidentiality risk.

SCEQAS Principle

Timeliness should support efficient peer review without compromising scientific quality.

SCEQAS-SOP-006 — AI-Supported Editorial Quality Assurance

1. Purpose

To establish a standardized framework for the responsible use of artificial intelligence in editorial quality assurance.

2. Guiding Principle

AI functions as a **technical quality-assurance aid under human oversight**.

AI:

- does not replace reviewers;
- does not replace editors;
- does not determine editorial decisions;
- does not independently establish misconduct; and
- does not override journal policy.

3. AI Assessment Domains

Where authorized, AI-supported quality assurance may address:

- administrative completeness;
- reporting compliance;
- methodological transparency;

- internal consistency;
- reference integrity;
- table–figure consistency;
- statistical reporting completeness; and
- ethical disclosure completeness.

4. AI Output

An AI-supported quality-assurance report may include:

- executive summary;
- risk indicators;
- editorial alerts;
- reporting deficiencies; and
- suggested areas requiring editorial attention.

The AI report shall not contain accept/reject recommendations or otherwise purport to determine the editorial outcome.

5. Human Oversight

Every AI-supported report should be reviewed by an appropriately authorized human editor or designated editorial staff member.

Human assessment should:

1. verify relevant findings;
2. distinguish true positives from false positives;
3. assess scientific significance; and
4. determine appropriate action.

6. Confidentiality and Data Governance

AI use must comply with:

- journal policy;
- confidentiality requirements;
- applicable data-protection requirements; and
- relevant contractual or institutional restrictions.

Confidential manuscript content should not be submitted to an AI system unless such use is authorized and appropriate safeguards are in place.

7. AI Quality Indicators

Where applicable, the journal may monitor:

- screening completion;
- false-positive frequency;
- identified false-negative patterns;
- processing time;
- utilization rate;

- human-confirmed flag rate;
- unresolved flag rate; and
- documented AI-policy compliance.

SCEQAS Principle

AI alerts initiate human editorial assessment; they never determine editorial outcomes.

CHAPTER 59 — STATISTICAL AND METHODOLOGICAL REVIEW

SCEQAS-SOP-007 — Statistical Review Process

1. Purpose

To ensure that manuscripts requiring specialized statistical or methodological assessment receive appropriate expert review.

2. When Statistical Review Should Be Considered

Independent statistical review should be considered when manuscripts involve, for example:

- complex multivariable modeling;
- survival analysis;
- longitudinal or repeated-measures analysis;
- advanced causal inference;
- Bayesian methods;
- machine-learning or AI models;
- complex missing-data methods;
- diagnostic-accuracy studies;
- prediction models;
- meta-analysis;
- network meta-analysis;
- large database studies; or
- complex experimental designs.

3. Statistical Review Is Not Automatically Required

Not every quantitative manuscript requires a separate statistical reviewer.

The need should be determined according to:

- statistical and methodological complexity;
- risk of analytical error;
- importance of the statistical methods to the main conclusions; and
- availability of appropriate editorial expertise.

4. Statistical Review Decision Sequence

The editorial process should consider:

Statistical / Methodological Complexity

↓

Could an Analytical Error Affect the Conclusions?

↓

Independent Statistical Review, When Warranted

↓

Assessment of Statistical Concerns

↓

Editorial Integration

Where a substantial statistical concern is identified, possible actions include:

- author revision;
- additional analysis;
- methodological clarification; or
- further expert review.

5. Methodological Review

Methodological review may be requested when the principal scientific concerns involve aspects such as:

- study design;
- sampling;
- measurement;
- analytical strategy;
- causal interpretation;
- methodological validity; or
- interpretation of methodological limitations.

The purpose is not to impose additional requirements merely because a specialist reviewer is available.

SCEQAS Principle

Specialist review should be triggered by potential scientific consequence—not simply by the presence of statistics or methodological complexity.

6. Integration With Editorial Judgment

Statistical or methodological review is an input to editorial decision-making rather than an independent publication decision.

The editor should integrate:

- the manuscript;
- reviewer assessments;
- statistical or methodological review;
- relevant limitations;
- scientific significance; and
- other applicable editorial considerations.

The reviewer provides specialized assessment; the editor integrates the evidence and makes the editorial decision.

PART X — EDITORIAL DECISION ALGORITHMS & OPERATIONAL FLOW ARCHITECTURE

“Editorial quality is not a fixed state; it is a process of measurement, reflection, learning, and continuous improvement.”

CHAPTER 60 — PURPOSE AND PHILOSOPHY OF EDITORIAL ALGORITHMS

SCEQAS Foundational Concept: Structured Decision Support

SCEQAS editorial algorithms are designed to support consistent, transparent, and evidence-informed editorial reasoning.

They:

- organize relevant information;
- identify appropriate decision points;
- standardize recurring workflow steps;
- support appropriate escalation;
- facilitate documentation and traceability; and
- preserve scientific and editorial independence.

Algorithms are **decision-support tools, not decision-making systems**.

They should not independently determine:

- scientific merit;
- scientific validity;
- research-integrity findings; or
- publication outcomes.

60.1 Guiding Principles

All SCEQAS editorial algorithms should:

1. support editorial reasoning;
2. promote procedural consistency;
3. reduce avoidable variability;
4. protect scientific integrity;
5. preserve editorial independence;
6. allow justified deviation when scientifically appropriate;
7. require human interpretation at consequential decision points; and
8. be documented and periodically reviewed.

An algorithm should not convert a complex editorial judgment into a single numerical threshold unless that threshold has been scientifically justified and appropriately validated.

SCEQAS Editorial Principle

Algorithms organize information. Editors make decisions.

CHAPTER 61 — ALGORITHM 1 — INITIAL EDITORIAL SCREENING

Purpose

To establish a consistent pathway for determining whether a submitted manuscript is ready to proceed to scientific evaluation.

Decision Sequence

Manuscript Received

↓

Administrative Completeness

↓

Complete?

No → Return for Completion

Yes ↓

Journal Scope Assessment

↓

Within Scope?

No → Desk Decision: Out of Scope

Yes ↓

Technical / Reporting Screening

↓

Handling Editor Assessment

↓

Proceed to Scientific Evaluation

Material administrative deficiencies should ordinarily be resolved before scientific evaluation.

SCEQAS Principle

Initial screening organizes the editorial pathway; it does not determine scientific merit.

CHAPTER 62 — ALGORITHM 2 — REVIEWER ASSIGNMENT

Purpose

To support selection of reviewers who are scientifically appropriate, sufficiently independent, and suitable for the manuscript.

Decision Sequence

Manuscript

↓

Identify Required Expertise

↓

Potential Reviewer

↓

Is Scientific Expertise Adequate?

↓

Conflict of Interest?

Yes → Exclude / Select Alternative

No ↓

Independence / Suitability

↓

Availability

↓

Invite Reviewer

Reviewer expertise and independence should take priority over availability.

SCEQAS Principle

Reviewer suitability should be determined primarily by relevant expertise and independence, not by availability alone.

AI may assist in identifying potential expertise domains, but the editor remains responsible for reviewer selection.

CHAPTER 63 — ALGORITHM 3 — STATISTICAL REVIEW DECISION

Purpose

To determine whether specialized statistical review is warranted by the potential scientific consequence of statistical or analytical problems.

Decision Sequence

Manuscript

↓

Statistical / Methodological Complexity?

No → Standard Scientific Review

Yes ↓

Could Statistical Error Affect the Conclusions?

No → Standard Scientific Review

Yes ↓

Independent Statistical Review

↓

Major Statistical Concern?

No → Integrate Into Editorial Assessment

Yes →

Author Revision / Additional Analysis / Further Review

SCEQAS Principle

Statistical review is triggered by potential consequence, not simply by the presence of statistics.

The need for statistical review should remain proportionate to the complexity, analytical risk, and importance of statistical methods to the manuscript's principal conclusions.

CHAPTER 64 — ALGORITHM 4 — AI-SUPPORTED EDITORIAL QUALITY ASSURANCE

Purpose

To ensure that AI-supported quality assurance is used only within an authorized, confidential, human-supervised editorial process.

Decision Sequence

Manuscript

↓

AI Use Authorized?

No → Do Not Process With AI

Yes ↓

Confidentiality / Data Safeguards Satisfied?

No → Do Not Process

Yes ↓

AI Quality Screening

↓

Potential Issue Detected?

No → Continue Workflow

Yes ↓

Editorial Alert

↓

Human Verification

↓

Confirmed?

No → Close / Record False Positive

Yes ↓

Editorial Assessment

AI Editorial Principle

AI alerts initiate editorial review. They never determine editorial outcomes.

AI-supported findings are signals requiring human interpretation. They should not independently establish scientific invalidity, misconduct, or a publication decision.

CHAPTER 65 — ALGORITHM 5 — REVIEWER DISAGREEMENT

Purpose

To provide a structured response when reviewers reach materially different assessments.

Decision Sequence

Reviewer Reports

↓

Substantive Agreement?

Yes → Editorial Integration

No ↓

Characterize Disagreement

- Scientific?
- Methodological?
- Statistical?
- Ethical?
- Scope-related?

↓

Can the Editor Resolve the Difference?

Yes → Editorial Decision

No ↓

Additional Expert Review

SCEQAS Principle

Reviewer disagreement is an information state requiring interpretation, not a failure state requiring automatic escalation.

The quality and evidentiary basis of reviewer reasoning should take precedence over numerical agreement.

Additional review should be requested when the disagreement concerns a substantive issue that cannot reasonably be resolved through the available evidence and editorial assessment.

CHAPTER 66 — ALGORITHM 6 — REVISION ASSESSMENT

Purpose

To determine whether a revised manuscript has adequately addressed the scientific concerns that led to revision.

Decision Sequence

Revision Submitted

↓

Major Scientific Concerns Addressed?

No → Further Revision / Re-review

Yes ↓

Any Material Remaining Concerns?

Yes → Editor Assessment / Re-review

No ↓

Accept / Further Editorial Action

SCEQAS Principle

Editorial evaluation should determine whether scientific concerns have been resolved—not whether every reviewer suggestion has been implemented.

A reviewer recommendation is not automatically a mandatory requirement.

The editor should assess whether the revision has restored or sufficiently improved the scientific reliability and interpretability of the manuscript.

CHAPTER 67 — ALGORITHM 7 — RESEARCH INTEGRITY ESCALATION

Purpose

To ensure that potential research-integrity concerns are assessed through evidence-based, proportionate, and appropriately governed procedures.

Decision Sequence

Integrity Concern

↓

Preliminary Assessment

↓

Does the Concern Warrant Further Assessment?

No → Close / Document Rationale

Yes ↓

Clarification Needed?

Yes → Author / Relevant Party Clarification

↓

Evidence Sufficient for Editorial Assessment?

Yes → Editorial Assessment

No → Further Evidence / Appropriate External Referral

↓

Does the Issue Require Formal Investigation?

No → Editorial Action as Appropriate

Yes ↓

Refer / Coordinate With Appropriate Investigating Authority

↓

Editorial Action Based on Available Evidence

The assessment should consider, as appropriate:

- credibility;
- severity;
- evidence sufficiency;
- institutional jurisdiction; and
- potential impact on the scientific record.

The journal should not automatically assume the role of the institution responsible for formal misconduct investigation.

SCEQAS Integrity Principle

Evidence should precede conclusions. Suspicions alone should never justify sanctions.

An integrity signal is not itself a finding of misconduct.

CHAPTER 68 — ALGORITHM 8 — EDITORIAL DECISION INTEGRATION

Purpose

To establish the final integration point at which relevant scientific, methodological, ethical, integrity, and editorial information is considered.

Inputs

The editor may consider:

- reviewer reports;
- statistical or methodological review;
- AI-supported quality-assurance findings;
- research-integrity assessment;
- journal scope;
- scientific significance;
- author responses and revisions; and
- other legitimate editorial considerations.

Integration Sequence

Reviewer Reports

+

Statistical / Methodological Review

+

AI Quality-Assurance Findings

+

Research Integrity Assessment

+

Journal Scope

+

Scientific Significance

↓

EDITORIAL INTEGRATION

↓

Scientific Reliability

↓

Methodological Adequacy

↓

Ethical / Integrity Status

↓

Journal Fit

↓

FINAL EDITORIAL DECISION

SCEQAS Principle

No single routine evaluative input should independently determine publication.

A reviewer report, AI-supported quality-assurance report, statistical assessment, or numerical indicator should not independently determine publication.

However, a substantiated and critical research-integrity concern may require immediate and proportionate editorial action.

The editor remains responsible for integrating the available evidence and making the final editorial decision.

CHAPTER 69 — OPERATIONAL WORKFLOW SUMMARY

SCEQAS Master Editorial Workflow

SUBMISSION

↓

Administrative Screening

↓

Scope Assessment

↓

Technical / Reporting Screening

↓

AI Quality Assurance

↓

Handling Editor Assessment

↓

Reviewer Selection

↓

Peer Review

↓

Additional Assessment When Required

- Statistical Review
- Methodological Review
- Research Integrity Assessment

↓

Editorial Integration

↓

Decision

↓

Revision, When Required

↻

Acceptance

↓

Production

↓

Publication

↓

Post-Publication Monitoring

↓

Correction / Expression of Concern / Retraction, When Warranted

Integrated SCEQAS Logic

The operational workflow can be summarized as:

Submission → Screening → Assessment → Peer Review → Specialized Assessment When Required → Editorial Integration → Decision → Revision or Acceptance → Publication → Post-Publication Responsibility

This workflow reflects the central SCEQAS distinction between **information generation, scientific interpretation, and editorial authority**.

AI may contribute technical quality-assurance signals. Reviewers provide independent scientific assessment. Specialized experts may provide statistical, methodological, or integrity-related assessment where required. The editor integrates these inputs and retains editorial responsibility.

Final SCEQAS Workflow Principle

Evidence → Assessment → Action

The purpose of the workflow is not to eliminate judgment, but to ensure that judgment is exercised **systematically, transparently, proportionately, and accountably.**

PART XI — SCEQAS GOVERNANCE, STANDARD MAINTENANCE & SCIENTIFIC FOUNDATION

SCEQAS proposes an integrated architecture in which established standards, structured quality assurance, artificial intelligence support, expert scientific judgment, and human editorial responsibility operate within a single accountable system.

CHAPTER 70 — GLOSSARY OF EDITORIAL TERMS

SCEQAS Foundational Concept: Terminological Consistency

A quality-assurance system requires consistent use of terminology. The following definitions establish the principal terms used throughout SCEQAS.

Acceptance

A formal editorial decision indicating that a manuscript has satisfied the journal's publication criteria, subject to any applicable production requirements.

Artificial Intelligence

Computational systems that may support editorial quality assurance through structured analysis without exercising editorial authority.

AI-Supported Quality-Assurance Report

A structured report generated through authorized AI-supported analysis to identify potential technical, reporting, consistency, or related quality issues.

An AI-supported quality-assurance report is an aid to human editorial assessment and does not constitute an editorial recommendation.

Editorial Decision

A formal determination made by the editor based on scientific evidence, reviewer reports, ethical considerations, journal requirements, and editorial judgment.

Research Integrity

Adherence to principles of honesty, transparency, rigor, accountability, and responsible conduct throughout research and its communication.

Remediability

The extent to which an identified scientific, methodological, reporting, or related concern can reasonably be addressed through revision, clarification, additional analysis, or other appropriate corrective action.

Reviewer

An appropriately qualified and sufficiently independent expert invited to provide a critical assessment of a manuscript's scientific, methodological, ethical, statistical, or reporting aspects, as applicable.

SCEQAS

Scientific Editorial Quality Assurance System, an integrated framework for editorial quality assurance in biomedical publishing.

SCEQAS Foundational Standard

The controlled standard that defines the principles, architecture, governance, operational framework, and maintenance requirements of SCEQAS.

Editorial Quality Assurance

A structured process for identifying, assessing, documenting, and improving factors that influence the quality, reliability, integrity, and consistency of editorial processes.

SCEQAS Principle

A formally stated principle within SCEQAS that guides interpretation, implementation, or editorial practice.

Standard Operating Procedure (SOP)

A controlled operational document that specifies how a defined editorial process should be performed consistently and traceably.

Fundamental Principle

A core SCEQAS rule intended to remain stable across implementation contexts unless formally revised through the SCEQAS governance process.

SCEQAS Principle

Consistent terminology supports consistent reasoning, documentation, and implementation.

CHAPTER 71 — CONTROLLED DOCUMENT CLASSIFICATION

SCEQAS Foundational Concept: Every Controlled Document Has a Defined Identity

SCEQAS documents should be identifiable, version-controlled, and traceable.

Each controlled document shall have one primary document classification and a unique document identifier.

Examples include:

- **SCEQAS-SOP-006-v1.0** — AI-Supported Editorial Quality Assurance
- **SCEQAS-EM-06-v1.0** — Editorial Management document
- **SCEQAS-FS-1.0** — Foundational Standard

Document identifiers should communicate, where applicable:

1. the SCEQAS framework;
2. the document category;
3. the document number;
4. the version; and
5. the controlled status of the document.

Document Control Principle

Controlled documents should be maintained so that users can determine:

- which document is current;
- which version was applicable at a given time;
- what substantive changes have occurred;
- who approved the change; and
- when the document should next be reviewed.

SCEQAS Principle

A controlled document should be identifiable, traceable, and distinguishable from obsolete versions.

CHAPTER 72 — VERSION CONTROL POLICY

SCEQAS Foundational Concept: Controlled Evolution

Version control ensures that changes to SCEQAS are transparent, traceable, and appropriately classified.

SCEQAS uses three principal levels of revision:

Major Version

Example:

1.0 → 2.0

A major version should be used when changes materially alter:

- foundational principles;
- scope;
- governance;
- decision architecture; or
- substantive requirements.

Minor Version

Example:

1.0 → 1.1

A minor version should be used for changes that:

- clarify existing requirements;
- expand operational guidance;
- refine procedures; or
- modify non-fundamental operational requirements.

Editorial Correction

Example:

1.0 → 1.0.1

An editorial correction is limited to:

- spelling;
- formatting;
- typographical errors; or
- other non-substantive wording corrections.

Critical Rule

A change affecting scientific or ethical meaning shall never be classified as a purely editorial correction.

Version-Control Principle

Every substantive revision should preserve sufficient documentation to establish:

- what changed;
- why the change was made;
- who reviewed and approved it;

- when it became effective; and
- which previous version it superseded.

SCEQAS Principle

Changes in scientific or ethical meaning require substantive review, regardless of how small the textual change may appear.

CHAPTER 73 — REVIEW AND UPDATE POLICY

SCEQAS Foundational Concept: Scheduled Review With Triggered Revision

SCEQAS should undergo a formal scheduled review **at least every three years**, with earlier review when significant developments require it.

73.1 Review Triggers

Earlier review may be initiated by:

- developments in publication ethics;
- changes in reporting guidelines;
- major scientific or methodological developments;
- significant changes in peer-review practice;
- responsible AI developments;
- implementation experience;
- recurrent audit findings;
- regulatory or legal changes;
- significant research-integrity developments; or
- other developments that may materially affect the framework.

73.2 Emergency Revision

An emergency revision may be issued when delay would create a material risk to:

- scientific integrity;
- confidentiality;
- legal or regulatory compliance; or
- editorial safety.

Emergency revision does not eliminate subsequent formal review and approval.

73.3 Review Process

A scheduled or triggered review should consider:

1. whether the existing requirement remains appropriate;
2. whether new evidence or standards have emerged;
3. whether implementation experience has identified weaknesses;
4. whether unintended consequences have occurred;
5. whether technological developments require modification;
6. whether governance or operational changes are necessary; and
7. whether the current version remains internally consistent.

SCEQAS Principle

SCEQAS should evolve when evidence, standards, risks, or experience justify change—not simply because change is possible.

CHAPTER 74 — GOVERNANCE STRUCTURE OF SCEQAS

SCEQAS Foundational Concept: Governance Functions, Not Bureaucratic Structure

SCEQAS governance should ensure that the framework is appropriately directed, maintained, implemented, evaluated, and improved.

A mature organizational structure may include:

- Governing Committee;
- Editorial Standards Committee;
- Reviewer Education Committee;
- AI Quality Assurance Committee;
- Research Integrity Committee; and
- Quality Improvement Committee.

However, these functions do not necessarily require separate committees.

74.1 Core Governance Functions

SCEQAS governance should ensure five core functions.

1. Strategic Oversight

Responsible for:

- overall direction;
- approval of the standard;
- organizational accountability; and
- major strategic decisions.

2. Editorial Standards

Responsible for:

- policy development;
- editorial procedures;
- scientific standards; and
- maintenance of editorial guidance.

3. Research Integrity

Responsible for:

- integrity policies;
- escalation frameworks;
- management of integrity concerns; and
- post-publication integrity processes.

4. Technology and AI Governance

Responsible for:

- AI policy;
- performance monitoring;

- confidentiality and data governance;
- validation; and
- appropriate human oversight.

5. Quality Improvement

Responsible for:

- audits;
- performance review;
- organizational learning; and
- improvement actions.

74.2 Organizational Flexibility

A large publisher or editorial organization may establish separate governance committees.

A small or medium-sized journal may distribute these functions among:

- the Editor-in-Chief;
- Editorial Board;
- designated research-integrity officer;
- quality lead; or
- a combined governance committee.

The appropriate organizational structure will depend on journal size, publishing model, resources, institutional arrangements, and applicable requirements.

Fundamental Principle

SCEQAS requires governance functions—not a predetermined number of committees.

74.3 Independence

Research-integrity and substantive editorial decisions should be protected from inappropriate influence arising from:

- commercial pressure;
- publication targets;
- citation incentives;
- institutional prestige; or
- individual conflicts of interest.

Editorial governance should preserve the independence necessary for scientifically and ethically defensible decisions.

SCEQAS Principle

Governance should create accountability without compromising editorial independence.

CHAPTER 75 — CONTINUOUS EVOLUTION FRAMEWORK

SCEQAS Foundational Concept: Stability Through Controlled Evolution

SCEQAS is a **living standard**.

It should evolve in response to evidence and experience, but evolution should occur through controlled review rather than continuous or uncontrolled modification.

75.1 Sources of Evolution

Future development of SCEQAS may be informed by:

- scientific evidence;
- editorial experience;
- reviewer feedback;
- author feedback;
- audit findings;
- research-integrity cases;
- technological developments;
- implementation experience; and
- international publication-ethics guidance.

75.2 The SCEQAS Change Principle

A proposed change should proceed through the following sequence:

Need Identified

↓

Evidence Reviewed

↓

Risk Assessed

↓

Pilot Considered, Where Appropriate

↓

Effect Evaluated

↓

Governance Approval

↓

Version Released

This sequence helps ensure that changes are not introduced solely because they are technologically attractive, administratively convenient, or intuitively appealing.

75.3 Stability and Innovation

SCEQAS should maintain a balance between:

- stability of foundational principles; and
- adaptability to legitimate scientific, ethical, technological, and editorial developments.

Foundational principles should change cautiously.

Operational procedures may evolve more readily when implementation experience or evidence demonstrates a need for improvement.

75.4 Learning From Implementation

Implementation experience should be treated as a source of organizational learning.

Where a procedure produces:

- recurrent confusion;
- excessive workflow burden;
- inconsistent application;
- unexpected risks;
- false-positive or false-negative AI signals;
- inadequate documentation; or
- other unintended consequences,

the relevant process should be reviewed rather than merely repeated.

Final SCEQAS Principle

SCEQAS should remain stable in its principles while remaining adaptable in its methods.

The objective of controlled evolution is not perpetual modification.

It is to ensure that SCEQAS remains:

- scientifically credible;
- ethically responsible;
- operationally useful;
- technologically appropriate;
- transparent;
- accountable; and
- capable of continuous improvement.

PART XII — SCIENTIFIC FOUNDATION, INTERNATIONAL RELATIONSHIP & ORIGINAL CONTRIBUTION

SCEQAS is grounded in established principles of scientific publishing while providing an integrated operational architecture for their structured application, governance, and continuous improvement.

CHAPTER 76 — SCIENTIFIC FOUNDATION OF SCEQAS

SCEQAS Foundational Concept: Evidence-Informed Editorial Quality Assurance

SCEQAS is an evidence-informed editorial quality-assurance framework developed for biomedical publishing.

Its scientific foundation incorporates established principles and guidance relating to:

- editorial responsibility;
- peer review;
- publication ethics;
- research integrity;
- reporting standards;
- human research ethics;
- responsible artificial intelligence;
- risk management; and
- evidence-informed scientific assessment.

SCEQAS does not claim that these principles originated within the framework.

Instead, it seeks to integrate them into a coherent editorial quality-management architecture in which scientific assessment, ethical oversight, technological support, documentation, governance, and continuous improvement operate within a connected system. This edition presents the framework but does not, by itself, establish empirical validation of the SCEQAS system as a whole.

76.1 Scientific Reasoning

SCEQAS emphasizes evidence-informed scientific reasoning rather than mechanical application of study-design hierarchies or numerical scores. [10]

The reviewer is expected to consider:

- the research question;
- study design;
- methodological appropriateness;
- quality and reliability of the results;
- statistical and analytical methods where relevant;
- interpretation;
- limitations;
- scientific significance; and
- applicability to the intended context.

Evidence should therefore be interpreted in relation to the scientific question being addressed.

76.2 Peer Review and Editorial Judgment

SCEQAS distinguishes between scientific assessment and editorial authority.

Reviewers provide independent scientific and methodological assessment.

Specialist reviewers may provide additional statistical, methodological, or other expert assessment when required.

AI-supported tools may identify structured quality-assurance signals.

The editor integrates these sources of information and retains responsibility for the editorial decision.

76.3 Research Integrity

SCEQAS treats research integrity as a continuous responsibility extending across the publication life cycle.

It emphasizes proportional assessment of concerns and distinguishes:

Signal → Concern → Assessment → Investigation, Where Required → Finding → Editorial Action

A potential concern is not automatically a finding of misconduct.

76.4 Responsible Artificial Intelligence

SCEQAS positions AI as a supporting technology within a human-governed editorial system. [6, 7, 8]

AI may assist with:

- technical screening;
- reporting checks;
- consistency assessment;
- structured quality-assurance analysis;
- identification of potential issues; and
- other authorized quality-assurance functions.

AI does not replace:

- scientific judgment;
- reviewer interpretation;
- editorial authority; or
- research-integrity responsibility.

SCEQAS Scientific Foundation Principle

Evidence informs judgment; structured processes support judgment; neither algorithms nor artificial intelligence replace human scientific and editorial responsibility.

CHAPTER 77 — RELATIONSHIP WITH INTERNATIONAL STANDARDS

SCEQAS Foundational Concept: Integration Without Substitution

SCEQAS should be understood as an **integrative operational framework**, not as a replacement for established international standards, ethical principles, reporting guidelines, or organizational policies.

International organizations and established scientific communities provide principles, recommendations, standards, and guidance within their respective domains.

SCEQAS seeks to connect these domains within an operational editorial architecture.

77.1 External Foundations

Relevant external foundations include, as applicable:

- International Committee of Medical Journal Editors (ICMJE);
- Committee on Publication Ethics (COPE);
- Council of Science Editors (CSE);
- World Association of Medical Editors (WAME);
- EQUATOR Network reporting guidelines;
- World Medical Association Declaration of Helsinki;
- UNESCO recommendations concerning the ethics of artificial intelligence;
- World Health Organization guidance on AI ethics and governance;
- National Institute of Standards and Technology AI Risk Management Framework; and
- established evidence-based medicine and scientific methodology resources.

These sources should be cited only for principles and recommendations they actually address.

77.2 SCEQAS Operational Contribution

SCEQAS contributes an operational architecture by connecting established principles through:

- structured reviewer competencies;
- scientific reasoning pathways;
- severity and remediability assessment;
- reviewer self-audit;
- differentiated governance functions;
- research-integrity escalation;
- editorial response matrices;
- AI-supported quality assurance under human oversight;
- statistical and methodological review pathways;
- editorial decision algorithms;
- controlled SOPs;
- performance monitoring;
- organizational learning;
- maturity assessment;

- traceability; and
- continuous improvement.

The purpose is not to duplicate external guidance but to make its application more structured, consistent, and traceable within editorial workflows.

77.3 International Standards and Local Implementation

Implementation of SCEQAS should remain compatible with:

- applicable national law;
- institutional requirements;
- journal policies;
- publisher policies;
- disciplinary requirements; and
- applicable international standards.

Where requirements differ across jurisdictions or organizations, the applicable higher-order legal or ethical requirement should take precedence.

SCEQAS Principle

International standards establish important principles and requirements; SCEQAS provides an operational architecture for their structured application within editorial systems.

CHAPTER 78 — ORIGINAL CONTRIBUTIONS OF SCEQAS

SCEQAS Foundational Concept: Integration, Operationalization, and Governance as the Principal Contribution

The principal originality of SCEQAS does not depend on claiming that individual components of editorial practice are entirely new.

Many of its underlying principles are already represented in established publication ethics, peer-review guidance, research-integrity frameworks, reporting standards, quality-management concepts, and responsible-AI guidance.

The contribution of SCEQAS lies primarily in **how these elements are integrated, operationalized, governed, and connected to continuous improvement within a single editorial quality-assurance architecture.**

78.1 Integrated Editorial Quality Architecture

SCEQAS connects multiple dimensions of editorial quality that are often addressed separately:

Scientific Assessment

+

Peer Review

+

Research Integrity

+

Editorial Governance

+

AI-Supported Quality Assurance

+

Performance Monitoring

+

Continuous Improvement

This integration is a defining feature of the framework.

78.2 Severity–Decision Separation

SCEQAS explicitly distinguishes the severity of a scientific concern from the editorial decision that may follow.

Severity ≠ Decision

This principle is operationalized through assessment of:

- scientific consequence;
- severity;
- remediability;
- overall scientific reliability; and
- editorial context.

78.3 Concern–Misconduct Separation

SCEQAS establishes a structured distinction between:

- a signal;
- a concern;

- preliminary assessment;
- investigation;
- finding; and
- editorial action.

Concern ≠ Misconduct

This distinction supports proportionate and evidence-based handling of integrity concerns.

78.4 Human–AI–Editorial Architecture

SCEQAS defines a functional boundary between technology, scientific expertise, and editorial authority:

AI identifies and structures signals. Reviewers interpret scientific significance. Editors integrate evidence and decide.

This architecture positions AI as a quality-assurance support mechanism rather than an autonomous editorial decision-maker.

78.5 Reviewer Self-Audit and Professional Development

SCEQAS extends reviewer quality beyond initial selection.

It incorporates:

- reviewer responsibilities;
- cognitive-bias awareness;
- self-audit;
- review-quality assessment;
- feedback;
- education; and
- continuous reviewer development.

The reviewer is therefore treated not only as an evaluator of manuscripts but also as a participant in a continuously improving quality system.

78.6 Integrated Editorial Decision Architecture

SCEQAS brings multiple information sources into a structured editorial integration process:

Reviewer Reports

+

Specialist Assessment

+

AI Quality-Assurance Signals

+

Integrity Assessment

+

Scientific Significance

+

Journal Scope

↓

Editorial Integration

↓

Final Editorial Decision

This architecture emphasizes that editorial decisions are integrative judgments rather than outputs of isolated scores or individual reports.

78.7 Operationalization Through SOPs and Algorithms

SCEQAS translates principles into operational mechanisms through:

- Standard Operating Procedures;
- decision algorithms;
- escalation pathways;
- documentation requirements;
- version control;
- governance structures; and
- audit mechanisms.

This allows the framework to move from conceptual guidance toward reproducible organizational practice.

78.8 Continuous Quality Improvement

SCEQAS treats editorial quality as a continuing organizational process.

The framework incorporates:

Event → Analysis → Improvement Action → Implementation → Reassessment

This creates a feedback relationship between editorial experience and system development.

78.9 Traceability

SCEQAS links:

Principle → Requirement → Process → Decision Point → Documentation → Outcome → Review

This provides a basis for examining how editorial principles are translated into practice and how the system can subsequently be improved.

78.10 Overall Contribution

The principal contribution of SCEQAS may therefore be summarized as follows:

SCEQAS does not seek to replace established international standards. It provides an integrated editorial quality-assurance architecture through which established principles can be structured, operationalized, governed, monitored, documented, and continuously improved.

Its originality should consequently be understood primarily as an **architectural and operational contribution** rather than as a claim that every individual component represents a new scientific principle.

Fundamental SCEQAS Statement

The originality of SCEQAS lies not primarily in inventing isolated new rules, but in integrating established principles into a unified, operational, governed, traceable, and continuously improving editorial quality-assurance system.

APPENDIX A — ABBREVIATIONS

SOP — Standard Operating Procedure

RIO — Research Integrity Office

ICMJE — International Committee of Medical Journal Editors

FS — Foundational Standard

SCEQAS — Scientific Editorial Quality Assurance System

EQA — Editorial Quality Assurance

COPE — Committee on Publication Ethics

AI — Artificial Intelligence

Core abbreviations

APPENDIX B — CITATION OF SCEQAS

Recommended Citation Formats

This appendix defines recommended citation formats for the SCEQAS Foundational Standard in scholarly, editorial, educational, and institutional contexts.

APA Style

Öztürk, H. (2026). *Scientific Editorial Quality Assurance System (SCEQAS): Foundational Standard (FS-1.0)* (1st ed.). DOI: <https://doi.org/10.53545/sceqas.fs1.2026.01>

Vancouver Style

Öztürk H. *Scientific Editorial Quality Assurance System (SCEQAS): Foundational Standard (FS-1.0)*. 1st ed. İstanbul; 2026. DOI: <https://doi.org/10.53545/sceqas.fs1.2026.01>

Short Citation

For repeated citation:

Öztürk, 2026

or, in a numbered citation system:

Öztürk H. SCEQAS Foundational Standard (FS-1.0). 2026.

Citation of a Specific SCEQAS Chapter

When a specific chapter is cited, the chapter number and title should be identified where appropriate.

For example:

Öztürk H. Chapter 64: Algorithm 4 — AI-Supported Editorial Quality Assurance. In: *Scientific Editorial Quality Assurance System (SCEQAS): Foundational Standard (FS-1.0)*. 2026.

<https://doi.org/10.53545/sceqas.fs1.2026.01>

Citation of the SCEQAS Framework

When SCEQAS is cited as a framework rather than as a specific chapter, the preferred reference is the **Foundational Standard as a whole**.

The abbreviation **SCEQAS** may be used after the first full citation.

Version-Specific Citation

Because SCEQAS is intended to evolve as a controlled framework, citations should identify the applicable version when referring to version-specific recommendations.

The present edition should therefore be identified as:

SCEQAS Foundational Standard (FS-1.0), Version 1.0

Future versions should be cited according to their respective version identifiers and publication metadata.

DOI and Persistent Identification

The DOI serves as the preferred persistent identifier for the electronic scholarly publication.

DOI: <https://doi.org/10.53545/sceqas.fs1.2026.01>

Attribution and Integrity of Use

Users may cite, discuss, evaluate, adapt, and critically examine SCEQAS.

Citation of SCEQAS does not imply endorsement by the author of the citing work, nor does it imply that SCEQAS recommendations have been independently validated in every context.

Where SCEQAS-developed operational models are adapted or modified, the original framework should be appropriately acknowledged and the adaptation should be clearly identified.

Fundamental Citation Principle

SCEQAS should be cited as a version-controlled scholarly framework, with sufficient bibliographic information to identify the specific edition and its DOI.

APPENDIX C — TRACEABILITY MATRIX

SCEQAS Principle: From External Foundation to Operational Application

SCEQAS distinguishes between principles adopted from established external sources and operational models developed within the framework.

The purpose of the traceability approach is to make this distinction transparent and to allow users to identify how an established principle is translated into SCEQAS practice.

Core Traceability Chain

External Principle

↓

Source / Reference

↓

SCEQAS Interpretation

↓

Operational Requirement

↓

SOP / Algorithm / Workflow

↓

Documentation

↓

Editorial Outcome

↓

Quality Improvement

Examples of SCEQAS Operational Contributions

Domain	External Foundation	SCEQAS Operational Contribution
Editorial responsibility	ICMJE	Human editors retain final editorial responsibility; reviewer recommendations remain advisory
Publication ethics / misconduct	COPE and related guidance	Structured concern assessment and proportionate escalation workflows
Peer review / confidentiality / COI	ICMJE, COPE, CSE	Integrated reviewer responsibilities and competency framework
Reporting standards	EQUATOR	Study-design-appropriate reporting assessment within technical screening
Human research ethics	Declaration of Helsinki	Operationalization of applicable human-participant safeguards
AI in editorial work	ICMJE and responsible-AI guidance	Human-supervised AI quality assurance with confidentiality and transparency controls
AI risk management	NIST, UNESCO, WHO	Adaptation of risk-management and responsible-AI concepts to editorial workflows
Editorial independence	WAME / ICMJE	Preservation of editorial authority and protection from inappropriate interference
Evidence assessment	OCEBM and evidence-based methodology	Question-specific evidence reasoning rather than automatic scoring

The external source establishes the relevant principle. The organization, integration, workflow design, and operationalization of that principle within SCEQAS constitute contributions of the framework itself.

Reference Integrity Rule

An external organization should be cited as support for a principle **only when the cited source actually addresses that principle**.

SCEQAS-developed operational models should be identified as SCEQAS contributions and should not be presented as recommendations originating from external organizations.

Traceability Principle

Every major SCEQAS operational requirement should be traceable either to an appropriate external foundation or explicitly identified as a SCEQAS-developed contribution.

APPENDIX D — REFERENCE CLASSIFICATION & REFERENCE ARCHITECTURE

D.1 Purpose

SCEQAS classifies supporting references to improve transparency, facilitate future updates, and distinguish external scientific and ethical foundations from operational models developed within SCEQAS.

D.2 Reference Categories

CATEGORY I — Foundational Editorial Guidance

- International Committee of Medical Journal Editors (ICMJE)
- Committee on Publication Ethics (COPE)
- Council of Science Editors (CSE)
- World Association of Medical Editors (WAME)

CATEGORY II — Research Ethics

- World Medical Association Declaration of Helsinki

This category includes international ethical guidance concerning human research, informed consent, privacy, and protection of vulnerable populations.

CATEGORY III — Reporting Standards

Representative reporting-guideline families include:

- CONSORT
- PRISMA
- STROBE
- CARE
- STARD
- TRIPOD
- SPIRIT
- ARRIVE
- AGREE
- EQUATOR Network

The appropriate reporting guideline should be selected according to study design and research context.

CATEGORY IV — Artificial Intelligence

- UNESCO
- World Health Organization
- National Institute of Standards and Technology
- Responsible-AI literature

CATEGORY V — Supporting Editorial and Quality-Management Literature

This category includes:

- peer-review research;

- editorial decision-making research;
- research-integrity literature;
- quality-management literature;
- organizational-learning literature; and
- biomedical publishing research.

D.3 Reference Hierarchy

Level 1 — Primary / Authoritative Guidance

Examples include:

- ICMJE;
- COPE;
- Declaration of Helsinki;
- NIST; and
- applicable official reporting guidelines.

Level 2 — Recognized Professional Guidance

Examples include:

- CSE;
- WAME; and
- comparable professional editorial organizations.

Level 3 — Scientific Literature

This includes:

- systematic reviews;
- empirical studies;
- methodological research; and
- editorial research.

Level 4 — Supporting Literature

This includes:

- conceptual literature;
- educational literature; and
- implementation literature.

D.4 Reference-to-Claim Traceability

For important externally supported claims, the reference architecture should permit the following relationship to be identified:

Claim → Source → Source Location → SCEQAS Interpretation → Operationalization

This structure supports transparent attribution and facilitates future reference audits.

D.5 Reference Currency

References should be periodically reviewed for:

- currency;

- supersession;
- withdrawal;
- substantive revision; and
- changes in applicable guidance.

Particular attention should be given to publication ethics, responsible AI, reporting standards, and other rapidly evolving areas.

D.6 Reference Integrity Statement

SCEQAS shall not cite an organization as support for a principle unless the cited source actually addresses the relevant principle.

SCEQAS-developed operational models shall be identified as SCEQAS contributions rather than attributed to external organizations.

Reference Verification Principle

The authority of a reference depends not only on the authority of its source, but also on whether the source actually supports the claim for which it is cited.

MASTER REFERENCE LIST

- [1] International Committee of Medical Journal Editors (ICMJE). *Recommendations for the Conduct, Reporting, Editing, and Publication of Scholarly Work in Medical Journals*. Updated January 2026. Available from: [ICMJE Recommendations](#). Accessed September 19, 2026.
- [2] Committee on Publication Ethics (COPE). *COPE Core Practices*. Available from: [COPE Core Practices](#). Accessed September 19, 2026.
- [3] Council of Science Editors (CSE). *CSE Recommendations for Promoting Integrity in Scientific Journal Publications: Reviewer Roles and Responsibilities; Editor Roles and Responsibilities*. Available from: [CSE Reviewer Roles and Responsibilities](#) and [CSE Editor Roles and Responsibilities](#). Accessed September 19, 2026.
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- [6] Tabassi E. *Artificial Intelligence Risk Management Framework (AI RMF 1.0)*. Gaithersburg, MD: National Institute of Standards and Technology; 2023. NIST AI 100-1. DOI: 10.6028/NIST.AI.100-1. [NIST AI RMF 1.0](#).
- [7] United Nations Educational, Scientific and Cultural Organization (UNESCO). *Recommendation on the Ethics of Artificial Intelligence*. Adopted by the General Conference of UNESCO, November 2021. Paris: UNESCO. Available from: [UNESCO Recommendation on the Ethics of Artificial Intelligence](#). Accessed September 19, 2026.
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REFERENCE VERIFICATION STATEMENT

The reference architecture of this edition distinguishes external scientific and ethical foundations from SCEQAS-developed operational contributions.

External sources are cited only for principles they actually address.

SCEQAS-developed operational models are identified as contributions of the framework and are not attributed to external organizations.

The reference architecture should be reviewed and updated as authoritative guidance, reporting standards, research-integrity frameworks, and responsible-AI recommendations evolve.

FINAL SCEQAS EDITORIAL DECLARATION

THE SCEQAS EDITORIAL DECLARATION

Scientific publishing is a public trust.

The **Scientific Editorial Quality Assurance System (SCEQAS)** has been developed to strengthen that trust through:

- structured editorial governance;
- rigorous scientific assessment;
- responsible peer review;
- research-integrity safeguards;
- transparent editorial procedures;
- responsible use of artificial intelligence; and
- continuous quality improvement.

SCEQAS recognizes that editorial excellence cannot be achieved through policies, technologies, checklists, or documentation alone.

It depends upon qualified people working within transparent, ethical, evidence-informed, and accountable systems.

SCEQAS therefore affirms that:

Editors make editorial decisions.

Reviewers provide independent scientific assessment.

AI supports defined quality-assurance activities but does not exercise editorial authority.

Research-integrity concerns require evidence-based and proportionate assessment.

Scientific errors should be corrected transparently.

The scientific record should be protected throughout the publication life cycle.

Quality improvement should be continuous, but changes to the standard should remain controlled and evidence-informed.

Editorial excellence is not the absence of error.

It is the capacity of an editorial system to:

- prevent avoidable error;
- recognize problems;
- assess concerns appropriately;
- respond proportionately;
- learn from experience; and
- continuously improve while protecting the integrity of the scientific record.

Final Declaration

SCEQAS is a human-governed, evidence-informed, continuously improving framework for editorial quality assurance in biomedical publishing.

FINAL CLOSING STATEMENT

Science advances through discovery.

Scientific publishing advances through trust.

Trust is sustained through integrity.

Integrity is protected through responsible quality systems.

SCEQAS exists to strengthen those systems and to protect the integrity of the scientific record.

It does not seek to replace scientific judgment.

It does not seek to replace qualified reviewers.

It does not seek to replace responsible editors.

It does not seek to replace established international standards.

Instead, SCEQAS seeks to connect these elements within a coherent system in which evidence can be assessed, concerns can be distinguished from findings, decisions can be reasoned and documented, responsibilities can remain clear, and the editorial system can learn from its own experience.

Its central principle is simple:

Evidence → Assessment → Action

Its central human–technology principle is equally clear:

AI identifies. Reviewers interpret. Editors decide.

And its central quality principle extends beyond any individual manuscript:

Editorial quality is not merely the quality of individual decisions. It is the quality of the system that produces, evaluates, communicates, corrects, and preserves scientific knowledge.

SCEQAS therefore represents not an endpoint, but a framework for responsible editorial practice and continuous improvement.

Science advances through discovery.

Publishing advances through trust.

Trust requires integrity.

Integrity requires responsibility.

And responsibility requires a system capable of learning, improving, and protecting the scientific record.

Scientific Editorial Quality Assurance System (SCEQAS)

Foundational Standard (FS-1.0)

2026