



Contemporary Implementation of Traditional Knowledge and Evidence in Health (CITE) Framework

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INTRODUCTION

The Contemporary Implementation of Traditional Knowledge and Evidence in Health (CITE) Framework is designed to support appropriate and rigorous use of traditional knowledge by practitioners, educators, researchers, and policymakers by providing guidance on how to select, evaluate and apply evidence from traditional written knowledge sources within the contemporary context.

BACKGROUND

The CITE Framework was developed in response to recognition from the World Health Organization¹ and Declaration of Astana² regarding the importance of traditional medicine and traditional knowledge use in the contemporary health landscape. The Framework was developed from the findings of a literature review³, stakeholder discussion forum⁴ and an international Delphi panel of traditional medicine experts exploring the process of transferring knowledge arising from traditional medicine systems into contemporary health settings.

PURPOSE

The intention of the CITE Framework is to ensure the use of traditional knowledge in health contexts be undertaken and evaluated in a rigorous way, without undue bias toward or against traditional knowledge or traditional medicine systems. It aims to facilitate the appropriate use and integration of traditional knowledge with current evidence-based approaches to health care practice, education, research and policy.

The CITE Framework was designed with the intention of being accessible and useful to people both inside and outside of traditional medicine systems who wish to engage with traditional medicine knowledge in a meaningful way.

¹ World Health Organization. WHO Traditional Medicine Strategy: 2014-2023. Geneva: World Health Organization; 2013.

² World Health Organization. Declaration of Astana: Global Conference on Primary Health Care: Astana, Kazakhstan. World Health Organization; 2018.

³Foley H, Bugarcic A, Adams J, Wardle J, Leach M & Steel A. Criteria for the selection, evaluation and application of traditional knowledge in contemporary health practice, education, research and policy: A systematic review. *Health Information & Libraries Journal*. 2023; 40:233-61

⁴ Steel A, Foley H, Bugarcic A, Wardle J, Boyd H, Breakspear I, et al. Exploring criteria for the translation of traditional knowledge within contemporary clinical practice, research, policy, and education: A stakeholder forum. *Journal of Integrative and Complementary Medicine*. 2023; 29:6-7.

USING THE CITE FRAMEWORK

The CITE Framework was primarily designed for use with knowledge from traditional medicine systems with an established history of written traditional sources. A definition of key concepts relevant to use of the CITE Framework are provided below.⁵

Key Concepts for use of the CITE Framework

Traditional medicine system: A system of health care that encompasses a range of knowledge, skills, and practices that are based on philosophies and experiences arising from a specific culture.

Traditional knowledge: Relating to or being part of a knowledge system embedded within the practice or culture of a traditional medicine system.

Traditional knowledge experts: Individuals with explicit training and extensive experience or practice in relation to the principles, philosophies, theories and practice of a traditional medicine system, the extent of which is determined by and within the traditional medicine system itself.

In recognition of the diversity surrounding traditional knowledge, the CITE Framework is designed to be adaptable to the specific needs and philosophical approaches of different traditional medicine systems. CITE Framework items present explicit guidance on complex ideas that may be implicit in current practices to allow consistent application of concepts within the context of traditional knowledge, across all health settings.

The CITE Framework is comprised of three (3) sections:

- **Section 1 - Guiding principles for the contemporary use of traditional knowledge**
[5 principles guiding how to approach traditional knowledge as a source of evidence]
- **Section 2 - Criteria for critically appraising traditional knowledge sources**
[4 criteria guiding the evaluation of sources of traditional knowledge]
- **Section 3 - Criteria to guide the contemporary application of traditional knowledge**
[8 criteria guiding the integration of traditional knowledge into contemporary practice, education, research and policy contexts].

The principles and criteria in the three sections (see Figure 1) cover concepts that are discrete yet inter-related and may be applied in a non-linear fashion. While some sections of the CITE Framework may be more applicable to certain settings and activities, the items should be interpreted together in totality, with no criteria considered independent of each other.

⁵Definitions are informed by established definitions provided by the World Health Organization and World Intellectual Property Organization

Section 1: Guiding principles for the contemporary use of traditional knowledge	
1	Accountability during translation of knowledge
2	Importance of foundational assessment of traditional knowledge
3	Evolution of practice in living traditions
4	Pragmatic translation to balance traditional perspective and contemporary context
5	Peer-to-peer knowledge sharing and empirical observation
Section 2: Criteria for critically appraising traditional knowledge sources	
1	Authenticity of the traditional knowledge source
2	Consistency of evidence across sources
3	Safety of the traditional knowledge in the contemporary context
Section 3: Criteria to Guide the Application of Traditional Knowledge in Contemporary Settings	
1	Alignment with core characteristics of the tradition
2	Ethical approaches: intellectual property and sociological considerations
3	Tradition-informed communication and framing
4	Person-centred translation
5	Accuracy of interpretation
6	Transferability of traditional knowledge to contemporary context
7	Accessibility and integrity of traditional resources
8	Comparative benefit between available traditional and non-traditional approaches

Figure 1: Outline of the CITE Framework

SECTION 1: GUIDING PRINCIPLES FOR THE CONTEMPORARY USE OF TRADITIONAL KNOWLEDGE

The Framework includes five (5) principles to be used as general guidelines for how to approach the use of traditional knowledge in contemporary contexts. These principles are intended to inform the perspective and processes applied to traditional knowledge use.

The guiding principles are explained in the following sections and include:

- 1) Accountability during translation of knowledge,
- 2) Importance of foundational assessment of traditional knowledge,
- 3) Evolution of practice in living traditions,
- 4) Pragmatic translation to balance traditional perspective and contemporary context, and
- 5) Peer-to-peer knowledge-sharing and empirical testing

Each guiding principle comprises of a header, statement and explainer.

GUIDING PRINCIPLE 1: **ACCOUNTABILITY DURING TRANSLATION OF KNOWLEDGE**

When translating or implementing traditional knowledge into contemporary use, be accountable for the processes used, outcomes achieved and potential impacts of implementation.

Explainer: Accountability supports durable and appropriate translation and implementation processes. Accountability involves being transparent in the process of implementation (e.g., where traditional knowledge was sourced, how it was adapted). It includes consideration of potential risks and benefits to patients and other end-users, to practice of the traditional medicine system, to the wider community and to the natural environment. While the translation of traditional knowledge must be informed by consumer needs and behaviours, translation led by experts in traditional knowledge, including practitioners of traditional medicine, can promote accountable translation by maintaining safety and efficacy in application.

Challenges can be presented by competing interests in the different sectors that shape traditional knowledge use, interest, and acceptance in health care (i.e., corporate/commercial industry, traditional medicine profession, consumers, academia, education, policy). Practice, education, research, and policy all shape the evolution of traditional medicine systems. Within these contexts, the integrity of traditional medicine systems can be upheld through comprehensive, systematic, and transparent evaluation, even in cases of differing interpretations. Contemporary resources such as internet technology can support such transparency by providing avenues for accessible information sharing about traditional knowledge use.

Guiding principle 2: IMPORTANCE OF FOUNDATIONAL ASSESSMENT OF TRADITIONAL KNOWLEDGE

Undertake the foundational work of exploring and preparing traditional knowledge to respond to the contemporary context before implementation.

Explainer: Exploring and preparing traditional knowledge for implementation in contemporary settings can be complex. However, if these early stages of exploration and preparation are executed well, implementation and sustainment of appropriate use are likely to be more successful. Foundational assessment can involve exploring traditional knowledge through critical and historical evaluation of written and documented sources. Such evaluation enables preparation of the knowledge to respond to the contemporary setting regarding social, economic and cultural factors.

While there are internationally accepted definitions for traditional knowledge, each traditional medicine system needs clear definitions and accurate translations of its own traditional knowledge. Without tradition-specific translation, it may be difficult to measure or evaluate whether translation has retained the core characteristics and philosophical roots of the traditional medicine system. Codification with appropriate definitions during the preparation of traditional knowledge would provide measurable evaluation outcomes, particularly in cases of uncommon practices or where diverse practices are encompassed by one traditional medicine system.

Foundational assessment includes identification of needs amongst the patient/consumer population or other relevant stakeholders, and assessment of whether the traditional knowledge can address those needs. Cultural and sociological impacts from the contemporary context such as affordability, accessibility, sustainability, and respect for patient/user choice may need to be considered. As traditional medicine is commonly individualised in clinical practice and often shaped by patient or consumer needs, patient/user-centric approaches to translation may be useful.



GUIDING PRINCIPLE 3: EVOLUTION OF PRACTICE IN LIVING TRADITIONS

Traditional medicine systems are living systems and maintain value within contemporary contexts by undergoing critical evaluation and appropriate evolution over time.

Explainer: Ongoing critique of traditional knowledge determines which knowledge and practices align authentically with the philosophical roots of the traditional medicine system and are appropriate for the contemporary context. Continued engagement with critical evaluation via application of this framework and other relevant tools assists those who use traditional sources to navigate and manage misalignment between traditional knowledge and contemporary settings.

The philosophical integrity of traditional knowledge roots can be retained by ensuring evolution is approached with conscious intention. This can involve leadership from custodians of the traditional knowledge, such as practitioners of the traditional medicine system from which the knowledge arises. Custodians of traditional knowledge may use education, mentorship, and documentation to pass knowledge on to new generations of traditional knowledge experts, and in doing so support the integrity and living nature of the tradition.

Many traditional medicine systems are defined by philosophical principles and paradigms expressed through traditional knowledge. Consequently, the intention of evolution is to retain appropriate core characteristics of the traditional medicine system as applied principles, while associated practices may undergo adaptation, de-implementation, or implementation. Practices arising from traditional knowledge may thus evolve in novel ways in response to changing needs, new technologies or new evidence arising from the population or context.

GUIDING PRINCIPLE 4: PRAGMATIC TRANSLATION TO BALANCE TRADITIONAL PERSPECTIVE AND CONTEMPORARY CONTEXT

Translation of traditional knowledge into the contemporary context requires a pragmatic approach that appropriately bridges traditional philosophy and practice.

Explainer: A pragmatic approach to translation seeks a balance between retention of the core characteristics of the traditional medicine system and adaptation to the contemporary context, while maintaining the effectiveness of the applied knowledge. Balance may be achieved by including guidance from traditional knowledge experts to determine the level of adaptation acceptable within the traditional medicine system to maintain efficacy and safety. Engagement with patients and other stakeholders can assist in determining how much adaptation is required to meet the needs of traditional knowledge end-users (e.g., changes to form of administration, use in self-care or multi-disciplinary settings).

Any translation of traditional knowledge into contemporary contexts may be limited by the constraints of culture and time, making it nearly impossible to replicate the circumstances of historical use in contemporary settings. These constraints need to be considered by those undertaking the knowledge translation process. A pragmatic approach to translation intends to

promote appropriate innovation and evolution of practice and policy without compromising the 'different ways of knowing' inherent to the traditional medicine system.

GUIDING PRINCIPLE 5: PEER-TO-PEER KNOWLEDGE SHARING AND EMPIRICAL OBSERVATION

Empirical evidence from clinical experience is a foundational resource in traditional medicine systems that needs to be shared.

Explainer: While the inheritance of tradition requires transparent accountability to original sources, in line with the nature of being living systems there is also a need for pathways of appropriate evolution. Peer-to-peer knowledge-sharing and empirical observation through clinical experience are characteristic of traditional medicine, historically shaping the development and evolution of traditional medicine systems as living traditions. It is valuable for traditional knowledge stakeholders, particularly clinicians, to share knowledge gained about traditional knowledge translation and implementation from their clinical experience. This peer-to-peer knowledge-sharing allows ongoing evaluation of traditional knowledge at the point of use, incorporating feedback from patients as end-users. This knowledge can be mobilised through multiple formats and education of emerging traditional knowledge users (e.g., published case studies, participatory research). Channels for mobilising such knowledge include:

- Practitioner communities
- Professional associations
- Educational and academic institutions
- Health institutions
- International health organisations
- Special interest groups and non-government organisations
- Policy and government publications



SECTION 2: CRITERIA FOR CRITICALLY APPRAISING TRADITIONAL KNOWLEDGE SOURCES

When selecting traditional knowledge to explore, apply or adapt in contemporary settings, it is important to critically appraise the source of the knowledge and evaluate its suitability for use.

The Framework outlines three key criteria to support critical appraisal of traditional sources, explained in the following sections:

- 1) Authenticity of the traditional knowledge source;
- 2) Consistency of evidence across sources; and
- 3) Safety of the traditional knowledge in the contemporary context.

Each criterion comprises a header, a set of appraisal questions and an explainer.

CRITICAL APPRAISAL CRITERION 1: AUTHENTICITY OF THE TRADITIONAL KNOWLEDGE SOURCE

Appraisal Questions:

Is the knowledge traceable to an authentic traditional source considered reliable within the tradition it arises from (e.g., a traditional text)?

Does the available source present original knowledge, or knowledge that has undergone translation from its original text?

How might the knowledge have been affected during translation?

Explainer: The authenticity of the traditional knowledge can be appraised by evaluating whether the available source of knowledge:

- 1) can be traced to an original traditional source trusted within the tradition, and
- 2) is consistent with traditional applications of the knowledge.

This ensures that information is not treated as traditional knowledge when it has in fact been influenced or adapted in a manner inconsistent with the traditional medicine system, or incorrectly translated from its original source (e.g., errors during translation across different languages, cultures, or contexts). Authenticity also supports appropriate evolution of traditional knowledge to the contemporary context without compromising the philosophical integrity of the knowledge.

Different traditions may have different views on what constitutes an authentic traditional source. Considerations can include consensus of experts and experienced clinicians, the persistence of knowledge over time and transmission through generations, the perceived authority of the author of the text and their scope of practice/jurisdiction, the impact of seminal texts on the broader tradition, and the quality of reasoning or rationale behind the knowledge. Assessment of authenticity may involve a combination of subjective and objective factors, providing additional direction for those using traditional knowledge, particularly when faced with a diversity of sources or perspectives.

CRITICAL APPRAISAL CRITERION 2: CONSISTENCY OF EVIDENCE ACROSS SOURCES

Appraisal Question:

Is the knowledge consistent with other evidence from traditional, empirical and/or scientific sources?

Explainer: Traditional knowledge should be considered within the totality of evidence from various traditional and non-traditional information sources. The quality and reliability of traditional knowledge may be tested through triangulation or comparison with other information sources. Such sources encompass traditional texts from other traditional medicine systems, contemporary scientific studies (including *in vitro* and *in vivo* research), knowledge or information provided by patients and community members, and expert opinions including empirical observations from experienced practitioners. Triangulation between sources within the same traditional medicine system can also be useful, as traditional knowledge may be widely dispersed rather than collated in one source. The totality of evidence should consider the quantity and reliability of evidence, and its relevance to the tradition's philosophy as well as the contemporary context. Sources with a longer history or specific connection to the local culture may be prioritised over more recent or less culturally relevant sources, where appropriate.

CRITICAL APPRAISAL CRITERION 3: SAFETY OF THE TRADITIONAL KNOWLEDGE IN THE CONTEMPORARY CONTEXT

Appraisal Questions:

Is it safe to apply the traditional knowledge in modern/contemporary settings?

Could safety be affected by contextual factors unique to the contemporary setting (e.g., pharmaceutical drugs, differences in modern lifestyles, changes to modern manufacturing processes)?

Explainer: Historical use of traditional knowledge over long periods of time presents a strength and is often used as a proxy for safety. However, critical attention to safety is still important as some traditional knowledge may fail to meet contemporary standards of safety, have historically unknown harms revealed through new evidence, or become unsafe as contextual factors change with time. For example, the emergence of pharmaceutical use and polypharmacy may carry risks of unknown drug or treatment interactions, or traditional medicines produced through modern manufacturing methods may be at risk of contamination. Considerations of safety should include both direct risks of harm from the intervention, and indirect risks from missed opportunities by not engaging with more appropriate or effective care.

SECTION 3: CRITERIA TO GUIDE THE CONTEMPORARY IMPLEMENTATION OF TRADITIONAL KNOWLEDGE

The Framework outlines eight criteria to consider during the adaptation, application, and implementation of traditional knowledge into contemporary settings.

It is important to consider which criteria are applicable to the context at hand. The eight criteria are explained below and include:

- 1) Alignment with the core characteristics of the tradition;
- 2) Person-centred translation;
- 3) Ethical approaches: intellectual property and sociological considerations;
- 4) Tradition-informed communication and framing;
- 5) Accuracy of interpretation;
- 6) Transferability to the contemporary context;
- 7) Accessibility and integrity of traditional resources; and
- 8) Comparative benefit between available traditional and non-traditional approaches.

Each criterion comprises a header, an application question, and an explainer.

The criteria in this section cover concepts that are discrete yet inter-related and may be applied in a non-linear fashion. While some criteria may be more applicable to certain settings and activities, the items should be interpreted together in totality, with no specific criteria considered independently.



APPLICATION CRITERION 1: ALIGNMENT WITH CORE CHARACTERISTICS OF THE TRADITION

Application question:

Is the traditional knowledge being applied in a manner that aligns with the core philosophical and practical characteristics of the tradition?

Explainer: Authentic, effective traditional knowledge implementation requires identification of the core characteristics of the tradition and/or intervention. Core characteristics are the philosophical and practical traits essential to the tradition, in accordance with definitions from within the traditional medicine system itself. Aligning the use of the traditional knowledge with these core characteristics ensures the integrity of the tradition is maintained (e.g., traditional naturopathic knowledge being applied in accordance with the six naturopathic principles, or traditional Chinese acupuncture knowledge being used in keeping with essential qi theory). Philosophical roots may be more important to some traditions than specific treatments or practices when considering alignment during application. Heterogeneity of philosophy and practice may also be considered acceptable and appropriate within some traditions.

APPLICATION CRITERION 2: ETHICAL APPROACHES: INTELLECTUAL PROPERTY AND SOCIOLOGICAL CONSIDERATIONS

Application questions:

Is tradition being respected through ethical engagement with intellectual property?

Have the potential social and cultural impacts of implementation been given consideration?

Explainer: Use of traditional knowledge requires consideration of the ethics surrounding intellectual property rights and potential sociocultural impacts. This is due to complexities surrounding some traditional medicine systems, relating to historical and ongoing colonialism, exploitation, and other forms of knowledge appropriation. Traditional medicine knowledge represents the intellectual property of traditions with long-standing practice, indigenous to different cultures. The intellectual property rights of traditional knowledge custodians necessitate respect and recognition that has not historically been granted by dominant medical and political systems. Trends surrounding the use of some traditional knowledge can have negative or positive social impacts on traditional custodians of the knowledge and those at the source of resource production. Respectful collaboration and liaison with custodians of traditional knowledge may be necessary in some cases, with attention to fairness and justice in partnership. This includes considering when it is and is not culturally appropriate to use a specific source of knowledge (e.g., knowledge held by Indigenous groups).

APPLICATION CRITERION 3: TRADITION-INFORMED COMMUNICATION AND FRAMING

Application question:

Is the traditional knowledge being communicated in a manner that is accessible to the audience and respectful of the traditional medicine system it belongs to?

Explainer: The language, terminology and conceptual framing used to share traditional knowledge or communicate its contemporary use should reflect and respect the philosophy and core traits of the traditional medicine system within which it applies. However, it is also essential that traditional knowledge be communicated in a manner tailored to the contemporary contextual setting (e.g., clinical practice, education, academic, political). Biomedical perspectives can be beneficial and provide pragmatic ways of understanding and translating traditional knowledge. However, traditional knowledge even when it has been empirically authenticated may not be best expressed or maintained using a default biomedical lens. Different ways of knowing have a place in traditional knowledge translation and different language or formats may be required to communicate traditional ways of knowing to different audiences. This may require a balance between the language and terminology of the traditional medicine system and that used by biomedicine or laypeople. For this reason, tradition-informed communication and framing requires a participatory approach to adaptation involving both holders of traditional knowledge and end-users such as patients, students, and policymakers. Such a participatory approach may be strengthened by drawing on extant documents developed or endorsed by leadership from within traditional medicine systems.

APPLICATION CRITERION 4: PERSON-CENTRED TRANSLATION

Application question:

Is the traditional knowledge being applied in a manner consistent with person-centred care or user-centred applications (e.g., holistic approaches that allow for individualised clinical application)?

Explainer: Many traditional medicine systems are characteristically holistic and use individualised, person- or user-centric approaches to diagnosis, delivery, and decision-making. This can be challenging in contemporary contexts as these settings do not always facilitate individualised care and education, shared decision-making, tailored policy, or flexibility in research methods. Collaboration with patients and other end-users may promote person-centric outcomes by identifying unmet health and health care needs as well as sociological factors that could affect or be affected by implementation.

APPLICATION CRITERION 5: ACCURACY OF INTERPRETATION

Application questions:

Is the interpretation of the traditional knowledge reflective of the meaning held in the original source?

Have factors been considered that may affect how accurately the knowledge source is interpreted? (e.g., is translation across languages reliable? Have cultural changes impacted interpretations over time?)

Explainer: Knowledge translation from traditional medicine sources should consider the accuracy of interpretation and account for factors affecting the translation of knowledge across languages, time periods, cultures and different contexts. It is important to strive for an accurate understanding of the source's intended meaning, as closely as possible within the temporal, cultural and linguistic scope of traditional knowledge before the knowledge is adapted or implemented. This relates not only to understanding traditional medicine treatments, but also the conditions or diagnoses being treated.

APPLICATION CRITERION 6: TRANSFERABILITY OF TRADITIONAL KNOWLEDGE TO CONTEMPORARY CONTEXT

Application questions:

Is the traditional knowledge appropriate to the contemporary setting at hand, regarding both practical and cultural needs?

Can the traditional knowledge be adequately adapted to the contemporary setting while retaining safety, efficacy and philosophical integrity?

Explainer: Successful application of traditional knowledge into contemporary settings requires knowledge translation so that the implemented approach is appropriate to the contemporary context. Sociocultural aspects of contemporary context should be considered to determine alignment or mismatch between traditional knowledge and the contemporary context. Transferability of traditional knowledge to contemporary lifestyles, family, gender and community structures, cultural values, changes in biological and pathophysiological factors, geographical location, patient acceptance, and modern quality of care standards all need to be considered. Transferability is also affected by the feasibility and acceptability to the tradition of any adaptations required by the contemporary context. Transferability may be best examined using collaborative approaches involving communication between those who hold traditional knowledge and end-users such as patients, practitioners, community members, educators or policymakers. Collaborative approaches in different settings may include shared decision-making between patients and clinical practitioners, participatory research involving practitioners or policymakers, and other means of integrating stakeholder perspectives.

APPLICATION CRITERION 7: ACCESSIBILITY AND INTEGRITY OF TRADITIONAL RESOURCES

Application questions:

Are the necessary materials, equipment and facilities available?

Can the quality and efficacy of the traditional knowledge and required resources be maintained?

Explainer: Implementation of traditional knowledge in real-world settings requires safe, reliable, ethical, and sustainable access to the required resources (e.g., herbal medicine plant materials or manual therapy tools). Many contemporary factors could potentially impact upon the quality or efficacy of traditional resources (e.g., growing conditions may change herbal phytochemicals, non-traditional manufacturing solvents may alter phytochemistry, or needle manufacturing standards may impact dosing of acupuncture).

These factors should be, where possible, identified, examined, and used to inform adaptations such as changes to dose or preparation methods as required. This may involve investigation of the local and global availability of raw materials, investigation of manufacturing methods, evaluation of social and cultural acceptability, economic accessibility, policy and regulatory limitations, and the impact of climate change and biodiversity loss.

APPLICATION CRITERION 8: COMPARATIVE BENEFIT BETWEEN AVAILABLE TRADITIONAL AND NON-TRADITIONAL APPROACHES

Application questions:

Is there a genuine need that may be addressed by the traditional knowledge?

Can the traditional knowledge provide superior outcomes to existing options, and in what circumstances?

Explainer: When selecting traditional knowledge for implementation, it is important to identify whether a genuine need for the traditional knowledge exists by assessing whether there is relative advantage over available contemporary interventions or practices. This relative advantage may change over time or differ across contemporary contexts (e.g., changes to the availability or accessibility of resources, to the health and disease landscape, or patient preferences and values). There may be opportunities for traditional knowledge implementation in some emerging areas of convergence with modern medicine.
