



Ministry of Health
Malaysia



**RESEARCH PRIORITIES
IN TRADITIONAL AND
COMPLEMENTARY MEDICINE
FOR MALAYSIA
2024 – 2029**



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FOREWORD BY _____

The Minister of Health Malaysia

Traditional and Complementary Medicine (T&CM) has been an integral part of Malaysian healthcare for centuries, providing a rich tapestry of indigenous knowledge and practices. Identifying research priorities in T&CM in Malaysia is both timely and essential for setting future directions and strengthening local research repositories.

Data-driven insights and impactful scientific validation of T&CM will further support its integration with modern healthcare systems, promoting a holistic and patient-centred approach to health for all Malaysians. Prioritisation will encourage researchers and policymakers to channel resources and investments to the highest priority areas, translating research impacts into actions and policies. This will contribute to our broader agenda to elevate T&CM as a reliable medical option, providing Malaysians with comprehensive healthcare choices.

Malaysia is committed to optimising the contribution of T&CM research and development. By transitioning towards evidence and value-based practices, in line with the 12th Malaysia Plan (12MP) National Health Research Priorities, we aim to achieve our healthcare goals through enhanced T&CM research and development.

I sincerely applaud the efforts and commitments of all individuals, institutions, agencies, and professional associations in successfully developing Malaysia's first T&CM research priorities. The prominence of this document will serve as a head start for all researchers and policymakers in advancing T&CM research in Malaysia, thus contributing to our collective goal of a healthier Malaysia, Insha-Allah.

DATUK SERI DR. DZULKEFLY AHMAD



FOREWORD BY _____

The Director-General of Health



Priority setting is a significant concern in any health research project, including research related to T&CM. As the gap between the need for health research and the resources available to fund the research grows, difficult decisions must be made. Hence, the acknowledgment and establishment of priorities are needed to streamline efforts, support evidence-based healthcare, and optimise the integration of T&CM into the national healthcare system.

The Ministry of Health (MOH) is committed to high-quality research priority-setting activities to target research with the most significant public health values, hence the need for an agreement on what is required to enhance T&CM in Malaysia. I am proud of the collaborative efforts seen in this project, which most definitely defies the concerns of working in silo. I applaud the transparency and unified approach taken through the involvement of industry experts and stakeholders to establish a direction for T&CM research in Malaysia.

Finally, I extend my sincere gratitude and congratulations to the T&CM Division and the National Institutes of Health (NIH), MOH, for their unwavering commitment and hard work in developing the Research Priorities in T&CM for Malaysia. I hope that the publication of Malaysia's first research priorities for T&CM will be a great stepping stone and an encouragement to all the potential researchers in the field of T&CM to embark on a journey of strengthening the wealth of evidence for T&CM in Malaysia.

DATUK DR. MUHAMMAD RADZI ABU HASSAN

FOREWORD BY _____

The Director of Traditional and Complementary Medicine Division



Research is critical to improving patient outcomes and healthcare quality. Malaysia acknowledges the importance of embracing evidence and value-based practice, notably. To further strengthen and align the direction of T&CM research in Malaysia, the T&CM Division, in collaboration with the Sector for Evidence-Based Healthcare, NIH, initiated the development of research priorities in T&CM for Malaysia with a primary objective to put forward directions for T&CM research in Malaysia, create an impact by addressing the existing gaps and gathering sufficient body of evidence for the advancement of T&CM in Malaysia.

The methodology of development of this framework was adopted from the Health Research Priorities for 12th Malaysia Plan (12MP-HRP) 2021 – 2025, as well as health system attributes contributing to the integration of T&CM to achieve Universal Health Coverage (UHC) by the World Health Organization (WHO).

Following the constructive feedback and multiple engagements with our diverse group of stakeholders, we have successfully narrowed the Research Priorities in T&CM for Malaysia to focus exclusively on three research domains, namely T&CM practice evaluation, T&CM product development, innovation and education needs for T&CM in Malaysia. While developing this document, we have made the best efforts to ensure that it is inclusive and responsive to the needs of stakeholders from various agencies whilst maintaining relevance to address the regulatory requisites for advancing T&CM in Malaysia.

Finally, we hope this document can guide policymakers, researchers, T&CM practitioners, academicians, and grant holders regarding funding considerations for enhancing evidence-based and value-based driven strategies for T&CM in Malaysia.

DR. GOH CHENG SOON

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The Primary Working Team (PWT) would like to extend sincere appreciation to everyone who has contributed ideas, comments and suggestions throughout the process and development of this document:

- The Director-General of Health Malaysia for his great support and encouragement in the development of the Research Priorities in T&CM for Malaysia (2024 – 2029);
- The Deputy Director General of Health (Medical) and the Deputy Director General of Health (Research and Technical Support) for their continuous support and counsel;
- The Head of Sector for Evidence-Based Healthcare, National Institutes of Health and her team for their all-time guidance and advice while preparing this document;
- All the T&CM experts and our stakeholders from institutes/divisions for contributing their key inputs, comments, and suggestions regarding industry needs;
- Professor Vivian Lin, Executive Associate Dean (Strategy and Operations) and Professor of Public Health Practice, Li Ka Shing Faculty of Medicine, The University of Hong Kong, for her invaluable insights and review of this document.






Executive Summary

The development of research priorities in T&CM for Malaysia reflects the government’s recognition of the need for evidence-based integration of T&CM within the national healthcare system. Over the years, Malaysia has focused on enhancing the scientific understanding of traditional practices such as Malay medicine, Chinese medicine, Indian medicine, and other practices like homeopathy, chiropractic, osteopathy and Islamic medical practices. The MOH plays a significant role in driving this agenda, aligning with global trends towards integrating T&CM with modern healthcare to improve patient outcomes.

In this document, the development of research priorities for T&CM was guided by the information and directions related to the 12MP-HRP 2021–2025⁽¹⁾, as well as health system attributes contributing to the integration of T&CM to achieve UHC by WHO⁽²⁾, and followed a structured process of reviewing the evidence and needs by situational analyses, and stakeholder engagements. The key research domains focus on T&CM practice evaluation, T&CM product development, innovation, and education needs of T&CM (Table 1). Each identified domain is vital for advancing T&CM in Malaysia, enhancing integration into modern healthcare, and improving the quality, safety, and efficacy of T&CM practices and products.

Table 1. Research Priorities in T&CM for Malaysia

RESEARCH DOMAIN	RESEARCH SCOPE
 T&CM Practice Evaluation	T&CM practice demand and delivery Quality of T&CM practices Health care financing Integration of T&CM services with modern medicine Regulations related to T&CM practices and facilities Traditional knowledge among indigenous and local communities in Malaysia
 T&CM Product Development	Demand and supply of T&CM products that are used in Malaysia Effectiveness and safety of T&CM products Standardisation and quality control of T&CM products Regulations related to T&CM products Natural products with therapeutic claims
 Innovation and Education Needs of T&CM	Health literacy among public and healthcare personnel related to the T&CM industry Quality and competency of the T&CM industry Innovation and technology



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List of Abbreviations

AIDS	Acquired Immunodeficiency Syndrome
CD	Communicable Diseases
COVID-19	Coronavirus Disease
DCA	Drug Control Authority
GlobinMed	Global Information Hub on Integrated Medicine
HIS	Health Information System
HRP	Health Research Priority
HIV	Human Immunodeficiency Virus
ICH	International Council for Harmonisation of Technical Requirements for Pharmaceuticals for Human Use
ILI	Influenza-Like-Illness
KAP	Knowledge, Attitude and Perception
M&E	Monitoring and Evaluation
MyTKDL	Malaysia Traditional Knowledge Digital Library
MOH	Ministry of Health
12-MP	12th Malaysia Plan
M&E	Monitoring and evaluation
NKEA	National Key Economic Area
NCD	Non-communicable Diseases
OECD	Organization for Economic Co-operation and Development
PWT	Primary Working Team
SARI	Severe Acute Respiratory Infection
T&CM	Traditional and Complementary Medicine
TCM	Traditional Chinese Medicine
TIM	Traditional Indian Medicine
TK	Traditional Knowledge
TMM	Traditional Malay Medicine
UHC	Universal Health Coverage

Glossary

Active ingredients

Active ingredients refer to constituents with known therapeutic activity, when they have been identified. Where it is not possible to identify the active ingredients, the whole herbal medicine may be considered as one active ingredient. Therapeutic activity refers to the successful prevention, diagnosis and treatment of physical and mental illnesses; improvement of symptoms of illnesses, as well as beneficial alteration or regulation of the physical and mental status of the body.⁽³⁾

Communicable diseases

Communicable diseases are diseases that are contagious, including food and water-borne diseases, vaccine-preventable diseases, viral hepatitis, vector-borne diseases, tuberculosis/leprosy, sexually transmitted infections, zoonosis, viral encephalitis, and emerging diseases.^(1,4)

Finished herbal products

Finished herbal products consist of herbal preparations made from one or more herbs. If more than one herb is used, the term “mixture herbal product” can also be used. Finished herbal products and mixture herbal products may contain excipients in addition to the active ingredients. However, finished products or mixture herbal products to which chemically defined active substance have been added, including synthetic compounds and/isolated constituents from herbal materials, are not considered to be herbal.⁽³⁾

Herbs

Herbs include crude plant material such as leaves, flowers, fruit, seeds, stems, wood, bark, roots, rhizomes or other plant parts, which may be entire, fragmented or powdered.⁽³⁾

Herbal materials

Herbal materials include, in addition to herbs, fresh juices, gums, fixed oils, essential oils, resins and dry powders of herbs. In some countries, these materials may be processed by various local procedures, such as steaming, roasting, or stir-baking with honey, alcoholic beverages or other materials.⁽³⁾

Herbal medicine

A plant-derived material or preparation with therapeutic or other human health benefits which contains either raw or processed ingredients from one or more plants. In some traditions, materials of inorganic or animal origin may also be present.⁽⁵⁾

Herbal preparations

Herbal preparations are the basis for finished herbal product and may include comminuted or powdered herbal materials, or extracts, tinctures and fatty oils of herbal materials. They are produced by extraction, fractionation, purification, concentration, or other physical or biological processes. They also include preparations made by steeping or heating herbal materials in alcoholic beverages and/or honey, or in other materials.⁽³⁾

Natural products

Products consist solely of one or more naturally occurring substances of a plant, animal or mineral, of parts thereof. The Malaysian regulations on natural products include traditional medicines, herbal products, homeopathic medicines, and natural products with therapeutic claims.⁽⁶⁾

Non-communicable diseases

Non-communicable diseases that include cancer, metabolic diseases, cardiovascular diseases, respiratory diseases, endocrine diseases, gastrointestinal diseases, neurodegenerative diseases, genitourinary diseases, and mental health disorders.^(1,7)

Prohibited herb

Prohibited/banned ingredients that include botanicals (and botanical ingredients) containing scheduled poisons listed under the Poison Act 1952, botanicals (& botanical ingredients) banned due to reported adverse event, botanicals known or suspected to contain aristolochic acid, botanicals that may be adulterated with aristolochic acid and ingredients (botanicals and substance derived from animals) banned due to safety reasons.^(3,9)

Raw/Crude herbal materials

Minimally processed (usually only collection, washing, drying, and sometimes cutting) leaves, flowers, fruits, seeds, stems, wood, bark, roots, rhizomes or other plant parts.^(3,8)

Therapeutic claims

A claim that is not documented in established pharmacopoeia or monographs, or a claim which is not the traditional use of the ingredient. It may include corroboration and verification of traditional use to relieve a symptom or help to treat a disease, disorder or medical condition, and it must be substantiated by scientific evidence.⁽⁹⁾

T&CM practice

A form of health-related practice designed to prevent, treat or manage ailment or illness or preserve the mental and physical well-being of an individual and includes such practices as traditional Malay medicine, traditional Chinese medicine, traditional Indian medicine, Islamic medical practice, homeopathy and complementary therapies, but excludes medical and dental practices used by a medical and dental practitioner respectively.⁽¹⁰⁾

T&CM product

T&CM product in this document refers to raw/crude herbal materials, herbs, herbal materials, herbal preparations and finished herbal product.^(3,5,8)

Traditional knowledge

Traditional knowledge is knowledge, know-how, skills and practices that are developed, sustained and passed on from generation to generation within a community, often forming part of its cultural or spiritual identity. Traditional knowledge can be found in a wide variety of contexts, including: agricultural, scientific, technical, ecological and medicinal knowledge as well as biodiversity-related knowledge.⁽¹¹⁾

Traditional medicine

Traditional medicine refers to any product used in the practice of indigenous medicine in which the drug consists solely of one or more naturally occurring substances of a plant, animal or mineral, of parts thereof, in the unextracted or crude extract form, and homeopathic medicine. It shall not include any sterile preparation, vaccine, any substance derived from human parts, any isolated and characterized chemical substances.⁽¹²⁾

Traditional preparation of medicinal materials

Extemporaneous preparation of traditional medicinal materials (plants, animal/mineral origin) as per traditional records/instructions (e.g. books/pharmacopoeia), which is prescribed by certified traditional medicine practitioners directly to the patients for recommended indication(s), within recommended dose, and according to established diagnosis and management plan.⁽¹²⁾

CHAPTER 1

INTRODUCTION

- 1.1 Background
- 1.2 Research Priorities
in T&CM for Malaysia

1.0 INTRODUCTION

1.1 > Background



Establishing research priorities in T&CM for Malaysia is a critical milestone for the advancement of the sector, aligning with key national and international frameworks such as the WHO Traditional Medicine Strategy 2014–2023, the National Policy on T&CM 2007, and the T&CM Blueprints.⁽¹³⁻¹⁶⁾

T&CM plays an essential role in the country's healthcare landscape. However, despite the prevalence of T&CM, there is a lack of coordinated and evidence-based research to validate the safety, efficacy, and quality of these practices and products. This necessitates the development of research priorities to address the increasing demand for scientifically backed information that can support policy-making and healthcare integration.

One of the primary challenges of T&CM research in Malaysia is the fragmented and unplanned nature of previous research efforts, which have been

conducted by various governmental and non-governmental agencies, academic institutions, and individual researchers. This scattered approach has made it difficult to create a cohesive research agenda that can effectively inform public health policies. Additionally, most research on T&CM in Malaysia has focused on herbal products rather than on T&CM practices, leaving significant gaps in understanding the broader scope of T&CM. Therefore, clear research priorities are needed to streamline efforts, support evidence-based healthcare, and optimise the integration of T&CM into the national healthcare system.

1.2 > Research Priorities in T&CM for Malaysia

A systematic process was undertaken to develop Malaysia's first T&CM research priorities. The process involved an extensive literature review, situational analyses, and stakeholder engagements, to identify their perceived priorities and develop the key research domains that would drive the future direction of T&CM research in Malaysia. The finalised research priorities in T&CM for Malaysia included:

T&CM Practice Evaluation: This domain focuses on assessing the effectiveness and safety of T&CM practice, understanding the demand and delivery of services, and evaluating the integration of T&CM with modern medicine.

T&CM Product Development: This area emphasises the development, standardisation, and quality control of T&CM products, including

regulations and the effectiveness of natural products with therapeutic claims.

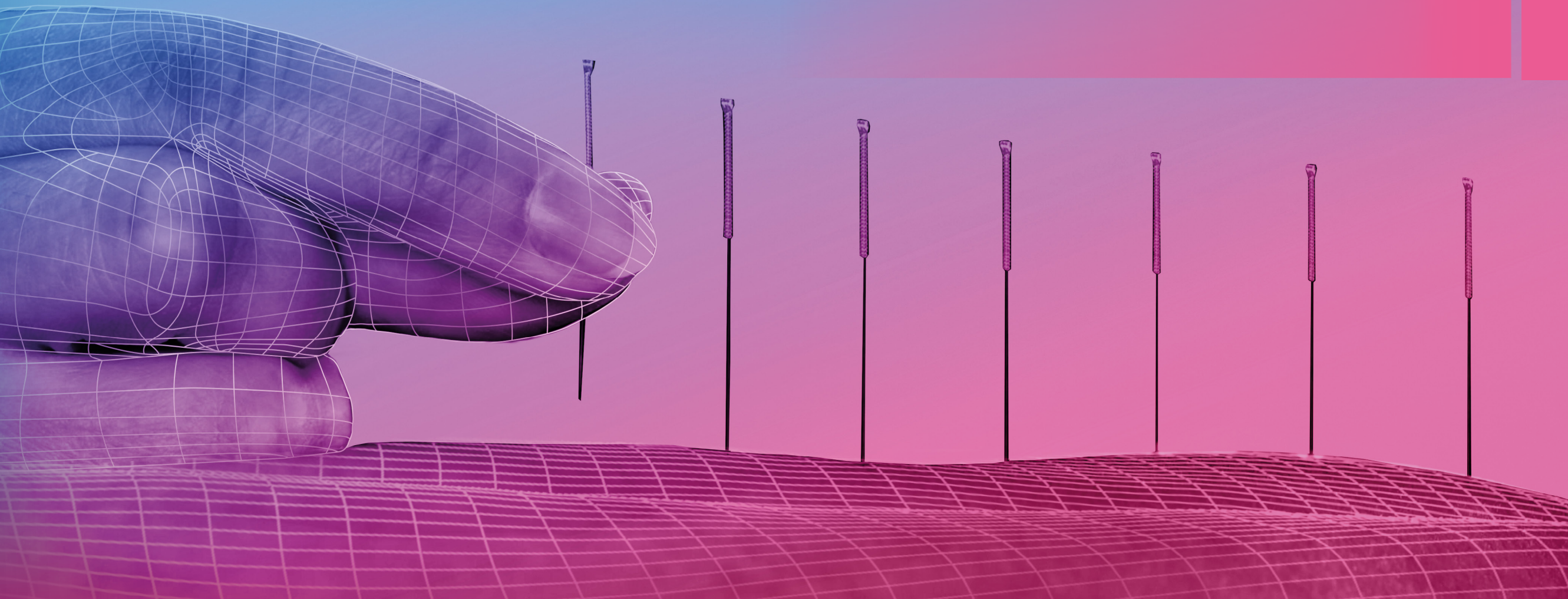
Innovation and Education Needs of T&CM: This domain addresses the need for innovation in T&CM, improving health literacy among the public and healthcare personnel, and enhancing the quality and competency of the T&CM industry.

By addressing these priorities, Malaysia can develop a robust T&CM sector that complements modern medicine, meets public health needs, and contributes to the country's healthcare system. Each domain plays a critical role in shaping the future of T&CM in Malaysia, ensuring it is evidence-based and safe. This will position Malaysia as a centre for excellence in T&CM research while paving the way towards achieving UHC for T&CM in Malaysia.

CHAPTER 2

METHOD

- 2.1 Development of Research Priorities in T&CM for Malaysia
- 2.2 Monitoring and Evaluating Research Priorities in T&CM for Malaysia



2.0 METHOD

2.1 > Development of Research Priorities

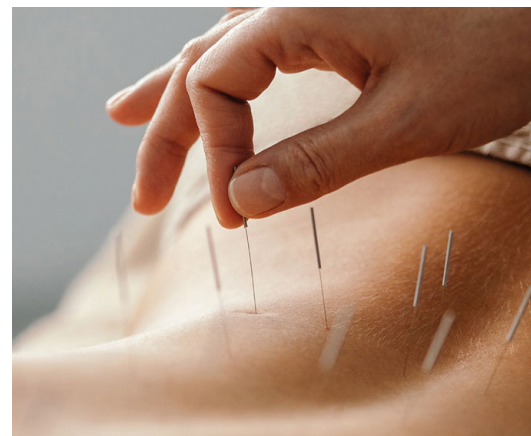


A structured and systematic methodology guided the development of research priorities in T&CM for Malaysia. The main method and workflow employed in establishing the priorities were adopted from the methodology used by the NIH and MOH in developing the 12MP-HRP 2021–2025.⁽¹⁾ This approach was crucial to ensuring that the identified research priorities were aligned with the national healthcare agenda, the needs of stakeholders, and the global health context. The methodology integrated evidence-based strategies with stakeholder engagement to ensure inclusivity, transparency, and comprehensiveness.

The review covered a variety of research formats, including primary studies, surveys, systematic and scoping reviews, pre-clinical studies (in vitro and in vivo), randomised controlled trials, and clinical trials. To enhance the prioritisation of research domains and address gaps, the Delphi method was employed as a systematic approach to gather expert consensus on key research areas.

2.1.1 > Pre-Prioritisation

The formation of a PWT was the first step in organising and executing the development of research priorities in T&CM for Malaysia. Once the PWT was established, the next step was to pre-identify areas in T&CM that required research. Pre-identification of research areas ensures that the PWT's efforts are focused and aligned with the most pressing needs within the context of T&CM in Malaysia. This process involved understanding the present gaps in knowledge, practices, or policies related to T&CM in Malaysia, including gaps in emerging health trends and under-researched T&CM practice.



2.1.2 > Research Area Identification

The next phase involved a detailed search of existing studies and identifying research gaps. This step is critical to ensure the research priorities are grounded in evidence and address the most pressing gaps. To achieve this, the methodology employs Evidence Gap Maps, a tool that visually identifies areas where evidence is lacking or where more research is needed.⁽¹⁷⁾ Key activities in this phase included:

Reviewing Policy Documents: Policy documents related to T&CM were reviewed to understand the current regulatory system, the existing body of knowledge, and areas requiring further investigation.

Engaging Stakeholders: A survey and several brainstorming sessions were conducted with all relevant policymakers, academicians, and T&CM industry experts to identify and discuss the current gaps and evidence relevant to T&CM in Malaysia to be incorporated into each research domain (Annex 1). Subsequently, input on the research areas and topics suggested by the stakeholders was incorporated into a master list and thematically arranged according to the specific gaps that needed to be addressed to strengthen the T&CM research landscape in Malaysia (Figure 1).

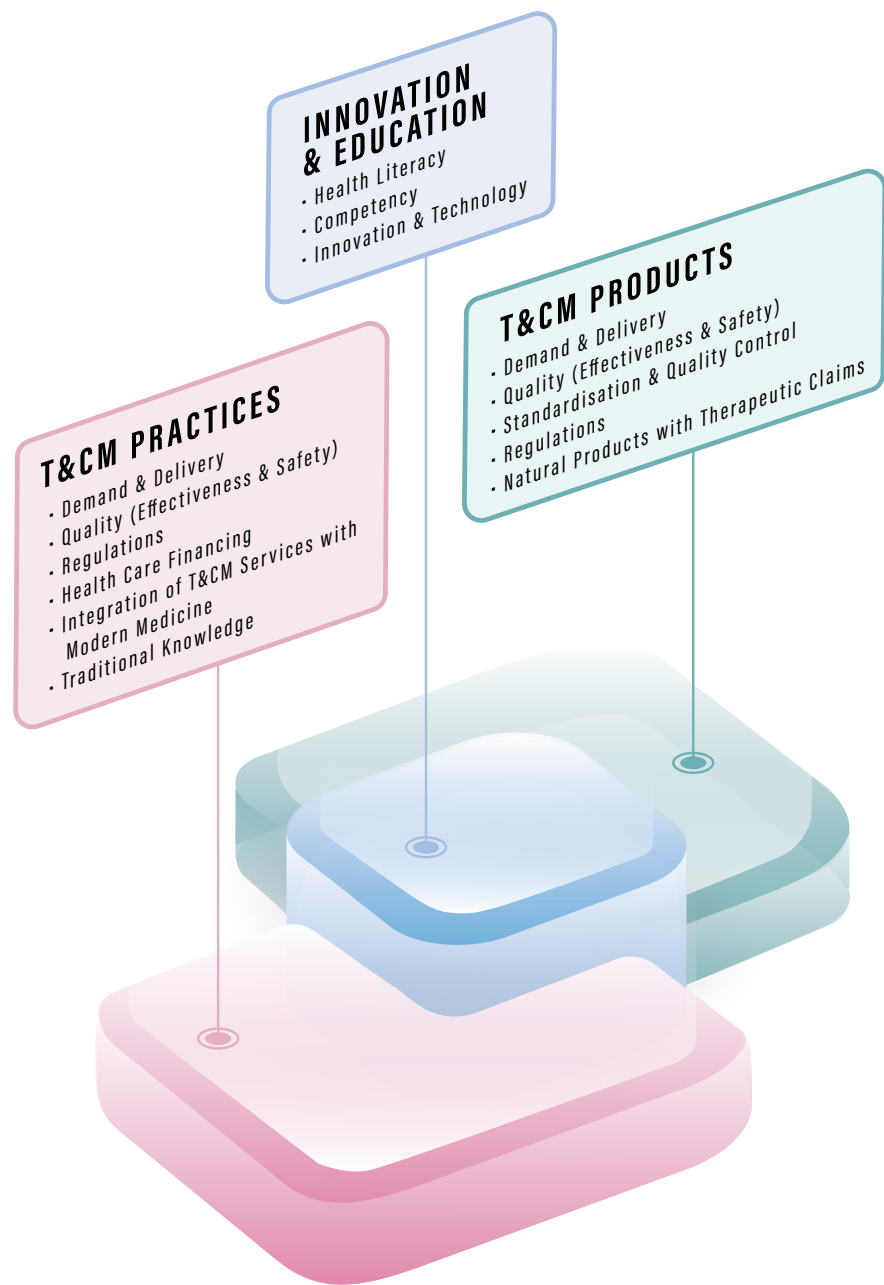


Figure 1. Graphic Illustration of Priority Research Areas Identified through the Databases Search and Stakeholders' Input



2.1.3 > Scoring, Ranking and Validation

Once the relevant studies and gaps were identified, the next step was to code, critically appraise, rank, and validate the research priorities. This step ensured the selected research areas were relevant, scientifically feasible, and aligned with the national health priorities. Key activities during this phase included:

Identifying Research Areas for Evidence Gap Maps: The PWT systematically identified the most critical areas for T&CM research in Malaysia. Evidence Gap Maps were used to categorize and assess the strength of existing evidence in identified areas.






Prioritisation Criteria: The priority ranking criteria used in this document were adopted from 12MP-HRP 2021–2025. These criteria include public importance, the gap in knowledge, scientific

feasibility, economic impact, curative versus preventive, and critical needs for each identified research scope (Table 2).⁽¹⁾ By applying these criteria, the methodology ensured that the research priorities were relevant, feasible, and impactful.

Ranking Exercise: To prioritise the identified research areas, stakeholders were subsequently engaged in a ranking exercise. For each criterion, the stakeholders had to answer three simple questions (Table 2). The scores given by the stakeholders (1=Yes and 0=No) were added, and an overall average score was calculated for each focus area. The suggested focus areas were then ranked within the respective research domains according to their average scores.

Validation: The identified research priorities were validated through multiple stakeholder engagements until saturation. This ensured transparency and that all stakeholders accepted and endorsed the identified priorities.

Table 2. Criteria for Prioritisation of T&CM Research Areas

CRITERIA	QUESTIONS
 Public Importance	Q1: Does the research area respond to public concern or demand? Q2: Does this research have an impact on the health of the population? Q3: Does this have an impact on the country's overall development?
 Gap in Knowledge	Q1: Does the research's magnitude bridge the knowledge gap in the target population or issue? Q2: Do the research findings cover the population issue? Q3: Does the gap closure enable changes in policy documents for the country?
 Scientific Feasibility	Q1: Are there sufficient research capability and capacity to confidently address the issue? Q2: Will the research lead to the development of new scientific knowledge and/or adaptation of knowledge to various national contexts? Q3: Are there means available to ensure that any benefit arising from the research as a particular issue can be translated into desired (health) outcomes?
 Economic Impact	Q1: How much does research in this area contribute to greater equity in health in socio-demographic terms, economic status, health service access/delivery, gender, etc.? Q2: Will the planned research topic provide significantly more cost-effective interventions than existing ones? Q3: Will the research outcomes benefit the country economically?
 Curative versus Preventive and Critical Need	Q1: Does the research area aim to prevent healthy persons from becoming ill rather than to cure people who are ill (adopt healthy and responsible lifestyles before their lifestyle-associated risk exposure requires cure)? Q2: Does the research improve the overall management of the disease? Q3: Will the research be able to change the management documentation of the disease/issue?



2.1.4 > Endorsement and Publication

The final results were presented to the stakeholders for consensus. The final document was published on the T&CM Division website to ensure the research outcomes are accessible to the general public. The PWT shall consider establishing a mechanism to enhance the dissemination strategy to maximize awareness and facilitate the uptake of research findings.

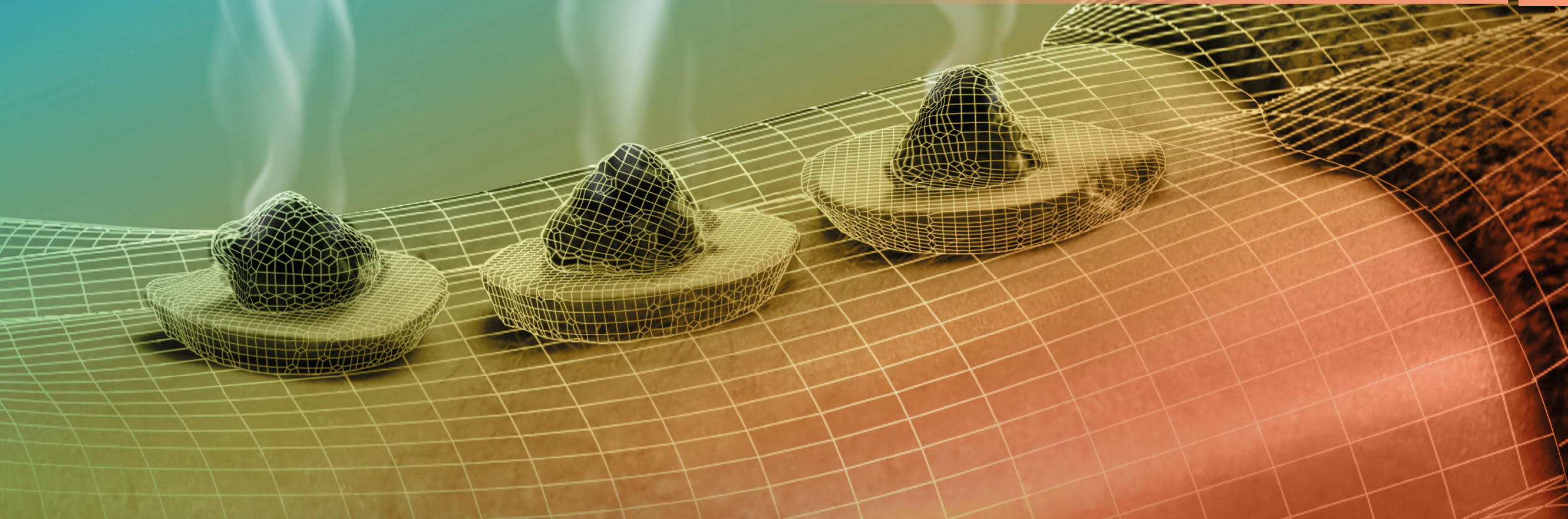
2.2 > Monitoring and Evaluating of the T&CM Research Priorities

Monitoring and evaluation (M&E) ensure that identified and prioritised research activities achieve their objectives and intended outcomes. It will help determine if the research priorities align with national health needs or if a review is necessary to ensure that the identified T&CM priorities are on track to contribute to the broader healthcare demands. Acknowledging the unavailability of a central T&CM research database in Malaysia, the PWT will, in its best efforts, identify a suitable mechanism to assess the progress and uptake of the prioritised research activities on T&CM.

CHAPTER 3

T&CM PRACTICE EVALUATION

- 3.1 Introduction
- 3.2 Evidence Map for T&CM Practice Evaluation
- 3.3 Limitation for T&CM Practice Evaluation
- 3.4 Priority Areas for T&CM Practice Evaluation



3.0 T&CM PRACTICE EVALUATION

3.1 > Introduction

T&CM practice evaluation is critical for understanding the effectiveness, safety, and overall impact of various T&CM modalities on public health. The research priorities within this domain aim to assess current practices to ensure that they meet acceptable standards of care and contribute positively to patient outcomes.




Due to the vast scope of practices, the literature review for this domain focused on the seven recognised practice areas under Malaysia's T&CM Act 2016 (Act 775), which include traditional Malay medicine (TMM), traditional Chinese medicine (TCM), traditional Indian medicine (TIM), homeopathy, chiropractic, osteopathy, and Islamic medical practices. Six key research scopes were identified in this domain:

- T&CM practice demand and delivery;
- Quality of T&CM practice;
- Health care financing;
- Integration of T&CM services with modern medicine;
- Regulations related to T&CM practice and facilities; and
- Traditional knowledge among indigenous and local communities in Malaysia.

The research areas for communicable diseases (CD), non-communicable diseases (NCD) and oral health diseases that were included in this review were in accordance with the research areas prioritised in the 12MP-HRP 2021–2025 (Table 3).^(1,4,7)



Table 3. Indicative Areas for T&CM Research Priorities

RESEARCH AREA	INDICATIVE PRIORITIES FOR RESEARCH
 Communicable Diseases	Coronavirus Disease (COVID-19) Pneumonia/Influenza-Like-Illness (ILI)/Severe Acute Respiratory Infection (SARI) Dengue Mycobacterial Diseases Hepatitis Human Immunodeficiency Virus (HIV)/Acquired Immunodeficiency Syndrome (AIDS) Melioidosis Malaria Vaccine-preventable bacterial disease (e.g., measles, diphtheria, pertussis, rabies, pneumococcal) Leptospirosis Viral Haemorrhagic Fever None-dengue Arthropod-borne viruses
 Non-communicable Diseases	Endocrine and metabolic diseases Cardiovascular diseases Neurodegenerative diseases Cancer Maternal health issue Tobacco Mental health disorders (e.g., anxiety, depression, stress, insomnia, addiction)
 Oral Health Diseases	Dental caries Periodontal condition Soft and hard tissue lesions Molar-Incisor Hypomineralization (MIH) Facial and dental trauma Oral health problems related to occupational and handicapping dentofacial anomalies Oral cancer

3.2 > Evidence Map for T&CM Practice Evaluation

Literature on the utilisation, delivery, effectiveness, safety, financing, and integration of T&CM with modern medicine was reviewed. Key focus areas included policies, regulations, guidelines, health financing, and the integration of T&CM within national health systems.

Systematic searches retrieved a total of 36,481 records. After removing duplicates, 10,774 records were screened, and 5,135 were found relevant. Of these, 4,404 records were included in the final review (Figure 2 and Table 4).

3.4 > Priority Areas for T&CM Practice Evaluation

COLOR REFERENCE FOR RANK

1 - 3	4 - 6	7 - 9	≥10
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NO.	RESEARCH SCOPE	GAPS & NEEDS (RATIONALE)	FOCUS AREA	EXPECTED OUTPUT	RANK
1	T&CM practice demand and delivery	Lack of national baseline data on T&CM practice evaluation in Malaysia on recognised practice areas: • TMM • TCM • TIM • Homeopathy • Chiropractic • Osteopath • Islamic medical practices	Evaluation of T&CM practice in recognised practice areas on: • utilisation of T&CM services as a complementary treatment for communicable diseases (CD), non-communicable diseases (NCD), and oral health diseases • health human resource (e.g., to study T&CM workforce from various aspects) • accessibility and affordability (e.g., to assess the geographical distribution of T&CM facilities and factors influencing access to T&CM services)	1. Policy: Evidence and/or value-based medicine data-driven strategies for T&CM services expansion within the national healthcare system. 2. Digitalisation of T&CM practice: • Centralized Health Information System (HIS) • Global Information Hub on Integrated Medicine (GlobinMed) website • Malaysia Traditional Knowledge Digital Library (MyTKDL)	1
			Study of T&CM-recognised practice areas on health-seeking behavior among the public to explore utilisation, acceptance, and reasons for seeking T&CM services		5
		Limited research related to the unrecognised practices	Expansion of recognised T&CM practice area regulated under Act 775	17	

NO.	RESEARCH SCOPE	GAPS & NEEDS (RATIONALE)	FOCUS AREA	EXPECTED OUTPUT	RANK
2	Quality of T&CM practice	Limited research on the effectiveness, safety, and quality of T&CM services under recognised practices area	Study on evaluating the effectiveness and safety of T&CM in recognised practice areas: • As complementary treatment for CD and NCD • In preventing and treating emerging diseases	1. Policy: Evidence and/or value-based medicine data-driven strategies for T&CM services expansion within the national healthcare system 2. Establish scientific evidence to support the utilisation of T&CM practice and the development of practice guidelines	2
			Studies on standard management and effectiveness of T&CM practice include treatment regime and duration (intervention, dosing/therapy regimen, monitoring, and outcome measures)		3
			Study of adverse events related to T&CM practice		4
3	Health care financing	Limited availability of T&CM economic data in recognised practice areas and T&CM products	Economic evaluation of T&CM practice, services, and products, which involves assessing the costs, benefits, and overall value of recognised practice areas across public and private sectors	1. Provide valuable insights into the costs and benefits of T&CM services 2. Assist decision-making about resource allocation by identifying interventions that provide good value for money	11
			Study on the public's willingness-to-pay or out-of-pocket spending for T&CM services		13
			Study on the public's willingness-to-pay or out-of-pocket spending for T&CM services	3. Determine the financial burden of T&CM on patients, health care systems, and society	15
			Public perception study on the demand for health insurance for T&CM services and products	Findings can be used to justify the need for health insurance schemes for T&CM services	16
			Study on the willingness of insurance companies to offer health insurance for T&CM services and practitioners		12
		T&CM services are not covered by most health insurance schemes, and No liability and indemnity coverage for T&CM practitioners			

> Priority Areas for T&CM Practice Evaluation (cont.)

COLOR REFERENCE FOR RANK

1 - 3	4 - 6	7 - 9	≥10
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NO.	RESEARCH SCOPE	GAPS & NEEDS (RATIONALE)	FOCUS AREA	EXPECTED OUTPUT	RANK
4	Integration of T&CM services with modern medicine	Lack of information regarding the integration of T&CM practice with modern medicine	Study on evaluation of integration of T&CM service delivery in Malaysia across public and private sectors <ul style="list-style-type: none"> • Study to identify gaps and challenges in integration and continuity of care between modern medicine and T&CM services • Conduct implemental research on pre-existing integrated services • Study on perception and acceptance of health care workers/patients/public towards integration of modern medicine and T&CM practice 	Establish evidence to support T&CM practice to be integrated into the standard of care: <ul style="list-style-type: none"> • Governance • Legislation • Administrative and human resource • Finance • Management of quality of service 	9
5	Regulations related to T&CM practice and facilities	Lack of baseline data and evidence to facilitate policy formulation and policy support	Evaluate the implementation, compliance, and effectiveness of regulatory measures, e.g., act, regulations, frameworks, and guidelines related to T&CM in Malaysia	1. Monitoring and evaluation (M&E) for strengthening and revising the existing policy 2. Policy development for registered medical practitioners to be able to prescribe T&CM treatment 3. Amendments of present acts and regulations related to T&CM	8
6	Traditional knowledge (TK) among indigenous and local communities in Malaysia	Lack of baseline data, evidence, and erosion of TK among indigenous and local communities in Malaysia	Study on TK of indigenous and local communities in Malaysia	Establish evidence to strengthen efforts to preserve and conserve TK and resources	7
			Study on the utilisation of the biological resources based on TK among indigenous and local communities in Malaysia		6



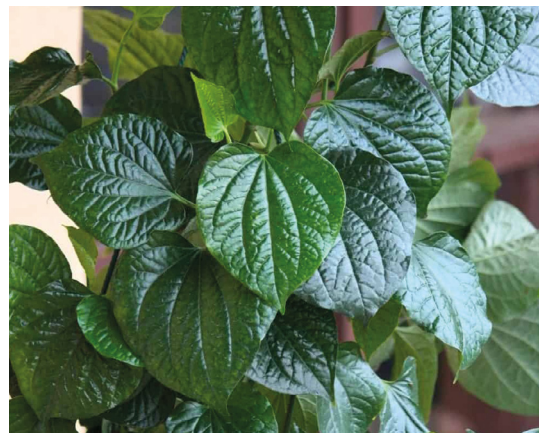
CHAPTER 4

T&CM PRODUCT DEVELOPMENT

- 4.1 Introduction
- 4.2 Evidence Map for T&CM Product Development
- 4.3 Limitation for T&CM Product Development
- 4.4 Priority Areas for T&CM Product Development

4.0 T&CM PRODUCT DEVELOPMENT

4.1 > Introduction



The domain of T&CM product development focuses on the research and development of natural products, including herbal medicines, that are widely used in traditional healing practices. This area is critical because T&CM products are often consumed as part of therapeutic regimens, and ensuring the safety, efficacy, and quality of these products is a key concern for public health authorities in Malaysia.

Five key research scopes were identified in this domain, including:

- Demand and supply of T&CM products in Malaysia;
- Effectiveness and safety of T&CM products;
- Standardisation and quality control of T&CM products;
- Regulations related to T&CM products; and
- Natural products with therapeutic claims.

4.2 > Evidence Map for T&CM Product Development

The review focused on studies related to the demand and supply of T&CM products in Malaysia, their effectiveness, safety, standardisation, and quality control, as well as prohibited herbs and natural products with therapeutic claims, both locally and internationally. The goal was to gather evidence for scientific-based strategies to expand T&CM product use in Malaysia's healthcare system.

Systematic searches retrieved a total of 5,503 records. After removing duplicates, 4,729 records were screened. Of these, 2,974 records were considered potentially relevant and further screened based on inclusion and exclusion criteria. Ultimately only 2,806 records were included in the final review (Figure 3 and Table 5).

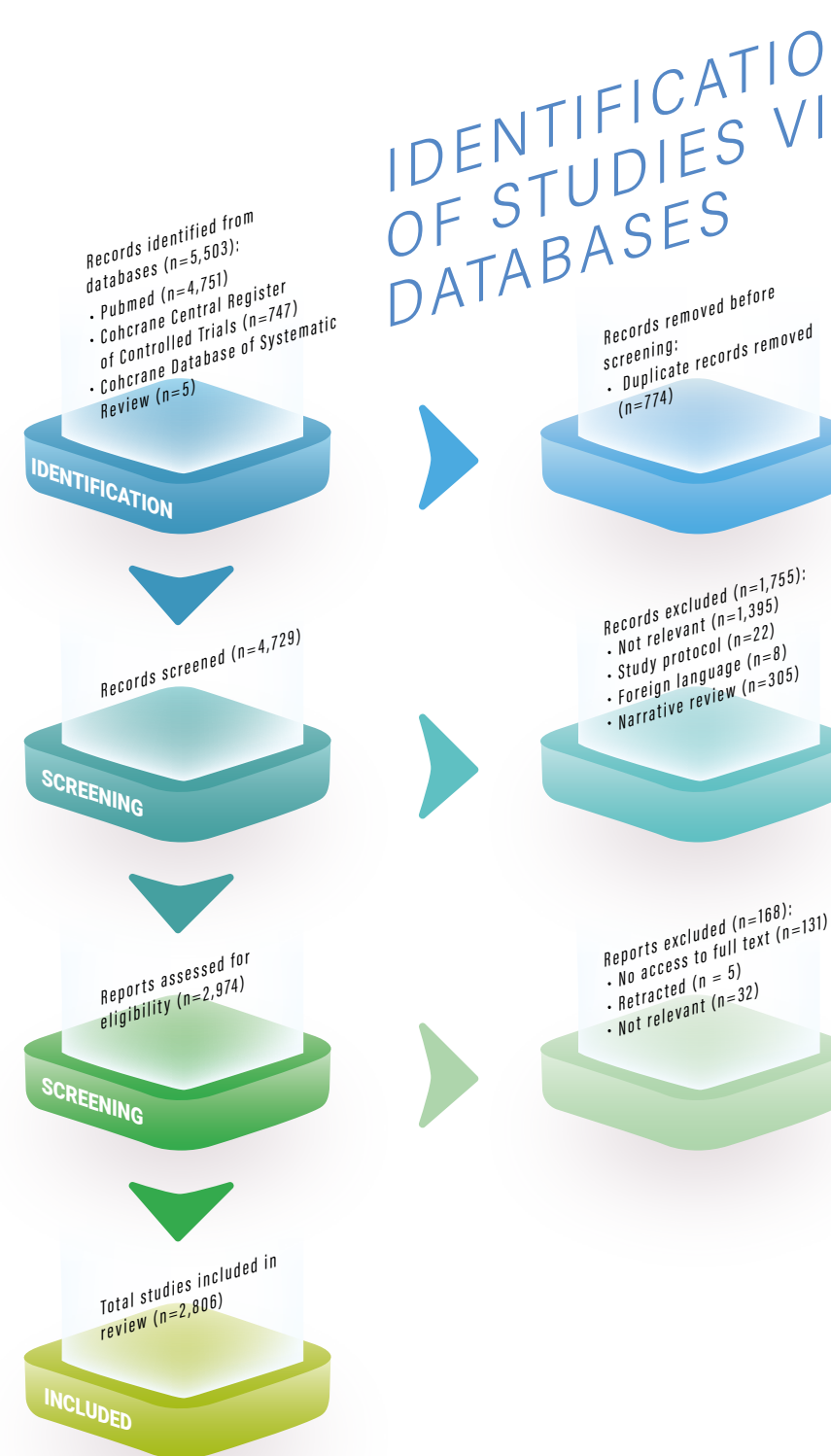
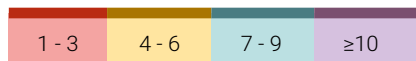


Figure 3. PRISMA Flow Diagram on Describing Selection Process for T&CM Product Development

4.4 > Priority Areas for T&CM Product Development

COLOR REFERENCE FOR RANK



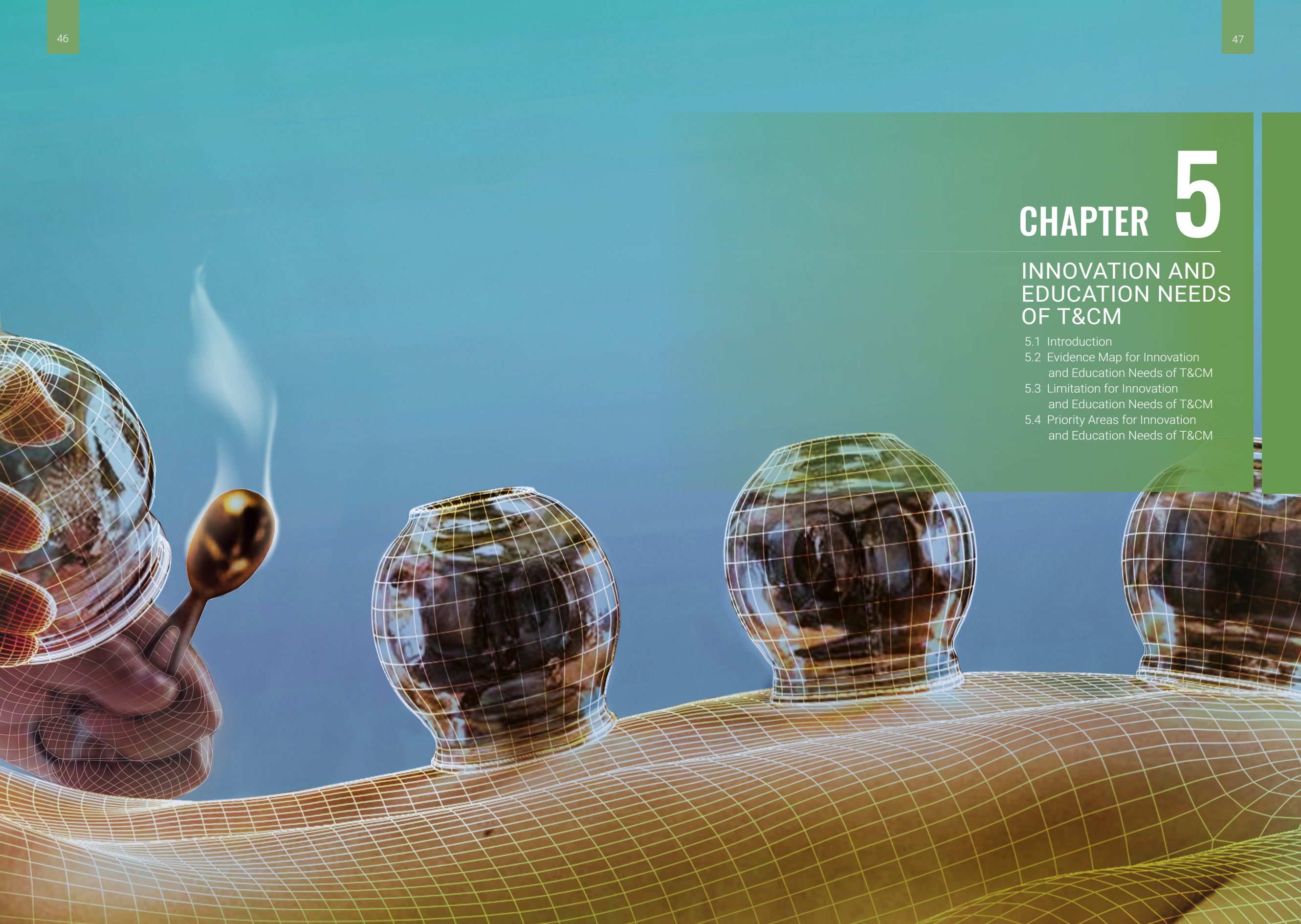
NO.	RESEARCH SCOPE	GAPS & NEEDS (RATIONALE)	FOCUS AREA	EXPECTED OUTPUT	RANK
1	Demand and supply of T&CM products that are used in Malaysia	Lack of national baseline data on consumer usage for T&CM products	Evaluation of T&CM products: <ul style="list-style-type: none"> Utilisation of T&CM products in healthcare Accessibility and distribution of T&CM products in Malaysia T&CM herbal materials' supply chain in Malaysia Sustainable production of raw herbal materials 	1. Policy: Evidence and/or value-based medicine data-driven strategies for expansion of T&CM product utilisation within the national health care system 2. Potential planning to optimise the sustainable supply for the production of herbal T&CM products 3. Digitalisation of T&CM products on new/existing database: <ul style="list-style-type: none"> Global Information Hub on Integrated Medicine (GlobinMed) website Herbaxpress 	3
			Study on health-seeking behavior among the public to explore utilisation, acceptance, and reasons for utilizing T&CM products.		7
2	Effectiveness and safety of T&CM products	Insufficient evidence on the effectiveness and safety of T&CM products	Identification of T&CM products/ active ingredients with potential therapeutic use for further evaluation of effectiveness and safety		2
			Evaluation of effectiveness of T&CM products used for specific health or medical purposes	1. Establish scientific evidence to support utilisation of T&CM products	1
			Study on safety and toxicity of T&CM products use: <ul style="list-style-type: none"> general toxicity specific toxicity herb – herb interaction herb – drug interaction 	2. Establishment of a centralized monitoring information system that focuses on consumers/ patients' feedback or reports on ADR related to T&CM products	5
			Compilation of research output focusing on pharmacological and toxicological properties of T&CM products use in Malaysia		8
			Study on safe dosing of T&CM products for various indications (uses) in humans		6

NO.	RESEARCH SCOPE	GAPS & NEEDS (RATIONALE)	FOCUS AREA	EXPECTED OUTPUT	RANK
3	Standardisation and quality control of T&CM products	Disparity of quality control standards in the development of T&CM products	Quality-related studies of T&CM products with medicinal/health claims: <ul style="list-style-type: none"> Selection of T&CM products without authentication data Botanical identification (macro and microscopy), voucher specimen, chemical fingerprinting and DNA barcoding Identification and isolation of chemical(s) and biomarker(s) Standardisation data of herbal extracts Quantification and consistency of active ingredient / marker(s) Adulteration, contamination, and uniformity of finished herbal products Stability data for finished herbal products Purity determination of herbal markers for T&CM products with medicinal / health claims 	1. Development of Monographs/ Pharmacopoeia 2. To enhance database on standardisations and quality control measures in the development of T&CM products in Malaysia	9
4	Regulations related to T&CM products	Lack of data to justify the use of prohibited substances in T&CM products	Evaluation of the significance of the prohibited substance contained in specific T&CM products based on current regulation	Revision of the existing policies and regulations related to T&CM products	10
			Assessment of prohibited herbs in Malaysia		11
5	Natural products with therapeutic claims	Lack of non-clinical and clinical data to support the natural products with therapeutic claims and non-adherence to international guidance (e.g. International Council for Harmonisation of Technical Requirements for Pharmaceuticals for Human Use (ICH) Guidance, Organisation for Economic Co-operation and Development (OECD) Guidance, GAP)	Conduct of non-clinical and clinical studies according to regulatory requirements	1. Increased number of clinical trials 2. Increased number of approved natural products with therapeutic claims 3. Enhance scientific evidence to support utilisation of natural products with therapeutic claims and practice guidelines	4

CHAPTER 5

INNOVATION AND EDUCATION NEEDS OF T&CM

- 5.1 Introduction
- 5.2 Evidence Map for Innovation and Education Needs of T&CM
- 5.3 Limitation for Innovation and Education Needs of T&CM
- 5.4 Priority Areas for Innovation and Education Needs of T&CM



5.0 INNOVATION AND EDUCATION NEEDS OF T&CM

5.1 > Introduction

The third domain focuses on fostering innovation in T&CM and addressing the educational needs required to advance the field. Three key research scopes were identified in this domain, including:

- Health literacy among the public and healthcare personnel related to the T&CM industry;
- Quality and competency within the T&CM industry; and
- Innovation and technology in T&CM practices.

The review highlights the critical importance of evaluating health literacy, quality, and competency within the T&CM industry. The findings underscore a significant gap in research, particularly regarding the effectiveness, safety, and regulatory frameworks for T&CM practice and products in Malaysia.

5.2 > Evidence Map for Innovation and Education Needs of T&CM

The review focused on health literacy among the public and healthcare personnel to assess the feasibility and suitability of consumer advocacy programs within the T&CM industry. Given the existing data on the quality and competency of T&CM service providers in Malaysia, the literature search included studies related to:

- T&CM service providers' roles in disease management and outbreak responses;
- Evidence-based practices;
- Infection control measures specific to T&CM;
- Legal frameworks governing T&CM practice;
- Effectiveness and safety of T&CM products;
- Collaboration with modern healthcare providers;
- Education structures of T&CM; and
- Digital health technologies of T&CM.

Systematic searches retrieved a total of 4,185 records. After removing duplicates, 4,180 records were screened, and 245 records were found to be relevant. Of these, only 63 records were included in the final review (Figure 4 and Table 6).

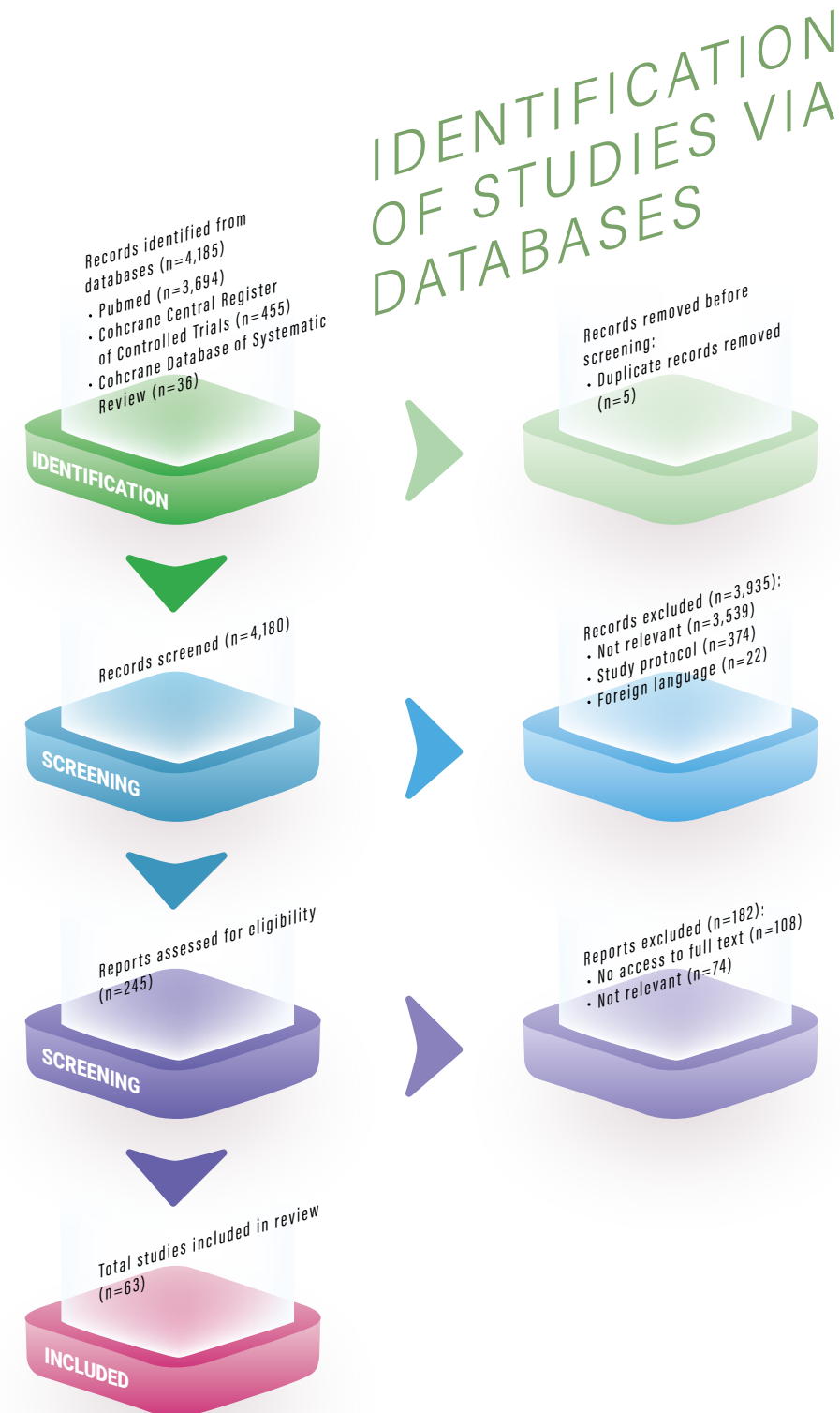


Figure 4. PRISMA Flow Diagram on Describing Selection Process for Innovation and Training Needs of T&CM

5.3 > Limitation for Innovation and Education Needs of T&CM

The literature review for this domain focused on the seven recognised practice areas under Malaysia’s T&CM Act 2016 (Act 775). Due to time and manpower constraints, and limited access to

paid and foreign databases, only published studies in English over the last 10 years (2014 to January 2024) were searched and reviewed.



Table 6. Number of Articles Reviewed According to RS for Innovation and Education Needs of T&CM

T&CM PRACTICES / T&CM PRODUCTS		TCM	TIM	Chiropractic	Osteopathy	Homeopathy	Total
		NUMBER OF ARTICLES REVIEWED	55	1	4	1	2
NUMBER OF ARTICLES REVIEWED	RS 1 Health literacy among public and healthcare personnel related to the T&CM industry	0	0	0	0	0	0
	RS 2 Quality and competency of the T&CM industry	45	0	4	1	1	51
	RS 3 Innovation and technology	10	1	0	0	1	12

5.4 > Priority Areas for Innovation and Education Needs of T&CM

COLOR REFERENCE FOR RANK

1 - 3	4 - 6	7 - 9	≥10
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NO.	RESEARCH SCOPE	GAPS & NEEDS (RATIONALE)	FOCUS AREA	EXPECTED OUTPUT	RANK
1	Health literacy among public and healthcare personnel related to the T&CM industry	Inadequate evaluation of consumer advocacy measures on T&CM related practices and product usage including herbs	Evaluate the feasibility and suitability of various consumer advocacy programmes for improving health literacy related to T&CM industry	Findings can be used to guide the implementation of health education/ promotional activities of T&CM application in different health diseases	3
			Study of service providers in T&CM industry towards: <ul style="list-style-type: none"> • Managing diseases and outbreaks • Evidence-based practice • Infection control measures specific to area practices • Legal frameworks governing T&CM practice • Effectiveness and safety of T&CM products • Collaboration with modern medicine health care providers 	Provide inputs toward strengthening and professionalising the T&CM industry	1
2	Quality and competency of the T&CM industry	Inadequate data on quality and competency level of service providers in T&CM industry in Malaysia	Identify level of knowledge and skills in conducting research as well as research capacity among service providers in T&CM industry		6
			Study on professional development and training needs of T&CM practitioners which includes assessing their readiness to provide services, needs for continuing education, professional support, mentorship, and opportunities for specialization		5
			Evaluation of present T&CM related education structures in Malaysia	Enhancement of present T&CM education by incorporating T&CM related components into current education structures	7
		Inadequate data on T&CM related education structure, integration and needs	Comparative study between different countries on T&CM related education structures		9

> Priority Areas for Innovation and Education Needs of T&CM (cont.)

COLOR REFERENCE FOR RANK



NO.	RESEARCH SCOPE	GAPS & NEEDS (RATIONALE)	FOCUS AREA	EXPECTED OUTPUT	RANK
3	Innovation and technology	Limited interventional study on behavior science and social determinants related to the field of T&CM	Study on behavior insights in T&CM	Data to be used to apply nudge into application of T&CM for sustainable behaviour	8
		Lack of data on effectiveness of new T&CM technology	Study on safety, effectiveness, feasibility and cost effectiveness of digital health technologies related to T&CM (e.g. augmented reality (AR) – based app for acupuncture which permit to localize and visualise acupuncture points live on human)	Establish scientific evidence to support utilisation of T&CM practice and T&CM products	2
			Study on assessing formulations from raw herbs to ensure better compliance among consumers or masking of bitter taste		4





Conclusion

The research priorities in T&CM for Malaysia provide a roadmap for advancing T&CM within the country's healthcare system. By systematically identifying and prioritising key research areas, specifically in T&CM practice evaluation, product development, innovation, and education, Malaysia aims to enhance the safety, efficacy, and quality of T&CM practice and products. This initiative not only addresses the current gaps in research but also aligns with the national healthcare agenda and responds to the public demand for reliable and scientifically backed information.

The collaborative approach involving stakeholders from various sectors ensures that the research agenda is comprehensive and inclusive, ultimately contributing to more informed policy-making and better integration of T&CM within the national healthcare system. By fostering a robust research environment, Malaysia positions itself as a leader in T&CM research and services, enhancing

public health outcomes and promoting the sustainability of traditional practices. As these research priorities are pursued, they will play a crucial role in bridging the gap between traditional practices and modern healthcare, paving the way for the integration of T&CM into UHC and enhancing the overall well-being of the population.



Way Forward

Following the publication of the research priorities in T&CM for Malaysia, a communication and dissemination strategy shall be considered to enhance the awareness of the identified research priorities among potential researchers and grant holders/institutions, encourage the uptake of research to generate a wealth of local repository of evidence for T&CM in Malaysia and create a more

significant impact in evidence-based policy-driven strategies from the intended outcomes of the targetted priorities. To facilitate relevance and contributions to the national healthcare agenda, the research priorities in T&CM for Malaysia shall be reviewed timely, focusing on aligning T&CM research priorities with future national development policies and strategies.

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Annex 2: Search Terms for T&CM Research Priorities in Malaysia

Domain 1: T&CM Practice Evaluation

"Traditional Medicine" OR "Ancient Medicine" OR "Traditional Asian Medicine" OR "Folk Medicine" OR "Traditional Oriental Medicine" OR "Traditional Oriental Therapy" OR "TM" OR "TCI" OR "TCIM" OR "TCAM" OR "Traditional Complementary Integrative Medicine" OR "Traditional Complementary Alternative Medicine" OR "T&CM" OR "Alternative Medicine" OR "Alternative Therapy" OR "Alternative Approach" OR "Alternative Health" OR "Fringe Medicine" OR "Non-mainstream Medicine" OR "Unconventional Medicine" OR "Complementary Medicine" OR "Complementary Therapy" OR "Complementary Approach" OR "Complementary Health" OR "Complementary and Alternative Medicine" OR "CAM" OR "Integrative Medicine" OR "Integrate Therapy" OR "Integrate Approach" OR "Integrate Health" OR "Holistic Health" OR "Holism" OR "Holistic Medicine" OR "Holistic Therapy" OR "Holistic Treatment"

Practice Area 1: Traditional Malay Medicine

"Traditional Malay Medicine" OR "TMM" OR "Malay Medicine"

Modality I: Massage

"Massage" OR "Abdominal Massage" OR "Postnatal Massage" OR "Post-natal Massage" OR "Midwife Massage" OR "Midwives Massage" OR "Malay Massage" OR "Classical Massage" OR "Connective Tissue Manipulation" OR "Connective Tissue Massage" OR "Deep Tissue Massage" OR "Digital Massage" OR "Foot Massage" OR "Foot Reflexion Massage" OR "Hand Massage" OR "Hot Stone Massage" OR "Infant Massage" OR "Integrative Massage" OR "Oil Massage" OR "Perineal Massage" OR "Prostate Massage" OR "Therapeutic Massage" OR "Bone Setting"

Modality II: Cupping

"Cupping" OR "Bleeding Cupping" OR "Blood-letting Cupping" OR "Cupping Massage" OR "Dry Cupping" OR "Hijamat" OR "Hijama" OR "Bekam" OR "Medicinal Cupping" OR "Multiple Cupping" OR "Needle Cupping" OR "Traditional Cupping" OR "Wet Cupping"

Modality III: Malay Herbal Medicine

"Malay Herbal Medicine" OR "Traditional Malay Herbal Remedy" OR "Traditional Oriental Herbal Remedy" OR "Jamu" OR "Traditional Malay Herb" OR "Herbalism" OR "Herbal Therapy" OR "Herbal Treatment"

Modality IV: Scraping

"Scraping" OR "Kerokan"

Practice Area 2: Traditional Chinese Medicine

"Traditional Chinese Medicine" OR "TCM" OR "Chinese Medicine" OR "Traditional Pulse Diagnosis" OR "Traditional Pulse Method" OR "Traditional East Asian Medicine" OR "Traditional East Asia Medicine"

Modality I: Massage

"Massage" OR "Abdominal Massage" OR "Abdominal Meridian Massage" OR "Acupuncture Massage" OR "Classical Massage" OR "Connective Tissue Manipulation" OR "Connective Tissue Massage" OR "Deep Tissue Massage" OR "Digital Massage" OR "Foot Massage" OR "Foot Reflexion Massage" OR "Hand Massage" OR "Integrative Massage" OR "Oil Massage" OR "Perineal Massage" OR "Prostate Massage" OR "Qigong Massage" OR "Therapeutic Massage" OR "Tibetan Massage" OR "Trigger Point Massage" OR "Tuina"

Modality II: Cupping

"Cupping" OR "Bleeding Cupping" OR "Blood-letting Cupping" OR "Cupping Massage" OR "Dry Cupping" OR "Fire Cupping" OR "Medicinal Cupping" OR "Needle Cupping" OR "Traditional Cupping" OR "Wet Cupping"

Modality III: Chinese Herbal Medicine

"Herbal Medicine" OR "Traditional Chinese Herbal Remedy" OR "Traditional Oriental Herbal Remedy" OR "Traditional Chinese Herb" OR "Herbalism" OR "Herbal Therapy" OR "Herbal Treatment"

Modality IV: Acupuncture

"Acupuncture" OR "Acupuncture Therapy" OR "Acupuncture Treatment" OR "Auricular Acupuncture" OR "Chinese Acupuncture" OR "Ear Acupuncture" OR "Electroacupuncture" OR "Foot Acupuncture" OR "Hand Acupuncture" OR "Laser Acupuncture" OR "Needle Moxibustion" OR "Single Point Acupuncture" OR "Trigger Point Acupuncture" OR "Auriculotherapy" OR "Auricular Therapy"

Modality V: Acupressure

"Acupressure" OR "Active Acupressure" OR "Passive Acupressure" OR "Traditional Acupressure" OR "Chinese Acupressure" OR "Auricular Acupressure" OR "Ear Acupressure" OR "Foot Acupressure"

Modality VI: Moxibustion

"Moxibustion" OR "Moxibustion Acu-Moxi" OR "Acu-Moxibustion" OR "Electronic Moxibustion" OR "Hand Moxibustion" OR "Moxa" OR "Moxabustion" OR "Warming Moxibustion" OR "Warming Needle Moxibustion"

Modality VII: Acustimulation

"Acustimulation" OR "Acupoint Stimulation" OR "Acupuncture Point Stimulation" OR "Acustimulation Wristbands" OR "Transcutaneous Acupoint Electrical Stimulation" OR "TAES" OR "TEAS" OR "Transcutaneous Electrical Acupoint Stimulation" OR "Transcutaneous Electrical Acustimulation"

Modality VIII: Scraping

"Scraping" OR "Gua Sha" OR "Coining"

Modality IX: Meditation/Energy-based Medicine

"Meditation" OR "Energy-based Medicine" OR "Mind Body Medicine" OR "Tai Chi" OR "Tai Chi Chih" OR "Tai Chi Chuan" OR "Taichi Quan" OR "Tai Ji Quan" OR "Taiji" OR "Taijiquan" OR "Tie Chee" OR "Qigong" OR "Qi Gong Therapy" OR "Ba Quan Jin" OR "Ba Duan Jin"

Practice Area 3: Traditional Indian Medicine

"Traditional Indian Medicine" OR "Indian Medicine" OR "TIM" OR "Indian Traditional Treatment System"

Modality I: Ayurveda

"Ayurveda" OR "Ayurvedic Medicine" OR "TAM" OR "Marma Therapy" OR "Panchakarma" OR "Shirodhara" OR "Basti Therapy" OR "Basti Treatment" OR "Ayurvedic Herb" OR "Ayurvedic Herbal Medicine"

Modality II: Meditation

"Meditation" OR "Yoga" OR "Yoga Meditation" OR "Mindfulness" OR "Mantra" OR "Mind Body Medicine" OR "Samadhi"

Modality III: Siddha

"Siddha" OR "Siddha Medicine" OR "Siddha Medicine System" OR "Siddhar" OR "Varmam Therapy" OR "Varma Therapy" OR Siddha Herb"

Modality IV: Unani Medicine

"Unani Medicine" OR "Yunani Medicine" OR "Arabic Medicine" OR "Perso-Arabic Medicine" OR "Unani Herb"

Practice Area 4: Homeopathy

"Homeopathy" OR "Homeopathic Medicine" OR "Homeopathic Nosode" OR "Homeopathic Remedy"

Practice Area 5: Islamic Medical Practice

"Islamic Medical Practice" OR "Islamic Medicine" OR "Religious Healing" OR "Religious Therapy"

Practice Area 6: Chiropractic

"Chiropractic" OR "Chirotherapy" OR "Manipulative Therapy" OR "Physical Medicine" OR "SMT" or "Spinal Manipulative Therapy" OR "Chiropractic Spinal Adjustment"

Practice Area 7: Osteopathy

"Osteopathy" OR "Osteopathic Medicine" OR "Osteopathic Manipulative Treatment" OR "Joint Manipulation" OR "Musculoskeletal Manipulation"

Research Scope 1: T&CM Practice Demand and Delivery

"Demand" OR "Requirement" OR "Service Delivery" OR "Supply" OR "Service Utilisation" OR "Evaluation" OR "Assessment" OR "Appraisal" OR "Application" OR "Usage" OR "Employment" OR "Implementation" OR "Complementary Treatment" OR "Complementary Therapy" OR "Adjunct Therapy" OR "Adjunct Treatment"

"Communicable Disease" OR "Infectious Disease" OR "Coronavirus Disease 2019" OR "Covid-19" OR "NCoV 2019" OR "2019-nCoV" OR "Wuhan Disease" OR "Wuhan Corna Virus" OR "Acute Respiratory Distress Syndrome" OR "ARDS" OR "Pneumonia" OR "Bacterial Pneumonia" OR "Streptococcus Pneumoniae" OR "Viral Pneumonia" OR "Influenza" OR "Fungal Pneumonia" OR "Influenza-like-illness" OR "ILI" OR "Severe Acute Respiratory Infections" OR "SARI" OR "Dengue" OR "Dengue Fever" OR "Aedes Aegypti" OR "Mosquito" OR "Infected Mosquito" OR "Dengue Hemorrhagic Fever" OR "Dengue Shock Syndrome" OR "Mycobacterial Disease" OR "Tuberculosis" OR "TB" or "TB Disease" OR "Mycobacterium Tuberculosis" OR "TB Bacteria" OR "Leprosy" OR "Hepatitis" OR "Human Immunodeficiency Virus" OR "HIV" OR "Acquired Immunodeficiency Syndrome" OR "AIDS" OR "Meliodosis" OR "Malaria" OR "P. Falciparum Infection" OR "Parasitemia" OR "Vaccine Preventable Disease" OR "Measles" OR "Rubeola" OR "Acute Childhood Infection" OR "Measles Virus" OR "Diphtheria" OR "Upper Respiratory Tract Illness" OR "Laryngitis" OR "Pharyngitis" OR "Tonsillitis" OR "Corynebacterium Diphtheriae" OR "Pertussis" OR "Bordetella Pertussis" OR "Influenza Virus" OR "Acute Contagious Viral Respiratory Disease" OR "Leptospirosis" OR "Zoonosis" OR "Avian Influenza" OR "MERS-CoV" OR "Ebola" OR "Nipah" OR "Chikungunya" OR "Yellow Fever" OR "Zika" OR "None-dengue Arthropod-borne Viruses" OR "Antimicrobial Resistance"

"Non-communicable Disease" OR "Non-infectious Disease" OR "NCD" OR "Cancer" OR "Cancerous" OR "Malignancy" OR "Carcinoma" OR "Sarcoma" OR "Melanoma" OR "Brain Cancer" OR "Brain Neoplasms" OR "Nervous System Cancer" OR "Lymphoma" OR "Leukemia" OR "Leukaemia" OR "Cervical Cancer" OR "Uterine Cervical Neoplasms" OR "Uterus Cancer" OR "Uterine Neoplasms" OR "Uterine Cancer" OR "Endometrial Cancer" OR "Endometrial Neoplasms" OR "Endometrial Carcinoma" OR "Vaginal Cancer" OR "Vaginal Neoplasms" OR "Colorectal Cancer" OR "Colorectal Neoplasms" OR "Colorectal Carcinoma" OR "Corpus Uteri Cancer" OR "Lymphoma" OR "Hematological Malignancy" OR "Haematological Malignancy" OR "Hematologic Neoplasms" OR "Blood Cancer" OR "Multiple Myeloma" OR "Plasma Cell Myeloma" OR "Liver Cancer" OR "Liver Neoplasms" OR "Hepatocellular Carcinoma" OR "Hepatoma" OR "Cholangiocarcinoma" OR "Nasopharyngeal Carcinoma" OR "Nasopharynx Cancer" OR "Nasopharyngeal Neoplasms" OR "Ovarian Cancer" OR "Ovarian Neoplasms" OR "Prostate

Cancer" OR "Prostatic Neoplasms" OR "Skin Cancer" OR "Skin Neoplasms" OR "Basal Cell Carcinoma" OR "Squamous Cell Carcinoma" OR "Melanoma" OR "Thyroid Cancer" OR "Thyroid Neoplasms" OR "Breast Cancer" OR "Breast Neoplasm" OR "Lung Cancer" OR "Lung Carcinoma" OR "Squamous Cell Carcinoma" OR "Adenocarcinoma" OR "Large Cell Carcinoma" OR "Small Cell Lung Cancer" OR "Stomach Cancer" OR "Gastric Cancer" OR "Stomach Carcinoma" OR "Gastric Carcinoma" OR "Chronic Respiratory Syndrome" OR "Asthma" OR "Chronic Obstructive Pulmonary Disease" OR "Hyperlipidemia" OR "Dyslipidemia" OR "Hypercholesterolemia" OR "Hypertension" OR "Obesity" OR "Overweight" OR "Cardiovascular Disease" OR "Stroke" OR "Cerebrovascular Accident" OR "Endocrine Disease" OR "Metabolic Disease" OR "Diabetes Mellitus" OR "DM" OR "Hyperglycemia" OR "Neurodegenerative Disease" OR "Alzheimer's Disease" OR "Parkinson's Disease" OR "Mental Health Disorder" OR "Anxiety" OR "Depression" OR "Stress" OR "Insomnia" OR "Tobacco" OR "Smoke"

"Oral Health" OR "Dental" OR "Oral Health Disease" OR "Oral Disease" OR "Dental Caries" OR "Dental Cavities" OR "Gingivitis" OR "Periodontitis" OR "Malocclusion" OR "Oral Cancer" OR "Tooth Loss" OR "Cavities" OR "Caries" OR "Tooth Decay" OR "Periodontal Disease" OR "Dental Disease" OR "Gum Disease" OR "Oro-Dental Trauma" OR "Birth Defects" OR "Cleft Lip" OR "Cleft Palate" OR "Oral Hygiene" OR "Oral Condition" OR "Sensitive Teeth"

"Health Human Resource" OR "Doctor" OR "Medical Doctor" OR "Medical Officer" OR "House Officer" OR "Specialist" OR "Consultant" OR "Dentist" OR "Pharmacist" OR "Nurse" OR "Community Nurse" OR "Assistant Medical Officer" OR "Pharmacy Assistant" OR "Dental Therapist" OR "Dental Technologist" OR "Dental Surgery Assistant" OR "Optometrist" OR "Optician" OR "Environmental Health Officer" OR "Assistant Environmental Health Officer" OR "Medical Laboratory Technologist" OR "Diagnostic Radiographer" OR "Therapist Radiographer" OR "Occupational Therapist" OR "Physiotherapist" OR "Traditional and Complementary Medicine Practitioner"

"Accessible" OR "Acceptable" OR "Extensible" OR "Affordability" OR "Cheap" OR "Economical" OR "Fair" OR "Budget" OR "Cost-effective" OR "Reasonable" OR "Traditional and Complementary Medicine Facility" OR "Traditional and Alternative Medicine Facility" OR "Holistic Facility" OR "Traditional and Complementary Medicine Premise" OR "Traditional and Alternative Medicine Premise" OR "Holistic Premise" OR "Traditional and Complementary Medicine Hospital" OR "Traditional and Alternative Medicine Hospital" OR "Holistic Hospital" OR "Traditional and Complementary Medicine Center" OR "Traditional and Alternative Medicine Center" OR "Holistic Center" OR "Traditional and Complementary Medicine Clinic" OR "Traditional and Alternative Medicine Clinic" OR "Holistic Clinic" OR "Traditional and Complementary Medicine Unit" OR "Traditional and Alternative Medicine Unit" OR "Holistic Unit"

"Health Seeking Behavior" OR "Acceptance" OR "Acknowledgement" OR "Approval" OR "Compliance" OR "Consent" OR "Cooperation" OR "Recognition" OR "Permission" OR "Public" OR "Reason" OR "Utilisation" OR "Application" OR "Usage" OR "Employment" OR "Implementation"

Research Scope 2: Quality of T&CM Practices

"Quality" OR "Standard" OR "Effectiveness" OR "Strength" OR "Efficacy" OR "Benefit" OR "Efficiency" OR "Safety"

"Standard" OR "Accepted" OR "Basic" OR "Classic" OR "Common" OR "Definitive" OR "Typical" OR "Usual" OR "General" OR "Orthodox" OR "Popular" OR "Recognised" OR "Management" OR "Administration" OR "Treatment" OR "Regime" OR "Regimen" OR "Dose" OR "Intervention" OR "Interference" OR "Mediation" OR "Treatment Regime" OR "Treatment Remedy" OR "Therapy Regime" OR "Therapeutic Regime" OR "Medication Regime" OR "Treatment Duration" OR "Treatment Period" OR "Treatment Span" OR "Dose" OR "Prescription" OR "Potion" OR "Treatment Monitoring" OR "Examination" OR "Experience" OR "Inspection" OR "Investigation" OR "Measurement" OR "Study" OR "Surveillance" OR "Supervision" OR "Treatment Outcome" OR "Treatment Result" OR "Therapeutic Result"

"Adverse Event" OR "Side Effect" OR "Adverse Effect"

Research Scope 3: Healthcare Financing

"Healthcare" OR "Health Management" OR "Medical Management" OR "Financing" OR "Funding" OR "Expenditure" OR "Investment" OR "Investment" OR "Cost" OR "Budget" OR "Economic Evaluation" OR "Economic Appraisal" OR "Economic Assessment" OR "Cost Benefit" OR "Cost-benefit Analysis" OR "Cost Utility Analysis" OR "Marginal Analysis" OR "Cost Analysis" OR "Cost Allocation" OR "Cost Control" OR "Cost of Illness" OR "Cost Sharing" OR "Cost-effectiveness Analysis" OR "Healthcare Cost" OR "Health Expenditure" OR "Low-value Care"

"Out-of-pocket Expenditure" OR "Indirect Expenditure" OR "Direct Expenditure" OR "Health Expenditure" OR "Out-of-pocket Expense" OR "Out-of-pocket Payment" OR "Out-of-pocket Spending" OR "Out-of-pocket Cost"

"Leverage Scheme" OR "Leverage Plan"

"Health Insurance" OR "Voluntary Health Insurance" OR "Group Health Insurance" OR "Health Insurance Exchange" OR "Health Insurance Marketplace" OR "Catastrophic Health Insurance" OR "Comprehensive Health Insurance" OR "Value-based Health Insurance" OR "Micro-health Insurance" OR "Community-based Health Insurance" OR "Mutual Health Insurance" OR "Health Insurance Reimbursement" OR "National Health Insurance" OR "Cost Sharing" OR "Insurance Benefit"

Research Scope 4: Integration of T&CM Services with Modern Medicine

"Integration" OR "Combination" OR "Integrated Care" OR "Modern Medicine" OR "Western Medicine" OR "Conventional Medicine" OR "Allopathic Medicine" OR "Unorthodox Medicine" OR "Continuous of Care" OR "Continuous Caring Relationship" OR "Patient Care Continuity" OR "Continuity of Care" OR "Continuum of Care"

Research Scope 5: Regulations Related to T&CM Practice and Facilities

"Regulation" OR "Governance" OR "Control" OR "Management" OR "Traditional and Complementary Medicine Facility" OR "Traditional and Alternative Medicine Facility" OR "Holistic Facility" OR "Traditional and Complementary Medicine Premise" OR "Traditional and Alternative Medicine Premise" OR "Holistic Premise" OR "Traditional and Complementary Medicine Hospital" OR "Traditional and Alternative Medicine Hospital" OR "Holistic Hospital" OR "Traditional and Complementary Medicine Center" OR "Traditional and Alternative Medicine Center" OR "Holistic Center" OR "Traditional and Complementary Medicine Clinic" OR "Traditional and Alternative Medicine Clinic" OR "Holistic Clinic" OR "Traditional and Complementary Medicine Unit" OR "Traditional and Alternative Medicine Unit" OR "Holistic Unit" OR "Framework" OR "Structure" OR "Guideline" OR "Advice" OR "Planning" OR "Recommendation" OR "Compliance" OR "Adherence"

Research Scope 6: Traditional Knowledge among Indigenous and Local Communities in Malaysia

"Indigenous Medicine" OR "Aboriginal Medicine" OR "Ethnomedicine" OR "Primitive Medicine" OR "Native Medicine" OR "Traditional Indigenous Herbal Remedy" OR "Traditional Knowledge" OR "Holistic Knowledge" OR "Traditional Education" OR "Holistic Education" OR "Traditional Learning" OR "Holistic Learning" OR "Traditional Wisdom" OR "Holistic Wisdom" OR "Traditional Philosophy" OR "Holistic Philosophy" OR "Traditional Proficiency" OR "Holistic Proficiency" OR "Traditional Insight" OR "Holistic Insight" OR "Traditional Awareness" OR "Holistic Awareness" OR "Erosion" OR "Destruction" OR "Indigenous" OR "Indigenous People" OR "Indigenous Population" OR "Native Born" OR "Native People" OR "Nation People" "First Nation People" OR "Aboriginal" OR "Local Community" OR "Native Community" OR "Native Society" OR "Indigenous Community" OR "Indigenous Society" OR "Indigenous Health" OR "Indigenous Health Service" OR "Biological Resource" OR "Biological Preservation" OR "Natural Resource"

Domain 2: T&CM Product Development

Research Scope 1: Demand and Supply of T&CM Products that are Used in Malaysia

"Tongkat Ali" OR "*Eurycoma longifolia*" OR "Kacip Fatimah" OR "*Labisia pumila*" OR "Misai Kucing" OR "*Orthosiphon stamineus*" OR "Dukung Anak" OR "*Phyllanthus niruri*" OR "*Phyllanthus amarus*" OR "Hempedu Bumi" OR "*Andrographis paniculata*" OR "Halia" OR "Ginger" OR "*Zingiber officinales*" OR "Mengkudu" OR "*Morinda citrifolia*" OR "Roselle" OR "*Hibiscus sabdariffa*" OR "Mas Cotek" OR "*Ficus deltoidei*" OR "Belalai Gajah" OR "*Clinacanthus nutans*" OR "Pegaga" OR "*Centella asiatica*" OR "Peria Katak" OR "*Momordica charantia*" OR "Lempoyang" OR "*Zingiber zerumbet*" OR "Sireh" OR "Kadok" OR "*Piper betle*" OR "*Piper sarmentosum*" OR "Merunggai" OR "*Moringa oleifera*" OR "Gelenggang" OR "*Cassia alata*" OR "Sambung nyawa" OR "*Gynura procumbens*" OR "Senduduk" OR "*Melastoma malabathricum*"

"Demand" OR "Requirement" OR "Use" OR "Sale" OR "Trade" OR "Supply" OR "Inventory" OR "Stock" OR "Quantity" OR "Source" OR "Reservoir" OR "Evaluation" OR "Assessment" OR "Appraisal" OR "Valuation" OR "Utilisation"

OR "Application" OR "Usage" OR "Use" OR "Implementation" OR "Healthcare" OR "Health Management" OR "Preventive Medicine" OR "Health Protection" OR "Medical Management" OR "Wellness" OR "Accessibility" OR "Acceptability" OR "Accessible" OR "Extensibility" OR "Affordability" OR "Cheap" OR "Economical" OR "Fair" OR "Low Cost" OR "Modest" OR "Bargain" OR "Budget" OR "Cost Effective" OR "Reasonable" OR "Medicinal Material" OR "Supply Chain" OR "Sustainable" OR "Production" OR "Raw Material" OR "Knowledge" OR "Ability" OR "Awareness" OR "Education" OR "Expertise" OR "Familiarity" OR "Insight" OR "Intelligence" OR "Judgement" OR "Recognition" OR "Theory" OR "Apprehension" OR "Comprehension" OR "Principle" OR "Attitude" OR "Belief" OR "Mindset" OR "Perspective" OR "Point of View" OR "Stand" OR "View" OR "Opinion" OR "Thinking" OR "Perception" OR "Awareness" OR "Concept" OR "Feeling" OR "Impression" OR "Judgement" OR "Opinion" OR "Recognition" OR "Thought" OR "View" OR "Apprehension" OR "Conception" OR "Insight" OR "Health Seeking Behavior" OR "Public" OR "Utilisation" OR "Application" OR "Usage" OR "Employment" OR "Implementation" OR "Acceptance"

"Health Seeking Behavior" OR "Acceptance" OR "Acknowledgement" OR "Approval" OR "Compliance" OR "Consent" OR "Cooperation" OR "Recognition" OR "Permission" OR "Public" OR "Reason" OR "Utilisation" OR "Application" OR "Usage" OR "Employment" OR "Use" OR "Implementation"

Research Scope 2: Effectiveness and Safety of T&CM Products

"Quality" OR "Standard" OR "Effectiveness" OR "Strength" OR "Efficacy" OR "Potency" OR "Benefit" OR "Advantage" OR "Efficiency" OR "Safety" OR "Assurance"

"Toxic" OR "Herb-herb Interaction" OR "Herb-drug Interaction" OR "Pharmacological Property" OR "Safe Dosing"

Research Scope 3: Standardisation and Quality Control of T&CM Products

"Standard" OR "Reference" OR "Quality Control" OR "Authentication" OR "Botanical Identification" OR "Macroscopy" OR "Microscopy" OR "Voucher Specimen" OR "Chemical Fingerprint" OR "DNA Barcode" OR "Chemical Marker" OR "Biomarker" OR "Active Ingredient" OR "Quantification" OR "Consistency" OR "Adulteration" OR "Contamination" OR "Uniformity" OR "Finished Product" OR "Stability" OR "Purity"

Research Scope 4: Regulations Related to T&CM Products

"Regulation" OR "Governance" OR "Control" OR "Management" OR "Policy" OR "Prohibited Herb" OR "Ephedra" OR "Ma Huang" OR "Ephedrine" OR "Pseudoephedrine" OR "Aristolochia" OR "Aristolochic Acid"

Research Scope 5: Natural Products with Therapeutic Claims

"Natural Product" OR "Therapeutic Claim" OR "Clinical Study" OR "Non-clinical Study" OR "Pre-clinical Study" OR "International Guidance"

Domain 3: Innovation and Education Needs of T&CM

Research Scope 1: Health Literacy among Public and Healthcare Personnel Related to T&CM Industry

“Health Literacy” OR “Health Education” OR “Health Awareness” OR “Health Knowledge” OR “Well-being Education” OR “Well-being Awareness” OR “Well-being Knowledge” OR “Consumer Health Information” OR “Public” OR “Citizen” OR “National” OR “Community” OR “Healthcare Personnel” OR “Healthcare Professional” OR “Healthcare Provider” OR “Healthcare Worker” OR “Allied Health Personnel” OR “Doctor” OR “Nurse” OR “Medical Assistant” OR “Health Practitioner” OR “Dentist” OR “Pharmacist” OR “Physician” OR “Nutritionist” OR “Dietician” OR “T&CM Industry” OR “T&CM Practitioner” OR “T&CM Therapist” OR “T&CM Manufacturer” OR “Academician” OR “Herbalist” OR “Massage Therapist” OR “Acupuncturist” OR “Homeopath” OR “Chiropractor” OR “Osteopath” OR “Feasibility” OR “Usefulness” OR “Suitability” OR “Appropriateness” OR “Propriety” OR “Fitness” OR “Consumer Advocacy Programme”

Research Scope 2: Quality and Competency of T&CM Industry

“Quality” OR “Standard” OR “Competency” OR “Capability” OR “Proficiency” OR “Expertise” OR “Skill” OR “Ability” OR “T&CM Industry” OR “T&CM Practitioner” OR “T&CM Therapist” OR “T&CM Physician” OR “Herbalist” OR “Massage Therapist” OR “Acupuncturist” OR “Homeopath” OR “Chiropractor” OR “Osteopath” OR “T&CM Manufacturer” OR “Academician”

“Disease” OR “Disorder” OR “Illness” OR “Sickness” OR “Outbreak” OR “Evidence-based Practice” OR “Infection Control” OR “T&CM Legal Framework” OR “Collaboration with Modern Medicine” OR “Knowledge” OR “Skill” OR “Ability” OR “Education” OR “Expertise” OR “Research Capacity” OR “Professional Development” OR “Training Need” OR “T&CM Education Structure” OR “Foreign Country” OR “Abroad” OR “Overseas” OR “Malaysia”

Research Scope 3: Innovation and Technology

“Innovation” OR “Technology” OR “Invention” OR “T&CM Behavior Insight” OR “T&CM Digital Health” OR “Safety” OR “Effectiveness” OR “Cost Effectiveness” OR “Raw Herbs Assessment” OR “Bitter Taste Masking”



Ministry of Health
Malaysia

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