Understanding Difference and Similarity Across Life Science, West Medicine and Traditional Chinese Medicine to Promote Implementation of WHO Traditional Medicine Strategy

Purpose: Information
Submitted by: China
Understanding difference and similarity across life science, West medicine (WM) and traditional Chinese medicine (TCM) to ensure implementation of WHO Traditional Medicine Strategy

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**Traditional medicine.** ...is a comprehensive term used to refer both to TM systems such as traditional Chinese medicine (TCM), Indian ayurveda and Arabic unani medicine, and to various forms of indigenous medicine... In countries where the dominant health care system is based on allopathic medicine, or where TM has not been incorporated into the national health care system, TM is often termed “complementary”, “alternative” (CAM) or “non-conventional” medicine.

**TM is widely used and of rapidly growing health system and economic importance.**

**Africa** - up to 80% of the population uses

**Asia and Latin America**, populations continue to use TM as a result of historical circumstances and cultural beliefs.

**China, TM accounts for around 40% of all health care delivered.** Meanwhile, in many developed countries, CAM is becoming more and more popular.

**The percentage of the population** which has used CAM at least once is 48% in Australia, 70% in Canada, 42% in USA, 38% in Belgium and 75% in France.
Traditional Chinese Medicine 中医 – Philosophical background

阴 阳 Yin & Yang: Yin (shady) and Yang (sun-facing) of a hill. Good health is believed to be achieved by a balance between yin and yang.

五行 Five Phases theory presumes that all phenomena of the nature can be broken down into five elementals, which constitute the basis of the Zang-fu concept (脏腑), and thus have great influence regarding the TCM model of the body.

https://en.wikipedia.org/wiki/Main_Page

Traditional Chinese Medicine 中医 – Model of the body

Qi 气, Xue 血, Jinye 津液, Zhang-fu 脏, Jing-luo (meridian) 经络

TCM holds that the body’s vital energy (qi气) circulates through channels, called meridians, that have branches connected to bodily organs and functions. Its view of the human body is only marginally concerned with anatomical structures, but focuses primarily on the body's functions, such as digestion, breathing, temperature maintenance, etc.

Jing-luo (meridian) 经络 - believed to be channels running from the zang-fu in the interior of the body to the limbs and joints, transporting qi and xue.

Recently, Scholars said “Essence of life is an ordered collection of matter, energy and information” 生命的本质就是物质、能量和信息的有序集合
Traditional Chinese Medicine 中医 - continued

Concept of disease:
In general, disease is perceived as a disharmony or imbalance in the functions or interactions of yin, yang, qi, xue, zang-fu, meridians etc. and/or of the interaction between the human body and the environment. Therapy is based on which “pattern of disharmony” can be identified.

Disease entities: a disease has two aspects: “bing 病” and “zhèng 症”. The former is often translated as “disease entity”. The latter, and more important one, is usually translated as “pattern”. For example, the disease entity of a common cold might present with a pattern of wind-cold 冷感 in one person, and with the pattern of wind-heat 热感 in another. From a scientific point of view, most of the disease entities listed by TCM constitute mere symptoms. Examples include headache, cough, abdominal pain, constipation etc. Since therapy will not be chosen according to the disease entity but according to the pattern, two people with the same disease entity but different patterns will receive different therapy. Vice versa, people with similar patterns might receive similar therapy even if their disease entities are different. This is called 异病同治, 同病异治 “different diseases, same treatment; same disease, different treatments”.

Patterns: a pattern refers to a “pattern of disharmony” or “functional disturbance” within the functional entities the TCM model of the body is composed of. There are disharmony patterns of qi, xué, the body fluids, the zàng-fù, and the meridians. They are ultimately defined by their symptoms and signs.

Six Excesses 六淫: describe disharmony patterns displaying certain typical symptoms: Wind 风, Cold 寒, Fire/Heat 火, Dampness 湿, Dryness 燥, Summerheat 热. Six Excesses-patterns can consist of only one or a combination of Excesses (e.g., wind-cold, wind-damp-heat). They can also transform from one into another.

Traditional Chinese Medicine Diagnostics and Therapy

Diagnostics
- In TCM, there are five diagnostic methods: inspection, auscultation, olfaction, inquiry, and palpation 望闻问切听
- Tongue and pulse

Therapy
- Herb medicines 中草药
- Acupuncture and moxibustion 针灸与艾灸
- Tui na 推拿
- Qigong 气功

Other therapies:
- Cupping 拔罐
- Gua Sha 刮痧
- Die-da 跌打
- Chinese food therapy

https://en.wikipedia.org/wiki/Traditional_Chinese_medicine
Traditional Chinese Medicine 中医 – Typical Classics

皇帝内经 - “医学之祖” (先秦至汉)
"Yellow Emperor" theoretically established the "yin and yang theory" in medicine on "Viscera doctrine," "etiology", "health doctrine", "drug treatment theory", "Therapy theory" and other theories. Up from the whole concept of medical discourse, showing natural - bio - psycho - social "medical model as a whole", it is part of the most influential Chinese medical writings, known as the Doctor's ancestor.

Differences between TCM and WM

<table>
<thead>
<tr>
<th>TCM</th>
<th>WM</th>
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<tbody>
<tr>
<td>Uses the inductive and synthetic method, believing diseases to be a kind of imbalance of body's functions (yin and yang, etc.)</td>
<td>Uses the reductive and analytical methods; diseases are caused by bacteria/viruses, rogue cells and genetic disorders</td>
</tr>
<tr>
<td>individualized</td>
<td>Standard</td>
</tr>
<tr>
<td>Experience based</td>
<td>Evidence based</td>
</tr>
<tr>
<td>Summary of clinical observation</td>
<td>Result of laboratory experimentations</td>
</tr>
<tr>
<td>Emphasizes the role of the body in healing</td>
<td>Mainly relies on medication and procedures</td>
</tr>
<tr>
<td>Uses herbs and natural agents to activate the whole body</td>
<td>Uses pure chemicals to deal with specific areas or troublesome</td>
</tr>
<tr>
<td>Looks at the behavior of the system as a whole, including body, soul, and interaction between body and environment</td>
<td>Looks at the details of structure and function of the parts</td>
</tr>
<tr>
<td>Works to maintain health</td>
<td>Manages disease</td>
</tr>
<tr>
<td>Is a healing art?</td>
<td>Is strictly a science</td>
</tr>
</tbody>
</table>

http://www.sinomedresearch.org/21_Philosophy.htm
Facts

• Western medical science has clear-cut theories and definite cause-and-effect relationships verified through scientific tests and experiments.
• During last century, WM has become the main system of medicine in the West while TM became so called alternative or complementary medicine.
• Advanced analytical tools/methods helped diseases diagnosis in TCM

But why still TCM?

Advances in TCM that are ahead of WM

<table>
<thead>
<tr>
<th>Traditional Chinese medicine (thousands of years ago)</th>
<th>Modern medicine (recent decades)</th>
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<tbody>
<tr>
<td>The integration of life knowledge/experience with traditional Chinese medicine</td>
<td>Ranging from primary studies of a single gene or protein to current use of genomics, proteomics and informatics</td>
</tr>
<tr>
<td>Emotional pathopoiesis and its correspondence between man and his environment</td>
<td>Gradual recognition of psychological factors and its relationship with physiology and pathology</td>
</tr>
<tr>
<td>Syndrome differentiation, abidance by the triple pathogens and physique theory, individual treatment</td>
<td>Establishment of personal medicine</td>
</tr>
<tr>
<td>Chinese compound (multi-target herbal treatment)</td>
<td>From primary single target drugs to multitarget drugs, significantly reduce the side effects of medical treatment</td>
</tr>
</tbody>
</table>

Stands out as a way of coping with the relentless rise of chronic non-communicable diseases*

No cure for most of chronic non-communicable diseases

Jingcheng Dong, Evidence-Based Complementary and Alternative Medicine, 2013

*http://apps.who.int/iris/bitstream/10665/42879/1/9789241564080-eng.pdf
Similarities between TCM and WM/Life Science

In dealing with complex/chronic diseases and study of mechanisms of biological processes, recent research trends in life science, although fully consistent with the scientific method, seem to be in favor of philosophy of TCM.

<table>
<thead>
<tr>
<th>Research trends</th>
<th>Role</th>
<th>TCM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Systems biology</td>
<td>Emphasizes interaction across all layers of body or cell, and usually defined in antithesis to the so-called reductionist paradigm (biological organization)</td>
<td>Common basis is an holistic approach to life, equilibrium between the mind, body and their environment. The body’s own has “big drug”. External aid treatment is merely to create a good environment for the “big drug” to function.</td>
</tr>
<tr>
<td>Immunotherapy of cancers</td>
<td>More optimistic therapy than chemotherapy that is harmful to the healthy part of body when killing the cancer tissue</td>
<td>Two people with the same disease entity but different patterns will receive different therapy, or vice versa.</td>
</tr>
<tr>
<td>Precision medicine</td>
<td>Personal medicine</td>
<td></td>
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TCM body constitution classification – found a new evidence at gene expression level?

中医体质分类具有基因表达谱差异的初步证据

In a preliminary study carried out by scientists of Tsinghua University, an obvious different gene expression profile was observed across three constitutions yì-yáng harmony, qi asthenia and yáng. A systematic investigation is expected to explore more evidences to solidify the finding.

Cluster analysis of gene expression profiles of three constitution types.

Translations ref to: Chinese terms in traditional Chinese medicine and pharmacy, Science Express 2004

Courtesy of professor Jing CHEN of TsingHua University
Two particular examples

Ms Youyou Tu of China Academy of Traditional Chinese Medicine shared half of The Nobel Prize in Physiology or Medicine 2015 "for her discoveries concerning a novel therapy against Malaria". She invented the artemisinin and its effective formula. 

Combined use of arsenic trioxide (As$_2$O$_3$), a compound in TCM’s prescription in the treatment of acute promyelocytic leukemia (APL) has become golden standard. It makes the disease curable.

Strategy and Plan of Action 2002–2005

**Policy:** Integrate TM/CAM with national health care systems, as appropriate, by developing and implementing national TM/CAM policies and programs.

<table>
<thead>
<tr>
<th>Strategy objective</th>
<th>Members of WHO Member States reporting a national TM/CAM policy/Total number of WHO Member States</th>
<th>1999 status</th>
<th>2005 target</th>
</tr>
</thead>
<tbody>
<tr>
<td>WHO member states with national policy on TM/CAM</td>
<td>25/191</td>
<td>13%</td>
<td>25%</td>
</tr>
</tbody>
</table>

**Safety, efficacy and quality:** Promote the safety, efficacy and quality of TM/CAM by expanding the knowledge-base on TM/CAM, and by providing guidance on regulatory and quality assurance standards

**Access:** Increase the availability and affordability of TM/CAM, with an emphasis on access for poor populations

**Rational use:** Promote therapeutically sound use of appropriate TM/CAM by providers and consumers
Since the launch of the first the WHO TM Strategy 2002-2005, there has been significant and steady progress in implementing, regulating and managing T&CM in most regions of the world.

Till 2012, number of MS with TM policy and Number of MS regulating herbal medicines have increased to 69 and 119, respectively, and using acupuncture reached 103.

In China, about 90% of general hospitals include a TM department and provide TM services for both outpatients and inpatients. TM medical institutions are governed by the same national legislation on medical institutions as conventional medical institutions. TM practitioners are allowed to practice in both public and private clinics and hospitals. Government and private insurance fully cover TM including Tibetan, Mongolian, Uygur and Dai traditional medicine. Public or patients are free to choose TM or conventional medicine for healthcare services (also see China Statistical Yearbook 2011: Chinese Medicine (1987-2010)).

Strategic objectives, strategic directions and strategic actions

In response to the successes and challenges identified during the implementation of the WHO TM Strategy 2002–2005, WHO brought together and consulted with experts, Member States and other stakeholders across the six WHO regions to develop the strategic objectives, strategic directions and strategic actions for the new strategy to guide the T&CM sector from 2014-2023

**Goals:**
- harnessing the potential contribution of T&CM to health, wellness, people-centered health care and Universal Health Coverage;
- promoting safe and effective use of T&CM through the regulation, research and integration of T&CM products, practices and practitioners into the health system, as appropriate.

**Strategic objective:**
1. To build the knowledge base for active management of T&CM through appropriate national policies
2. To strengthen quality assurance, safety, proper use and effectiveness of T&CM by regulating T&CM products, practices and practitioners
3. To promote universal health coverage by integrating T&CM services into health care service delivery and self-health care
Summary

• Chinese medicine, and other TM, in the past has contributed to human health, and will continue to benefit mankind
• Chinese medicine deserves and needs further study
• Although there are many challenges, the state's policy has ensured the sustained development of Chinese medicine in many ways, further efforts should be addressed according WHO’s strategy
• APEC region will play vital role in implementation of WHO traditional medicine strategy

Acknowledgements

Thanks MOST staffs WANG and CHEN for supporting me to select this topic

Suggestions and information from TONG, XU and CHENG are most valuable and highly appreciated.

TNOG is famous in Integrative Medicine. He successfully combined use of advanced analytical tools and TCM principle

CHENG is trying to build a linkage between constitution classification and genome.