Foreword

Since its foundation in 2000, IAP for Health (formerly the InterAcademy Medical Panel, IAMP) has developed a track record of interlinking the boundaries between medical practice, medical research, healthcare delivery and policy for the common good. Our regular IAMP Statements, for example, prepared by expert working groups nominated by member academies, provide recommendations to policy-makers based on unbiased, credible and up-to-date scientific information.

As with our Statements, the strength of IAP for Health and its programmes relies heavily on the strength of our membership – a network of 78 of the world's national medical academies and academies of science and engineering with medical sections that is committed to improving health worldwide. When planning this project, 'Exploring Traditional Medicine', therefore, we did not hesitate to reach out to our member academies to help us identify not only expert reviewers, but also suitable case studies – the best of which are presented here in this book.

As healthcare costs in many countries are soaring, traditional medicine continues to be practiced, especially in developing countries, often with a long history of written prescriptions and other methodologies, as in traditional Chinese medicine and the Indian Ayurveda system, among others. There is a lot that can be learned, therefore, from these effective but potentially more economical health solutions.

Indeed, millions of people, especially in low and middle-income countries, do not have access to conventional medical care. Instead, they rely on a rich culture of traditional medical practices. In addition, it is estimated that about one-quarter of so-called 'modern medicines' are derived from plants used by traditional medical practitioners. Investigating traditional medicines, therefore, can help identify novel compounds that could lead to new pharmaceutical products.

In recent years, against a background of a changing spectrum of diseases and the demographic shift towards ageing societies, traditional medicine is receiving increasing attention worldwide. Building on this, as well as an initial World Health Organization (WHO) traditional medicine strategy (2002-2005), certain countries have moved towards integrating traditional and complementary medicine into their national healthcare services.

Much more needs to be done, however. In September 2015, world leaders signed up to a series of 17 Sustainable Development Goals, the third of which calls for "ensuring healthy lives and promoting well-being for all at all ages."

Traditional medicine – as used by millions of people worldwide who do not have access to or who cannot afford 'Western' or 'allopathic' medicine – can play a large part in reaching this goal by the target date of 2030.

However, according to the WHO, a significant challenge to the wider integration of traditional medical practices into 'mainstream' medical care is the lack of scientific data and evidence to support its development.

A better understanding of the scientific basis of traditional medicine practices, including their safety and effectiveness, will therefore be useful in exploring their application to the prevention, treatment and rehabilitation of human disease and the sustainability of human health.

In order to promote the scientific study of traditional medicine – and answering calls made at the 67th World Health Assembly (2014) for the promotion of international cooperation and collaboration in the sharing of evidence-based information in the area of traditional medicine – the IAP for Health Executive Committee (EC) agreed to establish the 'Exploring Traditional Medicine' project. The project centred on an international symposium organized in collaboration with the Chinese Academy of Engineering (CAE) and with the support of the China Academy of Chinese Medical Sciences (CACMS), attended by some 200 researchers, practitioners, administrators of healthcare institutions and students from China.[1]

Coincidentally, the symposium itself took place in Beijing during the same week that world leaders were at the United Nations headquarters in New York, half a world away, agreeing to the Sustainable Development Goals.

Taking advantage of the expertise found within its member academies, this IAP for Health project aims to review and showcase successful examples of research into and implementation of traditional medicine practices, with the aim of building a platform to communicate and share these experiences.

The project explores the contribution of traditional medicines and medical practices to human healthcare as well as the methodologies used to assess the science, safety, quality and efficacy of the products and processes.

To build on the presentations and discussions of the symposium, each case study has now been edited into a non-technical version, making it accessible to a wider audience, and published in this volume. The book will be distributed free of charge, especially through the member academies of IAP for Health. By providing such a collection of case studies,

1 A summary of the symposium is available at: http://www.iamp-online.org/content/exploring-traditional-medicine

it is hoped that developing countries, with their limited human resources and limited access to allopathic medicines, as well as high-income countries, will be able to select the most appropriate examples and adapt them to their own particular national challenges.

As with all publications produced by the InterAcademy Partnership, the present volume is also being made available online
(see www.http://www.interacademies.net/Publications/31264.aspx
and
http://www.iamp-online.org/content/exploring-traditional-medicine)
with the hope that the case studies it contains will be able to reach an even wider audience and thus have a greater impact.

IAP for Health co-chairs

Lai Meng Looi	Detlev Ganten	Depei Liu
2010-2016	2013-	2016-

Acknowledgements

The present publication is the result of a series of deliberations by members of the Executive Committee of the InterAcademy Partnership for Health (formerly the InterAcademy Medical Panel, IAMP). A major goal of IAP for Health is to improve health world-wide.

Given that millions of people around the world do not have access to affordable 'allopathic' or 'Western' healthcare, but rely on time-honoured traditional practices, the aim of this project was to seek out successful examples of traditional medical practices, especially those that have been validated using modern scientific methods. In this way, we hope that this volume will not only add to our knowledge of traditional medicine and the benefits it can bring, but also help to shine a light on proven practices, introducing them to a wider audience – scientists and medics, as well as decision-takers and policy-makers.

We would therefore like to extend our gratitude to the many individuals and organizations that contributed to the planning and execution of the process that has resulted in the publication of this volume.

The project was largely funded by IAP for Health, with financial and logistical support from the Chinese Academy of Engineering (CAE) and the China Academy of Chinese Medical Sciences (CACMS), especially in regard to the organization of a workshop held at CACMS, Beijing, China, on 22-24 September 2015. We would therefore like to thank colleagues in Beijing, especially Depei Liu (CAE), Boli Zhang (president, CACMS), Baoyan Liu, (principal researcher, CACMS) and Ping Song (CACMS).

A total of 24 case studies were presented at the workshop, nine from China and 15 from 15 other countries. We thank all the delegates for sharing their work.

These case studies were selected following a call for proposals coordinated by the IAP for Health secretariat. Proposals received were reviewed by an Expert Committee, and the best selected for presentation at the Beijing symposium. The project would not have been possible without the efforts of the Expert Committee, so our sincere thanks go out to Depei Liu (Chair); Liaquat Ali, Vice-Chancellor, Bangladesh University of Health Sciences (BUHS) and Honorary professor, Department of Biochemistry & Cell Biology; Mustafa Ali Mohd, deputy director, University of Malaya Medical Centre, Malaysia; Armando Carceres, chemical biologist, Faculty of Chemical Sciences and Pharmacy, University of San Carlos, Guatemala; Jules A. Desmeules, professor of clinical pharmacology and toxicology, Multidisciplinary Pain Centre, Geneva University Hospitals, Geneva, Switzerland; Fola Esan, professor of haematology, Nigerian Academy of Sciences, Nigeria; Vijay Kumar, president, Science Council of Asia and president, National Academy of Sciences of Sri

Lanka; Job I. Jondiko Ogoche, Professor of Chemistry, Maseno University, Kenya; Shing-Tung Yau, Department of Physics, Harvard University, USA; Yung Chi (Tommy) Cheng, pharmacologist, Henry Bronson Professor of Pharmacology, Yale University School of Medicine, USA; Baoyan Liu, principal researcher, CACMS; and Boli Zhang, member of CAE, president, CACMS, and president, Tianjin University of Traditional Chinese Medicine.

The IAP for Health secretariat played a critical role in establishing the Expert Committee, disseminating the call for case studies, working with the selected authors to collect and finalise their case studies, and working with an editor and designer to prepare the book for printing. We are therefore grateful to the members of the secretariat, including Peter McGrath, coordinator, Muthoni Kareithi, project assistant, and Sabina Caris, temporary project assistant. Together they have provided the administrative assistance that has enabled the project to stay on track despite the complications caused by its global reach.

The 24 case studies presented in this volume were initially prepared by the scientists involved and, once again, we extend our thanks to them. Paul Tout, a freelance editor based in Trieste, Italy, and Peter McGrath then adapted the texts to the format presented in this book, which we hope will make them accessible to a wider, non-technical audience.

The talent and commitment of each member of this diverse group helped to move the project forward efficiently and effectively. We express our thanks to them all.

IAP for Health co-chairs

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Introduction

In September 2015, at the headquarters of the United Nations in New York, world leaders agreed to a suite of 17 Sustainable Development Goals[1]. These SDGs, and the 169 targets that were also agreed, lay out a roadmap for global development from 2015 to 2030. While targets to ensure good health and well-being are embedded across the 17 SDGs, SDG3, in particular, aims to "Ensure healthy lives and promote well-being for all at all ages."

Among the targets of SDG3 are access to safe, effective, quality and affordable essential medicines for all. While some may read this as access to 'Western' or 'allopathic' medicines, it is clear that the number of people with limited or no access to such medicines means that the scale of this challenge is enormous unless other forms of medicine are considered. In Africa, Asia, Latin America and the Middle East, for example, between 70 and 95 per cent of the population still use traditional medicine for their primary healthcare[2]. But while the details of Ayurveda in India, Traditional Chinese Medicine, and other systems elsewhere, have been written down and codified for centuries, other traditional practices emerge and evolve more organically and have fewer controls over their safety and practice, or guarantees of their effectiveness. In addition, while traditional medical practices are regarded as an essential component of healthcare in many low and middle-income countries, there is a parallel trend in their increasing popularity and uptake in high-income countries.

The World Health Organization (WHO) defines traditional medicine as "the sum total of the knowledge, skills and practices based on the theories, beliefs and experiences indigenous to different cultures, whether explicable or not, used in the maintenance of health as well as in the prevention, diagnosis, improvement or treatment of physical and mental illness."[3]

Indeed, pre-empting the SDGs, the WHO had a traditional medicine strategy in place between 2002 and 2005 and has since updated it in a new 2014-2023 strategy.[4] This current strategy aims to support WHO Member States in developing proactive policies and implementing action plans to strengthen the role traditional medicine plays in keeping people healthy. And while it builds on the work carried out under the previous strategy, it places more emphasis on prioritizing health services and systems, including traditional and complementary medicine products, practices and practitioners.

1 https://sustainabledevelopment.un.org/?menu=1300

2 Molly Meri Robinson and Xiaorui Zhang. The world medicines situation 2011 (WHO, 2011)

3 http://www.who.int/medicines/areas/traditional/en/

4 http://www.who.int/medicines/publications/traditional/trm_strategy14_23/en/

The strategy has two key goals:

- to support Member States in harnessing the potential contribution of traditional and complementary medicine to health, wellness and people-centred healthcare; and
- to promote the safe and effective use of such medicine through the regulation of products, practices and practitioners.

To achieve these goals, the WHO is focusing on three strategic objectives:

- building the knowledge base and formulating national policies;
- strengthening safety, quality and effectiveness through regulation; and
- promoting universal health coverage by integrating traditional and complementary medicine services and self-health care into national health systems.

However, achieving these objectives relies on countries identifying and evaluating strategies and criteria for integrating traditional medicine into their national healthcare systems and practices. While steady progress has been made in many countries, many others are still hesitant to embrace traditional medicine due to uncertainties about the safety, efficacy and quality of such medicines.

In short, there is a need for more rigorous scientific research and clinical trials into the traditional medicines and medical practices.

The WHO also recognizes the need "to promote international cooperation and collaboration in the area of traditional and complementary medicine in order to share evidence-based information."[5]

In this instance, promoting international cooperation and collaboration also answers to SDG17, which focuses on building partnership to help implement the other 16 SDGs.

Another reason to explore traditional medicine is the fact that about one-quarter of 'modern medicines' are derived from plants used by traditional medical practitioners. Indeed, the 2015 Nobel Prize in Physiology or Medicine was shared by Youyou Tu, a member of CACMS, "for her discoveries concerning a novel therapy against malaria, artemisinin, derived from a plant used in traditional Chinese medicine." Investigating traditional medicines, therefore, can help identify novel compounds that could lead to new pharmaceutical products[6].

And there is an ongoing need for new pharmaceutical products, as highlighted by the 2013 IAP Statement, 'Antimicrobial Resistance: A Call to Action', which called for "Encouraging

5 http://apps.who.int/medicinedocs/en/d/Js21462en/

6 http://www.scidev.net/global/medicine/feature/traditional-medicine-modern-times-facts-figures.html

industry innovation, new business and collaborative R&D models, in partnership with the public sector, to develop novel anti-infective drugs".[7]

Indeed, on the subject of antimicrobial resistance, in September 2016 (almost exactly a year after the IAP symposium in Beijing), United Nations Member States met in New York and agreed to a strong political declaration that provides a basis for the international community to move forward together, and reaffirming their commitment to develop national action plans on antimicrobial resistance, based on the 2015 '*Global Action Plan on Antimicrobial Resistance*', developed by the WHO, the Food and Agriculture Organization of the United Nations (FAO) and the World Organisation for Animal Health (OIE)[8].

As per the 2014-2023 WHO strategy, traditional medicine can play a part in this global effort.

"Traditional medicine attracts both uncritical enthusiasm and uninformed criticism," said Bernhard Schwartländer, representative of the World Health Organization (WHO) in China, during his opening address at the IAP for Health symposium in Beijing. "But it is arrogant to ignore thousands of years of wisdom. We need to explore it and exploit it. After all, 40% of the population of China and 80% of the population of Africa are using traditional medicines."

In answer to this – and a justification for the IAP for Health project, of which this current volume is an integral part – IAP for Health co-chair Lai Meng Looi (2010 - 2016) confirmed: "We will continue to talk, to share and to collaborate with our partners and develop new ways to work together. It will be important to cultivate the new friendships formed in Beijing and to follow up with the different projects. I hope this symposium will mark a new beginning and offer new impetus to overcome the remaining barriers between different medical systems, allowing us to further tap and harness traditional medicine and provide it with the recognition that it deserves."

In this way, IAP for Health can help contribute – along with its member academies and the institutions represented by the authors of the case studies presented herein – to the WHO 2014-2023 strategy for traditional and complementary medicine, and the SDGs, especially SDG3 that targets 'health for all'.

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7 http://www.iamp-online.org/antimicrobial-resistance-call-action

8 http://www.un.org/pga/71/2016/09/21/press-release-hl-meeting-on-antimicrobial-resistance/