Evidence-Based Practice in Complementary and Alternative Medicine
Evidence-Based Practice in Complementary and Alternative Medicine

Perspectives, Protocols, Problems, and Potential in Ayurveda

Springer
After visiting the Central Institute of Research in Indigenous Systems of Medicine at Jamnagar on November 2, 1955, Pandit Jawaharlal Nehru had observed—“a fascinating inquiry is going on in this research institute and it may well lead to very fruitful results. The only right approach has to be one of science, that is, of experiment, trial and error. In whatever type of medicine we may deal with, we cannot profit by its study unless we apply the method of science. Nothing should be taken for granted. Everything should be tested and proved and then it becomes a part of scientific medicine—old and new.”

In other words, Pandit Nehru was championing the cause of (scientific) evidence based medicine.

In the Mahatma Gandhi Memorial Oration that I delivered at the Indian Institute of Management, Kolkata on October 16, 2001, I had said

It is only by fusing the ancient wisdom and modern science that India can create world class products, because new products cannot compete with products, which have only tradition and empirical observation as the knowledge base. The knowledge to be integrated into the traditional products has to emerge from modern science, especially modern biology and chemistry.

In other words, again I was championing the cause of (scientific) evidence based medicine.

I am delighted to see that this book represents the spirit of these foregoing sentiments. More specifically, it champions the creation of evidence based Ayurveda (EBA).

Ayurveda is one of the earliest frameworks which systematized knowledge of health and healthcare. Its framework is not only self-consistent, but also uses cause and effect arguments to correlate manifestations of sickness, its causes and its treatments. When this framework was developed in ancient India—the notion of a molecule did not exist, nor was the cell and the role it plays in the life process known. The discoveries of DNA and functional genomics lay more the 3,000 years in the future, yet in spite of all this Ayurveda offered effective treatments for many disorders, particularly those with multiple causes. For some degenerative diseases, most Indians consider it to be the treatment of last resort. Despite this, why has there not been a universal acceptance of Ayurveda? The book argues that such evidence based approach is a first step towards global acceptability of Ayurveda.
Dr. Sanjeev Rastogi and his colleagues have addressed the importance of evidence in this book in a very comprehensive manner. The book addresses an often raised question as to why do we need an evidence base for a health care practice, which is prevalent for ages. This book brings together the collective knowledge and insights of leading experts from the vaidya community. It logically emphasizes the extended benefits of establishing EBA by addressing the need of better and dependable health care and prospective recognition and growth of Ayurveda as a contemporary science.

The authors emphasize that EBA is quite achievable within its own purview, without compromising its fundamentals. Indeed, it can be done by essentially utilizing its own tools of generation of evidence. This emphasis is supported by very appropriate elaborative and convincing examples.

The book outlines the protocols for research synthesis in the context of Ayurveda. It covers important topics like evidence based clinical practice, diet and nutrition concepts, clinical evidence in the tradition, concept of prakriti (constitution), panchakarma, Ayurvedic approach to cardiovascular diseases, rasayana and rejuvenation and oral diseases. I was particularly happy to see the comprehensive contribution on the most discussed safety issues of Ayurvedic drugs in the purview of EBA with a recommendation that we should strengthen the pharmacovigilance system for Ayurvedic products to find out the rare side effects.

The book not only outlines the challenges towards EBA but also suggests possible solutions. The need of reporting single case studies and case series is very well highlighted. The example of Amavata defines the need for reappraisal of basic principles of Ayurveda. By giving an example of reappraisal of salivary diagnostics from the point of view of Ayurveda, it is shown as to how truly innovative ideas can be generated. Elaborative flowcharts provided in the book makes it especially easy to understanding the concepts.

I appreciate the commitment, energy and enthusiasm of Dr. Sanjeev Rastogi and his team in making this most valuable contribution, since evidence based Ayurveda could indeed be a powerful frontline solution, which will help mankind’s continuing quest in the twenty-first century to fulfil the dream of “health for all.”

National Research Professor & President Global Research Alliance, National Chemical Laboratory, Pune 411 008, India

R.A. Mashelkar
Over the last few decades, Ayurveda was mainly known in the West as a wellness intervention. However, Ayurveda is clearly making its way into medical health care: Ayurveda clinics are getting established, and research projects are starting up. As a perceived newcomer to the field of medical care in Western countries, it is important to develop and improve the scientific knowledge base and to continue to foster further research. Firstly, we need to understand why Ayurveda has become so popular in the West, and secondly, we need better evidence about its safety, effectiveness, efficacy, and cost-effectiveness in order to make rational decisions about its public and private provision. On the basis of positive evidence, Ayurveda may become integrated as an additional element within patient-centered medicine in the West.

The bringing together of traditional knowledge and concepts of evidence-based medicine is clearly a step in the right direction, which has to be taken with great care. This is something the authors of this book, when writing their contribution, have taken into account in a thoughtful manner. Ayurveda is a traditional, whole medical system that has a unique and complex diagnostic and interventional approach. Complex treatments follow the theory that the combination of the different treatment elements exerts synergistic effects relevant for the outcome. Evaluation of whole medical systems within the methodological framework of conventional clinical research results in fragmentation of the interventions. For example, comparing an Ayurvedic medicine such as Yogaraja Guggulu with a placebo for osteoarthritis of the knee would provide information on the safety and the specific effect of Yogaraja Guggulu but not on Ayurveda as a whole treatment system. Ayurveda, as typically applied for the treatment of osteoarthritis of the knee, would entail a complex intervention that is individualized according to the constitution of the patient (dosha). Aside from Ayurvedic medicines, the intervention could include dietary and lifestyle advice, yoga, abhyanga, local bastis, and performance of basti-karmas. To understand if Ayurveda is noninferior or superior to a complex conventional treatment, it would be necessary to compare both treatment approaches against one another.

One has to bring together traditional and clinical research, ideally by involving the relevant stakeholders—the patient, the practitioner, researchers, producers, and health policy decision makers—in order to carry out useful comparative effectiveness research. Both the evidence on safety and efficacy of single medicines as well
as the evidence on the effectiveness of a complex and individualized Ayurveda intervention are needed to convince decision makers in the West that Ayurveda can play a role in medical health care.

This book provides an excellent overview about the theoretical framework of Ayurveda and gives insight into its evidence base. It helps to better understand what it is about Ayurveda that people perceive as helpful and provides explanations on the healing properties by drawing on traditional Ayurveda theory. I hope this book will be widely read and valued by practitioners and researchers interested in this particular area of medicine.

Professor of Medicine, Vice Director  Claudia M. Witt, M.D., M.B.A.
Carstens Foundation Distinguished Professor for Complementary Medicine Research,
Institute for Social Medicine, Epidemiology
and Health Economics,
Charite University, Berlin,
Germany
Preface

It is almost 5 years back, when I came in touch with Prof Francesco Chiappelli. A foundation to this book was laid at that time, although it took almost 5 years for the preliminary thoughts to get refined and mature in the shape of a book.

A clinical practice based upon evidences of comparative effectiveness, safety, efficacy, and cost-effectiveness of chosen interventions and also upon reliability and validity of diagnostic tools which were used to make a diagnosis is mandatory to give prevailing health care a realistic face. Accountable decision making in terms of disease diagnosis and in choosing the most appropriate medical care in light of best available evidences is an utmost requirement to give rise to transparency and accountability in medical care ultimately aiming to provide the best possible care to everyone. This had been a well-cherished dream sought long back at the Alma-Ata declaration of “Health for All.”

It is beyond the scope of discussion any more that CAM should also be brought into the purview of evidence-based practice of medicine (EBPM). Any medical intervention where a patient is given hope of betterments in terms of improvements of quality of life or through changing end point measures should essentially be brought under the purview of regular monitoring to prevent substandard practices and eventually to maximize the prospective benefits from a chosen therapy. The same would also be important to give rise to a uniform status to health care for its impacts spreading beyond the geographical boundaries or the type of care involved.

It is important to understand here that an evidence-based practice in CAM is not as straightforward as it is seen in conventional medicine. Paucity of secondary documentary evidences (in the form of published research documents) and treatment protocol variations reflecting the caregiver’s or patient’s preferences, inclinations, needs, or beliefs together make decision making in CAM a unique exercise which is difficult to be replicated at any other similar situation. It should therefore be clearly understood that applying evidence to CAM would have to be a novel exercise at its own, requiring a cautious introspection into all of its resources and practice styles including the subjective methods of decision making in intervened clinical conditions.

Evidences in Ayurveda (to CAM in general) would require to be crafted carefully and diligently while keeping each such subset population of clinical entity in mind, where a differential decision making would warrant, based upon the specifications
observed on account of *Roga* (disease) or *Rogi* (patient). A whole system research (WSR) brings a beautiful model to evaluate such interventions in the true spirit of their practice in real-life situations. It is however important to understand that a WSR should again be fractioned in various subsets of practices to make it a real representative to the CAM practices. Ayurvedic diagnostics are found lagging behind in the evidence synthesis when the same is compared to its interventions. It is again important to reiterate that an evidence-based diagnostic decision making is rather more important in CAM compared to their efficacy evidences based upon contemporary end point measures. As therapeutic decision making in Ayurveda relies solely upon the *dosha, dushya,* and *prakriti* status of the patient, it is imperative to develop tools for such diagnoses, which may eventually help decision making referring to the choice of suitable intervention.

Finally, the rapid emergence of CAM globally is partly in repercussion to complexities associated with conventional therapy for their over-reliance upon technical breakthrough, making them more mechanical and less human. CAM, through its holistic principles and patient-centered approach, offers more solace in conditions where conventional medicine is unable to offer any. A resurgence of CAM therefore lies in its simplicity, accessibility, affordability, and humanistic and cultural bindings. Any approach to make it more standardized (eventually making it more complex) should always be weighed against the benefits and losses it may cause. It is mandatory to care for the basic attributes of CAM while approaching for any exercise to amend its practice style.

It is clear that practicing evidence-based Ayurveda (EBA) in view of such intricacies and limitations is an uphill task which would require Herculean efforts. The present work is a modest compilation of works from different streams of thoughts in Ayurveda and evidence-based medicine aiming to bring more accountability in Ayurvedic practice through synthesizing the evidences initially and disseminating these evidences eventually to help Ayurvedic practice for optimizing its impacts. Being first of its kind, the book represents innumerable ideas and thoughts as foundation, upon which a strong EBA can be built in future if the same vigor and zeal to “bring the best of Ayurveda before the world” is continuously sustained.

Sanjeev Rastogi
PG Department of Kaya Chikitsa,
State Ayurvedic College,
Lucknow University, Lucknow,
Uttar Pradesh,
India
Acknowledgments

This work has been the result of dedication and untiring efforts of innumerable scientists and vaidya-scientists (Ayurvedic physicians with scientific zeal) working since long to bring an equitable, affordable, sustainable, and dependable form of health care with due respect to the traditional wisdom of health care.

We are able to cite only a few of them in the entire work, but we acknowledge them all for their contributions which ultimately have paved the way to the thought of evidence-based Ayurveda, of which this book emerged.

Prof Francesco Chiappelli, an icon in the field of evidence-based medicine, dentistry, and complementary medicine, has been the principal motivator for me to take up this project. He not only has encouraged me to come forward with the idea of evidence-based Ayurveda but also has assured me of his help at any time of need. I am proud to have worked with him at many occasions earlier and to have him as a coeditor to the team which finally has shaped this book.

Prof RH Singh, the other coeditor to the book, has been a legendary vaidya-scientist in contemporary sense. My thoughts of Ayurveda got nurtured and refined in Banaras Hindu University where I worked as an associate to Prof Singh. He has been the vital force behind all my works related to bringing Ayurveda on scientific footings. His constant encouragement and visionary touch is reflected throughout in this work. I am honored to have him as another coeditor to this work.

Dr Manisha Harish Ramchandani, the final coeditor to this book, represents the new age science. Through her cutting-edge approach, as a coeditor, she did admirably to improve the quality and content of the book to every extent.

It is the hard work of all our contributors which shaped this book. They represent the most refined and open-minded strata of people with an equal flair for science as well as for Ayurveda. Undoubtedly, the work represents the thoughts on Ayurveda in tune to the need of science.

Ms Irmela Bohn from Springer (Berlin Heidelberg) deserves utmost praise for her unconditional and continuous support to this project from the time of conception till delivery. It was her rigorous support only which metamorphosed a mental exercise into a concrete book.

I specially thank my wife, Dr Ranjana, and my son, Shashwat, who permitted me for months together to remain absconded from family matters to complete this task. Without their constant support, love, and admiration, this work would not have been possible.
I dedicate this work to *Charaka*, the nomadic saint physician of Ayurveda, who enabled us to share from his treasure house of wisdom the eternal *Charaka Samhita*. It is still mesmerizing to read through *Charaka Samhita* for the more we see, the more we find it relevant to the contemporary sense.
# Contents

## Part I: Evidence-Based and Comparative Effectiveness Analysis

1. **Fundamentals: Evidence-Based Practice in Complementary and Alternative Medicine—Perspectives, Protocols, Problems, and Potentials** .................................................. 3  
   Francesco Chiappelli

## Part II: Evidence-Based Medicine and Ayurveda

2. **Transforming Ayurveda: Stepping into the Realm of Evidence-Based Practice** .................................................. 33  
   Sanjeev Rastogi and Ram Harsh Singh

3. **Diet and Nutrition Concepts in Ayurveda: Gleaming into Opportunities for Evidence-Based Applications in Health Care** .................................................. 51  
   Devesh Rastogi, Shalini Gupta, Ranjana Rastogi, and Rajiv Rastogi

4. **Clinical Evidence in the Tradition of Ayurveda** .................. 67  
   P. Ram Manohar

5. **Evidence-Based Traditional Persian Medicine** .................. 79  
   Mahsa Dousti, Manisha Harish Ramchandani, Andre Barkhordarian, Sohrab Danaei, and Francesco Chiappelli

## Part III: Substantiating Ayurvedic Theory and Practice Toward Evidence-Base

6. **Prakriti Analysis in Ayurveda: Envisaging the Need of Better Diagnostic Tools** .................................................. 99  
   Sanjeev Rastogi

7. **Panchakarma: Ayurvedic Detoxification and Allied Therapies—Is There Any Evidence?** .......................... 113  
   Sivarama Prasad Vinjamury, Manjusha Vinjamury, Sobhana Sucharitakul, and Ingebrit Ziegler
### Contents

<table>
<thead>
<tr>
<th>Chapter</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>8</td>
<td>Gut and Joint Interconnections: A Reappraisal to Ayurvedic Understanding of Joint Diseases</td>
<td>139</td>
</tr>
<tr>
<td></td>
<td>Sanjeev Rastogi and Ranjana Rastogi</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Ayurvedic Approach to Cardiovascular Diseases: Delineating the Literary and Clinical Evidences</td>
<td>159</td>
</tr>
<tr>
<td></td>
<td>Sanjeev Rastogi, Rajiv Rastogi, and P.S. Srivastav</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Rasayana Therapy and Rejuvenation</td>
<td>177</td>
</tr>
<tr>
<td></td>
<td>Ram Harsh Singh and Sanjeev Rastogi</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Translational Effectiveness in Ayurvedic Medicine: Implications for Oral Biology and Medicine</td>
<td>191</td>
</tr>
<tr>
<td></td>
<td>Manisha Harish Ramchandani, Mahsa Dousti,</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Andre Barkhordarian, and Francesco Chiappelli</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Part IV: Towards Future Perspectives of Evidence-Based Ayurveda</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>Safety Aspects of Ayurvedic Drugs</td>
<td>211</td>
</tr>
<tr>
<td></td>
<td>K.K. Pant, C.K. Katiyar, and Arun Gupta</td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>Toward Evidence-Based Practice of Ayurveda: Extrapolating the Challenges in the Current Decade</td>
<td>233</td>
</tr>
<tr>
<td></td>
<td>Sanjeev Rastogi</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Index</td>
<td>247</td>
</tr>
</tbody>
</table>