This book is the result of manifold contributors along many years of research and practice in the respiratory medicine and biomedical engineering fields. It is not at all a complete picture of the state of art as it would mean to have a manifold volume of 1000 pages. Instead, the content is focused on new emerging tools as a result of the fruitful cross-fertilization of engineering and medicine. Tools for mathematics, models, statistics, and procedures viewed alternatively offer a new, fresh understanding of available information from standardized and nonstandardized lung function tests. Although one may argue that the medical, clinical aspect is somewhat superficial, it is sufficiently introduced for a broad understanding of concept by practitioners as well.

The organization of the book follows the line of moving from clinical content as lung function testing, toward mathematical tools and other complementary sources of information. My goal was to offer the community a new direction for research, to emphasize the tools at hand, and to encourage undertaking this challenging opportunity to make things better for health care in some aspects of respiratory medicine. A complete book could be written about any chapter in this book alone.

However, a take-home message of this book, if I were to give one, would be as follows. Although it may be possible to isolate one aspect of the patient in a certain measurement, that single aspect can usually only be understood when it is related to other aspects. That statement is valid for the book text as well: each detail may be related to many other details. It is only when these relations are routinely perceived that understanding has been reached.

The readers will find the contributors are well established in the field and with longstanding experience. I encourage young, motivated, and promising researchers to contribute as they have a most undefeatable original perspective of novel opportunities beyond state of art and beyond state of practice.

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