



MAKING DATA TALK

Communicating Public Health Data to the Public,
Policy Makers, and the Press

David E. Nelson | Bradford W. Hesse | Robert T. Croyle



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*This book is dedicated to the loving memory
of Claire Emily Nelson (1989–2005). To paraphrase
Benjamin Franklin’s epitaph for his son, she was the
delight of all who knew her.¹*

¹ Isaacson W. *Benjamin Franklin: An American Life*. New York, N.Y.: Simon & Schuster; 2003.

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Foreword

Without question, communicating scientific information, and in particular, scientific data, to lay audiences is difficult. I routinely observe the struggles faced by scientists, public health practitioners, clinicians, and many others who attempt to convey “the numbers” to persons from all walks of life. Indeed, there is a growing need to make key public health data available, but they must be selected and presented in a manner that is to be understandable, have meaning, and help people answer the critical question “so what?”

Other authors have attempted to provide recommendations about one aspect of data communication, such as visual data presentation, but they have not taken into account the totality of communication processes in public health and the many factors that influence it. This book appropriately emphasizes the importance of data selection, recognizes that presentation extends beyond visual modalities, and points out the need for careful integration of words, symbols, and numbers. I was particularly pleased that the Drs Nelson, Hesse, and Croyle highlight the often hidden roles that communicators’ values, ethics, and assumptions play in data selection and presentation, the reality that presenting more data is rarely better, and sometimes the “best” data to present are no data at all.

Although substantial advances have occurred as the result of specialization within scientific fields, a major drawback of specialization is the distance it creates within and across disciplines, which can prevent cross-fertilization of research ideas and methodologies. An additional challenge is that, unfortunately, researchers and practitioners in public health and related fields often live in parallel universes and do not regularly communicate with each other. As demonstrated by many initiatives sponsored by governmental and non-governmental organizations, there is a great interest and recognized value for transdisciplinary work to establish networks across fields. In the field of health communication, transdisciplinary efforts are needed not only across traditional scientific disciplines, but also from practitioners and experts trained in related fields, such as the graphic arts and rhetoric.

I believe this book reflects a careful synthesis of research from many disciplines, resulting in knowledge advancement, yet with practical implications and advice for data communicators working in the trenches.

Furthermore, this volume represents a concrete example of the tremendous value that a transdisciplinary effort can have in increasing knowledge about communication for public health practice. You will find the content scientifically sound, easy to read, and practical. It is a significant achievement and a contribution to literature and regularly and consistently following its principles will help you improve your communication skills.

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Preface

We wrote this book with two main purposes in mind: (a) to summarize and synthesize research on the selection and presentation of data pertinent to public health, and (b) to provide practical suggestions, based on this research summary and synthesis, on how scientists and other public health practitioners can better communicate data to the public, policy makers, and the press in typical real-world situations. Because communication is complex and no one approach works for all audiences, we emphasize how to communicate data “better” (and in some instances, contrast this with how to communicate data “worse”), rather than attempting a cookbook approach. We include many case studies and other examples to illustrate major points and actual situations whenever possible. We summarize key principles and recommendations at the end of each chapter.

Although this book discusses many general characteristics and specific recommendations about communicating data, it is based on five overarching themes that can help public health scientists and practitioners make better choices. The first theme is to raise awareness of the many factors and complexities that need to be considered, and the possible choices to be made, when selecting and presenting data. It will become painfully obvious that it is not as easy as simply “showing audiences data, and hoping that the numbers will speak for themselves.”

The second theme is that there is a close and inseparable relationship between data selection and presentation with the purpose for communication, intended audience(s), and the context in which communication occurs. As discussed in Chapter 2, the four purposes for communicating public health information with lay audiences are to increase knowledge (educate with no intent to influence), instruct, facilitate informed decision making, and persuade. These purposes involve critical value and ethical decisions. Given that data selection and presentation are closely tied to purpose, audience(s), and context, selection of data is inevitable: decisions must be made to present certain data and to use certain presentation formats at the exclusion of other data or formats.

The third theme is that data should be used to support a science-based storyline. Storyline, as defined in this book, refers to the conclusion, based upon the current state of scientific knowledge drawn about a specific aspect of a public health topic, that scientists or public health practitioners want lay audiences to understand. Storylines can vary widely, depending on the amount of research and level of consensus among scientists. Storylines may lead to communication messages designed for lay audiences with a straightforward persuasive purpose (e.g., these data show why it is important to engage in regular hand washing to prevent infectious disease transmission), to increase knowledge with no intent to persuade (e.g., these data illustrate a scientific finding or trend that is important knowledge about public health), or for an informed decision-making purpose (e.g., these data demonstrate why it is important to you to consider this information and these sources prior to making a personal health decision).

The fourth theme is that data need to be used ethically and in such a manner as to maximize their impact and effectiveness to increase audience understanding. This means selecting and presenting data that are most likely to resonate with intended audiences for the desired communication purpose and storyline. Our explicit assumption is that readers of this book are “honest brokers” who would like to communicate public health data and other information to lay audiences in an ethical manner, not simply “cherry picking” data from research studies or surveillance systems that most easily demonstrate the key point(s) they wish to convey.

Finally, the fifth theme is that selecting and presenting data to lay audiences needs to avoid unintended consequences. Presenting inappropriate or poorly selected data may result in lay audiences failing to attend to messages (e.g., not recognizing important points or being distracted), becoming overly fearful, “underconcerned” about public health problems, or in some other way misunderstanding the key storyline. This theme emphasizes the important role that formative and other types of evaluation research play in public health communication, broadly, and in data communication, specifically.

We did not attempt to conduct an in-depth review of all the research that bears on data communication, as doing so would require a multivolume set of books. Much research has been done, and many books written, for example, about risk communication in public health and about decision making in clinical settings. In contrast, there is a paucity of research for some topics, such as communicating data to policy makers. For areas such as these, we had to rely on information based on the experiences of practitioners (“expert opinion”) and research on related topics. Thus, we believe this book may best be considered a metareview of research-based recommendations from seminal books, reviews, and research articles, supplemented by the practice-based recommendations of experts.

Now for caveats and disclaimers. One of our biggest challenges was the large number of fields in which relevant research has been conducted. They included anthropology, business, communication, computer science, economics, education, epidemiology, genetic counseling, health education/health promotion, informatics, journalism, law, mathematics, medicine, nursing, political science, psychology, sociology, and the visual arts. If nothing else, our review of these literatures confirmed what many others before us have learned: (a) many, many factors influence whether a communication effort or activity is successful with a given audience, and (b) communication is as much an art as a science. It was a humbling experience!

We do not consider ourselves expert in all these areas. Our background and experience are primarily in the fields of communication, epidemiology, medicine, public health, and social psychology. For subject areas that we knew less well, we solicited recommendations about key research from experts in these areas. We realize that it is likely that we failed to cite some classic studies or explore avenues of research that would have provided additional insights. We apologize in advance for any omissions.

The book chapters can be broadly divided into four areas. Chapter 1 provides an introduction and background information about the challenges involved in communicating quantitative public health data. Chapters 2–4 provide an overview of communication, how people process and understand data, and the palette of options for data presentation, drawing heavily from the fields of psychology and communication. Readers most interested in practical application may be tempted to skip these chapters, but we encourage all to read these chapters, as they provide the rationale for better communication practices and include many practical examples.

Chapters 5–7 are the third part of the book. They integrate material from previous chapters and contain recommendations and extensive examples about communicating data to lay audiences in more common public health situations (Chapter 5), as well as in more specialized circumstances (e.g., outbreaks or crises [Chapter 6] or advocacy [Chapter 7]). The final

chapter (Chapter 8) contains suggestions for future directions in data communication.

We hope this book will stimulate interest among public health practitioners, scholars, and students to more seriously consider ways they can understand and improve communication about data and other types of scientific information with the public, policy makers, and the press. We are confident that improved communication about data to lay audiences will increase the chance that evidence-based scientific findings play a greater role in improving the public's health.

David E. Nelson
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Robert T. Croyle

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