Editor’s Note

Moving From Big Data to Vital Insights

Big Data promises to transform the rapidly expanding collection of health data we see today into smart, relevant, and actionable knowledge to deliver personalized health. Yet, traditional methods of clinical research cannot handle the volume, variability, velocity, and veracity of data that is currently being generated. Successful, real-world examples of this Big Data in health, therefore, are rare, and important problems remain unsolved. Not surprisingly, some now question if the ultimate impact of Big Data in medicine will be largely incremental rather than transformational.

This is a story that needs to be changed, and we at Circulation: Cardiovascular Quality and Outcomes believe that our journal can be a positive vehicle for this process. In this issue, readers will find a series of articles that tackle Big Data in health. Some of these use novel data sources and analytic tools to provide valuable insights into aspects of old problems like hospital performance or readmission and emerging problems like the value of teamwork in healthcare. Others present new work in more effective ways by examining how we can best evaluate machine learning and the value of data mining for complex associations like drug–drug interactions. All of these articles help us to take a step toward the promise of Big Data.

Of course, to ensure that we are not getting too carried away by its promises, we have also published a series of Cardiovascular Perspectives by leading experts. These perspectives highlight both upcoming challenges and opportunities with Big Data, including the challenge of training a new generation of health services and outcomes researchers proficient in their methods. These articles are a reminder that the road will be hard. Finally, Dr Montori offers a contribution based on his keynote address at the first Patient-Centered Outcomes Research Institute Annual Meeting (PCORI) held in Washington, DC, in 2015. The goal, as he reminds us, is to ultimately solve problems that advance the health of individuals and populations—a vision that will require Big Science more than Big Data.

The inspiration behind this forward-thinking issue on Big Data has been Drs Harlan Krumholz and Sharon-Lise Normand, the Editor and Statistical Editor of Circulation: Cardiovascular Quality and Outcomes over the last 8 years. I want to thank them for taking us in this exciting direction. The new Editorial Board views manuscripts such as the work sampled here as a key area of interest for us. To this end, we are planning an updated statistical primer series led by Dr Armando Teixeira-Pinto, our incoming Statistical Editor, which will cover a range of new topics, including machine learning and data visualization.

I hope you enjoy this issue and encourage you to start with Dr Krumholz’s Editor’s Perspective on the opportunities and challenges of Big Data.

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The opinions expressed in this article are not necessarily those of the American Heart Association.
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