

Dr Leonard Jack, Jr: Preventing Chronic Disease Through Statistical Rigor

Anna Jester

As Editor-in-Chief of the Centers for Disease Control and Prevention's journal *Preventing Chronic Disease*, Dr Leonard Jack, Jr, PhD, MSc, knows that disseminating the best thinking and evidence around how to help people and communities prevent chronic diseases and promote health and wellness for all individuals around the world requires careful, rigorous peer review. A core component of this review at his journal involves a team of dedicated statistical reviewers who can thoroughly evaluate the complicated statistical analysis and methods underpinning the articles they publish. Recently, *Science Editor's* Anna Jester spoke with Leonard about his creation of a statistics review committee, his path toward becoming an editor, and the importance of publishing science the public can trust.

Science Editor: Please tell us about your job and organization.

Leonard Jack, Jr: I have the privilege of working for The Centers for Disease Control and Prevention (CDC) in Atlanta, Georgia. I have been with CDC for 23 years and in my current capacity as Editor-in-Chief of the journal *Preventing Chronic Disease (PCD)* for four years. CDC is the leading science-based data-driven service organization committed to promoting the health of the nation. The CDC is rather large and I'm housed in the National Center for Chronic Disease Prevention and Health Promotion (NCCDPHP) within the Office of Medicine and Science. As Editor-in-Chief, I have the responsibility of leading this peer-reviewed journal and ensuring the content we publish helps promote dialogue between researchers, evaluators, and practitioners while disseminating best practice around prevention of chronic diseases. The day-to-day work at the journal involves working closely with an esteemed editorial board, a talented mix of associate editors, and members of our statistics review committee. I'm responsible for making sure the scientific direction and editorial leadership are providing the most current relevant information to our readers.

ANNA JESTER is Vice President of Sales & Marketing at eJournalPress.



Science Editor: How did you get involved in scientific publishing and what career path led to your current position?

Dr Jack: During my undergrad experience I was mentored by individuals implementing research in various areas, which allowed me to understand how research questions are formed. I also learned how research projects are created and developed, and the methods behind them. Then, it got to a very interesting phase of the work where it was important to write down and capture what was implemented and learned. I found an interest in how to create a story to talk about an implemented intervention to improve health in a way that brought the rigor of the discipline itself, as well as conveying information in a way that is believable, has a flow to it, and that individuals can understand. It was easier to implement the research but a little harder to determine how to best capture that. Early on, my mentors exposed me to expectations journals put in place that help authors understand how best to capture it based on the journal to which they were submitting. This introduced me to various journals and their expectations. A firm foundation meant that in graduate school, I built upon how to conduct good

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research, the importance of not just writing a story, but scientific writing, along with developing the skills to assess the quality of published research. I learned early on that just because a paper was published in a journal did not make it a strong paper or confirm it met the rigors of scientifically sound publication.

In my first job after finishing my PhD, that skill spilled over into all the things that I needed to do to get tenure. I had to write and publish, and acquiring those skillsets made me successful. As a result, I began receiving invitations to serve as a reviewer for journals. Serving as a reviewer, along with my own portfolio of research, resulted in invitations to serve as a guest editor for journals. When I took that on it increased my appetite for looking at a body of work generated by multiple authors and finding a way to make sure there was consistency, where necessary. Also creating a body of work that had one voice, ensuring papers in a guest issue met the rigors of the journal for which I served as a guest editor. I then received invitations to become an associate editor, and later an opportunity, prior to my tenure as Editor-in-Chief of *PCD*, to serve as Editor-in-Chief of a different journal. That role really brought all of my experience to bear and allowed me to provide an overarching demand of excellence for the journal. It also positioned me well for my current role. At the same time, I was developing myself as a researcher and respected evaluator. What I am doing now is well suited for me because I get the opportunity to work with individuals from a variety of different fields who are all interested in finding ways to convey their findings, research, or experience, which has been very rewarding.

Science Editor: Would you please tell us about *PCD*'s statistics review committee?

Dr Jack: When I first came on board, one of my observations was that we have an incredible mix of talent in our associate editors. I assign papers to them and they conduct their initial review determining whether a paper goes out for peer review. I noticed some of the papers we were receiving brought a higher level of statistical analysis and statistical methods, beyond what we were familiar with and received in the past. We began receiving feedback from peer reviewers who would indicate that while they had a strong sense of statistics, this paper would benefit from a level of review in terms of the statistical approach and analysis of findings at an even higher level. As a result, I determined we needed to create the infrastructure supporting that type of expertise so, when needed, we had it available. *PCD* formed our statistics review committee (SRC) to help us disseminate the best statistical methods and testing available in public health. We are not only assessing the rigor and accuracy of papers, but also making available to others a clear understanding around how the

field itself, the application of statistics and methods, is advancing. Once published, it becomes a documented record of how to apply statistics in the most sound and appropriate way. We are also helping provide the field with information regarding the appropriateness of methods, statistical analysis, and how they can be aligned with a topic of interest. All of this is advancing the field itself in terms of statistics. The SRC includes almost 30 members who can share and provide a support system in terms of talking through statistical analyses on papers. It has become one of the major accomplishments for the journal and the quality of papers has improved. We have also reviewed papers that did not make it across the finish line because they were presenting findings that were not supported by complex statistical approaches or analysis presented in the paper. I have encouraged members of the SRC to remain firm. If you feel as though it's great, let us know. If you feel as though it's not, I want you to be honest and we will provide that information to the authors. Usually authors appreciate that level of rigor and as a result their papers are much better.

Science Editor: How are members on the SRC identified?

Dr Jack: Early on we spent time looking within our own database of peer reviewers, who identify their areas of expertise in the manuscript management system. I looked for peer reviewers who have self-identified an area of interest or expertise in statistics and economics. I analyzed whether or not they reviewed papers from that particular expertise and, if so, the quality and timeliness of those reviews. This provided a large pool of individuals I could narrow to a smaller pool of individuals, on whom I did my own homework to look at their work in the field. For those who made my cut, I sent communication explaining the creation of the SRC and indicating they would provide a huge benefit helping others improve the quality of their work. We do not offer the SRC an honorarium and these are individuals who are extremely busy and talented. What we are doing is making it reasonable. We will not ask members of the SRC to look at just any paper. We want them to look at the papers that genuinely require their high level of expertise. We will not ask them to review more than 2 papers per calendar year, making it a manageable time commitment. Our editorial board helps recommend individuals and the SRC often make recommendations for additional members as they are statisticians who know other statisticians. They now have up to 3 years of experience with the journal in this capacity and are able to share with others what the expectation is and how manageable we keep it.

Science Editor: What specific skills and abilities do members of the SRC bring to the journal?

Dr Jack: Skillsets we require must align with the journal's focus while presenting new insights in the field going forward.

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Our analysis indicated we needed individuals with expertise in conducting longitudinal data analysis, survival analysis, clinical trials, mediation analysis, and expertise in the use of statistical software. We want individuals familiar with the appropriate application of statistical software, providing confidence findings that were generated utilizing the correct application of statistical software. We also receive papers presenting data in a visual way, so we brought on individuals with expertise in data visualization. In these specific areas, statistics can be applied by individuals on the SRC who are also utilizing these different approaches (longitudinal data analysis, mediation analysis, etc.) on top of specific disease content areas such as diabetes, cardiovascular disease, maternal and child health, or reproductive health. Members on the committee have agreed to serve for 3–4 years. We connect the SRC once a year, and prior to COVID-19, we would bring them to CDC for face-to-face meetings. We also ask the SRC to help us update guidance we are offering authors. We provide insights regarding what can improve the chances of a successful paper, and we share examples of mistakes commonly made, including reporting data mistakes commonly made in tables and figures. The SRC's help refining those resources has been a tremendous resource and we believe they enjoy it.

Science Editor: What ways can *PCD*'s SRC serve as an example for other journals?

Dr Jack: The first thing that comes to mind is the SRC's successful implementation. The SRC serves as a valuable resource to me as the Editor-in-Chief, and to associate editors so they are not alone in trying to depend on feedback (or the absence of it) from peer reviewers. Unfortunately, papers are occasionally published that contain an error. It is important to have individuals such as SRC members available to help discern what that error is and where a mistake occurred to help facilitate conversations with authors regarding how to address it in the event data needs to be represented or published in an erratum. The SRC helps us provide that feedback. Having this kind of resource makes a journal feel more comfortable in what it publishes and making the names of members, and the expertise for each, available on our website conveys to readers, and the public, the journal takes this very seriously. *PCD* is a journal that is forever keeping the public's trust in mind. We also want to convey to authors they will receive a careful review, and when necessary, part of that review will be statistical assessment by the SRC.

Science Editor: What are some of the biggest changes you've seen in the industry and where do you see scientific editing and publishing heading?

Dr Jack: Some of the biggest challenges I've seen are likely to remain challenging moving forward. For years we have been talking about the relevance of journal impact factor. It is going to be important to continue rethinking that tool, originally aimed at helping librarians identify journal subscriptions useful to their patrons. We must open our minds regarding how we assess the impact of a paper on the merits of the paper, not on the journal in which it was published. It will be interesting to follow changes in publishing incentives and research assessment moving forward. Secondly, our journal receives a very large number of submissions each year and I know other journals also encounter this. There is a need to rely heavily on tools that help us to track and manage papers. Manuscript management systems are key, including built in artificial intelligence allowing us to identify inconsistencies between versions, duplications of papers, adding in a new author without declaring it, etc. We are using technology to help us monitor, generate reports, assess productivity, and evaluate the time taken managing a paper, and it only becomes more important to efficiently use these tools. Additionally, the complex need for statistical analysis of some papers journals are receiving has evolved to a place where there is a need for reviewing those papers differently. Bringing on qualified statistical reviewers requires a different way of thinking and recruiting. Also, while many of us have gotten better at what we do based on trial and error, and with varied experiences we can build upon, I hope to see even more formalized training to help people develop those skills in a more intentional way. How to interface with the public, now demanding greater transparency, is also evolving. There are certificate programs and graduate level training helping establish the foundation for doing the work before a person is put in a position to lead that work in real time. Lastly, there has been an exponential increase in the use of preprint servers, bringing some pros and some cons, some headaches and some breakthroughs. Posting articles before they are finalized is supplemented by posting research data sets and code, as well as supplemental material. The pressure to make information available has increased, especially when it is incredibly timely, or critical to move the field forward. I suggest we pause a bit and contemplate how well that has been going, evaluating what has occurred. In some examples it has not gone well. What can we learn from that?

The full interview with Leonard Jack Jr is available online at <https://www.csescienceeditor.org/article/dr-leonard-jack-jr-preventing-chronic-disease-through-statistical-rigor/>