Seminar

Does it decay? Decaying correlations in the design and analysis of stepped wedge trials

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A key ingredient in sample size calculations for cluster randomized trials is the intracluster correlation coefficient: a quantity that describes the similarity of the outcomes from participants in the same cluster. When considering designs like the stepped wedge, where clusters provide measurements in multiple time periods, I recommend that researchers ask whether the intracluster correlation coefficient could decay over time. That is, does the similarity between participants wane as the time between their observation increases? If so, such decaying correlations should be accounted for in the design and analysis of the trial.
In this talk, I'll describe correlation structures for stepped wedge and related designs that allow for decaying within-cluster correlation coefficients. I'll talk about the implications of these decays for planning studies, the consequences of incorrectly omitting a decay in the analysis of studies, how to pick a within-cluster correlation structure, and a repository of intracluster correlation coefficient estimates that researchers can use to help plan their studies.

Jessica Kasza is an Associate Professor in biostatistics in the School of Public Health and Preventive Medicine at Monash University in Melbourne, Australia. After completing a PhD in 2010 at the University of Adelaide, she spent time at the University of Copenhagen in Denmark. She has been at Monash University since 2013. At Monash, she leads the development of statistical methodology for longitudinal cluster randomised trials, including the stepped wedge and cluster cross over designs, with a current focus on the development of "incomplete" stepped wedge designs. She also has interests in the comparison of healthcare providers and in causal inference. In addition, A/Prof Kasza is the President of the Statistical Society of Australia, and in that role is keen to ensure that the Australian statistical community is diverse, welcoming, and inclusive.

Thursday 24th March
9:30-10:30am AEDT

This event will be streamed via Zoom.
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