



THE UNIVERSITY OF CHICAGO

Department of Statistics STATISTICS COLLOQUIUM

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Is Most Published Medical Research Really False?

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133 Eckhart Hall, 5734 S. University Avenue

Refreshments following the seminar in Eckhart 110

ABSTRACT

The accuracy of published medical research is critical both for scientists, physicians and patients who rely on these results. But the fundamental belief in the medical literature was called into serious question by a paper suggesting most published medical research is false. I will talk about a new science-wise false discovery rate estimation method adapted from the genomics community. I'll also talk about how we collect data in the form of P -values from the abstracts of all 77,430 papers published in *The Lancet*, *The Journal of the American Medical Association*, *The New England Journal of Medicine*, *The British Medical Journal*, and *The American Journal of Epidemiology* between 2000 and 2010. Among these papers, we found 5,322 reported P -values. Using these data, I will show how we estimate the overall rate of false discoveries among reported results as 14% (s.d. 1%), contrary to previous claims. I will also discuss the controversy surrounding both the original publication and the pre-publication controversy surrounding our paper. Time permitting I will discuss some extensions of our estimation approach to false discovery rate regression.

This is joint work with Leah Jager and Simina Boca.