Frederick P. Rivara, MD, MPH

Editor-in-Chief

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May 4, 2024

Dear Dr. Rivara,

I am pleased to submit our original research article, “Variation in Batch Ordering of Imaging Tests in the Emergency Department and the Impact on Care Delivery,” for consideration for publication in *Health Services Research*. This work is original and has not been published, nor is it being considered for publication elsewhere. Results from this work have been previously presented in two major conferences: INFORMS Annual Meeting 2023 and INFORMS Healthcare 2023.

Our study focuses on diagnostic test ordering in Emergency Departments (EDs). Specifically, we examine the practice of “batch” ordering imaging tests. By batch ordering imaging tests, a physician can ensure that their patient enters the necessary queue for each test (CT, ultrasound, X-ray, etc.) as early as possible in an ED visit. Often seen as efficiency measure, the consequences of this strategy, such as excess testing that would not have occurred had the physician waited on the results on one imaging test before ordering another, have potential to “wash-out” the efficiency gains associated with placing the patient in the queue earlier.

Our findings suggest exactly this. Physicians who predominately make use of batching tend to order more diagnostic tests and have longer lengths of stay than those who batch less. Our results suggest that the “information gain” advantage in ordering tests sequentially may allow non-batchers to obtain the necessary diagnostic information with fewer tests, enabling them to deliver the same quality of care more efficiently.

The word count for manuscript is 2,952. In addition, the manuscript includes 2 tables, 3 figures, 4 supplementary appendices, and 31 references.

All potential conflicts of interest are detailed in our Declaration of Interests form and in the Manuscript File following the Acknowledgements. All authors have read and critically reviewed the manuscript and agree with its content.

If any further information is needed, please do not hesitate to contact me via phone (475-777-9252) or e-mail at [jacobjameson@g.harvard.edu](mailto:jacobjameson@g.harvard.edu).

Thank you for your consideration.

Sincerely,

Jacob C. Jameson, MS

Harvard University