

Methods for Comparing Treatments Using Different Ways of Grouping Patients

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What was the project about?

This project aims to improve the methods that researchers use to compare how treatments affect different patients. When researchers use data from patients' health records to compare treatments, it's often hard to know whether changes in a patient's health are from the treatment or something else. Factors other than the treatment may affect the patient's health, including

- A patient's traits, such as age, gender, or other health problems
- Group-level factors, such as where patients get care or where they live

To address this problem, researchers rely on statistical methods. Existing methods use data from patients who have similar traits but received different treatments. But they may not work well if some group-level factors affect both the treatment and patients' health. In this study, the research team created two new ways of including group-level factors in the methods they use to find similar patients.

What did the research team do?

The research team made test data to look like patient health records. The test data included information on patient traits, group-level factors, and treatments. The team picked one group-level factor, such as hospital size, that can affect treatment results. Then the team created two new ways of including the group-level factor in the methods they use to find similar patients. To see which ways worked best, the team compared findings from the two new ways to those from an

existing way of including group-level factors. Finally, the team compared findings from all three ways of including the group-level factor with findings from not including the group-level factor.

One parent, one clinician, and one researcher helped design the study.

What were the results?

Including group-level factors in the analysis got more accurate results than not including them. Among the three ways of including group-level factors, the existing way and one of the new ways provided more accurate findings about how treatments work.

What were the limits of the project?

The test data set had only one group-level factor. Results might have been different with real health record data with more than one group-level factor.

Future research could create and test ways of including more than one group-level factor.

How can people use the results?

Researchers can use methods that include group-level factors to get more accurate findings about how treatments work.

To learn more about this project, visit www.pcori.org/Kim258.