

## **LAY ABSTRACT**

TITLE: A Synthetic Data Integration Framework to Leverage External Summary-Level Information from Heterogenous Populations

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To tell if someone is likely to have cancer, scientists use information on many factors, such as chemicals in a person's blood, or genes in their DNA. Scientists can use this information and create models, which are used to test other people's chances of having cancer.

However, making these models is difficult. Scientists need to measure the same information in many people to make these models, but many studies do not look at the same information. So, this research team found a way to combine many studies to fill in this missing information and then create a better model.

In this paper, the research team combined studies on patients tested for prostate cancer. The researchers used statistics that use information on patients from different studies to fill in other patients' missing information that is related to prostate cancer.

Other scientists can use the statistics used by these researchers to make better models that can tell if another person is likely to have prostate cancer.