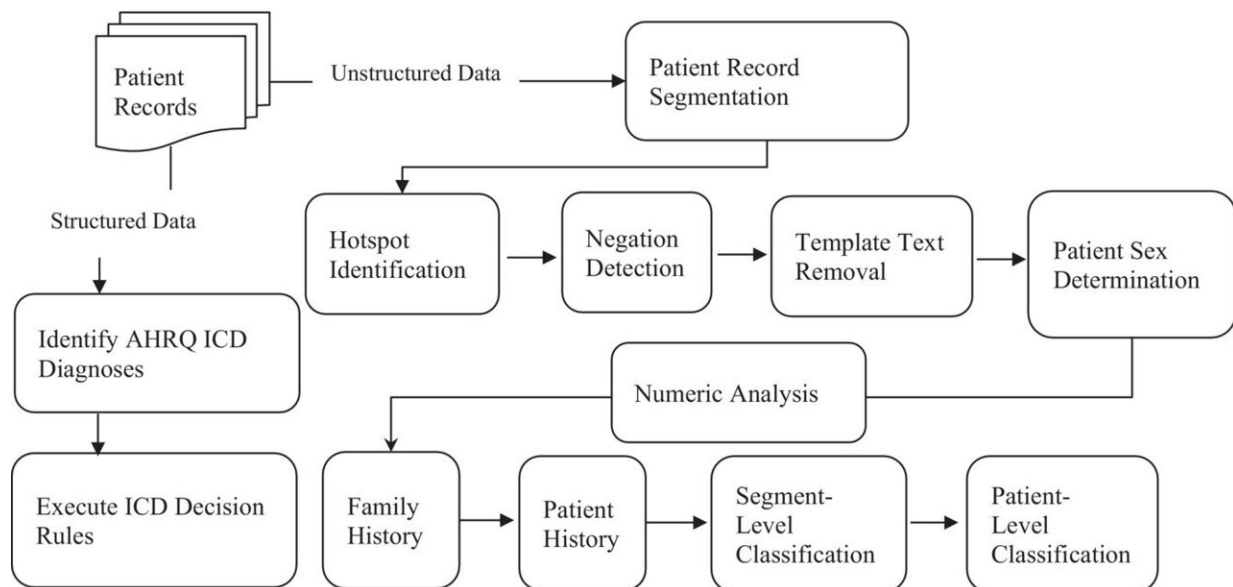


Study suggests artificial intelligence can help identify patients in need of alcohol treatment

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System architecture of identification system. Credit: *Alcohol: Clinical and Experimental Research* (2024). DOI: 10.1111/acer.15222

An artificial intelligence-based program efficiently and accurately identified patients' risky alcohol use by analyzing their health records, according to a study published in *Alcohol: Clinical and Experimental Research*. The artificial intelligence-based natural language processing algorithm accurately identified three times more patients with risky alcohol use compared to diagnostic codes alone.

The study showed artificial intelligence-based strategies may be an effective tool to identify people at risk for [alcohol problems](#) and prevent related surgical complications.

The researchers believe this is the first study to use [natural language processing](#), a subfield of artificial intelligence, to identify risky alcohol patterns prior to surgery by analyzing clinical text in patient records. Researchers developed, tested, and ran a natural language processing algorithm to scan the [clinical notes](#) in 54,000 patient records to find and classify text indicative of alcohol use disorder and risky drinking.

The artificial intelligence algorithm classified 15 percent of people as positive for risky alcohol use. By comparison, only five percent of patients were classified as risky using only diagnostic codes.

Diagnosis codes are easy to search within the electronic health record, but this method tends to under-identify alcohol-related conditions. However, information about alcohol use and alcohol-related problems is often documented in clinical text, which is harder to search using traditional methods. Thus, natural language processing, a tool that makes sense of text and [human language](#), is needed to identify the full range and presence of alcohol-related problems in [health records](#).

To examine the algorithm's accuracy, researchers first developed and tested it on a set of health records that had been carefully reviewed and categorized by human experts. The natural language processing algorithm searched for keywords indicative of alcohol use within clinical text records for each patient for the prior three years, including admission records, progress and discharge notes, [laboratory tests](#), and other communications, providing a more complete view of the patient's history.

The researchers noted limitations of the study, including the small test

sample and a dataset of predominantly White and non-Hispanic patients. The algorithm did not correct for biases in the records based on demographic factors such as race or age.

People who drink at risky levels have a greater incidence of infections and complications after surgery. As a supplement to other alcohol screening methods, [natural language](#) processing tools like the one developed for this study may help clinicians identify and address problem drinking early, facilitating treatment and better informed clinical decisions.

More information: V. G. Vinod Vydiswaran et al, Automated-detection of risky alcohol use prior to surgery using natural language processing, *Alcohol: Clinical and Experimental Research* (2024). [DOI: 10.1111/acer.15222](https://doi.org/10.1111/acer.15222)

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