Medical Xpress

Artificial intelligence can scan doctors' notes to distinguish between types of back pain

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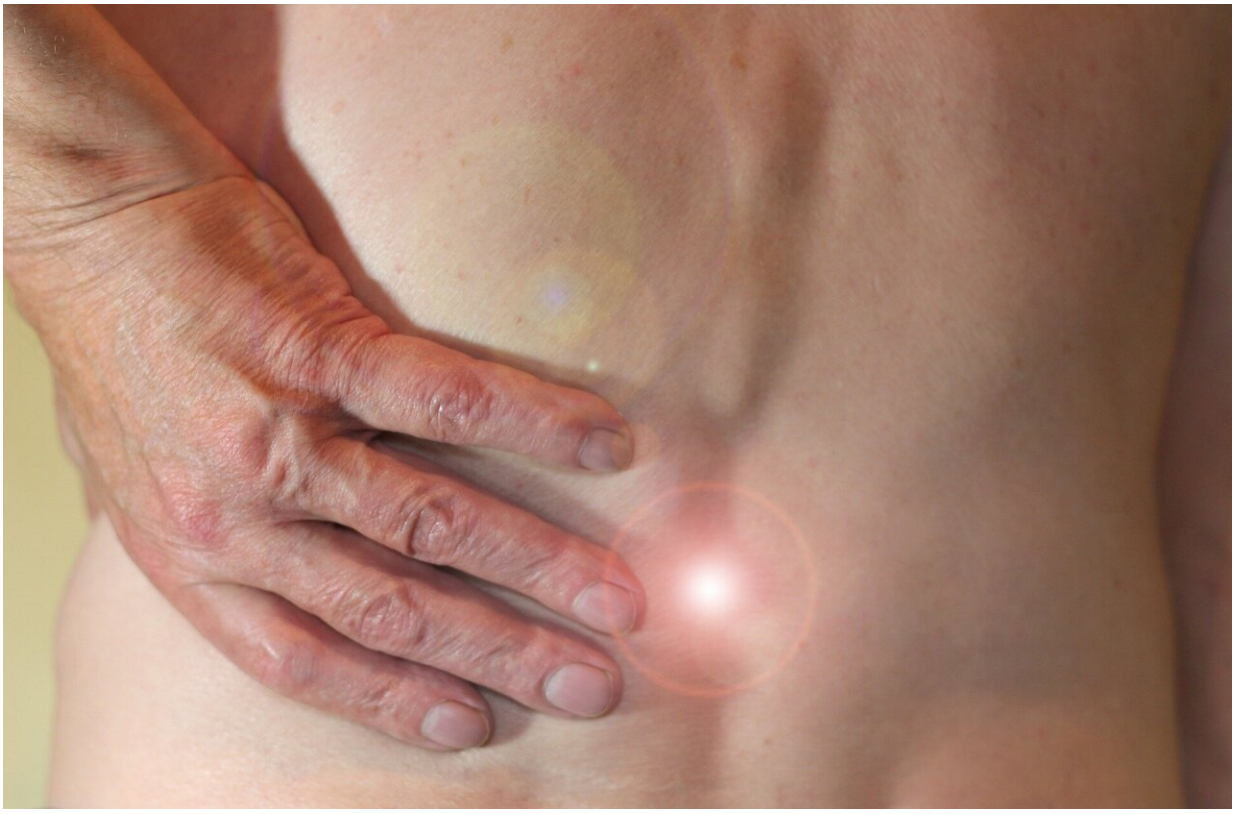

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Mount Sinai researchers have designed an artificial intelligence model that can determine whether lower back pain is acute or chronic by scouring doctors' notes within electronic medical records, an approach that can help to treat patients more accurately, according to a study

published in the *Journal of Medical Internet Research* in February.

About 80 percent of adults experience lower back pain in their lifetime; it is the most common cause of job-related disability. Many argue that prescribing opioids for lower back pain contributed to the opioid crisis; thus, determining the quality of lower back pain in clinical practice could provide an effective tool not only to improve the management of lower back pain but also to curb unnecessary opioid prescriptions.

Acute and chronic lower back pain are different conditions with different treatments. However, they are coded in electronic health records with the same code and can be differentiated only by retrospective reviews of the patient's chart, which includes the review of clinical notes.

The single code for two different conditions prevents appropriate billing and therapy recommendations, including different return-to-work scenarios. The artificial intelligence model in this study, the first of its kind, could be used to improve the accuracy of coding, billing, and therapy for patients with lower back pain.

The researchers used 17,409 clinical notes for 16,715 patients to train artificial intelligence models to determine the severity of lower back pain.

"Several studies have documented increases in medication prescriptions and visits to physicians, physical therapists, and chiropractors for lower back pain episodes," said Ismail Nabeel, MD, MPH, Associate Professor of Environmental Medicine and Public Health at the Icahn School of Medicine at Mount Sinai. "This study is important because artificial intelligence can potentially more accurately distinguish whether the pain is acute or chronic, which would determine whether a patient should return to normal activities quickly or rest and schedule follow-up visits

with a physician. This study also has implications for diagnosis, treatment, and billing purposes in other musculoskeletal conditions, such as the knee, elbow, and shoulder pain, where the medical codes also do not differentiate by pain level and acuity."

More information: Riccardo Miotto et al. Identifying Acute Low Back Pain Episodes in Primary Care Practice From Clinical Notes: Observational Study, *JMIR Medical Informatics* (2019). DOI: 10.2196/16878

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