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## RSNA16: Can Inappropriate Imaging for Low Back Pain Be Reduced?



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Low back pain (LBP) is a common patient complaint, representing 2 percent of all Emergency Room visits in the U.S., and a huge expense for the health service in imaging costs. It affects up to 85% of Americans, and the direct healthcare costs are more than 85 billion or 9 percent of national health expenditure.

Two studies presented at the Radiological Society of North America (RSNA) annual scientific meeting in Chicago this week, looked at what interventions might work to reduce the rate of inappropriate imaging orders for patients presenting with LBP without impacting patient safety or outcomes.

Adam Min, MD, presented a study that evaluated if introduction of a clinical decision support system (CDS) affected the imaging rate for LBP in an urban emergency room with 25 physicians, and an average of 132 LBP visits per month. The pre- and post-intervention groups were similar in incidence and case mix.

A point-of-care checklist of accepted red flag symptoms for LBP was embedded in the computerised ordering system for imaging. If physicians identified no red flags, they had to enter their reason for imaging.

### Results

Following CDS implementation, the median imaging rate fell from 22 percent to 16 per cent ( $p=0.0002$ ), and in August 2015 they had the lowest imaging rate for 2 yrs. After implementation, 60 percent of physicians decreased their image ordering, and the mean decrease was 13% among individual doctors. The return rates to the ED and outpatient imaging rates did not change significantly pre- and post-intervention. There was only 1 serious missed diagnosis, a minor thoracic spine compression fracture, for which treatment was not impacted.

Min commented that they found physicians to be quite receptive to the idea of CDS, and the trend in reduced imaging for LBP has been maintained.

### Providing Evidence Based Feedback

Hanna Zafar, MD, presented a study on the impact of feedback on MRI lumbar spine orders placed the day of an outpatient primary care visit for LBP. In their study they randomly divided 8 outpatient primary care physician (PCP) practices into 2 groups. A clinical decision support system was triggered by all outpatient PCP MRI lumbar spine orders. Using the entered clinical data, orders were categorised according to the 2007 American College of Physicians/ American Pain Society guidelines as being appropriate, inappropriate, uncertain or outside of guidelines.

In the first intervention period the groups received a periodic summary report card only with aggregate data or real-time CDS feedback only. In the second intervention both groups received a report card as well as CDS feedback.

### Results

53 PCPs and 107, 938 outpatient PCP visits of which 9,394 visits (9%) were for LBP. The intervention had a lasting result.

Merely providing summary report cards resulted in a decreased number of orders. Both methods of intervention resulted in decreased orders. Combined use of evidence based provider report cards and CDS feedback at the time of entry can decrease the overall number of MRI lumbar spine orders placed both the same day and up to 30 days after outpatient PCP LBP visits. Zafar acknowledges that type of insurance may have an effect on imaging orders, but noted that they have not analysed this data yet.

Image Credit: YouTube

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