The role of radiography in primary care patients with low back pain of at least 6 weeks duration: a randomised (unblinded) controlled trial

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Executive summary

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Executive summary: Radiography for low back pain

Objectives
To test the hypotheses that:

- Lumbar spine radiography in primary care patients with low back pain is not associated with improved patient outcomes, including pain, disability, health status, sickness absence, reassurance, and patient satisfaction or belief in the value of radiography.
- Lumbar spine radiography in primary care patients with low back pain is not associated with changes in patient management, including medication use, and the use of primary and secondary care services, physical therapies and complementary therapies.
- Participants choosing their treatment group (i.e. radiography or no radiography) do not have better outcomes than those randomised to a treatment group.
- Lumbar spine radiography is not cost-effective compared with usual care without lumbar spine radiography.

Main outcome measures
Roland adaptation of the Sickness Impact Profile, visual analogue pain scale, health status scale, EuroQol, use of primary and secondary care services, and physical and complementary therapies, sickness absence, medication use, patient satisfaction, reassurance and belief in value of radiography at 3 and 9 months post-randomisation.

Results
Participants randomised to receive an X-ray were more likely to report low back pain at 3 months (odds ratio (OR) = 1.56; 95% confidence interval (CI), 1.02 to 2.40) and had a lower overall health status score ($p = 0.02$). There were no differences in health or functional status at 9 months. A higher proportion of participants consulted the general practitioner (GP) in the 3 months following an X-ray (OR = 2.72; 95% CI, 1.80 to 4.10). There were no differences in use of any other services, medication use or sickness absence at 3 or 9 months. No serious spinal pathology was identified in either group. The commonest X-ray reports were of discovertebral degeneration and normal findings. Many patients did not perceive their information needs were met within the consultation. Satisfaction with care was greater in the group receiving radiography at 9 months. Participants randomised to receive an X-ray were not less worried, or more reassured about serious disease causing their low back pain. Satisfaction was associated with meeting participants’ information needs and reduced belief in the necessity for investigations for low back pain, including X-rays and blood tests. In both groups, at 3 and 9 months 80% of participants would choose to have an X-ray if the choice was available. Participants in the patient preference group achieved marginally better outcomes than those randomised to a treatment group, but the clinical significance of these differences is unclear. Lumbar spine radiography was associated with a net economic loss at 3 and 9 months.

Conclusions
Lumbar spine radiography in primary care patients with low back pain of at least 6 weeks duration is
not associated with improved functioning, severity of pain or overall health status, and is associated with an increase in GP workload. Participants receiving X-rays are more satisfied with their care, but are not less worried or more reassured about serious disease causing their low back pain.

**Recommendations for further research**

Further work is required to develop and test an educational package that educates patients and GPs about the utility of radiography and provides strategies for identifying and meeting the information needs of patients, and the needs of patients and GPs to be reassured about missing serious disease. Guidelines on the management of low back pain in primary care should be consistent about not recommending lumbar spine radiography in patients with low back pain in the absence of red flags for serious spinal pathology, even if the pain has persisted for at least 6 weeks.

**Publication**

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Initially, six HTA panels (pharmaceuticals, acute sector, primary and community care, diagnostics and imaging, population screening, methodology) helped to set the research priorities for the HTA Programme. However, during the past few years there have been a number of changes in and around NHS R&D, such as the establishment of the National Institute for Clinical Excellence (NICE) and the creation of three new research programmes: Service Delivery and Organisation (SDO); New and Emerging Applications of Technology (NEAT); and the Methodology Programme.

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