

New tool could drastically reduce the number of potential future hip fractures

August 12 2014

A new tool is being developed by experts in Manchester which automatically searches medical images for early signs of osteoporosis in the spine by identifying fractures there and could help reduce the number of future potentially fatal hip fractures.

Scientists from The University of Manchester will team up with Optasia Medical and Central Manchester University Hospitals NHS Foundation Trust to develop specialist computer software that can be easily incorporated into radiology departments in hospitals.

The research has been funded thanks by a £660,000 from the Department of Health and the Wellcome Trust through the Health Innovation Challenge Fund.

Osteoporosis affects 1 in 2 women and 1 in 5 men over 50 and treatment of hip [fractures](#) will cost £2 billion in the UK by 2020. The condition means patients have too little bone and are more prone to suffering fractures particularly in the spine, wrist and hips.

Professor of Imaging Tim Cootes, from the Institute of Population Health based at The University of Manchester, and his team have developed a world-leading technology that locates and analyses bones in [medical images](#), and in particular spine fractures.

The new funding will allow them to work with NHS and Optasia Medical to make it possible for computers to search for fractures in the

spine. The system will be fully automatic and integrated with radiography equipment used in hospitals.

Professor Judith Adams, a radiologist and one of the world's leading experts on osteoporosis based at CMFT and The University of Manchester, said: "Vertebral fractures are an early sign of osteoporosis and indicate a patient is at significantly increased risk of future fractures and should be treated - but over half of these spine fractures go unnoticed by patients as they cause no symptoms and are under-diagnosed on medical images.

By identifying these fractures sooner we can refer patients for further assessment and treatment for osteoporosis and ultimately reduce the number of future fractures, including potentially fatal hip fractures."

The software will be developed in conjunction with Optasia Medical and piloted at Central Manchester NHS Foundation Trust. If successful it will be rolled out worldwide.

Dr Anthony Holmes, CEO at Optasia Medical, said: "An osteoporotic vertebral fracture doubles the risk of future [hip fracture](#), and yet they are hugely under-diagnosed and under-reported. We're excited to be collaborating with world-leading academic and clinical partners in addressing this enormous problem."

CASE STUDY:

Nancy Mottram, 84, from Knutsford, who sustained five [vertebral fractures](#) in her spine due to osteoporosis, welcomed the research and thinks more money needs to be spent to raise awareness about osteoporosis among GPs and the general public.

"One evening, after a Christmas party, I was standing waiting for my lift

home when I had the uncomfortable feeling that my body was sinking into my bottom. Next day I awoke in excruciating pain. My physio came round on an emergency visit, gave me some acupuncture and alerted my GP that I had had osteoporotic spinal fractures. X-rays later confirmed this.

"In my 50s, on activity holidays, I had enjoyed wind-surfing, scuba-diving, swimming and running. I'd never even heard of osteoporosis until my fractures in my 70s. Since then I have gone from 5' 5" to 4' 11" and my middle has gone much larger. I am in pain when I stand or walk and I need a wheeled 'walker' to get me around. Osteoporosis really affects your quality of life. Any measures that can help get people to get checked out sooner or detect potential fractures earlier are, to my mind, essential. I'd also like to see more money spent on reducing the effects of [osteoporosis](#) - like there is for cancer.

"Since my fractures I have become very aware of spinal deformities in other women. When I look at my 50s holiday photos now I can see I had a rounded back even then. I wish I had known to get it checked before then. If someone could have warned me or detected I was at risk earlier in my life I could have maybe changed my lifestyle and done more to help prevent my present situation."

Provided by University of Manchester

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