Icelandic Company Streamlining Osteoporosis Management Decisions

To simplify the process of identifying patients who have osteoporosis or are at elevated risk of the common condition, a company has created the Osteoporosis Advisor. The tool, which is in use in Iceland and the Scandinavian countries, yields similar 10-year fracture risk values as FRAX (Fracture Risk Assessment Tool; World Health Organization). It also provides recommendations on treatment and lifestyle changes, as well as when patients should have their next dual-energy x-ray absorptiometry (DXA) assessment.

“The incorporation of all of this information into a recommendation and a decision about whether or not to recommend to the patient that she have a bone mineral density scan can be a time-consuming task,” Thorsteinn Geirsson, Expeda’s Chief Operating Officer, told Value-Based Care in Rheumatology. “It is also predicated on considerable expert knowledge and experience, and therefore can involve the risk of medical errors. We wanted to standardize the process.”

Bjorn R. Ludviksson, MD, PhD, and Bjorn Gudbjornsson, MD, Consultants with Expeda and Professors of Medicine at the University of Iceland, Reykjavik, together with 3 other rheumatologists used international clinical guidelines, including the World Health Organization’s recommendations for 10-year fracture risk, and their own experience, to create a list of 17 patient attributes for the management of osteoporosis. Drs Ludviksson and Gudbjornsson, and other Expeda collaborators used the Intellix Advisor to capture this information in a procedure known as “knowledge mapping.” The investigators used data from a series of patients treated at the University of Iceland, and verified which attributes were central to understanding the most appropriate treatment approach for each patient. The Intellix Advisor produced a set of 10 parameters and 80 rules to determine the appropriate treatment and lifestyle recommendations for each patient. In addition, the team members also created an easy-to-use interface that is web-based and can be used on personal computers, smartphones, and tablets. “It’s a handy tool for both clinicians and patients,” said Dr Ludviksson.

To test whether the Osteoporosis Advisor provides accurate recommendations, the team built a set of 300 virtual quality control patients and found that the results were in agreement with real-life clinical information given for each case. The tool’s utility was verified using another set of patients from a hospital in Iceland. Ninety-four consecutive patients who received DXA scans in an outpatient osteoporosis clinic were selected; 45 patients received a recommendation from the Osteoporosis Advisor to have a DXA evaluation as soon as possible. After inputting the DXA measurements, the tool provided a recommendation for further investigation or treatment to 30 (67%) patients. General prevention measures were recommended for the remainder of the patients. They also found that there is a high correlation with the results of FRAX, and a significant concordance with treatment recommendations from specialists.

“The Osteoporosis Advisor really increases the quality of life of the patient by providing detailed and practical information about how to mitigate risk, and also enables healthcare practitioners to identify people who otherwise may remain undiagnosed. And it has been very well-received in the clinics and countries where it is in use,” said Mr Geirsson.