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Automated system could efficiently identify high-risk osteoporosis patients

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An automated system that identifies high-risk osteoporosis patients being treated for fractures and can generate letters encouraging follow-up is an effective way to promote osteoporosis intervention and prevent future fractures, according to Penn State College of Medicine researchers.

The researchers identified patients at least 50 years old with fractures who were seeking medical help at the emergency department of Penn State Milton S. Hershey Medical Center. They then analyzed treatment codes to find fractures that seemed to be from bone fragility—a broken bone caused by a fall from standing height or less. In all, 103 patients were identified.

To do this, researchers received data monthly from the hospital's finance department, which was used to autopopulate a spreadsheet created specifically to screen for osteoporosis. This database was then screened further to remove patients whose injuries were not consistent with fragility fractures. Letters were then computer-generated and mailed to the final list.

Evidence suggests that less than 30 percent of postmenopausal women and less than 10 percent of men with a prior fragility fracture are treated for osteoporosis.

"Our almost fully automated osteoporosis system identifies these patients, requires minimal resources—many of which are already

currently in U.S. hospitals, but just need to be tapped—and delivers substantially improved osteoporosis intervention results," said Edward Fox, professor of orthopedics.

Patients were sent a letter within three months of their emergency room visit that explained that they may be at risk for osteoporosis and encouraged them to schedule an appointment with their doctor or the hospital's bone health clinic. A follow-up phone call was placed three months after the letter, asking if follow-up treatment had occurred.

For comparison, a group of 98 patients who did not receive letters were also contacted by phone six months after being treated in the emergency department for a fragility fracture. These patients were asked if they were being treated or had plans for follow-up after their fracture.

Of those who received letters, 60 percent had followed up. Only 14 percent of those who did not receive a letter had, or planned, follow-up care. Results were published in *Geriatric Orthopaedic Surgery & Rehabilitation*.

Past research has been conducted on osteoporosis intervention programs, but the majority of programs have lacked automation or could be difficult to implement in an average hospital.

Since it is automated, this system reduces the potential for human error in identifying high-risk patients.

Nationally, osteoporosis contributes to more than 2 million fractures per year.

"Progressive bone fragility leads to greater risk for fractures," Fox said. "Hospitals treat fragility fractures, but they have no system in place to evaluate those same patients for osteoporosis to prevent the next

fracture. This study's results are better than no letter or doing nothing, which is what most hospitals are doing, including the one piloting our program before it started this program."

Future studies should examine the effectiveness of using both a phone call and a letter to improve follow-up rates.

Provided by Pennsylvania State University