

Implementing an EMR OST Score which Identifies Patients at Risk for Osteoporosis Promotes Osteoporosis Evaluation

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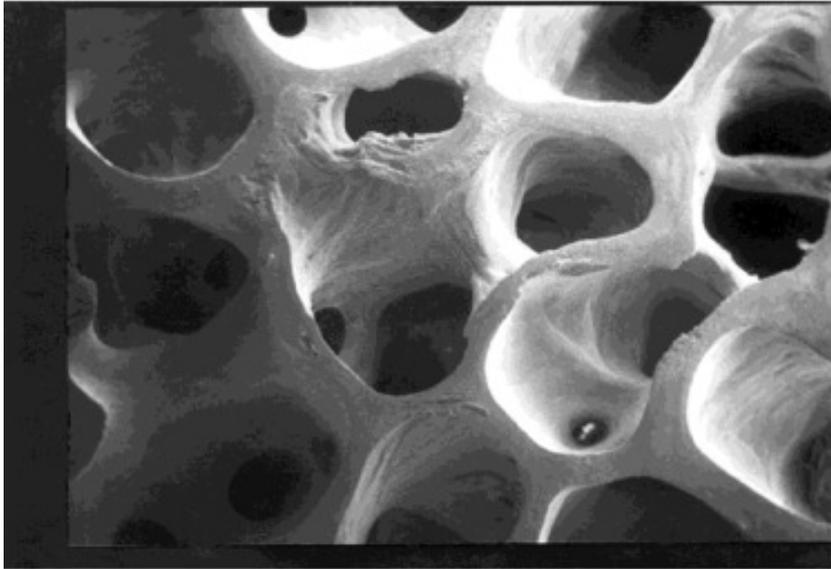
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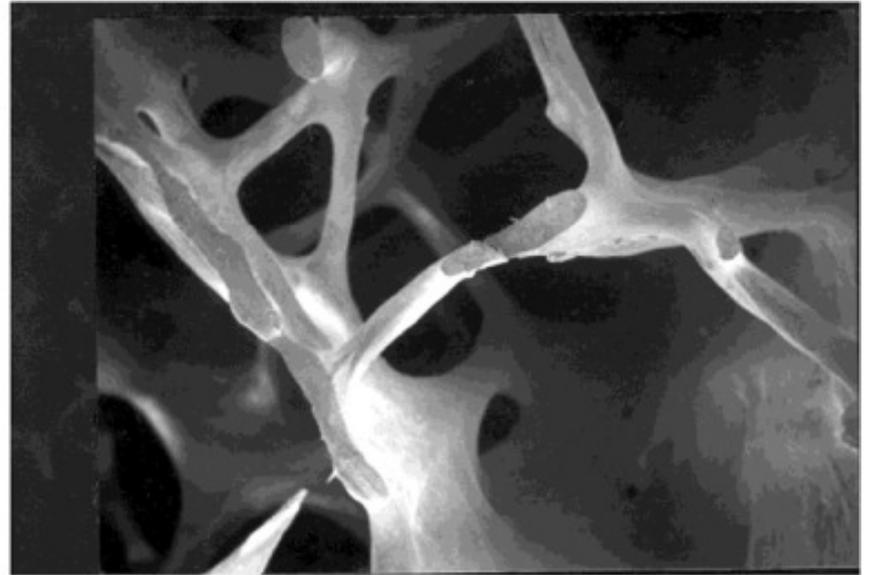
Osteoporosis

- Osteoporosis:
 - a systemic skeletal disease resulting in the deterioration of the micro architecture of bone tissue
 - affects an estimated 10.2 million adults in the U.S., while another 43.4 million adults have low bone mass.^{1,2}
- In 2005, the direct cost of fragility fractures alone were US\$17 billion.³
- Annually, there are about 1.5-2 million fractures in the US.
 - Worldwide, osteoporosis causes more than 8.9 million fractures annually, resulting in an osteoporotic fracture every 3 seconds.⁴
 - This number is expected to rise as the WHO estimates that 6 million hip fractures alone will occur each year worldwide by the year 2050, when 1 in every 5 individuals will be over 50.^{3, 5}





Normal bone



Osteoporotic bone



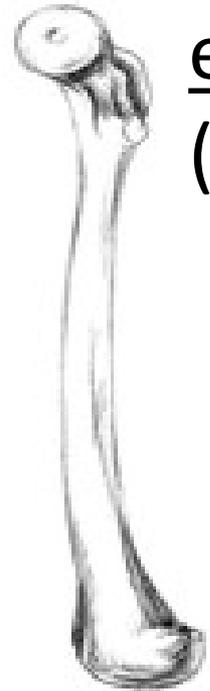
Barriers to osteoporosis care

- Lack of knowledge
 - from both the physician and the patient.⁶
- Perception by the orthopedic surgeon
 - that osteoporosis diagnosis and treatment is not their responsibility,⁶
- **Low rates of referral to an appropriate osteoporosis service,⁷**
- Other
 - The cost of therapy, side effects of medication, and multiple medical comorbidities.⁶



Our Purpose

- The purpose of this study is to determine the effectiveness of an *EMR implemented OST* (osteoporosis screening tool) score *system*
 - that identifies patients at risk for osteoporosis, prompting patients toward osteoporosis evaluation.



Osteoporosis Self-Assessment Tool (OST)

$$\text{OST score} = (\text{body weight in kg} - \text{age in years}) \times 0.2.^{12}$$

- Good predictive values
 - terms of sensitivity & specificity in multiple populations.⁸
 - comparable to FRAX
- Developed for Asian women
 - but later validated for European and North American white women and men.^{9,10,11}
- *Simple enough to implement through IT into (CERNER)EMR*



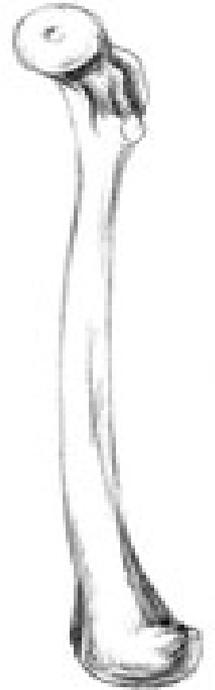
Methods

- OST score = (body weight in kilograms – age in years) × 0.2.
- An OST score < 2 (automatically calculated via EMR for all inpatients)
 - indicates that a patient has a potential risk for osteoporosis.
- Patients with OST score < 2
 - are mailed letters approximately three months after their admission informing them of their risk for osteoporosis and suggesting that they schedule a follow-up appointment with a physician for further evaluation.
- Approximately 3 months after these letters are mailed
 - the patients were contacted via telephone and asked a series of questions to determine if patients have sought further osteoporosis follow-up.



Results

- **Control group:**
 - 14.29% had osteoporosis follow-up evaluation.
- **Intervention group:**
 - 41.74% had osteoporosis follow-up evaluation.
- The patient osteoporosis follow-up response rate improved with letter intervention using the OST score as an indicator ($P < .0001$).



Discussion

- There are many barriers to implementing effective osteoporosis care, these barriers must be addressed to guarantee long-term success.
- Effective screening methods
 - will decrease the burden of osteoporosis on society through
 - identifying high-risk patients early
 - and improve the quality of life of those at risk of developing osteoporosis.
- A simple automated EMR OST-score upon hospital admission with a subsequent letter intervention
 - effectively prompts patients at risk for osteoporosis to seek further osteoporosis workup from a health care professional.



Conclusion



- OST-score screening should be considered an *effective, simple, EMR implementable tool*, in
 - identifying patients at risk for osteoporosis and
 - prompting patients toward osteoporosis evaluation in the community.



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