IMPLEMENTING PHARMACIST-LED OSTEOPOROSIS TESTING AND EDUCATION IN COMMUNITY PHARMACIES
Chukwuemzie F. Chimezie, BS, Pharm.D.
PGY1 Community Pharmacy Resident
Southwestern Oklahoma State University/Walgreen Co.
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DISCLOSURES
The presenter has nothing to disclose concerning possible financial or personal relationships with commercial entities that may have a direct or indirect interest in the subject matter of this presentation.

STUDY OBJECTIVES

• To develop and implement models pharmacists can utilize in a community pharmacy setting to test and identify patients at risk for osteoporosis

• To determine the feasibility of implementing this model in additional community pharmacy locations

RESEARCH STUDY SITE

• Walgreens Health System Pharmacy
• Located inside a Physician Medical Plaza
• Adjacent to St. Anthony Hospital in Oklahoma City
• No drive-thru
• Private consultation room
• Patient population
  • Complex meds (HIV/AIDS, Hep C, oral oncology, transplant)
  • Non-sterile compounding

BACKGROUND

• Osteoporosis is a common disease of the bones that is characterized by a decrease in bone density and bone strength.1

• About 55% of the U.S. population aged 50 years and older have osteopenia or osteoporosis.2

• In 2012, the direct medical costs of older adult falls were $30 billion.3

• Fractures in the same year accounted for over one-third of nonfatal injuries.5
  * 61% of total nonfatal cost were due to fractures (~$18.8 billion).3

• Hospitalizations accounted for nearly two-thirds of the costs of nonfatal fall injuries.2

METHODS

• Study protocol approved by SWOSU IRB and Walgreens

• Free of charge to patients for participation in study

• Patients are recruited through a computer-generated report.

• Patients with identified risk factors are also offered testing.

• Additional recruitment at other Walgreens store

• SCORE risk assessment tool

• Has been validated in women in multiple studies for predicting low bone mineral density (BMD) and osteoporotic fracture

1. Osteoporosis Handout on Health
2. National Osteoporosis Foundation
3. Centers for Disease Control and Prevention (CDC)
**RISK FACTORS**

Non-modifiable
- Older age
- Male gender
- Non-Hispanic White and Asian ethnic backgrounds
- Family history of osteoporosis
- Premenopause
- Small bone structure
- Diseases
  - Rheumatoid arthritis, hyperthyroidism, Cushing’s syndrome

Modifiable
- Cigarette smoking
- Three or more alcoholic drinks a day
- Sedentary lifestyle
- Medicines
  - Glucocorticoids (e.g., prednisone, methylprednisolone), anti-seizure medicines, anti-cancer treatments

**METHODS-INCLUSION AND EXCLUSION CRITERIA**

Inclusion Criteria
- Females 50 years or older
- Females 18 years of age and older who are taking medications that lower bone density

Exclusion Criteria
- Males
- Patients under the age of 18
- Females who are pregnant
- Patients whose skin is abraded and/or have an open sore in the area that comes in contact with the system
- Patients who have received a dual-energy x-ray absorptiometry in the past 2 years

**MEDICATIONS ASSOCIATED WITH OSTEOPOROSIS**

- Anticoagulants (heparin, warfarin, LMWH, dalteparin, enoxaparin)
- Anticonvulsants (carbamazepine, divalproex sodium, gabapentin, lamotrigine, levetiracetam, oxcarbazepine, phenobarbital, phenytoin, topiramate, valproic acid)
- Cyclosporine A and tacrolimus
- Cancer chemotherapy drugs (anastrozole, letrozole, leuprolide)
- *Glucocorticoids (budesonide, dexamethasone, hydrocortisone, methylprednisolone, prednisone, prednisolone, triamcinolone)
- Lithium
- Methotrexate
- Thyroxine

*Glucocorticoids is 5mg/day of prednisone or equivalent for ≥ 3 months*

1. Osteoporosis Handout on Health
2. National Osteoporosis Foundation

**DATA COLLECTION**

- Consent form
- Patient demographic survey
  - Age
  - Ethnicity
  - Education level
  - Yearly household income
  - Amount willing to pay for BMD test
- SCORE risk assessment result
- T-score from BMD test (if applicable)
- Time to complete the entire encounter

**PATIENT ENCOUNTER (LOW RISK)**

- Patients with low risk from SCORE risk assessment result
- Offered education material on osteoporosis and disease state prevention counseling
- Time to complete the entire encounter is recorded
Patients with moderate to high risk are offered BMD testing. Utilize a portable heel ultrasound densitometer. Every patient completing the BMD test is offered a personalized consultation by a pharmacist. Follow-up assessment by telephone is completed 6 to 8 weeks after screening.

**PATIENT ENCOUNTER (MODERATE TO HIGH RISK)**

Patients with moderate to high risk are offered BMD testing. Utilize a portable heel ultrasound densitometer. Every patient completing the BMD test is offered a personalized consultation by a pharmacist. Follow-up assessment by telephone is completed 6 to 8 weeks after screening.

**PRELIMINARY RESULTS**

- 16 patients have enrolled to date.
- Data collection ongoing
- December 2014 to April 2015
- Anticipate recruiting between 30 to 50 patients
- Return on Investment (ROI) analysis will be performed.

**Patient Characteristics (n=16)**

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethnicity</td>
<td>Caucasian (81%)</td>
</tr>
<tr>
<td>Average age</td>
<td>63 years (50 - 82)</td>
</tr>
<tr>
<td>Education level</td>
<td>Did not answer (12.5%)</td>
</tr>
<tr>
<td>Annual household income</td>
<td>$60,000 (50%)</td>
</tr>
<tr>
<td>Bone Mineral Density in the past</td>
<td>Yes (44%)</td>
</tr>
<tr>
<td>Physical activity</td>
<td>Low (&lt;3x/week) (44%)</td>
</tr>
<tr>
<td>SCORE risk assessment results</td>
<td>Low risk (44%)</td>
</tr>
<tr>
<td>Average pharmacist time with BMD test</td>
<td>9.9 minutes</td>
</tr>
</tbody>
</table>

**Amount Willing to Pay [n=16]**

- 6% willing to pay blank
- 19% willing to pay <$15
- 19% willing to pay $15-20
- 12% willing to pay $21-25
- 25% willing to pay $26-30
- 19% willing to pay $31-35
- 0% willing to pay $36-40
- 19% willing to pay >$40

**LIMITATIONS/CHALLENGES**

- Exclusion of males from the study protocol
- Computer-generated report included patients that primarily filled their medications at different pharmacy locations.
- Travel distance
- Small sample size
- Multiple pharmacists providing standardized counseling

**IMPLICATIONS**

- Help to determine the role of pharmacists in osteoporosis testing
- Potentially increase patients’ awareness of osteoporosis, including preventive and treatment options
- Will help determine implementation in other community pharmacy locations
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• SWOSU College of Pharmacy Resources Committee

ASSESSMENT QUESTIONS

What information does a T-score provide?

A. T-score is the bone density of a particular patient compared with what is normally expected in a healthy young adult.
B. T-score is the bone density of a particular patient compared with what is normally expected in their age group.
C. T-score does not provide any information regarding the bone density of a person.
D. A and B

ASSESSMENT QUESTIONS

Which of the following medications listed below are associated with osteoporosis?

A. Glucocorticoids
B. Tacrolimus
C. Heparin
D. All of the above

REFERENCES