Identifying the Risk with Fragility Fractures and Osteoporosis

Kathleen Pirri, DNP, APRN, NP-C, ONP-C

PROBLEM STATEMENT
- There is a known relationship between fragility fractures and subsequent osteoporotic fractures (Bougioukli, 2018)
- There is a lack of diagnostic methods in practice to identify these patients (Bougioukli, 2018)
- Few patients with non-traumatic fractures ever receive further workup (Bougioukli, 2018)
- Financial burden is projected to be $25 billion by 2025 (Chow, 2017)

PROJECT PURPOSE
- Identify patients at high risk for fragility fracture and osteoporosis and provide referral for treatment
- Increase the number of patients that receive care for osteoporosis
- For the adult orthopaedic patient between the ages of 40 and 90, does implementation of a standardized screening protocol using the Fracture Risk Assessment Tool (FRAX) result in identification of those patients at high risk for fragility fracture and osteoporosis versus no risk assessment, subsequently warranting a referral for further diagnostic testing and treatment within a 3 month period

MODEL/NURSING THEORY
- Quality Improvement Model, Plan Do Study Act (PDSA) methodology: (Plan) Who (patients 40-90) What (screen with FRAX) When (upon orthopaedic evaluation) Where (in clinic), (Do) identify patients at high risk of fragility fracture and osteoporosis, (Study) interpret results, (Act) provide referral and education.
- Nursing Theory, The Health Belief Model, example: person sustains a fragility fracture, likely will recognize this as a threat, resulting in compliance with referral and possible diagnostic testing and treatment

Health Belief Model
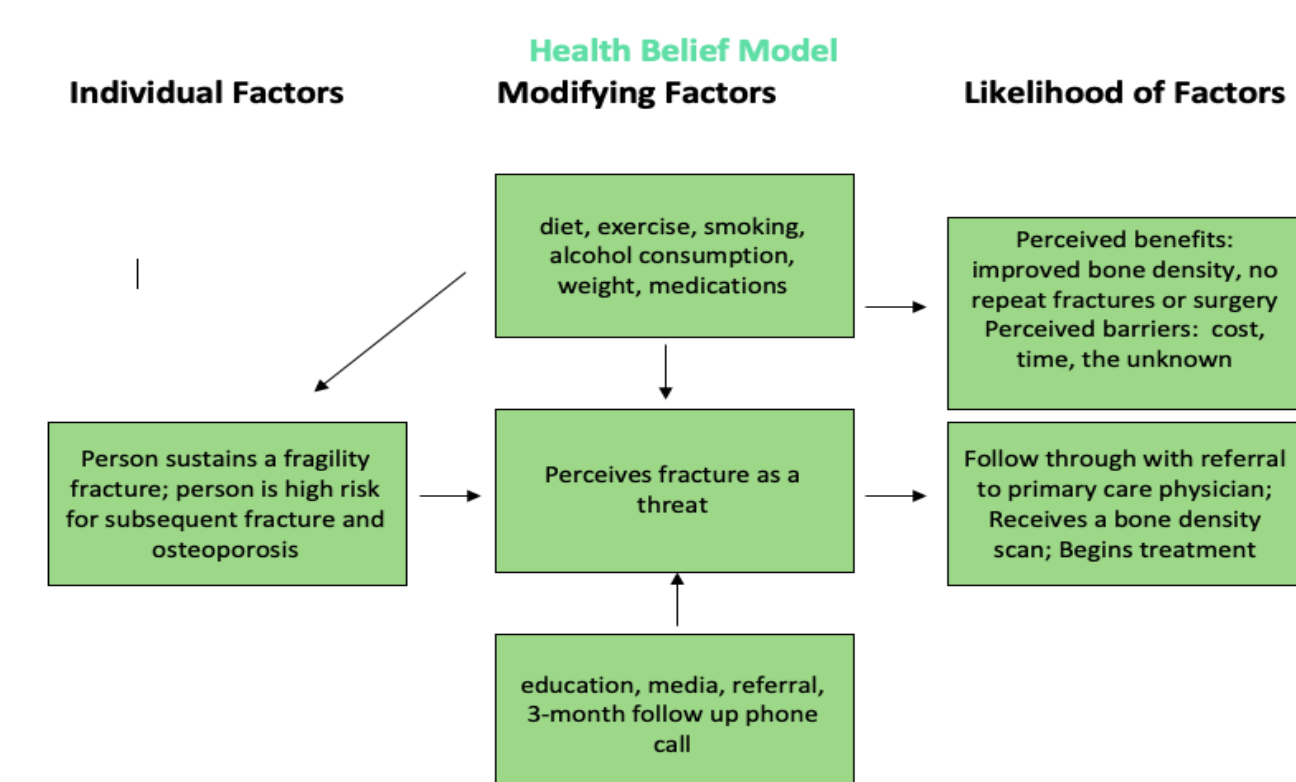
METHODS
- **Participants**
- Patients between the ages of 40 and 90 that presented for orthopaedic evaluation
- Consecutive sampling
- **Setting**
- Private orthopaedic clinic
- **Instruments/Tools**
- Utilizing the FRAX Tool, identified patients at high risk for fragility fracture and osteoporosis subsequently warranting a referral for further diagnostic testing and possible treatment
- The FRAX tool measures the 10 year probability of hip fracture and the 10 year probability of a major osteoporotic fracture

Themes, U. (2020). *Tools for Assessing Fracture Risk and for Treatment Monitoring*. Oncohema Key. Retrieved 5 October 2020, from https://oncohemakey.com/tools-for-assessing-fracture-risk-and-for-treatment-monitoring/.

- **Intervention and Data Collection**
- 3 month retrospective chart review pre FRAX 2/1/20-5/1/2020
- Patients that presented to the clinic for orthopaedic evaluation between the ages of 40 and 90 were screened using the FRAX tool. The patients that scored a 3% or higher on a 10 year probability for hip fracture "high risk" were given their FRAX score, educational materials and a referral to their primary care physician for further diagnostic testing and possible treatment.
- A 3 month follow up phone call with inquiry:
- 1. Did you attend an appointment and share the results of your FRAX assessment with your primary care physician?
- 2. Did your primary care physician order a bone mineral density scan or further testing?
- 3. Did your primary care physician begin a treatment regimen for osteoporosis?

RESULTS
25 out of 102 patients identified as high risk and referred
Chi Square

	Pre FRAX	Post FRAX	Marginal Row Totals
No Referral	101 (89) [1.62]	77 (89) [1.62]	178
Yes Referral	1 (13) [11.08]	25 (13) [11.08]	26
Marginal Column Totals	102	102	204 (Grand Total)

The chi-square statistic is 25.3898. The p-value is < 0.00001. Significant at $p < .05$.

The chi-square statistic with Yates correction is 23.3181. The p-value is < 0.00001. Significant at $p < .05$.

High Risk Participants by Age

3 Month Follow Up Phone Call
$n=25$
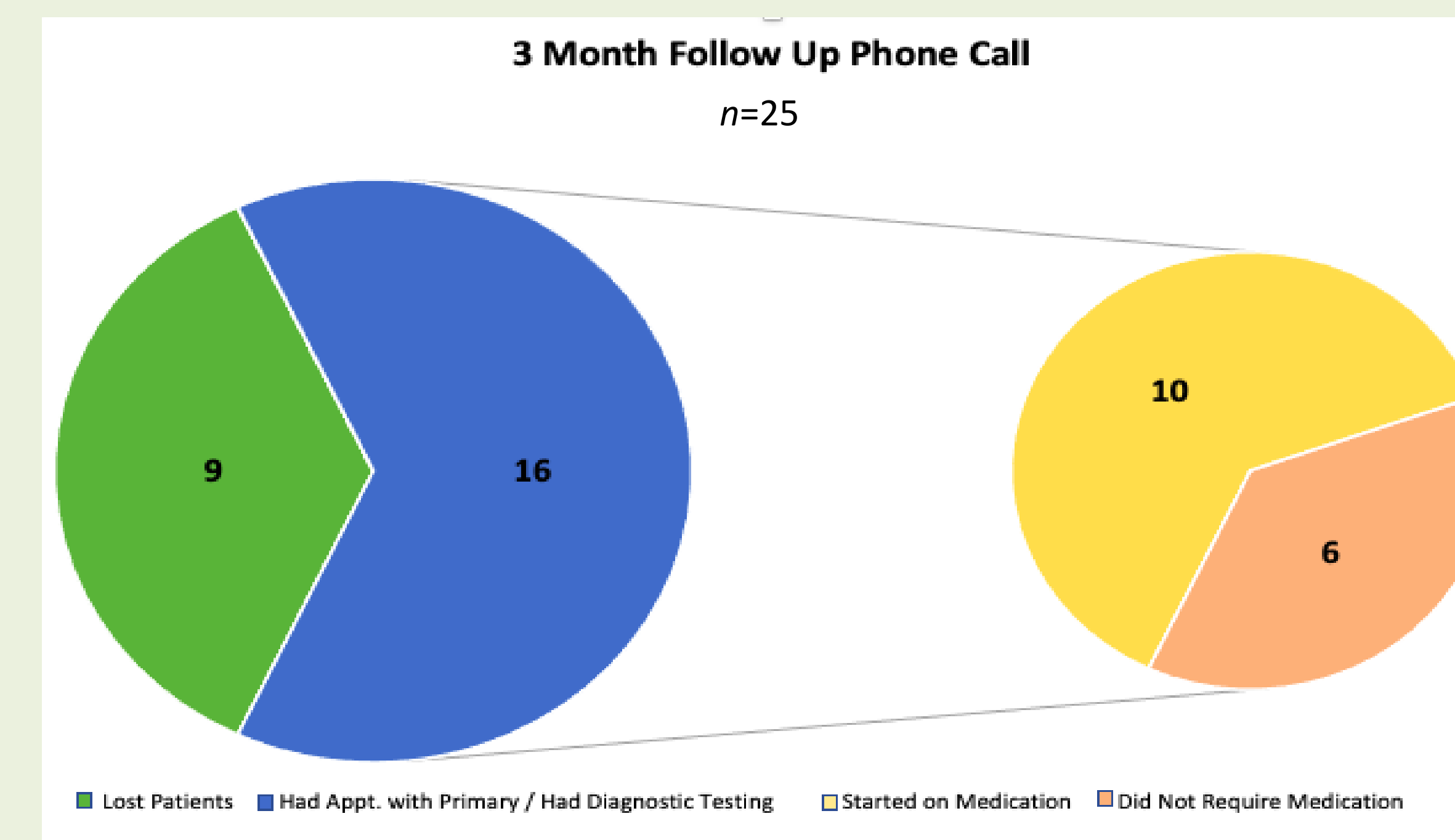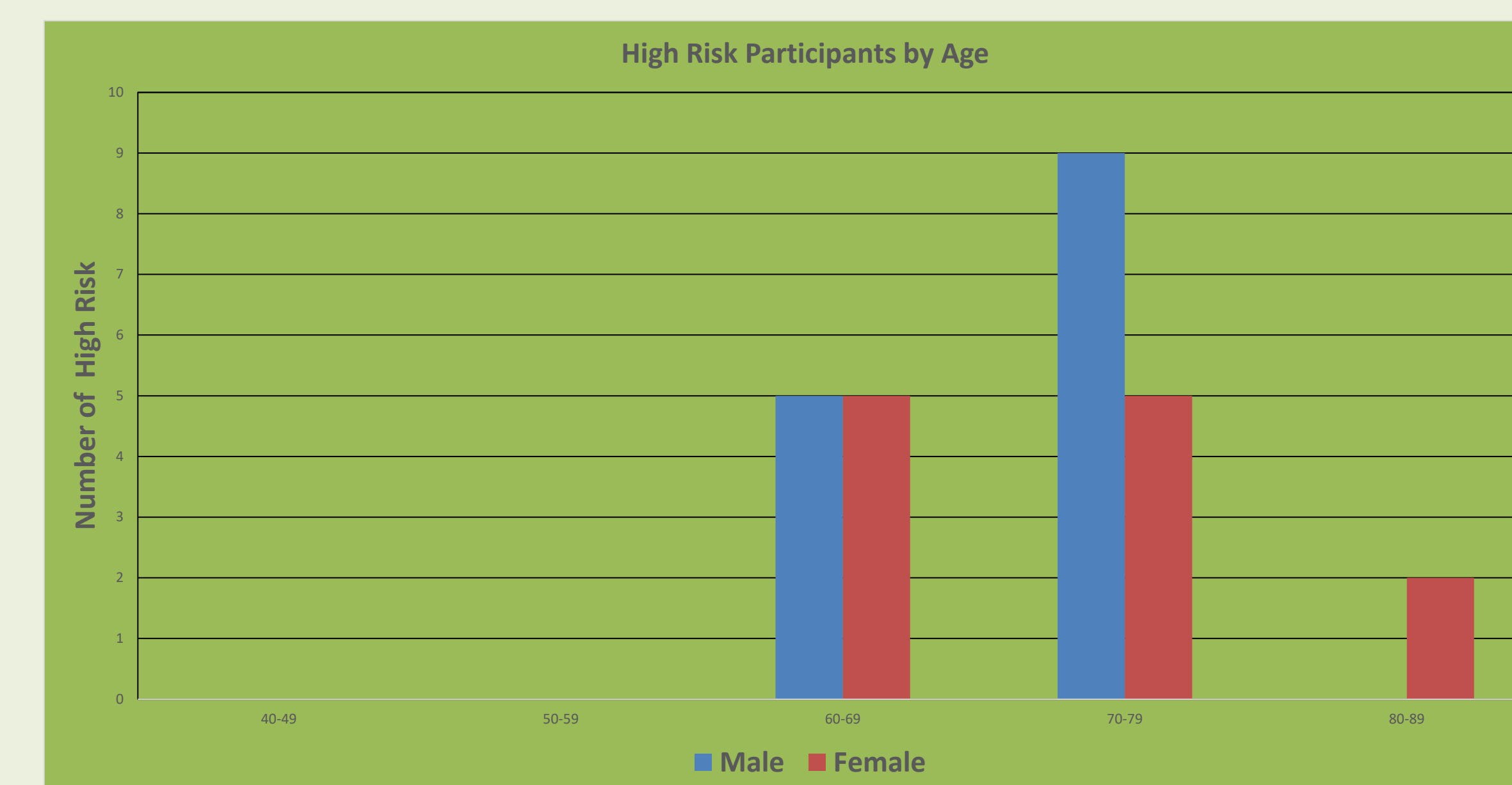
DISCUSSION
- Pre FRAX implementation with a 3 month retrospective chart review revealed one referral with completion of one bone mineral density.
- Post FRAX implementation the results were statistically significant with identification of patients at high risk for fragility fracture and osteoporosis
- There were more high risk men (14) than woman (11) identified, which is remarkable demographic data and atypical of osteoporosis ("FastStats", 2021)

IMPLICATIONS FOR ADVANCE PRACTICE NURSING
- Advanced Practice Registered Nurses (APRN) can identify patients at high risk for fragility fracture and osteoporosis by utilizing the FRAX tool in practice with patients between the ages of 40-90.
- The identification of patients at high risk for fragility fracture and osteoporosis will assist to close the gap in care that exists with the treatment of osteoporosis.
- APRN's can lobby to improve access to and utilization of bone mass measurement under part B of Medicare program to establish a minimum payment amount, by passage of H.R. 2693 (116th) Congress (*H.R.2693 - 116th Congress*, 2021).
- **SUSTAINABILITY**
- The APRN can establish a fracture liaison service (FLS) that evaluates, treats and educates patients with osteoporosis or at risk for osteoporosis.
- The FLS would allow patients of the orthopaedic clinic to stay within the same practice versus referring for treatment.
- The FLS could generate income for the orthopaedic clinic according to a cost benefits analysis.

References

SCAN ME

Implementation of a standardized screening protocol utilizing the FRAX tool results in identification of those patients at high risk for fragility fracture and osteoporosis, subsequently warranting referral for further diagnostic testing and possible treatment.

UNIVERSITY of SOUTH FLORIDA