Improving Bone Density Screening Rates at the ECU Adult Medicine and Pediatric Health Care Clinic

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BACKGROUND

Osteoporosis (low bone density) is a significant cause of morbidity and mortality, with a significant disease burden in older female population. Osteoporosis can lead to fracture, which may result in hospitalization, long-term skilled care requirements, destitution, and death. The United States Preventative Services Task Force recommends screening for osteoporosis with dual-energy x-ray absorptiometry (DXA) studies in women 65 years or older.

METHODS

1. Pre-intervention bone density screening order rates obtained from electronic medical record (EMR). Rates were calculated using the first visit for each period.
2. Fishbone diagram completed **(Figure 1)**
3. Handout distributed to eligible patients (female and 65 or older) during rooming **(Figure 2)**
4. Post-intervention screening order rates obtained from EMR
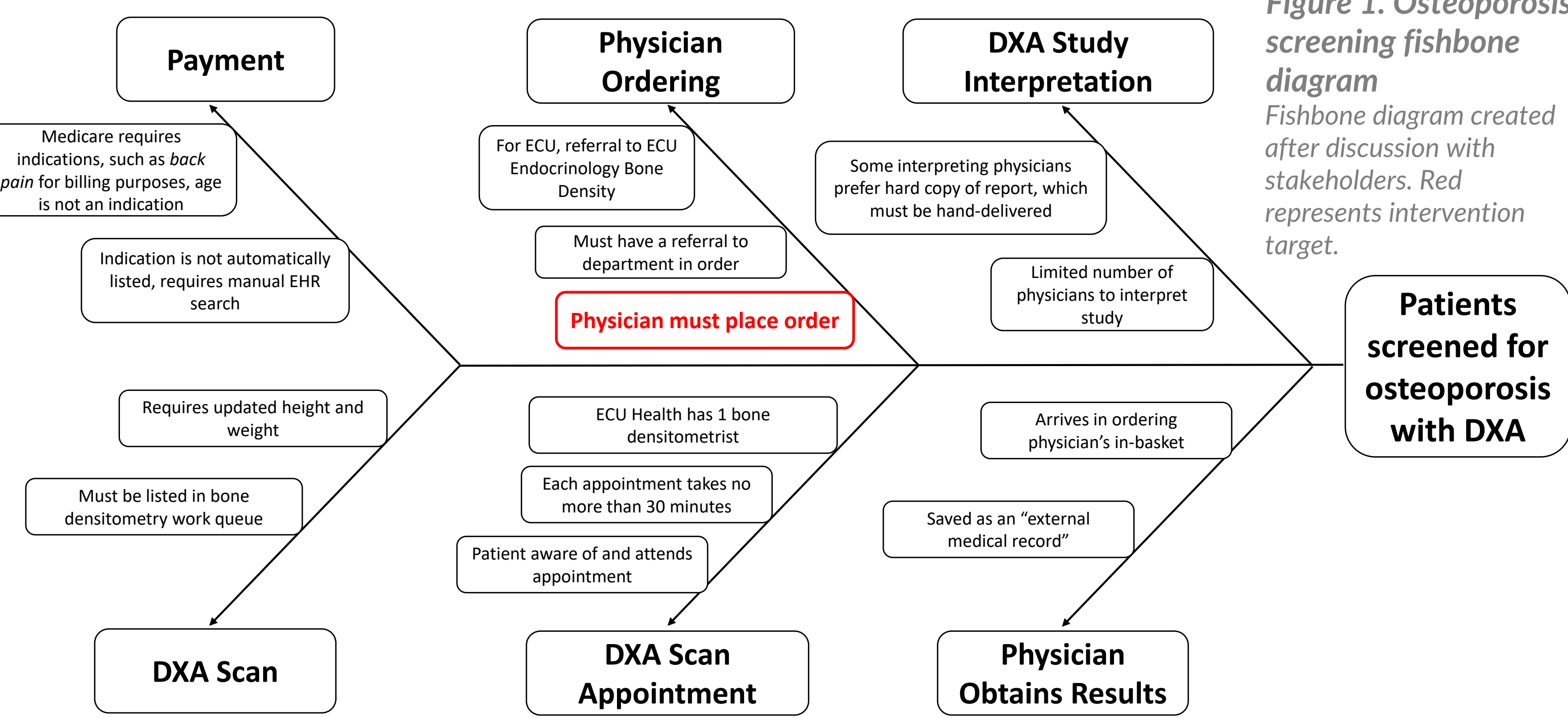
Figure 1. Osteoporosis screening fishbone diagram
Fishbone diagram created after discussion with stakeholders. Red represents intervention target.
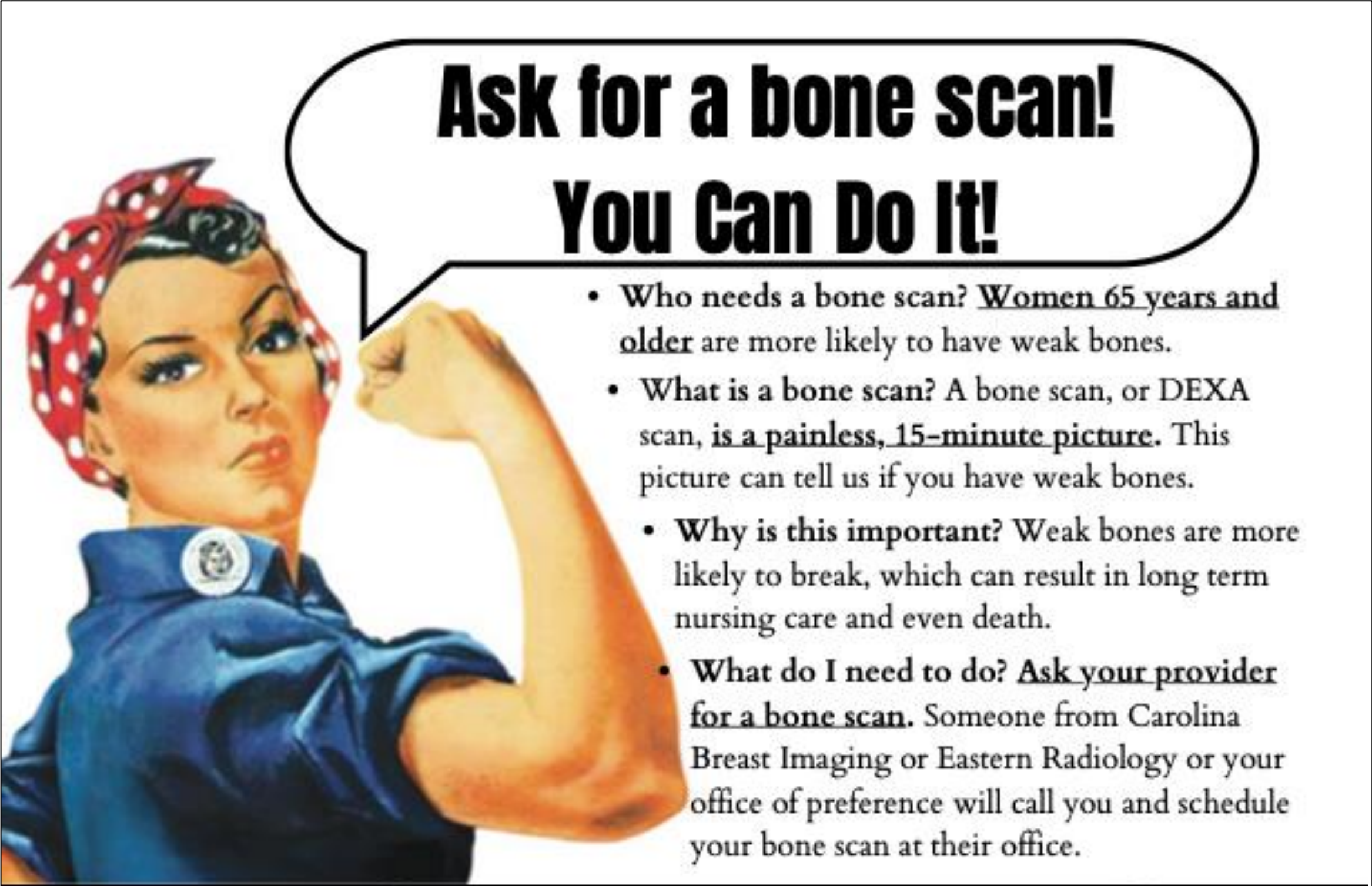
Figure 2. Patient-centered handout
Data represented in this handout were obtained from peer-reviewed scientific literature. Text was edited for a Flesch-Kincaid grade level score of 6.
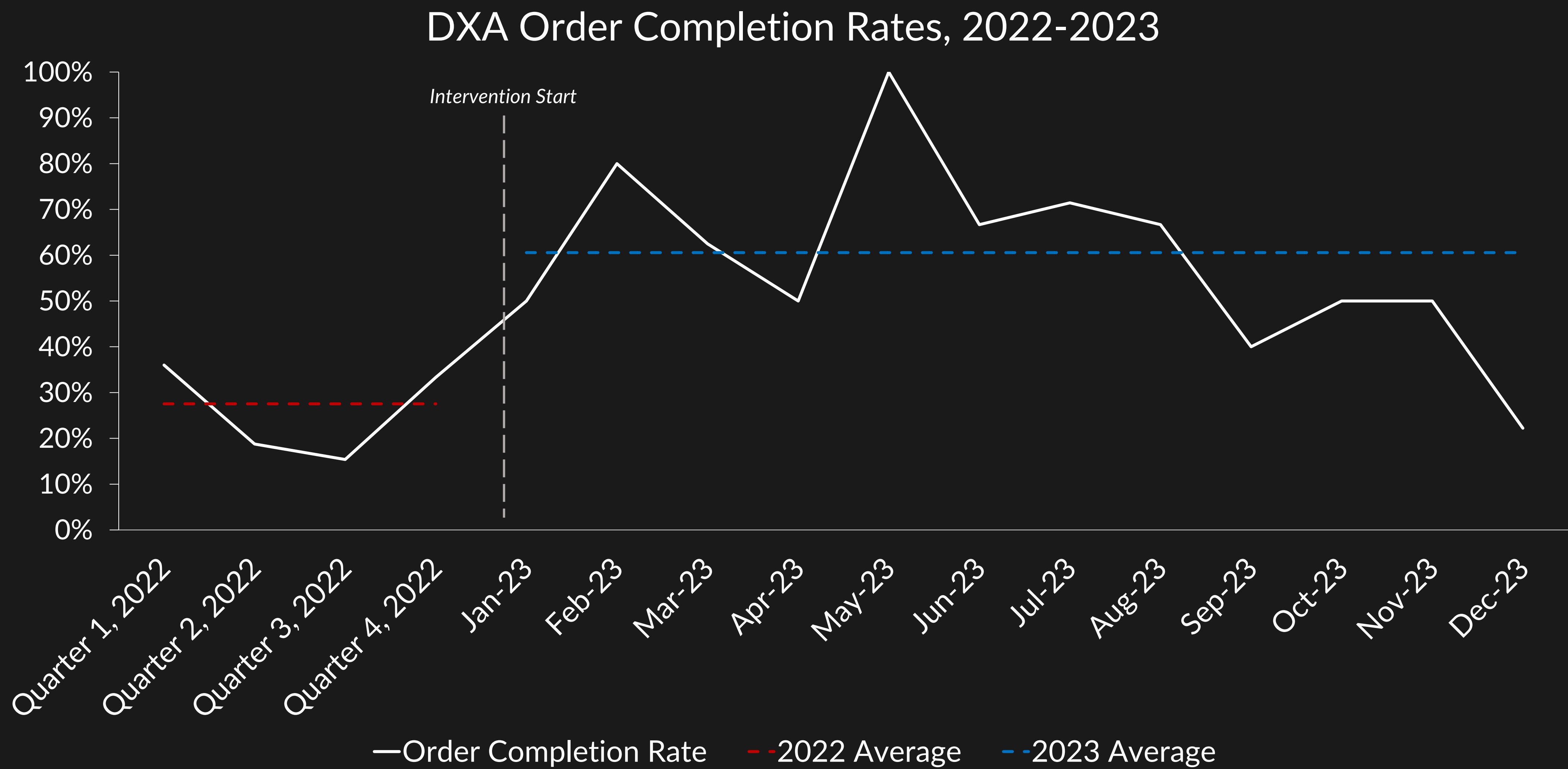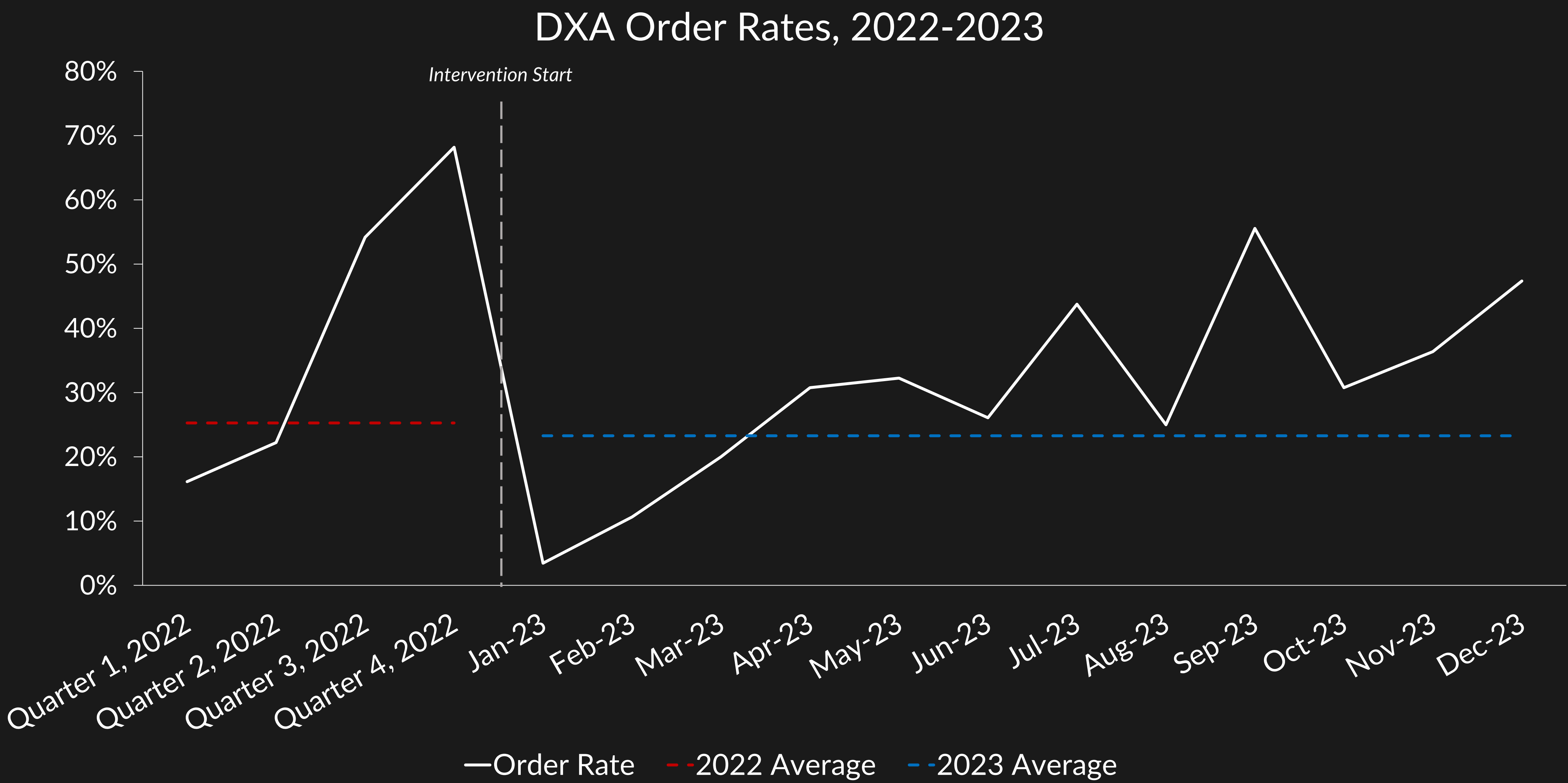
View current screening guidelines

RESULTS:

- Pre-intervention order rate obtained from 1/1/22 – 12/14/22 was 25.3% (*69/273*)
- Pre-intervention completed bone density screening from the above time period was 27.5% (*19/69*)
- Total post-intervention screening rate obtained from 1/1/23 – 12/31/23 was 23.3% (*71/305*)
- Post-intervention completed bone density screening from the above time period was 60.5% (*43/71*)

Time Period	DXA Order Rate	
	Order Rate	
Quarter 1, 2022	16% (25/155)	
Quarter 2, 2022	22% (16/72)	
Quarter 3, 2022	54% (13/24)	25%
Quarter 4, 2022	68% (15/22)	
Jan-23	3% (2/58)	
Feb-23	11% (5/47)	
Mar-23	20% (8/40)	
Apr-23	31% (8/26)	
May-23	32% (10/31)	
Jun-23	26% (6/23)	23%
Jul-23	44% (7/16)	
Aug-23	25% (3/12)	
Sep-23	56% (5/9)	
Oct-23	31% 4/13)	
Nov-23	36% (4/11)	
Dec-23	47% (9/19)	

Table 1. DXA study order rates
Data represent unique patients presenting at the first visit during the intervention time period. Order rate is defined as number of DXA study orders divided by total number of eligible patients with in-person visits during the specified time period.

During the intervention period, order completion rates for osteoporosis screening increased from 28% to 61%.

DXA Order Rates, 2022-2023

Intervention Start

— Order Rate   - - 2022 Average   - - 2023 Average

DXA Order Completion Rates, 2022-2023

Intervention Start

— Order Completion Rate   - - 2022 Average   - - 2023 Average

Key Takeaway:

Order entry rates for osteoporosis screening in eligible patients failed to improve. However, completion rates of DXA orders improved during the same time period.

Aim:

In the ECU Med-Peds Clinic, we aim to screen 25% of female patients over the age of 65 for bone density who have never been screened before by January 31, 2024.

SMART Goal:

By July 31, 2023, we will increase the number of orders for a bone density scan made by ECU Med-Peds physicians for female patients over the age of 65 who have never been screened before by 10%.

Lessons Learned:

- No option for medical students to request data resulted in difficult and months-long data acquisition process
- Inability to control for institution-wide EMR changes makes it difficult to evaluate effectiveness of intervention

Next Steps:

- Tentative meeting with electronic health record governance committee for self-referral for screening
- More work needs to be done to improve order rates of osteoporosis screening and study completion