

# Association of VA Primary Care Medical Homes with Osteoporosis Care in Male Veterans

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## Background

- VA Health Information Letter 10-2009-009 recommends that men ages 50 and older with hip fracture be evaluated for osteoporosis.
- Prior research has shown that men treated for hip fracture are rarely evaluated or treated for osteoporosis, despite known benefits.
- In 2010 the Veterans Health Administration implemented a patient centered medical home called "PACT" to improve care coordination and continuity of primary care.

## Objective

- Evaluate the association between PACT implementation and post hip fracture care.

Hypothesis: PACT implementation will increase the proportion of patients receiving evaluation and treatment for osteoporosis within 6 months of hospital discharge.

## Methods

### Data Sources

We used VA administrative files, including inpatient, outpatient, PSSG enrollment, fee basis, VA user, and pharmacy files.

### Patient Selection

We extracted patient care data for 4,155 male patients age 50 years and older who were hospitalized for hip fracture in VA hospitals Pre (April 2008-March 2009) and Post (April 2011- March 2012) PACT implementation.

Hip fractures were identified with primary diagnosis ICD9 codes (820.0 [any], 820.1 [any], 820.2 [any], 820.3 [any], 820.8, 820.9).

Subsequently, patients were excluded for:

- osteoporosis evaluation or treatment within prior 730 days;
- hospice or palliative care;
- diagnosis of other bone disease, spinal cord injury, or metastatic cancer ;
- death within 12 month of fracture; or
- no regular use of VA services as of the date of hip fracture.

After exclusions, 2,574 patients remained, including 1,209 hospitalized Pre PACT and 1,365 Post PACT implementation.

## Outcomes

Four outcomes were examined, defined as the receipt of specific services within 6 months of discharge, including:

- primary care encounter (using VA clinic stop codes);
- osteoporosis diagnosis (i.e., ICD9-CM 733);
- DXA order (i.e., CPT codes 76977, 77079, 77080, 77081, 77082, 77085, 78350, 78351; ICD9 procedure code 88.98); and
- osteoporosis pharmacotherapy (i.e., VA prescription for alendronate, etidronate, pamidronate, raloxifene, risedronate, teriparatide, zoledronic acid, or ibandronate).

## Analysis

- Compared unadjusted outcomes Pre and Post PACT using Chi square.
- Evaluates association of PACT and osteoporosis outcomes using generalized linear mixed model, controlling for facility complexity and facility level variation.

## Results

### I. Patient Characteristics

Patients were similar with regard to race, rural residence, and age, with mean ages of 74.64 and 74.21 respectively.

#### Patient characteristics at fracture, Pre and Post PACT

	Pre-PACT 4/08-3/09 n=1209	Post-PACT 04/11-03/12 n=1365
	%	%
Age <sup>a</sup>		
50-64	27.3	31.7
65-79	32.9	30.2
80+	39.8	38.2
Race <sup>b</sup>		
White	75.9	76.8
Black	10.2	9.6
Hispanic	5.9	4.8
Asian	.7	1.3
Native American	.4	.7
Unknown	7.0	6.8
Degree Rural Residence <sup>c</sup>		
Urban	71.3	73.3
Large Rural	13.0	11.0
Small Rural	8.5	9.4
Isolated	7.23	6.3

<sup>a</sup> p=0.34; <sup>b</sup> p=0.40, <sup>c</sup> p=0.27

### II. No Association of PACT Implementation with Post Fracture Primary Care Use

- Almost one quarter of VA hip fracture patients had no contact with their VA primary care provider within 6 months of hospitalization.

#### VA Primary Care Encounters within 6 months of Hip Fracture

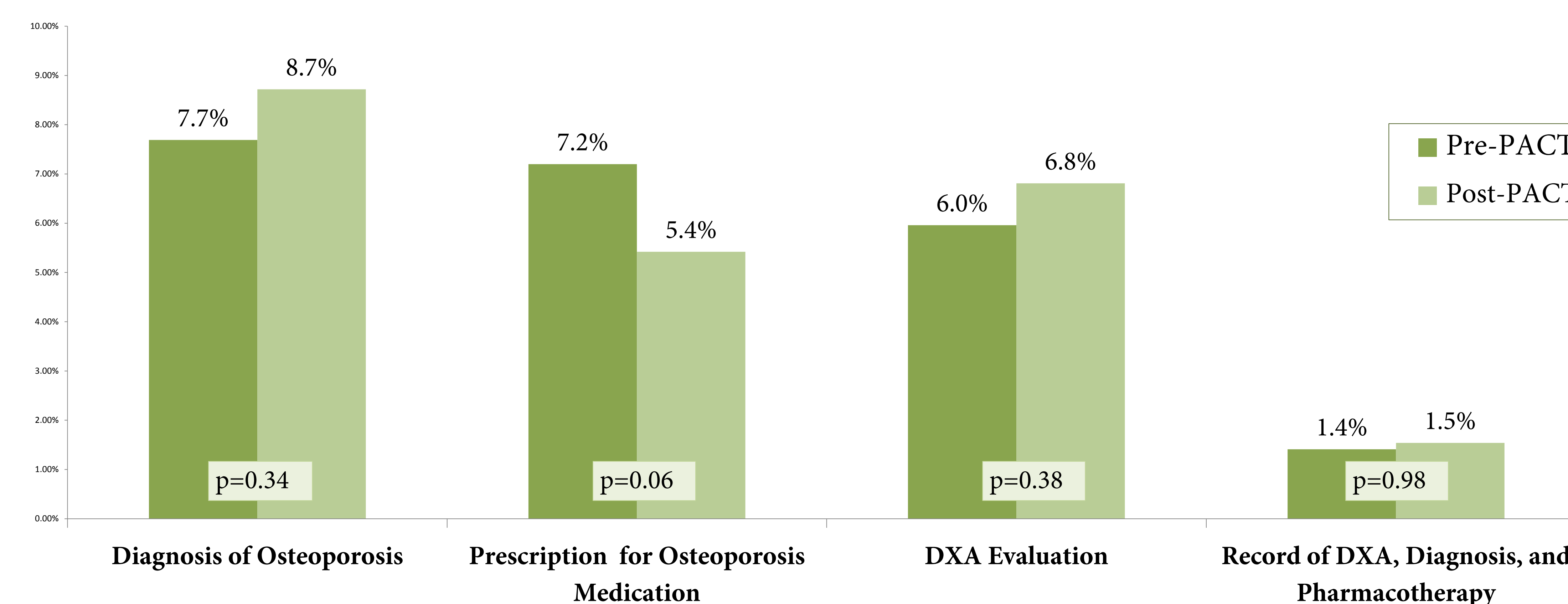
	Pre-PACT 4/08-3/09	Post-PACT 07/11-03/12
	%	%
No Encounters	24.9	21.5
1 or 2 Encounters	42.0	38.8
3 or More Encounters	33.1	39.6

- After accounting for Veteran's primary care facility, the odds of having a primary care encounter within 6 months of fracture did not increase.  
**1.03 (95% CI, 0.81-1.31; p=0.79)**

### III. No Association of PACT Implementation with Post Fracture Osteoporosis Evaluation

- No association between the period of PACT implementation and any measure of osteoporosis evaluation was observed.
- Rates of evaluation were low. Less than 2% of hip fracture patients received DXA, and osteoporosis diagnosis, and pharmacotherapy within 6 months of hospitalization.
- Among those patients who were seen by primary care at least once, there was no difference in rates of osteoporosis evaluation across any measure. (**p=0.31**)

#### Proportion of Hip Fracture Patients with Osteoporosis Evaluation by Implementation Status



- After controlling for Veteran's primary care facility, the odds of receiving evaluative care did not change:
  - Odds of DXA Post PACT 1.23 (95% CI, 0.89-1.70; p=0.22)**
  - Odds of osteoporosis medication Post PACT 0.82 (95% CI, 0.59-1.13, p=0.22)**
  - Odds of osteoporosis diagnosis Post PACT 1.20 (95% CI, 0.89-1.60, p=0.28)**

## Conclusion

- Rates of primary care use and osteoporosis evaluation following hip fracture are low.
- PACT implementation was not associated with change in post fracture care.

## Implications

- PACT holds potential for transforming the quality of osteoporosis care in VA, but further attention to knowledge gaps and coordination issues is warranted.

## Study Limitations

- Veterans with hip fractures may receive primary care or osteoporosis evaluation care in non VA facilities.
- Discharge to non VA rehabilitation or long-term care facilities may impact post fracture care at VA facilities.
- Unable to adjust for variation in PACT implementation.

## Research-Operations-Clinical Partnership to Improve Osteoporosis Care

Our current research aims to improve osteoporosis identification and management through the following aims:

- Evaluate DXA testing rates among male Veterans at high risk for osteoporosis, defined as:
  - androgen deprivation therapy users
  - corticosteroid users
  - anti-seizure medication users
  - fracture fracture sufferers.
- Identify factors influencing PACT-based DXA testing of men at high risk.
- Leverage research findings and a research-operations-clinical partnership to develop and test organizational change strategies to improve the quality of OP care in VA.

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