Temporal Trends in Ambulatory Care Physicians Referral to Physical Therapists for Musculoskeletal Conditions: Analyses from the National Ambulatory Medical Care Survey (NAMCS), years 2003-2014

Samannaaz S. Khoja, PT, PhD[1], Janet Freburger, PT, PhD[1]

[1]Department of Physical Therapy, School of Health and Rehabilitation Sciences, University of Pittsburgh

Background

- Individuals with musculoskeletal (MSK) conditions are typically under the care of primary care physicians (PCPs) and/or orthopedists prior to receiving physical therapy (PT).

- Evidence on physician referral patterns for MSK conditions managed by physical therapists is limited.

Objectives

- To examine PCPs' and orthopedists' referral patterns to physical therapy (PT) for patients with MSK conditions.

- To investigate patient and health provider characteristics that are associated with a PT referral.

Methods

- **Data Source:** The National Ambulatory Medical Care Survey (NAMCS) is a national population-based survey of office-based physician visits conducted yearly by the National Center for Health Statistics

- **Design:** Cross-sectional study of data from 2003-2014

- **Data Variables**
  - Office-based visits to a PCP or orthopedist for MSK complaints were identified and assessed for the presence of a PT referral.
  - Patient factors included demographic characteristics (e.g. age, sex, race, insurance) and clinical characteristics.
  - Health provider factors included practice type, location, and ownership.

- **Analyses**
  - Data were analyzed using Stata (v14.2) and appropriate sampling weight strategies
  - PT referral rates and referred visit counts were calculated per 2-year intervals.
  - Logistic regression analyses were used to identify predictors of PT referral

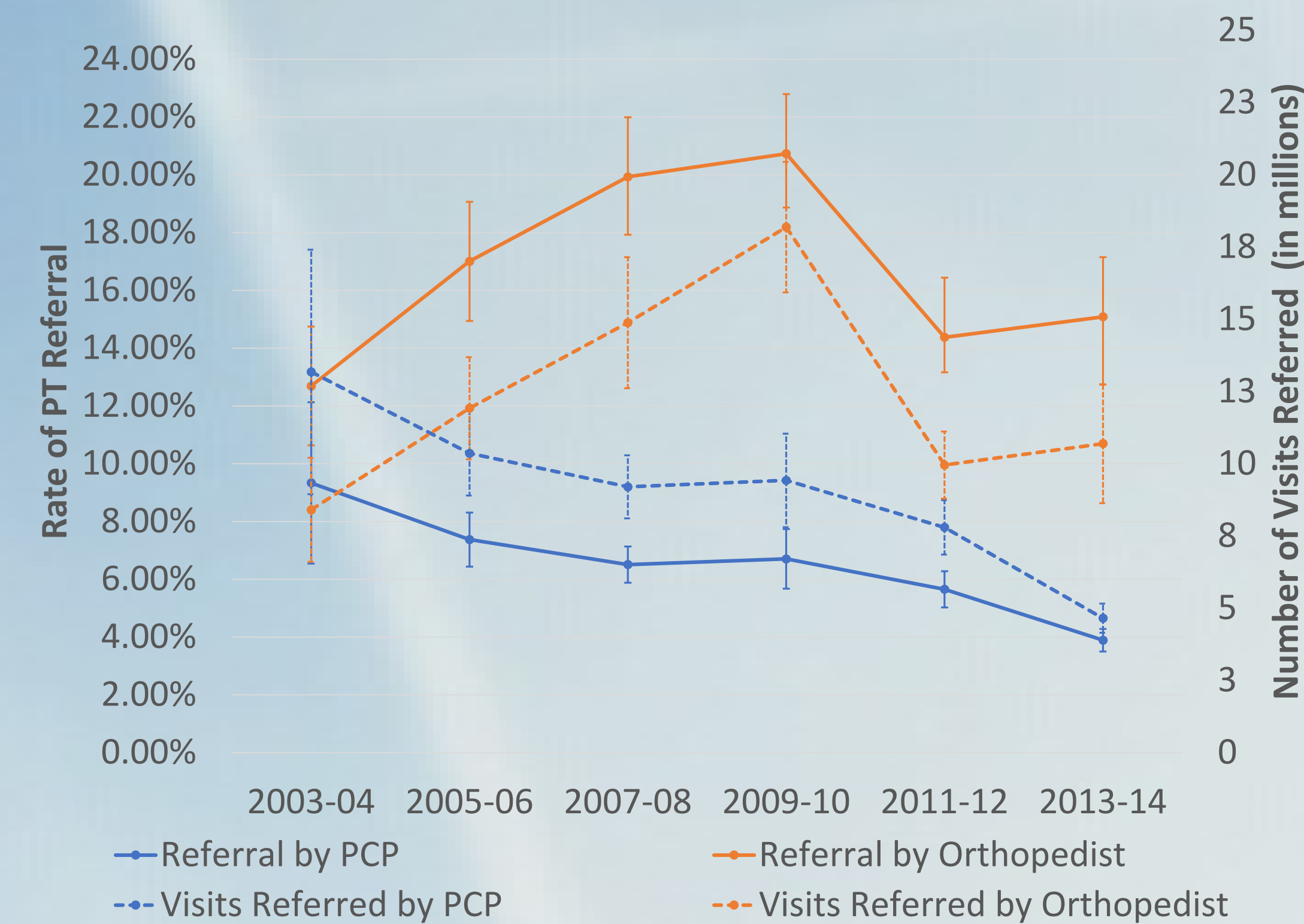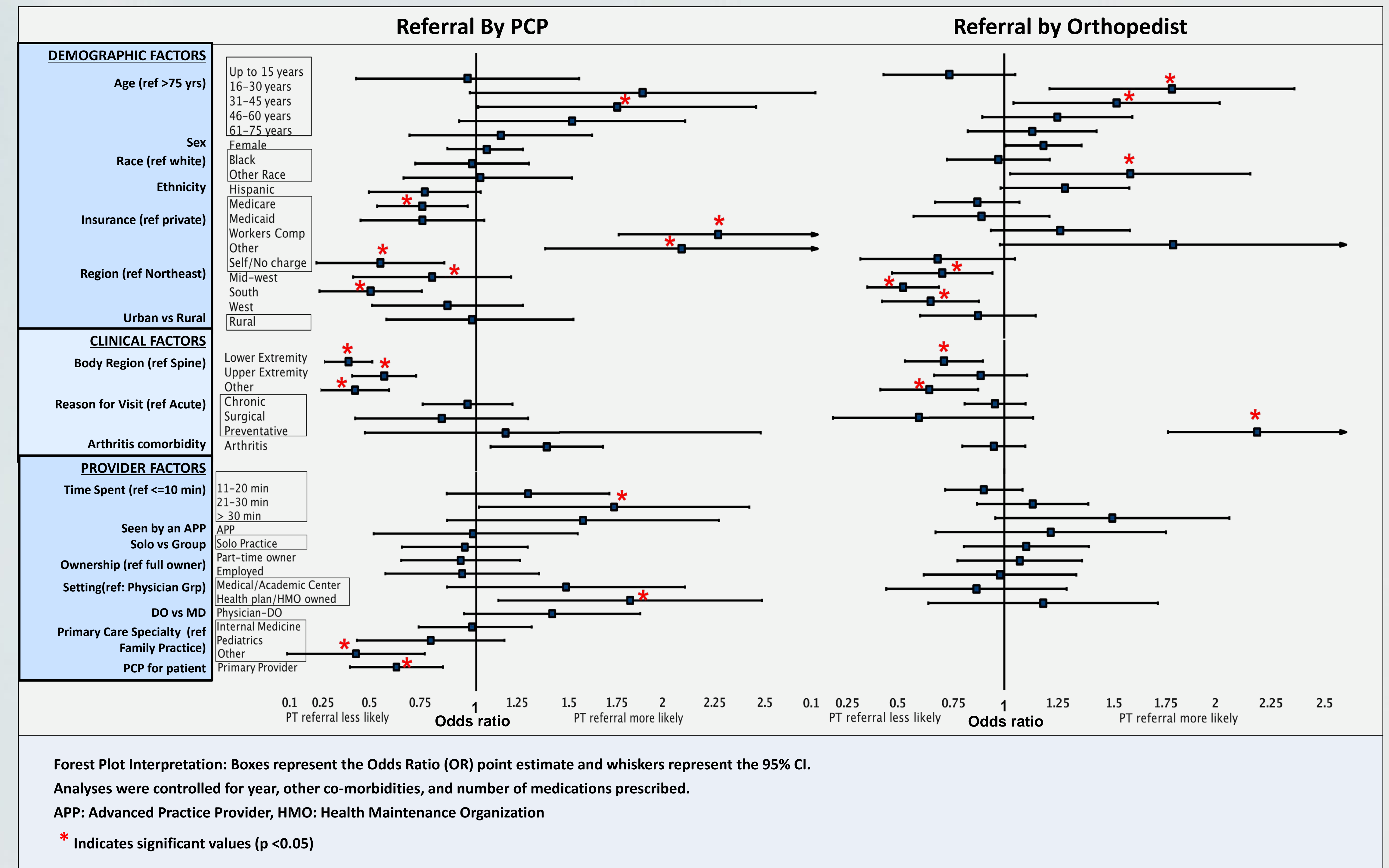### Figure 1. PT referral rates and Visit Counts

Table 1. Characteristics of Patients Referred by Specialty

		PCP	Orthopedist
Females, %		57.49	54.66
Age, mean±SD		48.3±0.7	49.2±0.6
Race	White	84.8	89.0
	Black	10.2	7.3
	Other	4.9	3.8
Hispanic, %		8.9	11.2
Insurance, %	Private	57.7	55.2
	Medicare	15.8	19.9
	Medicaid	6.1	5.5
	Worker Comp	8.7	11.1
	Other	3.9	3.4
	Self/No	2.9	1.4
	Missing data	4.8	3.5
Body Region, %	Spine	52.5	14.4
	Lower Extremity	18.9	41.0
	Upper Extremity	18.7	31.3
	Other/Not specified	9.9	13.4
Reason for Visit, %	Acute Problem	51.2	39.1
	Chronic Problem	43.2	36.7
	Pre/Post Surgery	1.1	22.33
	Prevention	3.1	.57
	Missing data	1.4	1.2

Results

Figure 2. Patient Demographics, Clinical and Health Provider Characteristics Associated with PT Referral (odds ratios)

Forest Plot Interpretation: Boxes represent the Odds Ratio (OR) point estimate and whiskers represent the 95% CI.

Analyses were controlled for year, other co-morbidities, and number of medications prescribed.

APP: Advanced Practice Provider, HMO: Health Maintenance Organization

* Indicates significant values (p <0.05)

Conclusions & Significance

- These data provide national estimates on PT referral by PCPs and Orthopedists for managing musculoskeletal conditions.

- PT referral rates by PCPs are low relative to Orthopedists and are declining over time.

- A greater number of provider factors (i.e time spent with PCP, PCP's specialty, whether PCP seen was the patient's primary provider) predicted PCPs' referrals to PT compared to Orthopedists.

- Demographic factors (i.e age, race, region, Insurance type) also predicted PT referrals. Insurance type significantly predicted PT referrals by PCPs but not by Orthopedists.

- Association of non-clinical factors with PT referral are suggestive of an under or over-referral to PTs, and potential sub-optimal management of patients with musculoskeletal conditions.