

## Introduction

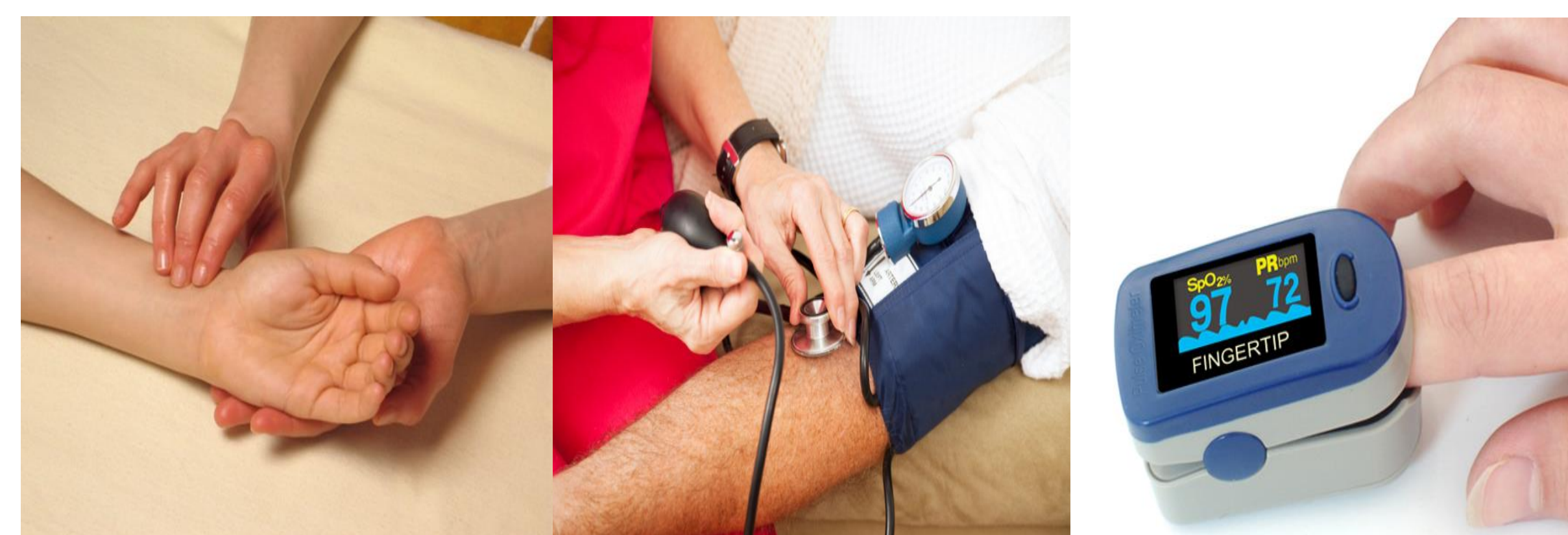
- According to the Center for Disease Control and Prevention, the leading cause of death in the United States is heart disease, at a rate of 611,105 in the year 2013 (Leading Causes of Death, 2015).
- Exercise interventions utilized by PTs have the potential to be harmful if the patient is not being properly monitored (Grunig et al., 2012).
- A majority of practicing physical therapists were not measuring vital signs during each visit because of a lack of time, or simply the perception of not being important for their particular patient population (Peters, 2014).
- With physical therapy being a doctoring profession and having direct access to patients, it is essential to assess vital signs for patient safety, to be consistent with APTA standards of care, and increase credibility.

## Purpose & Research Questions

- The purpose of this study was to determine how often physical therapists assess vital signs of Heart Rate (HR), Blood Pressure (BP), and Oxygen Saturation (SpO2) throughout the United States of America, and if there are key factors that may affect the general assessment of these vital signs.
- Research Question 1: At what level of frequency do physical therapists assess vital signs (HR, BP, & SpO2) with their patients?
- Research Question 2: What is the relationship between the frequency of physical therapists assessment of vital signs and the level of restriction of patient direct access?

## Methods

- An observational, non-experimental, quantitative, & cross-sectional study was completed.
- 50 physical therapy state associations and the District of Columbia were contacted. An additional email was sent with the Online Survey Consent form to participating states.
- Once approved by IRB the online survey was sent via email. A second email with a survey was sent during the data collection time.
- Data was submitted to and stored in Checkbox, a survey program made available to students through FGCU.
- 22 states participated with an additional 2 respondents from other states, totaling 24 states and 286 respondents.
- The survey attempted to illustrate a way to show the current level of importance that the physical therapist places on the assessment of vitals in the setting they work.



## Results

### Characteristics of Respondents

Total respondents to survey was N=286 from 24 U.S. states. There was a large distribution between states, the state with the greatest amount of respondents had 103 and several states were under 3 respondents.

#### “Respondents Area of Practice”

Area of Practice	Frequency	(%) of Respondents
Orthopedics/Musculoskeletal	179	62.59
Geriatrics	123	43.01
Adult Neurological Rehab	63	22.03
Cardiovascular & Pulmonary	46	16.08
Sports Physical Therapy	31	10.84
Other	91	(N/A)

#### “Initial Evaluation: Respondents Reporting that they Assess HR, BP, and/or SpO2 greater than 50% of the time”

Vital Sign	Frequency	Percentage of Respondents
Heart Rate	119	44.57
Blood Pressure	113	42.33
SpO2	93	34.97

#### “Assessment of Vitals on Certain Patients Some of the Time is Somewhat or Extremely Important”

Vital Sign	Frequency	Percentage of Respondents
Heart Rate	250	93.63
Blood Pressure	250	93.98
SpO2	237	89.10

#### “Reasons for Physical Therapists to not assess vitals”

Reason	Frequency	Percentage of Respondents
Not Important for My Patient Population	104	41.77
Lack of Time	75	30.12
Vitals are measured by other staff members at my clinic	67	26.91
Equipment not available	38	15.26
Other	63	(N/A)

#### “Respondents Practice Setting”

Practice Setting	Frequency	(%) of Respondents
Hospital Based Outpatient	87	30.42
Physical Therapy Owned	76	26.57
Acute Care Hospital	66	23.08
Home Care Agency	39	13.64
Skilled Nursing Facility	28	9.8
Other	51	17.83

#### “Every Treatment Session: Respondents Reporting that they Assess HR, BP, and/or SpO2 greater than 50% of the time”

Vital Sign	Frequency	Percentage of Respondents
Heart Rate	102	37.92
Blood Pressure	88	32.84
SpO2	83	31.20

#### “Assessment of Vitals, Each Visit, on Patients with a History of Cardiovascular Disease is Somewhat or Extremely Important”

Vital Sign	Frequency	Percentage of Respondents
Heart Rate	226	84.65%
Blood Pressure	218	81.65%
SpO2	201	75.85%

#### “Average Time to Assess Vitals: HR, BP, & SpO2”

Average Time	Frequency	Percentage of respondents
1-3 minutes	153	56.88
4-6 minutes	111	41.26
7-9 minutes	3	1.12
9+ minutes	2	<1
Total responses	269	100

#### “Chi-Square and Phi Coefficient Analysis of the Association between Vital Sign Assessment Frequency and State Direct Access Levels”

	Chi-Square	df	p-value	Phi (p)
IEHR	687.12	18	.000	1.049 (.000)
IEBP	674.45	16	.000	1.039 (.000)
IESpO2	653.21	16	.000	1.022 (.000)
TSHR	692.15	16	.000	1.052 (.000)
TSBP	695.45	16	.000	1.055 (.000)
TSSpO2	645.41	16	.000	1.016 (.000)

IEHR=Initial Evaluation Heart Rate, IEBP=Initial Evaluation Blood Pressure, IESpO2=Initial Evaluation Pulse Oximetry, TSHR=Treatment Session Heart Rate, TSBP=Treatment Session Blood Pressure, TSSpO2=Treatment Session Pulse Oximetry

## Discussion

- Multiple states participated from various regions around the U.S., but not all were willing or able to participate. A skewed representation occurred through the results, with the 7 most frequently responding states having over 80% of the responses.
- Musculoskeletal/Orthopedic practice area had the majority of respondents with geriatric and adult neuro-rehab following.
- The outpatient physical therapy setting had the highest frequency with over half of the respondents, followed by acute care then home health.
- Reimbursement for the majority of the responders were from Medicare, then ‘Other insurance’, and very little ‘Private Pay’. Also, a greater majority of responders reported that they do not feel Medicare requirements associated with patient outcomes and payment for performance affect how they assess vital signs.
- Over 3/4 of the responders expressed there was ‘No’ policy for vital sign assessment, where they practiced physical therapy. There are a variety of reasons this may occur.
- Most of the respondents are highly educated with the initial degree being at the graduate level for almost 2/3 of them (either masters or doctorate), and highest degree earned showed an increase of graduate level degree seeking individuals of >20% with this cohort of responders.
- For research question 1, a greater majority of the responders feel that taking vitals on some patients some of the time is important and taking vitals with a history of cardiovascular disease. During the initial evaluation assessing vitals occurs less than half of the time and is less during treatment sessions than initial evaluations. HR, then BP, then SpO2 appear to be the level of importance of vital sign assessment for the majority of responders with HR & BP being similar most of the time. Multiple reasons for not assessing occur with ‘it depends on the patient’ having the highest frequency followed by ‘lack of time’ and then ‘vitals assessed by other staff members’.
- In regards to research question 2, it was statistically significant with a greater frequency of restricted direct access respondents assessing HR, BP, and SpO2 than unrestricted direct access during initial evaluations and during treatment sessions.
- Limitations of this study include an online survey that was only distributed via state physical therapy associations that chose to participate and dissemination of the survey was chosen by association.
- Future research should focus on more evenly spread areas of practice, practice setting, and obtaining more representation throughout the U.S. Research what determines if there is or is not a vital sign policy in health care settings and why.

## Conclusions

- Assessing vitals are quick, fairly easy, and an objective way to determine a patient’s general health status. Data with this research has shown; ~98% somewhat to extremely confident with taking vitals & ~91% able to assess HR, BP, and SpO2 within 1-6 min.
- This was an online survey distributed by participating state PT associations, so this is not a complete representation of vital sign assessment for the PT practice.
- Valuable information was obtained that will help improve quality of patient care, requiring an alteration of PT treatment, and/or give insight with that patient’s overall health status that may improve and possibly save their life.