A Vision of Imaging Referral Privileges in Physical Therapist Practice in Kentucky



Charles Hazle, PT, PhD 9/10/22



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The Long-Term Goal



Begin With the End in Mind

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Objectives

To look forward to future practice models of physical therapy:

Inclusive of imaging referral privileges & use point of care ultrasound

With PTs as predominant primary care providers for those with apparent MSK disorder

And....how do we get there (not pretending to have all the answers)

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Future Practice Model

PTs understanding imaging is a logical continuation of the role of being primary care clinicians



Consider Australian model of practice: *"My physio...."* 1st line practitioner of choice for MSK disorders

Examination/evaluation/assessment includes all available patient data Not about imaging, but clinical reasoning inclusive of imaging data

Rationale for PTs, Patients & Health Care



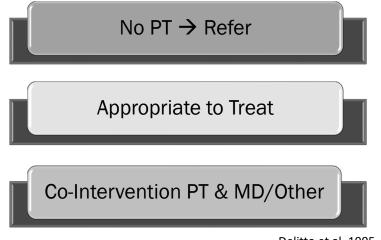
"Bigger Picture"

PTs understanding & referring for imaging is logical continuation of role of being primary care clinicians

Examination/evaluation includes all available patient data Supplementing history & clinical exam w/ imaging data, when indicated Allow better patient mgmt strategies; cost & time savings

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Rationale: Primary Care Decision-Making



Delitto et al, 1995

Role of the Physical Therapist

Incumbent upon us to <u>understand & act</u> on how imaging integrates with our:

Medical screening as primary contact clinicians

Our clinical decision-making in routine care

To improve those reasoning processes

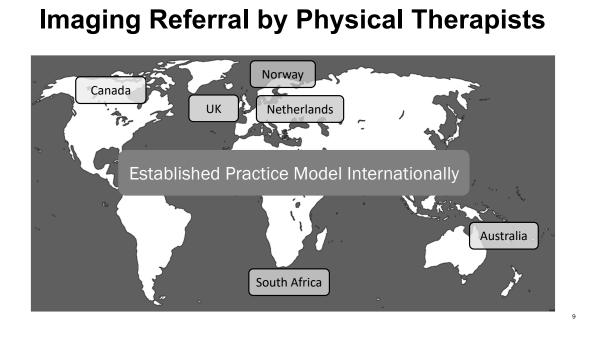
Imaging Referral by Physical Therapists

Considered "emerging practice?"

Established successfully in many settings

Growing interest in general clinical practice, esp MSK

How did we get to this point & to where are we progressing?



Increasing Domestic Usage

Almost 5 decades success in US military PTs in primary care role 1st documented by James & Stuart, 1975 50% ↓ in radiographs vs MDs & quality care 10

Other Federal institutions

Civilian Settings: Georgetown University Hospital (2012) University of Wisconsin Hospital & Clinics (circa 2006) Practitioners in Colorado for many years Evolving circumstances in individual states

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Physical Therapist Practice Defined by VHA

VHA Directive 1170.05 - Issued May 11, 2020



Definition of Physical Therapist practice includes:

Section 4 (q): "Any other practices that are informed by evidence and linked to existing or emerging practice models such as ... **ordering diagnostic imaging** and laboratory studies..."

Rationale for PTs

Expanding scope of practice for future

Not unanimously supported--Will be resistance

Continue to demonstrate:

Competence

Favorable outcomes in patient care

Economical decision making

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Why the Opposition?

"Not qualified to do it..."

"Patient safety"

PTs ordering imaging means more imaging & overutilization with \$\$\$

....so they say, but what are the facts?

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Anticipated Barriers

Fear of over-utilization in current cost control environment

3rd Party Payers – emphasis on consistency w/ guidelines

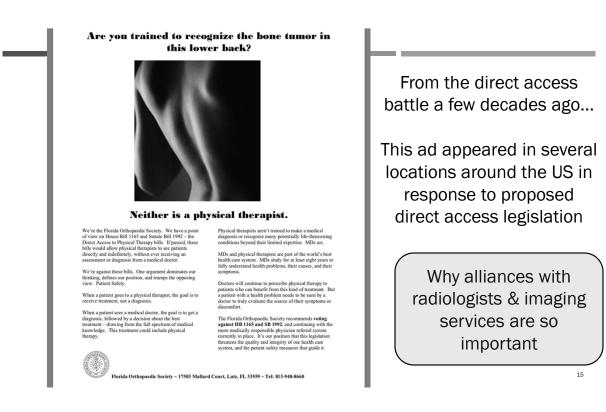
Physician Entities

Other Providers

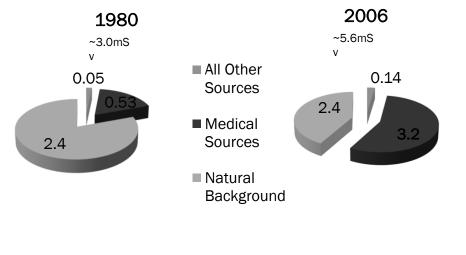
All politics are, indeed, local

And....unanticipated barriers

Follow-up after results—purview & responsibility



Radiation Exposure in US



In milliSeverts

Mettler et al, 2009

Need for Improved Decision-Making

Estimate of 1.5 - 2.0% of all cancers in the US are attributable to radiation exposure from CT scans

"...perhaps 20 million adults and, crucially, more than 1 million children per year in the United States are being irradiated unnecessarily."

Brenner & Hall, 2007

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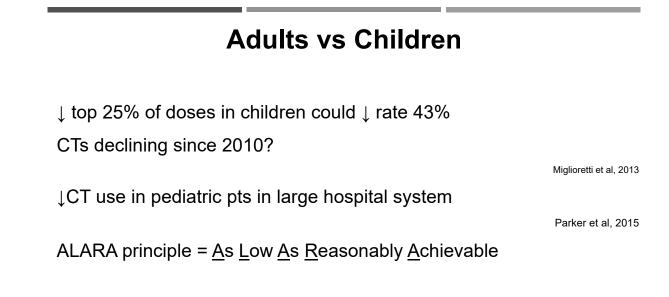
Need for Improved Decision-Making

Estimated apx 29,000 future cancers will be related to CT scans performed in US in 2007

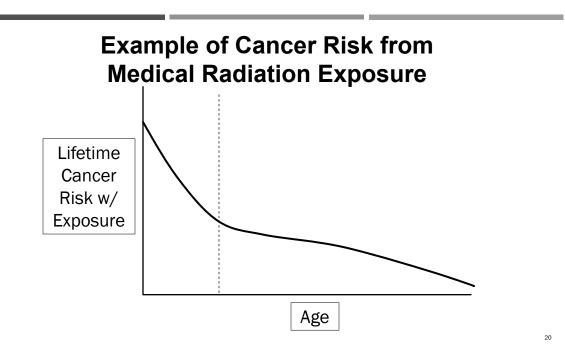
If apx 50% mortality rate w/ CT-induced cancers, apx 15,000 people will die as a direct result of CT scans performed in 2007 in US alone

66% of projected cancers will be in women

Berrington de Gonzalez et al, 2009



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Concisely....

Actively reproducing tissue is more susceptible to DNA damage

A given dose of ionizing radiation is spread over a smaller area in a child, resulting in greater exposure

Malignancies have a very long latency; thus, a child has a longer period of life over which to develop a secondary cancer relative to an older adult

Puchalski & Magill, 2018

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...But Wait...

"...many of these alarming scientific publications appeared to be flawed by poor study design, but their conclusions were not openly contradicted." Toma et al, 2017

The risk is not great, but risk exists with radiation exposure Should be considered in decision-making, esp w/ young patients

Changing Decision Making

56.3% \downarrow in CT ordering after presentation of radiation exposure/health risk information

Changed to MRI or US

48.3% \downarrow in CT & MRI ordering after presentation of Medicare reimbursement information

Changed to US

Gimbel et al, 2013

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Efforts to Reduce Radiation Exposure in Imaging



Society for Pediatric Radiology American College of Radiology American Society for Radiologic Technologists American Association of Physicists in Medicine



American College of Radiology Radiological Society of North America American Association of Physicists in Medicine American Society of Radiologic Technologists

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"Diagnostic & Procedural Imaging in Physical Therapist Practice"

"White Paper"

Published May 2016 by the AOPT (then Orthopaedic Section), APTA

Comprehensive perspective History, present & future Evidence in support of expanded privileges Addresses required legal, institutional & payer changes

available at <u>www.orthopt.org</u>

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Directives by APTA Membership

June 2016, membership charged APTA to pursue **practice authority** for imaging referral

RC 12-16 passed House of Delegates with 93% favorable vote

APTA to address processes & barriers

APTA sought to analyze state practice acts & associated statutes/regulations in follow-up

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Increasing Presence of Imaging Content in PT Literature





Volume 101, Issue 3 March 2021 Survey of Physical Therapists' Attitudes, Knowledge, and Behaviors Regarding Diagnostic Imaging

Sean D Rundell, PT, DPT, PhD ☎, Murray E Maitland, PT, PhD, Robert C Manske, PT, DPT, MEd, George J Beneck, PT, PhD

Physical Therapy, Volume 101, Issue 1, January 2021, pzaa187, https://doi.org/10.1093/ptj/pzaa187

Referral for Imaging in Physical Therapist Practice: Key Recommendations for Successful Implementation

Aaron Paul Keil, PT, DPT 📼, Charles Hazle, PhD, Amma Maurer, MD, Connie Kittleson, DPT, Daniel Watson, DPT, DSc, Brian Young, PT, DSc, Scott Rezac, DPT, Scott Epsley, PT, Graduate Certificate Sports Physiotherapy, Brian Baranyi, DPT

Physical Therapy, Volume 101, Issue 3, March 2021, pzab013,

CAPTE: PT Standards & Required Elements

Effective January 1, 2016

Standard 7

The curriculum includes content, learning experiences, and student testing and evaluation processes designed to prepare students to achieve educational outcomes required for initial practice in physical therapy and for lifelong learning necessary for functioning within an everchanging health care environment.

REQUIRED ELEMENTS:

7A The physical therapist professional curriculum includes content and learning experiences in the biological, physical, behavioral and movement sciences necessary for entry level practice. Topics covered include anatomy, physiology, genetics, exercise science, biomechanics, kinesiology, neuroscience, pathology, pharmacology, diagnostic imaging, histology, nutrition, and psychosocial aspects of health and disability.

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Proposal...

Imaging SIG worked w/ APTA to propose amendment to FSBPT Model Practice Act

to include "...referral for appropriate diagnostic procedures to allow for effective PT management..."

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So, This Is All New For PTs, Right?.....Or Is It?

Bases for Imaging Decision-Making in ACR Appropriateness Criteria

Age

Trauma presence/absence

Mechanism of injury

Prior surgery

Risk factors

Appearance

Pain provocation / physical function tests

Other imaging results

Weight-bearing ability

Tenderness to palpation

Well established in PT educational curricula & clinical practice

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Imaging-Related PT Skills

National survey of 4796 PTs

Itemized skills associated with imaging referral privileges

Recently published in JMMT

Mabry et al., 2022

Specific Skill	Routinely Completed
Patient "triage"	95%
Use of evidence-based imaging guidelines	63%
Consider risk vs benefit of imaging	73%
Refer for imaging (directly or indirectly)	79%
Suggest an imaging modality	55%
Review imaging reports	85%
Educate patients on imaging findings	76%
Integrate imaging findings in treatment plans	83%
Refer patients if imaging findings out of scope of practice	86%
	Mabry et al., 20

Imaging-Related PT Skills

2 lowest scoring items easily remedied w/ use of ACR Appropriateness Criteria

Use of evidence-based imaging guidelines

Suggest an imaging modality

Precisely what the ACR-AC does

Familiarity to navigate & use NOT necessary to memorize

Clinical Decision Guidelines

Every PT in MSK practice should know:

Access & use of ACR Appropriateness Criteria

https://www.acr.org/Quality-Safety/Appropriateness-Criteria

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Application of Imaging Guidelines

Utilization of Ottawa Ankle & Foot Rules

PTs & orthopaedic surgeons equivalent competencies in identifying those in need of imaging for possible fractures



Springer et al, 2000

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PTs & Imaging Referral in Direct Access Setting

2 yr review of 108 pts receiving MRI/MR arthrographyConsistency with ACR-AC: 83.2%Imaging correlation of dx: 64.8%Surgical correlation: 90%Crowell et al, 2016

5 yr review of 108 pt casesRad use: 9%Advanced imaging use: 4%Consistency with ACR-AC: 91%Keil et al, 2019

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Part of the Solution—Rather than the Problem

Overutilization of low yield imaging:

Low back pain imaging: 23-34% inappropriate

Emory et al, 2013; Kozac et al, 2015; Shaheed et al, 2016

Knee pain: 40% MRIs inappropriate

Solivetti et al, 2016

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Part of the Solution—Rather than the Problem

Compared Imaging Utilization & Safety Events

PT Clinic vs Family Health Center

Safety Incidents 1.9x more frequent at FHC

PT referred for imaging 1/37 pt encounters vs 1/5 pt encounters in FHC

Mabry et al, 2019

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Part of the Solution—Rather than the Problem

MSK exam de-emphasized in medical school education past

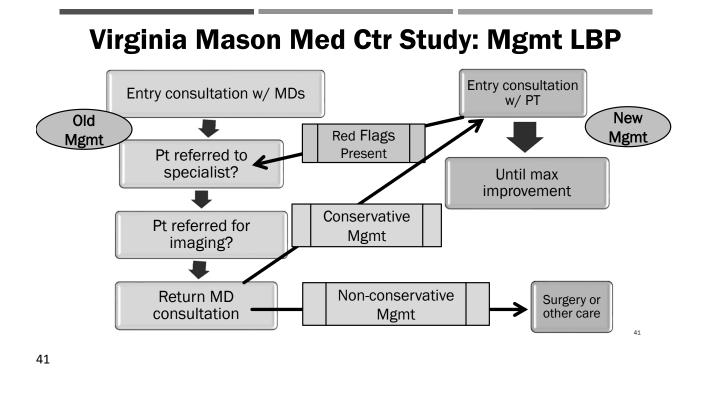
3 decades Jauhar, 2006; Kelly et al, 2015; DiGiovanni et al, 2016; Flegel, 1999; Ramani et al, 2010; Verghese et al, 2015

ACR NOT routinely taught in medical school curricula

Kozak et al, 2015; Powell & Silberzweig, 2015; Retrouvey et al, 2016; Sheng et al, 2016

Our opportunity:

Who knows best how to integrate the history, clinical examination results for decision-making toward imaging?



Virginia Mason Med Ctr Study: Mgmt LBP

MRIs completed for LBP decreased 1/3rd Eventually mandated "red flags" for MRI ordering Needing specialist care rec'd more quickly System: 15 pts w/ LBP per day→15 pts w/ LBP per wk Reduction in lost work time Loss of revenue for MDs Reduction of PT visits/pt

Furhmans, 2007; Pham et al, 2007

Defensive Medicine & Unnecessary Procedures



38% of trauma CTs ordered "defensively"

Chen et al, 2015

96% of orthopedists reported defensive medicine, including ordering imaging Sethi et al, 2012

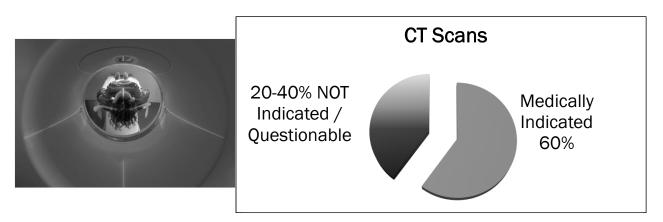
45% w/ fear of litigation from not obtaining test & missing diagnosis McBride et al, 2012

"Defensive medicine is a serious and prevalent challenge in modern medicine and is a major cause of overutilization of imaging, i. e., its application with a low probability to improve patient outcome."

Kainberger, 2017 43

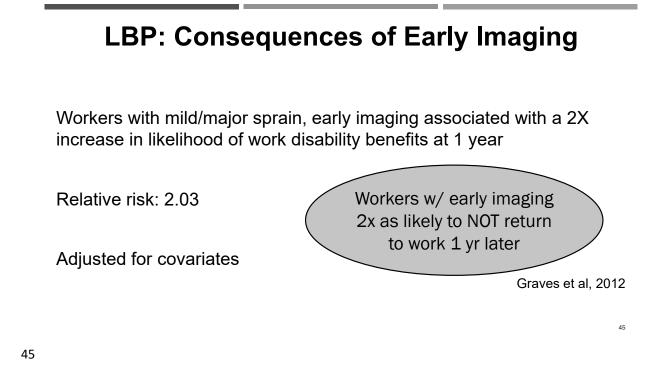
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Defensive Medicine & Unnecessary Procedures



Sathiyakumar et al, 2013; Blackmore et al, 2011; Bowen et al, 2011; Curry et al, 2011; Georgiou et al, 2011; Rosenthal et al 2006; Gibbons et al, 2011; Lehnert & Bree, 2010

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LBP: Consequences of Early Imaging

19.8% injured workers w/ early MRI

Initial visit type w/ surgeon associated with 78% greater likelihood of early MR

May lead to: Greater subsequent interventions Potentially poorer outcomes Increased health care expenditures



Graves et al, 2012

Consequences of Early Imaging?

Pt's knowledge of imaging results or not w/ LBP, including lumbar radiculopathy

Early clinical outcomes same

"Patient knowledge of imaging findings are **associated** with a lesser sense of well-being"

Knowledge of results lowered health perception

Ash et al, 2008

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Negative Effects of Early Imaging

Early MRI → Leads to wide variety of expensive & potentially unnecessary services

Webster et al, 2014



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Negative Effects of Early Imaging

Early consultation & MRI does not improve outcomes for those w/ physically demanding jobs who have onset of LBP Hansen et al, 2019

Image Decision Making

What information is being sought?

How likely is the imaging result to change the course of care?

How likely is that information to be decisive in mgmt of the pt?

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Imaging Interpretation

Necessarily the purview of radiologists Requires thousands of "reads" to be skilled Commensurate w/ medical specialty AI will be 1st interpreter in near future

Helpful in understanding our patients Recognize normal vs abnormal anatomy Consistency w/ history & clinical examination

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Imaging Interpretation of the Future: Artificial Intelligence

All digital images are arrangements of pixels

Patterns of pixels represent normal vs pathological

Algorithms to recognize patterns of pixels c/w pathology

Likely to become 1st line of image interpretation in near future

Relationship of AI & Radiologists interpreting images in future will evolve—what role will each have?

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IMAGING INTERPRETATION OF THE FUTURE: ARTIFICIAL INTELLIGENCE



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https://youtu.be/QWdJLYSh72c

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Role of the Physical Therapist

Incumbent upon us to <u>understand & act</u> on how imaging integrates with our:

•Medical screening as primary contact clinicians

•Our clinical decision making in routine care

To improve those reasoning processes

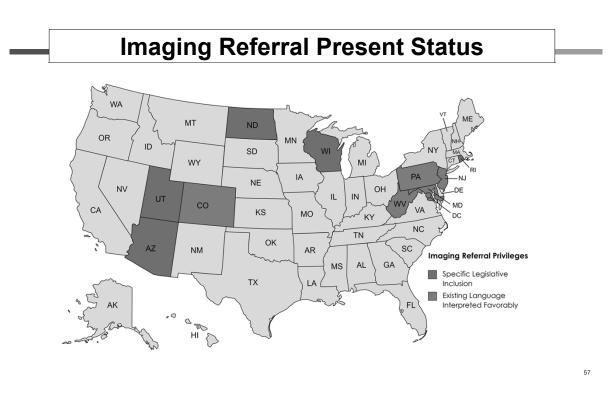
<u>Not</u> to presume to be radiologists

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Rationale for PTs

PTs understanding imaging is a logical continuation of the role of being primary care clinicians

Examination/evaluation/assessment includes all available patient data



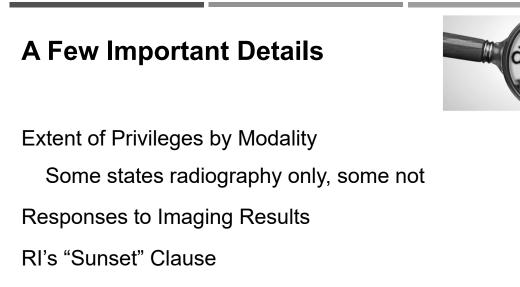
Imaging Referral Present Status

Specific Legislative Inclusion

- Wisconsin (2016)
- Utah (2018)
- North Dakota (2021)
- Rhode Island (2021)
- Arizona (2022)

Existing Language Interpreted Favorably

- Maryland
- District of Columbia
- New Jersey
- Pennsylvania
- Colorado
- West Virginia



Changes Are Coming...

"Diagnostic Imaging in Physical Therapist Practice: A Survey of Jurisdiction Priorities and Strategic Plans"

Data collected 2020 & presented at APTA CSM 2021

17 state ass'ns indicated moderate to high interest in pursuing imaging referral privileges as part of overall strategic plans within next 5 years

Lawson & Mathistad, 2021

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Momentum is Building...

In July 2021, the Federation of State Boards of PT held a webinar re: imaging as a part of PT practice.

In August 2021, APTA State Affairs hosted webinar for state leaders re: imaging as a part of PT practice

In October 2021, the Imaging SIG hosted a webinar with the 4 chapter presidents successfully ushering in legislative change for imaging referral by PTs

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State/Jurisdiction PT Practice Act Language

Specifically inclusive

Interpretable to allow for referral

Including "duty to refer"...

Silent

Specifically exclusive





Summaries in first 24 states

Remainder not likely to be completed



In June 2016, the APTA House of Delegates passed RC 12-16 by a g3% favorable vote, which resolved that APTA pursue practice authority for imaging referral in physical therapist practice. Pursuant to this action, APTA employed a consulting firm to examine and report upon the legal landscape for physical therapist referral for imaging in each of the go states. In the summer of 2019, APTA began releasing the results of that study to the leadership of the components nationally and are contained herein. Please note these documents are not intended to serve as the final word on imaging referral in the states, but rather as starting points in the process of attaining imaging referral privileges. Further interpretation of the content of these documents may be required, including with point of care ultrasound imaging. This information provides a basis for each component to determine its course of action and also allows APTA a foundation from which to plan nationally. Considerable variability exists across the jurisdictions in these documents thus longer than the origination provided and acting on this information. these documents; thus, local circumstances are to be considered when acting on this information.

The listing of state reports is expected to be complete by early 2020.

- Alabama

- Alabama
 Alaska
 Arizona
 Florida
 Georgia
 Hawaii
- Idaho
 Illinois
- lowa
- Kentucky
- Louisian

State Summaries

Physical Therapy Practice Act & Regulations

Non-physical Therapy Practice Acts & Regulations

Attorney General Opinions

Jurisdictional Case Law

State Law & Regulations Governing Hospitals & Other Facilities & Services

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Summary for Kentucky

PT Practice Act:

Excludes the use of roentgen rays and radium for diagnostic purposes from the scope of physical therapy

Not necessarily prohibitive

Not conducting procedure/operating eqpt

Is a "duty to refer" clause



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Summary for Kentucky

"...diagnostic test, or treatment shall not be given without a written order signed by a physician, dentist, or other ordering personnel acting within their statutory scope of practice."

902 Ky Admin Regs 20:016 § 4 (f) (2) (c) (5) (2011)

"Radiologic services shall be performed only upon written order of qualified personnel in accordance with their scope of practice and the hospital's protocols and bylaws, and the order shall contain a concise statement of the reason for the service or examination."

902 Ky Admin Regs 20:016 § 4 (6)(b)(2) (2011)

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Summary for Kentucky

Not definitive: physical therapist referral

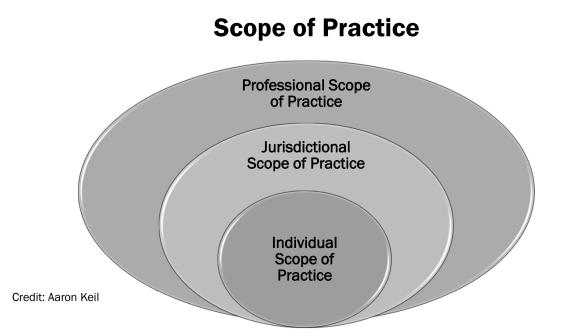
User/operator vs completing referral consistent w/ established imaging guidelines

Interpretation likely required

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So, What Parts Will Be New or Different With Referral Privileges?



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Imaging in Diagnostic Context

Only a portion of the entire patient presentation

Weighted within context of all information

Prevalence of apparent pathologies in asymptomatic populations

Sensitivity & specificity of imaging important

Importance of History & Clinical Exam

Completing detailed history & clinical exam

Recognition of red flags

Knowledge of evolving clinical decision "rules"

Imaging does NOT lessen importance of history & clinical exam

Imaging magnifies their importance

The Decision To Image Or Not		
Yes, imaging indicated	No, not indicated / defer	
 High diagnostic yield Medium-high potential for change in mgmt Patient safety 	 Possible pathologies low risk Low diagnostic yield Low magnitude of error Radiation exposure potential Cost Mgmt/Rx delay 	

ACR Practice Parameter for Communication of Diagnostic Imaging Findings

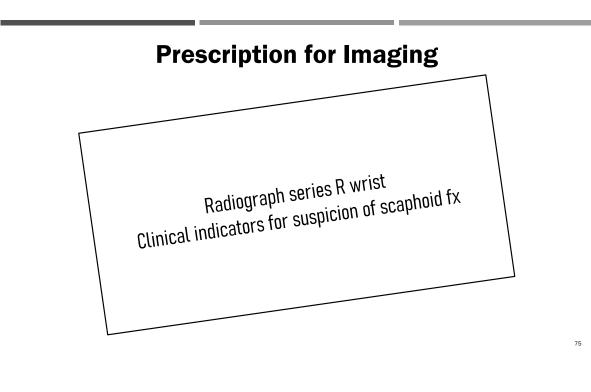
Referral:

"...should include relevant clinical information, a working diagnosis, and/or pertinent clinical signs and symptoms."

"a specific question to be answered can be helpful."

"...helps tailor the most appropriate imaging study to the clinical scenario and enhances the clinical relevance of the report, thus promoting optimal patient care."

Importance of history & exam for hypothesis development & informed referral



ACR Practice Parameter for Communication of Diagnostic Imaging Findings

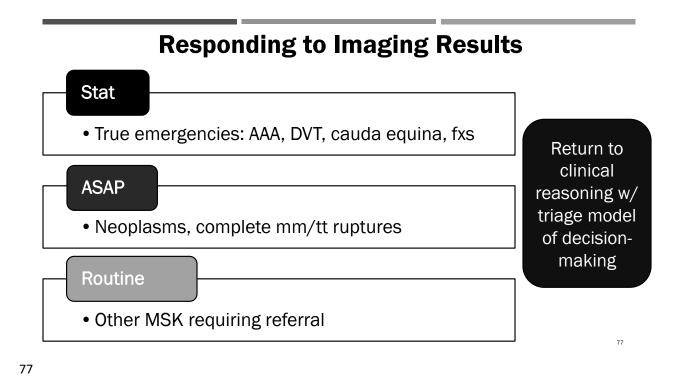
New for PTs...

How do you respond when results are available & you are patient manager?

Other consultations?

Continue PT?

Unanticipated non-MSK results (possibly serious)?



How Do We Get There?

Educate Within

Consistency w/ Imaging Education Manual across PT programs

Educate practitioners w/ courses & on-line resources

Consensus Within

Build Relationships & Educate Other Stakeholders

Existent Evidentiary Support

Educate Physicians

Alliances w/ Radiologists

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In Kentucky

Development & integration in APTA-KY Strategic Plan

Educational programs: UK, Bellarmine, WKU, Cumberlands, Spalding

Continuing education programs for practitioners

Recommendations for residencies & fellowships in KY to include imaging content

Board review & opinion of current language

In Kentucky

Integration in overall APTA-KY Legislative Plan---if deemed necessary

Learn from other states

Those who succeeded & have not

Change in practice act, if warranted---when ready to fully commit time & energy for possible battle

Resources

APTA & Imaging SIG compiled resources

Numerous

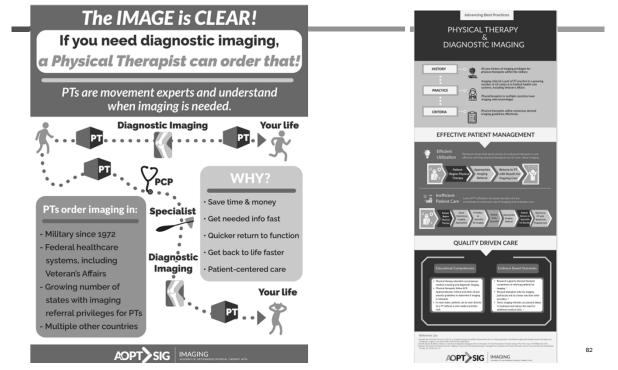
Webinars

Infographics

Success stories of other states

https://www.orthopt.org/content/special-interest-groups/imaging

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Key Points

Imaging does NOT lessen the importance of the history and clinical exam --- it magnifies their importance.

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Key Points

"Treat the patient, not the picture" as imaging results alone usually do not guide selection of treatment approaches

Who best?

Can collect the relevant patient information through the history & clinical examination, then determine if information is sufficient to begin conservative care or if additional information is needed?

Opportunity awaits.....

Key Points

Understanding Imaging

Improves our medical screening capabilities

Expands our understanding of pathologies

Increases pt safety & encourages better quality of care

Improves capability to be primary contact clinicians

Allows us to see the "big picture" of the patient better

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APTA Magazine— March 2022

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