Innovative Practice Award

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Practice Setting: Outpatient orthopedic

Innovation Name: Ultrasound-guided dry needling interventions

Practice Innovation Description: The use of point-of-care ultrasound imaging to guide dry needling interventions in real-time (ie, needle visualization during interventional procedure) or to assist in needle placement and localization of dry needling techniques (ie, using ultrasound imaging to pre-identify target structures, including depth, and marking the skin).

Application of Practice Innovation: Improve the safety and efficacy of dry needling interventions by guiding needling placement and localization. Particularly useful for deep-lying structures (eg, quadratus lumborum muscle), structures with rich nerve/blood supply (eg, sternocleidomastoid muscle), or perineural needling techniques (eg, carpal tunnel syndrome).

What makes it innovative? While the use of dry needling interventions is growing among physical therapists in the United States, the use of point-of-care ultrasound imaging to guide the placement and localization of a variety of dry needling interventions is uncommonly used by physical therapists in clinical practice based on the lack of general use of ultrasound imaging.

Unique Attributes of the Innovation: Direct, real-time visualization of both target structure and needle during dry needling intervention. At a minimum, prior visualization of target structure and skin marking for the purpose of guiding the dry needle intervention and gauging appropriate depth.

Impact on the Profession: Safer and more effective dry needling interventions (akin to ultrasound-guided injections in medical practice). Innovative use of point-of-care imaging modality that physical therapists can perform, interpret, and receive compensation for.

Impact/Relevance of Practice Innovation to Patient Care/Treatment: Provide safter and more effective dry needling techniques through sonographic guidance targeting deeper lying structures and structures with a safety concern that are proximate to lung or other organs or nerve/blood vessel.

Outcomes of the Practice Innovation: Using ultrasound-guided dry needling techniques eliminates the necessary guesswork of blind approaches allowing for more accurate needling of specific soft tissue structures and eliminates safety concerns of puncturing organ, nerve, or vessel. Additionally, fewer treatments are often necessary because needle hits target (eg, lateral hip tendinopathy, plantar fasciosis), which likely places less physical discomfort on patients and may result in better outcomes with fewer visits.

Cost of Innovation: Hand-held ultrasound devices range from $3,000 to $9,000 USD.

Training Required for Utilizing the Innovation: Introductory ultrasound imaging course that includes live patient scanning and image optimization and interpretation. *Proficiency and use of dry needling interventions assumed for this practice innovation.

Justify AOPT funding this Innovation: Funding will be used to produce instructional videos on sonographic-guided dry needling interventions for physical therapists in addition to planning research projects comparing the outcomes of guided vs blind dry needling interventions.

Benefit(s)/Value to Clinical Practice: Novel use of ultrasound imaging in physical therapy practice with the benefit of improved safety and outcomes of dry needling interventions.