
REPORT OF THE
WORLD PHYSIOTHERAPY/INPTRA
DIGITAL PHYSICAL THERAPY
PRACTICE TASK FORCE



**World
Physiotherapy**



International Network of
Physiotherapy Regulatory
Authorities

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Digital Physical Therapy Task Force, 2017-2019

Alan Lee, Chair, United States

Karen Finnin, Australia

Lesley Holdsworth, Scotland

Dianne Millette, Canada

Chris Peterson, United States

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Introduction

On February 20, 2017, World Physiotherapy and INPTRA announced a formal collaboration via a Memorandum of Understanding to develop a range of initiatives including the global practice and regulation of providing digital practice. The organizations established a Joint World Physiotherapy/INPTRA Digital Physical Therapy Practice Task Force (Task Force) in 2017. An initial conference call took place in February 2018 to confirm the scope, plan, and timescales for this work. Overall, the consensus was to develop a “white paper” that addressed physical therapy practice and regulation in the digital age.

Within the literature, there are no established or recognized global standards or agreement for the definition of digital practice (sometimes also referred to as telehealth or telemedicine). Globally, the term digital practice is superseding and encompassing the term “tele” as it is more representative of the range of technologies and the impact these technologies are having on current and future practice and services models.

The intent of this work is to propose an international definition and purpose for digital physical therapy practice agreed by various physical therapy stakeholders drawn from the World Physiotherapy and the International Network of Physical therapy Regulatory Authorities (INPTRA) member organizations. Also within the scope of this work was a review of the published and grey literature to determine whether any specific standards could be recommended. Healthcare systems vary by country and jurisdictions and have differing operating models, funding agencies, governmental organizations, and regulatory bodies. Countries all over the world are embracing and driving the use of digital technologies and practice and much can be learned by studying a variety of countries and how technology is being leveraged. This white paper is an initial look at international digital practice and task force members recommend future work be pursued to gain a more global perspective of nations who are using digital practice to drive innovation.

The Task Force proposes the following definition and purpose statements:

- **Definition:** Digital practice is a term used to describe health care services, support, and information provided remotely via digital communication and devices.
- **Purpose:** The purpose of digital physical therapy practice is to facilitate effective delivery of physical therapy services by improving access to care and information and managing health care resources.

For the reader’s benefit, the Task Force members had consensus building discussions in order to develop key topics in the “white paper” as well as agreements on language such as “physiotherapist” and “physical therapist” being interchangeable titles. Recognizing the collaborative nature of this work and that the terms physiotherapy and physical therapy and physiotherapist and physical therapist are used synonymously throughout the world, for consistency, the determination has been made to use physical therapy and physical therapist throughout the paper.

The terms client, patient, and service user are all found in the World Physiotherapy online glossary with similar definitions.

Client- a person, group, or organization eligible to receive services either directly or indirectly from a physical therapist.

Patient- an individual who is the recipient of physical therapy and direct interventions...Individuals who are recipients of physical therapy may also be referred to as clients or service users.

Service user- an actual or potential recipient of physical therapy services.¹

The members of the task force agreed to replace the passive term “patient,” with the preferred and more contemporary choice, “service user.”

In this paper, the term “in-person care” will be used when referring to the situation where the provider and the service user are in the same location at the same time. This term is preferred to “face-to-face care” as digital practice can often be considered face-to-face depending on the technology utilized.

Additionally, the terms “practice of physical therapy” or “physical therapy practice” will refer to the care provided by, or under the supervision of, a physical therapist.

This “white paper” considers digital physical therapy practice and addresses the current advantages, appropriate use, limitations, evidence, regulatory issues, and implications for education. Other key resources considered include aspects relating to the digitally enabled workforce and the key competencies and learning outcomes associated with curricular content ([Appendix 2](#)).

Overall, the “white paper” has been developed by the Task Force to inform the development of physical therapy digital practice. It also aims to support the World Physiotherapy’s goals of knowledge sharing and achieving greater recognition for the role that digital physical therapy practice can contribute to enhancing care.

The Advantages of Digital Practice

Digital physical therapy practice offers a number of advantages for service users, service providers, and society.^{2, 3}

Benefits to Service Users

- Expands the ability to connect with needed providers and/or specialists, regardless of distance or remote locations
- Decreases barriers such as negotiating parking and waiting rooms or travel time
- Increases safety by eliminating the need to travel for those with mobility impairments or ill health
- Opens access to the same service via technology irrespective of changes in the service user’s day-to-day locations
- Increases a service user’s independence and control in managing their own health problems thanks to easy access to online self-monitoring and self-management resources
- Increases flexibility as service users can schedule therapy at times that best suit them
- Decreases costs related to travel, assistance needed to leave home, and time lost on other activities including employment and caring for others

Benefits to Service Providers

- Expands the ability to bring about greater workforce efficiencies including reduction in travel between care settings and continuing professional development
- Opens an opportunity to standardize service user pathways more reliably
- Allows greater control of content and format of self-management information and resources (i.e., consistencies)
- Increases the ability to monitor standards of care and service user outcomes
- Provides opportunities to think and work more creatively by leveraging the advantages afforded by ever-evolving technology options

Benefits to Society

- Increases efficient use of public resources; especially in systems of publicly funded health
- Provides benefits to employers including fewer work absences and greater organizational efficiencies
- Provides a wider societal gain of having a better informed and autonomous public with regard to personal health
- Encourages greater emphasis on self-management and a less medically dependent society
- Provides a greater opportunity to influence health-seeking behaviors
- Adapts to individuals' expectations and preferences to live more digital lives
- Creates an equity of access independent of geography
- Decreases environmental impact with reduced travel to access care

Realizing Benefits: Creating the Conditions for Success

To realize these wide-ranging benefits, before digital physical therapy modes are used, certain conditions need to be established with both the service user and provider in mind.

Service users must be confident that

- they are receiving high quality, safe, and evidenced-based care;
- the anticipated outcomes are equivalent to or surpass in-person care;
- there is a clear and easy pathway to communicate with the provider or receive a face-to-face consultation as needed;
- they will be able to easily understand the provided information and navigate the technology;
- their personal health care data and care information is private;
- their personal health care data is stored in compliance with the law and regulations;
- health care providers have fulfilled all required regulatory and professional requirements; and

- cultural preferences have been considered and respected during the digital interaction.

Service providers must be

- confident that their organization encourages and supports this form of service delivery;
- aware of the benefits of digital physical therapy practice;
- afforded access to training and development where required;
- able to access the necessary technologies;
- competent in the execution of the technology and where their scope of practice lies;
- able to support the service user in their use of the chosen technology;
- willing to continually review the effectiveness of the chosen mode and make improvements as needed; and
- able to demonstrate that they are practicing in a manner compliant with the regulatory framework that governs their practice.

Current Limitations in Digital Practice

Although there are many documented advantages with digital practice models, it is important to consider the current limitations inherent with this format of health care delivery.^{4, 5} Some of these limitations will be reduced or eliminated over time through a strengthened evidence base and improvements in technology, regulation, public and professional acceptance, and uptake rates.

Other limitations will require ongoing consideration as it is anticipated that previously unconsidered limitations may only be revealed as digital practice develops and grows.⁶

Service User Related

- Considerations may need to be made when using digital modalities to engage with vulnerable individuals or groups such as children and older adult clients. In what circumstances should the parent/caregiver/advocate be present?⁷
- In some countries, a proliferation of digital service options could see service users shopping around more, leading to discontinuity of care. How should this be managed or mitigated?
- Culturally specific considerations may need to be observed, e.g., is eye contact appropriate? Is image recording appropriate? Is a therapist's gender considered where disrobing may be required?
- If the practitioner does not speak the same language as the service user, ancillary services may be required (e.g., an interpreter). Is the interpreter familiar with digital practice?

Technology

- Alternative communication pathways may be required where internet connectivity is inadequate. In some circumstances, poor or absent internet connectivity may impact the ability to deploy digital practice options.

- The success of digital consultations are dependent on the ability of both the therapist and service user's ability to appropriately and confidently use the technology and to troubleshoot it when required.
- The successful and secure use of digital consultations is dependent on the integrity of key technology platforms, (e.g., video conferencing software).
- The quality of a video consultation can be heavily influenced by not only the bandwidth/speed of the internet connection, but on the physical set up on both sides (e.g., lighting, camera resolution, camera height, audio quality, background, etc.).
- The behavior and approach adopted to using video calling may require some adaptation from traditional in-person care. For example, for adequate eye contact, both the therapist and service user need to ensure they look at the camera and not just the video footage.

Insurance and Funding

- In some countries, digital practice is not recognized for rebate and insurance purposes. Advocacy must continue in this area to enable service users to access cost-effective care. In other systems of publically funded health services, this is not an issue.

Training

- Staff need to have the understanding, knowledge, and skills to practice digitally. How is training and education provided to ensure consistency and safety? (Refer to [Implications for Physical Therapy Education](#))

Research

- Digital practitioners must be aware of the evidence base associated with digital practice (Refer to [Current Evidence Base](#)). They must also acknowledge the lack of strong evidence in some areas, including emerging innovations. In all cases, therapists should apply sound clinical reasoning and follow standards of practice and codes of conduct. Routine evaluation of digital service delivery is recommended to ensure that the expected outcomes are being achieved.

Regulation

- Digital practice provides opportunities to improve health care delivery. However the changes in regulation required in some countries to accommodate these developments are comparatively slow, which can stifle innovation and impede progress.⁸ (Refer to [Regulatory Issues](#))

Current Evidence Base

Since the introduction of Web 2.0 in 2004 and its enhanced functionality, together with the rapid evolution of digital tools, technologies, and media, an international body of literature and evidence for digital practice has emerged. This includes a number of physical therapy related studies in a range of professional and digital practice journals. As noted earlier in the paper, digital practice encompasses frequently used terms such as telerehabilitation, telecare, and telehealth.

Digital health care is supported globally as the way forward with many countries worldwide formally recognizing the benefits and value of using digital modes of care delivery. This is evidenced by the plethora of national and professional body digital health strategies in current use and the collective desire and efforts to embed digital practice into routine care. Because the internet is the fastest technological revolution in history, coupled with almost daily advances in health related technologies, published evidence is being superseded faster than it is being created.⁹ It is therefore difficult to report on the current evidence base and be confident of its relevance to today's practice; automatically making any review of the literature somewhat limited. A search of the US National Institutes of Health database on August 1, 2018, identified fifty-eight active (recruiting and complete) studies for digital practice clinical trials.¹⁰ Twenty-eight taking place in Europe, two in the Middle East, twenty-six in North America (nine Canada, seventeen United States), one in South America, and one in Southeast Asia. Specifically, there are eight studies in physical therapy currently investigating digital practice in chronic pain, stroke, multiple sclerosis, and total knee arthroplasty. Additionally, there have been a number of evaluation reports published by think tanks, such as [The King's Fund](#) in the United Kingdom, to support and direct current practice.

Recognizing limitations in maintaining a most-current review of evidence and differing conclusions regarding the effectiveness of digital physical therapy practice, there are still lessons to be learned from the literature. For example, a systematic review published in 2017 by Cottrell et al. reported that real-time telerehabilitation for musculoskeletal conditions improved physical function and pain. In addition, hybrid telerehabilitation with in-person care was more favorable to service users than in-person care alone.¹¹ Another systematic review published in 2017 suggested that telerehabilitation physical therapy assessment is technically feasible with good concurrent validity and excellent reliability.¹² However, insufficient evidence was found for stroke care and cost savings associated with digital practice. The authors suggested it was because of mixed results, lack of documented exclusions, potential bias or likelihood, and heterogeneity of research.⁶ Other limitations cited by other authors have included the lack of health care utilization and cost associated with telerehabilitation and called for the need for further study.¹³ Other specific limitations have been reported within the areas of lumbar spine posture, orthopedic tests, neurodynamic tests, and scar assessment.

However there are a few randomized trials that can be used to draw definitive conclusions. For example, in 2016, clinical outcomes with asynchronous digital practice were compared to in-person care in fifty-one service users following total knee replacement (TKR) using a video-based software platform supervised by physical therapists in a randomized trial.¹⁴ After three months, both groups showed equivalent clinical outcomes. Most importantly, a large drop in the number of in-person visits to the outpatient physical therapy clinic from the training group intervention was noted even though service users were allowed access to clinic visits as deemed necessary. In addition, there was no harm reported in this trial. This trial represents an emerging opportunity to use digital physical therapy practice to match the right service user for the right technology in the clinic and remote monitoring at home.

In a separate cost analysis of in-home telerehabilitation for post-knee arthroplasty trial, Tousignant et al. (2015)¹⁵ found a cost differential in favor of the telerehabilitation group compared to the in-person therapy group due to significant reduction of travel time and costs. A recent rapid review of five telerehabilitation meta-analyses found equivalent or better outcomes than in-person care.¹⁶

In addition to the research literature, there are other sources of evidence about the impact of digital practice being generated by service evaluations and strategy review reports. The use of what are seen as commonly used technologies such as phone, email, and the internet are being increasingly used to interact with users of health and care services to not only organize appointments but to manage conditions and support self-management.

The overall emerging evidence appears to indicate that digital technologies are providing new opportunities for the physical therapy profession to deliver high-quality and acceptable care to users of their service in ways that can have benefits for all.

Future Implications for Research

In such a rapidly changing world, providers of physical therapy must be cognizant of the latest developments in all aspects of digital practice to benefit the users of their services. They also need to consider both the preferences of service users and the actual technologies available.

The body of evidence in relation to physical therapy digital practice is building. Currently there are active clinical trials registered in the international registry that are studying the impact of digital practice.

However, because of the paucity of definitive evidence at this time, the Task Force believes it is not possible to recommend condition-specific digital practice standards. We believe that until such evidence is available, best practice guidance should be considered by the profession ([Appendix 1](#)).

However, it is clear that digital practice is seen globally as a viable option for providing health care, recognizing the benefits and value of using digital modes of care delivery noted earlier in this paper. Such recognition is providing opportunities for researchers and service evaluation; opportunities in which physical therapists can be involved. Physical therapists therefore need to be prepared to embrace digital options and solutions in various aspects of practice and research and to report evidence of the impact.

Digital Physical Therapy Practice: Regulatory Issues

Digital physical therapy practice is occurring around the globe yet there are several regulatory issues to consider. The primary regulatory considerations in the literature include issues of registration or licensure, scope of practice, standards of practice, code of conduct or ethics, privacy and confidentiality, the definition of physical therapy practice, service user safety, crisis management, competence, and providing appropriate guidelines for providers and service users.

It is important to remember that regulation can be slow to respond to change and this is true when considering the impact of digital practice from a regulatory perspective. Regulators around the globe are encouraged to keep up to date on emerging and future technologies and to look for innovative ways to minimize regulatory barriers to digital practice.

The considerations listed below reflect currently identified issues. It will be important for regulators and other stakeholders with a mutual interest in digital practice to regularly review and update this list as digital practice evolves and regulatory changes occur. The desired long-term outcome is a service user/client focused, well-supported physical therapy digital practice world with minimal regulatory barriers.

Registration/Licensure

Does the provider need to be licensed or registered where the service user is located or where the provider is located? Or is this even an issue? In some countries, this question has been debated for many years and in others it is relatively straight forward. For example, in the United Kingdom, a physical therapist's scope of practice is clearly set out by their professional organization and enforced through the national regulatory body. It has no bearing on the location of the service user and always rests with the responsible physical therapist. In other countries, for example in the United States and Canada, the regulatory response is dependent upon factors such as the legislative framework that exists, specific registration requirements, and the definition of "practice." The issue of global jurisdiction cannot be definitively answered in this paper. The best guidance is that physical therapists must be familiar with the legal framework that exists in their own jurisdiction and that they may also in some countries have to take into account the jurisdiction of the service user.

Scope of Practice

Scope of practice is defined in many but not all jurisdictions/countries and therefore the actual practice of physical therapy varies around the world. As with the issue of registration or licensure, physical therapy providers delivering digital care are encouraged to become familiar with the scope of practice in the country where they are delivering service to ensure there are no violations of regulatory rules or requirements and potential allegations of practicing improperly.

Standards of Practice

Standards of practice typically set out the minimum performance expectations of a physical therapist. They are used by regulators to provide guidance to the profession and make expectations clear to the public. Standards of practice should not vary with the mode of service delivery and as such, physical therapists delivering care should meet the same clinical standards of practice as those who deliver in-

person physical therapy services. Some jurisdictions may have specific administrative standards that apply to digital practice that address expectations such as service user safety, management, record keeping in a digital space, or enhanced privacy requirements. The issue of informed consent is important to consider from a standards perspective in digital practice. Regulators should help physical therapy providers determine what should be included in digital informed consent. Does it extend to where information is stored, communication for emergency purposes or who can access the service user's information? Regulators should ensure that physical therapists have an opportunity to become familiar with all standards of practice that apply to digital practice.

Code of Conduct/Ethics

Regulators may have independent codes of conduct or ethics or they may be integrated into standards of practice. Desired ethical behaviors are common in physical therapy regulation and are intended to set forth the values that the profession supports such as the duty to the service user or the profession. As with all forms of care, consideration ought to be given to ethical considerations regarding digital care. Is digital practice the best intervention for the service user? Will digital practice result in the desired service user outcomes? Is the service user the center of the digital care recommended? Ethical considerations related to billing for emerging practices should be considered by regulators before issues arise in the form of complaints or conflict with reimbursement schemes. These are all ethical issues that should be considered when thinking about digital practice and will require future exploration and study by regulators and the profession as digital practice evolves.

Privacy and Confidentiality

The protection of personal information is important regardless of the nature of the physical therapy service. It becomes increasingly important in digital practice where personal and health information is being shared via the internet. Regulators may have specific standards of practice or ethical considerations that apply to protection of personal information that will provide guidance to physical therapists. Jurisdictions or countries may also have privacy legislation that must be adhered to and often impose strict requirements to protect information. Physical therapists involved in digital practice should adopt or establish robust policies and processes to comply with requirements. They must also be technologically aware of protective mechanisms such as encryption or security measures to protect all parties from privacy or confidentiality breaches and exposure to liability.

Definition of Practice

Different from scope of practice, physical therapists involved in digital practice should ensure they are familiar with what constitutes digital physical therapy practice. As an example, does consultation with another health care provider about a specific service user via technology constitute digital practice?

What is the regulatory definition of practice that applies in a given jurisdiction? These questions need to be answered by regulators and communicated to physical therapists, so the boundaries of practice are clear. These are important liability issues to consider.

Service User Safety and Crisis Management

Because of the remote nature of the relationship with the service user, considerations regarding service user safety and crisis management may be different than in an in-person environment. Regulators should consider whether there are specific standards or guidelines that ought to be developed to address risks in digital practice. Are crisis management plans mandatory in the event of an adverse event? Regulatory expectations may necessitate that reasonable plans for emergencies, which incorporate local resources and service user contacts, are in place.

Competence

In addition to non-technical physical therapy competencies, regulators expect practitioners to be competent in the use of the technology used to plan, deliver, and evaluate services. Regulators should consider what, if any, specific expectations apply when practicing digitally.

Guidelines and Service User Information

Regulators and/or professional organizations use guidelines to provide additional information to service users and providers on a range of topics. Digital practice guidelines are becoming more prevalent and can inform regulatory policy. Guidelines may range from suggestions about technology use to criteria for selecting potential service users, risk management suggestions, or developing competence in delivering services digitally. Regulatory guidelines also assist service users in knowing what to expect when receiving digital physical therapy.

The literature suggests considering the following issues when assessing if digital physical therapy practice is appropriate for potential individual service users:

- Health issue(s) that can or cannot be addressed by digital practice
- Urgency of the presenting issue(s)
- Risk or benefit associated with distance and cost to the service user if one must travel for an in-person visit
- Service user preference
- Availability of support and caregivers to assist the service user as needed

Other factors that are not included in this list can emerge as key factors to appropriate digital physical therapy practice as the technology evolves and develops.

Individual: At the *macro* level, population health management with appropriate technology availability and cost containment would encourage the development of more and new digital practice. At the *micro* level, it is mindful to ensure that providing care digitally is the best option for the service user. For example those individuals who do not wish to or cannot engage via technology, or are positively screened for psychological issues such as depression, dementia, or suicidal ideation, or who have other identified vulnerabilities.

Institution/Organization: At the *macro level*, organizational/ institutional systems that develop digital practice and networks can address efficient access to care and expedite effective episodes of care. At the *micro level*, development of policies and procedures for appropriate digital physical therapy practice should be established.

Communities: At the *macro level*, having a federal or national/organizational infrastructure that allows widespread broadband access to digital technology should encourage innovation, service user engagement and further digital practices to emerge. At the *micro level*, allowing and encouraging greater access to public health centers, information, and resources as well as improved access to physical therapy services via digital technology could encourage and facilitate greater interaction. Being able to sustain proper partnerships with public and private agencies to further develop digital physical therapy practice could be beneficial within and to communities.

Implications for Physical Therapy Education

There are implications associated with digital practice for physical therapy education at both entry/undergraduate and post graduate levels. The profession needs practitioners with understanding, skills, and knowledge of digital technologies and practice, a fact that has been fully recognized in a recently published report in the United Kingdom. The Topol Review (2019)¹⁷ is clear about the need to equip all staff across the National Health Service and social care in England including physical therapists with the right skills to realize the benefits that technology can provide.

Although many physical therapy education providers are aiming to prepare their students for digital practice, at present within the United Kingdom, there are no national digital practice educational standards within undergraduate curriculum. The education providers, the universities, have now asked for assistance in addressing this and national efforts are underway.

In the United States, the Commission on Accreditation in Physical Therapy Education (CAPTE) is the only accreditation agency recognized by the US Department of Education (USDE) and the Council for Higher Education Accreditation (CHEA) to accredit entry-level physical therapist and physical therapist assistant education programs. Although CAPTE and the Academy of Physical Therapy Education are aware of emerging digital practice, curricular guidelines and standards are lacking in entry and post-graduate education. The American Physical Therapy Association (APTA) has published digital practice resources for educators including a table (see [Appendix 2](#)) to assist educators in developing classroom and clinical learning content in digital practice.

Other Considerations

It is recommended that stakeholders regularly review and update the physical therapy curricula content as digital practice evolves and evidence develops to ensure the curricula considers the following considerations:

- **Code of Conduct/Ethics:** Ethical considerations related to the ability to use digital practice with appropriate social determinants of clients/service users to improve quality-of-life outcomes.
- **Cultural Domains:** The understanding and importance of providers to demonstrate sensitivity to specific aspects of a service user's cultural and ethnic characteristics and location.
- **Emerging Practice:** Educational plans should enhance the physical therapist's perception, knowledge, and skills in contemporary and emerging health care trends and delivery of care. These should include examples of classroom activities addressing appropriate use of resources in professional and post professional courses in digital practice. Clinical activities should inform practice management in financial, business, and risk management to pursue payor contracts and liability mitigation.
- **Equipment Use:** Standards for users and providers to recognize and deal with equipment failure as well as basic use of the telecommunication equipment should be addressed. Infectious control and policies and procedures for maintaining proper equipment for clinical use should be maintained and reviewed.
- **Informed Consent:** Knowledge to ensure appropriate informed consent (verbal or written) is collected and documented should be addressed. In addition, the role and responsibilities of providers to identify and introduce all participants over the digital telecommunication technology.

- **User Experience:** Understanding the importance of digital practice “presence” by thoughtfully positioning and portraying the users and providers on the screen; maximizing picture quality using picture-in-picture features, remote control, lighting, body language, and unique features of audio and video digital telecommunication technology.
- **Security and Privacy:** Awareness and sense of privacy and confidentiality with digital practice should be ensured to all stakeholders. Privacy signs that limit disruptions and reduce uninterrupted sessions can be developed for digital practice.
- **Service User Safety and Crisis Management:** As described in the regulatory considerations, the client/service user safety and crisis management considerations associated with digital physical therapy practice may differ. Providers therefore should ensure that they understand practice legislation impacting on digital physical therapy practice and consult with appropriate legal counsel if required at the national, state, or organizational level. Information about local emergency and health care providers as well as family and support contact details should be readily available for all stakeholders.

Educators are challenged to keep current with evolving practice and emerging technologies. Recent evidence in nursing and academic medicine^{18, 19, 20} noted digital practice may prepare practitioners for demands in primary care and to improve access to care in high demand areas. Demand for more digitally enabled practitioners and services is not unique to physical therapy and impacts on all professions. It is recommended that physical therapy stakeholders collaborate with other health care disciplines in digital practice to develop inter-professional education, learning, and development for practitioners to improve health care in the digital age. Overall, the learning objectives for digital practice must be service user-centered, be evidence-based, and do no harm to clients/service users involved in both classroom and clinical learning activities.

Conclusions and Recommendations

We conclude this paper with considerations/recommendations for the future of digital physical therapy practice. Digital practice is quickly developing around the globe and new technologies emerge daily. If the physical therapy profession is to maximize the opportunities that digital practice offers, it is recommended that the following areas and actions are considered:

Advocacy

- Advocate for supportive infrastructure and tools regardless of practice context: Practice environments need to provide the infrastructure, training, and support to enable digital practice. This goes beyond electronic patient records and requires monitoring of technology that is fit for purpose to ensure availability of and access to the right technology.
- Reduce regulatory or other professional body barriers to this mode of service delivery: Regulatory or other mandatory requirements should be kept to a minimum and add value to the overall system. Regulatory mechanisms such as standards for the use of digital technologies or competencies required to practice safely may be supportive while unnecessary barriers such as restrictive licensing requirements should be considered carefully.
- In some countries, there is a need to reduce reimbursement challenges and advocate for

appropriate payment models: As an emerging health care service appropriate reimbursement is required regardless of the context of practice. This is an area that advocacy bodies need to be working on to ensure reimbursement does not restrict patient access to appropriate digital care.

Collaboration

- Develop and support a digitally enabled and aware workforce: The future requires all physical therapists to be digitally literate. Beginning with entry-level education, physical therapists must develop competencies required for digital practice and post entry-level opportunities must be provided to ensure that practicing physical therapists also have opportunities to develop digital practice competencies and practice.
- Create a culture of digital practice inter-professional collaboration, learning, innovation, implementation, and evaluation: The willingness to embrace digital practice and the associated culture change is required at all levels of the health system. Professionals including physical therapists will also need to be involved. This will be critical to ensure that the physical therapy workforce can meaningfully contribute to the emerging reality of digital health care and practice.

Building the Evidence Base, Learning, and Sharing

- Build capacity to evaluate impact and share results: As digital physical therapy practice grows, it will be important to evaluate the outcomes and impact of emerging technologies. Knowledge gained should be shared broadly.
- Communicate successes and challenges: This is a new world and as a profession we should create opportunities to share and learn from successes and challenges using a wide variety of communication channels. It will be important for physical therapy digital leaders to ensure that the emerging knowledge is shared robustly and promptly.

Leadership

- Create digital practice leadership roles that include physical therapists: Digital leaders will be required throughout the health system to support change, disrupt the status quo, and inspire a new vision for digital service practice that is patient centered and sustainable. This requirement not only applies to nursing and medicine but to all health care providers. Leadership within the profession is required to ensure the practitioners are prepared for, engaged in, and contributing to leading the digital future.

Summary

As key contributors within the allied health community, physical therapists have an opportunity to drive forward the integration of digital technologies in all aspects of their work. More work needs to be done to advance the conversation globally and the Task Force recommends that future work undertaken should broaden the survey of nations profiled and consider specific technologies that are being or could be used by physical therapists, such as robotics, sensors, wearable devices, virtual reality, and artificial intelligence. The use of social media is also a key topic that has direct relevance to the profession and

should be included.

The use of modern technologies and digital practices afford the physical therapy profession a great opportunity to engage with wide-ranging audiences to better effect and impact. It can result in services being delivered in a way that our service users want, providing resources and information more easily and swiftly, supporting service design and easier access, and encouraging learning and collaborative opportunities globally. Workforce development that reflects embracing change, keeping up to date with practice and modes of practice and technologies, and developing new knowledge and skills will be critical. If the profession grasps this opportunity, physical therapists can be part of a global direction that focuses on safety, efficiency, acceptability, and effectiveness—always with the users of our services being at the core of all that we do.

Table 1 – Summary Guiding Principles for Physical Therapists Engaging in Digital Practice

Summary Guiding Principles for Physical therapists Engaging in Digital Practice

It is recommended that physical therapists engaging in digital practice wherever they practice globally should ensure the following:

- The digital physical therapy practice is in the best interest of service users and their care, and wherever possible, that service delivery choices are made with service users
- They are aware of their own scope of practice and the current governing regulatory framework in which they work in relation to digital practice
- They keep up to date with current evidence and they are aware that it is rapidly evolving
- They engage with key stakeholders to agree and support the use of digital service delivery options and that the associated potential benefits and limitations are fully understood
- They are confident that the chosen digital mode will improve access to physiotherapeutic services and information and/or quality of care
- They are fully cognisant and competent in the use of the chosen digital mode
- Their service users are also competent, confident in, and supportive of the use of the chosen digital mode
- Due consideration has been given to ascertaining the appropriateness of using digital solutions with the specific service users in terms of its general suitability
- They continue to monitor and evaluate the effectiveness of digital solutions
- They are prepared to collaborate with various stakeholders to share the outcome/impact of digital physical therapy practice

Appendix 1 – Global Regulation in Relation to Physical Therapy Digital Practice

The nations described below were limited to those of the authors of this paper; future updates to the white paper should include a broader survey of nations and greater diversity.

Regulation of Australia’s Physical Therapy Digital Landscape

In Australia, physical therapists are registered and regulated nationally by the [Australian Health Practitioner Regulation Agency](#). Membership of the professional organization, the [Australian Physiotherapy Association](#) is voluntary, and the APA currently represents approximately 80 percent of the physical therapy workforce in Australia.

The standard code of conduct and professional requirements for physical therapists in Australia extends to digital practice. As registration is national, state borders do not impact online consultations within Australia.

Regulation of Canada’s Physical Therapy Digital Landscape

Physical therapists in Canada are licensed/registered in all ten Canadian provinces and one territory. The scope of practice for physical therapists is very similar across Canada although the regulatory models differ by jurisdiction as health and the regulation of health care providers is a provincial matter.

Regulation provides title protection for physical therapists and only those registered may use title or purport to practice physical therapy.

Related to digital practice, Canadian physical therapy regulators, in 2017, agreed to a Memorandum of Understanding (MOU) that facilitates digital and cross border care when services would not otherwise be available. Regulators, due to provincial legislation, require local licensure so the MOU respects local rules while reducing barriers to licensure across provinces.

Standards of Practice and Codes of Ethics apply to physical therapists in Canada and physical therapists involved in digital practice are expected to comply with the standards and ethical considerations as in a face to face intervention.

Canadian regulators are very keen to ensure that regulation is not a barrier to the evolution of digital practice and are monitoring the implementation of the MOU to ensure it meets regulatory and practice needs.

Regulation of the UK Physical Therapy Digital Landscape

In the United Kingdom, physical therapists are regulated by a national organization, the [Health and Care Professions Council](#). Membership of the professional organization, the [Chartered Society of Physiotherapy](#) (CSP), is voluntary but in practice the majority of physical therapists working in all sectors—the National Health Service (NHS), academia, and private practice—do belong to the society. The CSP has [guidance](#) in relation to record keeping, which covers both written and digital options.

Physical therapists practice to a [code of professional values and behaviors](#), which also extends to digital practice. In terms of regulation of digital practice within the United Kingdom, it is viewed no differently to any other mode of delivery. Physical therapists have the responsibility to ensure that when they use

digital modalities, they practice to the same high standards as when they see a service user face to face. This is irrespective of where the service user resides or travels to within the United Kingdom with regulation/jurisdiction remaining nationally.

Regulation of United States Physical Therapy Digital Landscape

Physical therapists and physical therapist assistants in the United States are licensed and regulated in all fifty states, the District of Columbia, Puerto Rico, and the US Virgin Islands. [The legal scope of practice for physical therapists](#) is determined by each state or territory through statute and regulation. Physical therapists and physical therapist assistants are governed by the physical therapy licensure law (practice act) in the state in which they practice, along with any rules, regulations, positions, or interpretations adopted by the state licensure board, or other applicable administrative regulations from a state agency, such as the department of health. A state's physical therapy licensure law delineates the legal parameter that a physical therapist must operate under when providing services, outlining what a physical therapist may or may not lawfully perform. What may be considered to be part of the legal scope of physical therapy practice in one state, may not be considered part of the legal scope in another.

When a state's practice act is silent on an issue or intervention, the determination of what constitutes practice "beyond the scope" of physical therapy is predominantly the responsibility of licensing board members. Scope of practice changes as contemporary practice evolves, and state regulatory boards need the latitude to determine the appropriateness of physical therapist interventions as they relate to both established and evolving scope of practice. As for digital practice, it is recommended to seek individual state practice acts for guidance as well as follow [telehealth recommendations](#) developed by the Federation of State Boards of Physical Therapy and the [American Physical Therapy Association](#).

Appendix 2 – Curriculum Content Area and Learning Objectives

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Primary content area	Terminal behavioral objectives <i>After the completion of the content, the student will be able to...</i>	Example instructional objectives for the classroom	Example instructional objective for the clinic
<p>APTA Education Strategic Plan²¹ (2006-2020) BOD 03-06-26-67</p>	<p>Goal 8: Enhance the physical therapist's perception, knowledge, and skills in contemporary and emerging health trends and in the delivery of health care in the following areas:</p> <ul style="list-style-type: none"> • Other new practice areas based on advances in science and technology • A comprehensive assessment of societal needs and evidence <p>Practice management, including financial, business, and risk management</p>	<ul style="list-style-type: none"> • Address appropriate utilization of resources in professional and post-professional education courses 	<ul style="list-style-type: none"> • Encourage physical therapists to pursue first-party pay or direct contracting
	<p>Goal 13: Collaborate with others to develop customized software/hardware applications and medical computer simulations to enhance onsite and distance education</p>	<ul style="list-style-type: none"> • Create customized educational software that provides the opportunity for interactive clinical decision-making across a variety of patient conditions • Develop customized software that meets the needs of education, 	<ul style="list-style-type: none"> • Cultivate partnerships with other disciplines and the technology industry

		practice, research, and health policy	
ATA Blueprint on Telerehabilitation Guidelines ^{22, 23}	Educate all stakeholders on key administrative, clinical, technical, and ethical principles for providing telehealth services	<ul style="list-style-type: none"> Determine requirements for traceable documentation, storage, and retrieval of records to protect personal health information in telehealth 	<ul style="list-style-type: none"> Comply with regulatory requirements for licensure, certification, and the use of telehealth
		<ul style="list-style-type: none"> Ensure a mechanism that enables all participants in the telehealth encounter in the classroom to identify each other Develop backup strategies when technology fails 	<ul style="list-style-type: none"> Comply with relevant laws, regulations, and codes for technology and technical safety, infection control, and ongoing maintenance
		<ul style="list-style-type: none"> Incorporate values ethics and identify conflicts of interest associated with telehealth 	<ul style="list-style-type: none"> Ability to inform patients of their rights and responsibilities with telehealth and their right to refuse its use
APA Telerehabilitation Position Paper ²⁴	Establish global understanding of telehealth services in physical therapy	<ul style="list-style-type: none"> Appraise barriers for telehealth in Australia 	<ul style="list-style-type: none"> Ability to list specific barriers and considerations in telehealth
FSBPT 6th Model Practice Act ²⁵	Educate practitioners on key FSBPT telehealth recommendations	<ul style="list-style-type: none"> Differentiate definitions of electronic and telecommunication 	<ul style="list-style-type: none"> Differentiate key FSBPT recommendation for telehealth use

Appendix 3: Summary of Responses to Digital Practice White Paper Follow Up Survey

The Task Force conducted an online, fifteen-question survey of the White Paper to glean perspectives from member(s) of INPTRA and World Physiotherapy during the Summer/Fall of 2019. Survey responses from 389 participants were collected. The three top countries with the most respondents were the United Kingdom (139), Canada (63), and the United States (58). Forty-five percent of the respondents have used digital practice in the current practice setting.

The feedback from survey respondents generally agreed with the content and conclusions of the paper; the majority of comments suggested additions for future editions. Reflecting on the survey responses for the major sections of the paper, the following should be considered:

Definition

The definition of digital practice suggested by the committee was met with 89.3 percent agreement of survey respondents. Based on this high rate of agreement, the definition should be adopted for the purposes of this paper. The majority of negative feedback reacted to the name of “digital practice” and preferred the more widely used terms of tele (telerehab, telehealth, telepractice).

The Advantages of Digital Practice

Overall, based on survey responses and regardless of country of the respondent, it is agreed that the stated benefit in the paper of increased access is the greatest benefit of digital practice. Several individuals also noted the reduction in transportation to/from a facility is more efficient and requires less time commitment on the part of the provider and the service user. The ability to connect the provider with the service user regardless of location of either party overcomes geographical boundaries and lack of availability of a skillset in a certain area. Several respondents also noted a potential for a decrease in cost to deliver care as a significant advantage.

Current Limitations of Digital Practice

Technology limitations and lack of technology support can limit the ability to provide services remotely. The inability to provide a full range of physical therapy care remotely, such as palpation, balance challenges, neuromuscular facilitation, and hands-on care, is a limitation. Another limitation reported by some countries is insufficient funding and payment for services provided remotely and the differences in single-payer versus various payer systems internationally. Respondents noted resistance exists from other health care providers, colleagues, or service users to providing services digitally.

Digital Physical Therapy Practice: Regulatory Issues

Survey respondents noted the variability in licensing and registration requirements within the same country and between countries is a barrier to digital practice at this time. Regulations are not assisting the advancement of digital practice, rather they are inhibiting and they are unable to keep up with the pace of technology. The paper did not address the delivery of services across international borders or the inconsistency of skills and competencies of providers globally, both which were concerns of respondents

Implications for Physical Therapy Education

Inequity in funding and access to equipment for training students is of concern to respondents. Other implications include a lack of capacity within educational institutions to address the topic due to lack of expertise in the area, lack of tools/technology, and lack of time within the curriculum to address these learning needs or meaningfully incorporate them into the general curriculum in an integrated and seamless fashion. Since technology will most likely evolve faster than education curriculums, one challenge will be to provide the skills needed to critically assess technology.

Conclusions and Recommendations

Respondents identified topics that should be considered for future versions of a report on digital practice including recommended protocols, development of standardized forms, guidelines for optimization of treatment effectiveness, and the influence and role of social media in discussing and spreading information on health related topics. Future work may need to consider and include the role of artificial intelligence, machine learning, and wearable technology. A comparison of various digital practice and payment structures internationally may be valuable. Additionally, more information is needed on researching outcomes and human factors such as fear of the providers or service users and the impact of digital practice on patient compliance. Finally, some respondents would like to see more information on emergency responses and procedures during digital practice.

The full results of the **INPTRA/World Physiotherapy Digital Practice White Paper Survey** can be found at

<http://www.inptra.org/Resources/DigitalPracticeWhitePaperandSurvey.aspx>.

¹ World Confederation for Physical Therapy; 2019, accessed March 20, 2019, <https://www.wcpt.org/glossary>.

² Allen, D.T., P. Caldwell, P.A. Kornesaroff, et al., "Practical aspects of telehealth: set-up and preparation for video consultations," *International Medicine Journal* 43 (2013):1133-1136.

³ Busey, J. C., P. Michael, "Telehealth—Opportunities and pitfalls," *Journal of the American Dietetic Association* 108, no. 8 (2008):1296-1301, doi:10.1016/j.jada.2008.05.002.

⁴ Brous, E., "Legal Considerations in Telehealth and Telemedicine," *American Journal of Nursing* 116, no. 9 (2016):64–67.

⁵ Busey, "Telehealth—Opportunities and pitfalls."

⁶ Baker, D. C., L. F. Bufka, "Preparing for the telehealth world: Navigating legal, regulatory, reimbursement, and ethical issues in an electronic age." *Professional Psychology: Research and Practice* 42, no. 6 (2011):405-411, doi:10.1037/a0025037.

⁷ Kaplan, B., S. Litewka, "Ethical challenges of telemedicine and telehealth," *Cambridge Quarterly of Healthcare Ethics*, 17 no. 4 (2008): 401-16.

⁸ Federation of State Boards of Physical Therapy "Telehealth in Physical Therapy Policy Recommendations for Appropriate Regulation" (2015) Retrieved from: <http://www.fsbpt.org/Portals/0/documents/free-resources/TelehealthInPhysicalTherapy2015.pdf>.

⁹ NHS England, "Martha Lane Fox sets out key digital proposals for the NHS." December 8, 2015, NHS England Webpage accessed August 26, 2018, <https://www.england.nhs.uk/2015/12/martha-lane-fox/>.

¹⁰ NIH US National Library of Medicine. NIH webpage, accessed August 1, 2018, https://clinicaltrials.gov/ct2/results?term=telerehabilitation+AND+physical+therapy&map_cntry=US&Search=Apply&recrs=a&recrs=d&age_v=&gndr=&type=&rslt=.

¹¹ Cottrell, M.A., O.A. Galea, S.P. O'Leary, A.J. Hill, T.G. Russell, "Real-time telerehabilitation for the treatment of musculoskeletal conditions is effective and comparable to standard practice: a systematic review and meta-analysis," *Clinical Rehabilitation*, 31, no. 5 (2017):625-638.

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- ¹² Mani S, S. Sharma, B. Omar, A. Paungmali, L. Joseph. "Validity and reliability of Internet-based physiotherapy assessment for musculoskeletal disorders: A systematic review," *Journal of Telemedicine and Telecare* 23, no. 3 (2017):379-391.
- ¹³ Kairy D., P. Lehoux, C. Vincent, M. Visintin. "A systematic review of clinical outcomes, clinical process, healthcare utilization and costs associated with telerehabilitation," *Disability and Rehabilitation* 31, no. 6 (2009):427-447.
- ¹⁴ Bini S.A., J. Mahajan. "Clinical outcomes of remote asynchronous telerehabilitation are equivalent to traditional therapy following total knee arthroplasty: A randomized control study," *Journal of Telemedicine and Telecare*, March 6, 2016.
- ¹⁵ Tousignant M., H. Moffet, S. Nadeau, et al. "Cost analysis of in-home telerehabilitation for post-knee arthroplasty," *Journal of Medical Internet Research*, 17, no. 3 (2015):e83.
- ¹⁶ E. Shigekawa, M. Fix, G. Corbett, D.H. Roby, J. Coffman. "The current state of telehealth evidence: A rapid review." *Health Affairs*, 37, no. 12 (2018):1975-1982.
- ¹⁷ The Topol Review: Preparing the healthcare workforce to deliver the digital future (2019). Health Education England <https://topol.hee.nhs.uk>.
- ¹⁸ Ali N.S., K.H. Carlton, O.S. Ali, "Telehealth Education in Nursing Curricula," *Nursing Education* 40, no. 5 (2015):266-269.
- ¹⁹ Erickson C.E., S. Fauchald, M. Ideker, "Integrating telehealth into the graduate nursing curriculum," *Journal of Nurse Practitioners* 31, no. 11 (2015):e1-5.
- ²⁰ Asprey D.P., S. Zollo, M. Kienzle. "Implementation and evaluation of a telemedicine course for physician assistants," *Academic Medicines* 76, no. 6 (2001):652-655.
- ²¹ APTA Education Strategic Plan (2006-2020). BOD 03-06-26-67. American Physical Therapy Association (2006) accessed January 10, 2019, http://www.apta.org/uploadedFiles/APTAorg/About_Us/Policies/BOD/Plans/APTAEducationStrategicPlan.pdf.
- ²² Richmond T., C. Peterson, J. Cason, et al. "American telemedicine association's principles for delivering telerehabilitation services," *International Journal of Telerehabilitation* 9, no. 2 (2017):63-68.
- ²³ David Brennan, Lyn Tindall, Deborah Theodoros, Janet Brown, Michael Campbell, Diana Christiana, David Smith, Jana Cason, Alan Lee. *International Journal of Telerehabilitation*, no. 2 (2010): 31–34.
- ²⁴ *Position Statement: Telerehabilitation and Physiotherapy*, Australian Physiotherapy Association, Camberwell, Victoria, Australia, 2009.
- ²⁵ "Model Practice Act." Federation of State Boards of Physical Therapy (2019) , accessed March 19, 2019, <https://www.fsbpt.org/FreeResources/RegulatoryResources/ModelPracticeAct.aspx>.