

# Hand Therapy Assessments for Use with International Technicians (HTAIT)

| Courtney Retzer Vargo

*Hand Therapy Assessments for Use with International Technicians (HTAIT)* is a simple, easy to use needs assessment intended to help identify current knowledge as well as areas for growth in the rehabilitation of the hand and upper extremity. The target population includes hand therapists and non-profit organizations preparing to travel internationally. This tool can be administered to international technicians, nurses, or healthcare staff at a host institution that have been identified as participants of the learning opportunity. The HTAIT consists of four assessment modules that can be used together or independently depending on purpose of the trip: Basic Upper Extremity Anatomy, Wound Care & Scar Remodeling, Orthotic Principles and Rehabilitation. The scoring rubric and grid allow the instructor to use the score(s) in identifying the technician's most likely learning level. The results of the HTAIT allow for tailored training, demonstration, and learning opportunities by assisting the visiting therapist or organization in determining the level of competency in a host therapy technician. Targeted learning opportunities lead to a more effective experience for both the visiting and host practitioners, while increasing the likelihood of long-term carryover of occupational therapy principles.

The inherent altruism of occupational and physical therapists often results in daydreaming about international humanitarian work. For those specializing in upper extremity rehabilitation, a one or two week volunteer trip can offer a chance to create meaningful change in someone's life while balancing obligations to employers and family. Volunteer experiences are typically in challenging, resource-poor environments, expensive, and challenge one's clinical skills, adaptability and creativity, but the outcome can be immense for both the visiting and host therapists. Despite this, many therapists are reluctant to participate out of fear of the unknown. Little is often known about individual patients prior to arriving in the host country and the dichotomy between the severity of local conditions and the lack of long term resources can be intim-

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identifying to a formally trained therapist. There may also be uncertainty regarding the role of the local staff during the experience, contributing to disconnect between providers. However, instead of an obstacle to be overcome, these differences should be seen as an opportunity to share knowledge and information, essential to creating long-lasting change and educational growth for everyone involved.

The World Health Organization (WHO), a division within the United Nations system, is an organization essential to the study of global health related issues and establishing the direction of the UN's health policy. The WHO is responsible for identifying concerns that impact health around the world, selecting a research agenda and evidence-based policy, defining norms and standards, and analyzing global health trends (1). The "World Report on Disability", commissioned by the WHO in 2011, is a wide-ranging report intended to shape the course of disability prevention and management (1). Two years later, the WHO held the Convention on the Rights of Persons with Disabilities through a series of local and online discussions aimed at carrying out the report's action plan, with the ultimate goal of recommending specific proposals during the Sixty-seventh World Health Assembly in 2014. The Convention on Disability underscored the significance of making "quality health services available and affordable to people with disabilities", "developing disability policies and programs that address the health and rehabilitation needs of people with disabilities, and allocating appropriate resources", and "improving data to better understand these health and rehabilitation needs and monitor and evaluate the impact of policies and programs" (1). This immense paper is separated into nine expansive calls for action, requiring collaboration among multiple government and private sector agencies, and to be executed via the detailed recommendations at the end of each section (1).

These recommendations are a call to action for hand therapists to contribute to global change through international humanitarian work focused on the training of local professionals, arming them with the skills to address basic needs of upper extremity patients, improve and preserve function, and limit deformity and pain. It is difficult to determine how many organizations around the world are providing therapeutic hand care and to what extent. This is in part because the title of these individuals can vary greatly between countries and many nations do not have a central professional association or educational program focusing on the upper extremity (2). The International Federation of Societies for Hand Therapy (IFSHT) is an organization whose mission it is to "provide global networking and educational opportunities to develop and enhance the practice of hand therapy" (2). In 2014, IFSHT surveyed their 33 member countries in order to better understand how local circumstances merge to create global trends. When asked about access to hand therapy educational resources, respondents reported considerable challenges such as the lack of textbooks in their primary language, a lack of English proficiency in order to access mainstream journals, and the high cost of ordering journals online, all major barriers in the attempt to increase the breadth and depth of clinical education (2). However, the IFSHT survey only targeted full-members, or those countries with a large enough rehabilitation community to warrant membership. This begs the question, what about the other 168 nations of the world not yet represented due to an immature or isolated hand therapy community or none at all?

There is a world-wide deficit of rehabilitation practitioners, PT, OT, physical medicine physicians and their counterparts. Shortfalls in this area become more troubling when the lack of physician specialists is appreciated, often essential in the treatment of upper extremity injury (3). The progressive pain and dysfunction associated with inadequate care or a total lack of care can profoundly impact vocational status, challenge cultural norms and negatively affect the psychological and emotional well-being of the whole family.

In 2015, the WHO released the Global Disability Action Plan 2014-2021: Better health for all People with Disability, which specifically recommended more training opportunities to be developed in order to create rehabilitation practitioners at multiple levels of education, specific to the local population's needs (4, 5). A resource-limited environment often requires clinicians to have a high level of expertise in order to allow them to operate as a multidis-

ciplinary practitioner. The WHO's position recognizes that mid and entry-level educational programs can bridge service gaps, understanding that "training community-based workers can address geographical access and respond to workforce shortages and geographical dispersion" (1). These therapy technicians can serve to broaden access to care in underserved populations. However, understanding and identifying a host provider's punctuated levels of medical knowledge in addition to language and cultural barriers can complicate the experience. With this objective in mind, Hand Therapy Assessments for Use with International Technicians (HTAIT) was created (see Appendix S1 in **Online Supplementary Document**). This simple, easy to use needs assessment tool is designed to help visiting therapists and non-profit organizations gain a snap-shot of the local hand therapy knowledge in order to more effectively prepare for the experience and tailor learning opportunities to the host provider's areas of need. Visiting hand therapists preparing to travel internationally can administer the HTAIT to "international technicians", nurses, or healthcare staff at the host institution that have been pre-identified as participants for the upcoming learning experience. Training, demonstration, and learning opportunities can be shaped by the visiting therapist in association with the identified level of competency in a host therapy technician, improving the effectiveness of the experience for both the visiting and host practitioners and increasing the likelihood of long term carryover.

The HTAIT consists of four assessment modules, *Basic Upper Extremity and Anatomy*, *Wound Care & Scar Remodeling*, *Orthotic Principles* and *Rehabilitation of the Upper Extremity*, designed to either be used together or independently depending on the purpose of the trip and the expressed interest of both parties (see Appendix S1 in **Online Supplementary Document**). Although the assessment modules are not necessarily sequential, they do require knowledge that is hierarchical in nature with a certain degree of overlap. Therefore, it would be expected to administer assessment modules 1, 2 and 3 together, but unlikely that assessment modules 3 or 4 would be given without a high score in assessment module 1. HTAIT test design involved heavy consideration of cultural and linguistic barriers, taking care to avoid intimidation or insult with questions that were either too elementary or too sophisticated. Instead, the goal was for the questions to cross the spectrum of entry-level knowledge in upper extremity rehabilitation while establishing questions that could easily be translated without degrading the overall quality of the assessment.

Bloom's Taxonomy was vital to the question design process. Intended as guide to aid instructors in the creation of learning objectives, different learning styles are separated into six domains. Each domain focuses on a different type of thought process essential in the hierarchy of critical thinking, notable for the use of specific words and pattern of questions (6). All of HTAIT's assessment modules consist of questions that draw from each of Bloom's Taxonomy levels and its associated learning level found in the scoring rubric and grid (see Appendix S1 in the **Online Supplementary Document**). This design recognizes that there is not simply a hierarchy of facts, but a hierarchy of the ways in which a learner processes and manipulates those facts.

In addition, Knowles' work on the adult learning approach was consulted in the creation of HTAIT. Based on four key principles, a person's "self-concept", their "personal experience" that they bring to learning process, their "readiness to learn", and their "orientation to learning" (7) provides the context by which an adult participates in the learning process. In particular, Knowles' principles of experience and motivation associated with an adult learner are central in the instruction of the therapy technician and should be embraced as a useful aspect of program development. The visiting instructor should not approach such an experience with an air of superiority but rather with the appreciation that they are part of a collaboration that can benefit all parties. Healthcare workers in developing countries must draw on a rich background of skills that can be of service to the educational process in addition to offering a learning opportunity for the visiting instructor.

Beyond question design, another equally vital component in the HTAIT's creation was consideration of the number of questions needed to reach an appropriate threshold for the results to be reasonably accepted as an accurate reflection of what the learner actually knows.

Batterham and Atkinson (8) caution against the assumption that a small number should be rejected at the risk of overlooking clinically useful information. With this construct in mind, a threshold of ten questions per HTAIT assessment module was chosen, maintaining an individual assessment that was easy to administer, particularly if it was to be given orally using a translator. In addition, ten questions allows each learning module to properly address the breadth and depth of clinical knowledge in each category, while including a variety of questions targeting an ever higher order of cognitive processing.

A combination of multiple-choice and yes/no questions were chosen for each HTAIT assessment module (see Appendix S1 in **Online Supplementary Document**). This strategy is the most efficient use of time while specific word choice is able to glean valuable information regarding adjunct knowledge such as anatomy details or medical terminology. The number of correct answers in each HTAIT assessment module are added together to provide the overall score, with each question valued at 1, 3, or 5 points according to the instructor key. The total number of points in each assessment module corresponds to a learning level category on the scoring rubric. Each of these learning level categories are then used as a guide to focus the development of learning opportunities through specific suggestions listed on the scoring rubric.

Cook, Cleland & Huijbregts (9) state that a quality assessment has both quantifiable sensitivity and specificity and should be evaluated for both. An assessment tool's sensitivity measures its capacity to recognize a particular condition when it is present in a population pool, whereas specificity is the measure of a test's ability to recognize if a condition is missing when it is truly is not present (9). Assessments can have either measure without the other and still be useful although a practitioner may select a test based on the strength of either value. However, as Cook et al. (9) discussed, methodological weaknesses in the design of such a tool can skew the results, negatively impacting the clinical decision making to follow. Furthermore, Cook et al (9) states that a common methodological mistake often involves using an inappropriate gold standard for comparison.

Brown & Rodger (10) stress that occupational therapy as a profession must strive to close the gap between existing research and its application in the clinical setting. Occupational therapy as a scientific practice hasn't always held to its roots, particularly when challenges in the real world setting creates barriers to accessing quality research or assessment tools (11). Thoughtful clinicians must engage in scientific investigation in order to pursue objective answers to questions and learn if those answers "hold true over time and if they hold true in more than one practice setting" (10). The evolving need to create training opportunities for therapy technicians in the developing world has presented unique challenges demanding unique strategies and educational tools, but the assessment of such a tool cannot be easily quantified. Therefore, in the absence of a gold standard, questions of validity and reliability of the HTAIT remain. However, this does not negate its practical use and with time and expansion, psychometrics can be investigated further.

Holm (12) stressed the principal need for occupational therapy to be focused on evidence-based practice (EBP), challenging our profession to be supported in science. Evidence-based practice is the crossroads of a fastidious use of the best evidence available, taking into account the needs and values of the subject and thoughtful clinical judgment (13). Holm (12) stressed that we must be able to explain "what we do and why we do it" and this principle was certainly a central theme in the creation of a novel assessment tool such as the HTAIT.

However, growth cannot come without innovation and in its truest form, comparison is often lacking. Currently, there is no appropriate method of examining the validity or reliability of the HTAIT as there exists no comparable assessment in terms of style or purpose in hand therapy. It is my intention that the HTAIT is made open source in order for my occupational therapy and hand therapy colleagues to use it in their own international humanitarian work and determine its usefulness. As a collective, hand therapists have the skills, aptitude and will to broaden the reach of our specialty and advance the principles of functional independence to the most underserved corners of the world.

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