PEDIATRIC PHYSICAL THERAPY & TELEMEDICINE

Research Report

by Coleen M. Sallot

RESEARCHERS

Coleen Sallot

Ms. Sallot is a design student at Miami University in Oxford, Ohio. As a parent of two children with physical disabilities, she is especially interested in discovering ways to use design to help her children get the services they need to be happy, healthy and productive individuals.

INTRODUCTION

Research Question: How can we use telemedicine to provide families who have limited access and availability with appropriate specialized pediatric physical therapy services?

In the era of COVID-19, the world of everyday people has been turned upside. Billions of people are sequestered to their homes, thousands of businesses have been shuttered, children are going to school remotely, and parents are working the best they can. But the truth is, life hasn't stopped. People are still having birthdays, babies are still being born, and little boys are still breaking their feet.

But what happens to people who were already in a precarious situation before the world fell apart? My son has had 12 surgeries just so he can walk. He has endured hundreds of hours of physical therapy to enable him to wear normal shoes, walk, run, jump, go up and down stairs, ride a bike--things that you and I take for granted.

Due to the shutdown, many medical providers are moving to telemedicine to provide services. Some types of therapy, such as speech/language therapy, are more easily adaptable to a virtual environment. Others, such as occupational therapy are a bit more tricky, necessitating the need to send fine motor kits to the child's home, with videoconferencing to work through exercises.

Unfortunately, physical therapy is not so simple. These services often include orthotics and prosthetics, manual manipulation through massage and stretching, and specialized equipment--in addition to exercises--and can't be done by just anyone. But just because the world has changed doesn't mean a child has to suffer a setback in their therapy.

In today's world, we must think bigger and smarter. This includes finding ways to expand physical therapy offerings via telemedicine--not as a hack, but as a viable alternative to in-person therapy. This can serve not only as a stop-gap measure, but also as a long-term solution for the thousands of families who live and work in places that do not have easy access to these services.

This project will specifically focus on families of children with physical disabilities who need regular physical therapy services. In particular, it will focus on families who have limited availability to specialized pediatric physical therapy services due to poor access, scheduling, costs or location.

CURRENT LANDSCAPE OF PEDIATRIC PHYSICAL THERAPY SERVICES

Finding providers that specialize in children has actually been a challenge. Everywhere you look, you'll see signs for physical therapy, but the vast majority focus on services for adults. Even though these providers say they provide physical therapy services for children, they do not have specialty training or proper equipment (Rapport).

As for providers that do specialize in children, analysis done via Google Maps showed that most revolve around children with autism, not children with actual physical disabilities that require long-term care.

These types of conditions can include (Rush):

- Cerebral palsy
- Traumatic brain injuries
- Chronic pain
- Cystic fibrosis
- Cancer
- Scoliosis
- Orthopedic conditions (clubfoot, limb differences, etc)
- Developmental delays
- Movement disorders

Services provided by pediatric physical therapists:

- Developmental activities
- Movement and mobility
- Strengthening
- Motor learning
- Balance and coordination
- Recreation, play, and leisure
- Daily care activities and routines
- Equipment design, fabrication, and fitting
- Tone management
- Assistive technology
- Posture, positioning, and lifting
- Orthotics and prosthetics
- Burn and wound care
- Cardiopulmonary endurance
- Pain management (Rapport)

Equipment typically used by pediatric physical therapists:

- Dyna-Disc
- Therapy balls
- Foam rollers
- Incline ramps
- Peanut ball
- BOSU Ball
- Wedge cushion
- Stepping stones
- Balance beam kit
- Bucket bridge
- Floor scooter
- Balance board
- Playground balls
- Bean bags
- Bubbles
- Tactile footprints
- Spot markers
- Pop tools
- Balloons
- Yoga kit

(Talmud)

In St. Louis, I was fortunate to find a place about 20 minutes from my house which was started and run by actual physical therapists. But this is rare. In other geographical locations, such as Kansas City and Memphis, the only place that even provides physical therapy to physically disabled children is the local Children's hospital.

This means that families who do not live in large metropolitan area or even in a specific part of a city cannot obtain proper physical therapy services for their children.

To make matters even more cumbersome, physical therapy for children with physical disabilities is an ongoing affair. It is common for these children to receive therapy multiple times a week. For working parents, having a convenient location with flexible evening and weekend hours is crucial. However, a study of several metropolitan cities shows that only half have evening appointments, and only ten percent have Saturday hours.

Independent outpatient providers that specialize in pediatric physical therapy for physical disabiities

City	State	Number of providers	Evening/weekend hours?
Kansas City	Missouri	0	0
Saint Louis	Missouri	5	2
Indianapolis	Indiana	3	2
Fort Wayne	Indiana	2	1
Louisville	Kentucky	9	1
Memphis	Tennessee	0	0
Cleveland	Ohio	3	1
Toledo	Ohio	0	0
Columbus	Ohio	1	1
Dayton	Ohio	2	1
Cincinnati	Ohio	3	2
Detroit	Michigan	5	5
Pittsburgh	Pennsylvania	9	9

PEDIATRIC PHYSICAL THERAPY AND TELEMEDICINE

The idea of using telemedicine for physical therapy is not new. In fact, telemedicine was the biggest topic at American Physical Therapy Association (APTA)'s annual conference this past February (#PTTransforms). However, implementation of telemedicine at a wider scale requires some strategic measures.

Regulatory Requirements

Up until now the use of telemedicine has been limited due to regulatory requirements.

» Some states restrict the use of telemedicine
» Some insurance companies pay virtual sessions at a lower rate than in-person care
» Patients must also live in the same state as the physical therapist providing care (#PTTransforms).

Formalized Standards

In the community, there's a wide berth of opinions about the use of telemedicine. While many agree telemedicine has potential, there are disagreements about how it should be implemented. The key is ensuring that telemedicine provides the same level of care as in-person care. Providing a simple video chat is not sufficient (#PTTransforms).

Currently, there are no formalized standards or best practices for telemedicine. This means that physical therapists must use their own judgment and put into practice advanced clinical decision making to ensure that patients receive appropriate care (#PTTransforms).

Techniques and Equipment

For short-term needs, such as rehabilitation after a sports injury, the goal is to ensure that patients follow through with their care plan. Telehealth techniques such as live video, store-and-forward (asynchronous), and remote patient monitoring (RPN) have helped to improve the outcomes of these patients (Castin). Of course, these are dependent upon the ability of patients to listen and follow instructions, as well as their access to technology and specialized equipment.

Pediatric Pilot Programs

A handful of hospitals have created pilot programs to research the use of telemedicine for physical disabled children who require ongoing physical therapy.

In 2017, researchers at UC Davis Department of Pediatrics launched a $2 million program called School-Based Tele-Physiatry Assistance for Rehabilitative and Therapeutic Services (STARS). Virtual visit technology allows physical therapists to examine at-risk children living in remote areas in order to "prevent complications and reduce suffering, prescribing physical therapy and medications, as well as devices." (Wickland)

In Sydney, Australia, physical therapists at the Sydney Children's Hospital regularly use a combination of in-person and telemedicine services to provide care. For patients who live within driving distance, physical therapists conduct weekly home visits, and then regularly check in via video calls. This has "allowed families to have less of a burden on them, making sure that kids get their treatment done [and clinicians] are able to monitor their treatment," Even though it doesn't replace hands-on therapy, telemedicine has been especially valuable for patients who live too far away (Comstock).

School-Based Services

I have two children with physical disabilities. Both were born with clubfoot and hand deformities. As mentioned previously, my son has had 12 surgeries, and unfortunately will require more. Both receive physical therapy services through the school district. This is typically the same as receiving services via outpatient, except that the key focus is making sure they can safely navigate and function within the school environment.

Before COVID-19, my children received in-person treatment once a week. There is a special therapy room in the school which contains all the equipment necessary for these visits. Their therapist created a care plan, with a list of goals, and I was sent regular reports of how their care was going.

Interviews and Observations

Now that we are at home under a stay-at-home order, my children must receive their physical therapy lessons via telemedicine. Their therapist contacted me and scheduled regular sessions with them via **Google Hangout.** This gave me the opportunity to observe their session and also send questions via chat. I conducted two observations on Thursday and Monday. I also conducted an informal interview with the therapist on Friday, where she and I discussed their care plan in more detail.

Assignments and visuals are created in advance for each student. The student is asked to conduct a series of exercises, such as stretching, hopping on one foot, walking with one foot in front of another, using obstacle courses, walking barefoot, etc. Sometimes this includes the use of household objects, such as laundry baskets, legos, blankets, and so on. To help, they are shown pictures of what she was asking them to do, and sometimes she referred to a doll to help model the behavior.

Pain Points

The therapist said the sessions are going better than expected but also expressed several frustrations:

» She likes to model the behaviors in person and manipulate their feet/legs/hips to mimic the proper position, which is not possible virtually.
» She is unable conduct stretching and massage as part of therapy.
» Evaluating treatment treatment to ensure children are meeting their goals is more difficult.
» Success is limited by a child's ability to listen, understand and follow instructions.
» Access to technology and equipment is limited.
» Using telemedicine relies greatly on parental involvement, who may or may not be readily available.

NEXT STEPS

The use of telemedicine for pediatric physical therapy has been gaining in popularity for some time. However, in today's uneasy world it has become absolutely necessary to ensure that children with physical disabilities continue to get the treatment they need. Physical therapists are doing their best with what they have. But more is needed.

Pilot programs by UC Davis and Sydney Children's Hospital have shown that with planning, telemedicine can work. In early intervention services for young children, physical therapists often coach parents so they can be an equal partner with the therapist in their child's care. This model would work well for telemedicine. This includes sending parents YouTube videos, exercise worksheets, and other resources to ensure their children stays on track. Providing parents with appropriate equipment and exercises would also be beneficial.

Ultimately, the hope is that the use of telemedicine will continue long after this crisis has abated. This would help bridge the gap to ensure that all children receive adequate care, no matter where they live and what access they have.

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