

TRENDS IN REHABILITATION NURSING HOME CARE

Abstract

Rehabilitation Nursing Home is an application that aims to improve the quality of life of people with disabilities or chronic illnesses. The task of the rehabilitation nurse is to improve the quality of the work that disabled or chronic patients do at home and in the community. Rehabilitation home with nursing service is an application aimed at increasing the quality of life of persons with disabilities or chronic diseases. The task of the rehabilitation nurse is to improve the quality of the work that disabled or chronic patients do at home and in the community. Rehabilitation nurses coordinate health care team services and develop care plans developed by the client, physician, and medical team. Rehabilitation Nursing Home care is very special; however, in this environment, nurses help other people. Infants, children, teenagers, young adults, the elderly, and seniors with disabilities can receive special care from nurses in Chinese centers, at home, in other residences, and at home.

Keywords: Rehabilitation, Nursing, quality, disabilities, community, home care, physician & nurse.

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I. INTRODUCTION

Rehabilitation Nursing Home is an application that aims to improve the quality of life of people with disabilities or chronic illnesses. The task of the rehabilitation nurse is to improve the quality of the work that disabled or chronic patients do at home and in the community.

The purpose of this job description is to define and clarify the role of the clinical nurse in the hospital and to encourage nurses to perform highly in the areas of needs and standards for clinical practice in patient-centered hospitals. Buildings provided by the medical association.

In this document, the term "customer" means a person who is injured or ill and receiving medical care. The word family refers to important persons and relatives.

The term "carer" refers to any paid or unpaid person who provides care.

Rehabilitation home with nursing service is an application aimed at increasing the quality of life of persons with disabilities or chronic diseases. The task of the rehabilitation nurse is to improve the quality of the work that disabled or chronic patients do at home and in the community. The goal of the recovery process is to work with an integrated medical team that includes the client to provide an effective care approach that allows the client to be independent and knowledgeable about self-care. When partners create goals for clients, physical, emotional, social, cultural, educational, developmental, and spiritual dimensions are considered.

II. REHABILITATION NURSE

Rehabilitation nurses work to support clients and their families as they return from the hospital to their homes and communities.

Rehabilitation nurses coordinate health care team services and develop care plans developed by the client, physician, and medical team. In this role, nurses serve as clinical assistants, care managers, advocates, therapists, educators, counselors, and team members. Home care nurses use their knowledge of rehabilitation to develop individualized plans for patients and their families or caregivers.

Bedside rehabilitation nurses provide patient care as part of a continuum between other healthcare facilities and the patient's family. The goal is to ensure the client's autonomy in the home environment and restore relationships with the client's family and others in the community.

The Association of Rehabilitation Nurses believes that the role of the rehabilitation nurse is crucial in the continuity of care. Physician costs can be achieved by increasing customer service costs, increasing hospice-specific treatment knowledge and skills, reducing the frequency of problems and physician user readouts, improving quality of care, and reducing costs.

Rehabilitation Nursing Homecare is very special; however, in this environment, nurses help other people. Infants, children, teenagers, young adults, the elderly, and seniors with disabilities can receive special care from nurses in Chinese centers, at home, in other residences, and at home. After completing the transition to the community, returning nurses may also take on a case management role.

III. TRENDS IN REHABILITATION HOME CARE:

- Immersion technology
- Telehealth
- Rehabilitation clothes
- Rehabilitation robotics
- Personalized pre-rehabilitation diagnostics
- Photo- and electrotherapy
- Artificial intelligence
- Neurofeedback
- Light technology
- Big Data & Analytics

1. **Immersion Technology:** The field of immersive technology is expanding every year, especially in the healthcare sector. Both professionals and patients are looking for solutions for better treatment. For this reason, the industry has started to offer virtual solutions and augmented reality (VR/AR) with software and hardware suitable for each treatment. For example, AR/VR therapy includes climbing games for people with upper body rehabilitation. Also, participating in a virtual environment with a virtual trainer can make it easier for patients to immerse themselves in the treatment process.

Technology has become the most important factor in rehabilitation after removing the first barriers to access.

- **Dynamics VR is Specially Designed for Rehabilitation:** Spanish start-up DYNAMICS-VR enables physical therapy by creating dedicated spaces for medical patients and professionals. Software solutions are used with VR products. It provides its customers with affordable, easy-to-use and complete technology for successful results. The first solution aims to reduce kinesiphobia by 37% and pain by 60%. The solution also prolongs the recovery time, so it is beneficial for the patient in the long run.
- **Improfit Gamify Rehabilitation:** Spanish startup Improfit uses AR to make recycling more efficient and fun. Improfit gamifies rehabilitation exercises using AR programs and computer vision technology. The program can also provide feedback to all patients by identifying management and evaluating it in a timely manner. Improfit also helps the body heal and move again when it moves, allowing the body to heal better

2. **Telehealth (telerehabilitation):** The need for telemedicine has increased significantly during and after the COVID-19 pandemic, especially for general and non-emergency patients. This is also forcing physical therapists to shift their offerings to remote services. An online consultation with a physiotherapist about the patient's physical health and

telekinesis treatment can help to cure the disability. There is also a need and interest among physicians and patients for telemedicine services such as physical therapy, telediagnosis and telepharmacy.

- **Phyt. Health Develops Online Physical Therapy Software:** Indian startup Phyt. Created a platform and app to make online physical therapy more convenient for patients. Their solutions focus on home renovations, but there are also small exercises in an office environment. The approach is divided into four phases that each patient achieves namely pain management and prevention, stabilization, exacerbation and continuous prevention. Artificial intelligence algorithms at every stage and during treatment guide patients remotely to achieve the desired results.
 - **Telewecure Facilitates Electronic Rehabilitation and Networking:** Iranian startup Telewecure provides users with telerehabilitation services as well as social networking sites. Telewecure's telerehabilitation solution allows patients to easily connect with physiotherapists, exercise and get equipment advice from their platform. They also enhance the experience by providing a social network for patients and professionals. This allows you to communicate and exchange information in groups and forums on the Telewecure network.
- 3. Rehabilitation Clothes:** The use of medical products and devices in rehabilitation has been shown to be an important factor in improving treatment and counseling. Wearable devices provide greater flexibility in the collection and analysis of patient data used by healthcare facilities and professionals. In addition, the integration of wearables with mobile devices has led to the growth of smartphone and tablet applications that provide time management through redesign and services.
- **Ntse MS3 Manufactures a Wearable EMG Sensor:** In the US, the start-up Smart MS3 makes electromechanical (EMG) sensors that monitor the condition of patients over time. Wearable electromyography and musculoskeletal (MSK) sensors provide information on muscle activation patterns. These sensors are wireless and can monitor every muscle group in the patient's body. Now the Smart MS3 has knee, back and shoulder applications.
 - **DENTON Creates 3D Motion Tracking:** British startup DENTON uses 3D trackers to track patients' precise movements. 3D sensors can be easily attached with cords to large bodies such as legs, torso and head. A remote connection between the sensor and its application provides information about the patient's level of compliance, range of motion, movement patterns, and pain intensity throughout the treatment program.
- 4. Rehabilitation Robotics:** Robotics offers many solutions for patient recovery. In particular, the use of robots facilitates the reproduction and correction of programs. Robotic exoskeletons, for example, allow patients to move independently and perform daily tasks pain-free while restoring neural connections. Startups are developing lightweight wearable robots to make it easier for people with physical disabilities who need support.

- **Nureab Develops Exoskeleton Hands:** Egyptian startup Nureab creates exoskeleton hands that provide patients with rehabilitation and mobility. Their products consist of five robotic fingers with a wide range of motion. The facility has active, passive and preventive treatment services. In particular, physical therapists use preventive measures to treat conditions such as quadriplegia, hemiplegia, tendinitis, fractures, and injuries. The tracking direction of the device is very sensitive up to 1 degree. Nureab's medicine is also lightweight, suitable for different hand sizes and easy to use.
 - **Fleming MedLab Develops Soft Robots:** Fleming MedLab, a start-up company in China, has launched a new type of soft robot to solve the problems of expensive and difficult work of traditional medicine workers. Robotic solutions are used in wearable products such as suits or clothing. This allows doctors to focus on the patient rather than using the device and is easy to use at home. Fleming MedLab focuses on neuroplasticity in its robotic solutions to accelerate patient recovery. One application of this technology is people who have had a stroke or heart attack.
5. **Personalized Pre-Rehabilitation Diagnostics:** To improve the treatment process, the current condition of the patient should be checked. Movement and neural connections are often examined during tests such as gait analysis or brain scans. In particular, startups are using new technologies such as sensor-mounted inserts and CT scans with artificial intelligence to do this. These solutions provide accurate measurement and measurement time to meet an individual's diagnostic needs. These solutions also pave the way for better self-diagnosis, increasing patient recovery and profitability.
- **LAAF Development Active Walk Test:** The American start-up LAAF has developed a solution for self-diagnosis of gait and analysis of the main causes of pain. The startup has developed smart insoles that measure ankle strength, stride length, pronation, cadence and foot movement, among other things. LAAF uses its applications to analyze data to provide information to patients and help them improve their performance and processes.
 - **Voxel AI Advances in Multimodal Imaging:** Canadian startup Voxel AI assesses the brain structure, function and body of patients with injury or disease to guide patient care. It does this using advanced neuroanalysis and multimodal imaging. Voxels can provide detailed information about a patient's individual brain health, including small brain models that differentiate outcomes and treatment needs. The solution provides accurate diagnosis of brain damage, making recovery easier and faster for patients.
6. **Phototherapy and Electrotherapy:** Light therapy and electrotherapy have long been used in rehabilitation, but recent technological advances have made the treatment more affordable and accessible to those who need it. Electrical and light therapy helps stimulate muscles and blood circulation. For example, startups are using signals and electrode devices to facilitate recovery, strengthen muscles, and reduce recovery time.
- **NEURO20 Creates Products for Muscle Strengthening:** American startup NEURO20 has developed a device with electronic devices that can increase muscle

strength in patients. NEURO 20 supports electrotherapy by treating patients in a form that corresponds to Lycra. These suits provide electrical muscle stimulation and use biosensors to collect data. This information can be obtained from the remote control. Specifically, during exercise, twenty stimulation electrodes are built into large muscles that cover motor points and produce involuntary contractions. This will relieve the user from pain and strengthen the back muscles.

- **LUMINOSRED Expands Red Light Therapy:** Austrian start-up LUMINOSRED has developed a new solution for the rehabilitation of red light. LUMINOSRED has developed an FDA-approved method for producing light therapy using low-energy products and anti-vibration technology. This treatment facilitates blood flow and strengthens muscles. It specializes in the production of indoor lighting with high efficiency (100w/cm²) and different wavelengths (660nm + 850nm).
7. **Artificial Intelligence:** Patients receiving care from physicians often benefit from the use of rehabilitation skills. The number of startups working in the field of computer vision and machine learning solutions has grown exponentially in recent years. Artificial intelligence can now provide valuable real-time insights to improve operational efficiency and future physical planning. The AI-powered platform provides personal and remote monitoring with recommendations for further development. Machine learning-based tools further support patients every step of the way to recovery.
- **Breathing Supports Remote Patient Management Based on Intelligence:** German startup Breathment has developed an artificial intelligence system to help professionals monitor patients' performance remotely. Any expert can be modified with practice. Breathing has developed a way of maintaining distance, self-organizing an exercise program, and providing patient information.
 - **Rooting Rehabilitation Maps Controlled by Artificial Intelligence:** Rootally, a Singaporean business, is trying to make recycling at home more common and affordable. Its product, called AllyCare, is an AI-driven solution that uses mobile devices for healthcare. By detecting movement patterns created by artificial intelligence, treatment is facilitated by simultaneously monitoring the patient's strength. Tracking and analyzing the healing process can help you understand the patient's progress. The solution does not require sensors to be attached to the patient's body, making AllyCare more user-friendly.
8. **Neurofeedback:** Neurofeedback is one of the newest developments in the medical industry. The human brain processes electrical signals, and new initiatives are exploring these electrical signals to restore them in a more efficient and non-destructive way. It includes the use of portable devices and electronic devices, especially for stroke patients, concussion rehabilitation or pain management. These solutions also have the potential to improve brain and nerve function in people with chronic neurological conditions.
- **Divergence Neuro Develops Tele-Neurofeedback Solutions:** Canadian startup Divergence Neuro brings neurofeedback to online therapy. Their solutions provide real-time neurofeedback about patients' brain function and pain. The headset is suitable for all users and works with the launch platform and mobile app. The

platform provides doctors with medical design services that include advance planning or treatment, as well as many quantitative and qualitative measures. The mobile app allows patients to access treatment plans provided by professionals.

It also guides patients through the neurofeedback or neuromeditation protocol that their doctor requests.

- **Exsurgosim Neurostimulation Headset:** New Zealand startup Exsurgo has developed a new wearable device for pain management and healing. AXON is a product that uses electroencephalography (EEG) and artificial intelligence to monitor brain data and display the data on the user's mobile phone. Through real-time visual feedback, users learn how to manage pain by recognizing the pain and changing their response, thereby reducing the intensity of the pain. AXON allows patients to continue treatment in their own homes.

9. Lightening/Relieving Technology: During the recovery period, in order for the treatment to be effective, it is necessary to gradually bring the body weight to the end during the movement. Various methods are used to reduce body weight such as water, vacuum, corsets, which transfer energy without harming the body. In this way, interventions make vacuum treadmills to lower the height of the forelimbs or use a walker as a support during treatment.

- **MEBSTER Creates a Light, Passive Exoskeleton:** Czech start-up MEBSTER has developed a weight loss system. Startup UNILEXA is a non-robotic exoskeleton equipped with many sensors. The device can help patients move more easily and help eliminate lower back pain. The initiative aims to produce affordable and accessible home appliances that will get people walking again. UNILEXA is currently used in clinics to monitor patients and recover.
- **Treadmill Upgrade Boost Micro Gravity Treadmill:** American start-up Boost Treadmills offers a vacuum weight loss treadmill to support body regeneration. Boost 1 provides flexible power that must come from the patient's legs and back, which affects recovery time and is very painful. Boost's solution creates a vacuum that reduces gravity, a way to promote physical healing. The company is currently developing Boost 2, which simplifies the administration, analysis and management of advanced operations.

10. Big Data and Analytics: Medical and physical therapy knowledge can influence many decisions throughout a patient's life. Big data collected using machine learning algorithms can provide specialists with an understanding of how a patient performed different procedures at different times and in different situations. Information obtained from the data package is also used to promote the sale of precision medicine and medical devices such as exoskeletons and crutches. Initiatives in this area address big data management challenges by providing new healthcare systems that facilitate data access while ensuring security and hearing.

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