

# Chapter 1

## **MEDICAL AND REHABILITATION CARE, COMPREHENSIVE CARE FACILITIES AND SYSTEMS**

The most important need of a person with spinal cord injury is quality medical services. These are needed from the moment of injury and throughout hospitalization and rehabilitation. Comprehensive care is also necessary when one returns home and to the community. Specialized care is needed to ensure that the individual is maintaining his or her health and activity level. In addition, knowledge of the economic and psychological impact of the injury is vital. This chapter provides essential information about comprehensive medical facilities and rehabilitation centers. For more definitive information, contact the health department or physicians' medical society in the individual's city or state.

### **WHAT IS SPINAL CORD INJURY?**

The spinal cord is a bundle of nerve fibers and cells that connect a person's brain with muscles, skin and internal organs. The spinal cord relays messages from the brain to the intended body part or function. In essence, the spinal cord allows the body to function. It is the spinal cord that acts as the transmitter of two-way communication between the brain and body part. When the cord has been damaged the messages may become confused or halted. As a result, the physical functions are unable to trigger themselves to work (e.g., bladder control, leg or arm use, or the feeling of sensation). For example, in the case of the bladder, the problem lies not with the bladder itself but with its inability to communicate to and from the brain. In the simplest of terms, an injury to the spinal cord means a short circuit between the brain and body.

The spinal cord can be injured anywhere along its approximate seventeen-inch length. Each level of injury has its own unique characteristics, but the higher the injury point, the higher level of involvement. The parts and functions which are located above the injury point will continue to function correctly, however those below the injury point are affected. Injury to the spinal cord can be complete or incomplete. The effects of an injured spinal cord may include paralysis of arms, legs and/or trunk, bowel and bladder dysfunction, respiratory dysfunction and impairment of sensation.

The previous diagram of the spine depicts the vertebrae and the spinal nerves as well as the muscles and organs controlled by the various nerves. If the cervical spine is damaged the result is tetraplegia and/or quadriplegia (four extremities and trunk affected). If the spine below the cervical level is damaged, the result is paraplegia (two extremities and/or trunk affected).

The level at which all systems are still functioning normally is the “functional” level. Each spinal cord injured person has individual needs that must be assessed by qualified medical personnel. An individual’s determination and attitude also affects the degree of independence that can be achieved. For additional information, please refer to the section in the next chapter, “Functional Goals and Potential Equipment” for Persons with Spinal Cord Injuries.

## HOW DOES IT AFFECT PEOPLE?

Most injuries to the spinal cord result in some paralysis—the loss of motor function or the ability to move your arms, legs, etc. This may also be accompanied by a change in the patient’s level of sensation or ability to feel things.

All of these changes can affect an individual’s psychologically as well. This can be an overwhelming and challenging time, not only for the patient, but also for family and friends. Advances in medical science and technology can now enable a person with spinal cord injury to resume a full and active life in the community of their choosing. This includes: going to school or work, enjoying physical relationships, marriage, having children, travel, participating in a wide variety of sports and recreational activities, maintaining old friendships and starting new ones, etc. Despite the injury, the possibilities of life are still endless.

There are two key components to getting more independent. **Communication** is imperative for the individual. Being able to discuss and ask questions to their family, friends, and care providers is essential. Some questions or concerns may be difficult to put into words, but you are the only one who can relay this information. **Focus** is also important because it helps maintain hope. Focus should, however, be on what the person is gaining at that moment, and in the future, and not on what has been lost in the past.

## **COMPREHENSIVE CARE FACILITIES, ACUTE CARE AND INPATIENT REHABILITATION**

A spinal cord injury is an extremely complex medical diagnosis and requires a team approach. Descriptive lists of the recommended medical specialists and rehabilitation team members are found in this chapter. When evaluating a facility that specializes in treating spinal cord injury, it will be beneficial for the person if the facility in which they are hospitalized participates in a *system of care* designed for spinal cord injury. An inquiry as to how many persons with spinal cord injury have been treated will speak to the experience of the facility. Discuss the history, and success stories, of the staff and hospital. Discuss these issues with the patient's physicians to determine the individual's specialized needs. Remember, spinal cord injury is very different for each person, and the specialized approach to treatment is important.

Patient's medical needs must be met on a daily basis and greatly vary from person to person. The psychological aspects of spinal cord injury are complex. Understanding the mental toll of a spinal cord injury and best practices for psychological treatment will be discussed in Chapter 4.

Many hospitals in the U.S. provide a complete range for medical and rehabilitative care required for the spinal cord injured person. Some necessary services for a comprehensive care facility follow:

- 24-hour emergency service with 24-hour on-site physician coverage
- Provision of resuscitation and immediate life support
- Neurosurgery
- Orthopedics
- Physical Medicine and Rehabilitation
- Pulmonology and respiratory care practitioners
- Urology
- Medical and surgical consultation
- Plastic surgery
- X-ray Department including specialized neuroradiologic capabilities
- Physical, Occupational and Speech Therapy
- Nursing and medical support services

- Specialized medical equipment specifically designed for persons with spinal cord injuries
- Full medical, surgical and laboratory services.
- Trained staff to manage patients with unstable spines in special beds
- Trained staff in all phases of care such as bladder and bowel management (including technique of intermittent catheterization), skin care and positioning, joint range maintenance and muscle strengthening.
- Orthotic/prosthetic facilities capable of providing and fitting all necessary adaptive and supportive devices such as electric beds, wheelchairs, traction equipment, braces, corsets, splints, adaptive eating utensils, etc.
- Social work, psychology, case management and vocational rehabilitation services necessary to return a person to the community, school and vocational placement.
- A program of patient, staff, and family education in spinal cord injury. **Education for Prevention of Secondary Complications is essential.** See Chapter 2 for further discussion.
- A program of lifetime follow-up care and maintenance of records.

### **MEDICAL SPECIALTIES:**

Common physician specialties dealing with spinal cord injury are as follows:

- **Neurosurgeon** – A physician who specializes in evaluation and management and surgery of the nervous system (primarily brain and spinal cord).
- **Orthopedic Surgeon** – A physician who specializes in disorders of the musculoskeletal system, both operatively and non-operatively.
- **Physiatrist** – A physician who specializes in the medical management of individuals with severe impairment such as spinal injury and traumatic brain injury. The goal of the physiatrist is to maximize function and to promote independence. He/she works with the many members of the rehabilitation team to achieve these goals.
- **Plastic Surgeon** – A physician who specializes in reconstructive surgery. In cases of spinal injury, the primary involvement is with skin-breakdown problems and appropriate coverage of opened areas with skin flaps.

- **Urologist** – A physician who specializes in the medical and surgical management of the urinary system (kidneys and bladder) and related organs.

## **REHABILITATION TEAM MEMBERS**

The mission of rehabilitation is to successfully treat the multiple needs of the whole person. Coordinated efforts by many specialists are necessary to assist the patient in reaching his/her **maximal potential**. Each member of the multi-disciplinary team works closely with the patient and their family and friends to deal with the physical and emotional impact of spinal cord injury. In all disciplines the emphasis is on patient/family-education for effective carryover following discharge from the rehab setting. The rehabilitation team consists of the following:

- **The Individual with a Spinal Cord Injury**
- **Family & Friends** – Friends and family are the first and primary advocate for communicating the patient's wants and desires.
- **Physician** – Establishes a medical diagnosis and prognosis. Provides medical management. Prescribes treatments, medications and therapeutic aids. Guides progress of the treatment plan.
- **Physiatrist** – A physician who specializes in the medical management of individuals with severe impairment such as spinal injury and traumatic brain injury. The goal of the physiatrist is to maximize function and to promote independence. He/she works with the many members of the rehabilitation team to achieve these goals.
- **Rehabilitation Nurse** – This person is responsible for direct day-to-day care of patient. Performs activities that help to maintain and restore function and prevent complications and further loss; directs carryover of skills taught and practiced during therapies; responsible for health-teaching the patient, his/her family, and/or caregiver, in all aspects of personal care with specific emphasis on bowel and bladder management and skin care.

Emphasis is on maximizing the patient's independence in performing or directing all care needs.

- **Physical Therapist** – The PT assists patient in optimizing functional mobility (including bed mobility, transfer training, wheelchair propulsion and management, and gait when feasible). Coordinates wheelchair assessment and evaluation of necessary durable medical equipment and makes recommendations to modify existing equipment.
- **Occupational Therapist** – The OT assists the patient in achieving the optimal level of participation in activities of daily living, including work, school, family, community and leisure activities. Assists patient in learning to feed, groom, dress, bathe, and manage home tasks as independently as possible; guides use of adaptive equipment and orthotic devices; engages patient in activities to achieve general strengthening and work tolerance to increase range of motion, coordination and dexterity; evaluates home management; participates in adaptation of physical and social environment.
- **Speech-Language Pathologist** – Assesses and assists with communication and dysphagia (swallowing) disorders. Treat disorders of verbal and written language, articulation, fluency and interactive communication; treats comprehension, memory and cognitive deficits; directs plan for patients with dysphagia.
- **Respiratory Therapist** – Assists patients who require tracheotomy, ventilator or ongoing respiratory care. Assesses, treats, and teaches patient and family in use of respiratory equipment, the use of oxygen and the use of various breathing techniques.
- **Dietitian/Nutritionist** – Works closely with the patient and other members of the health care team to formulate a nutrition care plan for the patient. Emphasis is placed on proper nutri-control and overall health maintenance.
- **Psychologist** – Assesses cognitive, affective, and personality-related factors that may impact on the rehabilitation process. The psychologist provides education and support to assist the patient and his/her family as they adapt

and adjust to the spinal injury/illness. They facilitate communication between patient, family and staff when necessary.

- **Social Worker/Rehabilitation Counselor** – Assists patient and family with personal-social issues affected by disabilities so that optimal outcome can be achieved. Assesses availability of family members and support networks; provides counseling and support; discusses housing, living arrangements, healthcare costs and coverage, financial resources, and transportation issues; facilitates discharge planning and acts as liaison between patient, family and community resources.
- **Care/Case Manager (One may be employed by the insurance and/ or the facility but always to act in the best interest of the client)** – Assists with managing the patient's resources. The Case manager is the liaison between the patient, family, team and the payer to advocate for the individual's needs.
- **Vocational Counselor** – Assists the individual in developing career plans in light of their injury. Capable of performing vocational evaluations, job analysis, work modification, and working with adaptive equipment directly related to educational or vocational training as recommended.
- **Recreational Therapist** – Advocates the use of leisure and recreation to promote a healthy, productive lifestyle. Assesses and provides appropriate services for individuals and encourages participation in activities such as leisure discussion groups, community reintegration and supervised recreation activities.

#### **POSSIBLE PULMONARY NEEDS:**

- **Respiratory Needs** – It may be necessary for some individuals with spinal cord injury to be placed on a ventilator. For those persons who cannot resume normal breathing on their own, use of a ventilator may be necessary. In some cases, however, the individual may have the proper medical criteria for the installation of a diaphragm pacemaker to stimulate the lungs to function without a ventilator.

- **Ventilator Dependency** – Some individuals with high level spinal cord injuries may require a ventilator. There are portable ventilators of many types now available which can be attached to an individual’s wheelchair, be placed near the individual’s bed for use at night, or be adapted to meet other needs. In order to obtain proper information about acquiring and using a ventilator on a temporary, regular or long-term basis, it is necessary to be at a specialty center that is used to dealing with high-level injuries where respiratory compromise is present.
- **Treatment Facilities for Ventilator-Dependent Persons** – There are numerous long-term care and rehabilitation treatment facilities with expertise as well as the willingness to provide care to persons who are respirator-dependent. The best source of information to find such a facility is to call the nearest regional Model Spinal Cord Injury System supported by the National Institute on Disability and Rehabilitation Research. In Connecticut facilities that offer rehabilitative services to individuals who use ventilators include: Gaylord Hospital 203-284-2800 and the Hospital for Special Care 860-223-2761.
- **Diaphragm Pacing** – Diaphragm pacing stimulates the phrenic nerves to provide ventilator support to patients with muscle paralysis secondary to lesions of the cervical spinal cord (above the level of C3) or the brainstem. Pacing is recommended when it is certain that the lower motor neurons of the phrenic nerves are viable and that paralysis of the diaphragm has stabilized. This technique is also applicable to persons with chronic ventilator insufficiency due to central alveolar hypoventilation.

### **CONTINUING CARE AND DISCHARGE PLANNING:**

A good discharge plan will have established resources following hospitalization. Discharge planning begins from admission. For example, arrangements will need to be made for the following:

- **Financial and insurance assistance** (see Chapter 4)
- **Home Health Services** (including Personal Care Assistants – See the Chapter on Personal Care). The services provided may include skilled part-time nursing care. A registered nurse (R.N.) can provide personal care assistance

in dressing, ambulating, and transferring (they cannot do invasive techniques such as catheterizing and bowel programs). Other services that may be provided are nutritional guidance, teaching others medical social services, physical therapy, occupational therapy, speech therapy and home health services under the supervision of an R.N. Homemaker services may include simple meal preparation, light laundry and ironing, light housework, childcare, grocery shopping, errand running, and other related activities.

***Note: Health care services in the home are provided throughout the U.S. by visiting nurse associations and public health nursing programs. Not all of the services listed are available in every home health agency. Services are provided under the orders of an attending physician and are most often covered by Medicare, Medicaid and/or private insurers. Those individuals not covered by insurance usually pay on a fee-per-visit basis. Learn how to get assistance to pay for PCA's and also how to hire them. To find home health agencies nearest you, check the Yellow Pages Directory under "Nurses" or "Home Health Services." This Resource Guide includes a lot of information that might be helpful to you in addressing these areas, but we strongly recommend research done on a personal level. Libraries are great resources of information, as is the internet.***

#### **OUTPATIENT PROGRAMS:**

- **Outpatient Services** – Most comprehensive rehabilitation centers with expertise in SCI offer a variety of outpatient services necessary for lifelong health maintenance (including physical, occupational, and speech therapy, as well as counseling services, etc.). These services are also available at various other facilities throughout the state, as well as through private practice. Arrangements for the initial services required should be made prior to discharge from an inpatient facility. For more information on outpatient service providers in your area contact the following:

#### **Connecticut Hospital Association**

110 Barnes Road

Wallingford, CT 06492

Phone: 203 265-7611

Website: [www.chime.org](http://www.chime.org)

## MEDICAL FOLLOW-UP:

Regular medical follow-up is necessary for maintenance of health and prevention of complications. It is also extremely important for a person with a spinal cord injury to establish contact with a family physician upon returning to their community. Contact must also be established with an urologist and a rehabilitation specialist and/or a physiatrist. These contacts will enable a person with spinal cord injury to obtain assistance in those instances when a medical emergency exists. It is important that an individual with a spinal cord injury is educated and competent to handle medical situations, such as skin problems, autonomic dysreflexia, bowel and bladder difficulties. Many medical issues, if identified early, can often be easily treated.

- **Obtaining Emergency Assistance** – It is always important to call 911 in an emergency. *Ultimately, if one has any concern and/or question regarding their medical condition, do not hesitate to utilize the Emergency Room or contact 911\*\*\**

## SPECIALIZED PROGRAMS

### FUNCTIONAL ELECTRIC STIMULATION (FES)

Electrical current has been applied to the body for decades to stimulate muscles. Recently, FES has been used in the treatment of spinal cord injuries. Electrical stimulation is a technique that utilizes electrical current via the surface of the skin or through wires placed within the paralyzed muscle itself. Depending on the purpose of the stimulation and the type of current used, electrical stimulation may be used to improve or restore function in persons with incomplete spinal cord injury. FES may also be used to initiate and control movement in paralyzed muscles following neurologically complete spinal cord injury. The benefits of electrical stimulation have been shown at research and clinical centers throughout the U.S., and have formed the basis for an exciting new field within rehabilitation medicine. FES can also be used in conjunction with EMG Biofeedback to improve motor control.

FES may also be used in cochlear implants for the ear. This enables individuals with sensor neural deafness to hear certain kinds of sounds. Implanted phrenic nerve stimulators may help people breathe without a respirator. FES is also being used to induce ejaculation in men with SCI who experience sexual dysfunction. FES is also being utilized to assist paralyzed individuals in regaining control of bladder function.

FES has also been utilized to increase both strength and upper extremity function for persons with tetraplegia. In addition, the Neuro Control Freehand System is now available to assist with increasing arm and hand function by combining an implanted FES unit with conventional, reconstructive hand surgery. For additional information, contact: NeuroControl Corporation, Cleveland, Ohio, (888) 3334918.

### **FES STIM-MASTER PROGRAMS**

Functional Electrical Stimulation (FES) - General Information Functional Electrical Stimulation (commonly referred to as "FES") is a therapeutic treatment that uses transcutaneous electrical current to initiate contractions of the paralyzed lower extremities of individuals who have sustained spinal cord injury. The order and strength of the contractions are sequenced by a computer microprocessor to generate controlled and purposeful motion of these segments. Using this system, an individual can actually pedal a leg ergometer, or specially adapted exercise bike. Some of the more recent applications include therapies that allow an individual to accomplish limited upright walking!

It has been reported by a number of qualified researchers that the treatment reverses muscle atrophy, cardiopulmonary deconditioning and loss of heart mass, improves circulation and minimizes reduction of range of motion in spinal cord injured patients. It has also been demonstrated that there is improved management of spasticity and a decrease in infection-related illness.

FES applied in the specialized Stim-master program may play a significant role in reversing the multisystem deterioration associated with spinal cord injury. Benefits may include:

- Improved cardiovascular status
- Increased respiratory capacity
- Increased muscle bulk of the legs
- Increased bone density

- Increased circulation
- Improved skin integrity
- Decreased spasticity
- Increased strength in incomplete spinal cord injuries
- Improved self-image and self esteem
- Assist with stress management.

It is important to note that the benefits are maintained only through continued cycling on the Stim master unit. If training is discontinued, the benefits are not maintained. **Therefore, the STIM MASTER IS A LIFETIME COMMITMENT.**

There are currently a number of exercise systems available clinically, in the community and for home use. It is important to be aware that such machines are potentially dangerous if not used correctly. Additionally, not all people are candidates for an FES exercise program. Individuals interested in exercising with FES equipment should be evaluated by a physician specializing in SCI and should undergo an exercise program under the supervision of a clinician with expertise in the area of FES and paralysis.

Many clinical settings currently use FES exercise systems with what they consider to be positive results. For information about FES programs in your area, contact the FES Information Center at 18006662353. Also, one can contact Electrologic of America, Inc., 3035 Dryden Rd., Dayton, OH 45439, 1- 8007583460, <http://www.electrologic.com>, and [info@electrologic.com](mailto:info@electrologic.com).

## **FES STIM MASTER PROGRAMS IN CONNECTICUT**

*For up-to-date information please contact the National Spinal Cord Injury Association, CT Chapter; c/o Gaylord Hospital, Box 400, Wallingford, CT 06492; [www.sciact.org](http://www.sciact.org), [nsciact@gmail.com](mailto:nsciact@gmail.com) or call 203-284-2910.*

## **CLINICAL FES TRAINING PROGRAMS**

The SCIA CT Chapter sponsors a growing number of independent facilities in both clinical and community settings that allow individuals to use Functional Electrical Stimulation (FES) bikes. To be eligible, the individual must have been trained in the proper use of FES in a clinical environment, and must be able to utilize the apparatus independently (either by themselves or with their own assistant).

The following rehabilitation centers in CT currently have FES equipment on premise. The programs offered to in-patients and out-patients vary from location to location, but they represent a clinical environment where a potential SCI candidate can be evaluated and initially trained in the use of the FES equipment. Please contact them for specific details on the types of programs they offer.

- Gaylord Hospital - Wallingford, CT  
*Contact: Ingrid Marschner at 203-284-2876*
- Hospital for Special Care, New Britain, CT  
*Contact: Cathie Feeney at 860-827-4816*

### **COMMUNITY FES PROGRAMS**

The SCIA Connecticut Chapter now offers 4 locations for FES of its own, where those previously evaluated and trained in a clinical environment may utilize FES bikes independently. The equipment has been donated from both individuals and rehabilitation centers, and the CT Chapter maintains the bikes through fundraising, grants and donations.

- New Horizons Village, Farmington, CT  
*-Contact SCIA CT Chapter at (203)284-1045*
- UConn Medical Center, Storrs, CT  
*-Contact: Dr. Pouran Faghri or Randy Trumbower at 860-486-1773*
- Valley Shore YMCA, Westbrook, CT  
*-Contact SCIA CT Chapter at (203)284-1045*
- Brookfield YMCA, Brookfield, CT  
*-Contact SCIA CT Chapter at (203)284-1045*

**The following is a list of CRITERIA to initiate STIM-MASTER PROGEAM:**

- Cleared from a M.D.
- Medically stable/vitals stable
- Orthopedically stable/fractures sites stable
- No cervical or thoracic orthotics
- Motivated for activity
- Skin clear and intact
- Functional range of motion bilateral upper and lower

extremities

- Sound judgment and a functional cognitive status.

Any users of equipment in any of the above locations must be willing to assume complete risk of injury and liability; much as you would in a normal gym or health club. The CT Chapter stresses that these programs are intended for use by experienced FES riders who can provide their own assistance if needed, and who have been instructed in a clinical environment by qualified rehabilitation professionals in the safe and effective use of Functional Electrical Stimulation equipment.

## **ELECTROMYOGRAPHIC (EMG) BIOFEEDBACK**

Electromyographic (EMG) Biofeedback is a technique that utilizes a learning procedure known as operant conditioning. The EMG attempts to teach the brain to more efficiently use existing neural cells in the brain and spinal cord. The goal is to restore function to people with physical disabilities resulting from spinal cord injury, head trauma, stroke, cerebral palsy, and orthopedic injuries. In spinal cord injury, EMG is used in two areas. Computerized EMG biofeedback can be used to increase the voluntary motor signal to and from the brain and the injured part of the spinal cord to the muscles. In order to accomplish this task, motor signals from muscles below the level of the injury are identified and displayed on a video screen. A learning procedure incorporating this feedback is then applied to teach the brain to find and use existing neural tracks in the spinal cord. This technique has been found to significantly improve motor signals and control in incomplete spinal cord injuries. The other area of work in spinal cord injury is with establishing learned voluntary control of blood pressure in people suffering from postural hypotension. Changes in blood pressure and related physiological responses are measured and one learns utilizing the EMG to voluntarily control their blood pressure.

## **PHYSICAL FITNESS AND AQUATIC PROGRAMS**

It has always been recommended that persons with spinal cord injuries attempt to remain active and healthy. One of the ways to accomplish this goal is to perform a regular exercise program. You may go to an accessible fitness center and/or gym. Another option is to perform exercises in a pool or an aquatic

environment. Some people find that because of the buoyancy property of water that it is so much easier to move, walk, sit upright and exercise. There are two types of “pools.” One pool is considered a “fitness” pool; the temperature of the water can vary from 75 to 85 degrees. This is an excellent place to challenge the cardiovascular system by performing various exercises and/or swimming activities. The other type of pool is the “therapeutic” pool. The temperature of the water can vary from 89 to 93 degrees. You will need permission from a medical doctor to ensure that you are medically safe to perform exercises in the warmer temperatures. This is an excellent place to address a variety of issues, like complaints of pain, stiffness and weakness. Both pools may dramatically help one to move better and become more independent. Furthermore, at some facilities there are therapists trained in aquatic therapy that can help to establish an aquatic exercise program for you. Some of the available and accessible pools include:

- **Hospital for Special Care Aquatic and Fitness Community Center** 2150 Corbin Ave., New Britain, CT 06053—Contact Person: Dorothy Villiano.
- **Gaylord Hospital** PO Box 400 Gaylord Farm Road, Wallingford, CT 06492 2032842800.
- In addition, you may contact any and all of your **local YMCA’s**.

## HOW DO I CHOOSE?

## CONNECTICUT BASED SPINAL CORD INJURY AND REHABILITATION PROGRAMS

**Gaylord Specialty Health Care, Gaylord Spinal Cord Injury Program**  
PO Box 400, Gaylord Farm Road, Wallingford, CT 06492  
203 284-2800, 866 429-567 [www.gaylord.org](http://www.gaylord.org)

**Hospital for Special Care**  
2150 Corbin Ave., New Britain, CT 06053  
860 827-4841, 800 220-7723, [www.hfsc.org](http://www.hfsc.org)

**Lawrence and Memorial Hospital**  
365 Montauk Ave., New London, CT 06920  
860-442-0711  
[www.lmhospital.org](http://www.lmhospital.org)

**Mount Sinai Rehabilitation Hospital**  
490 Blue Hills Ave., Hartford, CT 06112  
860-714-3500  
[www.stfranciscare.org/Rehabilitation.aspx](http://www.stfranciscare.org/Rehabilitation.aspx)

## **SPINAL CORD INJURY AND REHABILITATION PROGRAMS ACCREDITED BY CARF**

**The Commission on Accreditation of Rehabilitation Facilities (CARF)** is a non-profit organization established to adopt standards within facilities throughout the nation. Accreditation by CARF is voluntary. Accredited Rehabilitation programs in Connecticut include: Gaylord Hospital, Inc. — Rehabilitation Division and The Hospital for Special Care.

## **MODEL SPINAL CORD INJURY CENTERS**

The National Institute on Disability, Independent Living and Rehabilitation Research (NIDILRR), one of ACL's newest divisions, funds the NIDILRR's [Spinal Cord Injury Model Systems \(SCIMS\) Program](#). The SCIMS program was established in 1970s, and conducts research on recovery and service delivery outcomes individuals with SCI.

To qualify for designation as a Model System and to receive funding from NIDILRR, rehabilitation programs must utilize and evaluate a prototype of SCI treatment based on providing continuity of care through the development of five areas within a system. Model Spinal Cord Injury Systems must have:

- **Emergency medical services**
- **Expertise in treating trauma**
- **A comprehensive rehabilitation program**
- **Vocational and psychological counseling services and**
- **Community reintegration services**

## **SPINAL CORD INJURY MODEL SYSTEMS (2016-2021)**

The following centers are funded for 5-years cycle (2016-2021) : University of Alabama – Birmingham, AL; Rancho Research Institute – Downey, CA; Craig Hospital – Englewood, CO; University of Miami – Miami, FL; Shepherd Center – Atlanta, GA; Rehabilitation Institute of Chicago – Chicago, IL; Spaulding Rehabilitation Hospital/New England Regional SCI – Boston, MA; Kessler Foundation – West Orange, NJ; Mount Sinai Hospital – NY, NY; Case Western Reserve – Cleveland, OH; Ohio State University – Columbus, OH; Thomas Jefferson University – Philadelphia, PA; University of Pittsburgh, Pittsburgh, PA; and lastly, Memorial Hermann – Houston, TX.

### **VETERANS ADMINISTRATION SPINAL CORD INJURY CENTERS:**

**The Veterans Administrations** provides a full range of medical and rehabilitation services to eligible veterans. For information or a full listing of regional VA Spinal Cord Injury Centers, call 1-800-424-8200.

### **SHRINERS SPINAL CORD INJURY PROGRAMS FOR CHILDREN**

The Shriners have a network of hospitals for children in the U.S. They provide inpatient medical, surgical and rehabilitative care to children and youths 18 years of age or younger. The outpatient clinic follow-up care is available to persons until the age of 21. Individuals accepted for treatment at Shriners Hospitals are not charged for services. Spinal Cord Injury Programs have been established at three Shriners Hospitals. For more information on the following locations visit their website at [www.shrinershq.org/Hospitals/Main/](http://www.shrinershq.org/Hospitals/Main/).

**Shriners Hospital – California**, 2425 Stockton Blvd., Sacramento, CA 95817, 916-453-2000

**Shriners Hospital – Chicago**, 2211 North Oak Park Ave., Chicago, IL 60707, 773-622-5400

**Shriners Hospital–Philadelphia**, 3551 N. Broad St., Philadelphia, PA 19140, 215-430-4000

## **ADDITIONAL RESOURCES**

- **AMERICAN SPINAL ASSOCIATION (ASIA)**

Physicians who are recognized experts in the treatment of persons with spinal cord injury are elected to membership in the American Spinal Injury association (ASIA). This organization has two main purposes: (1) continuing education programs and publication and (2) coordination of pertinent advances in medical care. If you are having difficulty identifying a physician in your geographic region who has expertise in the area of spinal cord injury, ASIA may be able to assist you.

- **AMERICAN SPINAL INJURY ASSOCIATION**

2020 Peachtree Road, NW

Atlanta, GA 30309

Phone: (404) 355-9772

Email Address: [ASIA\\_Office@shepherd.org](mailto:ASIA_Office@shepherd.org)

Website: [www.asia-spinalinjury.org](http://www.asia-spinalinjury.org)

- **NATIONAL SPINAL CORD INJURY ASSOCIATION**

**A program of United Spinal**

1 Church Street #600

Rockville, MD 20850

Phone: (800) 962-9629

Email: [info@spinalcord.org](mailto:info@spinalcord.org)

Website: [www.spinalcord.org](http://www.spinalcord.org)