SISTER KENNY® REHABILITATION INSTITUTE

Overview and Outcomes Report 2008

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Sister Kenny Rehabilitation Institute, the rehabilitation service line of Allina Hospitals & Clinics, provides compassionate and skilled medical rehabilitation to people across the Upper Midwest. Its founder, an Australian nurse named Sister Elizabeth Kenny*, developed novel treatments for paralytic polio that challenged prevailing medical paradigms and transformed methods of rehabilitation. Following the tradition of Elizabeth Kenny, the Institute today embraces the best in innovation to help people enjoy productive lives. This inaugural report highlights the breadth of Sister Kenny Rehabilitation Institute’s services, its approach to rehabilitation care and its exemplary outcomes.

Sister Kenny Rehabilitation Institute served more than 67,000 people in 2008. It provides care across the rehabilitation continuum, including:

- acute physical, occupational and speech therapy services
- comprehensive outpatient rehabilitation at five Allina hospitals
- acute comprehensive inpatient rehabilitation with 55 beds at Abbott Northwestern and United hospitals
- outpatient physical therapy through the Sister Kenny Sports & Physical Therapy Center, which has 15 locations in Minneapolis and St. Paul, Minn.

In addition, the physician practice group associated with the Institute, Sister Kenny Rehabilitation Associates, provides inpatient and outpatient physiatry care. Through partnerships with national and international research teams, the newly established Sister Kenny Research Center builds on Minnesota’s reputation for innovation in medical technology and research. The Sister Kenny Foundation provides robust philanthropic support to ensure the Institute’s efforts.

In this report, you will learn about the Institute’s strengths in spinal cord injury, stroke, brain injury and cancer rehabilitation. Its approach to patient-centered care and care navigation places the person served at the center of the rehabilitation process and allows the Institute to achieve exceptional outcomes and satisfaction rates. The Institute participates in a national outcomes database for medical rehabilitation, particularly focused on clinical outcomes for inpatient rehabilitation as measured by the Functional Independence Measure (FIM). One outcome that is particularly gratifying relates to the achievements and accomplishments that patients demonstrate through their community participation, as exhibited by activities like the Sister Kenny International Art Show by Artists with Disabilities, now in its 47th year.

The Commission on the Accreditation of Rehabilitation Facilities (CARF) has recognized Sister Kenny Rehabilitation Institute for an astonishing 13 areas of exemplary conformance, in areas such as stakeholder input, strategic planning, outcomes management, effective use of technology and secondary prevention. This recognition, awarded by peers in rehabilitation care, is an important accomplishment. With creativity, service, growth and quality as its watchwords, Sister Kenny Rehabilitation Institute looks forward to a bright future.

Karl J. Sandin, MD, MPH

*The title “Sister” is used in British countries to designate a head nurse.
Quality—Rigorous Standards, Excellent Results

Using integrated data to improve care

Sister Kenny Rehabilitation Institute ensures that patients receive the highest quality care by adhering to the principles of patient care set forth by the Institute of Medicine: safe, effective, patient-centered, timely, efficient and equitable. The quality structure at Sister Kenny Rehabilitation Institute includes Program Advisory Committees (PAC) to address these standards across the rehabilitation continuum. These committees, which include dedicated staff members and an expert program physiatrist, oversee quality for stroke, spinal cord, brain injury and outpatient programs.

The Institute’s commitment to quality improvement, safety and patient satisfaction has been recognized by CARF International. In 2008, Sister Kenny Rehabilitation Institute received CARF accreditation for its stroke specialty programs and inpatient rehabilitation programs for adolescents and adults at Abbott Northwestern Hospital in Minneapolis and United Hospital in St. Paul. Sister Kenny’s Spinal Cord System of Care for adolescents and adults at Abbott Northwestern also earned accreditation, making it the only CARF-accredited spinal cord care program provider in the Twin Cities area. CARF accreditation is considered the most respected rating system available for rehabilitation facilities.

The CARF surveyors mentioned quality as one of Sister Kenny Rehabilitation Institute’s strengths:

“Sister Kenny Rehabilitation Institute takes a comprehensive approach to data collection across a wide range of performance indicators. Input is gathered from multiple sources, and it is evident that information is used in planning, performance improvement and daily operations….Results of the process are shared with personnel and are utilized to make observable improvement in effectiveness, efficiency and safety of the program.”

One example of how the Institute has made use of information to enhance quality and safety is the Safe Transfer Every Person Succeeds (STEPS) program. The safe transfer of patients is a critical patient safety issue that requires specific skills as well as a good understanding of a patient’s abilities and preferences. In addition, as a major cause of injury on the job, patient transfer is a staff safety concern. Safe transfer remains an important issue for patients after discharge because it can promote independence.

In studying how to ensure safe patient transfers, team members at Sister Kenny Rehabilitation Institute found that transfer practices as well as the terminology used to describe transfers varied widely. That made it a challenge to teach patients, caregivers and staff to use the appropriate patient transfer methods in a consistent manner. The STEPS program was initiated and included producing an instructional DVD with funding from the Sister Kenny Foundation. The DVD is used to help educate team members, patients and other caregivers about safe transfers. It focuses on using consistent terminology and methods while emphasizing the need to allow the patient to initiate or direct each step of the transfer whenever possible. The DVD is widely available to patients, caregivers and staff throughout Sister Kenny Rehabilitation Institute.
Empowering Patients to Succeed

*Care navigation is all about patient-centered care*

Sister Kenny Rehabilitation Institute uses care navigation to create a seamless experience for patients and ensure that they receive patient-centered care—care that is respectful and responsive to individual preferences, needs and values.

Care navigation begins with an understanding of patient and family needs. It focuses on organizing services to meet those needs while overcoming barriers that may affect the patient’s success in meeting his or her goals.

Each patient has a nurse care navigator who communicates with the patient, family members, payers, referral sources and other members of the Institute’s team. Team members from Social Services and Access & Referral support dedicated nurse care navigators in the Care Navigation Department.

Care navigation begins before the patient arrives at the Institute, helping the patient and family make the transition from acute care to inpatient rehabilitation. Nurse care navigators provide patients with the information they need, alleviating anxiety and fear of the unknown. This helps patients better cope with their individual situations and challenges.

Nurse care navigators also are skilled in assessing the issues involved in each patient’s care and in recognizing the need for additional services. This could involve psychologists, dietitians, a hospital chaplain, respiratory or speech therapists, therapeutic recreational therapists or integrative medicine staff.

Care navigation continues after the patient is discharged. Many Sister Kenny Rehabilitation Institute patients have very complex discharge planning needs and may have a newly diagnosed disability. The Social Services staff coordinate the support services that patients need to make a successful transition to the home environment.

Once patients leave the inpatient rehabilitation setting, follow-up phone calls ensure that patients have the support and tools necessary to continue their treatment plan. Care navigation empowers patients, helping them to achieve the highest level of independence possible.

This same approach to patient-centered care is continued in outpatient rehabilitation and at the Sister Kenny Sports & Physical Therapy Center, a network of community-based physical therapy clinics located throughout the Twin Cities. Patients in the outpatient setting are asked to identify their goals for therapy. Therapists then work with the patient to establish an individualized treatment plan that will allow them to meet their goals, as well as meet functional goals directed at returning them to their previous level or maximizing their functional abilities. Patients learn to manage their symptoms and are given an individualized home exercise program.

A social worker and care navigator meet with a former patient and her husband to discuss ongoing needs and issues.
Sister Kenny Rehabilitation Institute in the Community

Education and Training—Enhancing Knowledge
Participation—Focusing on Abilities

The International Art Show by Artists with Disabilities is a 47-year tradition sponsored by Sister Kenny Rehabilitation Institute.
Education and Training—Enhancing Knowledge

*Offering the tools and support that lead to better outcomes*

Sister Kenny Rehabilitation Institute provides education to patients, clinicians and the community.

**PATIENT EDUCATION**

In addition to the one-on-one teaching that physicians, nurses and therapists provide to patients and their families throughout the rehabilitation process, Sister Kenny Rehabilitation Institute hosts a variety of educational programs that focus on the needs of people with various diagnoses.

**Before discharge:**
- Peer visitors (stroke survivors) share their experiences and provide support for patients recovering from stroke.
- Brain recovery groups provide support for inpatients with stroke or brain injury.
- Spinal cord injury education sessions are held for inpatients in the Spinal Cord System of Care.

**After discharge:**
- Kenny Grad School provides ongoing education for former inpatients and their family members.
- Support groups provide important interaction for people recovering from brain injury and stroke.

**CLINICIAN EDUCATION**

Sister Kenny Rehabilitation Institute provides a variety of learning opportunities for its clinicians.

Therapists are offered monthly inservice education on topics that promote the development of knowledge and skills.

Clinicians learn about research development through a course provided by the Sister Kenny Research Center.

Physicians from Sister Kenny Rehabilitation Associates participate in a monthly journal club to review scientific literature on the latest clinical studies related to rehabilitation.

The Institute hosts national experts who offer multi-day courses to therapists and nurses, including those that advance specialty certification in areas such as lymphedema treatment and rehabilitation nursing.

Team members at Sister Kenny Rehabilitation Institute meet or exceed professional educational standards, keep abreast of research trends and new treatments and achieve the highest levels of clinical competence. Many registered nurses and therapists have earned specialized rehabilitation certifications and all physicians are board certified in physical medicine and rehabilitation, some in multiple areas.

**COMMUNITY EDUCATION**

Clinical experts at Sister Kenny Rehabilitation Institute share their knowledge with the community and with other rehabilitation professionals. Physicians from Sister Kenny Rehabilitation Associates, for example, give presentations to survivors of stroke and cancer. Physicians, therapists and nurses also speak at local, national and international conferences and professional meetings (see presentations summary on page 37).
Participation—
Focusing on Abilities

Helping people lead active, productive lives in their communities

Helping patients live, excel and thrive in their own communities is the ultimate goal of each patient’s care plan.

There are three important components in any rehabilitation program: optimizing physical function, maximizing abilities of daily living and lessening disadvantages people may face in social situations. This means helping patients become stronger and more mobile, function as independently as possible and actively participate in their communities.

Whether a patient is dealing with a spinal cord injury, brain injury, stroke, work or sports-related injury, neurological or muscular disorder, speech-language disorder or chronic pain, a variety of programs are in place to help patients live satisfying and productive lives.

SISTER KENNY DRIVING FITNESS PROGRAM

For more than 25 years, the Sister Kenny Driving Fitness Program has helped patients safely retain their independence for as long as possible or determine if other modes of transportation are necessary. Individuals who have experienced a physical or cognitive deficit such as a stroke, as well as seniors who wonder if they should continue driving, are assessed by an occupational therapist with advanced training in driving assessment. An evaluation of the patient’s visual, physical and cognitive abilities provides the individual, and his or her family members, with a determination of fitness to operate a motor vehicle.

INTERNATIONAL ART SHOW BY ARTISTS WITH DISABILITIES

An important therapeutic goal for people with disabilities is to increase their participation in community events and activities. One example of how Sister Kenny Rehabilitation Institute helps to make this possible is its sponsorship of the annual International Art Show by Artists with Disabilities. Now entering its 47th year, the Art Show offers artists from around the globe an opportunity to express their creativity and sell their art.

KENNY GRAD SCHOOL

Through the Kenny Grad School, the Institute offers an educational forum for people and their family members who are learning to live with spinal cord injuries or strokes. Made possible through funding from the Sister Kenny Foundation, each session involves a presentation by a program expert followed by a group discussion. This leads to peer support and networking opportunities for participants.

SISTER KENNY GOLF PROGRAM FOR INDIVIDUALS WITH DISABILITIES

In its 30-year history, the Sister Kenny Golf Program for Individuals with Physical Disabilities has grown from six to more than 100 participants. Weekly play is complemented by individual lessons provided by volunteer Professional Golf Association instructors, as well as certified therapeutic recreational specialists. Lessons incorporate the use of golf equipment such as adaptive clubs or devices, as well as single rider golf cars. In addition to teaching the game’s mechanics, participants receive instruction on golf etiquette, including an appropriate pace of play. Furthermore, the Golf Program conducts outreach seminars to teach golf and health care professionals techniques for golfers with physical disabilities.

The program is supported by many volunteers with funding from the Sister Kenny Foundation.
Enhancing Care, Services and Research

Established in 1999, the Sister Kenny Foundation is focused on raising philanthropic funds to enhance care, services and research at Sister Kenny Rehabilitation Institute. The Foundation ultimately serves the patients of Sister Kenny Rehabilitation Institute by generating and granting funds to meet the needs of those who entrust their care to the Institute. The Foundation’s endowment funds are charitable capital that enable the Foundation to address the longer-term opportunities of the Institute.

Current funding priorities include:

- **The Sister Kenny Research Center (page 18).** Philanthropy supports the development of technology and therapies that can enhance rehabilitation outcomes and help prevent injuries that lead to disabilities.

- **The Cancer Rehabilitation and Lymphedema Program (page 34).** Few health care providers offer this specialized service even though the need for cancer rehabilitation services has increased with improved cancer survival rates. Philanthropy has strengthened the program by providing certified lymphedema training for physical therapists, purchasing specialized equipment, financing the construction of three lymphedema treatment rooms, and underwriting program expenses that are not covered by third-party payers.

The Sister Kenny Foundation helps meet the Institute’s strategic priorities by working with donors to achieve their philanthropic goals, while responsibly providing stewardship of the assets of the foundation. At the same time, the Foundation strives to build awareness about the impact that philanthropy serves in meeting the rehabilitative needs of those within the community.

Throughout its rich history, the Sister Kenny Rehabilitation Institute has benefited from the active involvement of volunteers. The tradition of volunteerism continues within the Institute and blends into the work of the Foundation. The Sister Kenny Foundation is strengthened by a voluntary board of directors and a corps of community volunteers who ensure its philanthropic mission.

**IN APPRECIATION**

Sincere thanks goes to the Abbott Northwestern Hospital Foundation for its support of this Sister Kenny Rehabilitation Institute Overview and Outcomes Report.
Foundation of Excellent Care

Inpatient Acute Care
Inpatient Rehabilitation
Physician Practice—Sister Kenny Rehabilitation Associates
Outpatient Care
A Foundation of Excellent Care

For more than 65 years, Sister Kenny Rehabilitation Institute has provided excellent rehabilitation care to people who have experienced injury, pain or disease.

The Institute has a history of innovation and continues to build on a foundation of excellence by:
- hiring and retaining professionals who are leaders in their field
- using evidence-based treatment protocols
- conforming to the highest standards in the industry, as evidenced by CARF accreditation
- engaging in research and education through the Sister Kenny Research Center
- achieving high levels of patient satisfaction as measured by the high percentage (97 percent) of patients who would recommend the Institute’s services to others.

Inpatient Acute Care

Rehabilitation services are provided at Abbott Northwestern, Buffalo, Cambridge, Mercy, United and Unity hospitals, where occupational therapists, physical therapists and speech language pathologists play an important role in serving acute care patients by providing inpatient therapies.

Therapists respond to requests for consultation/treatment from all physicians. Therapists are available seven days a week, working collaboratively with physicians, nurse practitioners, nurses and discharge planners to create a plan of care to optimize patients’ functional improvements. Coordination of services, patient instruction and discipline-specific direct interventions are used to produce improvements in the patient’s condition.

In 2008, the Sister Kenny Rehabilitation Institute acute care therapy teams provided more than 120,000 treatment sessions for patients in six Allina hospitals.

Therapists are available seven days a week, working collaboratively with physicians, nurse practitioners, nurses and discharge planners to create a plan of care to optimize patients’ functional improvements.
Acute Comprehensive Inpatient Rehabilitation— Leaders in the Field

The physicians and staff of Sister Kenny Rehabilitation Institute care for more inpatients than any other acute comprehensive inpatient rehabilitation service in Minnesota.

The rehabilitation units are located at Abbott Northwestern Hospital in Minneapolis and United Hospital in St. Paul.

Sister Kenny Rehabilitation Institute patients receive rehabilitation therapy, counseling, education, 24-hour rehabilitation nursing care and a daily visit by a physician specializing in physical medicine and rehabilitation.

Admission Process

Upon receiving a referral, a physician from Sister Kenny Rehabilitation Associates assesses each patient’s condition and needs to determine his or her eligibility for admission to one of the inpatient rehabilitation units.

THE REHABILITATION EXPERIENCE

The rehabilitation team includes a variety of skilled medical professionals: physicians, rehabilitation nurses, physical therapists, occupational therapists, speech language pathologists, social workers, psychologists, nurse care navigators and therapeutic recreation specialists. The teams meet daily and work together to develop a rehabilitation plan for patients and their families. The approach is patient-centered and incorporates the latest technology and therapies.

Features of the Inpatient Rehabilitation Units

Sister Kenny Rehabilitation Institute’s inpatient units provide comfortable surroundings for the patient and family with state-of-the-art therapeutic care in an environment where people practice daily living skills.

Abbott Northwestern Hospital

• Patient care and therapy areas are located on one level for ease of use and accessibility.

• Independence Square and Kenny Square are realistic environments in which people learn and practice daily living skills. Kenny Square includes a living room, bedroom, kitchen, bathroom and computer station, as well as a piano, putting green and basketball hoop. Independence Square has a grocery store, an automobile and an elevated porch. Indoor walkways provide a variety of pavement surfaces, ramps, curb cuts and sidewalks.
• A wheelchair-accessible kitchen features high- and low-tech solutions for adaptive cooking.

• Aquatic therapy is available in the Wasie Therapeutic Swimming Pool.

• A garden for horticultural therapy promotes awareness and the healing benefits associated with exposure to plants and the natural environment.

• The Kenny Education Center provides a quiet, comfortable setting for individual and group education.

United Hospital

• A comfortable inpatient setting offers patient rooms arranged for easy observation by nursing team members.

• Patients who need therapy after leaving the hospital work with the same therapist who treated them initially, ensuring continuity of care.

• A wheelchair-accessible kitchen features high- and low-tech solutions to common problems.

• The Lipschultz Center guest apartments offer convenient, low-cost accommodations for family members and friends.

• Support groups are available for caregivers as well as for people who have difficulty communicating.

• The conveniently located studio provides a comfortable setting for individual and small group education and relaxation. The studio has a computer with Internet access to educational rehabilitation links, a video and DVD player, educational brochures and books, and recreational materials, such as games, puzzles and books.

RETURNING HOME

The Sister Kenny Rehabilitation Institute team works with the patient and family to develop a plan to continue rehabilitation and coordinate services at home. Comprehensive Outpatient Rehabilitation (CORe) services at five Allina hospitals allow individuals to continue to work toward rehabilitation goals established during hospitalization.

COMMUNITY OUTINGS

Community integration outings are offered to individuals and their family members before they leave the hospital to address safety and mobility in a community setting. A state-of-the-art accessible van, generously purchased by the Sister Kenny Foundation, makes these outings possible.

Nationally Recognized for Inpatient Rehabilitation Care

The inpatient rehabilitation units at Abbott Northwestern and United hospitals have earned accreditation from the Commission on the Accreditation of Rehabilitation Facilities (CARF). This means they have met the highest industry standards for quality care and service.

A garden for horticultural therapy promotes awareness and the healing benefits associated with exposure to plants and the natural environment.
Effective Rehabilitation—Exceptional Patient Outcomes

As the leading provider of comprehensive and effective rehabilitation care in the Upper Midwest, Sister Kenny Rehabilitation Institute demonstrates measurable improvements in outcomes such as functional independence in people who have received care in its programs.

The Institute measures patient satisfaction, level of community participation as patients rejoin their communities, and maintenance and improvement of functional activities.
The FIM score is used to measure a patient’s independent performance in 18 tasks related to self-care, transfers, locomotion, communication and social cognition. Each task is scored on a scale of one to seven, with seven indicating “complete independence” and one indicating “total assist.” By adding points for each item, the total lowest possible score is 18; the highest is 126.
Sister Kenny Rehabilitation Associates (SKRA)

Sister Kenny Rehabilitation Associates, the physician practice group of Sister Kenny Rehabilitation Institute, is the largest physiatry practice in the Twin Cities and has a long record of service in the Upper Midwest. All physicians are board certified in physical medicine and rehabilitation; some have additional board certifications in areas such as spinal cord injury medicine and pediatrics.

Physiatrists prevent, diagnose and treat medical conditions that may produce temporary or permanent impairment and disability, particularly those conditions relating to nerves, muscles and bones. SKRA physicians are leaders in their constituent hospitals and participate in organized systems of stroke care and patient safety endeavors. They also are industry leaders, involved in national efforts in rehabilitation quality and best practices for spasticity management, lymphedema and cancer rehabilitation care.

SKRA physiatrists and rehabilitation nurse practitioners treat a range of conditions and injuries, from neuromuscular disease to sports injuries. They provide inpatient and outpatient care at Abbott Northwestern and United hospitals and at community-based sites located throughout the Minneapolis/St. Paul metropolitan area. Regardless of the condition they treat or the location of service, SKRA providers:
- restore maximum performance
- treat the whole person, not just the problem area
- lead a team of medical professionals
- provide non-surgical treatments
- enhance quality of life.

Comprehensive swallowing rehabilitation can help patients deal with issues that result from surgery, reconstruction, radiation and chemotherapy.

Sister Kenny Rehabilitation Associates Patient Survey

How would you rate the overall quality of care and services?

<table>
<thead>
<tr>
<th>Percentage of Responses</th>
<th>Excellent</th>
<th>Very Good</th>
<th>Good</th>
<th>Fair</th>
<th>Poor</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>60%</td>
<td>40%</td>
<td>30%</td>
<td>20%</td>
<td>10%</td>
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</table>

Would you recommend this clinic to your family and friends?

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<tr>
<th>Percentage of Responses</th>
<th>Definitely Yes</th>
<th>Probably Yes</th>
<th>Probably No</th>
<th>Definitely No</th>
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<tr>
<td></td>
<td>80%</td>
<td>60%</td>
<td>40%</td>
<td>20%</td>
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Each year, physicians refer more than 4,000 patients to Sister Kenny Rehabilitation Institute’s Comprehensive Outpatient Rehabilitation (CORE) program at Abbott Northwestern, Buffalo, Cambridge, Mercy, United and Unity hospitals.

Outpatient Care

The Sister Kenny Rehabilitation Institute offers a full spectrum of outpatient rehabilitation services. Teams of clinical experts manage patients with complex neurologic dysfunction, orthopaedic conditions and athletic injuries. Evidence-based treatments are designed to enhance the function and independence of every patient served.

Comprehensive services include:

- patient evaluation
- treatment planning
- interventions (physical measures, therapeutic exercise, rehabilitation procedures)
- education (patient, family and community education including injury prevention and wellness)
- discharge planning.

COMPREHENSIVE OUTPATIENT REHABILITATION

Each year, physicians refer more than 4,000 patients to Sister Kenny Rehabilitation Institute’s Comprehensive Outpatient Rehabilitation (CORE) program at Abbott Northwestern, Buffalo, Cambridge, Mercy, United and Unity hospitals. CORE addresses physical and cognitive skills. A CORE treatment team includes multiple therapies, ensuring that patients receive an integrated and individualized treatment plan that is continuously monitored and updated across all disciplines.

The need for outpatient therapy after stroke and spinal cord injury continues to grow with changing demographics, advanced technologies and more knowledge about how the brain recovers from trauma. Patients often need the expertise of multiple therapies to maximize independence. They may work with physical therapists, who focus on mobility, strength, coordination and balance; occupational therapists, who enhance functional skills such as bathing, dressing, activities of daily living and cognition; and speech language pathologists, who help patients improve communication skills, eating and swallowing safety, and cognitive retraining.

Additionally, the Sister Kenny Rehabilitation Institute outpatient therapy teams offer specialty programs such as:

- the Brain Injury Clinic
- fitness for driving assessments
- programs using advanced technologies, such as robotics, Lokomat® and Nintendo® Wii™.
Overview

Sister Kenny Sports & Physical Therapy Center offers physical and occupational therapy at 15 community-based sites located throughout the Minneapolis and St. Paul area. It serves individuals who require physical therapy, hand therapy or work injury services. Common diagnoses include:

- back and neck pain
- hip, knee, ankle, shoulder, elbow or wrist injury
- cumulative trauma
- post-surgical orthopaedic problems
- musculoskeletal conditions.

Locations

- Coon Rapids
- Cottage Grove
- Eagan
- Edina
- Elk River
- Forest Lake
- Fridley
- Minneapolis (Abbott Northwestern Hospital)
- Plymouth
- Richfield
- Shoreview
- St. Paul (Bandana Square)
- St. Paul (Fort Road Medical Center)
- White Bear Lake
- Woodbury

Specialty Programs and Services

The following specialty services are offered at many of the locations:

- aquatic therapy
- functional capacity evaluation
- hand therapy
- lymphedema therapy
- pediatric rehabilitation
- RunSMART
- Spine Center
- sports/orthopaedic physical therapy
- vestibular therapy
- video analysis
- women’s incontinence and pelvic pain treatment
- work conditioning/work hardening services.

Therapists

Services at Sister Kenny Sports & Physical Therapy Center are provided by qualified physical and occupational therapists, many with specialist certifications in areas that include orthopaedics, sports, lymphedema, McKenzie Method and hand therapy.
Evidence-Based Best Practice Guidelines

Sister Kenny Rehabilitation Institute therapists have developed evidence-based best practice guidelines for common diagnostic conditions. The purpose of these guidelines is to ensure quality, consistency of care and consistent outcomes across the sites. Guidelines have been developed for the following conditions:

- cervical spine and surrounding area pain
- lumbar pain
- shoulder impingement
- lateral epicondylitis
- carpal tunnel syndrome
- patellofemoral pain
- post-op lumbar surgery
- post-op cervical surgery
- sacroiliac joint pain
- hip pain/bursitis
- plantar fasciitis
- fibromyalgia
- temporomandibular joint (TMJ) pain.

Patient Satisfaction

In the most recent patient satisfaction survey, 93 percent of the respondents rated their overall satisfaction with their care as good or excellent.

SISTER KENNY SPINE CENTER

Sister Kenny Spine Center offers a personalized, physician-directed approach to spine problems along with easy access to a comprehensive array of quality, non-surgical services at each of its three locations. Sister Kenny Spine Center serves patients with:

- acute (severe, short-term) low back or neck pain
- chronic (long-lasting, persistent) low back or neck pain
- recurrent symptoms with periodic flare-ups of low back or neck pain
- neck or low back pain associated with numbness or tingling in the arms or legs
- pain that has not been helped with standard pain treatments.

Treatment

Following a comprehensive assessment by a Spine Center physician, treatment may include:

- spine physical therapy to build strength and flexibility
- intensive spine strengthening using MedX equipment
- injection therapies and complementary therapies to help manage pain
- personalized education to teach patients how to achieve and maintain a healthy neck and back.

Locations

- Coon Rapids
- Edina
- Woodbury

Sister Kenny Spine Center offers specialized treatment for spine and neck problems, including intensive spine strengthening exercises using MedX equipment.
Fueling Innovation Through Research

The Sister Kenny Research Center was established in 2007 and was made possible through a successful $2.8 million capital campaign. In 2008, the Center marked the opening of its new space, more than 5,000 square feet on the second floor of Sister Kenny Rehabilitation Institute on the Abbott Northwestern Hospital campus.

The Research Center serves as a learning laboratory for innovations in rehabilitative care and treatment. Its goal is to develop effective therapies that decrease health care costs and shorten lengths of stay while helping patients improve function, increase activity and enhance participation in the community.

The Center also is committed to improving rehabilitation care through the education of professionals within the organization and throughout the community:

• Sister Kenny Rehabilitation Institute clinicians serve as adjunct instructors for area university programs, allowing the Institute to host students for internships and onsite coursework.
• Nearly 40 clinicians contribute to the work of the Research Center as research faculty.

In addition, the Research Center works with organizations and researchers around the world. Partners include:

• Ben-Gurion University, Israel
• Department of Defense
• Johnson Space Center
• Karolinska Institute, Sweden
• Massachusetts Eye & Ear Infirmary
• Massachusetts Institute of Technology
• Product Innovation Engineering Program (PIEp)
• Proponency for Rehabilitation and Reintegration (Office of the Surgeon General)
• The Royal Institute of Technology, Sweden
• University of Michigan
• University of Minnesota.
Researchers pursue topics that complement the clinical expertise of Sister Kenny Rehabilitation Institute staff and that address important clinical needs in rehabilitation care. For example, a current study is examining patient adherence to rehabilitation recommendations, a topic that is not well understood by clinicians and researchers.

Another study is focused on the rehabilitation needs of soldiers with mild traumatic brain injuries. The Office of the Surgeon General requested that Mary Radomski, PhD, OTR/L, clinical researcher, Sister Kenny Research Center, lead a multi-center team to develop occupational and physical therapy recommendations for soldiers returning from the wars in Iraq and Afghanistan.

ADVANCED REHABILITATION TECHNOLOGY

The role of advanced rehabilitation technology in rehabilitation is also an important research area. Sister Kenny Rehabilitation Institute has united the most current computer-based technologies with the clinical rehabilitation expertise of its therapists to offer patients a new generation of therapies. These new technologies help researchers and clinicians gain a clearer understanding of the plasticity of the nervous system and its restorative potential.

The Institute’s advanced technologies include:

- Biorehab: biofeedback system to improve muscle strength using a computer
- Driving simulator: computer screens used to evaluate cognitive, visual and motor skills
- Hand Mentor™ Robot: helps restore range of motion and strengthen muscles of the wrist and fingers
- InMotion2 Robotic Arm: helps patients regain upper limb movement using a robotic device
- Interactive Rehabilitation Exercise (IREX®) computer system that helps patients interact with a virtual environment to improve balance, strength and endurance
- Lokomat robotic-assisted treadmill that supports a patient in an upright position while moving the legs through a normal pattern to improve walking
- Wii-rehabilitation: improves patient’s strength, range of motion, dexterity and balance using the Nintendo Wii game system

The Hand Mentor Robot offers a way to provide intensive rehabilitation for patients recovering from brain injury or stroke. It helps restore range of motion and strengthen hand and wrist muscles.
## RECENT RESEARCH

Research now underway at Sister Kenny Rehabilitation Institute is summarized below. This listing underscores the Institute’s long-term investment in rehabilitation research, the link between research and patient care, and the growth in research activities since launching the Research Center in 2007.

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<th>Research Topic</th>
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<tr>
<td><strong>TECHNOLOGY-ENHANCED STROKE REHABILITATION</strong></td>
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<tr>
<td>• Driving Simulation for Persons with Impaired Cognition</td>
<td>National Institutes of Health</td>
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<td>• Forced-Use Movement Therapy for Individuals with Lower Extremity Paresis</td>
<td>Sister Kenny Foundation</td>
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<td>• Upper Extremity Robotic Neurorehabilitation</td>
<td>Sister Kenny Foundation</td>
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<td>• Virtual Reality Assessment of Visual Deficits</td>
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<td>• Web-Based Adherence for Reinforcement of Self-Care Training</td>
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<td><strong>BRAIN INJURY</strong></td>
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<td>• Reliability and Validity of a Brain Injury Symptom Rating Scale</td>
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<td>• Evaluation of Cognitive Exercises and Technologies by Potential Users</td>
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<td>• Measuring Response to Occupational Therapies at the Brain Injury Clinic: The Quality of Activities (QAS)/Frequency of Activity (FAS) Scales</td>
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<td><strong>SPINAL CORD INJURY</strong></td>
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<td>• Understanding Spasticity from Patients’ Perspectives</td>
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<td>• Wellness and Weight Management Program for Individuals with Spinal Cord Injury</td>
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<td>• United States Multi-Center Study to Assess the Validity and Reliability of the Spinal Cord Independence Measure (SCIM III)</td>
<td>Neilsen Foundation</td>
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<td><strong>THE REHABILITATION PROCESS</strong></td>
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<td>• Scheduling Prioritization Checklist for Acute Care Rehabilitation</td>
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<td>• Safe Transfers Every Person Succeeds (STEPS)</td>
<td>Sister Kenny Foundation</td>
</tr>
</tbody>
</table>
Programs and Services
Spinal Cord System of Care
Stroke Rehabilitation Program
Brain Injury Services
Cancer Rehabilitation and Lymphedema Program
Kenny Kids
New and Developing Programs
Programs and Services

Sister Kenny Rehabilitation Institute’s programs are designed around the needs of the people it serves, including patients, family members and caregivers. All programs emphasize the effective use of care coordination, outcome assessment and innovation.

Rehabilitation teams commonly include:
- advanced technology practitioners
- care navigators
- chemical dependency counselors
- dietitians
- integrative medicine specialists
- nutritionists
- occupational therapists
- orthotists
- pastoral care
- physiatrists
- physical therapists
- psychologists
- rehabilitation nurses
- respiratory therapists
- speech language pathologists
- social workers
- therapeutic recreation specialists
- wheelchair seating specialists.

Spinal Cord System of Care

OVERVIEW

The Spinal Cord System of Care at Sister Kenny Rehabilitation Institute at Abbott Northwestern Hospital provides lifelong care to individuals with a traumatic or non-traumatic spinal cord injury. The interdisciplinary team works with patients and their families to develop a unique plan of care to enable individuals to improve performance, gain ability and restore health. The program treats more than 300 individuals per year and is led by Karl J. Sandin, MD, MPH, and Jennifer L. Theis, MS, OTR/L.

NATIONALLY RECOGNIZED FOR SPINAL CORD CARE

The Spinal Cord System of Care is the only spinal cord care program in the Twin Cities area accredited by the Commission on the Accreditation of Rehabilitation Facilities (CARF), whose accreditation indicates conformance with globally recognized standards. CARF has continuously accredited the program since 1984.

PROGRAM FEATURES:

The Spinal Cord System of Care provides care across the rehabilitation continuum, including care to people living at home or in other community settings.
- A comprehensive educational program helps inpatients and their families prepare for the emotional, social and physical challenges they may face after leaving the hospital.
- People with spinal cord injury have access to a wheelchair seating clinic that uses state-of-the-art pressure mapping with computer technology to determine accurate pressure analysis for wheelchair seats, backrests or mattresses.
- The Institute’s transitional apartment provides an environment in which patients, family members and caregivers can practice acquired skills before leaving the hospital.
- Therapeutic outings, community evaluations and peer support from individuals with spinal cord injury allow patients to understand the practical ramifications of spinal cord injury.
- A state-of-the-art technology suite on the inpatient unit contains high- and low-technology options with a

Functional electronic cycling is one of the therapies available for patients with a spinal cord injury.
home-like feel, including options for voice-activated controls for computer, DVD, light, telephone and television.

- Advanced rehabilitation equipment is used to optimize improvement in motion skills. This includes partial weight-bearing treadmill training with Lokomat and LiteGait®.
- Patients have access to specialized services, including a Functional Electrical Stimulation (FES) bicycling program and aquatic programs.
- The program screens and trains patients for driving.

**INPATIENT, OUTPATIENT AND COMMUNITY SERVICES**

Newly-injured individuals typically access the Spinal Cord System of Care as inpatients and are admitted to Sister Kenny Rehabilitation Institute at its Abbott Northwestern Hospital campus. Outpatient services focus on lifelong follow-up and health, taking into account each individual’s changing needs. Follow-up and aftercare are provided through the Sister Kenny Rehabilitation Associates’ Spinal Cord Injury Follow-up Clinic (SCIF) and Comprehensive Outpatient Rehabilitation (CORe). Kenny Grad School provides education and support to people in the community with spinal cord dysfunction, their families, friends and health care providers. Topics have included personal care attendants, accessible home design, aging, sexuality, weight management and outdoor adventures.

**RESEARCH RELATED TO SPINAL CORD INJURY**

The Spinal Cord System of Care team members offer the most current treatment options and actively participate in spinal cord injury care research:

<table>
<thead>
<tr>
<th>Research Topic</th>
<th>Funder</th>
<th>Principal Investigator</th>
<th>Research Partners</th>
</tr>
</thead>
<tbody>
<tr>
<td>Understanding Spasticity from Patients’ Perspectives</td>
<td>Sister Kenny Foundation (2007 – present)</td>
<td>Rozina Bhimani, MSN, RN, PhD</td>
<td>University of Minnesota, School of Nursing</td>
</tr>
<tr>
<td>Wellness and Weight Management Program for Individuals with Spinal Cord Injury</td>
<td>Sister Kenny Foundation (2007 – present)</td>
<td>Mary Radomski, PhD, OTR/L</td>
<td>Patty DeClercq, MS; Gail Ericson, MPT; Jeannie Paris, RD; Marilyn Thompson, MD; Tiffany Trelstad, MPT</td>
</tr>
<tr>
<td>United States Multi-Center Study to Assess the Validity and Reliability of the Spinal Cord Independence Measure (SCIM III)</td>
<td>Neilsen Foundation (2008 – present)</td>
<td>Kim Anderson, PhD (University of California, Irvine)</td>
<td>University of Pittsburgh Medical Center, University of Texas Southwestern Medical Center, Rancho Los Amigos National Rehabilitation Center, Howard A. Rusk Rehabilitation Center, James A. Haley VA Medical Center, VA Long Beach Healthcare System, Cardinal Hill Rehabilitation Hospital, Mayo Clinic, Frazier Rehabilitation Institute, Rehabilitation Institute of Chicago, Carolinas Rehabilitation, Kessler Institute for Rehabilitation, National Rehabilitation Hospital, MetroHealth Rehabilitation Institute of Ohio, Touro Rehabilitation Center, Mount Sinai School of Medicine, Froedtert &amp; Medical College of Wisconsin, Thomas Jefferson University/Magee Rehabilitation, The Institute for Rehabilitation and Research, Baptist Health Rehabilitation Institute.</td>
</tr>
</tbody>
</table>
Number of Inpatients Served

<table>
<thead>
<tr>
<th>Year</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inpatients</td>
<td>120</td>
<td>150</td>
<td>180</td>
</tr>
</tbody>
</table>

Average Length of Stay

<table>
<thead>
<tr>
<th>Year</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
</tr>
</thead>
<tbody>
<tr>
<td>Days</td>
<td>15</td>
<td>20</td>
<td>25</td>
</tr>
</tbody>
</table>

Discharges to Home or Assisted Living Facility

<table>
<thead>
<tr>
<th>Year</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
</tr>
</thead>
<tbody>
<tr>
<td>Percentage</td>
<td>40%</td>
<td>60%</td>
<td>80%</td>
</tr>
</tbody>
</table>
Spinal Cord System of Care
VOLUMES, QUALITY AND OUTCOMES

Comparison of Functional Improvement Measure (FIM) Score at Admission and Discharge

The FIM score is used to measure a patient's independent performance in 18 tasks related to self-care, transfers, locomotion, communication and social cognition. Each task is scored on a scale of one to seven, with seven indicating "complete independence" and one indicating "total assist." By adding points for each item, the total lowest possible score is 18; the highest is 126.

Patient Satisfaction Survey
How would you rate the overall quality of care and services?
Stroke Rehabilitation Program

Stroke is one of the leading causes of disability in the United States. Sister Kenny Rehabilitation Institute makes lives work for those who have survived a stroke.

Overview

Sister Kenny Rehabilitation Institute provides a comprehensive and integrated team approach to treat people who require rehabilitation after a stroke. The program treats more than 300 inpatients per year at Abbott Northwestern and United hospitals. The program is led by Diane Chappuis, MD, a board-certified physical medicine and rehabilitation physician, and Sue Newman, OTR/L. Stroke survivors receive specialized outpatient stroke care through the Institute’s Comprehensive Outpatient Rehabilitation (CORe; see page 15) and Sister Kenny Rehabilitation Associates.

Nationally Recognized for Stroke Care

The Institute recently received a distinguished three-year accreditation by the Commission on the Accreditation of Rehabilitation Facilities (CARF) as a Stroke Rehabilitation Program.

Treatment Approach

The program’s strong partnership with the neurological and neurosurgical teams at Abbott Northwestern’s Neuroscience Institute and the Nasseff Neuroscience Center at United Hospital ensures early and coordinated care for stroke survivors.

Research has shown that patients have better outcomes if rehabilitation efforts are started as soon as possible after an acute stroke. Early rehabilitation enhances the process of central nervous system remodeling, also known as neurologic plasticity.

Acute stroke rehabilitation management is led by the physical medicine and rehabilitation physician. It includes special attention to preventing contractures, deep venous thromboses and disuse syndromes, as well as patient/family education on the expected rehabilitation course. The Institute’s holistic approach to stroke care addresses physical problems as well as psychological, vocational, spiritual and recreational needs.

Unique Program Features

The Stroke Rehabilitation Program offers a broad continuum of state-of-the-art care and innovative treatment, including services that are not available in many other rehabilitation settings. Highlights of the Stroke Rehabilitation Program include:

- **Biorehab** – a biofeedback system that helps patients who have problems with coordination and strength
- **Constraint Induced Movement Therapy**—an intensive outpatient treatment program that requires a patient to use an affected limb in therapeutic tasks
- **Nintendo Wii**—an interactive motion-based system that helps to engage patients in a variety of leisure games while working on their exercise goals
- **Partial Weight-Bearing Gait Program**—a supported walking program that helps patients who have difficulty walking
• robotic-aided therapy—used for intensive rehabilitation in patients who have limited strength or movement in their arms
• language training for chronic aphasia—computer-based training programs designed to improve language skills.

COMMUNITY INTEGRATION

The Institute's strong care navigation process helps patients and their families successfully navigate the complex system of post-stroke medical care. All stroke survivors are offered brain recovery education as well as a stroke peer visitor.

The Institute's community reintegration programs for stroke survivors include:
• stroke support groups that meet monthly to provide education and peer support opportunities for survivors and care partners
• Kenny Grad School sessions that offer information on the physical and emotional impact of stroke, the rehabilitation process and the importance of a present life focus
• community conversation groups for people with aphasia, offered in collaboration with the Minnesota Stroke Association

• support of and participation in the Minnesota Stroke Association’s annual “Strike Out Stroke Day” at the Hubert H. Humphrey Metrodome and “Strides for Stroke.”

RESEARCH RELATED TO STROKE REHABILITATION

In partnership with the Sister Kenny Research Center, the Institute’s practitioners engage in clinically relevant research in stroke care. This atmosphere of innovation benefits the patients and also helps attract the most qualified and invested therapists and physicians to the Sister Kenny Rehabilitation Institute stroke team. Recent and current projects include:

<table>
<thead>
<tr>
<th>Research Topic</th>
<th>Funder</th>
<th>Principal Investigator</th>
<th>Research Partners</th>
</tr>
</thead>
<tbody>
<tr>
<td>Driving Simulation for Persons with Impaired Cognition</td>
<td>National Institutes of Health</td>
<td>Will Durfee, PhD, University of Minnesota</td>
<td>University of Minnesota, Systems Technology Inc. (Hawthorne, Calif.), Courage Center (Golden Valley, Minn.), National Rehabilitation Hospital (Washington, D.C.)</td>
</tr>
<tr>
<td>Forced Use Movement Therapy for Individuals with Lower Extremity Paresis</td>
<td>Sister Kenny Foundation</td>
<td>Investigators: Trevor Carlson, PT; Brian LeLoup, PT; Laurie Cahn, PT</td>
<td></td>
</tr>
<tr>
<td>Upper Extremity Robotic Neurorehabilitation</td>
<td>Sister Kenny Foundation</td>
<td>Matthew White, OTR/L</td>
<td>Nancy Flinn, PhD, OTR/L</td>
</tr>
<tr>
<td>Virtual Reality Assessment of Visual Deficits</td>
<td>Sister Kenny Foundation</td>
<td>Sharon Gowdy Wagener, MA, OTR/L Co-investigator: Matthew White, OTR/L</td>
<td>Dean Inman, PhD, Oregon Research Institute</td>
</tr>
<tr>
<td>Web-based Adherence for Reinforcement of Self-Care Training</td>
<td>Sister Kenny Foundation</td>
<td>Mary Vining Radomski, PhD, OTR/L</td>
<td>Matthew White, OTR/L, University of Minnesota, Caisson Medical</td>
</tr>
</tbody>
</table>
Stroke Rehabilitation Program
VOLUMES, QUALITY AND OUTCOMES

Number of Inpatients Served

<table>
<thead>
<tr>
<th>Year</th>
<th>Number of Inpatients</th>
</tr>
</thead>
<tbody>
<tr>
<td>2006</td>
<td>350</td>
</tr>
<tr>
<td>2007</td>
<td>300</td>
</tr>
<tr>
<td>2008</td>
<td>250</td>
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</table>

Average Length of Stay

<table>
<thead>
<tr>
<th>Year</th>
<th>Average Length of Stay</th>
</tr>
</thead>
<tbody>
<tr>
<td>2006</td>
<td>12</td>
</tr>
<tr>
<td>2007</td>
<td>10</td>
</tr>
<tr>
<td>2008</td>
<td>8</td>
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</table>

Discharges to Home or Assisted Living Facility

<table>
<thead>
<tr>
<th>Year</th>
<th>Percentage of Patients</th>
</tr>
</thead>
<tbody>
<tr>
<td>2006</td>
<td>80%</td>
</tr>
<tr>
<td>2007</td>
<td>80%</td>
</tr>
<tr>
<td>2008</td>
<td>80%</td>
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</tbody>
</table>
The FIM score is used to measure a patient’s independent performance in 18 tasks related to self-care, transfers, locomotion, communication and social cognition. Each task is scored on a scale of one to seven, with seven indicating “complete independence” and one indicating “total assist.” By adding points for each item, the total lowest possible score is 18; the highest is 126.
Brain Injury Services

OVERVIEW

Brain Injury Services provide comprehensive, interdisciplinary care to individuals with traumatic and non-traumatic brain injuries, including arterial venous malformation, brain tumor, anoxia and encephalopathy. The services help people with brain injuries easily transition through each stage of their rehabilitation:

- state-of-the-art care from Abbott Northwestern’s Neuroscience Institute and the Nasseff Neuroscience Center at United Hospital
- inpatient rehabilitation at Sister Kenny Rehabilitation Institute
- outpatient therapies through the Sister Kenny Brain Injury Clinic and Comprehensive Outpatient Rehabilitation (CORe).

Highly-skilled team members ensure that patient care is delivered with the highest degree of competence and compassion. The team works to meet the individual goals of each patient and to optimize his or her functional abilities. People with brain injuries and their families are actively involved in goal setting, training and education and care coordination.

Many of the treatment team members have specialty training in areas of neurological rehabilitation, including those certified by the American Physical Therapy Association and the Association of Rehabilitation Nurses. Team members represented Sister Kenny Rehabilitation Institute by presenting at the 2008 Minnesota Brain Injury Association conference.

FEATURES

Key features include:

- a behavior management plan that helps ensure safety and fosters a healing environment for individuals with brain injury who may be agitated, confused or impulsive, enhancing their ability to participate in the recovery process
- safety tools, such as memory books, wander guards, net beds, bed or wheelchair alarms and one-to-one care attendants
- a low-stimulation protocol for individuals who can benefit from a calm and healing environment to maximize recovery
- psychological services for assessment and testing, as well as adjustment counseling for people with brain injuries and their families
- educational groups for people with brain injuries and their families to learn about physical or emotional changes due to brain injury, the recovery process and community resources
- therapeutic pool sessions to optimize functional recovery
- advanced rehabilitative technologies such as the Lokomat (a robotic, body weight-supported treadmill), LiteGait, Nintendo Wii (for balance and coordination) and biofeedback.

BRAIN INJURY CLINIC

The Brain Injury Clinic provides tailored evaluation and rehabilitation to people with mild to moderate brain injury who are ready to return to work or school, and to those who have returned to work and experienced difficulty. Ideal candidates for the program are usually two-to-three months post-injury, independent in self-care activities, able to participate in therapies without supervision and live within a comfortable commute to Sister Kenny Rehabilitation Institute at Abbott Northwestern Hospital. The clinic services consist of a comprehensive evaluation that includes a review of records and a

A state-of-the-art accessible van enables individuals and their family members to experience a variety of community outings before they are discharged.
The outpatient Brain Injury Clinic provides tailored evaluation and rehabilitation to people with mild to moderate brain injury who are ready to return to work or school, and to those who have returned to work and experienced difficulty.

A care coordinator and a social worker are also available. The Brain Injury Clinic team often works closely with other medical professionals and vocational rehabilitation counselors.

**Research Topic**

<table>
<thead>
<tr>
<th>Research Topic</th>
<th>Funder</th>
<th>Principal Investigator</th>
<th>Research Partners</th>
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<tbody>
<tr>
<td>Reliability and Validity of a Brain Injury Symptom Rating Scale</td>
<td>Sister Kenny Foundation</td>
<td>George Montgomery, PhD, ABPP</td>
<td>Minnesota School of Professional Psychology</td>
</tr>
<tr>
<td>Evaluation of Cognitive Exercises and Technologies by Potential Users</td>
<td>Sister Kenny Foundation</td>
<td>Susan Newman, OTR/L</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Co-investigator: Joette Zola, OTR/L</td>
<td></td>
</tr>
<tr>
<td>Establishment of OT/PT Clinical Management Protocols for Soldiers with Mild TBI</td>
<td>Office of the Surgeon General</td>
<td>Project lead: Mary Radomski, PhD, OTR/L</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Project team members: Maggie Weightman, PT, PhD; Leslie Davidson, MSED, OTR/L, MAJ; Robyn Bolgla, MS, PT, CTRS; Marilyn Rodgers, MS, PT</td>
<td></td>
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<tr>
<td>Measuring Response to Occupational Therapies at the Brain Injury Clinic: The Quality of Activities/Frequency of Activity Scales</td>
<td>Sister Kenny Foundation</td>
<td>Jaime Lindberg, PhD candidate, Argosy University</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>Co-investigator: George Montgomery, PhD, ABPP-NP</td>
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<td></td>
<td></td>
<td>Ken Solberg, PhD</td>
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Brain Injury Services
VOLUMES, QUALITY AND OUTCOMES

Number of Inpatients Served

<table>
<thead>
<tr>
<th>Year</th>
<th>Number of Inpatients</th>
</tr>
</thead>
<tbody>
<tr>
<td>2006</td>
<td>200</td>
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<tr>
<td>2007</td>
<td>200</td>
</tr>
<tr>
<td>2008</td>
<td>250</td>
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Average Length of Stay

<table>
<thead>
<tr>
<th>Year</th>
<th>Days</th>
</tr>
</thead>
<tbody>
<tr>
<td>2006</td>
<td>10</td>
</tr>
<tr>
<td>2007</td>
<td>12</td>
</tr>
<tr>
<td>2008</td>
<td>12</td>
</tr>
</tbody>
</table>

Discharges to Home and Assisted Living

<table>
<thead>
<tr>
<th>Year</th>
<th>Percentage of Patients</th>
</tr>
</thead>
<tbody>
<tr>
<td>2006</td>
<td>80%</td>
</tr>
<tr>
<td>2007</td>
<td>80%</td>
</tr>
<tr>
<td>2008</td>
<td>100%</td>
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</table>
The FIM score is used to measure a patient’s independent performance in 18 tasks related to self-care, transfers, locomotion, communication and social cognition. Each task is scored on a scale of one to seven, with seven indicating “complete independence” and one indicating “total assist.” By adding points for each item, the total lowest possible score is 18; the highest is 126.

### Comparison of Functional Improvement Measure (FIM) Score at Admission and Discharge

<table>
<thead>
<tr>
<th>Year</th>
<th>Admission</th>
<th>Discharge</th>
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<tr>
<td>2006</td>
<td>80</td>
<td>90</td>
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<td>2007</td>
<td>85</td>
<td>95</td>
</tr>
<tr>
<td>2008</td>
<td>90</td>
<td>100</td>
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</table>

### Patient Satisfaction Survey

How would you rate the overall quality of care and services?

<table>
<thead>
<tr>
<th>Year</th>
<th>Excellent</th>
<th>Good</th>
<th>Fair</th>
<th>Poor</th>
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<tr>
<td>2006</td>
<td>50%</td>
<td>30%</td>
<td>10%</td>
<td>5%</td>
</tr>
<tr>
<td>2007</td>
<td>55%</td>
<td>25%</td>
<td>15%</td>
<td>5%</td>
</tr>
<tr>
<td>2008</td>
<td>60%</td>
<td>30%</td>
<td>5%</td>
<td>5%</td>
</tr>
</tbody>
</table>
Cancer Rehabilitation and Lymphedema Program

OVERVIEW
Individuals with cancer may experience a decline in the ability to exercise, manage home activities and perform job skills. Sister Kenny Rehabilitation Institute, in partnership with Abbott Northwestern Hospital’s Virginia Piper Cancer Institute, offers comprehensive cancer rehabilitation services for individuals with oral, head and neck, and breast cancer. Its program for the management of lymphedema has been certified by the National Lymphedema Network.

SERVICES

Physician Evaluation
Patients can benefit from cancer rehabilitation at any point in their continuum of care, from recent diagnosis through post-treatment. The physiatrist is available for both inpatient and outpatient consultations. Evaluations include a history and physical examination that is tailored to the physical effects of the type of cancer and its impact on the individual’s life functions. The physiatrist also assesses other medical conditions specific to cancer patients, such as swelling (lymphedema), fatigue, skin problems, pain, joint stiffness, weakness, paralysis, balance problems and swallowing problems.

Diagnostic tests, including X-rays, scans and other consultations, are ordered as needed. The physiatrist will then prescribe treatment and interventions, which may include physical therapy, occupational therapy, speech therapy, equipment and special garments, as appropriate.

Physical Therapy
Lymphedema therapy is provided by physical therapists who are certified in lymphedema management. Physical therapists also provide exercise programs to improve strength and range of motion. Exercise has been shown to have positive physical and psychological benefits for cancer patients.

Occupational Therapy
Occupational therapists work with individuals to improve daily living skills.

Speech Language Pathology
Services that are provide by speech language pathologists include:
- evaluation and treatment of dysphagia
- exercises to strengthen oral and pharyngeal muscles
- diet modifications.

Neuropsychology Services
“Chemobrain” and fatigue are common concerns of cancer survivors. Neuropathy is a consequence of some chemotherapy and radiation. The Brain Injury Clinic works with cancer survivors to design individualized therapy programs.

Fitness Consultations
Fitness consultations are available through Abbott Northwestern’s LiveWell Fitness Center.

VitalStim® stimulation swallowing therapy is one aspect of the Cancer Rehabilitation and Lymphedema Program.
Many baby boomers want to remain active and continue participation in sports and other activities despite advancing age; injury prevention and treatment are critical. In addition, serious athletes strive for better performance through improvements in training methodology.

Kenny Kids™—Pediatric Rehabilitation Program

Kenny Kids is a pediatric rehabilitation program with a specialized team that provides individualized treatment for children from birth to adolescence who have medical conditions or syndromes that interfere with development. The team integrates therapy goals with the goals of the child, family, school program and other health care providers.

New and Developing Programs

Innovative rehabilitation care must anticipate and respond to changing demographics and medical needs.

The Sister Kenny Rehabilitation Institute is developing the following programs to address community needs.

SPORTS TRAINING AND INJURY PREVENTION/TREATMENT

Many baby boomers want to remain active and continue participation in sports and other activities despite advancing age. To help achieve these goals, injury prevention and treatment are critical. In addition, serious athletes strive for better performance through improvements in training methodology. Programs geared toward these groups include the new RunSMART Program at Sister Kenny Sports & Physical Therapy Center and the Running and Endurance Sports Injury Clinic at Sister Kenny Rehabilitation Associates in St. Paul.

AMPUTEE SERVICES

Obesity-related diabetes is increasing in frequency and is a leading cause of amputation. There is also increased incidence of amputation due to war-related injuries. Sister Kenny Rehabilitation Institute is committed to meet the growing need for rehabilitation and adaptation services among these populations.

MOVEMENT DISORDERS/PARKINSON’S DISEASE

The incidence of neurological disease has increased with the aging of the population. Sister Kenny Rehabilitation Institute is developing a comprehensive rehabilitation approach to meet the needs of these patients, with a particular focus on using rehabilitation methods to improve function in conjunction with neuromodulation (deep brain stimulation).
Presentations and Publications, 2005-2008
Presentations


Bowman TL, Oddsson LE, White M. Devices/smart home technology, Schmitt Center for Home Telehealth/University of Minnesota-Institute for Engineering in Medicine; September 2007, Minneapolis, MN.

Bowman TL. Videoconferencing, virtual reality and home-based CIMT—opportunities to improve access and compliance through telerehabilitation, International Workshop on Virtual Rehabilitation; Aug. 30, 2006, New York, NY.

Bowman TL, Schold-Davis E, White M. Technology and biorehab. ING 21st ROSE Conference; July 2005, Minneapolis, MN.

Fjerstad J, Theis JL, Tripp C. Home isn’t where the heart is if it’s inaccessible: advances in spinal cord injury technology. Allina Annual Conference; June 2006, Minneapolis, MN.


Hutchison NA. Cancer rehabilitation. Prevention and Beyond Speaker Series of Abbott Northwestern Hospital; December 2007, Minneapolis, MN.

Hutchison NA. Cancer rehabilitation. Sister Kenny Institute Annual Conference; June 2007, Minneapolis, MN.

Hutchison NA. Edema and lymphedema. Kanabec Hospital Grand Rounds; January 2008, Mora, MN.

Hutchison NA. Edema and lymphedema. St. Francis Medical Center Grand Rounds; March 2007, Shakopee, MN.

Hutchison NA. Exercise, fitness and cancer. I Can Cope Support Program of the American Cancer Society; April 2007, Minneapolis, MN.

Hutchison NA. Lymphedema and cancer rehabilitation. Unity and Mercy Hospitals Cancer Program Community Forum; February 2008, Coon Rapids, MN.

Hutchison NA. Lymphedema and rehabilitation for breast cancer patients. Piper Breast Center Annual Breast Health Conference; February 2006, Minneapolis, MN.

Hutchison NA. Rehabilitation for brain tumor patients. National Brain Tumor Foundation Caregiver Training Workshop; November 2007, Minneapolis, MN.

Komenda KJ, White MW. Advances in physical rehabilitation—a physical therapy and occupational therapy perspective. Association of Rehabilitation Nurses (MN Chapter) 6th Annual Rehabilitation Nurse Seminar on Partnerships: Learning and Expertise; May 2008, Woodbury, MN.

LeLoup BD, White MW. Rehabilitation robotics. Sister Kenny Rehabilitation Institute Annual Conference; June 2007, Minneapolis, MN.

Miller RP, Rychly EC, Theis JL. STEPS: Safe transfers every person succeeds revisited. Sister Kenny Rehabilitation Education Series; April 2008, Minneapolis, MN.


Oddsson LE. Minnesota wearable technology for fall prevention, Design Medical Device Conference; University of Minnesota; April 2008, Minneapolis, MN.

Oddsson LE. New strategies and technologies to predict and prevent falls, 6th Annual Rehab Nurse Seminar; May 9, 2008, Minneapolis, MN.

Oddsson LE. Rehabilitation research and technology development. Advances in Rehabilitation through Science and Technology. Annual Sister Kenny Rehabilitation Institute Conference; June 6, 2008, Minneapolis, MN.


Radomski, MV. Cognition and occupational performance. Walter Reed Army Medical Center, August 2007, Washington, DC.

Rotty MV. Intensive spinal strengthening—understanding the concept: When to refer, criteria used to determine appropriateness, patient outcomes. Advances in Rehabilitation through Science and Technology; June 6, 2008, Minneapolis, MN.

Sandin KJ. Quality measure in rehabilitation: Presented at Veterans Affairs West Los Angeles Healthcare Center; 2008, Los Angeles, CA.

Sandin KJ. Quality measure in rehabilitation: Presented at Department of American Academy of Physical Medicine and Rehabilitation; 2008, Richmond VA.


Schmitz KT. Physical therapy using MedX progressive resistance strengthening & core stabilization. Advances in Rehabilitation through Science and Technology; June 6, 2008, Minneapolis, MN.

Speier JL, Rotty MV. Post-op rehabilitation issues for spine patients. Spine Symposium; March 2008, Minneapolis, MN.

Theis JL. How rehabilitation can help or hinder adjustment to spinal cord injury. Blue Cross Blue Shield of Minnesota; October 2005, Eagan, MN.

Theis JL. How rehabilitation can help or hinder adjustment to spinal cord injury. Sister Kenny Rehabilitation Education Series; October 2005, Minneapolis, MN.

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