A guide to complex medical care and rehabilitation

At Lakeview, the right referral starts with what a person needs today. Some people need more time for hospital treatment. Others are ready to work intensively on movement, communication or self-care.

When the treating team refers someone to Lakeview, the first question is which treatments still require hospital care. Explain the person's medical needs, usual abilities and goals so Admissions can review the appropriate level of care.

At Lakeview's LTACH, physicians see patients daily. The physician, nurses and therapists review the medical course alongside the person's ability to participate in care.

Team Treatment

Your care is provided by an interdisciplinary team of clinical experts led by physician specialists. The collaborative team creates a goal-directed plan to address your physical, emotional and psychological needs, keeping you and your family educated and trained on all care options and decisions along the way.

We begin planning for your next step of care as soon as you are admitted. Our goal is to get you back to doing what you love most.

Lakeview is a licensed, Joint Commission accredited long-term acute care hospital. Ask Admissions which Lakeview service is reviewing the referral and which capabilities have been confirmed for this patient.

The chapters below explain common reasons for referral and treatment options to discuss with the sending and receiving teams. Confirm specialized procedures and equipment for each referral.

- Advanced Wound Care and Recovery
- Cardiac Care and Recovery
- Comprehensive Rehabilitation Programs
- Intensive Care Recovery
- Intravenous Drug and Nutrition Therapy
- Major Surgery Recovery
- Organ Transplant Care
- Post-Trauma Care and Recovery
- Prolonged Mechanical Ventilation
- Pulmonary and Respiratory Care
- Traumatic Brain Injury and Stroke Care

Advanced Wound Care and Recovery

Complex wounds that do not heal with standard treatment may require advanced wound care in a setting that allows for comprehensive medical treatment, oversight from wound care specialists and an extended recovery period.

One type of wound that may require advanced wound care are pressure ulcers, which are caused when a person remains in the same position for too long, resulting in decreased blood circulation and tissue damage. Often the immobility is caused by advanced age or an underlying condition, which can further obstruct the wound healing process. Pressure ulcers that have broken through the top two layers of the skin, leaving an open wound, require specialized treatment to remove damaged tissue and prevent or treat infection. Untreated pressure ulcers can lead to a variety of complications, and in some cases can be life-threatening.

Surgical wounds sometimes require advanced wound care if the incision does not heal as expected due to an infection, medical conditions such as diabetes, advanced age or a weakened immune system. These open wounds often require treatment from a wound care specialist, which may include wound irrigation, debridement, negative pressure wound therapy and skin or tissue grafting.

Other types of wounds or conditions that may indicate a need for advanced wound care are:

- Infections requiring IV antibiotics
- Wounds requiring frequent dressing changes
- Amputations
- Diabetic ulcers
- Necrotizing fasciitis
- Osteomyelitis
- Peripheral artery disease
- Venous stasis
- Post-trauma
- Burns
- Arterial wounds

Wound Care Recovery

A wound assessment considers its cause, depth and location, circulation, infection risk, nutrition and the person's ability to change position. These findings guide dressing changes, pressure relief and follow-up.

A burn, a surgical wound and a wound complicated by cellulitis can require very different interventions. Ask the referring clinician whether drainage, debridement, negative-pressure therapy or another procedure is planned and whether it can be provided in the proposed setting.

Our teams develop wound care treatment plans that:

- Improve overall emotional well-being
- Improve ability to perform daily activities
- Improve quality of life, increasing independence and self-reliance
- Help prevent complications and hospitalizations
- Increase knowledge about disease process and its management
- Increase strength and endurance

For a slow-healing wound, ask how the plan addresses blood flow, pressure and infection. The medical team may also review nutrition, blood sugar and how the wound affects safe mobility and discharge planning.

Archived recovery account

This account describes care in an earlier setting. The course, timing and outcome belong to that individual.

On the Road to Recovery

The patient was admitted to the treating hospital for advanced wound care. He had extensive wounds including a large abdominal wound, drains and a colostomy. He was severely deconditioned and was unable to move himself in bed. The patient needed nighttime Bi-PAP and daytime oxygen and required total nursing care for all aspects of his care.

The treating hospital rehabilitation team worked closely with the nursing and wound care team to help the patient with his goals of mobility and returning home. Therapy started slowly in order to build his endurance and strength. Because of the patient's abdominal wound, he lost most of his core strength and required maximum assistance from two people to roll and turn in bed. With repetition of compensatory techniques and practice, he was able to roll with independence and eventually sit at the edge of the bed with minimal assistance.

Continued therapy sessions focused on sitting balance, arm strengthening and increasing his endurance. The patient advanced to standing trials with a walker and the assistance of two people. The patient diligently performed upper body exercises and sat in a chair several times a day. His continued effort outside of therapy sessions helped him progress to increased activity tolerance.

The patient was discharged to a subacute rehabilitation facility for continued therapy with plans to progress home. Several weeks after returning home, he credited continued support through each phase of wound healing with helping him stay focused on recovery.

Cardiac Care and Recovery

After a heart attack, heart surgery or a heart failure flare-up, the next setting depends on medical stability, the need for monitoring, medication changes and help with activity. The primary cardiac team should identify which care must continue.

What Is Cardiovascular Disease?

Cardiovascular disease includes disorders of the heart and blood vessels. High blood pressure, high cholesterol and smoking are important risk factors. Hypertensive heart disease, advanced heart failure and hypertrophic cardiomyopathy (thickening of the heart muscle) can affect people differently. Ask which condition is present, what symptoms are expected and which changes require urgent attention.

Planning cardiac care during recovery

Advanced heart failure or complications after cardiac surgery may require continued medical oversight. Describe the current circulation and breathing needs, rhythm concerns and response to treatment when discussing transfer.

Ask which clinician is directing cardiac treatment, how nursing and rehabilitation will coordinate activity and what specialist follow-up is required. Share the sending team's monitoring and device instructions before transport.

A care plan can include monitoring, medication management, nutritional support, education and therapy. Availability of a particular device or procedure must be established with the receiving team.

Heart failure can affect breathing, movement, sleep and emotional well-being. Cardiac, pulmonary and rehabilitation clinicians may all need to contribute to one plan. For example, a person with advanced heart failure may be evaluated by a transplant team and decide a transplant does not fit their goals. Medicines, an implanted device, or a plan focused on relief of distressing symptoms may be discussed instead. Ask what each option could change, what follow-up it would require, how it would affect daily life and who can help the person and family weigh the choices.

Cardiac Treatment Services

Questions for the cardiac team include what treatment is needed between physician visits, which tests guide it, whether telemetry is required and who will act on a change.

These services include treatment options for:

- Post-cardiac surgery wounds or infection — Despite the many advances in postoperative care, infections and persistent surgical wounds remain some of the most common open-heart surgery complications.
- Congestive heart failure and cardiomyopathy — Heart failure and conditions that cause it, like cardiomyopathy, can have long-lasting symptoms that require extended medical care. Symptoms of early congestive heart failure stages are generally mild, but end-stage heart failure symptoms can be severe and require comprehensive care.
- Post-myocardial infarction with complications — Recovery time for a myocardial infarction depends on the level of severity, but if there are complications, like arrhythmias, cardiogenic shock or hypoxemia, it can take weeks or months and require extensive cardiac rehabilitation. Other complications include deep vein thrombosis, ventricular aneurysms, pulmonary edema, angina and pericarditis.
- Peripheral vascular disease — Causing pain, aches and cramps in the legs and restricted blood flow to the extremities or other body parts, peripheral vascular disease (PVD) can lead to serious complications. Treatment plans that include medication, lifestyle changes and sometimes surgical procedures can manage pain and slow or stop disease progression.

Telemetry records the heart's electrical activity. The treating clinician may consider it after a recent heart attack, an unstable rhythm or a medication change. Confirm the monitoring plan with the receiving team.

Other conditions that necessitate telemetry include:

- A recent history of unstable cardiac rhythm
- Active ischemic heart disease
- Respiratory rate failure or impending respiratory failure requiring close monitoring of cardiac rhythm
- Drug toxicity associated with conduction abnormalities
- IV calcium channel blocker and beta blocker

A ventricular assist device (VAD) supports circulation for some people with advanced heart failure. The implanting center and proposed receiving facility must confirm device-specific expertise, supplies, monitoring and emergency arrangements before transfer. Education may include the topics below.

Patients and family members in the VAD program receive specific training in:

- Daily management of the device
- Troubleshooting potential emergency situations
- Sterile dressing change
- Medication management
- Nutrition and diet guidelines
- Fluid intake monitoring
- Guidelines for sleeping, bathing, exercising and traveling

For complex cardiac needs, send the current orders and specialist contact with the referral. Ask who will manage the device or rhythm concern, review medication changes and respond if the person's condition changes.

Archived recovery account

This account describes care in an earlier setting. The course, timing and outcome belong to that individual.

A nurse who had cared for people on ventilators learned that she needed bypass surgery. After the operation, respiratory and kidney failure and a serious infection complicated her recovery. She needed a tracheostomy, a ventilator and a feeding tube. The account follows about five months of treatment and rehabilitation.

Shortly after the first operation she went into cardiac arrest and needed emergency surgery. She remained critically ill and had another cardiac arrest after transfer. Her daughter worked with the treating clinicians to plan the next transfer when she became stable.

Her daughter explained that the patient had spent six weeks in a hospital bed and needed continued care for cardiac surgery complications before beginning intensive rehabilitation.

The patient began treatment for several conditions. She needed wound care to heal the initial surgical wounds, and the pulmonary team helped her regain her lung strength until she could be successfully weaned from the ventilator. She also worked with physical, occupational and speech therapists to develop her overall strength. She worked hard, made progress and was able to start taking small steps with the aid of a walker.

She remembered this as a frightening experience. Daily encouragement helped her keep participating until she could transfer for rehabilitation.

The patient just recently came back to visit the hospital, her colleagues, and the staff who cared for her. She paid a special visit to the garden where she had previously planted flowers. Her daughter remembered the flowers she had planted at the hospital and the decorations she once put up for patient milestones.

At follow-up she continued physical therapy and infectious disease visits. She had enough energy to spend active time with her grandchildren again.

Comprehensive Rehabilitation Programs

Comprehensive rehabilitation programs help people with disabilities, injuries or complex medical conditions achieve an improved quality of life. These programs take a holistic approach to recovery and are designed to improve physical function, increase independence, and promote mental, emotional and social well-being.

Many of those who benefit from comprehensive rehabilitation programs suffer from chronic illnesses, such as COPD or diabetes, or have recently spent time in the intensive care unit of a traditional hospital following a traumatic injury or major neurological, cardiac or pulmonary event. Sometimes, when patients are medically stable and physically able to begin a rehabilitation program, they are transferred to a rehabilitation hospital where they receive speech, occupational and/or physical rehabilitation. However, those who need a wider variety of rehabilitation services, as well as those who require continued intensive care in addition to specialized rehabilitation, benefit from the more comprehensive programs provided in long-term acute care hospitals (LTACHs). In this environment, rehabilitation services are integrated with specialized acute care to help patients with medically complex conditions achieve the fullest and most complete recovery.

Physical, occupational and speech-language therapists address different parts of a shared functional goal. Medical, nursing and therapy staff consider the illness or injury, the person's earlier abilities and what will be required in the next setting.

Track progress against a specific activity and the amount of help required. Ask the team to review what has changed, what remains difficult and which part of the treatment plan should be adjusted.

Types Of Treatment

Following surgery, injury, stroke or pulmonary illness, the treating team chooses therapy according to medical stability, needs and tolerance. Ask which of the approaches below fits the current plan.

These include:

- Cardiac care – Cardiovascular disorders are the leading cause of death in the United States. Cardiac rehabilitation/secondary prevention programs are integral to the comprehensive care of patients with cardiovascular disease. These include exercise programs to improve cardiovascular health, education on eliminating risk factors and counseling to reduce stress.
- Pulmonary rehabilitation – Critical to the health management of patients with respiratory diseases or conditions, pulmonary rehab aims to reduce symptoms, increase muscle strength and endurance, increase exercise tolerance, help manage anxiety and depression, and promote self-management.
- Wound care and movement. Coordinate positioning, pressure relief, dressing protection and activity limits with the wound team before practicing transfers or walking.
- Neurological rehabilitation. Physical, occupational and speech-language therapy can address movement, self-care, communication, thinking and swallowing. Identify a practical goal and the assistance required.

Other types of therapies are also offered to improve quality of life for patients, including fall and restraint management, pain management, cognition, positioning, gait training, dysphagia and cognition.

A coordinated rehabilitation plan can address several functional goals at once:

- Improving independent function and self-monitoring with activities of daily living
- Increasing exercise tolerance and decreasing shortness of breath in all areas of functional mobility
- Enhancing communication, cognitive and swallowing abilities
- Improving quality of life
- Managing anxiety, stress and depression
- Supporting self-management of medication

Complex illness can affect several tasks at once. Coordinate treatment of medical problems with therapy and caregiver education, and revisit goals as the person's endurance or level of support changes.

Archived recovery account

This account describes care in an earlier setting. The course, timing and outcome belong to that individual.

The patient's world as she knew it changed in an instant when she was in a horrific vehicle accident that almost claimed her life. She suffered extensive injuries and required intensive care to stabilize her physical condition, but the damage her brain had sustained in the crash was so severe that the patient's physicians told her family to prepare for the worst; the patient might never be able to regain her normal mental status and participate in family life.

Uncertain of what came next in the patient's recovery, or if her daughter would have to spend the rest of her life in an assisted living facility, the patient's mother chose the treating hospital as the next level of care.

The patient was no longer dependent on a ventilator when she first arrived at the treating hospital, but she still had a breathing tube in place. She also relied on a feeding tube and she was entirely unresponsive, requiring maximum care from her caregivers. With her mother and other family members at her side from the very beginning, the patient slowly began to show signs of awareness. When she began to respond with more intention, her team of caregivers began to get the patient up and out of bed daily and started a more aggressive program of physical and occupational therapy. The patient was also aided by her speech pathologist to reconnect her speech and vocal pathways, allowing the patient to begin using words to describe colors as well as to regain the ability to swallow and take food and drink by mouth again once the breathing tube was finally removed.

After spending nearly five months at the treating hospital, the patient continued to amaze everyone at the facility with her progress. Her mother was overcome with gratitude when her daughter was able to be discharged to a facility that specializes in brain injury rehabilitation. Her entire team gathered to wish her well and celebrate this major milestone and wish her the best.

Her mother later reported that she had returned home in October, continued to improve, and once again enjoyed doing her makeup and shopping with friends.

Intensive Care Recovery

After an intensive care stay, some adults are stable enough to transfer but still require daily hospital decisions, around-the-clock nursing or respiratory care. Others may be ready for a different level of rehabilitation.

The ICU team treats immediate instability. Before leaving, ask what has improved, what still requires hospital care and how the next hospital will manage the first day of treatment.

What Is Intensive Care?

A patient in intensive care is there due to life-threatening illnesses or injuries, including complications from surgery, accidents, serious infections or several breathing issues.

Intensive care units are staffed by teams of specially trained clinicians and staff members. Depending on the condition being treated, an ICU staff may use a variety of medical equipment, including monitors, intravenous (IV) tubes, catheters, and breathing machines, to keep intensive care patients alive and stabilized during treatment. Some of these conditions can increase a patient's risk of infection, necessitating a high level of monitoring and care.

An LTACH provides ongoing hospital-level care after the immediate crisis. Confirm safe transfer with the sending clinician and the receiving team's ability to manage current needs; new instability may still require the ICU.

Another form of high-level care is emergency care. In an emergency situation, patients are so sick or injured that they need to be seen and evaluated immediately. If they need additional specialized care after being stabilized in the ER, they are then sent to an intensive care unit.

Examples of needs to describe when asking for a post-ICU assessment include:

- Prolonged mechanical ventilation requiring weaning and pulmonary care
- Complex wound care
- Multiple drug-resistant resistant infections
- Complex medical conditions requiring daily physician management
- Major post-surgical complications
- Multiple concurrent acute and/or unstable illnesses

After critical illness, medical management, recovery of movement and communication, and planning for the next setting often need to proceed together. The safe starting point for therapy is individualized.

Intensive Care Services

Ask the team to assess physical function, daily activities, speech, cognition and swallowing as relevant. Set the initial treatment goal around the person's condition and tolerance.

Coordinate the daily plan across nursing, respiratory therapy, pharmacy, rehabilitation and case management so time-sensitive treatments and activity do not conflict.

Discuss these elements when planning longer hospital care:

- Physician-directed care. At Lakeview's LTACH, physicians see patients daily. Ask who will direct treatment, review results and communicate changes to the family and sending clinicians.
- Hospital nursing. Around-the-clock nursing may include monitoring vital signs, IV therapies, lab changes, respiratory equipment, catheters, tracheostomies and feeding tubes according to the current orders.

- Rehabilitation. Physical, occupational and speech-language therapy can address different needs. The appropriate intensity depends on medical stability, ability to participate and functional goals. The liaison reviews the particular level of care.
- Care team communication. Coordinate the medication, respiratory, nutrition and therapy plans. Agree on which team member will update the patient and who is following each pending result.

Related chapters in this guide

- Post Trauma Care and Recovery
- Pulmonary Care
- Stroke Recovery
- Advanced Wound Care and Recovery
- Organ Transplant Recovery
- Major Surgery Recovery
- Comprehensive Rehabilitation Programs

Archived recovery account

This account describes care in an earlier setting. The course, timing and outcome belong to that individual.

Looking Forward After a Workplace Explosion

The patient is a process mechanic who nearly lost his life to a horrendous workplace accident.

The workplace explosion fractured nine bones, including the hips.

The patient was rushed to the ER, where physicians managed to stabilize his condition and begin the arduous process of literally piecing the patient back together. After enduring numerous surgeries, the patient first went to the treating hospital for long-term intensive care and recovery. He was there for six weeks before coming to a rehabilitation hospital for specialized rehabilitation.

Due to being immobilized for five weeks while his shattered hips healed, the patient was very weak and suffered from extreme muscle atrophy. Despite this, his attitude was upbeat and positive. He put his heart and mind into his physical and occupational rehab therapy sessions.

The primary occupational therapist shared what the team did to help him. The occupational therapist worked on left elbow movement, arm and hand strength, fine motor control for playing the guitar, and practical tasks such as bathing and dressing.

The patient updated us on his progress after intensive care at the treating hospital. At follow-up he was walking with a walker, climbing stairs and managing his own care. He still expected further rehabilitation.

Intravenous Drug and Nutrition Therapy

Intravenous therapy involves the introduction of fluids directly into a person’s bloodstream through a vein. It’s the fastest way to deliver medications and nutrients, which is why it’s the most common parenteral method of administering them. The word “parenteral” simply refers to any method that doesn’t involve the digestive tract. A person might require parenteral medications or parenteral feeding if they have a medically complex condition that prevents them from eating or taking medications orally, if rapid onset of the medication is necessary, or if the medication must be administered in a controlled way over time. Some

intravenous drugs are also administered that way because if they are taken orally, they will be broken down by stomach enzymes before they can take effect.

In preparation for intravenous therapy, an IV catheter is inserted into a patient's vein, so that healthcare providers can access it continuously without having to insert a needle multiple times. The IV fluids can then be delivered through an injection with a syringe, or via infusion therapy (also known as a drip), which uses the force from gravity to deliver the medication over a period of time. Infusion therapy is most commonly used to treat serious, complex, or chronic conditions that cannot be treated with oral medications, including cancer; diseases of the gastrointestinal tract; dehydration caused by nausea, vomiting, and diarrhea; and infectious diseases that respond best to parenteral medications, such as Osteomyelitis.

Long-term intravenous medication therapy and parenteral feeding usually require a central venous catheter (CVC), which can stay in place for weeks or months and is inserted into a vein in a person's neck, chest, arm or groin. There are three main types of CVC: a tunnelled catheter, an implanted port and a peripherally inserted central catheter (PICC).

Many medications can be given intravenously. Some of the most commonly administered intravenous drugs are:

- Chemotherapy drugs
- Intravenous antibiotics
- Antifungals
- Pain medications
- Drugs for low blood pressure
- Immunoglobulin medications

IV antibiotics may be necessary to fight infections caused by wounds, as well as infectious diseases like pneumonia, meningitis, osteomyelitis and bacteremia. Antibiotics for sepsis are also commonly administered intravenously.

Parenteral feeding is the intravenous administration of nutrition for people who cannot eat, digest or absorb food. IV fluids for parenteral feeding may include protein, carbohydrates, fats, sugar, minerals, electrolytes, vitamins and other trace elements.

Some conditions that might make parenteral feeding necessary are:

- Crohn's disease
- Cancer
- Short bowel syndrome
- Ischemic bowel disease

IV antibiotic therapy and other intravenous medication regimens may be administered individually, together, or in conjunction with parenteral feeding. In transitional care settings, patients often require one or more forms of intravenous therapy, including antibiotics, cardiovascular medications, total or partial nutrition, pain relievers and sedatives.

Complications Of Intravenous Therapy

Intravenous therapy is generally safe, but it can cause both mild and severe complications, including:

- Infection at the injection site — this can lead to fever, chills, redness, pain and swelling.
- Damage to the vein or blood vessels at the injection site — if the parenteral medication leaks through a damaged vein, it may cause damage to the surrounding tissue.
- Air embolism — if air gets into the syringe or the intravenous medication bag, it may enter the patient's bloodstream and cause a heart attack or stroke.
- Blood clots — intravenous therapy can cause blood clots that may block important blood vessels, leading to tissue damage or death. A deep vein thrombosis is one type of dangerous blood clot that can be caused by intravenous therapy.

The most common side effects of parenteral feeding include:

- Changes in heartbeat
- Confusion
- Convulsions or seizures
- Difficulty breathing
- Fast weight gain or weight loss
- Fatigue
- Fever or chills
- Increased urination
- Memory loss
- Stomach pain
- Swelling in hands, feet or leg

Intravenous therapy, especially in the form of IV antibiotics and parenteral feeding, is often necessitated by an emergent or medically complex condition like sepsis, so the benefits outweigh the relatively small risk of complications in almost all scenarios.

Intravenous Therapy And Recovery

Medically complex conditions that require intravenous therapy — whether in the form of parenteral medication, parenteral feeding or IV fluids — can involve many parts of the body and require thorough oversight and management from a healthcare provider.

IV treatment or nutrition support can continue after the initial hospital stay in some settings. Provide the exact drug or formula, route, access device, schedule, monitoring needs and next dose when requesting a review.

Examples of infusion needs to discuss with the treating clinician and proposed receiving team include:

- Total or partial nutrition
- Sedation

- Cardiovascular medication
- Anticoagulation
- Antibiotics

For IV medicines, fluids or nutrition, ask how staff protect the line, monitor for infection and review laboratory results. Confirm whether the next setting can deliver the prescribed therapy and who will manage it.

Archived recovery account

This account describes care in an earlier setting. The course, timing and outcome belong to that individual.

The patient lived at home until a bout with the flu led to her developing serious lung problems and difficulty breathing. She was admitted to a general hospital and physicians began to treat her for severe caloric malnutrition as well as pneumonia. She was placed on a ventilator to assist her breathing and given a feeding tube to deliver much-needed nutrition to aid her recovery.

After the patient had been weaned from the ventilator and stabilized, she was transferred to the treating hospital for ongoing dietary management, medical care and rehabilitation. At first she was extremely weak and deconditioned and required assistance from her caregivers for the majority of her needs and mobility. Also complicating her recovery was the fact that the patient had no appetite. This required the feeding tube to be left in place; however, once she began participating in physical and occupational therapy she regained her appetite and made excellent progress with her dietitian, progressing to finally being able to have the feeding tube removed.

In the rehab gym, the patient always brought with her a positive attitude that was noticeable and brightened up the room every time she came in. Aided by her unwavering dedication to recover and a great deal of motivation from family and staff, the patient made a full recovery and was able to fully regain her independence and mobility as she continued to get stronger with each passing day.

As she prepared to go home, she thanked the team for the individual attention and encouragement she had received.

Archived recovery account

This account describes care in an earlier setting. The course, timing and outcome belong to that individual.

The patient recalled being given a prognosis of about six months and described what the medical and family support meant to her.

The patient came to the treating hospital about six months after being told she had only this amount of time to live due to the breast cancer that had metastasized throughout her body. Her primary oncologist who recommended that she come to the treating hospital had been treating her with chemotherapy, and after her long struggle the patient was in a very delicate condition, depending on a ventilator to support her lungs, a feeding tube for nutrition and IV lines to administer medication and fluids.

At the beginning of her stay at the treating hospital, the patient was treated by her respiratory therapists, started a course of IV antibiotics and began receiving much-needed nutritional support. Her caregivers also managed the drainage tubes in her chest and closely monitored her heart as she was suffering from an irregular heartbeat. With her mother and brother at her side, and with abundant support and encouragement from her team of caregivers, the patient slowly began to regain her strength and reached a major milestone when she was able to be successfully weaned from the ventilator.

The patient's speech pathologist ensured that she was able to swallow safely and use her voice again. This enabled the patient to begin drinking and eating a modified diet at first, leading to a normal diet and being able to have the feeding tube and IV lines removed. Other major accomplishments included regaining the ability at first to sit up then get out of bed, and then walk and even climb stairs unassisted in the therapy gym. Her physical and occupational therapists were instrumental in helping the patient regain her mobility and independence over the tasks of daily life and her positive attitude once again drew everyone to her side, helping her reach her next milestone.

By the time the patient was discharged from the treating hospital to return home she was a different person and looked forward to some normalcy once again. As she returned home, she credited her mother, brother, oncologist and other caregivers with helping her through treatment and recovery.

Her mother described how physicians, therapists, nursing assistants and the speech-language team had each contributed to her daughter's recovery.

Major Surgery Recovery

After surgery recovery in a traditional hospital, some people are able to go home and continue rehabilitating as an outpatient. Others may require extended care at a transitional hospital to address lasting pain, wound infections, tissue damage, nerve damage, respiratory issues, thromboembolism, bowel obstruction, dysphagia, loss of muscle, or other possible complications of major surgery.

Recovery after major surgery may involve several problems at once, particularly when the incision is slow to heal or breathing, kidney function or strength has changed. A referral should describe the care still required, not only the name of the operation.

Recovering from a major surgery like an organ transplant, amputation, or brain surgery can be a long and arduous process, with many potential complications, discomforts, and setbacks to avoid or manage. Immediately after surgery, a post-operative care team made up of surgeons, anesthesiologists, medical specialists, and nurses will need to monitor vital signs, pain levels, and incisions to make sure there are no initial complications and that the body has tolerated the trauma of invasive surgery. Some of the first post-operative complications or side effects patients may experience shortly after surgery include nausea from anesthesia, a sore throat from intubation, soreness, pain and swelling around the incision, restlessness, thirst, and constipation or gas.

People who undergo major surgery often spend some time in the intensive care or medical-surgical unit, so that their surgery recovery can be closely monitored, and any potential problems can be identified and treated early. Depending on the type of major surgery, there may be tubes, drains, and monitoring equipment that require consistent oversight from doctors, nurses, and specialists.

Recovery after surgery

The surgeon's instructions, medical follow-up and rehabilitation goals should reach the receiving team together. Clarify the next wound check, medication schedule, movement limits and outstanding test results.

After an amputation, staff may need to address incision and residual limb care, pain, positioning, strength, transfers, skin protection and emotional adjustment. Ask which specialist will update restrictions and when.

Two people can have the same operation, including brain surgery, and have very different recoveries. Complications, the extent of the procedure, other illnesses, the body's response to surgery and the

strength a person had beforehand can all affect the plan. One person may be ready for therapy at home while another still needs hospital treatment for breathing, wound care or infection. Ask the surgical and receiving teams to identify which problems must remain under surgical follow-up, what the next care setting will manage and what would change the plan.

After spine or brain surgery, transplantation or abdominal surgery, get procedure-specific instructions from the surgical team. Identify what needs a return to that team and what can be followed locally.

Major Surgery Recovery Services

Depending on the operation and the person's condition, care to discuss may include:

- Special care units
- Pulmonary and respiratory care
- Advanced wound care
- Cardiac care
- IV antibiotic therapy
- Pain management
- Laboratory monitoring
- Nutritional assessment and support
- Comprehensive rehabilitation programs including physical, occupational, and speech therapies

An incision that opens, drains or becomes infected may require more frequent assessment and a change in treatment. Ask whether additional surgery is pending and who will direct the wound plan.

Discuss the following wound interventions with the treating clinician. Confirm availability, indications and responsibility for follow-up before a transfer:

- Surgical services and consultations, including debridement and surgical wound closure
- Daily physician visits and a wide scope of physician consults
- Acute care level nursing staff services
- Identification and treatment of conditions that impede healing
- Wound assessment and photo documentation
- Pressure reduction surfaces/mattresses or specialized beds
- State-of-the-art treatments and procedures
- Functional and nutritional assessments
- Vacuum-assisted wound closure
- Pulsatile lavage/localized hydrotherapy (at some locations)
- A wide variety of topical wound healing agents
- Interdisciplinary team conferences with you and your family
- Education for you and your family
- IV antibiotics
- In-house radiology, pharmacy, and lab services

A Strategy That Includes Support

Before discharge after major surgery, have the team review the movement plan, medicines, nutrition, warning signs and follow-up visits with the patient and chosen caregiver. Practice tasks that will need to be done at home.

Archived recovery account

This account describes care in an earlier setting. The course, timing and outcome belong to that individual.

The patient was admitted to a general hospital for scheduled heart surgery, and although the procedure was successful she developed respiratory failure and had to be placed on a ventilator. She remained at the short-term hospital until she was able to be transferred to the treating hospital for respiratory therapy and rehabilitation.

At the time of her admission, the patient was severely weakened and required full assistance from her caregivers for all her needs. She began to receive advanced respiratory therapy and started to make progress slowly but steadily, improving until she no longer needed support from the ventilator. The patient then progressed to being able to eat and drink a regular diet, allowing for the feeding tube to be removed. With help from her physical and occupational therapists, the patient regained her mobility and independence, and by the time she was discharged from the treating hospital she was able to walk with a cane, climb and descend steps and take care of all her daily needs.

The patient looked forward to rejoining her husband at home. Members of the team said goodbye and recognized the progress she had made.

Archived recovery account

This account describes care in an earlier setting. The course, timing and outcome belong to that individual.

The patient checked in to a general hospital when a large protrusion in her abdomen began to get worse. She was diagnosed as having a large hernia that required major surgery. Due to other health complications, she also required additional operations and developed respiratory failure after surgery. To complicate matters even more, the patient was diagnosed with diabetes and had to begin dialysis treatments.

When her condition stabilized, the patient came to the treating hospital for continued post-operative care, including advanced wound care and preparation for the placement of a graft to seal the site of her surgery. At the beginning of her stay, the patient was extremely depressed due to her new diagnoses and her large and complex wound. But with the aid of her team of caregivers and support from her family, she rallied herself, managing her new dietary restrictions and participating in physical and occupational therapy.

The patient returned to the general hospital for a couple of days to complete the skin graft surgery and then came back to the treating hospital to continue her major surgery recovery, which included dedicated wound care. Her wound site improved rapidly and had healed almost completely by the time she was discharged from the treating hospital.

She described feeling discouraged after surgery and said that consistent support helped her manage the treatment and continue therapy.

Organ Transplant Care

Organ transplants occur when a healthy organ is taken from one person — the organ donor — and surgically transplanted into another person whose organ was injured or has failed. Organs that can be transplanted include the kidneys, pancreas, liver, heart, lungs, and small intestine. Most donor organs come from deceased donors, but it is also possible to transplant an organ from a living donor. This is most common in kidney transplant surgery, but living donors can also donate one of the five lobes of their lungs to someone who needs a lung transplant, or a piece of their liver, as it is the only organ that regenerates.

Donor organs are matched to recipients based on medical characteristics, like blood type and the size of the organ needed, as well as factors like geography, how long a person has been on the transplant list, and how sick they are. A deceased donor can save eight lives if all of their eight lifesaving organs (heart, liver, pancreas, intestine, both kidneys, and both lungs), are matched to different recipients.

Of the more than 36,500 organ transplants performed in the United States in 2018, kidney transplant surgery was the most common, and intestine transplants were the least common solid organ transplants.

There are many diseases that can cause a transplantable organ to fail. Cardiomyopathy and coronary heart disease are two of the most common reasons for heart transplants, while diabetes can necessitate a kidney transplant surgery or pancreas transplant. Chronic uncontrolled hypertension and polycystic kidney disease are two other common causes for kidney transplant surgery. People suffering from cystic fibrosis and chronic obstructive pulmonary disease (COPD) may require a lifesaving lung transplant if they are good candidates for the procedure. Intestine transplants account for a small percentage of the total number of solid organ transplants performed each year, but common indications for the procedure include Crohn's disease, ischemia, and motility disorders. Physical injuries to organs and infections such as hepatitis can also create the need for an organ transplant.

A solid-organ transplant can be lifesaving, but outcomes vary with the organ, illness, procedure, era and the person's health. Lung and heart transplant survival estimates describe groups over a specified time and do not predict one person's course. Ask the transplant center for current, organ-specific figures. Ongoing care typically includes anti-rejection medicines, blood tests, attention to infection and medication effects, and a nutrition and activity plan. Some people need extended hospital care or rehabilitation before returning home.

Organ Transplant Complications

After transplant surgery, the team monitors for early and later complications. Bleeding, infection, reactions to anesthesia, blood clots, pain, hernias and wound complications can occur after major surgery. Organ function, drug levels and signs of rejection require follow-up by the transplant team. Some complications are life-threatening. Ask which symptoms require immediate attention and who should receive updates if a different hospital is caring for you.

As recovery progresses, the risk of these complications decreases, but others may present, including:

- Diabetes
- High cholesterol
- High blood pressure
- Gastrointestinal problems

- Gout
- Anxiety and depression

What Is The Best Path To Organ Transplant Recovery?

After a successful recovery from an organ transplant, patients are able to enjoy many activities their illnesses prevented prior to surgery. In fact, people often say that they have a new lease on life after kidney transplant or other organ transplant procedures. However, because a solid organ transplant is a major surgery with serious potential complications, long-term acute hospital care and rehabilitation are sometimes necessary to achieve a successful recovery.

Organ transplant recovery is directed in coordination with the transplant center. If another facility is being considered, confirm who can manage anti-rejection medication, infection monitoring, lab timing and urgent communication with that center.

The original transplant discussion described six consecutive years of growth in national transplant volume and cited a historical snapshot of roughly 80 transplants per day and 110,000 people waiting. These are source-era figures. For an individual recipient, the immediate issue is how organ function, immunity, infection risk, medicines and physical recovery interact. Some people need extended medical treatment and rehabilitation after the operation. Ask who will review drug levels, how often the transplant team needs an update, who can change the anti-rejection regimen and what the caregiver should report promptly.

When arranging transfer, document which team will adjust medicines, receive lab results and arrange follow-up. Ask the proposed facility to confirm the specialized services needed for this individual.

Organ transplant treatment plans may include but are not limited to:

- Treatment in special care units
- Cardiac monitoring, including telemetry and device monitoring
- Education regarding specific care plans for patients and family members
- Medication management, including anti-rejection medication
- Laboratory monitoring
- Nutritional assessment and support
- Rehabilitation, including physical therapy, occupational therapy, and speech therapy
- Home care education for family and caregivers
- Financial planning for extended care, if needed

Archived recovery account

This account describes care in an earlier setting. The course, timing and outcome belong to that individual.

Back Home and Independent Again

An adult who had received a double lung transplant needed further treatment after several complicated hospital stays.

In the year immediately following his lung transplant surgery, the patient was in and out of short-term acute care hospitals. He required significant assistance from his wife for most of his self-care tasks and was only able to walk very short distances with a rolling walker.

Prior to his double lung transplant, the patient was enjoying his retirement as an active and independent senior, able to drive and take care of himself. He came to the treating hospital to achieve a more successful lung transplant recovery, with the hope of getting back to his previous quality of life.

Upon admission to the treating hospital, the patient was evaluated by the interdisciplinary team of physicians, nurses, specialists, and therapists, who began a treatment program tailored to his medically complex needs. His lung transplant surgery had left him very weak, so he required assistance to roll and sit up in bed, was unable to walk more than ten feet, and could only tolerate five minutes of activity at a time. The patient had to overcome his limited endurance and weakness little by little as his lungs became stronger.

Through his perseverance, and the support of his wife and the clinical and medical teams, the patient was able to achieve a successful lung transplant recovery and return home. At discharge, he was able to get in and out of bed on his own, walk 300 feet with a rolling walker, and tolerate over 45 minutes of activity with minimal rest.

After only two months at the treating hospital, the patient was able to return to a life of independence! Less than a week after discharge, the patient's wife called to report that he was already walking without a walker.

Resources:

For the research cited on medical complications of lung transplantation, see the 2004 European Respiratory Journal review indexed by the National Library of Medicine. The transplant team can explain which monitoring is appropriate for an individual today. https://pubmed.ncbi.nlm.nih.gov/14979513/

MedlinePlus explains common elements of care after an operation, including following instructions, recognizing complications and knowing when to contact the surgical team. https://medlineplus.gov/aftersurgery.html

MedlinePlus describes organ transplantation and the ongoing care people may need after receiving a donated organ. https://medlineplus.gov/organtransplantation.html

The federal organ donation program publishes national transplant and waiting-list statistics. Check the reporting date and distinguish people waiting, donors and transplants performed when interpreting a figure. https://www.organdonor.gov/learn/organ-donation-statistics

Post-Trauma Care and Recovery

Traumatic injuries are severe blunt or penetrating injuries that can be life-threatening or cause long-term disabilities. These injuries require immediate medical intervention and are usually the result of a traumatic event, like a motor vehicle accident, heavy machinery accident, fall, or violent wound. Events like these can cause multiple traumas to different parts of the body and generally require short-term acute care in an intensive care unit. The highly trained ICU staff specialize in providing immediate post-trauma care for patients who need advanced medical resources and equipment. Once the patient is stabilized, they may be ready for discharge from a traditional hospital but still require additional time and medical oversight to rehabilitate or achieve a complete recovery. Traumatic brain injury rehabilitation, for example, can take quite a bit of time, as medical teams work to restore lost functional abilities and prevent secondary complications.

After severe trauma, a person may need extended hospital care for a brain injury, spinal injury, several fractures or injuries involving more than one body system. A change that helps breathing can affect the timing of mobility. Surgery or an open wound can limit how a person bears weight or transfers. The physician, nurses, therapists and relevant specialists consider the type and severity of each injury, possible

complications, pain, the person's health before the injury and their goals. Ask which problem is most urgent today, which precautions apply across disciplines and when the team will reassess them.

The effects of a serious injury may continue beyond the hospital stay. The team may need to consider pain, function, thinking, mood and the help available at home as recovery progresses.

Ask the ICU or trauma team what has stabilized, what still needs hospital treatment and whether transport can be managed safely. The receiving team reviews those needs before acceptance.

Why Would I Need Extended Post-Trauma Care?

Motor vehicle crashes, falls and other events can affect several body systems at once. Ask how each injury changes movement restrictions, treatment priorities and the safest rehabilitation setting.

Traumatic brain injury rehabilitation is another reason many people are admitted to transitional care hospitals that provide extended post-trauma care. In the intensive care unit of a traditional hospital, the traumatic brain injury care plan focuses on reducing pressure inside the skull, maintaining vitals like oxygen, blood supply levels, and blood pressure, and minimizing secondary damage due to inflammation, bleeding, or reduced oxygen supply to the brain. In some cases, surgery may be performed to remove clotted blood, repair skull fractures, stop bleeding in the brain, or create an opening to relieve pressure. After a person is stabilized, they may need to relearn basic skills, like walking or talking. Often this takes place at a transitional hospital, where the traumatic brain injury care plan focuses on physical and occupational rehabilitation, with support from a team of specialists, like physical therapists, speech-language pathologists, behavioral health specialists, and social workers. This type of post-trauma care helps patients regain mental and physical function, increasing their changes for a successful recovery.

Traumatic spinal cord injuries, like those caused by a car accident, gunshot wound or fall, can cause complete loss of muscle function or sensation. Immediate trauma care for spinal cord injuries, including medication, immobilization, and sometimes surgery or experimental treatments, takes place in the intensive care unit of a traditional hospital, but oftentimes post-trauma care at a transitional hospital is necessary to treat complications, regain function, or help a patient adapt to a decreased level of mobility.

Anyone who has received trauma care in an intensive care unit is at risk for developing post-intensive care syndrome, which is a collection of physical, mental, and emotional symptoms that persist after a patient leaves the ICU. The stress of the trauma, sedation, life-sustaining equipment, medications, and procedures can have a serious, and often lasting effect. Post-trauma care in a transitional setting gives patients more time to recover and regain physical, mental, and emotional functions impaired by a stay in the intensive care unit.

Examples of medical and functional needs after trauma include those discussed below. A clinician determines which setting can safely provide the required care.

Coordinating post-trauma care

After trauma, the physician and other clinicians plan around all active injuries, current equipment, surgical restrictions, pain and the person's own recovery goals.

Ask how the teams will share the current mobility and respiratory plan. A change in one restriction can affect positioning, pain control, therapy and wound care.

Confirm which clinicians will be involved before transfer. Depending on the injuries, the plan may require input from the following specialties:

Your interdisciplinary team may include:

- Pulmonologists
- Cardiologists
- Infectious disease specialists
- Surgeons
- Physical, occupational, and speech therapists
- Behavioral health specialists
- Social workers

Agree on a goal that can be assessed at the bedside, including equipment and assistance required. Explain how progress will be measured and what would change the plan.

Whether an outside physician can continue attending after transfer must be confirmed for the individual stay. Ask who will direct care and how the original physician will receive updates.

Ask when the team and family will review the plan together. Confirm who will follow urgent or unexpected changes between meetings.

Specialized Rehabilitation

Start or advance rehabilitation as the treating team determines it is safe. Ask which task can be practiced now, what is medically limiting it and what help the person will need.

Conditions and injuries that can affect rehabilitation after trauma include:

- Respiratory failure
- Traumatic brain injury
- Orthopedic injuries
- Multiple trauma
- System organ failure
- Neurologic disorders
- Sepsis

Archived recovery account

This account describes care in an earlier setting. The course, timing and outcome belong to that individual.

The patient came to the treating hospital after having been hospitalized for severe injuries sustained in a car accident. He sustained an acute head injury and multiple fractures and had to be placed on a ventilator and feeding tube. Once he had undergone multiple surgeries and had been stabilized he was able to be transferred.

At the beginning of his stay at the treating hospital, the patient required full assistance from his team of caregivers for all his needs and was experiencing cognitive difficulties as a result of his head injury. With patience, dedication and hard work from everyone on his team, the patient began to make progress in this and all areas of his recovery and was able to be weaned from the ventilator. He then progressed to drinking

and eating a regular diet and made excellent gains with his physical and occupational therapists. In the rehab gym, the patient was helped a great deal by the LiteGait therapeutic device that assisted him in recovering his sense of balance and the ability to start to use his legs to walk again. By the time he was discharged to continue with his rehabilitation, the patient had recovered a great deal of his independence over the activities of daily life and was hopeful about the next step of his journey.

The patient and family appreciated being able to begin rehabilitation and looked forward to building on the progress after transfer.

Resources:

The Model Systems Knowledge Translation Center explains stages of recovery after traumatic brain injury and why the pace of change can differ between people. https://msktc.org/tbi/factsheets/Understanding-TBI/The-Recovery-Process-For-Traumatic-Brain-Injury

MedlinePlus connects people living with traumatic brain injury and their families with information on diagnosis, treatment, rehabilitation, function and long-term recovery. https://medlineplus.gov/traumaticbraininjury.html

MedlinePlus provides an overview of intensive care and the kinds of monitoring and treatment that may be needed after a critical illness or major injury. https://medlineplus.gov/criticalcare.html

For background on post-intensive care syndrome, the clinical overview in the National Library of Medicine describes the physical, thinking and emotional difficulties that may continue after an ICU stay. https://pmc.ncbi.nlm.nih.gov/articles/PMC5506407/

For practical follow-up, ask which changes in memory, sleep, strength or mood should be discussed after discharge and who can help set a rehabilitation goal. Learn more about the role of rehabilitation from MedlinePlus. https://medlineplus.gov/rehabilitation.html

Prolonged Mechanical Ventilation

People who remain ventilator-dependent may need continued hospital care for breathing support, airway management, infection treatment and gradual assessment for weaning.

When considering Lakeview's pulmonary program, describe the airway, current support, recent trial response, secretion management and other active medical needs. Families can participate in planning and ask who will explain progress.

Breathing support can make speaking and eating difficult. Ask the respiratory, nursing and speech-language teams how to communicate discomfort, whether a swallowing assessment is needed and what forms of nutrition are safe today.

What Is Ventilator Care?

If you or a loved one is unable to breathe on their own, they are often placed on mechanical ventilation. There are many reasons why this may occur, including – but not limited to – a brain or spinal cord injury or muscle, lung or sleep disorders. In some cases, ventilator dependence occurs as a result of recovering from a very serious medical condition.

A ventilator supports breathing by moving air into the lungs under pressure. Depending on the situation, support can be delivered through a mask, a breathing tube placed through the mouth, or a tracheostomy tube placed through an opening in the neck. As the ventilator cycles, air flows back out of the lungs. The respiratory team selects the mode, settings and airway for the individual.

The medical team determines how much breathing support is needed, but typically there are three types of ventilator support:

- Controlled – when you cannot breathe on your own
- Supported – when you can breathe but need extra help from the ventilator in the form of pressure
- A combination of both

Not only does the ventilator deliver air into the lungs, but it also provides something called positive end expiratory pressure (PEEP) to aid the lungs in staying open so that the air sacs don't collapse.

What Are The Possible Complications Of Mechanical Ventilation?

Since a number of the conditions that require breathing support are severe in nature, long-term mechanical ventilation and disease-related complications can arise. For instance, if too much air enters the lungs, a collapsed lung or pneumothorax can occur.

Another precaution you and your loved ones should be aware of is the need to keep the breathing tube clean and relatively free of bacteria. If too much bacteria gets inside the breathing tube or if you are unable to cough, this can indicate that an infection such as pneumonia (called ventilator-associated pneumonia) has occurred.

Other possible complications that can occur include:

- Oxygen toxicity
- Decreased cardiac output
- Diaphragm atrophy
- Airway injuries
- Too much air pressure in portions of the lung

Ask which complications the team is watching for and how a change in breathing, comfort or alertness should be reported. Clinical staff adjust the equipment according to the current plan.

Is Recovery After Being On A Ventilator Possible?

The time required for mechanical ventilation varies. Ask what is limiting progress, how staff assess readiness for less support and what the most recent supervised trial showed.

Ventilator weaning is supervised and individualized. The team considers the underlying illness, breathing effort, oxygenation, secretion clearance and tolerance during activity and rest.

Physicians, respiratory therapists, nurses, pharmacists, rehabilitation staff and case managers may contribute to the breathing plan. Discuss how activity, nutrition and medicines affect tolerance.

With the patient's permission, include family members in discussions about goals and communication. Ask how often progress will be reviewed and who can explain a new development.

A coordinated plan can include airway care, management of the underlying illness, communication, nutrition, movement and family education. Ask how the team judges readiness to try less support.

When creating a ventilator weaning protocol, the team meets regularly to address:

- Rehabilitation goals and progress
- Early mobility program (getting vented patients up and moving)
- Timeline for weaning off the ventilator

- Nutrition and medication management
- Family education and preparation

Ask which spiritual or emotional supports are available and what training caregivers may need. Discharge planning should address the next level of care, equipment, supplies and follow-up contacts.

Archived recovery account

This account describes care in an earlier setting. The course, timing and outcome belong to that individual.

Before his health took a turn for the worse, the patient lived at home with his wife and enjoyed family time and an independent lifestyle. Hospitalized since late summer of 2019, the patient has been on a long journey to recovery and has battled numerous illnesses and life-threatening organ failure. Aggressive pneumonia led to him needing to be placed on a ventilator, while acute kidney and liver injuries presented additional challenges and treatments to prevent blot clots and cardiac failure.

After a long stay at the general hospital, the patient was finally able to be transferred to the treating hospital, where he would be able to receive aggressive respiratory therapy and rehabilitation. With the goal of a return to his home and family firmly in sight, his respiratory therapists helped increase his lung strength until the patient no longer needed the support of the ventilator and he was successfully weaned. His occupational and physical therapists helped the patient regain his strength and fine motor skills and he was able to stand up and walk and take back control over the tasks of daily living.

One of the last milestones before his discharge from the treating hospital to his home and family was when the patient was able to have the breathing tube completely removed. Now eating and drinking a simple diet and completely independent, he was eager to complete his recovery in the comfort of his own home. He looked forward to spending time with his grandchildren again.

Pulmonary and Respiratory Care

Lakeview provides pulmonary care and ventilator weaning for appropriate patients who still require hospital-level treatment. The underlying illness and other medical needs shape the course of recovery.

Some illnesses make breathing more difficult, and you may require assistance through mechanical ventilation and respiratory care. For many, each breath is an effort, often causing anxiety, which results in further shortness of breath, increased heart rate, muscle fatigue and even feelings of panic. This can negatively impact every aspect of your life.

Ask the team how respiratory treatment fits with medical management, nutrition, activity, swallowing and the person’s goals. Care is adjusted in response to the person’s condition.

Pulmonary Care Patients

Hospital respiratory care may be needed when an adult is medically stable enough to transfer but still requires ongoing physician and respiratory management.

Pulmonary diagnoses and needs to describe during referral review may include:

- Respiratory failure
- Chronic Obstructive Pulmonary Disease (COPD)

- Ventilator dependence
- Simple and complex pneumonia
- Obstructive airway diseases
- Obstructive sleep apnea
- Non-invasive ventilation (e.g. Bi-PAP, C-PAP)
- Restrictive airway diseases
- Acute Respiratory Disease (ARDS)
- Neuromuscular Respiratory Insufficiency
- Pulmonary Edema

Our pulmonary care is focused on two types of patients: those who require prolonged mechanical ventilation, and those who need non-ventilator pulmonary care.

What Is Prolonged Mechanical Ventilation?

People may need a ventilator because of a serious injury, lung illness or weakness of the breathing muscles. The time required varies. The team follows the underlying condition, oxygen needs, alertness, strength and ability to protect the airway. Ask how the team will check readiness for a trial, what support will remain in place and what would lead to trying again later.

Pulmonary and respiratory treatments to discuss

Depending on the condition, the respiratory plan may involve airway care, oxygen, inhaled medicines, noninvasive support, ventilator management, supervised weaning and rehabilitation. Ask which interventions the receiving team can provide.

Examples of respiratory support and treatment to discuss with the clinical team include:

- Chest percussion therapy
- Inspiratory muscle therapy
- Passy-Muir (speaking valve) placement
- Non-invasive ventilator management
- Airway management

Additional treatments may include:

- Tracheostomy care
- Oxygen delivery
- Aerosolized medications
- Airway care C-PAP
- Bi-PAP ventilatory support
- Patient and family education for medication management and chronic lung disease conditions

What Does Recovery Look Like?

Participation in therapy, the amount of breathing support, airway clearance and the person's ability to communicate all help describe progress. Ask the team to explain current goals and what may change the next step.

Archived recovery account

This account describes care in an earlier setting. The course, timing and outcome belong to that individual.

The patient drove a truck and loved to listen to all types of Latin music before he became very ill and had to be hospitalized when he suffered a fall. At the hospital he was diagnosed with COVID-19 and, as his lungs failed, he had to be placed on a ventilator and given a feeding tube as well as antibiotic IV therapy. Over what would become a long course of treatment, his physicians worked hard to stabilize his condition and overcome challenges that included a collapsed lung, gastric bleeding and acute kidney injury. He remained in critical condition for four months until he was finally able to be transferred to the treating hospital, where he could receive advanced respiratory therapy and begin his rehabilitation.

After a long period in bed, the patient needed extensive help with movement and daily care. Respiratory and physical therapy addressed different parts of the recovery. The respiratory team monitored breathing while oxygen support was reduced. The treating team was able to discontinue high-flow oxygen and remove the chest tubes. Physical therapy focused on the strength and mobility the patient had lost during months of bed rest. Small gains in these areas allowed the next stage of rehabilitation to begin. In this historical account, the patient transferred from the treating hospital after just over two weeks. The transfer marked a change in the type of help needed. Weakness and a continuing need for rehabilitation remained, and the patient's longer-term goal was to regain the independence enjoyed before the illness.

Before leaving he recalled how several disciplines had worked together during his stay.

Traumatic Brain Injury and Stroke Care

After a brain injury or stroke, rehabilitation may address awareness, communication, swallowing, movement, thinking and daily routines. Some people also need continued hospital treatment for breathing, wounds, infection or kidney care.

After acquired brain injury, ask about medical stability, alertness, cognition, communication, movement and behavior together. These features affect which rehabilitation or neurobehavioral service should review the patient.

A Specialized Care Team Dedicated To Recovery

Depending on the person's needs, the team may seek input from rehabilitation medicine, nursing, respiratory therapy, physical and occupational therapy, speech-language pathology, neuropsychology or other specialists. Confirm specific consultations before transfer.

Choose goals for movement, daily activities, communication and cognition with the patient and family. Record small observable changes as well as the assistance still needed.

What Is A Traumatic Brain Injury?

A traumatic brain injury (TBI) occurs when a sudden trauma from an external blunt force causes damage to the brain. These injuries, which can include brain contusions, concussions, hematomas, blood clots, bleeding, and cerebral edema, can seriously impact the way the body functions, sometimes permanently. Even the long-term effects of mild traumatic brain injury can be very difficult to manage and may include dizziness, migraines, depression, and cognitive impairments. A person who has suffered a more severe traumatic brain injury may experience physical, intellectual, behavioral, emotional, and sensory challenges, as well as communication problems that make it difficult to speak, organize thoughts, and participate in conversations. In cases like these, rehabilitation often requires long-term care with an interdisciplinary team of physicians, nurses, and therapists that specialize in brain trauma injury recovery.

What Is A Stroke?

A stroke is an acquired brain injury caused by blocked blood flow or by bleeding in or around the brain. Traumatic brain injury follows an external force. In a stroke, brain cells can be damaged when oxygen or blood supply is interrupted, and the area affected influences what changes. Stroke can occur at any age. It is more common in older adults, particularly those with vascular risk factors. Sudden changes in movement, speech, balance, vision or understanding require a call to 911. After stabilization, some people need coordinated, longer-term physical, occupational and speech-language therapy for mobility, self-care, swallowing or communication.

A brain aneurysm is a bulging area in a blood vessel. If it ruptures, bleeding around the brain can be life-threatening and requires emergency care.

What Is An Acquired Brain Injury?

An acquired brain injury (ABI) is any brain injury that occurs after a person has been born that is not the result of a genetic condition. This term includes brain injuries caused by physical trauma, like the ones mentioned above, but also those caused by non-traumatic medical factors, such as meningitis, tumors, aneurysms, or strokes.

For information about Lakeview's brain injury, neurobehavioral and rehabilitation services, discuss the current medical needs and functional changes with Admissions.

- Neurological diseases
- Traumatic brain injuries

Traumatic Brain Injury Success Stories

Archived recovery account

This account describes care in an earlier setting. The course, timing and outcome belong to that individual.

Looking Forward to the Future

The patient worked as a certified nursing assistant for 25 years, but her life changed when she suffered a stroke. She was admitted to a short-term acute care hospital, where she developed respiratory failure. Two weeks later, the patient was transferred to the intensive care unit, and then to the treating hospital for continued stroke recovery care and ventilator weaning.

Upon admission to the treating hospital, the patient was evaluated by an interdisciplinary team of physicians, nurses, therapists, and specialists, who developed a treatment plan for her complex medical needs, including stroke rehabilitation and ventilator weaning among a number of other things. Initially, the patient remained unresponsive and required the ventilator to support her lungs. Doctors knew that her neurological status and the condition of her heart presented great barriers to her recovery, but the treating hospital's respiratory, nursing, and rehabilitation teams were optimistic and ready to face the patient's challenges with her. Slowly, the staff began to see the patient respond. She was gradually liberated from the ventilator under the guidance and encouragement of her pulmonologist and a team of respiratory therapists. The stroke rehabilitation team was then able to step in and get to work. Three weeks later, the patient's tracheostomy tube was removed. With support from speech therapists, the patient started making great strides with her verbal communication and memory and accomplished critical milestones like passing a swallowing test, which allowed her to begin eating again. Occupational therapy helped the patient begin regaining the ability to do her own grooming and dressing, and physical therapy enabled her to sit at the edge of her bed and regain strength in small but meaningful stages. After a few weeks, the patient no longer needed acute medical care, and she was discharged to a skilled nursing center where she continued her stroke rehabilitation. The nursing team described both meaningful functional gains and continued needs after the stroke.

Archived recovery account

This account describes care in an earlier setting. The course, timing and outcome belong to that individual.

Making Her Husband and Rehab Team Proud

The patient has had a very complicated hospital journey. She suffered acute respiratory failure and an anoxic brain injury, meaning that for a period of time, her brain did not receive adequate oxygen and sustained permanent damage. Prior to this unfortunate incident, she was totally independent with her care.

Upon the patient's admission, she was evaluated by the rehabilitation team, who determined that she was completely dependent on caregivers for all of her daily activities and functional transfers. While at the treating hospital, the patient underwent extensive rehab training and was able to make meaningful gains, which made both her husband and rehab team proud. By the time she was discharged, she was able to perform the following tasks with minimal assistance: simple grooming, upper body bathing and dressing, and bed mobility.

At transfer to skilled nursing, the patient continued to experience the effects of an anoxic brain injury. She was gaining oral motor control, expressing herself more often and beginning to say simple words on request.

Additional Types of Care

In addition to the primary reason for referral, discuss the everyday services needed for safe treatment and recovery. Some services vary by facility, equipment and individual plan.

Topics to review with the sending and receiving teams include:

Bariatric Services

Chaplain Services

Diagnostic Imaging

- Food Services and Nutrition Support

Laboratory

Pain Management

Pharmacy Services

Social Services

Telemetry Services

Bariatric Services

After bariatric surgery or in the presence of severe obesity, ask which equipment, staffing, nutrition support and medical monitoring are needed. Relevant issues may include:

- Gastric bypass
- Gastric banding
- Post-op complications
- Clinically severe obesity
- Respiratory complications
- Sleep apnea

Discuss the availability of the following supports and how they would be provided in the proposed setting:

- Nutritional consultation
- Lifts and devices help you move safely
- 24-hour respiratory therapy
- Physical, occupational and speech therapy
- Wound care
- Total parenteral nutrition
- Bariatric beds and other individual needs

Chaplain Services

If spiritual support matters to the patient, ask how to contact the patient's chosen advisor, whether the facility offers support and how visits can be coordinated with care.

Diagnostic Imaging

Ask which imaging tests are still needed, where they will take place, whether transport is required and who will explain the results.

Food Services And Nutrition Support

A nutrition assessment considers the person's medical needs, preferences, allergies and swallowing plan. Ask for a sample meal and any instructions for visitors bringing food.

Discuss how nutrition needs and weight will be monitored, when the plan will be reviewed and how changes will reach those providing meals and feeding assistance.

Laboratory

Confirm which tests the clinician wants, when they are due and which team will act on the results. Time-sensitive or pending results need a named follow-up owner at transfer.

Pain Management

Discuss how pain affects sleep, breathing and participation in therapy. The clinical team can explain treatment options, effects to watch for and when the person should report a change.

You may request or reject the use of any or all methods to relieve pain, including non-opiate and opiate medications.

Pharmacy Services

Pharmacists can help review medicines, check for interactions and prepare discharge instructions. Ask which medicines changed, who will explain them and how the patient will obtain the first home doses.

Social Services

A social worker or case manager may help address practical, financial, emotional and family needs. Ask who coordinates the plan and whom to call when a support arrangement changes.

Depending on the person's plan and available community resources, support may include:

- Counseling for both you and your family members
- Discharge planning
- Referrals to community agencies
- Securing medical equipment for home use

Telemetry Services

Telemetry can continuously monitor the heart's electrical activity when ordered. Confirm why monitoring is needed, which setting can provide it and how the team responds to a change.

You might receive telemetry services for the following:

- Recent history of unstable cardiac rhythm
- Active ischemic heart disease
- Early efforts to actively wean from mechanical ventilators
- Respiratory failure or impending respiratory failure requiring close monitoring of cardiac rhythm
- Recent myocardial infarction
- Drug toxicity associated with conduction abnormalities
- Anti-arrhythmic therapy
- IV calcium channel blocker and beta blocker

Talk with Lakeview

Call Lakeview Admissions at (262) 534-8509 to discuss a referral. For clinical records, use the referral fax at (262) 534-8507.

https://www.lakeviewsystem.com/services

https://www.lakeviewsystem.com/long-term-acute-care

https://www.lakeviewsystem.com/inpatient-rehabilitation

https://www.lakeviewsystem.com/brain-injury

https://www.lakeviewsystem.com/community-living