General Information
   Welcome Letter
   Neuroscience Intensive Care Unit
   Neuroscience and Stroke Units
   Map and Directions
   Patient and Visitor Information
   Patient Rights and Responsibilities
   Rights of the Disabled
   Patient Safety
   Important Phone Numbers

Meet Your Healthcare Team

Your Brain (Anatomy and Function)

Risk Factors
   Risk Factors for Stroke
   Stroke Risk Scorecard
   Signs and Symptoms of Stroke

Tests and Procedures
   Laboratory Tests
   Radiology Tests
   Diagnostic Tests and Procedures
   Other Tests

Ischemic Stroke
   Overview
   Treatment Options
   Medications
   Emergency Procedures
   Other Procedures

Hemorrhagic Stroke
   Overview
   Intracerebral Hemorrhage (ICH) Treatment Options
   Subarachnoid Hemorrhage (SAH) Treatment Options
   What to Expect After SAH
   Surgical Procedure Instructions

Rehabilitation and Recovery
   Effects of Stroke
   Physical Therapy
   Occupational Therapy
   Speech Therapy
   Dysphagia (Swallowing Difficulties)
   Guide for Thickened Liquids
Nutrition After a Stroke
   Heart Healthy Diet
   Choose My Plate
   Heart Smart Ingredient Modifications

Leaving the Hospital
   Preparing for Discharge
   Get Your Life Back!
   Support Groups
   Stroke Caregiver
   Resources
   Stroke Recovery Scorecard
   Clinical Trials

Patient Medication Guide

Inova Resources
   Neuroscience Services
   Inova Rehabilitation Services
   Home Health Services
   Inova Outpatient Rehabilitation Programs
   Care Pages
   Inova HealthSource
   Support Groups
   Important Phone Numbers

Brain Diagrams
Welcome to Inova Fairfax Hospital

Dear Patient:

Welcome to Neuroscience Services at Inova Fairfax Hospital. Our team of dedicated and compassionate healthcare professionals is committed to providing you with excellent care and service. Thank you for placing your trust in us. We will do everything in our power to make your stay comfortable and help you through this difficult time.

Inova Fairfax Hospital is one of the top performing stroke programs in the country as rated by The Joint Commission and the American Heart Association/American Stroke Association. It is also one of the few programs in the region that has a dedicated Neuroscience Intensive Care Unit (NSICU) and a dedicated Stroke Care Unit. That means our nurses, technicians, and support staff are specifically trained to handle neurological concerns and are dedicated to working with your physicians to provide you with excellent care and support in your recovery.

We are pleased to provide this patient handbook to educate you and your family about your diagnosis and to involve you in each step of your treatment. Please keep it with you during your hospital stay, as your physicians, nurses and other members of your care team will refer to its contents. If you have any questions or concerns, or would like more information, please feel free to ask a member of your healthcare team.

We hope you will find the information in this handbook useful, and wish you the very best for a speedy recovery.

Sincerely,

James Ecklund, MD
Chairman, Department of Neurosciences

Jack Cochran, MD
Medical Director
Cerebrovascular and Stroke Services

Maggie Perih, RN, MSN, NE-BC
Senior Director, Neuroscience Nursing

Tina Clem, RN, MSN
Patient Care Director,
Stroke and Neuroscience Units

Robert P. Theis, Jr.
Executive Director, Neuroscience Services

Barbara Mancini, BSN, MBA, CNRN
Director, Neuroscience Services
Dear Patients and Visitors,

Welcome to Inova Fairfax Hospital Neuroscience Intensive Care Unit (NSICU). Hospitalization can be a stressful time for patients and for their families. This is especially true in the intensive care environment. During your visits in the critical care unit, you may see, hear, and experience things that are unfamiliar to you. We encourage you to ask questions. Knowledge can improve your peace of mind and may help decrease the amount of stress you are experiencing. The intensive care units provide constant observation and professional, highly specialized care. If at any time you have questions or concerns, please do not hesitate to ask for help. We are eager to help you.

Sincerely,
The NSICU Staff

Visiting Hours and Policies

- To recover, patients in the NSICU need rest and reduced stimulation. For this reason, visitation is limited to two guests at a time and visitors are encouraged to help us provide a calm and restful environment.
- **Visiting hours are 24 hours a day, but visitors are asked to wait in the visitation area or the main lobby during shift changes — from 7 to 8:30 a.m. and from 7 to 8 p.m.**
- Due to safety reasons, visitors are not allowed to sleep in the patient room.
- Please do not visit if you have symptoms of a cold, flu or other infectious disease.
- Because of the risk of infection, visitors under the age of 12 are not permitted on the unit. Exceptions can be made only by the decision of the healthcare team.
- The privacy of our patients and families is important to us and must be respected. Before entering the unit, please use the intercom by the gray elevators to inform us of your arrival. We will allow you to enter as soon as possible. Delays may occur due to nursing-care needs.
- While you are visiting we ask that you stay in the room. If you need to step out please use the designated waiting areas and avoid standing in the hallway.
- Cell phones are not allowed in the NSICU due to interference with medical equipment. Please turn your phone off when entering the unit. There are phones in each patient room that you are welcome to use. Please feel free to ask the staff for assistance.
- We ask that visitors not bring food and drinks into the patients’ rooms. Please go to designated areas — such as the lobby, cafeteria and cafés — to have meals.

Personal Articles

- Space is limited for personal belongings.
- Many kinds of candy are not permitted on special diets, so please ask before bringing anything in.
- Because we work to maintain a clean and sterile environment for the patients, fresh flowers are not allowed on the unit.

We Are Here to Help!

If there is anything we can do to assist you while your loved one is in our care, please ask us.
Dear Patients and Visitors,
Welcome to the Neuroscience and Stroke Units at Inova Fairfax Hospital. Our team of healthcare professionals is committed to providing you with excellent, personalized care and treating you with compassion, dignity, and respect. Our goals are to provide:

• Excellent teamwork between physicians, nurses, staff and patients
• Courteous and friendly treatment
• Effective communication with our patients and family members
• Patient education regarding diagnosis and treatment
• A safe environment for your care

We are personally committed to:

• Introducing ourselves when we enter your room
• Checking your name and medical record number on your identification band to ensure that we deliver safe care
• Answering any questions or concerns that you may have about your care

If at any time you feel we are not providing excellent care and service, please contact the charge nurse for your unit by dialing the following extension:
Tower 2 and Neuro Step-down. . . . . . . ext. 5700
Tower 3. . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . ext. 6363

It is our pleasure to serve you. Thank you for choosing Inova Fairfax Hospital!

Sincerely,
The Staff of the Neuroscience and Stroke Units

Important Information

• Only two visitors are allowed at a time
• Visiting hours are from 10 a.m. to 8 p.m. Special arrangements may be made by speaking to the charge nurse.

Patient Safety is one of our top priorities. We will frequently check your wrist band identification including your name and medical record number to ensure that we deliver safe care. We will also remind you to call for assistance when walking to keep you safe and prevent falls.

Bedside Change of Shift Report and White Boards: Our team of caretakers change shift at 7 a.m. and 7 p.m. We will come to your room within 30 minutes of the shift change and you will meet the oncoming team of care providers. This is a time for us to explain your plan of care to the next shift and for you to ask questions as necessary. We will update the white board to reflect the team that is caring for you each shift.

Your Call Bell is always available to let us know if you need anything. We will do our best to anticipate your needs. However, if you need us, please do not hesitate to use your call bell.
Unit Visiting Hours and Policies

- Visiting hours are from 10 a.m. to 8 p.m. Special arrangements may be made by speaking to the charge nurse.
- Please be respectful of our other patients during visiting hours.
- Please do not visit if you have symptoms of a cold, flu or other infectious disease.
- A family waiting room is available your comfort.
- Many patients are on special diets during their stay at the hospital. Please speak to a member of the nursing staff before bringing any food onto the unit.
- We ask that visitors not bring food and drinks into the patients’ rooms. Please go to designated areas — such as the lobby, cafeteria and cafés — to have meals.

Personal Articles

- Please do not keep any unnecessary personal property with you while you are a patient with us. Inova Fairfax Hospital will not accept responsibility for any loss of, or damage to, personal property during your hospital stay.
- Space is limited for personal belongings. Each patient has a small closet and bedside table for storing personal belongings.

We are here to help!
If there is anything we can do while your loved one is in our care, please ask us.
**Location and Directions**

Inova Fairfax Hospital is located at 3300 Gallows Road, Falls Church, VA 22042. The hospital is just off the Capital Beltway (1-495) and Route 50 (Arlington Boulevard) on Gallows Road.

**Neuroscience Services is located in Building 3, the Medical/Surgical Tower.**

**Inova Fairfax Hospital Campus**

![Inova Fairfax Hospital Campus Map](image)

1. Inova Heart and Vascular Institute (IHVI)
2. Surgery Center
3. Medical/Surgical Tower
4. Emergency Department
5. Women’s Center and Children's Hospital
6. Original Building
7. Physicians Conference Center
8. Claude Moore Building
9. Comprehensive Addiction Treatment Services
10. Virginia Commonwealth University (VCU)
11. Support Services Building
12. Gray Garage
13. Blue Garage
14. Parking Lot closed

For step-by-step photographic directions to Inova Fairfax Hospital, visit our Web site at www.inova.org/ifhmaps and click on Building 3.
Parking
Patient and visitor parking is available in the gray and blue parking garages. There is a nominal parking fee, but special discounted parking permits are available to visitors, patients and senior citizens (60 and older). Ask the parking attendant for more information.

Hotel Accommodations
Some local hotels offer special rates to Inova Fairfax Hospital patients and family members. A complete listing is available in the front pocket of this binder and at information desks throughout the hospital.

Food and Beverages
Food to eat in or take out is available in the main cafeteria, Park Avenue Deli and Healthy Heart Café. The main cafeteria, located in the basement level of the original building, is open 24 hours a day for soup, sandwiches, salads, snacks, beverages and other light fare.

In addition, coffee carts are located in the Tower lobby, Inova Fairfax Hospital Women’s Center/Inova Fairfax Hospital for Children lobby and the Inova Heart and Vascular Institute lobby. They offer a variety of gourmet beverages and baked goods. Also, soda, juice and snack food vending machines are located throughout the hospital.

ATM Locations
Automated teller machines are located in the Tower lobby, Inova Fairfax Hospital Women’s Center/Inova Fairfax Hospital for Children lobby, the main hospital cafeteria and across from the Inova Heart and Vascular Institute gift shop.

Cell Phone Policy
Cell phones may be used in non-patient care areas within the hospital. This includes the main waiting areas, cafeterias and lobbies, and hallways where there is no medical equipment.

Cell phones may not be used in patient care areas; they may interfere with sensitive medical equipment and can impact patient safety. Portable phones used by staff are especially for hospital use and are not cell phones.

When using your cell phone in the hospital, please be mindful of others. Keep your conversations as brief, and as quiet, as possible.

Tobacco/Smoke-Free Policy
To promote healthy living, Inova Health System does not allow tobacco use in its buildings or on its grounds. Inova is proud to support a no smoking, tobacco-free setting and offers a helpful program to those who want to stop using tobacco. For more information on this program, please ask your nurse or call Inova HealthSource at 1-855-My-Inova (1-855-694-6682).

Wireless Internet Access
Inova Fairfax Hospital provides free high-speed Internet access throughout the hospital for those with wireless enabled laptops or PDAs. No password is required. This free service is managed by AT&T. If you need help, contact an AT&T representative at 1-888-304-9131.
Care Pages
Staying in touch with loved ones and friends while also managing a healthcare challenge can be difficult. But staying connected is a crucial component to getting, and staying well—for both patients and caregivers. Inova Health System understands these obstacles, and we’re prepared to help.

Now you can stay connected with family, friends and colleagues before, during and after a healthcare challenge through a CarePages website. CarePages provides free, private websites that make it easy to:
- Update family, friends and even colleagues all at once
- Share photos
- Collect supporting messages from loved ones and friends
- Learn more about healthcare issues
- Connect to others with similar concerns

To create a free CarePages website, visit CarePages.com/inova and click the “create” link at the top of the page. CarePages.com ensures that patients, families and healthcare providers are protected online through strict privacy policies and password security. For technical support, call 1-888-852-5521.

Gift Shops
Our gift shops are operated by hospital volunteers and offer a wide variety of merchandise, including fresh flowers, unique gifts, convenience and personal care items, greeting cards, snacks, books and magazines. The gift shops are located in the Tower lobby, the Inova Fairfax Hospital Women’s Center/Inova Fairfax Hospital for Children lobby and adjacent to the Inova Heart and Vascular Institute lobby.

Health Sciences Library
Our medical library is open to patients and their families. It is located in the Inova Fairfax Hospital atrium at the top of the escalators in the connector corridor between the Tower lobby and the Inova Fairfax Hospital Women’s Center. It provides resources and services to assist patients, their families and the local community. A fax machine and several computers with Internet access are also available. For hours of operation, call 703-776-3234.

Spiritual Support
We support the spiritual needs of our patients and their family members. Care is available to people of all faiths as well as those who have no religious affiliation. Our volunteer staff is made up of lay and clergy volunteers from every major faith group. Trained chaplaincy volunteers are available for spiritual support through compassionate presence, conversation or, if requested, prayer and sacrament. In addition, lay and ordained chaplains are on-call to respond to medical crises 24 hours a day, seven days a week.

Our hospital chapel is located on the first floor of the Tower building, adjacent to the lobby and is open 24 hours a day, seven days a week for patients, family, friends and staff. For more information about our Chaplaincy Services or to request a chaplain visit, please call 703-776-3767.
Medical Records
After discharge from the hospital, patients, guardians or parents of minor patients may receive copies of medical records for a nominal charge after submitting a written request. For more information, speak to a staff member or call 703-776-3307.

More Patient and Visitor Information
Comprehensive patient and family information is available on our Web site, www.inova.org
Patient Rights and Responsibilities

We can provide better healthcare when you and your family work together as partners with our staff. It is our responsibility to advise you of your rights as a patient; you also have responsibilities in your treatment and care. We urge you to ask questions, be proactive and take an active part in your healthcare plan. If you have questions or concerns, please discuss these with any staff member or contact the hospital’s patient representative.

Overview of Patient Rights

While you are in our hospital, you have certain rights as a patient. You have the right to:

- Courteous, respectful care
- Effective communication
- Information about your health and care
- Make informed decisions
- Participate in your care plan
- Consent to or decline treatment
- Appropriate assessment and management of pain
- Know the names and titles of your healthcare providers
- Safety and privacy
- Confidentiality
- Contact the patient representative
- Have a family member or representative, and your physician, notified of your admission
- Consent to or decline participation in research studies or media recordings
- Access information, request amendments to, and receive an accounting of disclosures of your health information
- Be free from unnecessary or inappropriate restraints
- Be free from all forms of abuse or harassment
- Receive hospital services without discrimination on the basis of any factor prohibited by applicable law
- Interpreter services at no cost

Patient and Family Responsibilities

As a patient, you are responsible for the following:

- Providing complete and accurate information about your health, including past illnesses, hospital stays, use of medications and other matters relating to your health
- Asking questions when you do not understand what you have been told about your care or what you are expected to do
- Telling your doctor if you believe you cannot follow through with your treatment recommendations, and understanding the possible outcomes if you elect not to follow the advised treatment plan
- Being considerate of other patients, staff and hospital property, and following hospital rules and regulations (we ask this of your visitors as well)
- Providing necessary information for insurance claims and for promptly assuring that the financial obligations of your healthcare are fulfilled
Your Healthcare Decisions
You have the right to create and communicate advance directives. We want to know, and will respect, your decisions about medical care. These decisions, called advance directives, can include such things as:

- A living will
- A durable power of attorney for healthcare decisions
- Organ donation wishes

If you have advance directives, please provide a copy to your nurse. If you want more information about advance directives, please ask your nurse or call the Patient Relations Department at 703-776-3663.

If You Have Questions, Concerns, Comments or Compliments
Feedback from our patients and visitors is important to us. We encourage you to speak to members of your healthcare team or their supervisor about any concerns you may have, or contact the Patient Relations Department at 703-776-3663.

Through its Patient Relations program, our hospital has a process to address complaints or grievances. If you choose, you may also contact the Virginia Department of Health, Office of Licensure and Certification, 9960 Mayland Drive, Suite 401, Richmond, VA 23233, or call 800-955-1819.

You may also contact the Office of Quality Monitoring, The Joint Commission, One Renaissance Blvd., Oakbrook Terrace, IL 60181, or call 800-994-6610.

Ethics Consultation
Our hospital’s Ethics Committee provides consultation services to help a patient or family deal with questions of life and death, as well as the quality of life. The Ethics Consulting team helps patients, families and hospital staff talk about appropriate plans of care. The role of the Consulting team is to advise; it does not judge or make decisions. Its assistance is intended to help clarify issues for the patient and family members involved, to give them the information they need to make decisions.

Anyone directly involved with a patient can seek a consultation on the patient’s behalf, including the patient, family members, physicians, the nurses caring for the patient and other members of the patient’s healthcare team. To contact a member of our hospital’s Ethics Consulting team, ask your nurse or dial “0” to reach the hospital operator who will direct your call.

Rights of the Disabled
When serving the disabled, our hospital continually strives to meet the objectives of the Americans with Disabilities Act and the Virginians with Disabilities Act. If you encounter any physical or communication barrier during your time at our hospital, or if you believe you have been denied access to the hospital’s full array of services because of your disability, please contact the patient representative.
Services for the Deaf and Hard of Hearing
To ensure effective communication with patients, their family members, and companions who are deaf or hard of hearing, we provide auxiliary aids and services free of charge, such as:

- Sign language and oral interpreters
- Telecommunications typewriters for the deaf or hearing impaired (TTY/TDD)
- Video remote interpreting (VRI) enabled with point-to-point video calls (VRS), text functionality (TTY), and access to the national relay service (711)
- Written materials
- Telephone handset amplifiers
- Assistive listening devices (marketed as Pocketalker)
- Telephones compatible with hearing aids
- Open and closed captioning of most hospital programs.

Please ask your nurse or other hospital personnel for assistance, or contact 703-776-7641.

For Your Safety
Patient safety is our top priority. Inova Fairfax Hospital encourages you and your family to be active participants in your care and safety during your stay with us. If you have any safety concerns, we urge you to report them to your doctor, nurse or the Patient Relations Department at 703-776-3663.

- Each time staff enter your room, they will check your armband and ask your name and/or birth date to validate proper patient identification before medication administration, blood draws or other procedures.
- While in bed, we suggest you keep the top two side rails raised. The side rails are for your protection because hospital beds are usually higher than your bed at home. Do not try to lower or climb over your bed rails. If you need any assistance raising or lowering your side rails, please ask staff for help.
- Check with your nurse before using any electrical appliances. Only appliances with three-pronged plugs may be used in patient areas.
- If you are undergoing surgery, you will be asked to participate in marking the surgical site.
- You will be asked to provide a list of your current medications, including dosage and frequency, for your doctor to review.
- Staff will educate you on your medications and possible adverse reactions.
- As part of the hospital’s safety program, we conduct regular fire drills and tests of our alarm system. When the fire alarm system is activated, some doors will close automatically. In the event of an actual emergency, we will provide directions and assistance.
Tips to Avoid a Fall
Illness and/or medicines can affect your ability to move and can put you at risk for falls. To avoid a fall while in the hospital, please follow these suggestions from our nursing staff.
Always:

- Wear good fitting, non-skid footwear and walk slowly.
- Wear your eyeglasses.
- Use your cane, walker or other personal assistive devices.
- Plan regular trips to the toilet to avoid the need to rush.
- Ask for help getting out of bed if you feel weak, dizzy or light-headed.
- Ask to have your bedside table, telephone, and call bell/light, within your reach.
- Use the call light in the bathroom if you need help getting back to bed.
- Call the nursing staff if there is a spill on the floor.
- Keep the night light turned on in your room.

Remember: We are here to help you and we are only a call away.

Rapid Response Team
Our Rapid Response Team (RRT), staffed by physicians, nurses and other clinicians, provides immediate medical assessment and care to patients experiencing a noticeable change in their condition.

- Available 24 hours, the Rapid Response Team is always accessible. The RRT nurse can be at the patient’s bedside in less than ten minutes for the initial assessment.
- Since 2005, Inova Fairfax Hospital clinicians have called on the Rapid Response Team to provide additional, immediate medical assessments of patients. Now, patients and their family members can request that same team to their loved-ones’ bedside.
- The RRT should be called if your on duty nurse is not immediately available when a medical change is noticed.
- The Rapid Response Team serves as an additional resource for immediate medical assessment and care. You can call on them whenever you have a concern with the patient’s condition or in understanding what care is being offered.
- Inova Fairfax Hospital is committed to providing the highest quality of care. With patient and family access to the Rapid Response Team, patients can now actively participate in their own medical care.

To call the Rapid Response Team, dial 703-776-4250 and provide voicemail with your details and the team will be immediately paged.
### Important Phone Numbers

<table>
<thead>
<tr>
<th>Service</th>
<th>Phone Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hospital Main Number</td>
<td>703-776-4001</td>
</tr>
<tr>
<td>Case Management</td>
<td>703-776-3508</td>
</tr>
<tr>
<td>Chaplaincy</td>
<td>703-776-3767</td>
</tr>
<tr>
<td>Emergency Department</td>
<td>703-776-3111</td>
</tr>
<tr>
<td>Financial Counselors</td>
<td>703-776-7858</td>
</tr>
<tr>
<td>Medical Records</td>
<td>703-776-3307</td>
</tr>
<tr>
<td>Patient Accounts</td>
<td>703-645-2899</td>
</tr>
<tr>
<td>Patient Information</td>
<td>703-776-4001</td>
</tr>
<tr>
<td>Patient Relations</td>
<td>703-776-3663</td>
</tr>
<tr>
<td>Radiology</td>
<td>703-776-3161</td>
</tr>
<tr>
<td>Rehabilitation - inpatient</td>
<td>703-776-6091</td>
</tr>
<tr>
<td>Rehabilitation - outpatient</td>
<td>703-776-6080</td>
</tr>
<tr>
<td>Volunteer Services</td>
<td>703-776-3447</td>
</tr>
</tbody>
</table>

### Neurology Units

<table>
<thead>
<tr>
<th>Unit</th>
<th>Phone Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>NSICU (Neuroscience Intensive Care Unit)</td>
<td>703-776-2522</td>
</tr>
<tr>
<td>Tower 2 (Stroke Unit)</td>
<td>703-776-3299</td>
</tr>
<tr>
<td>Tower 3 (Neuroscience Unit)</td>
<td>703-776-3425</td>
</tr>
</tbody>
</table>
Meet Your Healthcare Team

The individuals listed below work together to coordinate your healthcare needs. You may meet all or some of these healthcare workers. You also may receive care from other specialists not listed.

Doctors

**Attending Physician:** The physician (doctor) who is responsible for your overall care while you are in the hospital. They supervise the entire medical team and work with you to make the final decisions regarding your plan of care. Your attending physician may be:

- Your primary care physician
- A doctor assigned to you by the hospital

**CNS Hospitalist:** A hospital physician who specializes in caring for patients with neurological diseases.

**Hospitalist:** A physician who specializes in caring for patients in the hospital.

**Neurologist:** A physician specializing in the care of patients with neurological diseases.

**Emergency Room Physician:** A physician who is trained in providing emergency medical care.

**Intensivist:** A physician who specializes in treating critically ill patients, especially in an intensive care unit (ICU).

**Interventional Neuroradiologist:** A physician who specially trained to use images or x-rays to diagnose and perform treatment on abnormal blood vessels in the head, neck, and spine.

**Neurosurgeon:** A physician who specializes in performing surgery to treat neurological disorders.

**Neuroradiologist:** A physician with special training in the use of imaging technology to diagnose neurological diseases.

**Physician Assistant or Nurse Practitioner:** A healthcare professional who collaborates with your physician that can diagnose, treat and prescribe medications.

* **Resident/Intern:** A physician in training to become specialized in one area of medicine.

* **Medical Student:** A student who is currently in medical school to become a physician.

Some patients may see one, several or no physician subspecialists during their hospital stay.
Nurses

**Patient Care Director:** The nurse leader of specialized units who oversees operations.

**Nurse Manager:** The nurse leader of each unit who oversees day-to-day operations.

**Nurse:** A nurse who is responsible for your overall healthcare needs during their shift.

**Charge Nurse:** A nurse assigned to manage the unit during a specific shift. This nurse is available to answer any questions you may have while you are in the hospital.

**Stroke Response Nurse:** The stroke response nurse evaluates all patients in the hospital with stroke-like symptoms. The Stroke Nurse streamlines the patient's care from point-of-entry to treatment.

*Nursing Student:* A student who is in nursing school to become a nurse.

*Inova Fairfax Hospital is proud to be a teaching facility, training and mentoring these healthcare team members.*

Support Staff

**Unit Secretary:** An individual who manages the front desk, enters physician orders into the computer and answers the call bell and telephone.

**Clinical Assistant or Tech:** Assists the nurse with daily tasks, such as obtaining vital signs, and activities of daily living.

Rehabilitation

**Occupational Therapist:** A therapist who focuses on helping patients rebuild skills used in daily tasks such as bathing, toileting, and dressing.

**Physical Therapist:** A therapist who helps patients regain movement through walking, balance, coordination, and strength training.

**Speech Language Pathologist:** A therapist who is trained to evaluate and treat problems with speaking, listening, reading, and swallowing.

**Physiatrist:** A physician specialized in restoring optimal function to people with injuries to the muscles, bones, tissues, and nervous system.
Nutrition

**Dietitian:** An expert who works to treat and prevent diseases by providing support and education on food and nutrition.

**Dietary Assistant:** An individual who delivers meals, collects trays, and assists in completing your menu order.

Clinical Support Staff

**Case Management:** The team (registered nurses and master’s-prepared social workers) works with other healthcare professionals to identify a patient’s present and future needs as early in the hospitalization as possible. They work with the patient, family and insurance companies to coordinate a post-hospitalization plan that will most effectively meet these needs. Call **703-776-3508, option 1** or ask a staff member to contact case management for you.

**Pharmacist:** Health professionals who are experts in the use of medicines.

**Respiratory Therapist:** A therapist who is responsible for administering breathing treatments and other respiratory support.

Other Hospital Resources

**Patient Relations:** Representatives who are available if you have questions or have other special concerns. Call **703-776-3663** or ask a staff member to call for you.

**Chaplaincy Services:** Chaplains are available to patients and their families. Chaplaincy staff can facilitate visits from hospital-affiliated clergy, or contact clergy from the patient’s own religious community. A chapel off the main lobby is open 24/7 for visitors and family members. Chaplaincy services can be reached at **703-776-3767**, or a staff member can page chaplaincy staff for you.

**Financial Counselors:** Counselors are available during the week. Office hours are 8 a.m. to 5 p.m. Monday through Friday. Call **703-776-7858**.

The Patient

We strive to make your hospital stay a positive experience. We believe it is important for you to be involved in your health care decisions and have open communication with our providers. Here are a few tips:

- Learn the names and roles of the people taking care of you.
- Keep a list of your questions and important information you think your healthcare team should know.
- Let your team know when you do not understand or cannot hear what they are saying.
- Ask a family member or friend to be with you during discussions about our health care. This person can help listen, take notes, and ask important questions.
This section is a basic introduction to the human brain. It may help you understand how the healthy brain works and what happens when the brain is diseased or injured.

The brain is the most complex part of the human body and is protected by the skull and surrounded by fluid.

**Cerebral Cortex** - The top part of the brain is divided into lobes. You may hear these lobes called the cerebral cortex. The four major lobes of the brain are the frontal lobe, temporal lobe, parietal lobe and occipital lobe. Within each lobe, there are other nervous system structures that control many specific functions of the body. When an area of the brain is damaged, the symptoms experienced relate to that area’s functions.

So what do these lobes do?
- Frontal lobe – reasons, plans speech and movement, controls emotions, and solves problems
- Parietal lobe – keeps track of the position of the body; plays a role in sensing touch, temperature, and pain
- Occipital lobe – aids in processing what you see
- Temporal lobe – plays a role in hearing and understanding sounds, forms memories

If a stroke occurs in a certain lobe, the patient may lose some or all of the functions of that lobe. Sometimes all or some of the functioning is restored, and sometimes it is not. It is not always understood why some people recover and others do not. However, the amount of damage to the lobe can determine how severe the limitation or loss of function will be.

*Brain illustration provided by Seunghyun “Sunni” Park.*
The brain stem is an important part of the brain. It is located in the back of the brain and connects to the spinal cord. The brain stem regulates heart beat and breathing. It also regulates the sleep cycle.

The cerebellum is a large mass of tissue located below the occipital lobe. It assists with movement, posture, and balance. An injury to this part of the brain may cause dizziness, difficulty walking, and trouble sitting without help.

There are also special structures inside the brain that can be affected by a stroke:

- The hypothalamus is about the size of a pearl. It wakes you up in the morning and gets you excited for a test or job interview. It also helps to control certain emotions.
- The thalamus is a major intersection for information going to and from the body and the brain through the spinal cord.
- The hippocampus is a tiny nub that keeps track of memories. It sends memories out to areas of the brain for long-term storage and retrieves them when needed.
- The basal ganglia surround the thalamus and help with movement.

Brain illustration provided by Seunghyun “Sunni” Park.
It may also be important to understand that the brain also can be divided into two hemispheres (sides) by a group of nerve fibers called corpus callosum. This structure allows the two sides of the brain to talk to each other. The two sides of the brain also use information differently.

- **Left Brain**
  - is better at using language and problem-solving.
  - It also prefers to do tasks one at a time.
- **Right Brain**
  - is better at music, art, and other creative activities.
  - The right side of the brain is also better at multi-tasking.

So it is important to not only understand what area of the brain has been injured, but also to know what side of the brain has been affected to understand the symptoms that can be caused by a stroke.

*Brain illustration provided by Seunghyun “Sunni” Park.*
A risk factor is a trait, behavior, or medical condition that raises your chance of having a stroke. There are many risk factors for stroke. Some of these may be easy to fix and some may not be changeable. You should talk with your doctor about which risk factors you have and what you can do about them.

What risk factors for stroke cannot be changed?

- **Age** — The chance of having a stroke nearly doubles for each decade of life after age 55. While stroke is common among the elderly, a lot of people under 65 also have strokes.
- **Heredity (family history) and race** — Your stroke risk is greater if a close relative has had a stroke. African-Americans have a much higher risk of death from a stroke than Caucasians do. This is partly because African-Americans have higher risks of high blood pressure, diabetes, and obesity.
- **Sex (gender)** — Stroke is more common in men than in women. However, more than half of all stroke deaths occur in women. This means that more women than men die of stroke.
  - Special risks for women include:
    - The use of hormonal birth control (especially after the age of 35 or while smoking)
    - Pregnancy
    - Menopause
    - Hormone replacement therapy
- **Prior stroke, TIA, or heart attack** — Someone who has had a stroke in the past has a greater risk of having another stroke. Transient ischemic attacks (TIAs) are “warning strokes.” They can cause stroke-like symptoms but no lasting damage. A person who has had a TIA is almost 10 times more likely to have a stroke. A previous heart attack also can increase your risk of having a stroke.

What stroke risk factors can be treated with the help of a healthcare provider?

- **High blood pressure** — High blood pressure is a leading cause of stroke. It is also one of the easiest risk factors to control.
- **Diabetes mellitus** — Diabetes is another risk factor for stroke. Many people with diabetes also have high blood pressure and high cholesterol. They may be overweight, too. This raises their risk even more. While diabetes is treatable, the presence of the disease still increases your risk of stroke.
- **Carotid artery disease (CAD)** — The carotid arteries in your neck supply blood to your brain. Plaque build up can cause the artery to become blocked. CAD is also called carotid artery stenosis.
- **Peripheral artery disease (PAD)** is the narrowing of blood vessels carrying blood to leg and arm muscles. It is caused by fatty buildups of plaque in artery walls. People with PAD have a higher risk of carotid artery disease, which raises their risk of stroke.
- **Atrial fibrillation** — A heart rhythm disorder that increases the risk for stroke. The heart's upper chambers do not beat correctly, which can cause the blood to pool and clot. A clot can travel to an artery in the brain and become stuck, causing a stroke.
• **Other heart disease** — People with coronary heart disease or heart failure have an increased risk of stroke. Dilated cardiomyopathy (an enlarged heart), heart valve disease, and some types of congenital heart defects also raise the risk of stroke.

• **Sickle cell disease** (also called **sickle cell anemia**) — This is a genetic disorder that mainly affects African-American and Hispanic children. "Sickled" (deformed) red blood cells are less able to carry oxygen to the body. These cells also tend to stick to blood vessel walls and can block arteries to the brain.

• **High blood cholesterol** — People with high cholesterol have an increased risk for stroke. Also, having low HDL ("good") cholesterol is a risk factor for stroke in men.

**What stroke risk factors can I change on my own?**

• **Poor diet** — Diets high in saturated fat, trans fat, and cholesterol can raise blood cholesterol levels. Diets high in sodium (salt) can be a factor in high blood pressure. Eating more calories than you need can lead to obesity.

• **Physical inactivity and obesity** — Being inactive or obese can increase your risk of stroke and can lead to many other risk factors for stroke.

• **Cigarette smoking** — Studies have shown that cigarette smoking is a key risk factor for stroke. The chemicals in cigarette smoke damage the heart and blood vessels. Smoking while using hormonal birth control further increases the risk of stroke.

• **Alcohol abuse** — Alcohol abuse can lead to many medical problems, including stroke.
  • For those who drink alcohol, men should have no more than two drinks per day and non-pregnant women should have no more than one drink per day.

• **Drug abuse** — Drugs that are abused (including cocaine, amphetamines, and heroin) have been linked with an increased risk of stroke. Strokes caused by drug abuse are often seen in younger people.

**What are other possible risk factors?**

• **Geographic location** — Strokes are more common in the southeastern United States than in other areas. These are called "stroke belt" states. The increased risk of stroke may be due to cultural differences in lifestyle and diet (such as saltier and fattier foods).

• **Socioeconomic factors** — There is some evidence that strokes are more common among low-income people.
These 10 distinct online programs are designed to improve stroke patient care and outcomes by providing evidence-based and best-practice nursing education across the stroke-care continuum. These modules are the easy and affordable answer for your stroke team members to meet their continuing education requirements.

Complete the modules today at www.stroke.org/strokenurse.

Members of National Stroke Association’s professional membership programs receive free and discounted access to the Stroke Nurse Education Modules. Contact us at memberships@stroke.org to find out how!

### Stroke Risk Scorecard

Each box that applies to you equals 1 point. Total your score at the bottom of each column and compare with the stroke risk levels on the back.

<table>
<thead>
<tr>
<th>RISK FACTOR</th>
<th>HIGH RISK</th>
<th>CAUTION</th>
<th>LOW RISK</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blood Pressure</td>
<td>&gt;140/90 or unknown</td>
<td>120-139/80-89</td>
<td>&lt;120/80</td>
</tr>
<tr>
<td>Atrial Fibrillation</td>
<td>Irregular heartbeat</td>
<td>I don’t know</td>
<td>Regular heartbeat</td>
</tr>
<tr>
<td>Smoking</td>
<td>Smoker</td>
<td>Trying to quit</td>
<td>Nonsmoker</td>
</tr>
<tr>
<td>Cholesterol</td>
<td>&gt;240 or unknown</td>
<td>200-239</td>
<td>&lt;200</td>
</tr>
<tr>
<td>Diabetes</td>
<td>Yes</td>
<td>Borderline</td>
<td>No</td>
</tr>
<tr>
<td>Exercise</td>
<td>Couch potato</td>
<td>Some exercise</td>
<td>Regular exercise</td>
</tr>
<tr>
<td>Diet</td>
<td>Overweight</td>
<td>Slightly overweight</td>
<td>Healthy weight</td>
</tr>
<tr>
<td>Stroke in Family</td>
<td>Yes</td>
<td>Not sure</td>
<td>No</td>
</tr>
<tr>
<td>TOTAL SCORE</td>
<td>High Risk</td>
<td>Caution</td>
<td>Low Risk</td>
</tr>
</tbody>
</table>
Risk Scorecard Results

High Risk ≥3: Ask about stroke prevention right away.
Caution 4-6: A good start. Work on reducing risk.
Low Risk 6-8: You’re doing very well at controlling stroke risk!

Ask your healthcare professional how to reduce your risk of stroke.

To reduce your risk:
1. Know your blood pressure.
2. Find out whether you have atrial fibrillation.
3. If you smoke, stop.
4. Find out if you have high cholesterol.
5. If diabetic, follow recommendations to control your diabetes.
6. Include exercise in your daily routine.
7. Enjoy a lower-sodium (salt), lower-fat diet.

Act FAST and CALL 9-1-1 IMMEDIATELY at any sign of a stroke:

FACE: Ask the person to smile. Does one side of the face droop?
ARMS: Ask the person to raise both arms. Does one arm drift downward?
SPEECH: Ask the person to repeat a simple phrase. Is their speech slurred or strange?
TIME: If you observe any of these signs, call 9-1-1 immediately.

1-800-STROKES (787-6537) • www.stroke.org
Signs and Symptoms of Stroke

While the signs and symptoms of a stroke can be different for each person, here are some basic warning signs to remember and tips on how to respond.

Think – F.A.S.T.
Use the following tool to help you recognize stroke symptoms FAST:

F = Face  Ask the person to smile. Does one side of the face droop?
A = Arms  Ask the person to raise both arms. Does one arm drift downward?
S = Speech Ask the person to repeat a simple phrase. Does the speech sound slurred or strange?
T = Time   If you observe any of these signs, then it’s time to call 9-1-1

Call 9-1-1 or get to the hospital fast. Brain cells are dying.

Stroke Warning Signs

- Sudden numbness or weakness of the face, arm or leg, especially on one side of the body
- Sudden confusion, trouble speaking or understanding
- Sudden trouble seeing in one or both eyes
- Sudden trouble walking, dizziness, loss of balance or coordination
- Sudden, severe headache with no known cause

If you or someone with you has one or more of these signs, don’t delay! Call 9-1-1 immediately.

- Check the time so you’ll know when the first symptoms appeared
- Take immediate action
- The treatment for stroke must be given within the first three hours for certain patients.
These are some of the tests your doctor might use to find out if you have had a stroke and where in the brain it occurred. Some of these tests may also be used to rule out other illnesses and to measure your recovery over time.

**Laboratory Tests**

**BUN/Creatinine**
- Blood urea nitrogen (BUN) and creatinine are waste products that are removed from the blood by the kidneys.
- This test measures waste product levels in the blood to make sure your kidneys are working. This is important because your kidneys must be able to filter any intravenous dye you may need for testing.

**CBC**
- A complete blood count (CBC) measures your red and white blood cells, hemoglobin, and platelets.
- This test can inform your doctor of the presence of infection, bleeding, and anemia.

**CK-MB**
- Creatine kinase (CK-MB) levels may be higher when the heart has been injured.
- This test may be used to rule out a heart attack.

**Glucose**
- Diabetes can cause symptoms like those of a stroke.
- This test is used to screen for diabetes and pre-diabetes by measuring how much glucose (blood sugar) is in the blood.

**PT/INR**
- Prothrombin Time (PT) measures how long blood takes to clot and can be used to help diagnose bleeding.
- International Normalized Ratio (INR) checks how well blood-thinning medicines are working to prevent blood clots.

**Radiology Tests**

**Cerebral Angiogram**
- This is a procedure used to visualize arteries (blood vessels).
- A specialized physician (interventional radiologist) performs the procedure by first inserting a catheter into the femoral artery (an artery in the groin). A guide wire is threaded to the neck and brain, and an IV dye is injected. Using a special X-ray machine, the doctor can then watch the dye move through the blood vessels. The test usually takes one hour. The patient lies flat on a table and will receive sedating medication to keep them from moving during the test. After the test, the patient must remain flat for two to three hours to allow the insertion area in the groin to heal and prevent bleeding.
- This test shows malformed or damaged blood vessels.
**Computed Tomography Scan (CT scan)**
- A CT scan is one of the first tests done when a patient comes to the emergency room with stroke-like symptoms. The CT scanner makes a three-dimensional (3-D) image of the brain that can show whether the stroke was caused by a blockage or bleeding. The test also can show the size and location of the stroke.
- For this test, you will lie on a table that moves through a donut-shaped machine.
- It is painless and lasts less than ten minutes.
- Results often are received within two hours of the exam.

**Computed Tomography Angiogram (CTA)**
- This is a CT scan that involves the injection of intravenous (IV) dye. This test shows the details of blood vessels in order to visualize and diagnose abnormal blood vessels.
- For this test, you will lie on a table that moves through a donut-shaped machine.
- It is painless and takes 20 – 60 minutes. Sometimes patients feel warm or flushed when the dye is injected.
- Results are usually received within two hours of the test.

**Magnetic Resonance Imaging (MRI)**
- MRI scanners use strong magnets and radio waves to form a three-dimensional image of the body. Because the machine uses strong magnets, you will be asked a series of questions regarding pacemakers, pregnancy, piercings, medical implants, etc., to prevent any injury.
- For this test, you will lay flat on a table that slides into a tube-like machine.
- It is painless but noisy. The test lasts between 30 minutes and three hours, depending on which areas of the body need to be scanned. You’ll be given earplugs and you may need a mild sedative if you have claustrophobia (or do not like small places).
- Results are usually received within 24 hours of the exam.

**Magnetic Resonance Angiography (MRA)**
- This is an MRI that involves the injection of intravenous (IV) dye. This test shows the details of blood vessels in order to visualize and diagnose abnormal blood vessels. Because the machine uses strong magnets, you will be asked a series of questions regarding pacemakers, pregnancy, piercings, medical implants, etc. to prevent any injury.
- For this test, you will lay flat on a table that slides into a tube-like machine.
- It is painless but noisy. This test lasts between 30 minutes and three hours, depending on which areas of the body need to be scanned. You will be given earplugs, and you may need a mild sedative if you have claustrophobia (or do not like small places).
- Results are usually received within 24 hours of the exam.
Diagnostic Tests and Procedures

Bubble Echocardiogram
- This test is a standard echocardiogram (described above) with the addition of tiny saline bubbles being injected into the vein through an IV. As the saline bubbles move through the heart, the ultrasound technician follows them with the transducer. The saline makes certain heart function more visible, highlighting problems in the left ventricle, the major pumping area of the heart, along with tissues and valves. The saline is ultimately dispersed harmlessly into the blood.
- This test is painless and takes less than an hour to complete.
- Results are usually received within 24 hours of the exam.

Cardiac Catheterization
- This procedure examines the inside of your heart’s blood vessels using x-rays called angiograms. The procedure is one of the most useful and accurate tools for diagnosing cardiovascular problems. It can detect where arteries are narrowed or blocked, measure blood pressure within the heart and oxygen in the blood, and evaluate heart muscle function.
- A dye is injected into the blood vessels using a thin hollow tube called a catheter.
- You will be sedated for this procedure and it should last less than three hours.

Carotid Ultrasound
- This test uses sound waves to create pictures of the insides of the two large (carotid) arteries in your neck which supply the brain with blood. This test determines if plaque, (a sticky substance) has built up inside these arteries and caused them to narrow.
- A clear gel is applied to the neck and the ultrasound wand is placed on top of it to record images of your arteries.

Echocardiogram (Echo)
- During this test, an ultrasound is used to view the heart.
- A clear gel is applied to the chest and the echo wand is placed on top of it. The echo technologist will record pictures from different parts of the chest to get several views of the heart. You may be asked to turn on your side, breathe slowly, or hold your breathe in order to get better views of the heart. The images are constantly viewed on the monitor and recorded.
- This test is painless and takes less than an hour to complete.
- Results are usually received within 24 hours of the exam.

Electrocardiogram (EKG or ECG)
- This test measures and records the electrical activity of the heart.
- Sticky patches (electrodes) are placed on your chest, abdomen, and shoulders and are connected to wires.
- This test is painless and takes less than five minutes to complete.
Electroencephalography (EEG)
- EEGs are primarily used to detect seizure activity in the brain. They can also be used to measure a patient’s level of sedation, or determine if brain activity is occurring.
- This test measures electrical activity in the brain (brain waves). When brain neurons (brain cells) communicate, they create small electrical currents.
- Many electrodes are placed on the scalp, and brain activity is measured using a computer.
- A routine EEG recording takes 20 – 30 minutes. For some patients, the electrodes may be left on for 24 hours or longer to continuously record brain activity.
- When the recording is finished it usually takes 24 – 48 hours to receive the results.

Electrophysiology (EP) Procedure
- An EP study is a test in which one or more wires, called catheters, are inserted into a blood vessel and guided into the heart. Each wire has one or more electrodes to measure the heart’s electrical signals.
- If you do not have any abnormal rhythms during the test, the doctor may try to trigger one so that it can be observed.
- The test may be used to see how well certain heart medicines are working. It also can be used to assess the need for a device such as a pacemaker or defibrillator.
- The insertion site will be cleaned and shaved. This is usually in the groin, but may be in the neck.
- You will receive a local anesthetic in that area. You will also be given a mild sedative.
- EP studies are done in a special lab that looks like an operating room. This procedure is not painful, but you may have an unpleasant feeling in your chest.
- The EP study usually takes one to two hours.

Lumbar Puncture (Spinal Tap)
- Cerebrospinal fluid (CSF) is tested for the presence of bacteria or viruses, blood cells, proteins, and sugars.
- The patient will either lie on their side or sit with their back very curved.
- The doctor inserts a needle between bones in the lower back into the spinal canal and draws out some CSF.
- During the procedure, the patient will feel pressure from the needle insertion, but should not feel pain.
- After the procedure, the patient should lie flat for two hours to help prevent headache and nausea.
Sleep Studies

What is sleep apnea? Sleep apnea is a serious, potentially life-threatening condition. Sleep apnea occurs in all age groups and both males and females. Early recognition and treatment of sleep apnea is important, as it may be associated with the following:

- Stroke
- Heart attack
- Irregular heartbeat (atrial fibrillation)
- High blood pressure
- Headache
- Memory loss
- Daytime sleepiness

How is sleep apnea diagnosed? Several tests are available and usually performed in a sleep center for evaluating a person for sleep apnea, including:

**Polysomnography** - an overnight sleep study done to observe a variety of bodily functions during sleep:
- electrical activity of the brain
- eye movement
- muscle activity
- heart rate
- breathing effort
- air flow
- level of oxygen in your blood

**Multiple Sleep Latency Test (MSLT)** – a test that measures how sleepy someone is. Individuals who fall asleep in less than 5 – 10 minutes are likely to require some type of treatment for a sleep disorder. This can be seen in patients with apnea, narcolepsy or post traumatic excessive sleepiness.

**Nasal Continuous Positive Airway Pressure (CPAP) titration** – an overnight study to determine the effective level of air pressure to maintain an open airway.

**Transcranial Doppler (TCD) Bubble Test**
- A transcranial doppler study is a test that uses sound waves that you cannot hear or feel. As the sound waves bounce off blood vessels, information is sent to a computer screen. A TCD bubble test includes injecting tiny saline bubbles into a vein through an IV. The sound waves show whether the bubbles reach your brain and may indicate the reason for a TIA or stroke.
- During the test, the technician will hold a transducer against your head (or you will wear a headset) and the technician will listen to the arteries inside your brain.
- The test is painless and usually lasts less than an hour.
Transesophageal Echocardiography (TEE)
- This procedure uses sound waves to produce images of the heart. This procedure evaluates the function of the heart and blood vessels, helps to find abnormalities in the heart, and helps to gather information about abnormal heart rhythms.
- A tube is passed down the throat into the esophagus to visualize the heart.
- You will be sedated for this procedure and it should last less than one hour.

Other Tests or Procedures

Dysphagia Screening
- This is a swallow study to evaluate difficulty swallowing
- A nurse and/or speech therapist usually perform the test at the bedside. You will be given different textures of food and liquid to swallow.
- The test shows your ability to swallow different types of food. It is done to prevent food from entering your lungs.

Frequent Vital Signs
- Vital signs are measurements of the most basic body functions.
- A nurse or technician may measure your temperature, pulse rate (heart rate), blood pressure, pulse oximetry, (oxygen in the blood) and respiratory rate.
- How often these are measured depend on your needs.

NIHSS (National Institute of Health Stroke Scale)
- The NIHSS is a method used by healthcare workers to measure the level of impairment caused by a stroke. The scale measures consciousness, vision, sensation, movement, speech, and language.
- The patient may be examined as often as every 15 minutes.


**Stroke**

It is important to diagnose a stroke as soon as possible because the treatment depends on the type of stroke, what caused the stroke, and in some cases, the location of the injury to the brain.

Other conditions with similar symptoms to stroke and transient ischemic attack (TIA) must be ruled out to diagnose stroke. Some of these include:

- Seizure
- Fainting
- Migraine
- Heart problems
- Other general conditions

The type of stroke must also be determined. A blocked artery causes an ischemic stroke. A ruptured blood vessel causes a hemorrhagic stroke. The treatment will depend on which type of stroke occurred. The following section talks in depth about ischemic stroke.

![Ischemic Stroke](image)

![Hemorrhagic Stroke](image)
Ischemic Strokes – caused by blockage of blood vessels in the brain or neck. This blockage can be caused by a thrombus or embolus.

- Thrombotic Stroke – occurs when a blood clot (thrombus) develops in the blood vessels inside the brain
- Embolic Stroke – occurs when a blood clot or plaque (embolis) travels to one of the blood vessels in the brain

TIA (Transient Ischemic Attack) – sometimes called a “mini-stroke,” is like an ischemic stroke. A TIA occurs when a clot or debris blocks blood flow to part of your brain. However, the blockage is temporary and does not leave lasting effects.
Treatment Options

To treat an ischemic stroke, doctors and nurses must work quickly to restore blood flow to your brain. There is a limited amount of time to unblock the artery before the brain cells die and cause permanent disability.

Medication – Some people who are having an ischemic stroke can benefit from an injection of tissue plasminogen activator (t-PA). This medicine is usually given through a vein in the arm.

How clot-busting therapy works
The goal of t-PA is to break up the clot that is causing the stroke. After the clot is dissolved, blood and oxygen once again can flow to the affected area of the brain.

For some patients, t-PA may improve the chances of recovery from stroke with little or no disability. **You may receive t-PA only if treatment begins within 3 to 4.5 hours after your stroke symptoms start.** After that time, too much damage may already have been done. In that case, t-PA may not be helpful.

Important safety information
t-PA is not recommended for patients with the following conditions:
- Recent or ongoing bleeding
- Recent surgery or trauma
- Recent previous stroke
- Uncontrolled high blood pressure
- Problems with blood clotting
- Persons taking some blood thinning medications

What to expect after t-PA
- t-PA is given as an intravenous (IV) infusion, which takes about one hour.
- After the t-PA treatment, you will be sent to a unit in the hospital where you will be watched very closely.
- You will have frequent exams to see how well your brain is healing.
- You also will get care for any other conditions you may have, such as diabetes or abnormal heart beat

The most common side effect of treatment with t-PA is bleeding.

The decision to treat with t-PA may change a patient’s life. Discuss the benefits and risks with your doctor to make the best treatment choice for you and your loved ones.
Ischemic Stroke

Emergency Procedures
Doctors called interventional neuroradiologists sometimes treat ischemic strokes with procedures that must be performed as soon as possible.

What is Interventional Neuroradiology?
It is the use of images or x-rays to perform a minimally invasive procedure (using small incisions) to correct problems inside blood vessels. X-rays and special dyes are used to allow the doctors to see the procedure as it is performed.

Thrombectomy is a term used for the removal of a clot that is blocking the flow of blood to the brain. A thrombectomy can help prevent permanent damage to the brain.

An interventional neuroradiologist will enter your blood vessels through the femoral artery in your groin with special devices used to retrieve the clot. The device will go through your blood vessels to the artery that is blocked by the clot. The radiologist will use either the Merci Retriever device or the Penumbra System, or both.

- The Merci Retriever device is like a very small corkscrew. It works by going through the clot with the corkscrew and wrapping around the clot. This traps the clot so it can be removed from the body.
- The Penumbra system is made up of a wire and a pump. The wire is used to do separate the clot while the pump sucks the clot out.

Merci Retriever

Penumbra System

Merci Retriever image used with permission from Concentric-Medical.
Penumbra System image used with permission from Penumbra, Inc.

Intra Arterial Thrombolytic Therapy (IA tPA)
While the radiologists are using the above devices, they may put medicine at the site of the clot. This is called intra-arterial (with in the artery) thrombolysis (breaking up the clot with medicine).
Other procedures
To decrease your risk of having another stroke or TIA, your doctor may recommend a procedure
to open up an artery that is narrow. Doctors may also recommend the procedures below to
prevent a future stroke. Options may include:

Stents
A stent is a small metal tube that looks like it is made of wire mesh. A stent can be used
to open a partly blocked artery in any blood vessel feeding the brain including arteries in
the neck or the head. It is put in place through the femoral artery to the blockage. Once
the stent is in place, it holds the artery open and improves blood flow.

Carotid Endarterectomy (CEA)
CEA is a surgical procedure in which plaque is removed from the inside of the carotid
artery. This opens the artery and makes it better able to supply blood to the brain. It also
reduces the risk of blood clots forming in the artery which can later cause a stroke. You
may have had TIAs (transient ischemic attacks) or other symptoms. TIAs are
“mini strokes” that serve as warning signs for a major stroke. Carotid
endarterectomy may reduce your risk of a major stroke.

The operation may be done under a
general anesthetic (you are asleep) or
occasionally under local anesthetic
(you are awake but your skin and
tissues are made numb by an
injection). The surgeon will make an
incision in your neck and open the
carotid artery. Plaque will be taken
out. After the artery has been repaired,
the skin is closed, usually with
dissolving stitches.
**Patent Foramen Ovale (PFO) Closure**
A patent foramen ovale (PFO) is a hole in the wall between the two upper chambers of the heart that results in the creation of a flap. A PFO is present in everyone before birth but seals shut in about 80 percent of people. When the heart beats, the flap can open and blood can flow directly between the right and left sides of the heart. This can also happen when a person with a PFO creates pressure inside the chest by coughing, sneezing, or straining during a bowel movement.

When blood moves directly from the right to the left side of the heart, this blood bypasses the filtering system of the lungs. If clots are present, they can pass through the left atrium and can lodge in the brain, causing a stroke.

Blood thinners may be used to treat a PFO. For patients who cannot take blood thinners the PFO may be closed using cardiac catheterization. A PFO closure device is moved through a catheter to the heart wall defect. Once in the correct place, the PFO closure device expands to straddle each side of the hole. The device will remain in the heart to stop the abnormal flow of blood between the two chambers. The catheter is then removed and the procedure is complete. The procedure usually takes less than two hours and may involve the use of a local anesthetic or general anesthesia.

**Maze Procedure**
The Maze procedure creates a three-dimensional maze of incisions to form scar tissue that blocks the abnormal electrical patterns responsible for the arrhythmia. The Maze corrects all three problems associated with atrial fibrillation by:

- Restoring sinus rhythm
- Synchronizing the atria and ventricles
- Maintaining an organized heartbeat
Stroke

It is important to diagnose a stroke as soon as possible because the treatment depends on the type of stroke, what caused the stroke, and in some cases, the location of the injury to the brain.

Other conditions with similar symptoms to stroke and transient ischemic attack (TIA) must be ruled out to diagnose stroke. Some of these include:

• Seizure
• Fainting
• Migraine
• Heart problems
• Other general conditions

The type of stroke must also be determined. A blocked artery causes an ischemic stroke. A ruptured blood vessel causes a hemorrhagic stroke. The treatment will depend on which type of stroke occurred. The following section talks in depth about hemorrhagic stroke.
Hemorrhagic Stroke – occurs when a blood vessel ruptures and bleeds. The bleeding results in increasing pressure causing irritation and swelling in the brain.

- Intracerebral hemorrhage – bleeding from the vessels within the brain
  - Caused by high blood pressure (hypertension)

- Subarachnoid hemorrhage – bleeding that occurs in the subarachnoid space (between the brain and the membranes that covers the brain)
  - Common causes:
    - Aneurysm – a weakened, ballooned area on an artery
    - Arteriovenous malformation (AVM) – a congenital disorder that consists of a disorderly tangled web of arteries and veins
    - Sometimes the cause is unknown
Treatment Options

Once the bleeding in your brain stops, treatment usually involves bed rest and supportive medical care while your body absorbs the blood. Healing is similar to what happens while a bad bruise goes away. If the area of bleeding is large, surgery may be used in certain cases to remove the blood and relieve pressure on the brain.

Intracerebral hemorrhage (ICH)

Intracerebral hemorrhage, often referred to as ICH, usually occurs when a blood vessel ruptures and bleeds into the brain tissue. A stroke occurs when the brain is deprived of oxygen due to an interruption of its blood supply. Causes of ICH are:

- **High blood pressure (hypertension):** The most common cause of a hemorrhagic stroke is high blood pressure. The constant force of high blood pressure can weaken blood vessel walls, resulting in bleeding in the brain or a brain hemorrhage.
- **Blood thinner therapy:** drugs such as coumadin, heparin, and warfarin used to treat heart and stroke conditions.
- **Arteriovenous malformation (AVM):** a tangle of abnormal arteries and veins with no capillaries in between.
- **Aneurysm:** a bulge or weakening of an arterial wall.
- **Head trauma:** fractures to the skull and penetrating wounds (gunshot) can damage an artery and cause bleeding.
- **Bleeding disorders:** hemophilia, sickle cell anemia, DIC, thrombocytopenia.
- **Tumors:** highly vascular tumors such as angiomas and metastatic tumors can bleed into the brain tissue.
- **Amyloid angiopathy:** a degenerative disease of the arteries.
- **Drug usage:** cocaine and other illicit drugs can cause ICH.
- **Spontaneous:** ICH by unknown causes.

How should an Intracerebral hemorrhage (ICH) be treated?

Once the cause and location of the bleeding is identified, medical or surgical treatment is performed to stop the bleeding, remove the clot, and relieve the pressure on the brain. If left alone, the brain will eventually absorb the clot within a couple of weeks – however, the damage to the brain caused by increased pressure in the brain and blood toxins may be irreversible.

- **Medical therapy**
  - Blood pressure is managed to decrease the risk of more bleeding yet provide enough blood flow (perfusion) to the brain.
  - Controlling pressure in the brain is the biggest factor in how well you will recover from ICH. A monitor may be placed directly within the brain to measure pressure.
  - Removing cerebrospinal fluid (CSF) from your brain is a common procedure to decrease pressure in your head. A ventricular drain (EVD) may be placed in your head to drain fluid to allow room for the hematoma to expand without damaging the brain.
  - In some cases, you may be kept asleep with medicine to help keep the pressure in your head down.
  - Keeping your body cool (hypothermia) may also help to decrease brain pressure.
**Surgical Therapy**
- Surgery may be used to repair certain blood vessel problems associated with ICH. Your doctor may recommend a neurosurgical consultation if you are at high risk.
- The goal of surgery is to remove as much of the blood clot as possible and stop the source of bleeding if a specific cause can be found.
- **Craniotomy** – a craniotomy is a type of surgery used to treat problems in the brain.
  - It involves cutting a hole in the skull with a drill to expose the brain and remove the clot.
  - Because of the increased risk to the brain, this surgery is usually used when the hematoma (blood clot) is close to the surface of the brain, or if it is an AVM or tumor that must be removed.
  - The skull bone is usually put back after the surgery with tiny plates and screws. The size and location of the surgery will depend on your problem.
  - The main reason for surgery is to relieve pressure on the brain to prevent additional brain injury after the ICH. (See more in-depth information of the surgical procedure at the end of this section.)
Subarachnoid hemorrhage (SAH) occurs when an aneurysm (a thin or weak spot in an artery that causes a bulge) ruptures and bleeds into the space between the brain and the skull (subarachnoid space). The most common causes of a SAH are:

- Aneurysm – a weakened, ballooned area on an artery
- Arteriovenous malformation (AVM) – a congenital disorder that consists of a disorderly tangled web of arteries and veins
- Sometimes the cause is unknown

How should an Aneurysm be treated?
The best treatment depends on many things, including whether the aneurysm has ruptured or not. A ruptured aneurysm usually requires treatment right away, because the re-bleeding rate remains quite high. However, the treatment time and options for treatment depend upon the size, location and shape of the aneurysm, as well as your overall medical condition.

If an aneurysm has not ruptured, the treatment decision still depends on size, location, and shape of the aneurysm. Each factor is important and requires consultation with a neurosurgeon and an interventional neuroradiologist who has special skills and training in treating these types of aneurysms. Before any treatment is considered, a diagnostic cerebral angiogram is usually performed in order to fully map out a plan for therapy.

What treatments are available?

- **Medical therapy** – Small, unruptured aneurysms that are not creating any symptoms may not need treatment unless they grow, trigger symptoms, or rupture. It is very important to have annual check-ups to monitor blood pressure, cholesterol, and other medical conditions. Smoking cessation is the most important thing you can do to reduce the risk from an aneurysm. Small, unruptured aneurysms require regular imaging examinations to make sure they have not grown or changed significantly.
- **Endovascular Neurosurgery and Coiling or Aneurysm Embolization** – This is done by interventional neuroradiology. The procedure is done in the same manner as a cerebral angiogram (discussed in Tests and Procedures). A hollow, thin tube is placed in the large artery in your leg. Once this hollow tube is placed, a smaller “microcatheter” is used to navigate all the way up into your head into the aneurysm. The interventional neuroradiologist will place the platinum coils one by one until the aneurysm is full. The coils remain inside the aneurysm and a clot will form around them making it difficult for any more blood to enter the aneurysm. (See more in depth information of the surgical procedure at the end of this section.)

The microcatheter is threaded into the aneurysm. The doctor begins to deposit coils into the aneurysm.

The aneurysm is completely packed with coils, reducing or blocking the flow of blood into the aneurysm.

The coil has been detached from the wire and the catheters have been removed.

*Aneurysm clipping and coiling images are used with permission from the Brain Aneurysm Foundation.*
**Neurosurgery and Aneurysm clipping** – Depending on your risk factors, open surgery may be recommended. The neurosurgeon places a surgical clip around the base of the aneurysm. The clip seals off the aneurysm so blood cannot enter. (See more in depth information of the surgical procedure at the end of this section.)
Arteriovenus Malformation (AVM)
An uncommon cause of hemorrhage is rupture of an arteriovenous malformation. This is a malformed group of walled blood vessels with which you were born. An arteriovenous malformation (AVM) can burst and allow blood to leak into the brain, damaging or destroying tissue.

How should an AVM be treated?
Like aneurysms, the best treatment for AVMs depends on many factors, including whether the AVM has bled or not. An AVM that has bled does not always require treatment right away, because the re-bleeding rate is much lower than that for aneurysms. However, the treatment time and options for treatment depend upon the size and location of the AVM, as well as your overall medical condition. The decision for emergency treatment for an AVM depends more on the amount of blood in the brain than the AVM itself.

If an AVM has not bled, the treatment decision still depends on size and location of the AVM. Each factor is important and requires consultation with a neurosurgeon and an interventional neuroradiologist who has special skills and training in treating these types of AVMs. Before any treatment is considered, a diagnostic cerebral angiogram is usually performed in order to fully map out a plan for therapy.

What treatments are available?
- **Medical therapy** – Unruptured AVMs frequently are found when a patient has a seizure which may mean that the patient will need to take an anti-seizure medication. Ruptured AVMs can lead to headaches, high blood pressure among other problems and may require medications for weeks, months or even years.
- **Surgery** – A craniotomy to completely remove the AVM is the goal of surgery and provides a rapid (instant) decrease in the risk of bleeding from the AVM. The risks of the surgery depend on the size and location of the AVM in the brain. Your neurosurgeon can discuss with you the details of your AVM and treatment.
- **Endovascular Embolization** – AVM embolization can make surgery safer by decreasing the flow and the size of the AVM. Injecting glue-like materials into the blood vessels can block off flow in the AVM in the areas that are hard to reach for the surgeon. Sometimes the AVM can be fully treated by embolization.
- **Irradiation therapy** – A sophisticated technique for delivering radiation to the AVM called “radiosurgery” is also a good treatment option for AVMs. A neurosurgeon and radiation oncologist work together with the patient to formulate a radiation treatment plan that can be done as an outpatient without the need for surgery or embolization.
- **Multimodality Treatment** – For complex AVMs a combination of treatments—surgery, embolization, and radiation—may be required to fully treat an AVM. Careful discussions among all your doctors would coordinate for these rare cases.

AVM image used with permission from The Aneurysm and AVM Foundation.
What can I expect after a subarachnoid hemorrhage (SAH)?

The rupture of a blood vessel inside the brain is a serious event. Subarachnoid hemorrhage is graded by the doctors using the amount of bleeding that appears on the CT scan and the severity of symptoms. Depending on the amount of bleeding, symptoms can range from a mild headache, to muscle weaknesses, to coma. Most people arrive at the hospital with mild to moderate symptoms after these types of hemorrhages. In most cases, a full recovery is likely. In the case of more severe bleeding, it is best to talk to your care team regarding the expected outcome and course of treatment.

The first step after SAH is to obtain medical imaging such as CT scan, MRI scan, or cerebral angiogram (discussed above) to look for a cause of the bleeding in the brain. If an aneurysm is found, it must be treated as quickly as possible to prevent re-bleeding. The first 24 – 48 hours after the initial bleeding event are critical to prevent re-bleeding. The patient can expect to remain in the intensive care unit (ICU) during this time, and blood pressure will be tightly controlled. Doctors and nurses will watch closely for signs of neurological decline. They will perform frequent neurological exams to check for sleepiness, confusion, speech problems, and muscle weakness. A new onset of any of these symptoms can indicate new bleeding or one of the many problems associated with subarachnoid hemorrhage.

The average length of stay in the hospital after SAH is 2 – 4 weeks. Even if the bleeding is relatively mild, the patient must be watched closely for any of the complications listed below:

Potential Complications of SAH:

- **Vasospasm** – Because there is blood outside of the normal places in the brain (arteries), the blood vessels will often react by attempting to close. This is a normal bodily response to bleeding, and will occur anywhere in the body. However, it is dangerous for this to occur in the brain, because if the blood flow is completely cut off, a stroke will occur. Most people have vasospasm 3 – 21 days after the initial SAH event. Several measures will be taken to prevent, monitor, and manage vasospasm, should it occur. These include:
  - Increasing the blood pressure if the aneurysm is repaired. High salt IV solutions and sometimes IV blood pressure medications are used to increase the blood pressure. The idea is to increase the blood flow through narrowed arteries in the brain.
  - Nimodipine is a medication taken as a large pill every 2 – 4 hours. This medication helps relax arteries in the brain to prevent spasm.
  - Transcranial dopplers (TCDs) are performed daily at the bedside. This is an ultrasound test that shows the speed of blood flow through the arteries in the brain. The technician places a handheld instrument over the openings in the skull to show if blood flow is blocked or reduced.

- **Seizure** - You will more than likely be placed on anti-seizure medication for a short period of time depending on how much bleeding has occurred in your brain.
• **Hydrocephalus** – The location of the blood in SAH puts patients at risk for a buildup of fluid in the brain. The brain normally produces a special fluid, called cerebrospinal fluid (CSF), which circulates around the brain. In subarachnoid hemorrhage, blood gets into this fluid and may clog up the drainage canals in the brain. If this happens, the fluid will build up and cause sleepiness and eventually coma. This fluid buildup can be seen on a CT scan. Hydrocephalus is relieved by the placement of an external drain which is placed by a neurosurgeon into one of the fluid-filled spaces in the brain called a ventricle. This allows the doctors and nurses to drain excess fluid and monitor the pressures in the brain. In most cases, the blood clots inside the brain will absorb within weeks and the drain can be removed.

• **Stroke** – Because a blood vessel in the brain has ruptured, an area of the brain may have been cut off from blood flow, and an area of stroke could result. Additionally, stroke may result from severe vasospasm, as discussed above. Swelling inside of the brain can also occur, and result in areas of injury. Your care team will discuss your specific plan of care.

• **Pain and Nausea** – Most patients will experience some level of pain and nausea after a subarachnoid hemorrhage. Symptoms may range from mild to severe. Headaches, neck and back pain, and sensitivity to light are very common, and can be treated with medication, repositioning, ice packs, or warm packs. Nausea and vomiting are common and can be treated with medication. These are all symptoms of irritation from the blood inside the brain. The symptoms will improve before you leave the hospital, as the blood is reabsorbed by the body.

It is important to talk to your healthcare team to find the best way to manage these symptoms during your hospital stay. We are here to help make you more comfortable!
What to expect with Surgical Procedures

- Craniotomy
- Coiling
- Clipping

**Before surgery**, you may need blood tests, an EKG, and an MRI or a CT scan of your brain. Please provide a list of present medications you are currently taking, dosages and how often each is taken (include over-the-counter, herbal supplements and vitamins).

Your surgeon will explain the risks and benefits of surgery and ask if you have any questions or concerns. You will need to sign a surgical consent form (permission for surgery). Discuss taking any medications prior to surgery (blood thinners, coumadin, aspirin) with your surgeon. It is important to not eat or drink anything after midnight the night before the surgery. An IV will be placed in your arm to give you medication and fluid and an area on your head may be shaved and cleaned with special soap.

**During surgery**, anesthesia will be given to you to help you sleep. In some cases, a tube may be placed to drain excess blood or fluid from your head. This tube is called an external ventricular drain (EVD).

**After surgery**, you will be taken from the operating room to the recovery room and will be monitored very closely as you wake up. You may be breathing through a special tube. Once the doctor says you are ready, you will go to the intensive care unit (ICU). The length of time you stay in the ICU will vary.
What are the Effects of Stroke?
The symptoms you may have after a stroke depend on the extent of brain damage and, most importantly, where the stroke occurred in the brain.

The effects of stroke in different halves of the brain

Right-sided Stroke
A stroke on the right side of the brain can cause trouble with:
- Movement or feeling on the left side of the body
- Judging the position of things
- Knowing body position
- Understanding and remembering things that the person does or sees
- Putting bits of information together to make an entire picture
- Perceiving the left side of space (such as seeming to “ignore” people or objects on their left)
- Judging if behaviors and actions are appropriate. This may cause the person to seem impulsive or reckless.

Left-sided Stroke
A stroke on the left side of the brain can cause difficulty with:
- Movement or feeling on the right side of the body
- Understanding and using language (listening, reading, speaking, or writing). This is known as aphasia.
- Remembering spoken or written messages
- Analyzing or learning new information

The individual’s behavior also may become overly cautious.

Brain illustration provided by Seunghyun “Sunni” Park.
The effects of stroke in different lobes of the brain

**Frontal Lobe:**
- Paralysis of various body parts
- Problems remembering the order of steps involved in completing multi-task movements, such as making coffee or brushing your teeth
- Difficulty interacting with others.
- Loss of flexibility in thinking
- Dwelling on a single thought
- Trouble focusing on a task
- Mood changes
- Personality changes
- Problems using language (Broca’s aphasia)
- Difficulty problem solving

**Temporal Lobe:**
- Problems recognizing faces (prosopagnosia)
- Trouble understanding spoken words (Wernicke’s Aphasia)
- Selective attention to what we see or do
- Difficulty identifying objects and verbalizing about objects
- Short-term memory loss
- Interference with long-term memory
- Increases or decreases in sexual behavior
- Inability to categorize objects
- Right lobe can cause persistent talking
- Increased aggressive behavior

*Brain illustration provided by Seunghyun “Sunni” Park.*
Brain Stem:
- Decreased ability to breathe
- Difficulty swallowing food and liquids (dysphagia)
- Problems with perception of the environment
- Problems with balance and movement
- Dizziness and nausea (vertigo)
- Sleeping difficulties (insomnia, sleep apnea)

Cerebellum:
- Loss of ability to coordinate fine movements
- Loss of ability to walk
- Inability to reach out and grab objects
- Tremors
- Dizziness
- Slurred Speech
- Inability to make rapid movements

Occipital Lobe:
- Visual field cuts
- Difficulty locating items in the environment
- Problems identifying colors (color agnosia)
- Hallucinations
- Visual illusions
- Word blindness
- Problems recognizing drawn objects
- Inability to recognize movement of an object
- Problems with reading and writing

Parietal Lobe:
- Inability to attend to one object at a time
- Inability to name an object (amnesia)
- Inability to locate words for writing (agraphia)
- Problems with reading
- Difficulty with drawing objects
- Difficulty in distinguishing left from right
- Difficulty doing mathematics (dyscalculia)
- Lack of awareness of certain body parts and/or surrounding space (apraxia) that leads to problems with self-care
- Inability to focus visual attention
- Problems with eye and hand coordination
Changes in Behavior and Emotions
A stroke can cause many unusual changes in emotions and behavior. After a stroke, the patient may seem like a completely different person. In a way, this is true. Stroke injures the brain, and the changes in behaviors and emotions can be a reflection of that injury. Understanding and dealing with such changes are just as important as the physical issues that are dealt with in rehabilitation.

Depression
As the survivor and family members come to grips with the stroke and its resulting disabilities, depression can be a natural reaction. However, depression can sometimes become serious enough to inhibit the survivor from moving on in the recovery process. These are some warning signs of depression:

- Feelings of worthlessness
- Loss of interest in once pleasurable activities
- Changes in appetite and weight
- Attempting or talking about suicide

The best way to deal with depression is to seek help from a social worker, psychologist, or other trained mental health professional.

Anger
Feelings of anger and resentment are also common for survivors of a stroke. Such feelings may be expressed verbally or physically, or even by withdrawing from others. When a survivor becomes upset, he or she may take anger out on others. In such cases, the individual actually may not be angry with others, but, rather, because the stroke has disabled them in some way.

Emotional Lability
(Also called Involuntary Emotional Expression Disorder or IEED)
Emotional lability is a physical brain condition that causes spontaneous, uncontrolled emotional displays. For example, the stroke survivor may burst into tears or laughter for no apparent reason. Emotional lability is greatest in the first few months after the stroke and most often decreases over time. It is best to deal with this disorder by accepting the behavior and not giving it any special attention.

Apathy
Strokes can affect the parts of the brain that get us going, stimulate our interest in things, and drive us to want to be active and stay involved in the world. Post-stroke apathy may look like depression but is very different and may require an exam by a doctor.

Sleep Disorders
Getting a good night’s sleep is an important part of stroke recovery. Yet, sleep problems are common among stroke survivors. Having a sleep disorder can make you tired and irritable. It, also, can pose serious dangers by increasing your risk for another stroke. Several types of sleep disorders, including obstructive sleep apnea (OSA) and circadian disturbances, can affect stroke survivors.
If you have any of the following symptoms, you should discuss them with your doctor:

- Loud snoring
- Waking up frequently during the night, gasping for breath
- Increased sweating
- Shortness of breath
- Insomnia, or being unable to fall asleep or remain asleep throughout the night
- Excessive daytime sleepiness
- Memory or attention problems
- Headaches
- Fatigue (low energy level)
- Irritability
- Depression or extreme sadness
Physical Therapy (PT)
After a stroke, you may have weakness or paralysis in your arms, trunk, or legs. This can make it difficult to move around and balance. A physical therapist will work with you to regain strength, balance, and movement.

What will I do in physical therapy?
A physical therapist will assess your movement, strength, and balance. He or she will then make a plan and work with you on different exercises to improve these functions. You may need to practice these exercises on your own or with the help of a caregiver. Your therapist will also help you with tasks such as sitting, walking, balancing, and using stairs.

Will I be able to walk?
Whether or not you will be able to walk after a stroke depends on the location and severity of the stroke. However, physical therapy can increase your chances of being able to walk again. It is best to start therapy as soon as your doctor says you are well enough to begin.

Your therapist may suggest that you use a cane, walker, or wheelchair to help you get around. You also may need a brace. For example, a brace may be used to hold your ankle and foot and to prevent you from tripping while walking. These devices may be needed for only a short time or permanently.

What happens when I leave the hospital?
Your therapist will make recommendations about the therapy you may need after you leave the hospital. You may continue your therapy as an inpatient at a rehabilitation center or as an outpatient.

Your therapist will also give you tips for preparing your home for your return. You might need to remove rugs to prevent tripping and make sure there is enough space to walk around furniture safely.
Occupational Therapy (OT)
You may hear the activities you do in your daily life called “activities of daily living” (ADLs). These include tasks like feeding, dressing, and bathing yourself and using the toilet. After a stroke, you may have trouble doing these tasks yourself. An occupational therapist will evaluate you to find strategies and equipment to help you regain your independence.

Loss of Sensation or Movement
You may have difficulty feeling or moving parts of your body after a stroke. Numbness or weakness in your arms, hands, or legs can make it difficult to do daily tasks.

Vision or Perception Changes
A stroke can affect your ability to see. Some people get blurry vision or blind spots. Other individuals may become unaware of objects or people on one side of them. They may also forget to dress or bathe that side of the body. Such changes in your ability to see and perceive the world around you can cause confusion and trouble performing daily activities.

How can an occupational therapist help me?
Your therapists will work with you to regain your strength and coordination through exercises. They can also teach you new ways of doing daily tasks or get you special devices (sometimes called durable medical equipment) to make tasks easier. Below are some examples of how your therapist may be of help.

Feeding/Eating
- Eating with one hand
- Using easy-to-grip forks and spoons
- Turning the patient’s plate so they can eat any food they cannot see

Bathing/Grooming
- Nonskid mats
- Shower chairs, hand rails
- A sponge with a long handle or a washcloth glove to make bathing with one hand easier
- Using a stand to hold a blow-dryer for your hair

Toileting
- A raised toilet seat to make sitting and standing back up easier
- A bedside commode (toilet)
- Hand rails by the toilet

Dressing
- One-handed methods for putting on clothes
- A hook to button shirts and pants
- Using Velcro or elastic laces on shoes

Will I be able to drive?
Talk to your doctor before you drive after a stroke. Your doctor may refer you to a therapist who teaches stroke patients how to drive again.

Braces and Splints
If you experience paralysis after a stroke, you may need a brace or splint. The brace will keep the muscles that are paralyzed from contracting and becoming shorter over time.
Speech Therapy
Speech therapists can work with you to improve your speaking and thinking skills throughout your recovery.

You can work with a speech therapist:
- In the hospital.
- At acute rehab or a skilled nursing facility.
- When you return home. You can see a therapist at a clinic, or the therapist can come to your home as part of home health.

Why am I having trouble speaking?
There are several areas of the brain that are used when you speak and process language. A stroke can damage these areas of the brain and make it hard to use and understand language.

You may have difficulty moving your mouth to speak or you may not know the right words to use. You also may have trouble knowing what other people are saying. Dysarthria, apraxia, and aphasia are three of the most common speech and language problems after a stroke.

Dysarthria
Dysarthria can occur when a stroke damages the area of your brain that helps control muscle movements in your face. You may have weakness on one side of your face after a stroke. This will make it hard to say sounds and words correctly, even if you know the right words. Your speech may sound “slurred”.

How can I make my speech clearer?
- Take a deep breath before you start to speak
- Speak slowly
- Really move your mouth so you can make all the sounds correctly
- Put a space between each word in a sentence
- Speak louder

Apraxia
Apraxia describes another type of speech difficulty. When someone has apraxia, speech muscles are able to move well. However they do not always receive the right messages from the brain telling them where to move. This will make it difficult to say longer words, and sometimes makes it difficult to speak at all.
Aphasia
Aphasia means you are having trouble communicating. It may be difficult to talk, understand speech, read, write, and use numbers when you have aphasia. Aphasia does not change your intelligence. It just makes it more difficult to share your message with others.

Types of Aphasia

- **Receptive Aphasia**
  - You may have trouble understanding what other people say to you. It can be difficult to follow simple instructions or answer questions with a “yes” or “no” correctly. You also may have a hard time following conversation. People with this type of aphasia may also have difficulty with reading.
  - This can happen when the area of your brain that helps you understand words and sentences is damaged after a stroke. This part of your brain is called “Wernicke’s area.”

- **Expressive Aphasia**
  - You may have trouble finding the right word to say at the right time. It can also feel like you can’t get the word out, and you get stuck. Some people it will happen only once in a while. For some other people it is difficult to get any words out at all. People with this type of aphasia may also have difficulty writing.
  - This will happen if the area of the brain that produces words and helps form sentences is damaged after a stroke. This part of your brain is called “Broca’s area.”

How can I make communicating easier?

- Give the patient extra time to speak
- Be aware of background noise and turn off radios or TVs while speaking with the patient.
- Point to things you are talking about or show pictures if available.
- Confirm that you got the message. Ask “yes” and “no” questions to be sure you understand.
- Keep your message short and direct. Try saying, “Do you want lunch”, instead of, “You had a very busy morning, I’m sure you’ve worked up an appetite. Are you ready for some lunch?”
- If the patient gets stuck on a word, encourage them to try and use a different word that means the same thing.
- Take a break! Getting frustrated or upset will only make it more difficult to speak. It is ok to take a break until the patient feels ready to try again.

Will my thinking be affected?
Even if you can understand speech and speak well, a stroke may make it difficult to think clearly. You may find it difficult to remember things or have a hard time solving problems. Some people become confused easily or have a hard time staying organized. A speech therapist can help you overcome these things in therapy.
**Dysphagia (Swallowing Difficulties)**
A stroke may affect your ability to swallow. Speech therapists also look at whether or not you are eating safely after a stroke. A stroke can weaken the muscles in your mouth and throat and make it difficult to chew or swallow food safely. Food or liquid may often “go down the wrong way” towards your windpipe (trachea), instead of your stomach. When food or liquid goes down the wrong way into your windpipe it is called “aspiration.”

A stroke can also decrease your ability to feel food or liquid in your throat. You may not always cough if food or liquid goes down the wrong way, because you are not aware of it happening.

**Testing for Dysphagia**
The speech therapist will come to your room and watch you drink and eat a small snack. The therapist may try different types of liquids and solids to see which is safest for you. The therapist will recommend a liquid thickness and diet texture they feel is safest for you.

Usually the speech therapist can get all the information they need just by watching you eat in your room. However, sometimes more information is needed to find the safest type of food and liquid for you. The therapist may recommend an additional test called a “videofluoroscopic swallow study” (VFSS) or “video.” During this test, the speech therapist will watch you swallow while you are seated in front of an x-ray machine. They will make an x-ray movie of your swallow, and can actually see which way the food or liquid is going down. Based on this additional information, the speech therapist will tell you which diet is safest for you.

**Signs of Dysphagia**
It is best to get your swallowing evaluated by a speech therapist if you notice any of these things:
- Coughing during meals
- Frequent throat clearing during meals
- Wet or gurgly voice during meals
- Trouble chewing since stroke
- Holding or “pocketing” food inside your cheek
- Feeling like food or liquid gets stuck on the way down
- Frequent respiratory infections

**Aspiration Pneumonia**
Food or liquid going down the wrong way can make you very sick. Bacteria can grow in our mouths if we do not do a good job of keeping them clean. The bacteria will go down on the food or liquid and enter your lungs if the food or liquid goes down the wrong way. The bacteria can grow into an infection known as pneumonia. Pneumonia can be very serious and even life threatening in some cases. Brushing your teeth, using mouth wash, and taking care to clean dentures well will help decrease the amount of bacteria in your mouth. This will help keep you healthier if food or liquid goes down the wrong pipe.
What is the safest way for me to eat?
- Always sit upright during a meal
- Take small bites
- Eat slowly
- Take a drink after each bite of food
- Limit things that may take your attention away from eating, like turning off the TV
- Check both sides of your mouth to be sure the last bite is gone before you take another bite.
- Make foods the same texture recommended by your speech therapist. Solid food can be pureed, ground, or chopped using a blender or food processor.
- Thicken liquids to the thickness recommended by your speech therapist. Thickener is available over the counter at most drug stores. Follow instructions on thickener packaging closely. Some thickeners need to be stirred into beverages. Others need to be shaken or beaten.
- Follow any other recommendations made by your speech therapist such as holding your head a special way while you swallow.

What are the different kinds of thick liquids?
Regular liquids are sometimes called “thin liquids”. No thickener is needed if your therapist recommends thin liquids. Nectar thick, honey thick, and spoon thick are the three types of thickened liquids, with spoon thick being the thickest. These can be prepared by following the instructions on the thickener label. Be sure to make liquids the same thickness recommended by your speech therapist.

Will I be on thick liquids forever?
Hopefully, no. It is important to follow your therapist’s recommendations and complete any exercises he or she recommended to help your swallow get stronger. Check in with your speech therapist frequently to see when you can go back to thin (regular) liquids. Many people are able to return to their regular diet after a stroke, but sometimes it can take time, practice, and patience.

What lies ahead?
The extent of the damage caused by a stroke may not be known for weeks. This uncertainty can be frustrating. Once the immediate crisis passes, rehab begins as soon as possible when indicated for changes related to the Stroke. Your rehab team will assess your changes in function such as swallowing, speaking, processing thoughts, walking, strengthening, and performing self-care activities, etc. The health care team will assist you to prepare for the next step in your healing process.

Recovery Takes Time
How much will I recover? That depends on where and how badly the brain was injured. Every person recovers differently. Age and other health issues, i.e. diabetes, heart disease, also affect the outcome. However, rehab can greatly aid recovery. Your effort and the support of family and friends are vital in this healing phase.
A Basic Guide for Thickened Liquids

Hints to Get Started

♥ Oral liquids may have to be “thickened” to promote safety during swallowing. Thickening agents are available for purchase at discharge. Check with your dietitian.

♥ Liquids fall into four categories:

**Thin**- If a patient is on “thin” liquids, all liquids are allowed. “Thin liquids” include: water, ice, coffee, tea, any juice, carbonated beverages, milk, milkshakes and supplements, such as Ensure, Boost, etc.

**Nectar like**- Liquids must be thickened to this consistency. Frozen desserts and gelatin are allowed at this level. Some liquids are naturally “nectar thick” and may not require further thickening, such as, canned nectars (shake before drinking), milkshakes that melt to a nectar-like consistency, and some blended soups.

**Honey-like**- Thickener must be added to achieve this consistency. Soups must be blended and thickened with mashed potatoes. Individuals requiring honey-like thickened liquids must avoid gelatin, ice cream and sherbet and unthickened shakes.

**Spoon thick**- pudding like consistency. Thickener must be added to all liquids. Gelatin and frozen desserts are not allowed.

♥ Adequate fluid intake may be a concern for patients requiring thickened liquids. Discuss this with your doctor, nurse or dietitian.

♥ Sources for commercial thickening agents:
- Home Health Clinical Services: 703-642-3141
- Novartis Nutrition Corporation: 1-800-828-9194 or www.resource.walgreens.com (RESOURCE ThickenUp Packets, RESOURCE Thickened Juices- Orange, Apple or Cranberry and Dairy Thick available in both Nectar and Honey Consistencies). Allow 5-7 business days for shipping.
- Some Pharmacies can special order-check with your Pharmacist.
Everyone who has had a stroke should ask their doctor about an individual weight goal. If your doctor prescribes a heart healthy diet, the following information is provided as a guide.

**Heart Healthy Diet**
- May help lower cholesterol levels
- Can reduce plaque build-up in the arteries
- May help keep high blood pressure under control
- Can help you lose weight

**What to Eat**
Remember to include:
- Vegetables
- Fruit
- Whole grains
- Low fat dairy products
- Legumes
- Lean protein sources

The key is to eat a variety of healthy foods and increase the fiber in your diet. Aim for 25g of fiber per day. As you adjust your fiber intake, remember to drink plenty of fluids to prevent constipation. Also, fish is a good source of lean protein and omega-3 fatty acids. Try to eat fish two times per week.

Try to eat fewer foods with:
- Cholesterol
- Saturated fat
- Trans fat
- Salt
- Added sugar

Substitute unsaturated fat for saturated fat. Aim for foods with little or no saturated or trans fat. Limit sodium to less than 2300 mg sodium or the level set by your doctor. The New 2010 Dietary Guidelines for Americans recommends reducing sodium intake to 1500mg among persons who are 51 and older and those of any age who are African American or have hypertension, diabetes, or chronic kidney disease.

**Reading Food Labels**
When reading food labels, or the “Nutrition Facts” area, remember to look for:
- Serving size – this is the amount of food in one serving. Look at this closely because it may not be the amount in the container.
- Calories – the total calories in one serving
- Total fat
- Saturated fat and trans fat
- Sodium
- Dietary fiber
Choose foods with:
- 3g or less total fat per serving
- Less than 1g of saturated fat and trans fat per serving. If a food has partially hydrogenated oils then it contains trans fat.
- Less than 300 mg of sodium per serving

Here are two examples of nutrition facts labels you might see.

![French Fries Nutrition Facts](image1)

![Baked Potato Nutrition Facts](image2)
Helpful Tips

- For lunch and dinner aim for ½ of your plate with vegetables and fruit. Meat should cover approximately ¼ of your plate, and starches should fill ¼ of the plate.

- When you eat away from home, choose foods carefully. Restaurant foods can be very high in sodium and fat. Many restaurants have special menus or will prepare foods with less salt and fat when asked.

- Ask for sauces and dressings on the side and use these sparingly.

- Include more foods with omega-3 fatty acids. Good sources of omega-3s are mackerel, albacore tuna, salmon, walnuts, canola and soybean oils, and flaxseed.

- Avoid fried foods. Bake, broil, grill, or steam your foods instead.

- Season foods with herbs and spices instead of salt.
Making food choices for a healthy lifestyle can be as simple as using these 10 Tips.
Use the ideas in this list to balance your calories, to choose foods to eat more often, and to cut back on foods to eat less often.

1. **balance calories**
   - Find out how many calories YOU need for a day as a first step in managing your weight. Go to www.ChooseMyPlate.gov to find your calorie level. Being physically active also helps you balance calories.

2. **enjoy your food, but eat less**
   - Take the time to fully enjoy your food as you eat it. Eating too fast or when your attention is elsewhere may lead to eating too many calories. Pay attention to hunger and fullness cues before, during, and after meals. Use them to recognize when to eat and when you’ve had enough.

3. **avoid oversized portions**
   - Use a smaller plate, bowl, and glass. Portion out foods before you eat. When eating out, choose a smaller size option, share a dish, or take home part of your meal.

4. **foods to eat more often**
   - Eat more vegetables, fruits, whole grains, and fat-free or 1% milk and dairy products. These foods have the nutrients you need for health—including potassium, calcium, vitamin D, and fiber. Make them the basis for meals and snacks.

5. **make half your plate fruits and vegetables**
   - Choose red, orange, and dark-green vegetables like tomatoes, sweet potatoes, and broccoli, along with other vegetables for your meals. Add fruit to meals as part of main or side dishes or as dessert.

6. **switch to fat-free or low-fat (1%) milk**
   - They have the same amount of calcium and other essential nutrients as whole milk, but fewer calories and less saturated fat.

7. **make half your grains whole grains**
   - To eat more whole grains, substitute a whole-grain product for a refined product—such as eating whole-wheat bread instead of white bread or brown rice instead of white rice.

8. **foods to eat less often**
   - Cut back on foods high in solid fats, added sugars, and salt. They include cakes, cookies, ice cream, candies, sweetened drinks, pizza, and fatty meats like ribs, sausages, bacon, and hot dogs. Use these foods as occasional treats, not everyday foods.

9. **compare sodium in foods**
   - Use the Nutrition Facts label to choose lower sodium versions of foods like soup, bread, and frozen meals. Select canned foods labeled "low sodium," "reduced sodium," or "no salt added."

10. **drink water instead of sugary drinks**
    - Cut calories by drinking water or unsweetened beverages. Soda, energy drinks, and sports drinks are a major source of added sugar, and calories, in American diets.

Go to www.ChooseMyPlate.gov for more information.
A Guide for Heart Healthy Nutrition

Hints to Get Started

♥ Maintain a well-balanced diet with plenty of whole grains and fresh fruits & vegetables. Aim for 5 cups of fruits and vegetables per day.

♥ Choose foods higher in fiber such as whole wheat, rye, brown rice, wild rice, buckwheat, triticale, bulgar, millet, quinoa, and sorghum.

♥ Choose lean meats, poultry, and fish. Reduce fat intake by cutting off any visible fat from meat and removing the skin from poultry before cooking.

♥ Include more foods with omega 3-fatty acids. Good sources of omega-3’s are: mackerel, albacore tuna, salmon. Aim to eat fish 2 times per week. Other sources are: walnuts, canola & soybean oils, flaxseed.

♥ Review cookbooks for low-fat cooking tips and low-fat recipes. Limit cholesterol to 300 mg/day.

♥ Egg yolks are high in cholesterol. Use egg yolks in moderation. Use egg whites & egg substitutes freely.

♥ Remove the salt shaker from the table. Use salt sparingly during cooking. Reduce total sodium intake to 2 grams of sodium per day.

♥ Read labels carefully and avoid processed and convenience foods to lower sodium intake. (70% of salt intake is from foods & not salt shaker.)

♥ Limit intake of trans fats (note ingredient: partially hydrogenated vegetable oil). These are found in snack crackers, commercially baked goods and margarine.

♥ Replace solid fats (butter & margarine) with vegetable oils when possible. Use Vegetable oils with liquid vegetable oil as 1st listed ingredient & no more than 2 grams of sat. fat per day.

♥ When dining out, ask for sauces and dressings on the side and use these sparingly--use the fork dip method. Keep in mind that foods cooked at home are almost always lower in sodium.
♥ Eliminate fried foods. Bake, Broil, and Grill your foods.

♥ Marinate poultry, fish, and meats in lemon or lime juice, herbs, and low fat dressings.

♥ Season foods with herbs and spices.

♥ Check with your doctor before using a salt substitute as these contain potassium.

♥ Aim for a healthy body weight. Balance caloric intake with physical activity. Also, minimize intake of beverages and foods with added sugars.

Dietitian: __________________________ Telephone: ________________

Resources for Additional Information

Your doctor has recommended a heart healthy diet for you. This is an important part of your treatment once you are home. Visiting a Registered Dietitian at Inova HealthSource is strongly encouraged to complete your education process. To make an appointment, please call the number listed below.

Inova HealthSource  1-855-My-Inova (694-6682)  www.inova.org
American Heart Association  1-800-AHA-USA1  www.americanheart.org
American Dietetic Association  1-800-366-1655  www.eatright.org
# Heart Healthy Nutrition

<table>
<thead>
<tr>
<th>FOOD GROUPS</th>
<th>ALLOW</th>
<th>AVOID</th>
</tr>
</thead>
<tbody>
<tr>
<td>MILK &amp; DAIRY PRODUCTS</td>
<td>♥ Skim milk, 1% milk, low fat buttermilk</td>
<td>Whole milk, 2 % milk, condensed milk, chocolate milk</td>
</tr>
<tr>
<td></td>
<td>♥ Nonfat or low fat yogurt</td>
<td>Half &amp; half cream, whipping cream, eggnog</td>
</tr>
<tr>
<td></td>
<td>♥ Evaporated skim milk</td>
<td>High fat yogurt, milkshakes, regular ice cream</td>
</tr>
<tr>
<td></td>
<td>♥ 93% low fat or fat-free cheese</td>
<td>Regular cheeses</td>
</tr>
<tr>
<td></td>
<td>♥ 93% low fat or fat-free sour cream and cream cheese</td>
<td>Cheese spreads</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BREADS, CEREALS, AND STARCHES</td>
<td>High fiber and whole grain breads, cereals, rolls, buns, bagels, and pita bread</td>
<td>Egg or cheese breads, butter rolls, croissants, egg bagels, sweet rolls</td>
</tr>
<tr>
<td></td>
<td>♥ Plain baked potatoes, rice, pasta</td>
<td>Granola-type cereals</td>
</tr>
<tr>
<td></td>
<td>♥ Baked tortillas</td>
<td>Pasta, rice or potatoes prepared with cream or cheese sauces</td>
</tr>
<tr>
<td></td>
<td>♥ Plain lima beans, peas, corn, and yams</td>
<td>Potato chips, corn chips, and cheese puffs</td>
</tr>
<tr>
<td></td>
<td>♥ Unsalted pretzels</td>
<td>High fat snack crackers</td>
</tr>
<tr>
<td></td>
<td>♥ Air popped popcorn</td>
<td>Fried noodles</td>
</tr>
<tr>
<td></td>
<td></td>
<td>French fries, hash browns, and home fries</td>
</tr>
<tr>
<td>FRUITS</td>
<td>♥ All fresh, frozen, or canned fruits and fruit juices</td>
<td>coconut</td>
</tr>
<tr>
<td>VEGETABLES</td>
<td>♥ All fresh and frozen vegetables</td>
<td>Regular tomato juice, V-8 juice</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Olives, sauerkraut, pickles</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Fried vegetables</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Vegetables prepared with cream or cheese sauces</td>
</tr>
<tr>
<td>FATS &amp; OILS (USE SPARINGLY)</td>
<td>♥ Tub margarine, vegetable oils (i.e. safflower oil, corn oil, soybean oil, olive oil)</td>
<td>Butter, coconut oil, palm kernel oil, lard, fat-back, and hardened shortenings (i.e. Crisco)</td>
</tr>
<tr>
<td></td>
<td>♥ Flaxseed, Canola, or soybean oils (high in omega 3-fatty acids)</td>
<td>Regular mayonnaise</td>
</tr>
<tr>
<td></td>
<td>♥ Low fat or fat-free mayonnaise</td>
<td>Gravy</td>
</tr>
<tr>
<td></td>
<td>♥ Vegetable sprays (i.e. Pam)</td>
<td>Cream based salad dressings</td>
</tr>
<tr>
<td>FOOD GROUPS</td>
<td>ALLOW</td>
<td>AVOID</td>
</tr>
<tr>
<td>------------------------------------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>MEATS, EGGS, POULTRY AND FISH</td>
<td>♥ POULTRY &amp; GAME (white meat): chicken, turkey, Cornish hen, &amp; venison</td>
<td>Duck and goose</td>
</tr>
<tr>
<td>(MODERATE 3 OZ. SERVINGS)</td>
<td>♥ FISH: Fresh, frozen, or water packed fish. Aim for 2 servings per week esp. of fish high in omega 3-fatty acids such as : salmon, tuna &amp; mackerel.</td>
<td>Dark meat and skin from chicken or turkey</td>
</tr>
<tr>
<td>Limit red meat To 3 servings per week</td>
<td>♥ BEEF: Choose low fat cuts and trim excess fat – round, top loin, tenderloin, sirloin cuts Extra-lean ground beef</td>
<td>Fried, salted or dried smoked fish</td>
</tr>
<tr>
<td></td>
<td>♥ VEAL: All well trimmed cuts</td>
<td>Fish canned in brine or oil</td>
</tr>
<tr>
<td></td>
<td>♥ LAMB: Choose lean cuts such as leg, loin, or shoulder</td>
<td>Heavily marbled and fatty meats such as ground beef, corned beef, ribs, and hot dogs Fast foods</td>
</tr>
<tr>
<td></td>
<td>♥ PORK: Tenderloin, boneless loin chop, leg</td>
<td>Ground lamb, mutton</td>
</tr>
<tr>
<td></td>
<td>♥ EGGS: Egg whites and egg substitutes/Eggbeaters</td>
<td>Bacon, sausage, scrapple, chitterlings</td>
</tr>
<tr>
<td></td>
<td>♥ BEANS &amp; PEAS: Prepared with low fat recipes</td>
<td>More than 3 egg yolks per week Fried eggs</td>
</tr>
<tr>
<td></td>
<td>♥ LOW SALT LOW FAT LUNCHEON MEAT</td>
<td>Peas or beans prepared with fat or high-fat meat Canned peas and beans</td>
</tr>
<tr>
<td></td>
<td>♥ NUTS &amp; PEANUT BUTTER: Allow in moderation</td>
<td>Avoid regular luncheon meat</td>
</tr>
<tr>
<td></td>
<td>♥ TOFU AND MEAT SUBSTITUTES: Without added fat or sodium</td>
<td></td>
</tr>
</tbody>
</table>
# Heart Healthy Nutrition

<table>
<thead>
<tr>
<th>FOOD GROUPS</th>
<th>ALLOW</th>
<th>AVOID</th>
</tr>
</thead>
</table>
| **SOUPS**   | ♥ Homemade or low sodium canned soups  
♥ Low sodium broth  
♥ Low sodium “cream” soups made with skim milk | Regular canned soups  
High fat cream soups |
| **DESSERTS**| ♥ Popsicles, sherbet, gelatin  
♥ Low fat or fat-free frozen yogurt, ice milk, or pudding  
♥ Angel food cake  
♥ Low fat candy or hard candy  
♥ Vanilla wafers, Fig Newtons, ginger snaps, animal crackers, and graham crackers | High fat desserts such as custards, puddings, cake and cookies made with large amounts of eggs, fat, cream, or cheese  
Coconut, chocolate, cashews, macadamia nuts |
| **CONDIMENTS**| ♥ Herbs & spices, vinegar, and lemon (Mrs. DASH)  
♥ Sauces and gravies made from low salt broth and without animal fat | Relish, meat tenderizers, soy sauce, sea-salt, onion salt, garlic salt, Worcestershire sauce, teriyaki sauce, and steak sauce  
Kim-chee |

**America’s Favorite Herb Blend Recipe**

- 5 tsp. Onion powder
- ½ tsp. White pepper
- ½ tsp. Celery seeds
- 1 Tbsp. Paprika
- 1 tsp. Thyme
- 1 Tbsp. Dry mustard
- 1 Tbsp. Garlic powder

Combine the above ingredients and enjoy a low sodium seasoning blend!
<table>
<thead>
<tr>
<th>Ingredient</th>
<th>Heart Healthy Substitute</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 whole egg</td>
<td>¼ cup egg substitute</td>
</tr>
<tr>
<td></td>
<td>1 egg white and 1 tsp. oil</td>
</tr>
<tr>
<td></td>
<td>2 egg whites</td>
</tr>
<tr>
<td>1 Tbsp. butter</td>
<td>1 Tbsp. soft tub margarine</td>
</tr>
<tr>
<td></td>
<td>2 tsp. oil (canola or olive)</td>
</tr>
<tr>
<td>1 cup hydrogenated shortening or lard</td>
<td>2/3 cup oil</td>
</tr>
<tr>
<td>1 cup whole or 2% milk</td>
<td>1 cup skim milk or lite soy milk, fortified with calcium</td>
</tr>
<tr>
<td>Half and half</td>
<td>Evaporated skim milk</td>
</tr>
<tr>
<td>Whole fat cheese</td>
<td>Skim milk mozzarella, fat free cheese</td>
</tr>
<tr>
<td>Full fat cream cheese</td>
<td>2 Tbsp ricotta cheese, 2 Tbsp. 1% cottage cheese</td>
</tr>
<tr>
<td></td>
<td>Non fat cream cheese, Neufchatel or low fat cottage cheese pureed until smooth</td>
</tr>
<tr>
<td>Shortening, butter or oil in baking</td>
<td>Use applesauce for ½ butter, shortening, or oil. May need to reduce the baking time by 20-25%</td>
</tr>
<tr>
<td>1 square (1 oz) baking chocolate</td>
<td>3 Tbsp. powdered cocoa and 1 Tbsp. oil</td>
</tr>
<tr>
<td>1 cup ice cream</td>
<td>1 cup ice milk, sherbet, or non fat yogurt</td>
</tr>
<tr>
<td>1 oz. bacon</td>
<td>2 Tbsp. imitation bacon bits</td>
</tr>
<tr>
<td>1 cup mayonnaise</td>
<td>1 cup non fat mayonnaise or 1 cup non fat salad dressing</td>
</tr>
</tbody>
</table>
Preparing for Discharge
Discharge planning begins as soon as possible after admission to the hospital. This discharge planning includes the medical team, nursing, therapists, Case Management Team (nurse/social worker), clinical/financial staff, patient and family. All of these team members will work with you and your loves ones to ensure a smooth transition from the hospital to your next level of care. The Case Management team will help lead the team in the discharge plan. In addition, if insurance approval is needed for post-hospital care, the Case Management team will involve your insurance company in this discharge planning process.

Discharge Planning Arrangements by Case Management
- Initiating follow-up medical care and rehabilitation services that may include:
  - Inpatient acute rehabilitation
  - Inpatient sub-acute rehabilitation
  - Outpatient rehabilitation - physical therapy, occupational therapy and speech therapy
  - Home health – physical therapy, occupational therapy, speech therapy, nursing care and IV therapy
- Setting up special equipment that may be necessary to help you through your recovery process
- Identifying Community Services that may be available to you at home or in the community
- Setting up Family/Physician meetings to help you and your loved ones transition smoothly to the recovery process

Levels of Stroke Rehabilitation Care
Rehabilitation after a stroke depends on the degree of injury to the brain. Some patients may not need rehabilitation after a stroke. However, those patients who need rehabilitation will continue recovery at one of the following rehabilitation levels of care:

- **Acute Rehabilitation** – centers are approved to provide inpatient rehabilitation services (physical, occupational, speech, respiratory, etc.). This is usually for a short term to intermediate stay, following hospitalization. A minimum of three hours of therapy per day is indicated for entry to acute rehab. This level of care is covered by insurance.

- **Skilled Nursing Rehabilitation** – centers are licensed to provide health care and services involved in managing complex and potentially serious medical problems. A minimum of one hour of therapy per day is indicated for entry to a skilled nursing facility. This level of care is covered by insurance.

- **Outpatient Rehabilitation** – centers are licensed to provide rehabilitation services (physical, occupational, speech, etc.). Outpatient rehab is indicated with a doctor’s order. This level of care is covered by insurance.
• **Home Care** – includes providers of licensed health care services in the home. There are two levels of homecare:
  
  o Skilled care includes: nursing, physical therapy, occupational therapy, speech therapy, or social work. This is usually covered by insurance for homebound patients.
  
  o Unskilled care includes: non-medical assistance with such tasks as bathing, dressing, meal preparation and transportation. This is not covered by insurance.
  
• **Hospice** – care may be provided in the home or a senior care community. Services include pain management and a variety of emotional, spiritual and physical support issues.
  
• **Long-term Care in a Nursing Facility** – centers licensed to provide custodial inpatient care. This is for patients who are dependant on care and cannot live at home. This is private pay unless you have Medicaid or Long Term Care insurance.
  
• **Day Care** – various programs provide a range of geriatric day services, including social, nutrition, nursing and rehabilitation. This is private pay.
Get Your Life Back!

Socializing with Family and Friends – Taking control of your life again can involve a few simple tasks. Continuing to socialize with your family and friends is an important piece of your recovery. And family and friends can also provide you that extra bit of motivation you may need to recover to your fullest potential.

Community Support – Family and friends are a significant source of strength throughout our healing process, but you or a loved one may find that additional support is needed. Community support is available through various support groups for both the stroke patient and for those caring for their loved one:

- Day socialization programs
- Community programs to assist the patient to live in the community
- Volunteers to assist with travel to doctors appointments
- Volunteer visitor programs

Healing from within Following a Stroke – Many times stroke patients or caregivers experience a shock when a stroke has occurred. There is a feeling of helplessness, loss of control and fear that initially sets in. There has been a significant, abrupt change in both the stroke patient’s life and the surrounding caregiver’s lives. These are normal feelings to experience any time an abrupt change has occurred – especially within our own bodies. Talking to physicians, reaching out to loved ones and attending community support groups can help you identify treatments or services that are available that can assist you through this process.

Depression – If you or a caregiver feels intense sadness and isolation through this recovery process, there is help. Talk to your doctor about these emotional changes. Medicine and/or counseling can be very effective in creating the additional support you need. Some effective tools for combating depression include:

- Setting small, attainable goals
- Being as physically active as you can – even a small amount can go a long way towards your recovery
- Scheduling your day to provide some structure and routine
- Do not isolate yourself – enjoy your loved ones, family and friends

Thoughts for Your Future – Keep moving! The more active you are, the more fully and quickly you are likely to recover. Keep your body and mind active. Life can and should be as meaningful as ever. Over time, you will regain more and more of your independence. Many stroke survivors find new pleasures, and some gain a greater appreciation of things they once took for granted. You are not just a “stroke survivor”. You are a complete human being. You have suffered a setback, but your life is still your own. Discover it.
Support Groups
A stroke support group is a community organization for stroke survivors and their family members, friends and others. It helps people learn more about stroke, share their experiences about stroke, and become inspired to move forward after their stroke.

While providing care for a stroke patient can be an extremely rewarding experience, it can also be very stressful and frustrating to be suddenly thrust into the position of caregiver with little or no warning. Therefore, it is extremely important that caregivers address their own needs of support in addition to those of the patient. Coping with these changes in a healthy way will lead to a healthier caregiver and ultimately a healthier patient.

Inova Support Groups
- Brain Aneurysm Support Group
- Stroke Survivor and Caregiver Support group
- Young Stroke Survivor Support Group

More information on Inova Support Groups may be found in the Resources section.

To find a support group near you:

American Heart Association
American Stroke Association
7272 Greenville Avenue
Dallas, TX 75231
1-888-4-STROKE (1-888-478-7653)
www.strokeassociation.org
- Life After Stroke tab
- You Are Not Alone tab

National Stroke Association
9707 E. Easter Lane, Suite B
Centennial, CO  80112
1-800-STROKES (1-800-787-6537)
www.stroke.org
- Recovery
- Find a support group

The Brain Aneurysm Foundation
269 Hanover Street, Building 3
Hanover, MA 02339
1-888-272-4602
1-781-826-5556
fax: 1-781-826-5566
www.bafound.org
Stroke Caregiver
Once your loved one is back at home, there are new and difficult challenges. What once was easy may now be tricky and take extra time. Getting in and out of a car, or even getting in and out of bed may take new skills for both you and your loved one. It is important to take things slowly, have patience and keep an open mind. Scheduling certain activities throughout the day can help. During “up” periods, exercises and outings can be planned. “Low” periods can be used for personal relaxation and “self” time as a caregiver. Strive to create a rhythm to daily life – a rhythm that respects the needs of everyone – including you. Realize healing from a stroke may be a life-long journey.

Ask for Help – Care giving can be done by a variety of people. Spouses, siblings, children, friends, and outside sources and companies can all help. Don’t be shy about enlisting help from others. It’s easy to get overwhelmed with your new role. Make sure you try to take a break for a few hours each week from your hard work as a caregiver. As a caregiver, try to encourage as much independence as possible. Allow your loved one to make decisions and support their participation in leisure activities. Don’t forget to find a few for yourself.

Mobility – After a stroke, your loved one may have problems moving and keeping their balance. They may need extra help getting around the house and in and out of a vehicle. Weakness, numbness, neglect (inattention), visual problems, and personality changes can all effect how a person moves. Extra equipment, such as canes, crutches, walkers, wheelchairs, lifts, belts, and braces may make moving easier on you and your loved one. Likewise, movements should be carefully planned out. Clear a path. Explain the plan. Check the equipment. Move with skill and have a back-up plan.
Stroke Resources

American Diabetes Association
ATTN: Center for Information
1701 North Beauregard Street
Alexandria, VA 22311
1-800-DIABETES (1-800-342-2383)
AskADA@diabetes.org

The mission of the American Diabetes Association is to prevent and cure diabetes and to improve the lives of all people affected by diabetes.

American Stroke Association
7272 Greenville Avenue
Dallas, TX 75231
1-888-4-STROKE (1-888-478-7653)
www.strokeassociation.org

The American Stroke Association is dedicated to prevention, diagnosis and treatment to save lives from stroke — America’s No. 3 killer and a leading cause of serious disability. We fund scientific research, help people better understand and avoid stroke, encourage government support, guide healthcare professionals and provide information to enhance the quality of life for stroke survivors.

Centers for Disease Control and Prevention
1600 Clifton Rd.
Atlanta, GA 30333
800-CDC-INFO (800-232-4636)
TTY: 888-232-6348
Email: cdcinfo@cdc.gov
www.cdc.gov/stroke

The CDC is dedicated to the prevention and reduction of heart attacks and strokes through local and state-based programs, the Paul Coverdell National Acute Stroke Registry, and through many other partnerships and programs.
Leaving the Hospital

National Aphasia Association
350 Seventh Avenue, Suite 902
New York, NY 10001
1-800-922-4622
Email: responsecenter@aphasia.org
www.aphasia.org

The mission of the NAA is to promote public awareness and understanding of aphasia and provide support to all persons with aphasia and their caregivers.

National Family Caregivers Association
10400 Connecticut Avenue, Suite 500
Kensington, MD 20895-3944
1-800-896-3650
301-942-6430
Fax: 301-942-2302
Email: info@thefamilycaregiver.org
www.nfcacares.org

The National Family Caregivers Association educates, supports, empowers and speaks up for the more than 65 million Americans who care for loved ones with a chronic illness or disability or the frailties of old age. NFCA reaches across the boundaries of diagnoses, relationships and life stages to help transform family caregivers' lives by removing barriers to health and well being.

National Institute of Health (NIH) Neurological Institute
P.O. Box 5801
Bethesda, MD 20824
800-352-9424 or 301-496-5751
www.ninds.nih.gov

The mission of National Institute of Neurological Disorders and Stroke (NINDS) is to reduce the burden of neurological disease - a burden borne by every age group, by every segment of society, by people all over the world.

National Stroke Association
9707 E. Easter Lane, Suite B
Centennial, CO  80112
1-800-Stroke (1-800-787-6537)
Email: Info@stroke.org
www.stroke.org

The mission of the National Stroke Association is to reduce the incidence and impact of stroke by developing compelling education and programs focused on prevention, treatment, rehabilitation and support for all impacted by stroke.
The mission of TAAF is dedicated to bettering the lives, support networks, and medical care of those affected by aneurysm and other types of vascular malformation of the brain.

In support of that mission, we have three primary goals that guide foundation activities:

- Provide support, including information, resources and motivation, for people with aneurysm and other types of vascular malformation of the brain, their families, caregivers and friends.
- Promote education and awareness in the community regarding aneurysm and other types of vascular malformation of the brain.
- Provide encouragement and funding for research on aneurysm and other types of vascular malformation of the brain in an effort to advance patient treatment and care.
Stroke Smart Magazine Individual Subscription Request

Name ___________________________________________________________

Address _________________________________________________________

Address _________________________________________________________

City _______________________  State ________  Zip ___________________

Phone: _____________________  Email: ______________________________

Note: The magazine is free to residents of the United States. Please call National Stroke Association for information on foreign subscriptions.

Please circle the appropriate response for the following questions. Please answer the questions as they apply to the person who will be the primary reader of the magazine.

I am a: Stroke Survivor • Caregiver • Family Member had a stroke
• Healthcare Professional ___________________________________________(Please specify specialty and credentials)
• Other _____________________

I am: Male • Female

My age is: 17 and under • 18-24 • 25-34 • 35-44 • 45-54 • 55-64 • 65-74
• 75 and over

I am: Caucasian • African American • Hispanic/Latino • Asian/Pacific Islander
• American Indian • Other

I had a(n): Hemorrhagic stroke • Ischemic stroke • Unknown type • TIA only
• Other type (specify) __________________________

I have had: TIA(s) only • TIA(s) and Stroke(s) • One Stroke • Multiple Strokes
• N/A

Fax this form to (303) 649-1328
Or
Mail to the address below

National Stroke Association • 9707 E. Easter Lane Suite B • Centennial CO 80112-3747
1 (800) STROKES • www.stroke.org
(787-6537)
If you would like to receive additional information, the American Stroke Association, a division of the American Heart Association, offers a variety of printed educational materials for stroke survivors and their families. Whether you’re trying to reduce your risk of stroke, have had an event, or are helping a loved one recover from a stroke, you can benefit from the information available. Some that you may be interested in requesting include:

**Conditions, Procedures and Disease Management**
- Beating The Odds: Our guide to understanding Atrial Fibrillation (50-1507)
- Together Again: Our guide to sex and stroke (50-1506)
- Living with disability after stroke (50-1512A)
- How Stroke Affects Behavior (50-1509A)
- Don’t Wait for it to Happen to You: Our guide to high blood pressure and stroke (50-1501)
- Taking Care: Our guide to being a stroke caregiver (50-1500)
- Actions Speak Louder than Words: Our guide to caring for someone with Aphasia (50-1502)
- After Your Heart Attack (50-1486) (Spanish 50-1452)
- Diabetes, Heart Disease and Stroke (50-1492A) (Spanish 50-1527A)
- Living with Congestive Heart Failure (50-1475A)
- Understanding and Controlling Cholesterol (50-1524A)
- High Blood Pressure in African Americans (50-1466)
- Understanding and Controlling High Blood Pressure (50-1489) (Spanish 50-1490)
- Aspirin, Heart Disease and Stroke (50-1483)

**Lifestyle Management**
- Smoking and Stroke (50-1503A)
- An Eating Plan for Healthy Americans (50-1481A)
- Easy Food Tips for Heart-Healthy Eating (50-1471A) (Spanish 50-1457A)
- Tips for Eating Out (50-1478A)
- Shaking the Salt Habit (50-1474)
- Nutritious Nibbles (50-1477)
- Just Move: Our guide to physical activity (50-1479A) (Spanish 50-1484)
- Walking for a Healthy Heart (50-1523)
- Exercise and Your Heart (50-1436)
- Six Steps to a Healthier Heart (50-1496)
- Managing Your Weight (50-1469A) (Spanish 50-1487A)
- Quit Smoking for Good (50-1511)

**Signs & Symptoms / Risk**
- Understanding Stroke (50-1505A) (Spanish 50-1510)
- Every Second Counts: Our guide to the warning signs of stroke (50-1504)
- Stroke: Are you at Risk (50-1508A)
- Are Your at Risk of Heart Disease and Stroke (50-1494)

The American Stroke Association publishes a bi-monthly magazine for stroke survivors and caregivers. Each issue is packed with practical tips on daily living, reducing the risk of another stroke, news about treatments and more.

- Check here if you would like to receive a FREE subscription to Stroke Connection Magazine.

You can use this form to request up to 10 brochures free of charge. You may only request 2 of the same title. For each brochure you want to receive, “check” the line before the product title. Then, complete the “Contact Information” below and mail this form to:

AMERICAN HEART ASSOCIATION
ATTN: STROKE FAMILY SUPPORT NETWORK
7272 GREENVILLE AVENUE
DALLAS, TX 75231-9955

Or, you can fax it to: 214-373-5231

To find out more about the American Stroke Association and additional materials and programs available, call: 1-888-4-STROKE. You can also logon at www.StrokeAssociation.org.

**Contact Information:**

Name: _______________________________

Address: ________________________________________________________________

Phone: ___________________________ Email: ______________________________

GWTG
Use this scorecard as a guide to talk to your doctor about your stroke recovery journey and how you can make it easier to manage. Please read each area and use the scale to rate how much difficulty you have with it.

### Changes in Activities and Participation

<table>
<thead>
<tr>
<th>Communication</th>
<th>Movement</th>
<th>Activity in Social, Community and Civic Life</th>
<th>Energy Level</th>
<th>Sexuality</th>
<th>Support and Relationships</th>
<th>Managing Daily Activities</th>
<th>Quality of Life</th>
</tr>
</thead>
<tbody>
<tr>
<td>ability to talk with other people, write, understand what you read and what people say, and use body language. Includes aphasia, or the loss of ability to communicate normally, which may affect your ability to talk, understand, read, write or deal with numbers.</td>
<td>ability and strength to walk, balance, lift and carry objects, pick up or grasp something, use public transportation, drive, move around on your own or with the help of equipment (eg, wheelchair, walker, cane) at home or in the community.</td>
<td>ability and comfort level to be active in the social, community and civic events that you enjoy.</td>
<td>fatigue or low energy, feeling worn down and exhausted. This is different from weakness, sleepiness or being over stimulated.</td>
<td>the quality of your sexual relationship after stroke compared to how it was before the stroke. This differs from person to person.</td>
<td>the ability to maintain interest in people and recreational activities, remain connected, relate with strangers, and cope with changes in how or with whom you spend time or deal with the attitudes of friends and family.</td>
<td>managing the details of daily life, including things like looking after your health, bathing, washing hands, brushing teeth, shaving, grooming and bathing.</td>
<td>the ability to participate in things that are meaningful and that provide you purpose in life.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Difficulty Scale:</th>
<th>1 = None</th>
<th>2 = A little</th>
<th>3 = Somewhat</th>
<th>4 = A lot</th>
<th>5 = Severe</th>
</tr>
</thead>
</table>

The person filling this form out is (check one):
- Stroke survivor
- Caregiver /Family member

How much time has passed since your last stroke? __________

Stroke Rehab status:
- In initial therapy
- Finished therapy and on home exercise program
- Have returned to therapy
- Am not in therapy

www.stroke.org • 1-800-STROKES • (1-800-787-6537)
continued on back
**Changes in Body Function**

<table>
<thead>
<tr>
<th>Difficulty Scale:</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pain – any increase in how often you feel pain, how severe the pain is, or any new pain (compared to a “chronic” pain that has continued for a long time). Pain felt after stroke commonly includes headaches as well as pain in the back, shoulder, hip, abdomen, arm and neck.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control of Bowel and Bladder – the ability to control bowel and bladder functions (often referred to as incontinence), wetting or soiling clothing or bedding, constipation, the need to go to the bathroom often, or strong and sudden urges to go to the bathroom.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sleep – trouble falling asleep or not being able to sleep through the night, causing you to feel tired the next day. This is different from a low energy level or fatigue.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Eating – changes or problems with appetite, weight gain or loss, swallowing issues, consuming enough food or fluids, and sense of taste and smell.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Changes in Personality, Behavior and Thinking**

| Emotions and Coping – changes in how you feel, your mood, and your emotions. This can include sad feelings, depression, anxiety, mood swings; crying, laughter or anger when there is no reason for it or when it is normally inappropriate. |   |   |   |   |   |
| Thinking – concentration, attention span, memory, understanding what people say, and finding solutions to everyday problems. |   |   |   |   |   |
| Personality or Behavior Changes – problems being impulsive, angry, or being genuinely unaware that your memories are inaccurate. |   |   |   |   |   |
Clinical Trials
A clinical trial is a complete investigation of medicines or medical devices to determine both their safety and efficacy before they are made available to the public.

A drug must go through many different phases of testing to prove it is safe and effective. This process is guided by regulations set forth by the Food and Drug Administration (FDA). All clinical trials are based on a set of rules called a protocol, which describes what types of people may participate in the trial, the schedule of tests, procedures and medications that are going to be used and the length of the study. Additionally, participants may decline to be a part of the trial or withdraw from the trial at any time. While in a clinical trial, participants are seen regularly by the research staff to monitor their health and to determine the safety and effectiveness of the treatment.

Are Clinical Research Studies Safe?
The government has strict guidelines and safeguards to protect people who choose to participate in clinical trials. Every clinical trial in the United States must be approved and monitored by an Institutional Review Board (IRB) to make sure the risks are as low as possible and are worth any potential benefits. Before participating in a trial, a person must agree to sign an Informed Consent form, which provides detailed information about the study, medications and procedures. Experienced physicians who have been thoroughly trained and designated as Principal Investigators closely monitor study participants.

Helpful Websites
Not all of the trials listed at this site pertain to post-stroke research, but many of them do.

The most comprehensive internet resource for rehabilitation research news may be found at: www.clinicaltrials.gov – from the NIH offices in Bethesda, MD.

To locate stroke information on the NIH site:
- Select condition
- Disease heading
- Nervous system diseases
- Cerebrovascular accident
<table>
<thead>
<tr>
<th>Drugs</th>
<th>Possible Side Effects</th>
<th>What to Monitor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Warfarin (Coumadin®)</td>
<td>• Bleeding problems&lt;br&gt;• Easy bruising&lt;br&gt;• Headache&lt;br&gt;• Nausea or vomiting</td>
<td>• Frequent or prolonged nosebleeds lasting more than 10 minutes&lt;br&gt;• Prolonged bleeding from minor wounds, lasting more than five minutes&lt;br&gt;• Blood testing is necessary while on this medication (prothrombin time/INR). Your healthcare provider will order the test when needed.&lt;br&gt;• Take good care of your teeth. See a dentist regularly.&lt;br&gt;• Avoid cranberries/grapefruit&lt;br&gt;• Do not eat large amounts of green leafy vegetables</td>
</tr>
<tr>
<td>Heparin /Lovenox</td>
<td>• Bleeding problems&lt;br&gt;• Easy bruising&lt;br&gt;• Irritation where the shot is given</td>
<td>• Frequent or prolonged nosebleeds lasting more than 10 minutes&lt;br&gt;• Prolonged bleeding from minor wounds, lasting more than five minutes&lt;br&gt;• Prolonged bleeding during dental work</td>
</tr>
<tr>
<td>Aspirin</td>
<td>• Belly pain or heartburn&lt;br&gt;• Heartburn&lt;br&gt;• Nausea or vomiting&lt;br&gt;• Bleeding problems&lt;br&gt;• Easy bruising</td>
<td>• Frequent or prolonged nosebleeds lasting more than 10 minutes&lt;br&gt;• Prolonged bleeding from minor wounds, lasting more than five minutes</td>
</tr>
<tr>
<td>Dipyridamole (Persantine®)</td>
<td>• Feeling dizzy&lt;br&gt;• Headache&lt;br&gt;• Belly pain&lt;br&gt;• Easy bruising</td>
<td>• Frequent or prolonged nosebleeds lasting more than 10 minutes&lt;br&gt;• Prolonged bleeding from minor wounds, lasting more than five minutes</td>
</tr>
<tr>
<td>Clopidogrel (Plavix®)</td>
<td>• Feeling dizzy&lt;br&gt;• Flu-like symptoms&lt;br&gt;• Belly pain&lt;br&gt;• Heartburn&lt;br&gt;• Nausea or vomiting&lt;br&gt;• Diarrhea&lt;br&gt;• Headache&lt;br&gt;• Easy bruising</td>
<td>• Frequent or prolonged nosebleeds lasting more than 10 minutes&lt;br&gt;• Prolonged bleeding from minor wounds, lasting more than five minutes</td>
</tr>
<tr>
<td>Antidiabetic Agents: Anti-diabetic agents adjust blood sugar levels</td>
<td></td>
<td></td>
</tr>
<tr>
<td>---------------------------------------------------------------</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Drugs</strong></td>
<td><strong>Possible Side Effects</strong></td>
<td><strong>What to Monitor</strong></td>
</tr>
<tr>
<td>---------------------------------------------------------------</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| Biguanide: Metformin (Glucophage®) | • Low blood sugar  
• Belly pain  
• Nausea or vomiting  
• Diarrhea  
• Not hungry  
• Abnormal taste | • Check blood sugar as directed by healthcare provider. |
| Sulfonylurea: Glipizide (Glucotrol®)  
Glyburide (Micronase®) | • Long-acting tablet shell in the stool  
• Low blood sugar  
• Nausea or vomiting  
• Weight gain | • Check blood sugar as directed by healthcare provider. |
| Thiazolidinedione: Pioglitazone (Actos®)  
Rosiglitazone (Avandia®) | • Low blood sugar  
• Headache  
• Swelling  
• Weight gain  
• Nasal irritation  
• Cough  
• Feeling tired or weak  
• Weakened bones  
• Heart failure can occur  
• Liver damage can rarely occur | • Check blood sugar as directed by healthcare provider. |
| Insulin | • Low blood sugar  
• Nausea or vomiting  
• Weight gain  
• Irritation where shot is given | • Check blood sugar as directed by healthcare provider |
## Antiepileptics: Anti-seizure medications help prevent seizures

<table>
<thead>
<tr>
<th>Drugs</th>
<th>Possible Side Effects</th>
<th>What to Monitor</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Phenytoin (Dilantin®)</strong></td>
<td>• Feeling lightheaded/dizzy/sleepy</td>
<td>• Check blood work (phenytoin levels/liver blood tests). Talk with healthcare provider.</td>
</tr>
<tr>
<td></td>
<td>• Having blurred vision</td>
<td>• Speak with doctor if change in seizure activity.</td>
</tr>
<tr>
<td></td>
<td>• A change in thinking clearly</td>
<td>• Take good care of your teeth</td>
</tr>
<tr>
<td></td>
<td>• Being tired</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Mood changes</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Slurred speech</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Nausea or vomiting</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Constipation</td>
<td></td>
</tr>
<tr>
<td><strong>Levetiracetam (Keppra®)</strong></td>
<td>• Feeling lightheaded, sleepy</td>
<td>• Speak with doctor if change in seizure activity</td>
</tr>
<tr>
<td></td>
<td>• Having blurred vision</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• A change in thinking clearly</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Headache</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Cough</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Change in balance</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Mood changes</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Runny nose</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Sore throat</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Feeling tired or weak</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Nausea or vomiting</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Emotional ups and downs</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Risk of infection</td>
<td></td>
</tr>
<tr>
<td>Drugs</td>
<td>Possible Side Effects</td>
<td>What to Monitor</td>
</tr>
<tr>
<td>----------------------------------------------------------------------</td>
<td>----------------------------------------------------------------------------------------</td>
<td>-------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Angiotensin Converting Enzyme Inhibitor:</td>
<td>• Feeling dizzy</td>
<td>• Check blood pressure regularly</td>
</tr>
<tr>
<td>Lisinopril (Prinivil®)</td>
<td>• Headache</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Abnormal taste (usually reversible)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Cough</td>
<td></td>
</tr>
<tr>
<td>Angiotensin Receptor Blocker:</td>
<td>• Feeling weak</td>
<td>• Check blood pressure and heart rate regularly</td>
</tr>
<tr>
<td>Valsartan (Diovan®)</td>
<td>• Lightheaded</td>
<td></td>
</tr>
<tr>
<td>Losartan (Cozaar®)</td>
<td>• Dizzy</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Feel like passing out</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Numbness or tingling</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Cough</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Belly pain</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Diarrhea</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Back pain</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Worsening kidney function</td>
<td></td>
</tr>
<tr>
<td>Beta Blocker:</td>
<td>• Feeling lightheaded, sleepy,</td>
<td>• Check blood pressure and heart rate regularly</td>
</tr>
<tr>
<td>Metoprolol (Toprol® XL)</td>
<td>• Having blurred vision, or a change in thinking clearly</td>
<td>• If you are having change in sexual performance, talk to your physician</td>
</tr>
<tr>
<td>Carvedilol (Coreg®)</td>
<td>• Feeling dizzy</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Change in sexual ability or desire</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Feeling tired or weak</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Depression</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Diarrhea</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Slow heartbeat</td>
<td></td>
</tr>
<tr>
<td>Calcium Channel Blocker:</td>
<td>• Feeling dizzy</td>
<td>• Check blood pressure and heart rate regularly</td>
</tr>
<tr>
<td>Verapamil (Calan®)</td>
<td>• Constipation</td>
<td>• Take good care of your teeth. See a dentist regularly.</td>
</tr>
<tr>
<td>Amlodipine (Norvasc®)</td>
<td>• Headache</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Gum changes</td>
<td></td>
</tr>
<tr>
<td>Thiazide Diuretic:</td>
<td>• Feeling tired, weak,</td>
<td>• Check blood work (potassium). Talk with healthcare provider.</td>
</tr>
<tr>
<td>Hydrochlorothiazide (Microzide®)</td>
<td>• Numbness, or tingling</td>
<td>• Dry mouth may cause an increase in cavities. Take good care of your teeth. See a dentist regularly.</td>
</tr>
<tr>
<td>Cholesterol Medications: Make plaque less likely to build up in your artery walls</td>
<td></td>
<td></td>
</tr>
<tr>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td><strong>Drugs</strong></td>
<td><strong>Possible Side Effects</strong></td>
<td><strong>What to Monitor</strong></td>
</tr>
</tbody>
</table>
| **Statin:** Simvastatin (Zocor®) | • Headache  
• Belly pain  
• Diarrhea  
• Constipation  
• Muscle weakness  
• Joint pain | • Check liver blood tests as recommended by your healthcare provider |
| Atorvastatin (Lipitor®) |  |  |
| **Niacin (Niaspan®)** | • Flushing  
• Headache  
• Itching  
• Liver damage can rarely occur | • If you are diabetic, monitor blood sugars closely |
| **Fibrate:** Gemfibrozil (Lopid®) | • Belly pain  
• Heartburn  
• Nausea or vomiting  
• Diarrhea  
• Feeling dizzy | • If you are taking a blood thinner, lab work may need to be checked more often (prothrombin time/INR) |
| Fenofibrate (Tricor®) |  |  |
| **Fish Oil** | • Belly pain  
• Abnormal taste  
• Nausea or vomiting  
• Diarrhea | • Check blood sugar as directed by healthcare provider  
• Check blood pressure regularly. Talk with your healthcare provider.  
• If you are taking a blood thinner, lab work may need to be checked more often (prothrombin time/INR) |
<table>
<thead>
<tr>
<th>Drugs</th>
<th>Possible Side Effects</th>
<th>What to Monitor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nicotine Replacement Therapy:</td>
<td>• Nervous and excitable</td>
<td>• If your urge to smoke increases, notify your doctor for additional treatment options.</td>
</tr>
<tr>
<td>Patches, gums, inhaler, nasal spray</td>
<td>• Headache</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Nausea or vomiting</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Jaw ache from gum</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Inability to sleep</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Skin irritation</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Nasal irritation</td>
<td></td>
</tr>
<tr>
<td>Bupropion (Zyban®)</td>
<td>• Feeling lightheaded, sleepy</td>
<td>• Check blood pressure regularly if you have heart disease or are taking a nicotine replacement product.</td>
</tr>
<tr>
<td></td>
<td>• Blurred vision, or a change in thinking clearly</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Long-acting tablet shell in the stool</td>
<td>• Dry mouth may cause an increase in cavities. Take good care of your teeth. See a dentist regularly.</td>
</tr>
<tr>
<td></td>
<td>• Hot flashes</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Headache</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Belly pain</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Shakiness</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Nervous and excitable</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Nausea or vomiting</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Constipation</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Dry mouth</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Inability to sleep</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Abnormal taste</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Not hungry</td>
<td></td>
</tr>
<tr>
<td>Varenicline (Chantix®)</td>
<td>• Feeling lightheaded, sleepy</td>
<td>• Dry mouth may cause an increase in cavities. Take good care of your teeth. See a dentist regularly.</td>
</tr>
<tr>
<td></td>
<td>• Blurred vision, or a change in thinking clearly</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Nausea or vomiting</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Dry mouth</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Gas</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Belly pain</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Abnormal taste</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Inability to sleep</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Headache</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Bad dreams</td>
<td></td>
</tr>
</tbody>
</table>
## Antiarrhythmics: Medications to help regulate your heart beat

<table>
<thead>
<tr>
<th>Drugs</th>
<th>Possible Side Effects</th>
<th>What to Monitor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amiodarone</td>
<td>• Nausea or vomiting</td>
<td>• Follow up with healthcare provider</td>
</tr>
<tr>
<td></td>
<td>• Constipation</td>
<td>• Wear sunblock</td>
</tr>
<tr>
<td></td>
<td>• Sunburn</td>
<td>• Monitor constipation</td>
</tr>
<tr>
<td>Digoxin (Lanoxin®)</td>
<td>• Feeling dizzy</td>
<td>• Check blood pressure and heart rate regularly. Talk with healthcare provider.</td>
</tr>
<tr>
<td></td>
<td>• Belly pain</td>
<td>• Check blood work (digoxin levels). Have blood drawn before daily dose (take digoxin AFTER blood is drawn). Talk with healthcare provider.</td>
</tr>
<tr>
<td></td>
<td>• Nausea or vomiting</td>
<td>• Check blood work (potassium). Talk with healthcare provider.</td>
</tr>
<tr>
<td></td>
<td>• Diarrhea</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• A faster or slower harmful heartbeat can rarely occur</td>
<td></td>
</tr>
</tbody>
</table>
Neuroscience Services
Inova Health System offers the largest and most comprehensive neuroscience program in Northern Virginia. Our world-class team of neurologists, neurosurgeons and interventional neuroradiologists work collaboratively to diagnose and treat diseases of the nervous system and brain using the most innovative technologies and techniques available.

Inova Health System was the first healthcare provider in Northern Virginia to be designated a Primary Stroke Center, and today Inova has more Primary Stroke Centers serving our communities than any healthcare provider in the region, with designated centers at Inova Alexandria, Fairfax, Loudoun and Mount Vernon Hospitals. Our renowned neuroscience team provides the highest level of care for patients dealing with a wide variety of neurological conditions including neurotrauma, spine conditions, pituitary tumors and cerebrovascular disease. Inova also offers world-class rehabilitation resources to rebuild meaningful, full lives after a life-changing accident or illness through our comprehensive rehabilitation programs.

Inova's nationally recognized neuroscience program includes:

Neurology
Specializing in the diagnosis and treatment of disorders of the nervous system. All of Inova's neurologists are board-certified neurologists, meaning they have received specialized training in the management of neurological disease.

Areas of expertise include:
- Cerebrovascular disease (including stroke)
- Degenerative diseases (memory and Alzheimer’s)
- Epilepsy
- Headache
- Movement disorders including Parkinson’s Disease and tremor
- Multiple sclerosis
- Neuromuscular disease including Amyotrophic lateral sclerosis (ALS) and Motor neuron disease
- Neuro-oncology
- Pediatric neurology
- Pituitary tumors
- Peripheral nerve
- Sleep disorders including apnea
- Spine
- Stroke

Patient benefits include:
- The latest minimally invasive surgical techniques and state-of-the-art procedures
- Convenient access to Northern Virginia’s only dedicated neuroscience intensive care unit located at Inova Fairfax Hospital
- Intermediate care units staffed with specially trained nurses and technologists

For more information on Inova Neuroscience Services, visit us on the web at www.inova.org/neuro
Neurosurgery
Specializing in surgery on the brain, spine and other parts of the nervous system, including the latest in minimally invasive techniques. Our team includes world-class physicians from private practices throughout the metro D.C. region as well as dedicated specialists from the Inova Regional Neurosurgery Service.

Inova Regional Neurosurgery Service is Inova’s full-time, dedicated adult and pediatric neurosurgery practice. Working collaboratively with neurologists, radiologists, vascular surgeons and other specialists, Inova Regional Neurosurgery Services offers an ideal combination of breadth of expertise and depth of specialization. Though each of our surgeons is qualified to treat the full spectrum of neurologic conditions, we also have assembled a team with intensive expertise in specific neurosurgical conditions, to offer an unparalleled level of care.

Areas of special expertise include:
- Spinal disease
- Cerebrovascular conditions
- Pituitary tumors
- Peripheral nerve conditions
- Brain tumors
- Neurotrauma
- Pediatric neurosurgery

Locations:
Inova Fairfax Hospital
3300 Gallows Road
Falls Church, VA 22042
703-970-2670

Inova Alexandria Hospital
4320 Seminary Road
Alexandria, VA 22304
703-970-2670

Outpatient Clinic
8503 Arlington Blvd.
Suite 200
Fairfax, VA 22031
703-970-2670
Interventional Neuroradiology
Our internationally renowned interventional radiology team specializes in treatments combining minimally invasive technology and sophisticated imaging to treat the cerebrovascular system (blood vessels). For more information, call 703-776-3030.

Conditions
Some of the most common conditions we treat with minimally invasive endovascular techniques are listed below:
- Brain Aneurysm
- Carotid stenosis
- Cerebral Vascular Malformations
- Hypervascular Tumor
- Stroke and Occlusive Disease
- Vasospasm
- Vertebral Compression Fractures

Treatment
Interventional neuroradiologists and endovascular surgeons use sophisticated, minimally invasive technology and advanced imaging to diagnose and treat vascular disease in the brain, spine, head and neck. Inova's dedicated specialists perform innovative procedures such as:
- Carotid and vertebral stenting
- Balloon angioplasty for vasospasm
- Cerebral aneurysm embolization and coiling
- Intra-arterial therapy for stroke
- Vertebroplasty to stabilize compression fractures in the spine caused by osteoporosis.

Research Projects
Endovascular techniques have enormous potential to treat cerebrovascular disease less invasively. Inova’s interventional neuroradiology department participates in clinical research designed both to advance the field and to save lives.

For additional information and up-to-date examples of current research, please visit: www.inova.org/neuro
Inova Memory Center
The Inova Memory Center is comprised of a multidisciplinary group of health professionals who evaluate and treat memory problems. Our team includes a variety of experts who are committed to providing comprehensive and compassionate care in these specialties:

- Neurology
- Psychiatry
- Geriatric Medicine
- Geriatric Psychiatry
- Neuropsychology
- Radiology
- Nursing
- Social Work
- Cognitive Rehabilitation

The Inova Memory center team will guide you or your loved one through a diagnosis and provide compassionate, world-class care incorporating new treatments when they become available.

How Our Memory Center Can Help You
When we receive your call, we will briefly discuss your concerns and decide which of our specialists is most appropriate for an initial evaluation. We will then help you set up an appointment with that clinician in their office. We have doctors throughout Northern Virginia, making entry into our program especially convenient.

On your first visit, the doctor will take a comprehensive health history and do a physical exam. They will then likely order testing to guide diagnosis and treatment. There is no single test to diagnose dementia, so you may be asked to undergo a number of assessments. This might include neuropsychological testing, brain imaging and bloodwork.

A summary of our findings will be sent to your primary care physician, and we will work with him or her as needed to tailor a treatment plan that is right for you. You will be offered medication, if appropriate, and other forms of treatment such as cognitive rehabilitation. We can also put you in touch with other resources in the community, such as support groups and adult day programs. Finally, for those interested in clinical trials, we will evaluate you for trials of new treatments, and if you qualify, help you to enter the study.

Our team of experts is available Monday through Friday from 9 a.m. to 5 p.m. by calling 703-289-7566.
Sleep Studies

What is sleep apnea? Sleep apnea is a serious, potentially life-threatening condition. Sleep apnea occurs in all age groups and both males and females. Early recognition and treatment of sleep apnea is important, as it may be associated with the following:

- Stroke
- Heart attack
- Irregular heartbeat (atrial fibrillation)
- High blood pressure
- Headache
- Memory loss
- Daytime sleepiness

How is sleep apnea diagnosed? Several tests are available and usually performed in a sleep center for evaluating a person for sleep apnea, including:

Polysomnography - an overnight sleep study done to observe a variety of bodily functions during sleep:
- electrical activity of the brain
- eye movement
- muscle activity
- heart rate
- breathing effort
- air flow
- level of oxygen in your blood

Multiple Sleep Latency Test (MSLT) – a test that measures how sleepy someone is. Individuals who fall asleep in less than 5 – 10 minutes are likely to require some type of treatment for a sleep disorder. This can be seen in patients with apnea, narcolepsy or post traumatic excessive sleepiness.

Nasal Continuous Positive Airway Pressure (CPAP) titration – an overnight study to determine the effective level of air pressure to maintain an open airway.
Sleep Study Locations

**Inova Alexandria Hospital Sleep Disorders Center**
4320 Seminary Road
Alexandria, VA  22304
703-504-3220

**Inova Fair Oaks Hospital Sleep Disorders Program**
Fair Oaks Professional Building, Suite 103
3650 Joseph Siewick Drive
Fairfax, VA  22033
703-391-4000

**The Sleep Lab at Inova ALFA Neurology**
1500 North Beauregard Street
Suite 300
Alexandria, VA 22311
703-845-1500
1-800-Snoring (1-800-766-7464)
Outpatient Diagnostic Testing
Inova has 17 different imaging locations throughout Northern Virginia to serve your every need.

Easy-to-make appointments
- Schedule an appointment online at: www.inova.org/radiology
- Call 571-423-5400 to schedule your imaging appointment for all locations except Loudoun County
- For locations in Loudoun County, call 703-858-6470

Every year Inova radiology and diagnostic imaging experts provide the diagnostic answers for thousands of Northern Virginia patients with health concerns. Our hospitals, imaging centers and outpatient centers offer the latest technology for CT, MRI, mammography and all other radiology and diagnostic imaging services. Inova Health System's world-class expertise is complimented by our commitment to your convenience and comfort — with special consideration for children.

The latest in imaging technology
Inova Health System offers state-of-the-art technology, including digital mammography and precise scanning capabilities for diagnosing cardiovascular disease and cancer.

Ground-breaking interventional radiology procedures
Our innovative interventional radiology options are today's answer to yesterday's more invasive, traditional surgeries. Inova neurologists are specially trained to perform and interpret diagnostic tests related to the central or peripheral nervous system and the brain, spine, head and neck. Procedures include:

- **Carotid angiography** – an exam to diagnose blockages, narrowing or other defects of the carotid artery, the large blood vessel in the neck that supplies blood to the brain. If a narrowing or blockage is found, it can usually be opened up with carotid artery stenting.

- **Magnetic resonance angiography (MRA)** – uses MRI technology to visualize blood flow throughout the body and detect, diagnose and treat heart disorders, stroke and blood vessel diseases. With advanced 3T MRI, even the very small vessels normally obscured in other imaging studies are highly visible, aiding the evaluation of vascular disease and stenosis that can lead to stroke.

- **Position emission tomography (PET) scan** – one of the newest and most advanced diagnostic procedures used to effectively pinpoint diseases of the heart and brain in their earliest stages.
Inova Rehabilitation Services
The world-class rehabilitation services at Inova Health System include the breadth of acute inpatient care and extensive outpatient programs. Residents of Virginia, Maryland, Washington, D.C., and the entire mid-Atlantic region depend on our rehabilitation specialists to help reclaim independent, active lives after an accident, injury or illness. We offer a full range of physical therapy, occupational therapy and speech language services at each of our hospitals and in convenient outpatient settings.

Inova Locations

Inpatient Acute Rehabilitation:
- **Inova Mount Vernon Hospital / Inova Rehabilitation Center (IRC)**
  Call 703-664-7592 for inpatient services
  Call 703-664-7190 for outpatient services

Inpatient Sub-acute Rehabilitation:
- **Inova Loudoun Nursing and Rehabilitation Center**
  Call 703-771-2841 for main line
  Call 703-771-2838 for admissions coordinator

Home Health Services:
- **Inova Visiting Nurse Association (VNA) Home Health Services**
  Call 571-432-3100 for more information

Outpatient Rehabilitation:
- **Inova Alexandria Hospital**
  Call 703-504-3535 for more information

- **Inova Fair Oaks Hospital**
  Call 703-391-3642 for more information

- **Inova Loudoun Hospital**
  Call 703-858-6667 for more information

- **Inova Fairfax Hospital Department of Rehabilitation**
  Call 703-776-6080 for more information

- **Inova Mount Vernon Hospital / Inova Rehabilitation Center (IRC)**
  Call 703-664-7190 for more information
Inova Inpatient Acute Rehabilitation

Inova Mount Vernon Hospital
Inova Rehabilitation Center (IRC)
2501 Parker's Lane
Alexandria, VA 22306
Call 703-664-7592 for inpatient services

Brain Injury Program
The program focuses on using the latest treatments to help patients improve thinking and brain functioning. We place emphasis on helping patients and families understand and progress through the various stages of brain injury recovery and prepare for a successful return to community.

The Stroke Program
Inova Rehabilitation Center is known throughout the region for its comprehensive Stroke Program. We help patients improve their speech, movement, thinking skills and brain functioning following a stroke, aneurysm or other condition involving the brain. Our staff has special expertise in evaluating and treating dysphagic patients.

Inova Inpatient Sub-acute Rehabilitation

Inova Loudoun Nursing and Rehabilitation Center
235 Old Waterford Road NW
Leesburg, VA 20176
Call 703-771-2841 for main line
Call 703-771-2838 for admissions coordinator

A full range of services meets the varied and changing needs of our residents. Inova Loudoun Nursing and Rehabilitation Center offers:

- Short term skilled nursing care following an acute hospitalization or surgery, with tailored care and rehabilitation programs to help each resident achieve his or her maximum potential
- Long term care in a progressive, homelike environment that offers a bounty of leisure-enhancing and enriching activities, from gardening, crafts and reading to group socializing and entertainment
- A full complement of rehabilitation services, including physical, occupational and speech therapy
- Supporting services to maximize the safety, health and happiness of our residents
Home Health Services

Inova VNA Home Health Services
9900 Main Street
Fairfax, VA 22031
571-432-3100
www.inova.org/homehealth

Inova VNA Home Health is the leading home care agency in Northern Virginia and brings quality, skilled and coordinated healthcare services directly to you in the comfort of your home. With a focus on patient satisfaction, their expert nurses and therapists will tailor a treatment plan to meet your specific needs and help you regain your independence.

Inova VNA Home Health services include:

- Skilled Nursing
- Physical Therapy
- Occupational Therapy
- Speech Language Therapy
- Medical Social Work
- Home Health Aide Service

Inova VNA Home Health is a Medicare Certified Agency and is accredited by the Joint Commission, the national accrediting organization for hospitals and healthcare facilities. Accreditation is awarded only to those home care agencies that meet the highest standards in patient care.
Inova Outpatient Rehabilitation Programs

Inova Alexandria Hospital
Department of Rehabilitation
4320 Seminary Road
Alexandria, VA 22304
703-504-3535
- Outpatient Neurological Rehabilitation - OT, PT, Speech
- Lymphedema
- Video Fluoroscopic Swallow Studies (VFSS)
- Balance and Vestibular Rehab
- Pelvic Floor
- Hand Therapy

Inova Fairfax Hospital
Department of Rehabilitation
3300 Gallows Road
Falls Church, VA 22042
703-776-6080
- Outpatient Neurological Rehabilitation:
  - Adult and Pediatric -OT, PT, Speech
- Video Fluoroscopic Swallow Studies (VFSS)
  - Comprehensive assessment and treatment for dysphagia and other related problems that affect swallowing and nutrition after stroke, TBI or other neurological problems.
- Voice Therapy
- Spine Rehab
- Spasticity and Contracture Management Program:
  - Comprehensive physical and occupational therapy evaluations and treatment programs to help patients maximize their functional potential after botulinum toxin (Botox) injections for spasticity/contracture relief.
  - Treatment of patient following placement of an Intrathecal Baclofen Pump (ITB Pump) to reduce spasticity and contractures
- Balance and Vestibular Rehabilitation: This program is designed to assist individuals who are experiencing balance problems or any of the following symptoms:
  - Dizziness
  - Wooziness
  - Nausea
  - Light and/or noise sensitivity
  - Vertigo or ringing in the ear(s)

Evaluations are based on symptoms and how they limit independence, occulomotor assessment (eye movements) physical measurements of muscle strength, range of motion, posture, coordination, balance movements including standing, walking and rolling in different environments and how they affect symptoms.
Inova Fair Oaks Hospital
Department of Rehabilitation
3600 Joseph Siewick Drive
Fairfax, VA 22033
703-391-3642
• Outpatient Neurological Rehabilitation (Adults) - OT, PT, Speech
• Vital Stim
• Video Fluoroscopic Swallow Studies (VFSS)
• Balance and Vestibular Rehabilitation

Inova Loudoun Hospital
44045 Riverside Parkway
Leesburg, VA  20176
703-858-6000
• Outpatient Neurological Rehabilitation (Adults & Pediatrics) - OT, PT, Speech
• Video Fluoroscopic Swallow Studies (VFSS)
• Pediatric Feeding & Swallowing Center
• Voice Therapy
• Balance and Vestibular Rehabilitation

Inova Mount Vernon Hospital
Inova Rehabilitation Center (IRC)
2501 Parker's Lane
Alexandria, VA  22306
703-664-7190
• The Bridge Program offers day treatment for those recovering from acquired brain injury.
  o Structured setting for renegotiating independence and community living skills following a life-changing neurological incident
  o "Bridge" the gap between hospitalization and the multiple services and agencies available within the community
  o Combines group and individual therapies, with group therapy being the primary way clients work on their life-management skills
  o Fully individualized approach to treatment, built around the client's unique needs and rate of improvement
• The Family Enhancement Center provides support for brain injury survivors and their family members. Each Family receives at a minimum of five appointments that address topics such as:
  o What to expect following a brain injury
  o How brain injury impacts family functioning
  o Surviving loss and change
  o Important tips that create positive relationships
  o Learning how to find and accept help
Background information:
- This intervention is for families and survivors of TBI, brain tumors, stroke, and other acquired brain injuries
- The survivor is to be at a minimum three months post injury
- This is an outpatient adult intervention
- Friends or non-family members who are intimately involved in caregiving responsibilities may participate

- Neuropsychology offers a comprehensive assessment of cognitive and behavioral functions using a set of standardized tests and procedures. The information provided can help in the following ways:
  - Facilitating an understanding of the differential contribution of neurological and psychiatric factors in the patient’s presenting problems
  - Establishing a baseline so that changes in cognitive abilities, mood, and personality can be monitored over time to provide better treatment
  - Educating family members about how the brain injury has cognitively and behaviorally affected their loved one
  - Providing early detection of problems by determining if cognitive decline represents normal aging, mood abnormality, or the early stages of a dementia syndrome
- Augmentative Communication Program - this program evaluates clients who are unable to communicate effectively and efficiently through speech, writing and/or non-verbal means. We then determine whether he or she is a candidate for a high-tech communication system.
- Vestibular/Balance Rehabilitation - this program assists individuals who have dizziness or balance problems.
- Voice Therapy
- Video Fluoroscopic Swallow Studies (VFSS)
- Comprehensive Community Mobility Evaluation (CCME) - the CCME program helps determine a patient’s readiness for driving a car or using public transportation following illness or injury.
- Wheelchair/Seating Clinic – this program is designed to provide recommendations of seating system options to maximize patients’ functional independence.
Care Pages
Staying in touch with loved ones and friends while also managing a healthcare challenge can be difficult. But staying connected is a crucial component to getting, and staying well—for both patients and caregivers. Inova Health System understands these obstacles, and we’re prepared to help.

Now you can stay connected with family, friends and colleagues before, during and after a healthcare challenge through a CarePages website. CarePages provides free, private websites that make it easy to:
- Update family, friends and even colleagues all at once
- Share photos
- Collect supporting messages from loved ones and friends
- Learn more about healthcare issues
- Connect to others with similar concerns

To create a free CarePages website, visit CarePages.com/inova and click the “create” link at the top of the page. CarePages.com ensures that patients, families and healthcare providers are protected online through strict privacy policies and password security. For technical support, call 1-888-852-5521.

Inova HealthSource - Community Classes and Educational Programs

Inova Health System is pleased to offer a wide variety of health and fitness classes that are open to the community. Visit us at www.inova.org and click on “Health Info and Classes” or call us at 855-MY-INova (855-694-6682).
Support Groups

Brain Aneurysm Support Group

Date: 2nd Tuesday of every month  
Time: 7 - 8:30 pm  
Place: Physician Conference Center, C & D  
Inova Fairfax Hospital

This Support group is for:
- Survivors of brain aneurysms, their caregivers, family and friends  
- Anyone who has been recently diagnosed with a brain aneurysm and is currently undergoing treatment

To register, contact Laura Buhler at laura.buhler@inova.org, or for more information go to: www.bafound.org

Sponsored by the Inova Fairfax Hospital Cerebral Vascular Service and The Brain Aneurysm Foundation.

Stroke Survivors and Caregivers Support Group

Date: 2nd Thursday of every month  
Time: 7 – 8:30 p.m.  
Place: 2990 Telestar Court  
Falls Church, VA  
Conference Rooms 1 & 3

Join us for this free support group where you can learn, ask questions and be with other people who understand your journey and caregiving responsibilities. No registration is required.

For questions, please contact Christa Callahan at christa.callahan@inova.org or 703-776-4252. Or visit our website at: www.inova.org/stroke and click on Patient Support Services

The Survivors Stroke Group

A support group for stroke survivors between the ages of 20 and 50 years old.

Date: 1st and 3rd Wednesdays of every month  
Time: Noon to 2 p.m.  
Place: Fair Oaks Hospital Campus  
Medical Office Building #3700  
Conference Room B

For more information, please contact Helen Parker at helen.parker@inova.org or 703-391-3642.
## Important Phone Numbers

<table>
<thead>
<tr>
<th>Service</th>
<th>Phone Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hospital Main Number</td>
<td>703-776-4001</td>
</tr>
<tr>
<td>Case Management</td>
<td>703-776-3508</td>
</tr>
<tr>
<td>Chaplaincy</td>
<td>703-776-3767</td>
</tr>
<tr>
<td>Emergency Department</td>
<td>703-776-3111</td>
</tr>
<tr>
<td>Financial Counselors</td>
<td>703-776-7858</td>
</tr>
<tr>
<td>Medical Records</td>
<td>703-776-3307</td>
</tr>
<tr>
<td>Patient Accounts</td>
<td>703-645-2899</td>
</tr>
<tr>
<td>Patient Information</td>
<td>703-776-4001</td>
</tr>
<tr>
<td>Patient Relations</td>
<td>703-776-3663</td>
</tr>
<tr>
<td>Radiology</td>
<td>703-776-3161</td>
</tr>
<tr>
<td>Rehabilitation - inpatient</td>
<td>703-776-6091</td>
</tr>
<tr>
<td>Rehabilitation - outpatient</td>
<td>703-776-6080</td>
</tr>
<tr>
<td>Volunteer Services</td>
<td>703-776-3447</td>
</tr>
</tbody>
</table>

## Neurology Units

<table>
<thead>
<tr>
<th>Service</th>
<th>Phone Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>NSICU (Neuroscience Intensive Care Unit)</td>
<td>703-776-2522</td>
</tr>
<tr>
<td>Tower 2 (Stroke Unit)</td>
<td>703-776-3299</td>
</tr>
<tr>
<td>Tower 3 (Neuroscience Unit)</td>
<td>703-776-3425</td>
</tr>
</tbody>
</table>
Brain illustration provided by Seunghyun “Sunni” Park.
CT Scan of the Brain
CT Scan of the Brain
Many local hotels offer special rates for Inova Fairfax Hospital patients or their family members. Rates are based on availability and apply only to patients or family members unless otherwise stated. Please note that rates are subject to change, therefore, you are encouraged to call ahead to verify the current room rate. Taxes and other fees are additional. For questions, call the Patient Relations Department at 703-776-3663.

<table>
<thead>
<tr>
<th>Name of Hotel</th>
<th>Rates/Amenities</th>
<th>Transportation Available</th>
<th>Distance from Hospital</th>
</tr>
</thead>
<tbody>
<tr>
<td>Best Western of Fairfax City</td>
<td>$79.99/day</td>
<td>Cue Bus stop at hotel</td>
<td>3.5 miles</td>
</tr>
<tr>
<td>3535 Chain Bridge Road</td>
<td>Microwave and refrigerator in all rooms, $4.50 breakfast buffet, fitness room, restaurant (dinner only), AARP and AAA discounts, complimentary wireless internet</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fairfax VA 22030</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>703-591-5500</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><a href="http://www.BestWestern.com/Fairfax">www.BestWestern.com/Fairfax</a></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Best Western Falls Church Inn</td>
<td>$79/day</td>
<td>Direct line to Yellow Cab in lobby</td>
<td>3 miles</td>
</tr>
<tr>
<td>6633 Arlington Boulevard</td>
<td>Wireless internet, cable TV with 2 HBO Channels, free faxes and copies, 10% discount for meals in on-site restaurant, free use of lobby computer, free local calls</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Falls Church, VA 22042</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(703) 532-9000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><a href="http://www.bestwestern.com/fallschurchinn">www.bestwestern.com/fallschurchinn</a></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Best Western Westpark Hotel, Tysons Corner</td>
<td>$114.99 (Mon-Thurs) $79.99 (Fri – Sun)</td>
<td>Free Shuttle (5 mile radius); Shuttle to Metro &amp; Tysons Corner Center</td>
<td>5.5 miles</td>
</tr>
<tr>
<td>8401 Westpark Drive</td>
<td>In-room coffee maker, complimentary breakfast, Showtime, rooms available to accommodate disabled patrons, indoor swimming pool, exercise room, restaurant and lounge</td>
<td></td>
<td></td>
</tr>
<tr>
<td>McLean, VA 22101</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>703-734-2800</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><a href="http://www.bestwestern.com/tysonswestparkhotel">www.bestwestern.com/tysonswestparkhotel</a></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Candlewood Suites</td>
<td>$114 (Mon-Thurs) $65 (Fri. &amp; Sat)</td>
<td>No shuttle</td>
<td>6.5 miles</td>
</tr>
<tr>
<td>11400 Random Hills Road</td>
<td>Full kitchen, complimentary high speed internet access, free guest laundry, exercise room, free library of videos, VCR/DVD</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fairfax, VA 22030</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>703-359-4490</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><a href="http://www.candlewoodsuites.com">www.candlewoodsuites.com</a></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Comfort Inn Tysons</td>
<td>$89 (Sun-Wed) $79 (Thurs-Sat)</td>
<td>Shuttle to/from hospital, Metro &amp; Tysons Corner Center (Based on availability)</td>
<td>5.5 miles</td>
</tr>
<tr>
<td>1587 Springhill Road</td>
<td>Microwave and refrigerator; includes continental breakfast, high speed internet</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vienna, VA 22182</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>703-448-8020</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><a href="http://www.comfortinntysons.com">www.comfortinntysons.com</a></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Comfort Inn University Center</td>
<td>$89/day</td>
<td>Shuttle to the Vienna Metro</td>
<td>6.5 miles</td>
</tr>
<tr>
<td>11180 Fairfax Blvd.</td>
<td>Free continental breakfast, Wi-Fi service, indoor pool and fitness room, beauty salon</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fairfax, VA 22030</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>703-591-5900</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>800-223-1223</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><a href="http://www.comfortinn.com/hotel/VA073">www.comfortinn.com/hotel/VA073</a></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Comfort Inn Arlington Blvd./DC Gateway</td>
<td>$79.99/day – Standard Room $99.99/day – Business Double or King</td>
<td>Free scheduled shuttle to Ballston Metro Station</td>
<td>3.8 miles</td>
</tr>
<tr>
<td>6111 Arlington Blvd.</td>
<td>Includes free deluxe continental breakfast and high speed wireless internet. Some pet friendly rooms are available.</td>
<td>On bus route</td>
<td></td>
</tr>
<tr>
<td>Falls Church, VA 22044</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>703-534-9100</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><a href="http://www.comfortinnfallscurch.com">www.comfortinnfallscurch.com</a></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Courtyard by Marriott - Tysons Corner</td>
<td>$69/day</td>
<td>Shuttle to Dunn Loring Metro Station and Tysons Corner Center</td>
<td>5 miles</td>
</tr>
<tr>
<td>1960A Chain Bridge Road</td>
<td>Complimentary in-room coffee, in-room refrigerator, high speed wired and wireless internet, Flat HDTV</td>
<td></td>
<td></td>
</tr>
<tr>
<td>McLean, VA 22102</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>703-790-0207</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><a href="http://courtyardtysonsCorner.com">http://courtyardtysonsCorner.com</a></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Name of Hotel</td>
<td>Rates/Amenities</td>
<td>Transportation Available</td>
<td>Distance from Hospital</td>
</tr>
<tr>
<td>---------------------------------------</td>
<td>---------------------------------------------------------------------------------</td>
<td>------------------------------------------------------------------------------------------</td>
<td>------------------------</td>
</tr>
<tr>
<td><strong>Courtyard by Marriott – Dunn Loring</strong>&lt;br&gt;2722 Gallows Road&lt;br&gt;Vienna VA 22180&lt;br&gt;703-573-9555&lt;br&gt;<a href="http://www.Marriott.com/IADCY">www.Marriott.com/IADCY</a></td>
<td>$72/day – Week-end&lt;br&gt;$179/day - Weekday&lt;br&gt;Rate is for patients, families and employees&lt;br&gt;Complimentary high speed internet, swimming pool and fitness center</td>
<td>Located at Dunn Loring Metro Station&lt;br&gt;On bus route to hospital</td>
<td>2 miles</td>
</tr>
<tr>
<td><strong>Fairview Park Marriott</strong>&lt;br&gt;3111 Fairview Park Drive&lt;br&gt;Falls Church, VA 22042&lt;br&gt;703-849-9400&lt;br&gt;<a href="http://www.stayatmarriott.com/inovahealthsystem">www.stayatmarriott.com/inovahealthsystem</a></td>
<td>$189/night Standard Room&lt;br&gt;Non-last room availability&lt;br&gt;Rate is for patients, families and employees&lt;br&gt;In room coffee, pool, fitness center, on-site restaurant/lounge</td>
<td>Complimentary Shuttle to Metro; To hospital if available&lt;br&gt;On bus route</td>
<td>1 mile</td>
</tr>
<tr>
<td><strong>Hampton Inn – Fairfax City</strong>&lt;br&gt;10806 Lee Hwy&lt;br&gt;Fairfax, VA 22030&lt;br&gt;703-385-2600&lt;br&gt;<a href="http://www.hamptoninn.com">www.hamptoninn.com</a></td>
<td>$134.10 Mon – Wed&lt;br&gt;$116.10 Thurs&lt;br&gt;$71.10 Fri– Sun&lt;br&gt;Complimentary breakfast, high speed internet, fitness center and business center</td>
<td>On bus route</td>
<td>4.5 miles</td>
</tr>
<tr>
<td><strong>Homestead Studio Suites</strong>&lt;br&gt;8281 Willow Oaks Corporate Dr.&lt;br&gt;Fairfax, VA 22031&lt;br&gt;703-204-0088&lt;br&gt;<a href="http://www.homesteadhotels.com">www.homesteadhotels.com</a></td>
<td>$98/Queen Studio – 1-6 nights&lt;br&gt;$77/Queen Studio – 7+ days and weekend&lt;br&gt;$108/King Deluxe/Double – 1-6 nights&lt;br&gt;$87/King Deluxe/Double – 7+ days and weekend&lt;br&gt;Weekend starts p.m. Fridays&lt;br&gt;Fully equipped kitchens, wireless internet access, pets ($25/day fee), complimentary passes to Gold’s Gym, on-site guest laundry</td>
<td>Walking distance</td>
<td>¼ mile</td>
</tr>
<tr>
<td><strong>Homewood Suites by Hilton</strong>&lt;br&gt;8130 Porter Road&lt;br&gt;Falls Church, VA 22042&lt;br&gt;703-560-6644&lt;br&gt;<a href="http://www.homewoodsuites.com">www.homewoodsuites.com</a></td>
<td>$189/night&lt;br&gt;Rates are for patients, family members and employees&lt;br&gt;Fully equipped kitchen with refrigerator, complimentary hot breakfast daily, wireless internet access, complimentary light dinner served Mon-Thurs. Complimentary passes to Gold’s Gym. Pets welcome.</td>
<td>Complimentary shuttle within 5 mile radius of hotel, including hospital, Tysons Corner Center &amp; Dunn Loring Metro Station</td>
<td>.5 mile</td>
</tr>
<tr>
<td><strong>Inns of Virginia</strong>&lt;br&gt;421 West Broad Street&lt;br&gt;Falls Church, VA 22046&lt;br&gt;703-533-1100&lt;br&gt;<a href="http://www.innsofvirginia.com">www.innsofvirginia.com</a></td>
<td>$69.95/night before April 1, 2010&lt;br&gt;$79.95/night after April 1, 2010&lt;br&gt;High speed wireless internet, continental breakfast</td>
<td>No shuttle; taxi to metro</td>
<td>4.5 miles</td>
</tr>
<tr>
<td><strong>Kimpton Hotels</strong>&lt;br&gt;Hotel Helix&lt;br&gt;1430 Rhode Island Ave. NW&lt;br&gt;Washington, DC 20005</td>
<td>15% off best available rate for patients, family members and employees&lt;br&gt;Complimentary newspaper, complimentary coffee in lobby, complimentary parking for hybrid cars, Eco-savy EarthCare standards, pet-friendly, on-site restaurants</td>
<td>No shuttle. Walk or taxi to metro</td>
<td>15+ miles</td>
</tr>
<tr>
<td>Hotel Rouge&lt;br&gt;1315 16th Street, NW&lt;br&gt;Washington, DC 20036</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Topaz Hotel&lt;br&gt;1733 N Street, NW&lt;br&gt;Washington, DC 20036</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hotel Madera&lt;br&gt;1310 New Hampshire Avenue, NW&lt;br&gt;Washington, DC 20036</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Local Reservations - 202-939-6430</strong>&lt;br&gt;Ask for “special hospital rate”&lt;br&gt;<a href="http://www.kimptonhotels.com">www.kimptonhotels.com</a></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Name of Hotel</td>
<td>Rates/Amenities</td>
<td>Transportation Available</td>
<td>Distance from Hospital</td>
</tr>
<tr>
<td>---------------------------------------------------</td>
<td>---------------------------------------------------------------------------------</td>
<td>---------------------------------------</td>
<td>------------------------</td>
</tr>
</tbody>
</table>
| **Quality Inn Governor**                            | $79/night + $10 each additional person  
Complimentary hot breakfast buffet, free internet | On bus route                          | 4 miles                |
| 6650 Arlington Blvd.  
Falls Church, Virginia, 22042  
703-532-7121  
www.choicehotels.com                        |                                                                                  |                         |                        |
| **Residence Inn Fairfax Merrifield**               | $199/night 1 bedroom studio suite  
$229/night 2 bedroom suite  
Rates based on length of stay and season  
Rates are for patients, families and employees  
Complimentary hot breakfast buffet, free high speed internet, guest laundry facilities, fully equipped kitchens | Metro within 1 mile  
Bus stop nearby  
Taxis available | .5 miles                |
| 8125 Gatehouse Road  
Falls Church, VA 22042  
703-573-5200  
800-331-3131  
www.stayatresidenceinn.com/inovahealthsystem |                                                                                  |                         |                        |
| **SpringHill Suites Fairfax / Fair Oaks**          | $109.00+ Tax, Per Room, Per Night  
Monday – Thursday  
$79.00+ Tax, Per Room, Per Night  
Friday – Sunday  
All Suite Hotel  
Rooms based upon availability  
Rates available for patients, visitors, families, and employees  
100% Non Smoking  
Pullout Sofa in all Rooms  
Microwave and Refrigerator in all rooms  
Complimentary services - Hot Breakfast Buffet, Local Calls, Internet Wired & Wireless, Indoor Heated Swimming Pool, Business Center, Parking | Metro Bus  
Taxi                                  | 8 miles                |
| 11191 Waples Mill Road  
Fairfax, VA 22030  
703-691-7880  
www.springhillsuites.com/IADFR |                                                                                  |                         |                        |
| **Suite America**                                  | Rates vary depending on availability and season. Please call to inquire.  
$100 - 1 bedroom apartment  
$120 – 2 bedroom apartment  
Minimum 3 night stay  
Call for availability – 3 bedroom apartment  
Fully furnished suite. Pets allowed at most locations for fee | Most properties walking distance to  
Metro or shopping | 1 mile – 15 miles  
In Arlington, Alexandria, Tysons Corner, Fairfax, Reston & Herndon |
| 2920 Business Center Drive  
Alexandria, VA 22314 (and other locations)  
703-690-2030  
877-827-8483  
www.suiteamerica.com |                                                                                  |                         |                        |
| **Townplace Suites by Marriott**                   | Studio Apartments  
$79-$159  
Rates based on length of stay. Inova discount offered.  
Fully equipped kitchens, complimentary breakfast, free passes to Gold’s Gym, complimentary high speed internet access | Metro within 1 mile  
Bus stop by hotel  
Taxis available | 3.5 miles                |
| Falls Church  
Falls Church, VA 22046  
703-237-6172  
http://www.marriott.com/hotels/travel/wast  
s-townplace-suites-falls-church/ |                                                                                  |                         |                        |

Rev. 03/10