## Table of Contents

Introduction .............................................................................................................. 3 – 5

General Information ................................................................................................. 6 – 8

Maps ....................................................................................................................... 9 – 11

Parking .................................................................................................................... 12

Resources .............................................................................................................. 13 – 16

Responsibilities ..................................................................................................... 17 – 22

Neurology Policies ....................................................................................................... 23

Diagnostic Tests and Procedures.......................................................................... 24 – 33

Glossary of Neurological Terms and Disorders................................................... 34 – 42

Frequently Prescribed Medications.............................................................................. 43

Common Medical Abbreviations ......................................................................... 44 – 52

Systems of the Body ............................................................................................. 53 – 64
Introduction

Welcome to the Department of Neurology. The effectiveness of this department depends upon the efforts of all our employees. As a departmental support person, you are an important member of the Neurology team.

A Patient ...

- is the most important person in our business.

- is not dependent on us -- we are dependent on him.

- is not an interruption of our work -- he is the purpose of it.

- does us a favor when he comes in -- we are not doing him a favor by serving him.

- is part of our business -- not an outsider.

- is not a cold statistic -- he is a flesh-and-blood human being with feelings and emotions like our own.

- is not someone with whom to argue or get angry or match wits.

- is deserving of the most courteous and attentive treatment we can give him.

- is the one who makes it possible to pay our salaries.

- is the lifeblood of this and every other business because without him, we would have no business.

(from Virginia MGMA newsletter)
UAHSF
TWELVE KEY BEHAVIORS

CUSTOMER SERVICE
◆ Consistently demonstrates compliance with all UAHSF customer service standards.
◆ Relates to internal customers in a manner that creates a sense of teamwork and cooperation within and between clinics.
◆ Anticipates and strives to satisfy customers’ needs.
◆ Serves as the customer’s advocate in dealing with those involved in providing care.

DEPENDABILITY
◆ Reports to work on time.
◆ Does not take prolonged breaks.
◆ Consistently follows proper time clock procedures.
◆ Consistently follows proper call in procedures for reporting absences, providing as much advance notice as possible.
◆ Consistently follows up on matters until they are resolved.
◆ Considerate of other employees and clinic needs in relation to attendance at work.
◆ Demonstrates a commitment to their job and takes pride in their work.

INITIATIVE
◆ Assists others without being asked.
◆ Recognizes and performs duties which need to be performed although not directly assigned.
◆ Seeks additional projects as time allows.
◆ Takes a stand to call attention to and resolve important issues.

STEWARDSHIP
◆ Displays responsible use of materials and supplies.
◆ Continually looks for ways to reduce costs without affecting quality.
◆ Uses time wisely and avoids unnecessary overtime.

EFFICIENT AND EFFECTIVE
◆ Spends adequate time planning and organizing their work.
◆ Demonstrates quality work ethic by doing the right thing, the right way.
◆ Meets deadlines without reminders.
◆ Achieves good results.
◆ Works constructively under stress and pressure.
◆ Seeks feedback to enhance job performance.

ACCOUNTABILITY
◆ Accepts responsibility for all aspects of assigned tasks.
◆ Recognizes and reports, as appropriate, errors made in the course of doing their job.
◆ Accepts responsibility for fixing problems rather than placing blame.
◆ Sets high personal standards of performance.
◆ Lives up to commitments.
◆ Takes personal responsibility for ensuring that their annual training and competency requirements are met by prescribed deadlines.
FLEXIBILITY
- Accepts change with a positive attitude.
- Understands that patients’ needs come first and willingly accepts assignment changes to accommodate those needs.

JUDGMENT
- Consistently recognizes and deals with priorities effectively.
- Assesses a situation, considers alternatives and chooses an appropriate course of action.
- Respects, at all times, the confidentiality of information.
- Conveys a sense of urgency when appropriate.

TEAMWORK
- Participates constructively in team meetings.
- Collaborates with other team members.
- Learns new skills as needed by the group.
- Values the contributions of all team members.

MAINTAINS POSITIVE RELATIONSHIPS
- Interacts with others openly and directly.
- Listens carefully to input.
- Expresses disagreement tactfully and sensitively.
- Utilizes humor as appropriate to relieve stress and provide a joyful environment.
- Encourages others to express their views.
- Works cooperatively with peers and management.
- Demonstrates an appropriate level of patience.
- Accepts criticism openly and non-defensively.
- Knows and uses appropriate channels of communication and chain of command.

PROBLEM SOLVING AND DECISION MAKING
- Continually looks for ways to improve processes and work flow.
- Accepts responsibility for making appropriate decisions concerning the way their work is done.
- Considers problems and complaints opportunities for improvement; approaches them with curiosity and an open mind.
- Seeks appropriate input before making decisions.
- Considers the impact of decisions on others and involves them as appropriate.
- Addresses problems early before they get out of hand.

SAFETY
- Knows and follows clinic policies and procedures relating to patient and employee safety.
- Assumes personal responsibility for preventing incidents that could lead to injury.
- Knows how to report any potential safety issue and promptly reports any unsafe conditions that require intervention from others.
- Promptly reports personal incidents and completes proper paperwork.
General Information

New Employee Orientation
As a new employee you will be introduced to UAB through a general orientation program conducted weekly by Personnel Administration. You will be advised at the time of employment where to report for this orientation meeting. Personnel policies and benefits are discussed and benefit enrollment forms are completed during the session. A copy of the handbook "You and UAB" can be found at UAB’s web site at: http://main.uab.edu/show.asp?durki=43608. You should print this handbook, read carefully, and keep for future reference. It is updated yearly and covers most of the policies, benefits, and general information at UAB.

Overview of the Department of Neurology
Neurology is the branch of medicine that includes the study, diagnosis, and treatment of disorders of the human nervous system, including the brain, spinal cord, nerves and muscles.

Dr. Wilmot Littlejohn was the first neurologist in the state of Alabama with his arrival in 1932. Neurology was originally a Division of the Department of Medicine at UAB. Arriving at UAB after WWII, Dr. Samuel Little subsequently became the first fulltime head of the Division of Neurology and also established the first EEG Laboratory in the South. The faculty grew to include Drs. Jolyn Tucker, Harry Fang, Robert Ford, Irwin Lewis, and James Halsey, Jr., who in 1973, was appointed the first Chairman of the newly created Department of Neurology. In 1985, Dr. Halsey resigned as Chairman and Dr. John N. Whitaker was appointed. After the death of Dr. Whitaker in 2001, Dr. R. Edward Faught, Jr. served as Interim Chair until 2003. Dr. Ray L. Watts from Emory University in Atlanta was appointed as Chairman of Neurology in 2003. The Department has grown from 4 faculty in 1965 to 28 in 2005.

As a part of the UAB School of Medicine, the Department of Neurology employs over 100 persons, including attending physicians and their office support personnel, neurology residents in training, nurse coordinators, lab technicians, as well as a number of other support staff. In addition to general neurology, there are various divisions or centers in our department which focus on the diagnosis and treatment of Alzheimer’s disease, Parkinsonism and movement disorders, Epilepsy, Neuro-oncology (Cancer-related neurologic diseases), neuromuscular diseases (myopathies and neuropathies), stroke and neuropsychology.

Physician Offices
The physicians in the Department maintain their offices on the 12th floor of Jefferson Tower, 3rd and 4th floors of the Sparks Center, 10th floor of Tinsley Harrison Towers, 2nd floor in the Medical Education Building – Russell Wing, the 10th floor of the Faculty Office Tower, and the 3rd floor and basement of the Civitan Center.

Neurology Outpatients
The physicians see most outpatients in the Neurology Clinic located on the 5th floor of The Kirklin Clinic (TKC), with a few also being seen on the 12th floor of Jefferson tower (Neuropsychology and neuromuscular disease).

Neurology Inpatients
When patients are admitted to the Neurology service (epilepsy, stroke, or general) of University Hospital, they will usually be on M8 of the West Pavilion or NICU.
Research
In addition to caring for patients, some physicians have laboratories within the Medical Center (see roster for lab locations) and spend part of their time working on research projects.

UAB Medical Center
The UAB Medical Center is widely known among health professionals throughout Alabama, the nation, and the world for the patient care, educational, and research activities conducted by faculty members at the Medical Center.

The Medical Center is composed of The Kirklin Clinic, UAB University Hospital, and related and affiliated hospitals, including The Children's Hospital of Alabama, the Callahan Eye Foundation Hospital, the Veterans Administration Medical Center, and Cooper Green Hospital (county hospital).

The Medical Center was established in 1945 when the School of Medicine moved to Birmingham from the campus in Tuscaloosa and became a four-year school. The School of Dentistry enrolled its first class in 1948. In 1966, the School of Health Services Administration was established (it was incorporated into the School of Community and Allied Health Resources in 1970 and renamed the School of Health-Related Professions in 1987). In 1967, the School of Nursing moved to UAB from the Tuscaloosa campus. The School of Optometry opened in 1969, and the School of Public Health was established in 1981. UAB University Hospital was formed in 1945 by the merger of the Hillman Hospital and the Jefferson Hospital.

UAHSF (University of Alabama Health Services Foundation)
General Information: 801-8000
500 South 22nd Street
Birmingham, AL  35233

The UAHSF is governed by a 19-member Board of Directors made up of 9 senior members of the faculty, plus 10 public members from the community. The mission of the UAHSF is to provide superior and modern healthcare in the setting of an academic medical center. More than 750 physicians, surgeons, and oral surgeons are members of the UAHSF, and virtually all these members hold faculty positions in the School of Medicine at UAB.

To achieve its healthcare delivery goal, the UAHSF members function in a multi-specialty group practice organization. The UAHSF members utilize UAB University Hospital and The Children's Hospital of Alabama for their inpatient activities, and they have a major role in conducting ambulatory care in the UAB Medical Center via services provided at TKC.

The Kirklin Clinic (TKC)
In order to meet the growing need for maximal ambulatory care, the UAHSF developed and funded TKC which is designed to foster maximal patient convenience and comfort as well as to reflect the faculty commitment to excellence in medical care. The Kirklin Clinic is administered by the University of Alabama Health Services Foundation (UAHSF), P.C., a private, non-profit foundation formed by the clinical faculty of the UAB Medical Center in 1973 with the approval of the University of Alabama Board of Trustees. The building is as functional medically as it is striking architecturally. It speaks to the efficiency of multi-specialty medicine in the outpatient environment. TKC is connected to a 1500-car parking deck, which also has 18,000 square feet of commercial space. In this deck, valet parking and escort services are available, ensuring weather-proofed entry to the Clinic.
Community Clinics
Community Clinics have allowed UAB to expand its primary care services into the communities of Birmingham in order to provide convenience and easy accessibility to its world-renowned medical care. In addition to TKC Internal Medicine Group and the UAB Family Practice Center, primary care services are available at community clinics in Hoover, Hueytown, Inverness and Moody. Also, there is a new outpatient clinic at Alton Road off of I-459.

Each clinic has a unique offering of services enhanced by access to specialists at UAB University Hospital, The Kirklin Clinic, and UAB Medical West. To access a list of these clinics go to http://www.health.uab.edu/, click on Our Facilities, click on UAB Health Centers.

On pages 9-11 are a few common maps. Follow this link to the complete Medical Center District Map (http://www.health.uab.edu/show.asp?durki=45240) at the UAB Health System website. It has links on the map itself that you can click on, and below the map is a list of links to more detailed maps of specific buildings, parking areas, and an interior walkway map.
Area Map at UAB Health System Website
http://www.health.uab.edu/show.asp?durki=45240

This map located at the web page listed above also has links to more detailed maps and photos of these areas:

UAB Medical Center
The Kirklin Clinic
Center for Psychiatric Medicine
Children's Hospital
Sparks Center
Spain Rehabilitation Hospital
Spain Wallace Bldg.
Wallace Tumor Institute
Callahan Eye Foundation Hospital
Community Care Byrd Bldg.
Community Health Services Family Practice Center
Hugh Kaul Human Genetics Bldg.
School of Optometry
School of Dentistry
Medical Education/Russell Building
Hugh Kaul Human Genetics Bldg.
School of Optometry
School of Dentistry
Medical Education/Russell Building
Medical Center District Map
UAB Interior Walkways
Parking
In addition to metered spaces on the street throughout the Medical Center District, parking decks are also available to UAB patients and guests. All decks feature security camera systems. Some are connected to facilities by covered crosswalks.

UAB Hospital (also known as University Hospital) Parking Deck (4th Avenue Deck)
The main parking deck for UAB Hospital is located at the corner of 4th Avenue South and 18th Street. The 1200-space deck is connected to the hospital by a completely contained, climate-controlled bridge.

The Kirklin Clinic® Parking Deck
The parking deck for The Kirklin Clinic® is located at the corner of 6th Avenue South and Richard Arrington, Jr. Boulevard (21st Street), and is connected to the clinic by an enclosed crosswalk. Valet parking is available on level 2 of the The Kirklin Clinic® parking deck.

Callahan Eye Foundation Hospital Parking Deck
The entrance to the Callahan Eye Foundation Hospital Parking Deck is on University Boulevard, just west of 18th Street South, between the School of Optometry and the Callahan Eye Foundation Hospital.

Maternity Parking Deck (6th Avenue Deck)
The entrance to the Maternity Parking Deck is on 6th Avenue South between 19th and 20th Streets.

Patient Pick-Up Locations
In the discharge area on 7th Avenue South between 18th and 19th Streets
Resources

Neurology Messenger Service
Delivery to the clinics and on campus as necessary. The messenger service should be used only for Department of Neurology business that cannot be handled by campus mail.

For emergency deliveries, page one of the messengers:

<table>
<thead>
<tr>
<th>Pager#</th>
<th>Phone#</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>8652</td>
<td>4-4464</td>
<td>(Mon-Fri 8:00-4:30)</td>
</tr>
</tbody>
</table>

Office Address: Sparks Center 360

Their daily basic delivery schedule is as follows:
- Mail pickup and delivery to neurology offices (around 8:00-9:00 a.m.)
- Post Office run: mail pickup and delivery
- Back to base to sort mail
- Hand deliveries
- Post Office run 1:00 p.m.
- Mail pickup and delivery to neurology offices (around 2:00-3:00 p.m.)
- Hand deliveries

Mail (Jefferson Tower)
Incoming mail is put in mailboxes at JT 1209 mid-morning by 10:30 and mid-afternoon by 2:30. Campus Mail should be placed in the designated slot in JT 1209.
Outgoing Mail should be bundled with a rubber band with the account number in the upper left corner of envelope. The messengers will pick up the mail and bar code it.
Hand-Deliver slot in JT 1209: Place items the messengers need to deliver in there.
Mail is taken to the postal room twice a day. Ask your supervisor for the appropriate account number to be used on outgoing mail. There is a postal counter on the first floor of the Dental Building and a mail room on the ground floor of Quarterback Tower (see campus map).

Department mailing address: UAB-Neurology
1530 3rd Avenue South
Birmingham, AL 35294-0017

Courier Service
UPS packages are picked up daily. The U.S. and International forms are available in the mailrooms in the Sparks Center and Jefferson Tower and must be filled out and attached to the package before pickup. If you need assistance, ask Karen Flock. Please note that UPS and other delivery services "require a street address" in addition to your building and room number. Outgoing parcels must include the telephone number of the recipient on the forms.

Courier Service Pickup Times and Locations throughout the Department:
- Sparks Ctr (Chair's Office, 3rd Floor): At 4:00 pm
- Jefferson Tower (12th Floor): At 4:00 pm if left in the hallway beside Dr. Bashir's office door (JT 1205).
*All other areas must call and schedule a pick up or have package hand delivered to the pick up locations (SC, JT) prior to 4:00 pm.

*Ask Karen Flock about other UPS drop-off locations. The department saves money by using these boxes.
COPY/FAX Machines
There are copy and fax machines located throughout the different areas of the department. See the department directory updated periodically for listing of fax numbers.

Copy Machines
Sparks Center (Chair's Office, 3rd Floor): Copier located in SC 350. There is no user code at this time.
Jefferson Tower (12th Floor): The main copier is located in JT 1209. Talk to Karen Flock regarding your user code. If you need assistance regarding the copier, ask Sara Krzywanski, JT 1216 and/or Janice Pulliam, JT 1205.
Epilepsy Center (Civitan Center, 3rd Floor): Copier located in CIRC 312.
Stroke Center (West Pavilion, 2nd Floor): Copier located in RAC 227.
Alzheimer's Disease Center (SC 4th Floor): Copier located in SC 450.
Neuro-oncology area: Copier located in FOT 1020.
Tinsley Harrison Tower labs (8th Floor): Copier located in THT 1060.

Copy Service
*Print Shop (ph#934-3790) located at: Central Support Bldg. (CS) 2nd Floor
For bulk copying. *Get departmental approval from Audie White

Medical Education and Design Services (Illustration and Graphics)
Volker Hall – VH MO1
David Fisher, phone 4-4396, e-mail fisherda@uab.edu
(most photo and videotaping outsourced)
Ask the physician if the work is research related and which account to use. If non-research related, contact Audie White for account number.

SUPPLIES
Office supplies are stored in each area, check with your administrator.
Office supplies such as stationary and envelopes can be ordered for the different areas. Please discuss with appropriate person if there are additional supplies needed such as:

Karen Flock  #4-2818  Business Cards
              Prescription Pads
              Physician Lab Coats
              Airline Ticket Requisition

Alan Rushing #6-7905  Special Order Medical Books
                       Faculty Dues, Memberships, Licenses
                       Journal Subscription Order or Renewal
                       Travel Reimbursement Forms
                       Airline Ticket Requisition
REFERENCES
UAB Directory (online http://www.dpo.uab.edu/cgi-bin/bp/main.cgi and paper for campus listings)
PDR (Physician's Desk Reference - multipurpose use, esp. for spelling of drug names)
MASA (Medical Association of the State of Alabama) physician listings

Computer Basic Training/Problems
Call Sam Stubbs 4-8512 for Department computer issues winston@uab.edu
UAB Help Desk 4-8888
Oracle related questions: #996-5555 or askit@uab.edu

HRM Development and Training
Computer and other helpful classes can be found at the HRM Development and Training website:
Information on Office Support Certificate Classes can be found there. And if you are not familiar with medical terms, you will find classes on medical terminology and human anatomy there also which should be very helpful. The classes are free of charge to employees and are typically held in the Medical Office Towers building on 10th Avenue South. Get department approval from your supervisor.

CAMPUS RIDE  975-TAXI (5-8294)
Available for Hospital and Medical Center employees. You will be asked for an account number. Check with Karen Flock for the number to use. There is no charge for the taxi service. The taxi is to be used for UAB business. Ask the dispatcher where the pick-up point is for your office location and where you need the taxi to take you. It will only wait 5 minutes at pick-up point but may take a few minutes to get there. Allow time.

UAB Directory and Electronic Phonebook
The Directory is distributed yearly to departments (includes phone numbers, addresses, and campus zip codes for medical center). The searchable Electronic Phonebook is available on the UAB website.

MIST (Medical Information Service Via Telephone)
1-800-UAB-MIST is a toll-free telephone service for health professionals to use for patient-related calls. By dialing 4-MIST, identifying yourself and the physician for whom you work, you can be connected with physicians, labs, and medical centers within the state as well as obtaining addresses, telephone numbers, etc. Limited national service is also available upon request.

Paging Operators:  4-3411
Give the paging operator the name of the physician needed and your telephone number. Discuss paging with your supervisor as he/she may not want to be interrupted during clinic, rounds, etc. It will be most helpful for you to always know the location of your supervisor. Direct paging is encouraged when possible (?pagernumber?yourphonenumber). Beeper numbers are listed on department directory listing. UAB paging is also available on the University's web site at: (http://www.paging.uab.edu/).

UAB HealthFinder:  934-9999
By calling 934-9999, you can talk to a Registered Nurse who can answer your questions, direct your interests, schedule an appointment, or assist you in many ways in finding out what you need to know about UAB University Hospital. Patients may be directed to call this number for information about other doctors and departments.
UAB Reporter
Weekly Medical Center newspaper (*will be left near area mailboxes by department Messenger Service on Mondays)
It can also be found online at http://main.uab.edu/show.asp?durki=17485 where you can download it and print out all or portions of it.

Lister Hill Library of the Health Sciences (Information 4-2230)
Campus Mail Address: LHL 251, Zip 35294-0013
Physical Location/Street Address: 1700 University Boulevard
Web Site Address: http://www.uab.edu/lister/ (library hours listed there under “About Us”)

Mervyn Sterne Library (Information 4-6364)
Campus Mail Address: SL 172, Zip 35294-0014
Physician Location/Street Address: 917 13th Street South, Birmingham, AL 35205
Web Site Address: http://www.mhs1.uab.edu/ (library hours listed under “Select Shortcut/Hours & Calendar”)

- 16 -
Responsibilities

CONFIDENTIALITY

DO NOT discuss a patient’s medical condition with anyone, including members of his/her family, attorneys, insurance companies, etc. All employees are required to attend federally-mandated HIPAA (Health Insurance Portability and Accountability Act) training regarding the confidentiality of patient records and health-related information. If you have questions about any aspect of your handling of patient records, release of information, etc. you can call or e-mail one of the following privacy coordinators: Joan Hicks, 934-4724, jhicks@uabmc.edu; Jennifer Cole, 934-0938, jcole@uabmc.edu; Linda Lum, 975-2622, lllum@uabmc.edu. The HIPAA website address is http://www.hipaa.uab.edu.

Patient Office Charts
DO NOT let anyone take a chart from the office.
DO NOT let a patient “have” or read his or her chart.

You will be responsible for developing charts for new patients. For these charts, some offices use TAB filing products: folders, labels, and stick-on letters. Indexes can be custom ordered for dividing sections in the charts. These supplies are available in each area. If you need supplies check with your supervisor and/or Alan Rushing.

You will be responsible for pulling the charts listed on a printout, retrievable on your computer, and seeing that the charts are delivered to the Kirklin Clinic (TKC) Neurology Clinic before the scheduled clinic date. Print the clinic schedule the day before the clinic to check for scheduling changes. You will maintain the established patient charts stored in your office area. The chart should include, but not be limited to, patient clinic notes, lab reports, discharge summaries, tests ordered by neurology faculty, etc. The patient charts are very important and you are responsible for their whereabouts at all times.

Receipt of Checks
Unless otherwise instructed, forward all checks to Karen Flock. Write your initials on a Post-It note and attach to the back of the check to acknowledge you have seen it. This will assist Karen in posting the checks to the proper account. Deposits are made by the end of the month.

Daily Time Record
Keep a daily record of your hours worked. At the end of the bi-weekly pay period enter hours into the Oracle System, http://www.uab.edu/adminsystems/index.php, UAB TEL form for your administrator to approve and submit to payroll.

Performance Evaluation
Counseling session to discuss work-related expectations and goals for improved performance completed near the end of your initial six months probationary period and annually thereafter. This is an important record which may be considered in promotions, transfers, or other personnel decisions. If you do not have a counseling session, contact Audie White 4-5283.
Physician Calendar
Get the name and number of the person calling to schedule an appointment.
Record the Date, Time, Name, Location, meeting topic.
Be sure to confirm and remind all parties about appointments you schedule.
Remind your supervisor about meetings and appointments.

Post to Calendar:
Neurology Grand Rounds 5:00 p.m. Tuesdays West Pavilion, Conf Rm E
Neurology Faculty Meeting Monthly-3rd Friday Sparks Ctr Conf Room 330

Attending Schedule

Faculty Leave Requests and Reports
Janet Wright will mail forms at the beginning of the year to each faculty. The faculty members are responsible for completing this report monthly and returning to her at JNWB 402.

Notification of planned travel forms should be completed and returned to the chairman’s office as far as possible in advance of the planned absence. Foreign travel approval forms must be completed and submitted before any UAB-related travel outside the United States.

Reimbursement for travel expenses is handled by Alan Rushing and requires documentation of the purpose of the trip, original receipts for hotel bills, meals, airline tickets, conference registration, etc.

Telephone Etiquette
Projecting a good public image is an important facet of your job and there is no better way than using the best telephone etiquette. Answer and screen telephone calls as directed by your supervisor. Though most doctors do not see patients in their offices, patients do call. When taking a message, ALWAYS get the correct spelling of the caller’s name, telephone number, and subject of the call, time, and date.

Asking the caller to hold:
Wait for their reply before placing them on hold. After a minute, ask if you can return the call in a few minutes or if they can continue to hold.

Medication Renewals:
Patient name
Patient phone number
Accurate spelling of the medication
Pharmacy name and telephone number

Always be courteous and keep in mind that often you are talking with someone who is ill or a distressed family member. It is inappropriate for you to offer medical advice of any kind.

The physician may ask you to call a new prescription or refill to the pharmacy. Be sure you understand his/her instructions.
Placing Calls:
On-Campus numbers: all that is necessary to dial would be the last five or six digits of the number, such as 1, 12, 4, 5 or 6, and the last four digits.
   Example: 934-2402, dial 4-2402 or 996-2092, dial 6-2092
The Kirklin Clinic:  801-8950, dial 1-8950
VA: dial 12-6763

Birmingham and Local calls (including fax #s):
dial 9 for an outside line, then followed by the 7-digit number.

Long Distance in-state watts ("Tie Line"):
Dial 8-205, 8-256, 8-334, or 8-251 then the 7-digit number.
No personal long distance calls should be made from your office.

Telephone Repair: 4-7777

Voice Mail
Helpful tips for voice mail users:
• All owners of voice mail boxes should attend a training session conducted by UAB Communications. You may schedule a class by calling Debbie Garrett at 4-0000.
• Voice mail should only be used when the voice mail owner is absent for no more than 15 minutes, handling a call that can’t be interrupted, or in a meeting.
• Voice mail owners should check their messages frequently (every hour) during the day and return messages.
• Voice mail owners should update their personal greeting regularly. The update should include detailed information, such as their status (if it changes daily or weekly), when a return call should be expected, an option for transferring to a live person (if possible), and encouragement for a detailed message to be left by the caller.
• Voice mail owners should give their callers an option for transferring out to a live person. If this is not possible, alternate numbers for assistance are encouraged.
• When calling others with voice mail, always leave messages that are as detailed as possible. This information is to include the nature of the call, when you will be available, and a return telephone number, a FAX number (if applicable), or an option for a message to be left in your voice mail.
• If voice mail owners intend to have calls answered in their absence by voice mail, they should forward their calls directly to voice mail rather than having the caller hear the usual five rings before voice mail answers. (To set: dial *78 and then the number for voice mail 5-6245. To cancel: dial *79.)

No Voice Mail or Answering Machine
When leaving your telephone unattended for brief periods of time or for lunch: find a buddy in your area to transfer your incoming calls to. *78, followed by their phone number. Upon returning to your desk, transfer your line back by dialing *79. Promptly answer telephone messages.

The “alternate message” left at night, on weekends and holidays should offer patients the option of leaving a message to be returned on the next business day or, if more urgent, of contacting the neurologist on call by dialing (205) 930-5690. Patients with emergencies should be instructed to hang up and call 911 or to proceed to the emergency Department of the Hospital nearest them…

Please refer to Section 8.7 in your “You and UAB” handbook concerning the UAB policies for telephone usage.

UAB Travel:  Phone #444-4800
               Fax    #444-4808
ADMITTING PROCEDURES

Confirmation of insurance coverage and pre-certification for admission of neurology patients is currently handled by the Department of Utilization Review, which must be provided with the information immediately below. This information can be written on a form and faxed to UR, or entered in IDX under “Bed Reservation” and transmitted electronically. Training is available for this latter option.

To admit a known patient:
You will need the following information at hand:
- Patient’s name, birth date, medical record number, telephone number.
- Insurance information
  - Policy number
  - Who is the policyholder?
  - Is pre-certification necessary?

If you must handle the pre-certification yourself, the following may apply…

Usually the patient will give you a telephone number from his insurance card or you may need to call the company for whom the policyholder works to obtain pre-certification criteria.

When calling the insurance company for pre-certification, have the following information at hand:
- Policy number
- Patient’s name and DOB
- Policyholder’s name and company he works for
- Diagnosis
- Day of planned admission
- Plan of treatment (get from the doctor)
- Estimated length of stay

Name of admitting hospital: UAB University Hospital
Address: 625 South 19th Street
Birmingham, AL 35249-7340
Hospital telephone: (205) 934-4011
Your doctor’s tax ID No.: 63-0649108
Provider No.: __________

Telephone Numbers of Insurance Companies:
If you are unable to get the telephone number from the patient’s insurance card, call the business office 4-6400.

Approval Number:
Make note of the name and telephone number of the person you talk to.

Same Day Admissions:
You will be asked for sex, race, and marital status.

Pre-Certs for a Number of Days:
Some pre-certs are for a specific number of days (example: 3 days). If that is the case, make a note to call the insurance company if the patient is still in the hospital.
- You’ll need to know exactly what is being done.
- Why additional days are needed (get this information from resident in charge or your doctor).

Champus: Call 5-222 to pre-certify.
No Pre-certification
Patients with Medicare do not have to be pre-certified.

Next, call Hospital Pre-admitting 4-5019 for a reservation. If it is the same day as the admission, call 4-6600.

You will need the following information:
- Date of planned admission
- Patient’s name and medical record number
- Home phone number
- Admitting physician
- Diagnosis
- Insurance company and pre-certification number (or Medicare and pre-certification number)
- Patient’s request for a private room (not covered by insurance - $16 extra)

Contact patient or family member.

When arrangements have been completed, call the patient, letting him/her or someone in the family know when to arrive and how to get to the admitting area:

*Enter the 4th Avenue parking deck. Hospital Admitting is on the 2nd floor of North Pavilion.

Patients who are being admitted may park for $8/day in Decks 3, 4, or the new 4th Ave Deck connected to the new hospital (North Pavilion). To see if discount may be obtained, the patient upon discharge can make a request with Social Services for assistance (usually applies to charity care, no insurance, or Medicaid).

Emergency Admission
If the doctor determines the patient’s situation an emergency, the patient will be instructed to go directly to the emergency room for attention and possible admission. Call the ER 4-5105 and alert them when to expect the patient. Your doctor will notify the appropriate resident with orders.

If the doctor instructs the patient to be admitted directly through the emergency room, call the ER (4-5105) to alert them of the time of the patient’s arrival. Also page the resident in charge of M8 and notify him/her of admission. Insurance and admission arrangements still must be made.

In the case of an emergency, you have 24 hours to notify the patient’s insurance company. A certification number may be necessary.

Transfer Patients:
All transfer patients MUST BE PRECERTIFIED.

If the physician accepts an in-patient from another hospital, it is preferred that the referring physician’s office communicate with the insurance company for approval and provide you with an approval number as well as make the necessary transportation arrangements.

If the patient has no insurance or has Medicaid, inform the physician.

The hospital administration office (4-4811) must be notified if a patient is indigent. You must have approval from hospital administration before an indigent patient can be accepted for transfer.

Transfer Patients
Go through patient discharge directly to the floor.

Follow Through
Remember, a good job is one that is fully completed. Always follow through on tasks assigned by your supervisor. Take it upon yourself to make sure that everything runs as smoothly and efficiently as possible.
ACCOMMODATIONS for patients and family members

Camellia Pavilion: Elaborate reservations for the Camellia Pavilion should be made in advance. To obtain a reservation on the Camellia Pavilion for new patients:

1) Notify Admissions concerning the patient as per current hospital directives.
2) Then call Ms. Nunnally (4-0481) for a reservation on the Camellia Pavilion.
3) For patient transfer to the Camellia Pavilion from another ward, call Ms. Nunnally at the above number. In her absence, contact Ms. Nickie Ennis (beeper 4327) for admissions.

Townhouse: 205-324-8608
The TownHouse offers rates for daily, weekly, and monthly stays for visitors and patients to the UAB Medical Center. The TownHouse is owned by the University of Alabama at Birmingham and located at 2008 University Boulevard one block from the UAB Medical Center and on the next block across from Tinsley Harrison Tower.

Best Western: 933-1900
Embassy Suites: 879-7400
Pickwick Hotel: 933-9555
Radisson: 933-9000

UAB Hospital Parking
For options on UAB Hospital parking please refer to web site: http://www.health.uab.edu/hospital/show.asp?durki=11328.

Valet Parking
- Available at The Kirklin Clinic Parking Deck after you enter the deck on the 2nd floor next to the crosswalk to TKC. Rates vary according to time spent at TKC, but discount rates are available by getting your ticket stamped in the various clinics.
- At UAB Hospital refer to the web site http://www.health.uab.edu/hospital/show.asp?durki=11328.
Neurology Policies

Work Hours
Unless otherwise specified, your work hours will be from 8 a.m. until 5 p.m. Monday through Friday with an hour for lunch. Your lunch hour should be arranged with others in your work area to provide coverage in your office.

Illness
In the event of illness, please call your supervisor or Karen Flock.

Vacation
Vacation time should be arranged with your supervisor.

Inclement Weather
Updated weather information will be announced via -
  UAB Web site – http://www.uab.edu
  WBHM FM 90.3 - Radio Station
  UAB Bad Weather hotline - #934-2165

It is the employee’s responsibility to inquire of their supervisor and understand the inclement weather practices as it applies to their unique work circumstances. The university will not pay for work not performed except in those areas that are officially closed and unless employees, reporting in by telephone, are advised by their supervisors to remain at home. Employees should contact their offices or working areas promptly to report the conditions that are peculiar to their own situations.
Frequently Scheduled Diagnostic Tests

MRI (Magnetic Resonance Imaging), Siemens Scanner

For outpatient scheduling, please use a copy of the enclosed form for The Kirklin Clinic Department of Radiology. Fill out the form completely and fax to 801-8751. They will call back to confirm the appointment. MRI is located in the basement of TKC. Their number is 1-8750. Also, outpatient MRI’s can be scheduled on the Boshell Magnet by calling 4-9906. Boshell is preferred unless your faculty supervisor instructs you to the contrary.

Information you will need to set up an appointment: patient’s name, medical record number, date of birth, address and telephone number, part of body to be scanned, with or without contrast, diagnosis, what the doctor is looking for, and insurance information.

VIVA and Alabama Health Network (PEEHIP) require pre-certification before an MRI can be done. Call 939-3678 to have the procedure reviewed for approval. The approval number you are given must be relayed to MRI scheduling. Other insurance companies may also require pre-certification.

CT (Computerized Tomography), The Kirklin Clinic

Appointment – Radiology 1-9380 (TKC), Transcription (results) 1-8757

Information needed: patient’s name, medical record number, telephone number, part of body to be scanned, whether or not patient had previous CT, diagnosis or what to rule out.

EEG (Electroencephalogram), TKC 5th floor, 1-8987 and JT 12th Floor, 4-4382

Patient’s name, medical record number, and diagnosis

EMG (Electromyography), JT 12th floor, 4-2120 and TKC 5th floor, 1-8987

Tests performed include Needle EMG, Nerve Conduction Studies (NCS), Evoked Potentials, Repetitive Nerve Stimulation, Muscle and Nerve Biopsies.

Information to schedule: patient’s name, medical record number, test(s) to be performed, diagnosis, and name of referring physician.

Laboratory tests

Call receptionist at TKC Neurology Clinic 1-8950. Request a lab order: provide patient’s name, diagnosis and ICD-9 code if known, medical record number, and names of tests to be performed.

Direct patient to pick up the lab order at TKC Neurology clinic and proceed to TKC lab on the 2nd Floor.

No appointment is necessary.
Myelogram (film of the spinal cord after a dye injection)

To schedule, call 4-6078 (Special Procedures).

Give patient’s medical record number, doctor’s name, area of spine to be studied (lumbar, cervical, or thoracic level), and what condition is to be ruled out.

Patient must be admitted to the hospital for this diagnostic test (see admitting procedure), as pre-certification is required for admission.

Films may be ordered for viewing by calling the Film Annex 4-5010 and requesting the films be sent to the Film Library, JT 6th floor 4-5135 for pickup or viewing.

Physician on University Service for the Current Month

Test results for all neurology inpatients will come into the physician’s office. File these by last name for possible upcoming outpatient appointments.
Neurological Diagnostic Tests and Procedures

Diagnostic tests and procedures are vital tools that help physicians confirm or rule out the presence of a neurological disorder or other medical condition. A century ago, the only way to make a positive diagnosis for many neurological disorders was by performing an autopsy after a patient had died. But decades of basic research into the characteristics of disease, and the development of techniques that allow scientists to see inside the living brain and monitor nervous system activity as it occurs, have given doctors powerful and accurate tools to diagnose disease and to test how well a particular therapy may be working.

Perhaps the most significant changes in diagnostic imaging over the past 20 years are improvements in spatial resolution (size, intensity, and clarity) of anatomical images and reductions in the time needed to send signals to and receive data from the area being imaged. These advances allow physicians to simultaneously see the structure of the brain and the changes in brain activity as they occur. Scientists continue to improve methods that will provide sharper anatomical images and more detailed functional information.

Researchers and physicians use a variety of diagnostic imaging techniques and chemical and metabolic analyses to detect, manage, and treat neurological disease. Some procedures are performed in specialized settings, conducted to determine the presence of a particular disorder or abnormality. Many tests that were previously conducted in a hospital are now performed in a physician’s office or at an outpatient testing facility, with little if any risk to the patient. Depending on the type of procedure, results are either immediate or may take several hours to process.

What are some of the more common screening tests?

**Laboratory screening tests** of blood, urine, or other substances are used to help diagnose disease, better understand the disease process, and monitor levels of therapeutic drugs. Certain tests, ordered by the physician as part of a regular check-up, provide general information, while others are used to identify specific health concerns. For example, blood and blood product tests can detect brain and/or spinal cord infection, bone marrow disease, hemorrhage, blood vessel damage, toxins that affect the nervous system, and the presence of antibodies that signal the presence of an autoimmune disease. Blood tests are also used to monitor levels of therapeutic drugs used to treat epilepsy and other neurological disorders. Genetic testing of DNA extracted from white cells in the blood can help diagnose Huntington’s disease and other congenital diseases. Analysis of the fluid that surrounds the brain and spinal cord can detect meningitis, acute and chronic inflammation, rare infections, and some cases of multiple sclerosis. Chemical and metabolic testing of the blood can indicate protein disorders, some forms of muscular dystrophy and other muscle disorders, and diabetes. Urinalysis can reveal abnormal substances in the urine or the presence or absence of certain proteins that cause diseases including the mucopolysaccharidoses.

**Genetic testing** or counseling can help parents who have a family history of a neurological disease determine if they are carrying one of the known genes that cause the disorder or find out if their child is affected. Genetic testing can identify many neurological disorders, including spina bifida, in utero (while the child is inside the mother’s womb). Genetic tests include the following:
• **Amniocentesis**, usually done at 14-16 weeks of pregnancy, tests a sample of the amniotic fluid in the womb for genetic defects (the fluid and the fetus have the same DNA). Under local anesthesia, a thin needle is inserted through the woman’s abdomen and into the womb. About 20 milliliters of fluid (roughly 4 teaspoons) is withdrawn and sent to a lab for evaluation. Test results often take 1-2 weeks.

• **Chorionic villus sampling**, or CVS, is performed by removing and testing a very small sample of the placenta during early pregnancy. The sample, which contains the same DNA as the fetus, is removed by catheter or fine needle inserted through the cervix or by a fine needle inserted through the abdomen. It is tested for genetic abnormalities and results are usually available within 2 weeks. CVS should not be performed after the tenth week of pregnancy.

• **Uterine ultrasound** is performed using a surface probe with gel. This noninvasive test can suggest the diagnosis of conditions such as chromosomal disorders (see ultrasound imaging, below).

**What is a neurological examination?**

A **neurological examination** assesses motor and sensory skills, the functioning of one or more cranial nerves, hearing and speech, vision, coordination and balance, mental status, and changes in mood or behavior, among other abilities. Items including a tuning fork, flashlight, reflex hammer, ophthalmoscope, and needles are used to help diagnose brain tumors, infections such as encephalitis and meningitis, and diseases such as Parkinson’s disease, Huntington’s disease, amyotrophic lateral sclerosis (ALS), and epilepsy. Some tests require the services of a specialist to perform and analyze results.

**X-rays** of the patient’s chest and skull are often taken as part of a neurological work-up. X-rays can be used to view any part of the body, such as a joint or major organ system. In a conventional x-ray, also called a radiograph, a technician passes a concentrated burst of low-dose ionized radiation through the body and onto a photographic plate. Since calcium in bones absorbs x-rays more easily than soft tissue or muscle, the bony structure appears white on the film. Any vertebral misalignment or fractures can be seen within minutes. Tissue masses such as injured ligaments or a bulging disc are not visible on conventional x-rays. This fast, noninvasive, painless procedure is usually performed in a doctor’s office or at a clinic.

**Fluoroscopy** is a type of x-ray that uses a continuous or pulsed beam of low-dose radiation to produce continuous images of a body part in motion. The fluoroscope (x-ray tube) is focused on the area of interest and pictures are either videotaped or sent to a monitor for viewing. A contrast medium may be used to highlight the images. Fluoroscopy can be used to evaluate the flow of blood through arteries.

**What are some diagnostic tests used to diagnose neurological disorders?**

Based on the result of a neurological exam, physical exam, patient history, x-rays of the patient’s chest and skull, and any previous screening or testing, physicians may order one or more of the following diagnostic tests to determine the specific nature of a suspected neurological disorder or injury. These diagnostics generally involve either **nuclear medicine imaging**, in which very small amounts of radioactive materials are used to study organ function and structure, or **diagnostic imaging**, which uses magnets and electrical charges to study human anatomy.
The following list of available procedures—in alphabetical rather than sequential order—includes some of the more common tests used to help diagnose a neurological condition.

**Angiography** is a test used to detect blockages of the arteries or veins. A cerebral angiogram can detect the degree of narrowing or obstruction of an artery or blood vessel in the brain, head, or neck. It is used to diagnose stroke and to determine the location and size of a brain tumor, aneurysm, or vascular malformation. This test is usually performed in a hospital outpatient setting and takes up to 3 hours, followed by a 6- to 8-hour resting period. The patient, wearing a hospital or imaging gown, lies on a table that is wheeled into the imaging area. While the patient is awake, a physician anesthetizes a small area of the leg near the groin and then inserts a catheter into a major artery located there. The catheter is threaded through the body and into an artery in the neck. Once the catheter is in place, the needle is removed and a guide wire is inserted. A small capsule containing a radiopaque dye (one that is highlighted on x-rays) is passed over the guide wire to the site of release. The dye is released and travels through the bloodstream into the head and neck. A series of x-rays is taken and any obstruction is noted. Patients may feel a warm to hot sensation or slight discomfort as the dye is released.

**Biopsy** involves the removal and examination of a small piece of tissue from the body. Muscle or nerve biopsies are used to diagnose neuromuscular disorders and may also reveal if a person is a carrier of a defective gene that could be passed on to children. A small sample of muscle or nerve is removed under local anesthetic and studied under a microscope. The sample may be removed either surgically, through a slit made in the skin, or by needle biopsy, in which a thin hollow needle is inserted through the skin and into the muscle. A small piece of muscle or nerve remains in the hollow needle when it is removed from the body. The biopsy is usually performed at an outpatient testing facility. A brain biopsy, used to determine tumor type, requires surgery to remove a small piece of the brain or tumor. Performed in a hospital, this operation is riskier than a muscle biopsy and involves a longer recovery period.

**Brain scans** are imaging techniques used to diagnose tumors, blood vessel malformations, or hemorrhage in the brain. These scans are used to study organ function or injury or disease to tissue or muscle. Types of brain scans include computed tomography, magnetic resonance imaging, and positron emission tomography (see descriptions, below).

**Cerebrospinal fluid analysis** involves the removal of a small amount of the fluid that protects the brain and spinal cord. The fluid is tested to detect any bleeding or brain hemorrhage, diagnose infection to the brain and/or spinal cord, identify some cases of multiple sclerosis and other neurological conditions, and measure intracranial pressure.

The procedure is usually done in a hospital. The sample of fluid is commonly removed by a procedure known as a lumbar puncture, or spinal tap. The patient is asked to either lie on one side, in a ball position with knees close to the chest, or lean forward while sitting on a table or bed. The doctor will locate a puncture site in the lower back, between two vertebrae, then clean the area and inject a local anesthetic. The patient may feel a slight stinging sensation from this injection. Once the anesthetic has taken effect, the doctor will insert a special needle into the spinal sac and remove a small amount of fluid (usually about three teaspoons) for testing. Most patients will feel a sensation of pressure only as the needle is inserted.

A common after-effect of a lumbar puncture is headache, which can be lessened by having the patient lie flat. Risk of nerve root injury or infection from the puncture can occur but it is rare. The entire procedure takes about 45 minutes.

**Computed tomography**, also known as a CT scan, is a noninvasive, painless process used to produce rapid, clear two-dimensional images of organs, bones, and tissues. Neurological CT scans are used to view the brain and spine. They can detect bone and vascular irregularities, certain brain tumors and cysts,
herniated discs, epilepsy, encephalitis, spinal stenosis (narrowing of the spinal canal), a blood clot or intracranial bleeding in patients with stroke, brain damage from head injury, and other disorders. Many neurological disorders share certain characteristics and a CT scan can aid in proper diagnosis by differentiating the area of the brain affected by the disorder.

Scanning takes about 20 minutes (a CT of the brain or head may take slightly longer) and is usually done at an imaging center or hospital on an outpatient basis. The patient lies on a special table that slides into a narrow chamber. A sound system built into the chamber allows the patient to communicate with the physician or technician. As the patient lies still, x-rays are passed through the body at various angles and are detected by a computerized scanner. The data is processed and displayed as cross-sectional images, or “slices,” of the internal structure of the body or organ. A light sedative may be given to patients who are unable to lie still and pillows may be used to support and stabilize the head and body. Persons who are claustrophobic may have difficulty taking this imaging test.

Occasionally a contrast dye is injected into the bloodstream to highlight the different tissues in the brain. Patients may feel a warm or cool sensation as the dye circulates through the bloodstream or they may experience a slight metallic taste.

Although very little radiation is used in CT, pregnant women should avoid the test because of potential harm to the fetus from ionizing radiation.

**Discography** is often suggested for patients who are considering lumbar surgery or whose lower back pain has not responded to conventional treatments. This outpatient procedure is usually performed at a testing facility or a hospital. The patient is asked to put on a metal-free hospital gown and lie on an imaging table. The physician numbs the skin with anesthetic and inserts a thin needle, using x-ray guidance, into the spinal disc. Once the needle is in place, a small amount of contrast dye is injected and CT scans are taken. The contrast dye outlines any damaged areas. More than one disc may be imaged at the same time. Patient recovery usually takes about an hour. Pain medicine may be prescribed for any resulting discomfort.

An **intrathecal contrast-enhanced CT scan** (also called cisternography) is used to detect problems with the spine and spinal nerve roots. This test is most often performed at an imaging center. The patient is asked to put on a hospital or imaging gown. Following application of a topical anesthetic, the physician removes a small sample of the spinal fluid via lumbar puncture. The sample is mixed with a contrast dye and injected into the spinal sac located at the base of the lower back. The patient is then asked to move to a position that will allow the contrast fluid to travel to the area to be studied. The dye allows the spinal canal and nerve roots to be seen more clearly on a CT scan. The scan may take up to an hour to complete. Following the test, patients may experience some discomfort and/or headache that may be caused by the removal of spinal fluid.

**Electroencephalography**, or EEG, monitors brain activity through the skull. EEG is used to help diagnose certain seizure disorders, brain tumors, brain damage from head injuries, inflammation of the brain and/or spinal cord, alcoholism, certain psychiatric disorders, and metabolic and degenerative disorders that affect the brain. EEGs are also used to evaluate sleep disorders, monitor brain activity when a patient has been fully anesthetized or loses consciousness, and confirm brain death.

This painless, risk-free test can be performed in a doctor’s office or at a hospital or testing facility. Prior to taking an EEG, the person must avoid caffeine intake and prescription drugs that affect the nervous system. A series of cup-like electrodes are attached to the patient’s scalp, either with a special conducting paste or with extremely fine needles. The electrodes (also called leads) are small devices that are attached to wires and carry the electrical energy of the brain to a machine for reading. A very low electrical current is sent through the electrodes and the baseline brain energy is recorded. Patients are then exposed to a
variety of external stimuli—including bright or flashing light, noise or certain drugs—or are asked to open and close the eyes, or to change breathing patterns. The electrodes transmit the resulting changes in brain wave patterns. Since movement and nervousness can change brain wave patterns, patients usually recline in a chair or on a bed during the test, which takes up to an hour. Testing for certain disorders requires performing an EEG during sleep, which takes at least 3 hours.

In order to learn more about brain wave activity, electrodes may be inserted through a surgical opening in the skull and into the brain to reduce signal interference from the skull.

**Electromyography**, or EMG, is used to diagnose nerve and muscle dysfunction and spinal cord disease. It records the electrical activity from the brain and/or spinal cord to a peripheral nerve root (found in the arms and legs) that controls muscles during contraction and at rest.

During an EMG, very fine wire electrodes are inserted into a muscle to assess changes in electrical voltage that occur during movement and when the muscle is at rest. The electrodes are attached through a series of wires to a recording instrument. Testing usually takes place at a testing facility and lasts about an hour but may take longer, depending on the number of muscles and nerves to be tested. Most patients find this test to be somewhat uncomfortable.

An EMG is usually done in conjunction with a **nerve conduction velocity (NCV)** test, which measures electrical energy by assessing the nerve’s ability to send a signal. This two-part test is conducted most often in a hospital. A technician tapes two sets of flat electrodes on the skin over the muscles. The first set of electrodes is used to send small pulses of electricity (similar to the sensation of static electricity) to stimulate the nerve that directs a particular muscle. The second set of electrodes transmits the responding electrical signal to a recording machine. The physician then reviews the response to verify any nerve damage or muscle disease. Patients who are preparing to take an EMG or NCV test may be asked to avoid caffeine and not smoke for 2 to 3 hours prior to the test, as well as to avoid aspirin and non-steroidal anti-inflammatory drugs for 24 hours before the EMG. There is no discomfort or risk associated with this test.

**Electronystagmography** (ENG) describes a group of tests used to diagnose involuntary eye movement, dizziness, and balance disorders, and to evaluate some brain functions. The test is performed at an imaging center. Small electrodes are taped around the eyes to record eye movements. If infrared photography is used in place of electrodes, the patient wears special goggles that help record the information. Both versions of the test are painless and risk-free.

**Evoked potentials** (also called evoked response) measure the electrical signals to the brain generated by hearing, touch, or sight. These tests are used to assess sensory nerve problems and confirm neurological conditions including multiple sclerosis, brain tumor, acoustic neuroma (small tumors of the inner ear), and spinal cord injury. Evoked potentials are also used to test sight and hearing (especially in infants and young children), monitor brain activity among coma patients, and confirm brain death.

Testing may take place in a doctor’s office or hospital setting. It is painless and risk-free. Two sets of needle electrodes are used to test for nerve damage. One set of electrodes, which will be used to measure the electrophysiological response to stimuli, is attached to the patient’s scalp using conducting paste. The second set of electrodes is attached to the part of the body to be tested. The physician then records the amount of time it takes for the impulse generated by stimuli to reach the brain. Under normal circumstances, the process of signal transmission is instantaneous.

**Auditory evoked potentials** (also called brain stem auditory evoked response) are used to assess high-frequency hearing loss, diagnose any damage to the acoustic nerve and auditory pathways in the brainstem, and detect acoustic neuromas. The patient sits in a soundproof room and wears headphones.
Clicking sounds are delivered one at a time to one ear while a masking sound is sent to the other ear. Each ear is usually tested twice, and the entire procedure takes about 45 minutes.

**Visual evoked potentials** detect loss of vision from optic nerve damage (in particular, damage caused by multiple sclerosis). The patient sits close to a screen and is asked to focus on the center of a shifting checkerboard pattern. Only one eye is tested at a time; the other eye is either kept closed or covered with a patch. Each eye is usually tested twice. Testing takes 30-45 minutes.

**Somatosensory evoked potentials** measure response from stimuli to the peripheral nerves and can detect nerve or spinal cord damage or nerve degeneration from multiple sclerosis and other degenerating diseases. Tiny electrical shocks are delivered by electrode to a nerve in an arm or leg. Responses to the shocks, which may be delivered for more than a minute at a time, are recorded. This test usually lasts less than an hour.

**Magnetic resonance imaging** (MRI) uses computer-generated radio waves and a powerful magnetic field to produce detailed images of body structures including tissues, organs, bones, and nerves. Neurological uses include the diagnosis of brain and spinal cord tumors, eye disease, inflammation, infection, and vascular irregularities that may lead to stroke. MRI can also detect and monitor degenerative disorders such as multiple sclerosis and can document brain injury from trauma.

The equipment houses a hollow tube that is surrounded by a very large cylindrical magnet. The patient, who must remain still during the test, lies on a special table that is slid into the tube. The patient will be asked to remove jewelry, eyeglasses, removable dental work, or other items that might interfere with the magnetic imaging. The patient should wear a sweat shirt and sweat pants or other clothing free of metal eyelets or buckles. MRI scanning equipment creates a magnetic field around the body strong enough to temporarily realign water molecules in the tissues. Radio waves are then passed through the body to detect the “relaxation” of the molecules back to a random alignment and trigger a resonance signal at different angles within the body. A computer processes this resonance into either a three-dimensional picture or a two-dimensional “slice” of the tissue being scanned, and differentiates between bone, soft tissues and fluid-filled spaces by their water content and structural properties. A contrast dye may be used to enhance visibility of certain areas or tissues. The patient may hear grating or knocking noises when the magnetic field is turned on and off. (Patients may wear special earphones to block out the sounds.) Unlike CT scanning, MRI does not use ionizing radiation to produce images. Depending on the part(s) of the body to be scanned, MRI can take up to an hour to complete. The test is painless and risk-free, although persons who are obese or claustrophobic may find it somewhat uncomfortable. (Some centers also use open MRI machines that do not completely surround the person being tested and are less confining. However, open MRI does not currently provide the same picture quality as standard MRI and some tests may not be available using this equipment). Due to the incredibly strong magnetic field generated by an MRI, patients with implanted medical devices such as a pacemaker should avoid the test.

**Functional MRI** (fMRI) uses the blood’s magnetic properties to produce real-time images of blood flow to particular areas of the brain. An fMRI can pinpoint areas of the brain that become active and note how long they stay active. It can also tell if brain activity within a region occurs simultaneously or sequentially. This imaging process is used to assess brain damage from head injury or degenerative disorders such as Alzheimer’s disease and to identify and monitor other neurological disorders, including multiple sclerosis, stroke, and brain tumors.

**Magnetoencephalography** (MEG) is a non-invasive technique for localizing and characterizing the electrical activity of the central nervous system. MEG detects the magnetic field generated by the longitudinal neuronal current flow of the brain. By detecting this magnetic field, MEG enables physicians and scientists to measure the activity of the brain in real time. The information provided by MEG is entirely different from that provided by Computed Tomography (CT) or Magnetic Resonance (MR)
imaging. CT and MR imaging provide structural/anatomical information, whereas MEG provides functional mapping information. MEG gives precise information on the brain’s function, including touch, speech, vision, hearing and motor skills. It is routinely used for pre-surgical functional mapping, assessment of pathological functional deficits, neuropharmacological investigations, trauma assessment, epileptic assessment, and a growing list of research investigations in neuroscience and psychiatry.

**Myelography** involves the injection of a water- or oil-based contrast dye into the spinal canal to enhance x-ray imaging of the spine. *Myelograms* are used to diagnose spinal nerve injury, herniated discs, fractures, back or leg pain, and spinal tumors.

The procedure takes about 30 minutes and is usually performed in a hospital. Following an injection of anesthesia to a site between two vertebrae in the lower back, a small amount of the cerebrospinal fluid is removed by spinal tap (see *cerebrospinal fluid analysis*, above) and the contrast dye is injected into the spinal canal. After a series of x-rays is taken, most or all of the contrast dye is removed by aspiration. Patients may experience some pain during the spinal tap and when the dye is injected and removed. Patients may also experience headache following the spinal tap. The risk of fluid leakage or allergic reaction to the dye is slight.

**Positron emission tomography** (PET) scans provide two- and three-dimensional pictures of brain activity by measuring radioactive isotopes that are injected into the bloodstream. PET scans of the brain are used to detect or highlight tumors and diseased tissue, measure cellular and/or tissue metabolism, show blood flow, evaluate patients who have seizure disorders that do not respond to medical therapy and patients with certain memory disorders, and determine brain changes following injury or drug abuse, among other uses. PET may be ordered as a follow-up to a CT or MRI scan to give the physician a greater understanding of specific areas of the brain that may be involved with certain problems. Scans are conducted in a hospital or at a testing facility, on an outpatient basis. A low-level radioactive isotope, which binds to chemicals that flow to the brain, is injected into the bloodstream and can be traced as the brain performs different functions. The patient lies still while overhead sensors detect gamma rays in the body’s tissues. A computer processes the information and displays it on a video monitor or on film. Using different compounds, more than one brain function can be traced simultaneously. PET is painless and relatively risk-free. Length of test time depends on the part of the body to be scanned. PET scans are performed by skilled technicians at highly sophisticated medical facilities.

A **polysomnogram** measures brain and body activity during sleep. It is performed over one or more nights at a sleep center. Electrodes are pasted or taped to the patient’s scalp, eyelids, and/or chin. Throughout the night and during the various wake/sleep cycles, the electrodes record brain waves, eye movement, breathing, leg and skeletal muscle activity, blood pressure, and heart rate. The patient may be videotaped to note any movement during sleep. Results are then used to identify any characteristic patterns of sleep disorders, including restless legs syndrome, periodic limb movement disorder, insomnia, and breathing disorders such as obstructive sleep apnea. Polysomnograms are noninvasive, painless, and risk-free.

**Single photon emission computed tomography** (SPECT), a nuclear imaging test involving blood flow to tissue, is used to evaluate certain brain functions. The test may be ordered as a follow-up to an MRI to diagnose tumors, infections, degenerative spinal disease, and stress fractures. As with a PET scan, a radioactive isotope, which binds to chemicals that flow to the brain, is injected intravenously into the body. Areas of increased blood flow will collect more of the isotope. As the patient lies on a table, a gamma camera rotates around the head and records where the radioisotope has traveled. That information is converted by computer into cross-sectional slices that are stacked to produce a detailed three-dimensional image of blood flow and activity within the brain. The test is performed at either an imaging center or a hospital.
**Thermography** uses infrared sensing devices to measure small temperature changes between the two sides of the body or within a specific organ. Also known as digital infrared thermal imaging, thermography may be used to detect vascular disease of the head and neck, soft tissue injury, various neuromusculoskeletal disorders, and the presence or absence of nerve root compression. It is performed at an imaging center, using infrared light recorders to take thousands of pictures of the body from a distance of 5 to 8 feet. The information is converted into electrical signals which results in a computer-generated two-dimensional picture of abnormally cold or hot areas indicated by color or shades of black and white. Thermography does not use radiation and is safe, risk-free, and noninvasive.

**Ultrasound imaging**, also called ultrasound scanning or sonography, uses high-frequency sound waves to obtain images inside the body. **Neurosonography** (ultrasound of the brain and spinal column) analyzes blood flow in the brain and can diagnose stroke, brain tumors, hydrocephalus (build-up of cerebrospinal fluid in the brain), and vascular problems. It can also identify or rule out inflammatory processes causing pain. It is more effective than an x-ray in displaying soft tissue masses and can show tears in ligaments, muscles, tendons, and other soft tissue masses in the back. **Transcranial Doppler ultrasound** is used to view arteries and blood vessels in the neck and determine blood flow and risk of stroke.

During ultrasound, the patient lies on an imaging table and removes clothing around the area of the body to be scanned. A jelly-like lubricant is applied and a transducer, which both sends and receives high-frequency sound waves, is passed over the body. The sound wave echoes are recorded and displayed as a computer-generated real-time visual image of the structure or tissue being examined. Ultrasound is painless, noninvasive, and risk-free. The test is performed on an outpatient basis and takes between 15 and 30 minutes to complete.
Glossary of Neurological Terms and Disorders

abulia
loss of will, impulse, and decision-making ability.

afferent
sensory pathway proceeding toward the central nervous system from the peripheral receptor organs.

afferent pupillary defect (Marcus Gunn pupil)
pupillary dilation in an eye with a pre-chiasmic optic pathway lesion (e.g., optic neuritis) in response to shining a light in the damaged eye after first shining it in the normal eye.

ageusia
impaired sense of taste.

agnosia
inability to recognize and interpret objects, people, sounds, or smells despite intact primary sense organs (e.g., inability to identify a sound despite intact hearing); typically results from damage to the occipital or parietal lobe.

agraphia
inability to communicate ideas in written language not due to mechanical dysfunction; typically results from damage to the parietal lobe.

akathisia
motor restlessness; inability to sit still.

akinesia
difficult-to-initiate movement.

alexia
inability to read, usually due to lesions of the visual cortex.

amaurosis fugax
temporary loss of vision in one eye due to impairment of blood supply through the internal carotid artery or the ophthalmic artery.

aneurysm (brain aneurysm, cerebral aneurysm)
a bulging formation on an artery, usually caused by hypertension or an excessive amount of fatty deposits.

anisocoria
pupillary asymmetry.

anosmia
loss of sense of smell.

anoxia/hypoxia
lack of oxygen to the brain or other vital organ.

aphasia
inability to speak (expressive aphasia) or comprehend (receptive aphasia) spoken and/or written language.
**Aphemia**
inability to speak words despite being able to make other sounds.

**Apraxia**
impaired planning/sequencing of movement that is not due to weakness, incoordination, or sensory loss. Although the movements cannot be performed for a specific situation, they may be performed under other circumstances (e.g., inability to lift feet off the floor when attempting to walk but preserved ability to perform bicycling movements of the legs while lying in bed). Results from dissociation of parts of the cerebrum and is often associated with parietal lobe lesion.

**Arteriovenous malformation**
a tangled collection of abnormal arteries.

**Asterixis**
sudden palmar flapping movement of the hands at the wrists; indicative of metabolic encephalopathy.

**Ataxia**
incoordination of movement usually due to disease of cerebellar or sensory pathways.

**Athetosis**
involuntary slow, writhing movements.

**Aura**
warning symptom (e.g., of vision, smell or perception) occurring prior to a spell such as a migraine or seizure; implies focal brain disturbance.

**Automatism**
mechanical, seemingly aimless behavior characteristic of some focal epilepsies (e.g., lip smacking).

**Autoregulation**
physiological process by which blood vessels change caliber to maintain constant cerebral blood flow over a wide range of cerebral perfusion pressures.

**Babinski response**
extension of the great toe on stimulation of the sole of the foot, signifying a lesion of the pyramidal tract (a.k.a., upgoing toe).

**Binswanger's disease**
a form of dementia that often leads to stroke and other cognitive deficits.

**Blepharospasm**
excessive involuntary contraction of the orbicularis oculi sometimes resulting in functional blindness; a focal dystonia.

**Bradykinesia**
slowed movement due to dysfunction of the basal ganglia and related structures.

**Brain injury (traumatic brain injury, TBI)**
any sudden physical harm to the head that results in damage to the brain.

**Bulbar**
pertaining to the lower cranial nerve nuclei.
cataplexy
sudden loss of postural tone, often resulting in falling to the floor; often seen in narcolepsy.

central pain syndrome
intense pain arising from injury to the central nervous system, most often in patients who have had a stroke, multiple sclerosis, or brain injury.

cerebral arteriosclerosis
the blockage of arteries within the brain.

cerebral atrophy
the shrinking of the brain or brain cells.

cerebral peduncle (crus cerebri)
contains corticospinal and corticobulbar tracts in the ventral midbrain.

chorea
involuntary, irregular, rapid jerking movements.

clonus
rhythmic contraction-relaxation tremor indicative of exaggerated stretch reflexes.

cogwheeling
ratchety movement due to superimposition of tremor on rigidity.

coma
state ofunarousable unresponsiveness with closed eyes, no speech, and no purposeful movements.

dermatome
distribution of sensory innervation on the skin of the body and the limbs.

diencephalon
thalamus, hypothalamus, subthalamic nucleus, and the pineal.

diffuse axonal injury
widespread damage to white matter due to rotational shearing forces coincident with head trauma.

diplopia
double vision.

dissociated sensory deficit
impairment of pain and temperature sensation on one side and impairment of vibration and proprioception on the other.

dysarthria
inability to pronounce or articulate words due to disorders of the vocal apparatus.

dysdiadochokinesia
impaired ability to perform rapid alternating movements (e.g., pronation/supination of hands; indicates cerebellar dysfunction.

dysesthesia
pain or discomfort in response to a stimulus (e.g., touch) that would not be expected to cause pain.
**dysgraphia**
a writing disability that results in incorrectly spelled or written words.

**dyslexia**
disorder that limits the ability to read.

**dyskinesia**
movement disorder characterized by increased motor activity.

**dysmetria**
difficulty judging and controlling the speed, distance, or power of motor actions; tendency to over- or underestimate the extent of motion needed.

**dysphagia**
difficulty in swallowing.

**dystonia**
involuntary muscle spasms that produce peculiar postures of various body parts.

**echolalia**
imitation of sounds without comprehension of their meaning.

**efferent**
motor pathway proceeding from the central nervous system toward the peripheral end organs.

**encephalitis**
inflammation of brain tissue.

**encephalopathy**
literally, "brain suffering"; a general term for brain dysfunction.

**executive functions**
higher intellectual functions such as judgment, insight, reasoning, abstraction.

**extrapyramidal**
movement disorder not involving the corticospinal tracts; typically refers to basal ganglia or cerebellar disorders.

**fainting (syncope)**
temporary loss of consciousness due to a lack of blood flow to the brain.

**fasciculation**
spontaneous firing of an axon resulting in a visible twitch of all the muscle fibers it contacts; indicative of denervation.

**fibrillation**
spontaneous firing of a single muscle fiber (seen only electrographically).

**Gerstmann's syndrome**
a neurological disorder that includes a writing disability (agraphia or dysgraphia), a lack of understanding of the rules for calculation or arithmetic (acalculia or dyscalculia), an inability to distinguish right from left, and an inability to identify fingers (finger agnosia).

**graphesthesia**
ability to recognize letters or numbers drawn on the finger or palm.
hemianopia
blindness in one half of the visual field, indicating a pathological process posterior to the optic chiasm.

hemiparesis
weakness on one side of the body.

hemiplegia
paralysis on one side of the body.

Horner's syndrome
ptosis, miosis, & anhydrosis ipsilateral to damaged sympathetic nerve fibers.

hydrocephalus
literally "water on the brain"; increase in size of ventricles and amount of cerebrospinal fluid in the brain.

hyperpathia
exaggerated response to painful stimuli.

infratentorial
below the tentorium cerebelli, i.e., brainstem and cerebellum.

internuclear ophthalmoplegia
failure of adduction of one eye and abducting nystagmus of the other eye due to a lesion of the medial longitudinal fasciculus.

lacune (lacunar stroke)
small (<2 cm) infarct, caused by occlusion of a single penetrating branch of a larger cerebral artery.

lateral medullary syndrome (Wallenberg's syndrome)
difficulty in swallowing caused by a blockage in a cerebellar a vertebral artery.

learning disabilities
disabilities in speaking, writing, reasoning, controlling movement, or directing attention.

leukodystrophy
metabolic demyelinative disease.

locked-in syndrome
a rare disorder in which the patient is conscious but unable to voluntarily move any parts of his or body (with the exception of the eyes).

lower motor neuron
2nd order neurons whose cell bodies are located in the brainstem or anterior horn of the spinal cord and that leave the CNS to connect to muscle; lesions result in flaccid weakness, reflex loss, atrophy, +/- fasciculations.

meningitis
inflammation of meninges and spinal fluid.

mini-strokes (transient ischemic attack, tia)
abrupt focal loss of neurologic function caused by reduction in blood flow that persists less than 24 hours and clears without residual disability.
**mitochondrial myopathies**
neuromuscular diseases caused by damage to the mitochondria (small, energy-producing structures found in every cell in the body).

**Moyamoya disease**
Primarily found in children, moyamoya is a rare disorder characterized by the narrowing of arteries leading to the brain.

**multi-infarct dementia**
form of dementia in which several blood clots form in the brain.

**myelopathy**
symptoms & signs associated with spinal cord compression.

**myoclonus**
sudden, shock-like, jerking contraction of a group of muscles.

**neglect**
failure to acknowledge stimuli toward the side of space opposite to a hemispheric (usually parietal) lesion.

**neologism**
made-up word.

**neuralgia**
pain that follows the paths of specific nerves, e.g., trigeminal neuralgia; postherpetic neuralgia.

**nuchal rigidity**
stiff neck.

**nystagmus**
involuntary, rhythmic oscillation or trembling of the eyeballs.

**optic neuritis**
Inflammation or demyelination of the optic nerve with transient or permanent loss of vision +/- pain.

**orthostatic hypotension**
sudden drop in blood pressure experienced upon standing up.

**papilledema**
swelling of nerve head usually but not always due to increased ICP.

**paraphasia**
speech error characterized by substitutions of letters (e.g., "bree" for "tree") or words ("house" for "tree").

**paraplegia**
paralysis of both legs.

**paratonia (gegenhalten)**
increased muscle tone that increases in proportion to the speed and strength with which the examiner tries to move the joint.

**paresthesia**
skin sensation, such as burning, prickling, itching, or tingling, with no apparent physical cause.
penumbra (ischemic penumbra)
the area surrounding the dense core of irreversibly damaged cells that has preserved ionic homeostasis and reduced neuronal electrical activity but that is capable of recovery.

porencephaly
a rare, nervous system disorder arising from cysts or cavities in the brain.

proprioception
joint position sense.

ptosis
eyelid droopiness.

quadriplegia (tetraplegia)
paralysis of all four extremities.

radiculopathy
symptoms & signs associated with spinal nerve root compression.

rigidity
increased resistance throughout the range of motion when passively moving a body part due to co-contraction of agonist and antagonist muscles ("lead pipe").

Romberg test
inability to maintain upright posture when feet together and eyes closed; indicates impaired proprioception.

saccade
discrete, rapid conjugate eye movements from one object to another.

scotoma
island-like gap or blind spot in the visual field.

seizure disorder (epilepsy)
a brain disorder in which groups of nerve cells send abnormal signals to the rest of the body. Often characterized by strange sensations, emotions, and behavior; may include convulsions, muscle spasms, and loss of consciousness.

Sjogren's syndrome
an autoimmune disorder that prohibits production of tears and saliva.

smooth pursuit
smooth following eye movements that maintain fixation.

spasticity
abnormal increase in muscle tone and reflexes, manifested as a spring-like resistance to moving or being moved; indicates an upper motor neuron lesion.

spondylosis
degenerative disease of the vertebral column that can result in spinal cord compression.

stereognosis
ability to recognize objects by touch.
stroke
a sudden interruption in the blood supply of the brain. Most strokes are caused by an abrupt blockage of arteries leading to the brain (ischemic stroke). Other strokes are caused by bleeding into brain tissue when a blood vessel bursts (hemorrhagic stroke).

Sturge-Weber syndrome
a congenital disorder that includes a vascular birthmark on the face caused by an excessive amount of capillaries just beneath the skin. May also include some neurologic deficits such as angiomas (excessive blood vessel growth on the surface of the brain).

subcortical arteriosclerotic encephalopathy (Binswanger's disease)
a form of dementia that often leads to stroke and other cognitive deficits.

supranuclear
central connections rostral to the cranial nerve nuclei.

supratentorial
above the tentorium cerebelli, i.e., cerebral cortex, thalamus, and basal ganglia.

tectum
dorsal surface of the midbrain that contains the superior and inferior colliculi.

tegmentum
floor of the midbrain that contains the substantia nigra & the red nucleus.

temporal arteritis (cranial arteritis, giant cell arteritis)
inflammation of the temporal blood vessel (running over the temple, beside the eye).

tic
involuntary contractions of single muscles or groups of muscles that result in stereotyped movements.

tinnitus
sound experienced subjectively with no external source; due to disorder of auditory apparatus or brain.

titubation
tremor of the head and neck.

Todd's paralysis
temporary (minutes to hours or rarely days) post-seizure mono- or hemiplegia; indicates seizure was focal onset; sometimes term used for other temporary focal post-seizure deficits, such as aphasia or sensory abnormalities.

torticollis
form of dystonia in which the neck muscles contract involuntarily, causing the head to turn.

transient ischemic attack (mini-stroke, tia)
abrupt focal loss of neurologic function caused by reduction in blood flow that persists less than 24 hours and clears without residual disability.

tremor
involuntary, rhythmic oscillatory movements about a fixed point due to alternating or synchronous contractions of agonist and antagonist muscles.
**U fibers**
short U-shaped white matter tracts that lie just beneath the cerebral cortex and connect adjacent gyris.

**upper motor neuron**
1st order neurons that remain in the CNS & synapse with lower motor neurons; lesions result in spasticity, hyperreflexia/extensor plantar response (upgoing toe).

**vasculitis**
inflammation of the blood vessel system.

**vasospasm**
blood vessel constriction in response to irritative stimuli.

**vertigo**
subjective sense of imbalance usually noted as an illusion of moving or spinning of the external world.

**Von Hippel-Lindau disease (VHL)**
a genetic, multi-system disorder that initiates the growth of tumors throughout the body.

**Wallenberg's syndrome (lateral medullary syndrome)**
difficulty in swallowing caused by a blockage in a cerebellar a vertebral artery.
### Frequently Prescribed Medications

<table>
<thead>
<tr>
<th>Medication</th>
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<tbody>
<tr>
<td>Allopurinol</td>
<td>Klonopin</td>
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<tr>
<td>Ambien</td>
<td>Lopressor</td>
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<td>Amitriptyline</td>
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<td>Baclofen</td>
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<td>Botox</td>
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<td>Navane</td>
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<td>Capsaicin</td>
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<td>Clozapine</td>
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<td>Cyclosporin</td>
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<td>Dalmane</td>
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<td>Demerol</td>
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<td>Desyrel</td>
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<td>Elavil</td>
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<td>Eldepryl</td>
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<td>Fiorinal</td>
<td>Vistaril</td>
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<td>Flexeril</td>
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<td>Gamma Globulin</td>
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<td>Ibuprofen</td>
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<td>Imitrex</td>
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<td>Imuran</td>
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<tr>
<td>Isordil</td>
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### Common Medical Abbreviations

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Full Form</th>
<th>Abbreviation</th>
<th>Full Form</th>
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</thead>
<tbody>
<tr>
<td>AAA</td>
<td>abdominal aortic aneurysm</td>
<td>A-a</td>
<td>alveolar to arterial gradient</td>
</tr>
<tr>
<td>AAS</td>
<td>acute abdominal series</td>
<td>ABD</td>
<td>abdomen</td>
</tr>
<tr>
<td>ABG</td>
<td>arterial blood gas</td>
<td>AC</td>
<td>before eating</td>
</tr>
<tr>
<td>ACLS</td>
<td>advanced cardiac life support</td>
<td>ACTH</td>
<td>adrenocorticotropic hormone</td>
</tr>
<tr>
<td>ADH</td>
<td>anti-diuretic hormone</td>
<td>ad lib</td>
<td>as much as needed</td>
</tr>
<tr>
<td>AF</td>
<td>atrial fibrillation or afebrile</td>
<td>AFB</td>
<td>acid-fast bacilli</td>
</tr>
<tr>
<td>AFP</td>
<td>alpha-fetoprotein</td>
<td>A /G</td>
<td>albumin/globulin ratio</td>
</tr>
<tr>
<td>AI</td>
<td>aortic insufficiency</td>
<td>AKA</td>
<td>above the knee amputation</td>
</tr>
<tr>
<td>ALL</td>
<td>acute lymphocytic leukemia</td>
<td>amb</td>
<td>ambulate</td>
</tr>
<tr>
<td>AML</td>
<td>acute myelogenous leukemia</td>
<td>ANA</td>
<td>antinuclear antibody</td>
</tr>
<tr>
<td>AOB</td>
<td>alcohol on breath</td>
<td>AODM</td>
<td>adult onset diabetes mellitus</td>
</tr>
<tr>
<td>AP</td>
<td>anteroposterior or abdominal - perineal</td>
<td>ARDS</td>
<td>acute respiratory distress syndrome</td>
</tr>
<tr>
<td>ARF</td>
<td>acute renal failure</td>
<td>AS</td>
<td>aortic stenosis</td>
</tr>
<tr>
<td>ASAP</td>
<td>as soon as possible</td>
<td>ASCVD</td>
<td>atherosclerotic cardiovascular disease</td>
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<tr>
<td>ASD</td>
<td>atrial septal defect</td>
<td>ASHD</td>
<td>atherosclerotic heart disease</td>
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<tr>
<td>AV</td>
<td>atroventricular</td>
<td>A-V</td>
<td>arteriovenous</td>
</tr>
<tr>
<td>A-VO2</td>
<td>arteriovenous oxygen</td>
<td>BBB</td>
<td>bundle branch block</td>
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<tr>
<td>BCAA</td>
<td>branched chain amino acids</td>
<td>BE</td>
<td>barium enema</td>
</tr>
<tr>
<td>BEE</td>
<td>basal energy expenditure</td>
<td>bid</td>
<td>twice a day</td>
</tr>
<tr>
<td>BKA</td>
<td>below the knee amputation</td>
<td>BM</td>
<td>bone marrow or bowel movement</td>
</tr>
<tr>
<td>BMR</td>
<td>basal metabolic rate</td>
<td>BOM</td>
<td>bilateral otitis media</td>
</tr>
<tr>
<td>BP</td>
<td>blood pressure</td>
<td>BPH</td>
<td>benign prostatic hypertrophy</td>
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<tr>
<td>BPM</td>
<td>beats per minute</td>
<td>BRBPR</td>
<td>bright red blood per rectum</td>
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<td>Abbreviation</td>
<td>Description</td>
<td>Abbreviation</td>
<td>Description</td>
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<td>BRP</td>
<td>bathroom privileges</td>
<td>BS</td>
<td>bowel or breath sounds</td>
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<td>BUN</td>
<td>blood urea nitrogen</td>
<td>BW</td>
<td>body weight</td>
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<td>BX</td>
<td>biopsy</td>
<td>c</td>
<td>with</td>
</tr>
<tr>
<td>C&amp;S</td>
<td>culture and sensitivity</td>
<td>CA</td>
<td>cancer</td>
</tr>
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<td>Ca</td>
<td>calcium</td>
<td>CAA</td>
<td>crystalline amino acids</td>
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<tr>
<td>CABG</td>
<td>coronary artery bypass graft</td>
<td>CAD</td>
<td>coronary artery disease</td>
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<tr>
<td>CAT</td>
<td>computerized axial tomography</td>
<td>CBC</td>
<td>complete blood count</td>
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<tr>
<td>CBG</td>
<td>capillary blood gas</td>
<td>CC</td>
<td>chief complaint</td>
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<tr>
<td>CCU</td>
<td>clean catch urine or cardiac care unit</td>
<td>CCV</td>
<td>critical closing volume</td>
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<tr>
<td>CF</td>
<td>cystic fibrosis</td>
<td>CGL</td>
<td>chronic granulocytic leukemia</td>
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<td>CHF</td>
<td>congestive heart failure</td>
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<td>carbohydrate</td>
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<td>CI</td>
<td>cardiac index</td>
<td>CML</td>
<td>chronic myelogenous leukemia</td>
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<td>CMV</td>
<td>cytomegalovirus</td>
<td>CN</td>
<td>cranial nerves</td>
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<td>CNS</td>
<td>central nervous system</td>
<td>CO</td>
<td>cardiac output</td>
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<td>C/O</td>
<td>complaining of</td>
<td>COLD</td>
<td>chronic obstructive lung disease</td>
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<tr>
<td>COPD</td>
<td>chronic obstructive pulmonary disease</td>
<td>CP</td>
<td>chest pain or cerebral palsy</td>
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<td>CPAP</td>
<td>continuous positive airway pressure</td>
<td>CPK</td>
<td>creatinine phosphokinase</td>
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<td>cardiopulmonary resuscitation</td>
<td>CRCL</td>
<td>creatinine clearance</td>
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<td>CRF</td>
<td>chronic renal failure</td>
<td>CRP</td>
<td>C-reactive protein</td>
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<tr>
<td>CSF</td>
<td>cerebrospinal fluid</td>
<td>CT</td>
<td>computerized tomography</td>
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<td>CVA</td>
<td>cerebrovascular accident or costovertebral angle</td>
<td>CVAT</td>
<td>CVA tenderness</td>
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<td>CVP</td>
<td>central venous pressure</td>
<td>CXR</td>
<td>chest X-ray</td>
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<td>DAT</td>
<td>diet as tolerated</td>
<td>DAW</td>
<td>dispense as written</td>
</tr>
<tr>
<td>DC</td>
<td>discontinue or discharge</td>
<td>D&amp;C</td>
<td>dilation and curettage</td>
</tr>
<tr>
<td>DDx</td>
<td>differential diagnosis</td>
<td>D5W</td>
<td>5% dextrose in water</td>
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<tr>
<td>DI</td>
<td>diabetes insipidus</td>
<td>DIC</td>
<td>disseminated intravascular coagulopathy</td>
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<tr>
<td>Abbreviation</td>
<td>Full Form</td>
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<tr>
<td>DIP</td>
<td>distal interphalangeal joint</td>
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<td>DJD</td>
<td>degenerative joint disease</td>
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<td>DKA</td>
<td>diabetic ketoacidosis</td>
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<td>dL</td>
<td>deciliter</td>
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<td>DM</td>
<td>diabetes mellitus</td>
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<td>do not resuscitate</td>
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<td>ears, nose, and throat</td>
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<td>grain; 1 grain = 65mg Therefore Vgr = 325mg</td>
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<td>keep open rate</td>
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<td>kidneys, ureters, bladder</td>
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<td>left axis deviation or left anterior descending</td>
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<td>LAHB</td>
<td>left anterior hemiblock</td>
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<td>last menstrual period</td>
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<td>loss of consciousness or level of consciousness</td>
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<td>left ventricular end diastolic pressure</td>
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<td>left ventricular hypertrophy</td>
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<td>mean arterial pressure</td>
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<td>medical antishock trousers</td>
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<td>maternal blood type</td>
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<td>MCH</td>
<td>mean cell hemoglobin</td>
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<td>mean cell hemoglobin concentration</td>
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<td>MCV</td>
<td>mean cell volume</td>
<td>MI</td>
<td>myocardial infarction or mitral insufficiency</td>
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<td>milliliter</td>
<td>MLE</td>
<td>midline episiotomy</td>
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<td>MMEF</td>
<td>maximal mid expiratory flow</td>
<td>mmol</td>
<td>millimole</td>
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<tr>
<td>MMR</td>
<td>measles, mumps, rubella</td>
<td>MRI</td>
<td>magnetic resonance imaging</td>
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<tr>
<td>MRSA</td>
<td>methicillin resistant staph aureus</td>
<td>MS</td>
<td>multiple sclerosis or mitral stenosis, or morphine sulfate</td>
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<tr>
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<td>methicillin-sensitive staph aureus</td>
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<td>motor vehicle accident</td>
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<td>multivitamin injection</td>
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<td>maximum voluntary ventilation</td>
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<td>no active disease</td>
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<td>no added salt</td>
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<td>no known allergies</td>
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<tr>
<td>NKDA</td>
<td>no known drug allergies</td>
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<td>nuclear magnetic resonance</td>
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<td>Full Form</td>
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<tr>
<td>NPO</td>
<td>nothing by mouth</td>
<td>NRM</td>
<td>no regular medications</td>
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<td>NSAID</td>
<td>non-steroidal anti-inflammatory drugs</td>
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<td>normal sinus rhythm</td>
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<td>otitis media</td>
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<td>OU</td>
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<td>pulmonary artery pressure</td>
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<td>P&amp;PD</td>
<td>percussion and postural drainage</td>
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<td>pulmonary capillary wedge pressure</td>
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<td>physicians desk reference</td>
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<td>pulmonary embolus, or physical exam or pleural effusion</td>
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<td>pulmonary function tests</td>
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<td>pulmonic insufficiency disease</td>
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<td>PP</td>
<td>postprandial or pulsus paradoxus</td>
<td>PPD</td>
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<td>by rectum</td>
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<td>packed red blood cells</td>
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<td>as needed</td>
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<td>prothrombin time, or physical therapy</td>
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<td>patient</td>
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<td>every day</td>
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<td>qh</td>
<td>every hour</td>
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<tr>
<td>q4h, q6h...</td>
<td>every 4 hours, every 6 hours etc.</td>
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<td>four times a day</td>
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<td>qod</td>
<td>every other day</td>
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<td>right atrial axis deviation</td>
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<td>right atrial enlargement</td>
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<td>right upper lobe</td>
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<tr>
<td>RUQ</td>
<td>right upper quadrant</td>
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<tr>
<td>RV</td>
<td>residual volume</td>
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<tr>
<td>RVH</td>
<td>right ventricular hypertrophy</td>
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<tr>
<td>Rx</td>
<td>treatment</td>
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<tr>
<td>RTA</td>
<td>renal tubular acidosis</td>
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<tr>
<td>s</td>
<td>without</td>
<td>ss = one-half</td>
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<tr>
<td>SA</td>
<td>sinoatrial</td>
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<tr>
<td>SAA</td>
<td>synthetic amino acid</td>
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<tr>
<td>S&amp;E</td>
<td>sugar and acetone</td>
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<tr>
<td>SBE</td>
<td>subacute bacterial endocarditis</td>
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<tr>
<td>SBFT</td>
<td>small bowel follow through</td>
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<tr>
<td>SBS</td>
<td>short bowel syndrome</td>
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<tr>
<td>Scr</td>
<td>serum creatinine</td>
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</tr>
<tr>
<td>SEM</td>
<td>systolic ejection murmur</td>
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<tr>
<td>SG</td>
<td>Swan-Ganz</td>
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<tr>
<td>SGA</td>
<td>small for gestational age</td>
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<tr>
<td>Abbreviation</td>
<td>Full Form</td>
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<tr>
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<tr>
<td>SGGT</td>
<td>serum gamma-glutamyl transpeptidase</td>
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<tr>
<td>SGOT</td>
<td>serum glutamic-oxaloacetic transaminase</td>
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<tr>
<td>SIADH</td>
<td>syndrome of inappropriate antidiuretic hormone</td>
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<tr>
<td>SIMV</td>
<td>synchronous intermittent mandatory ventilation</td>
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<tr>
<td>SLE</td>
<td>systemic lupus erythematosus</td>
<td></td>
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<tr>
<td>SOAP</td>
<td>subjective, Objective, Assessment, Plan</td>
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</tr>
<tr>
<td>SQ</td>
<td>subcutaneous</td>
<td></td>
<td></td>
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<tr>
<td>SVD</td>
<td>spontaneous vaginal delivery</td>
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<tr>
<td>T&amp;C</td>
<td>type and cross</td>
<td></td>
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<tr>
<td>T&amp;H</td>
<td>type and hold</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TBG</td>
<td>total binding globulin</td>
<td></td>
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</tr>
<tr>
<td>TIA</td>
<td>transient ischemic attack</td>
<td></td>
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<tr>
<td>tid</td>
<td>three times a day</td>
<td></td>
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<td>TKO</td>
<td>to keep open</td>
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<tr>
<td>TO</td>
<td>telephone order</td>
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<tr>
<td>TPN</td>
<td>total parenteral nutrition</td>
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<td>TT</td>
<td>thrombin time</td>
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<tr>
<td>TU</td>
<td>tuberculin units</td>
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</tr>
<tr>
<td>TURBT</td>
<td>TUR bladder tumors</td>
<td></td>
<td></td>
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<tr>
<td>TV</td>
<td>tidal volume</td>
<td></td>
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<tr>
<td>tw</td>
<td>twice a week</td>
<td></td>
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<tr>
<td>UA</td>
<td>urinalysis</td>
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<tr>
<td>ud</td>
<td>as directed</td>
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<tr>
<td>URI</td>
<td>upper respiratory infection</td>
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<tr>
<td>UTI</td>
<td>urinary tract infection</td>
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<tr>
<td>VC</td>
<td>vital capacity</td>
<td></td>
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<tr>
<td>Abbreviation</td>
<td>Description</td>
<td>Abbreviation</td>
<td>Description</td>
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<td>--------------</td>
<td>----------------------------------</td>
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<td>----------------------------------</td>
</tr>
<tr>
<td>VCUG</td>
<td>voiding cystourethrogram</td>
<td>VMA</td>
<td>vanillylmandelic acid</td>
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<tr>
<td>VO</td>
<td>verbal or voice order</td>
<td>V/Q</td>
<td>ventilation - perfusion</td>
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<tr>
<td>VSS</td>
<td>vital signs stable</td>
<td>WB</td>
<td>whole blood</td>
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<tr>
<td>WBC</td>
<td>white blood cell or count</td>
<td>WD</td>
<td>well developed</td>
</tr>
<tr>
<td>WF</td>
<td>white female</td>
<td>WM</td>
<td>white male</td>
</tr>
<tr>
<td>WN</td>
<td>well nourished</td>
<td>WNL</td>
<td>within normal limits</td>
</tr>
<tr>
<td>WPW</td>
<td>Wolf-Parkinson-White</td>
<td>XRT</td>
<td>X-ray therapy</td>
</tr>
<tr>
<td>yo</td>
<td>years old</td>
<td>ZE</td>
<td>Zollinger-Ellison</td>
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</table>
Respiratory System – (basic function)
Respiratory System (structure detail)

- Nasal cavity
- Nose hairs
- Epiglottis
- Larynx
- Trachea
- Right lung
- Bronchi
- Heart
- Pleural membrane
- Diaphragm
- Paranasal sinuses
- Respiratory center
- Pharynx
- Esophagus
- Left lung
- Pulmonary vessels
- Ribs
- Intercostal muscles
- Muscles attached to diaphragm
Circulatory System (Arteries and Veins)
Muscular System (front view)
Muscular System (side view)
Nervous System (basic)
Nervous System (groups of nerves)
Skeletal System (side view)

Skeletal System (skull)
Urinary System
Digestive System
Endocrine System
The Female Reproductive System

- Colon
- Fallopian tube
- Fimbria
- Ovary
- Uterus
- Cervix
- Bladder
- Urethra
- Vagina
- Clitoris