

Phlebotomy Technician



Version II

PHLEBOTOMY

INDEX

Module	Name of the Topic	Page No
	PHLEBOTOMY OVERVIEW	03
1	ANATOMY AND PHYSIOLOGY OF HUMAN BODY	05
2	INTRODUCTION TO PHLEBOTOMY	21
3	COMMON BLOOD COLLECTION TUBES	29
4	URINE SPECIMEN COLLECTION, PRESERVATION & TRANSPORT	31
5	DIFFERENT TYPES OF SPECIMEN COLLECTION, PREPARATION, AND HANDLING	33
6	GENERAL GUIDELINES FOR STORAGE	41
7	INTERPRETATION OF REQUISITION FORM	45
8	INFECTION CONTROL & SAFETY PRECAUTIONS	49
9	BIOMEDICAL WASTE MANAGEMENT	53
10	COMMUNICATION	57
11	RECORDS	59
12	ENSURE AVAILABILITY OF MEDICAL AND DIAGNOSTIC SUPPLIES	61
13	ACT WITHIN THE LIMITS OF ONE'S COMPETENCE AND AUTHORITY	67
14	WORK EFFECTIVELY WITH OTHERS	69
15	MANAGE WORK TO MEET REQUIREMENTS	73
16	MAINTENANCE A SAFE, HEALTHY, AND SECURE WORKING ENVIRONMENT	75
17	PRACTICE CODE OF CONDUCT WHILE PERFORMING DUTIES	79
18	MONITOR AND ASSURE QUALITY	81

Structure and function of human body



Different parts of body:

The human body is the entire structure of a human being and comprises a head, neck, trunk (which includes the thorax and abdomen), arms and hands, legs and feet.

Every part of the body is composed of various types of cell. At maturity, the estimated number of cells in the body is given as 37.2 trillion.

The study of the human body involves anatomy and physiology.

Anatomy is the study of the structure of animals and their parts.

Physiology focuses on the systems and their organs of the human body and their functions.

Composition of Human Body: Material and Chemical

Material:

- Muscle
- Fat
- Bone and teeth
- Brain and nerves
- Connective tissue
- Blood – 7% of body weight.
- Lymph
- Contents of digestive tract, including intestinal gas
- Urine
- Air in lungs.

Phlebotomy is the process of making an incision in a vein with a needle. The procedure itself is known as a venipuncture.

A person who performs phlebotomy is called a "phlebotomist".

Phlebotomist

Phlebotomists are people trained to draw blood from a patient for clinical or medical testing, transfusions, donations, or research. Phlebotomists collect blood primarily by performing venipunctures .

The duties of a phlebotomist

It may include properly

- Identifying the patient,
- Interpreting the tests requested on the requisition,
- Drawing blood into the correct tubes with the proper additives,
- Accurately explaining the procedure to the patients,
- Preparing patients accordingly,
- Practicing the required forms of asepsis,
- Practicing standard and universal precautions,
- Performing the skin/vein puncture, withdrawing blood into containers or tubes,
- Restoring hemostasis of the puncture site,
- Instructing patients on post-puncture care,
- Ordering tests per the doctor's requisition,
- Affixing tubes with electronically printed labels, and
- Delivering specimens to a laboratory.

Role of a Phlebotomy technician in Hospital

Phlebotomists fill a crucial role in the health-care system. These are communication, blood collection, safety, record keeping, housekeeping.

Communications

A phlebotomist must maintain a professional manner with other health professionals, and especially with patients, who often are afraid of having blood drawn. A phlebotomist should greet patients politely and show a friendly,

sympathetic attitude to help patients relax. She needs good communication skills to explain technical procedures in a way that lay people can understand.

Blood Collection

The phlebotomist collects blood samples and delivers them to the lab in accordance with the doctor's orders. Before taking a sample, the phlebotomist must identify the patient by full name and date of birth. He must check the information given against the work order and other identification, such as a hospital bracelet. Frequently, the blood is collected by puncturing a vein, so the phlebotomist must have knowledge of the circulatory system. However, some phlebotomists with advanced training also collect blood from arteries and begin intravenous lines.

Safety

Phlebotomists must take precautions when handling blood and needles to avoid injuries to themselves or patients and to prevent the spread of blood-borne illnesses. They follow sterile procedures, washing their hands frequently, using clean needles and wearing sterile gloves and a clean lab coat. They prepare the puncture site with a 70 percent alcohol wipe and cover the site with a sterile bandage after blood collection. They dispose of needles and other supplies safely. If a medical emergency arises, they must be prepared to give first aid.

Record Keeping

Phlebotomists help to keep patient and lab records current. They must label samples with the patient's complete name, birthdate and identification number and other information, such as the time and date of the collection. They are often also required to enter information about blood samples and tests into a digital data entry system.

Housekeeping

Phlebotomists are responsible for keeping their supplies and equipment in good condition. In some hospitals, for example, the phlebotomist must clean spills and splatters. She must keep supplies in stock and organize them for easy access. During her work hours, she is responsible for keeping the blood trays fully equipped and ready in case a doctor orders a draw of blood elsewhere at the hospital.



Tubes colors, additives and their indicative purposes in phlebotomy

1. Yellow-Topped Tubes

- The additive sodium polyanethol sulfonate (SPS) is for blood culture specimen collections in microbiology. Should be gently inverted in the vacuum tube 8 times for complete mixing of SPS with the blood.
- It should be noted that tubes containing ACD (acid citrate dextrose) also use the yellow color code. These tubes are mainly used to preserve blood for donation. Also, ACD is used for specialty blood banking, such as human leukocyte antigen (HLA)

typing and DNA testing. The yellow-topped tubes need to be gently inverted 8 times immediately after blood collection for additive/blood mixing.

2. Light Blue-Topped Tubes

- Many coagulation procedures, such as prothrombin time (PT) and activated partial thromboplastin time (PTT), are done on blood collected in light blue tubes which contain sodium citrate.
- Tubes must be filled, or coagulation results will be inaccurate, which could lead to the wrong treatment for the patient. Sodium citrate buffers coagulation factors, making it the best anticoagulant for

The Basics of Specimen Collection and Handling of Urine Testing

Urine has a long, rich history as a source for measuring health and well-being and remains an important tool for clinical diagnosis. The clinical information obtained from a urine specimen is influenced by the collection method, timing and handling.

Types of Collection

Laboratory urine specimens are classified by the type of collection conducted or by the collection procedure used to obtain the specimen.

Random Specimen This is the specimen most commonly sent to the laboratory for analysis, primarily because it is the easiest to obtain and is readily available. This specimen is usually submitted for urinalysis and microscopic analysis.



First Morning Specimen This is the specimen of choice for urinalysis and microscopic analysis, since the urine is generally more concentrated (due to the length of time the urine is allowed to remain in the bladder) and, therefore, contains relatively higher levels of cellular elements and analytes such as protein, if present. Also called an 8-hour specimen, the first morning specimen is collected when the patient first wakes up in the morning, having emptied the bladder before going to sleep.

Midstream Clean Catch Specimen This is the preferred type of specimen for culture and sensitivity testing because of the reduced incidence of cellular and microbial contamination. Patients are required to first cleanse the urethral area with a castile soap. The patient should then void the first portion of the urine stream into the toilet. The urine midstream is then collected into a clean container (any excess urine should be voided into the toilet). This method of collection can be conducted at any time of day or night.

Timed Collection Specimen Among the most commonly performed tests requiring timed specimens are those measuring creatinine, urine urea nitrogen, glucose, sodium, potassium, or analytes such as catecholamines and 17-hydroxysteroids that are affected by diurnal variations. A timed specimen is collected to measure the concentration of these substances in urine over a specified length of time, usually 8 or 24 hours. In this collection method, the bladder is emptied prior to beginning the timed collection.



Catheter Collection Specimen This assisted procedure is conducted when a patient is bedridden or cannot urinate independently. The healthcare provider inserts a foley catheter into the bladder through the urethra to collect the urine specimen. (Specimens may also be collected through an existing foley catheter.) Specimens may be collected directly from a foley into an evacuated tube or transferred from a syringe into a tube or cup.

Suprapubic Aspiration Specimen This method is used when a bedridden patient cannot be catheterized or a sterile specimen is required. The urine specimen is collected by needle aspiration through the abdominal wall into the bladder.

Pediatric Specimen For infants and small children, a special urine collection bag is adhered to the skin surrounding the urethral area. Once the collection is completed, the urine is poured into a collection cup or transferred directly into an evacuated tube with a transfer straw.

Specimen Collection and Transport Guidelines

As with any type of laboratory specimen, there are certain criteria that need to be met for proper collection and transportation of urine specimens.

- All urine collection and/or transport containers should be clean and free of particles or interfering substances.
- The collection and/or transport container should have a secure lid and be leak-resistant.

PROCEDURES

Objectives

- Specify most common specimen collection procedures
- Know the importance of various specimen collection for patient care and satisfaction
- Emphasize the importance of protecting yourself against exposure to bloodborne pathogens

Concepts of Specimen Collection

- Collect the specimen from the actual site of infection without contaminating adjacent tissues and secretions.
- Collect the specimen at the best time possible (e.g., early morning sputum for AFB culture)
- Collect ample amount of sample by using appropriate collection devices such as sterile, leak-proof specimen containers.
- Use appropriate transport media such as anaerobic transport vials, culturette for bacterial culture, and the like.
- Check expiration date before inoculating collection device.
- Collect specimens before administration of antimicrobial agents whenever possible.
- Label the specimen properly and fill out test request form completely.
- Lessen transport time and maintain an appropriate environment between collection of specimens and delivery to the laboratory.

1. Throat Swab Culture

A throat swab culture is a laboratory diagnostic test that evaluates for the presence of a bacterial or fungal infection in the throat. It is done to isolate and identify any pathogens, which may be medium. A sample of mucus and secretions from the back of the throat is collected on a cotton-tipped applicator and applied to a slide or a special cup that allows

infections to grow. These infections can include strep throat, pneumonia, tonsillitis, whooping cough, and meningitis.

Purpose

Throat swab culture is done to detect the presence of organisms in the throat that could cause infection. For instance, the presence of group A streptococcus bacteria in your throat is a key sign that you may have strep throat.

Supplies and Equipment

The supplies and equipment required to obtain a sample for throat culture are:

- Sterile cotton-tipped applicator specimen collection tip (culturette)
- Tongue depressor
- Laboratory request form
- Flashlight

Procedure

1. Always observe proper hand hygiene prior to the test.
2. Have the patient sit comfortably either on bed or chair while explaining the procedure.
3. Allow the patient to tilt his head back and ask him to say "Ahhh." Antiseptic mouthwash should be avoided before this test.
4. Make use of the flashlight to light up the back of the throat and check for presence of inflammation using the tongue depressor.
5. Swab the tonsillar areas from side to side and make sure to include any inflamed or purulent sites. The test may cause momentary gagging because the back of the throat is a sensitive area, but it should not be painful.
6. Refrain from touching the tongue, cheeks, or teeth with the applicator, due to possible contamination with oral bacteria.
7. Place the cotton-tipped applicator into the culture tube immediately.
8. Label the culture tube with the patient's name, SSN, and ward number if applicable.

Introduction

The quality of any laboratory test result is dependent on many variables. The patient must first be properly prepared so that the best possible specimen can be collected. Next, the actual collection of the specimen must be completed. Then, the specimen should be properly processed, packaged and transported to the laboratory in a timely manner and under environmental conditions that will not compromise the integrity of the specimen. After all of these activities take place, a quality analysis can be performed.

Specimen requirements include information such as

- specimen volume,
- collection
- transport containers
- transport temperature.

Health And Safety Precautions

Use universal precautions when handling specimens containing blood or other potentially infectious material. Work areas contaminated with blood or serum must be disinfected immediately with 10% bleach (hypochlorite at 0.5% final concentration) or other approved disinfectant. In the event of an exposure, administer first aid immediately, notify your manager or supervisor and seek prompt medical attention. First aid includes washing cuts and needle sticks with soap and water; flushing splashes to the nose, mouth, or skin with copious amounts of water; and irrigating eyes with clean water, saline, or sterile irrigants.

Patient Preparation

Many tests require that the patient be prepared in some specific way to ensure useful results. The best analytical techniques provide results that are only as meaningful as the quality of the specimen that has been submitted for analysis.

Fasting Requirements

For the majority of tests performed on serum, plasma or whole blood, a fasting specimen is preferred. Non-fasting specimens often contain fat particles that can interfere with many analytical procedures. Fasting is defined as no consumption of food or beverage, other than water, for 9 to 12 hours before testing.

Patient Age

It is helpful to indicate patient age and blood type so that appropriate reference ranges can be assigned for reporting purposes. On occasion, patient age will assist the technologists in choosing the appropriate initial sample dilution for the assay.

Pediatric Specimens

Pediatric color-coded Vacutainer tubes are provided to facilitate special handling. Special small conical tubes with screw caps are provided to prevent evaporation of small volume samples. These tubes will hold up to 1.5 mL of specimen.

For pediatric specimen tubes, wrap the label around the tube just below the screw cap so the ends of the label adhere to each other and the information stipulated above can be read.

Bright orange, self-adhesive “Pediatric Sample” labels are provided. Please place one of these labels in a blank area of the Test Request Form. The Test Request Form, properly filled out and labeled, should be folded and inserted in the pediatric specimen bag.

Provocation Tests

Some tests require the patient to ingest a substance. The most common are the Glucose Tolerance Tests where the patient drinks a solution containing glucose, and blood specimens are obtained before and at various times after the drink, to measure the concentration of glucose in plasma or serum. In the standard Glucose Tolerance Tests, adults ingest 75 g (10 ounces) of a glucose solution (Glucola™). Children ingest an amount of glucose proportional to their body weight (1.75 grams of glucose per kilogram of body weight, up to 75 g of glucose).

Proper Identification Of Specimens

Specimen Labels

All specimens should be labeled at the time of collection with at least two patient identifiers.

1. The patient’s name (full last name, then full first name or initial) or a unique ID code is always required.
2. The second patient identifier may be one of the following:
 - Date of birth (month/date/year)

INTRODUCTION

- Hospitals and Clinical laboratory testing comprises of three phases, the preanalytical, analytical and post-analytical phase.
- Errors occurs mostly in the analytical phase, however advances in information technology, instrumentation, analytical techniques adopted and focus on quality control methods has leads to drastic reduction of the analytical errors in past decades.
- Contribution of errors occurring in the preanalytical and post-analytical phase is high. Pre-analytical phase which includes completion of patient’s and laboratory requisition form, drawing of sample, sample handling and transportation of sample to laboratory itself contributes to 68.2 % of errors.
- Among the various causes of pre-analytical errors, a major contributor is incomplete filling of the patient’s and laboratory requisition forms accounting to 43%.
- Incomplete information on the requisition forms sometimes makes interpretation of results complex and delays the communication with the clinician.
- The problem is further compounded have to be dispatched without delay. Most of the studies have focused on the other aspects of pre-analytical errors and the emphasis on adequate filling of requisition forms is less.

PATIENT’S REQUISITION FORM:

- Requisition form has requested tests suggested by the doctor and will be sent along with the specimen/patient to the laboratory.
- Requisition form should contain patient's identity, age, location, date of specimen collection and the investigations requested (ANNEXURE 1).
- The referred doctor should be encouraged to mention the provisional or working diagnosis with relevant clinical and treatment history in the space provided.

Name: Name having first and last name both must be included in the requisition form.

Age: Age must be written with units like years/months/days. If unit was d in patients with life threatening medical conditions in which the critical results found not written.

Gender: Gender must be mentioned in clear either as male/ female. If it is OPD, OPD No: should be mentioned in the form.

Legible handwriting: Patient’s requisition form or lab requisition form must be written which is easily readable to analyst without any extra effort.

Patient’s information can be stored through electronic and it can be considered as **Electronic health record (EHR)**, or **electronic medical record (EMR)**. **Electronic health record (EHR)**, or **electronic medical record (EMR)** is a record that is having a systematized collection of patient and population electronically-stored health information in a digital format. These records can be shared across different health care settings. Records are shared through network-connected, enterprise-wide information systems or other information networks and exchanges. EHRs may include a range of data, including demographics, medical history, medication and allergies, immunization status, laboratory test results, radiology images, vital signs, personal statistics like age and weight, and billing information.

EHR systems are designed to store data accurately and to capture the state of a patient across time. It eliminates the need to track down a patient's previous paper medical records and assists in ensuring data is accurate and legible. It can reduce risk of data replication as there is only one modifiable file, which means the file is more likely up to date, and decreases risk of lost paperwork. Due to the digital information being searchable and in a single file, EMRs are more effective when extracting medical data for the examination of possible trends and long term changes in a patient. Population-based studies of medical records may also be facilitated by the widespread adoption of EHRs and EMRs.

The terms EHR, electronic patient record (EPR) and EMR have often been used interchangeably, although differences between the models are now being defined. The electronic health record (EHR) is a more longitudinal collection of the electronic health information of individual patients or populations. The EMR, in contrast, is the patient record created by providers for specific encounters in hospitals and ambulatory environments, and which can serve as a data source for an EHR.

Clinical notes: Clinical notes were found written must be taken as previous history of the patient and must be noted. If any previous diagnosis of patient was written must be noted which may be helpful to clinician as additional information for proper diagnosis.

Infection control:

Pathogens (agents that cause disease, like bacteria, viruses, or fungi) that invade the body can cause infection. Infectious disease is the second most common cause of death in dialysis patients. The most common pathogens normally live on the skin and on mucous membranes (e.g., the lining of the nose, mouth, and bowels). Others are found in the soil, in water, on clothing, and on all surfaces.

Some pathogens cause more severe disease than others, and some are more communicable (easy to spread) than others. Nosocomial infections are picked up in a hospital or other healthcare setting. Your goal is to prevent infections in your centre for patients and staff.

Communicable disease can be spread in several ways:

1. **Direct contact:** touching an infected person, such as shaking hands or kissing
2. **Indirect contact:** touching contaminated objects such as clothing, towels, cups, water faucets, telephones, doorknobs, and equipment
3. **Droplet spread:** breathing in sneezed or coughed droplets from the nose, mouth, throat, or lungs of an infected person

Infection can also occur when contaminated fluids enter the body, such as through a needle stick. A bite by an insect or animal can cause disease. Some diseases are caused by breathing in airborne fungi, bacteria, or viruses in dust or lint. In a dialysis centre, pathogens can be spread by patients, staff, visitors, equipment, water, dialysate, and air.

Aseptic Technique

Aseptic (free from infection) technique is used to keep an object or area sterile (free from all germs). Other terms that relate to aseptic technique are:

- **Clean:** not free of germs, but disinfected and usable for some steps in the treatment
- **Contaminated:** an object that was sterile, but then was touched by a non-sterile object (germs could now be on the object)
- **Dirty:** neither clean nor sterile; cannot be used for dialysis steps that require an object to be clean or sterile

Learn aseptic technique, understand it, watch closely, and practice it with supervision.

Guidelines for Aseptic Technique

- *Prepackaged sterile items are sterile only if the package is closed and intact. Open sterile solutions or supplies only when you need them. Once open, they are exposed to airborne pathogens.*
- *Wash your hands before you touch a package that contains a sterile item. This will help keep you from getting germs on the item. Package that contains sterile items should not be allowed to get wet – moisture allows pathogens to pass through the wrapper and contaminated the object.*
- *A contaminated object contaminated a sterile object. For example, when you spike a bag of saline, take care to insert the spike directly into the port. If the spike touches the outside of the bag or any other unsterile object, it becomes contaminated itself, and you cannot use it.*
- *Before you use a multi dose vial, scrub the rubber stopper with disinfectant. Mark the vial with the date and time of first use.*
- *All fistula needles, syringe tips, and needles used to give medications or draw blood must be sterile, because they enter the bloodlines or the patient's body. When you start a treatment, do not touch the fistula needle or ends of the bloodlines to the patient or dialyzer. When you attach a heparin syringe to the heparin line, do not touch the syringe tip or the end of the heparin line.*

Hand washing

Washing your hands correctly is the single most important thing you can do to prevent the spread of infection. It protects you as well as the patient. The goal is to remove pathogens that might be transferred to patients, visitors, or other staff. Research shows that hand washing can reduce infection rates, stop an outbreak of disease, and reduce the spread of drug-resistant bacteria.

If your hands are not visibly dirty, you can use an alcohol-based hand rub. Apply the product to the palm of one hand and rub your hands together to cover all surfaces until your hands are dry. Always wash your hands with either soap or

INTRODUCTION

Definition

According to Biomedical Waste (Management and Handling) Rules, 1998 of India

“Any waste which is generated during the diagnosis, treatment or immunization of human beings or animals or in research activities pertaining thereto or in the production or testing of biologicals.

Classification of Bio-Medical Waste

The World Health Organization (WHO) has classified medical waste into eight categories:

- General Waste
- Pathological
- General Waste
- Pathological
- Radioactive
- Chemical
- Infectious to potentially infectious waste
- Sharps
- Pharmaceuticals
- Pressurized containers

Sources of Biomedical Waste

Hospitals produce waste, which is increasing over the years in its amount and type. The hospital waste, in addition to the risk for patients and personnel who handle them also poses a threat to public health and environment.

Major Sources

- Govt. hospitals/private hospitals/nursing homes/dispensaries.
- Primary health centers.
- Medical colleges and research centers/ paramedic services.
- Veterinary colleges and animal research centers.
- Blood banks/mortuaries/autopsy centers.
- Biotechnology institutions.

- Production units.

Minor Sources

- Physicians/ dentists' clinics
- Animal houses/slaughter houses.
- Blood donation camps.
- Vaccination centers.
- Acupuncturists/psychiatric clinics/cosmetic piercing.
- Funeral services.
- Institutions for disabled persons

Biomedical Waste Management Process

- Waste collection
- Segregation
- Transportation and storage
- Treatment & Disposal
- Transport to final disposal site
- Final disposal

COMMUNICATION

Definition

Communication may be defined as a process concerning exchange of facts or ideas between persons holding different positions in an organisation to achieve mutual harmony. The communication process is dynamic in nature rather than a static phenomenon.

Communication process as such must be considered a continuous and dynamic inter-action, both affecting and being affected by many variables.

Elements of Communication

Seven major elements of communication process are: (1) sender (2) ideas (3) encoding (4) communication channel (5) receiver (6) decoding and (7) feedback.

(1) Sender:

The person who intends to convey the message with the intention of passing information and ideas to others is known as sender or communicator.

(2) Ideas:

This is the subject matter of the communication. This may be an opinion, attitude, feelings, views, orders, or suggestions.

(3) Encoding:

Since the subject matter of communication is theoretical and intangible, its further passing requires use of certain symbols such as words, actions or pictures etc. Conversion of subject matter into these symbols is the process of encoding.

(4) Communication Channel:

The person who is interested in communicating has to choose the channel for sending the required information, ideas etc. This information is transmitted to the receiver through certain channels which may be either formal or informal.

(5) Receiver:

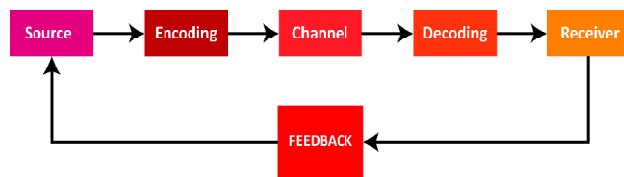
Receiver is the person who receives the message or for whom the message is meant for. It is the receiver who tries to understand the message in the best possible manner in achieving the desired objectives.

(6) Decoding:

The person who receives the message or symbol from the communicator tries to convert the same in such a way so that he may extract its meaning to his complete understanding.

(7) Feedback:

Feedback is the process of ensuring that the receiver has received the message and understood in the same sense as sender meant it.



Types of Communication

There are three basic types of communication: verbal, non-verbal, and written.

Verbal Communication

Verbal or oral communication uses spoken words to communicate a message. When most people think of verbal communication, they think of speaking, but listening is an equally important skill for this type of communication to be successful. Verbal communication is applicable to a wide range of situations, ranging from informal office discussions to public speeches made to thousands of people.

Non-Verbal Communication

Non-verbal communication includes body language, gestures, facial expressions, and even posture. Non-verbal communication sets the tone of a conversation, and can seriously undermine the message contained in your words if you are not careful to control it. For example, slouching and shrinking back in your chair during a business meeting can make you seem under-confident, which may lead people to doubt the strength of your verbal contributions.

Written Communication

Written communication is essential for communicating complicated information, such as statistics or other data, that could not be easily communicated through speech alone. Written communication also allows information to be recorded so that it can be referred to at a later date.

Medical inventory

Definition

A medical equipment inventory provides a technical assessment of the technology on hand, giving details of the type and quantity of equipment and the current operating status.

The inventory provides the basis for effective asset management, including facilitating scheduling of preventive maintenance and tracking of maintenance, repairs, alerts and recalls

Accurate and current stock records are essential to good inventory management.

They are the source of information used to calculate needs, and inaccurate records produce inaccurate needs estimations (and problems with stock outs and expiry).

Each inventory system should monitor performance with indicators and produce regular reports on inventory and order status, operating costs, and consumption patterns.

Inventory Model

The ideal inventory model is the optimal stock movement pattern, in which inventory levels are as low as possible (without risking stock outs) and optimized, consumption patterns are consistent, and suppliers always deliver on time - but this model is rarely achieved in practice. The three common inventory models used in medical supply systems are defined by how often regular orders are placed with suppliers -

- Annual purchasing (one regular order per year)
- Scheduled purchasing (periodic orders at set times during the year)
- Perpetual purchasing

THE MANAGEMENT AND CONTROL OF INVENTORIES INCORPORATES CERTAIN CONCEPTS AND TECHNIQUES AS FOLLOWS

- Tools
- Safety and performance standards
- Ordering cost

Tools used in stock management

The primary reason for holding stock in a medical system is to ensure availability of essential items almost all the time.

The selection of items to stock should be based on their value to public health and on the regularity and volume of consumption.

ABC Analysis

This analysis categorizes items based on their annual consumption value, sometimes Inventory Managers can use Pareto's Principle for classification.

Pareto's Principle classifies the important items in a certain group that usually constitute a small portion of the total items in the group. The majority of the items, as a whole, will seem to be of minor significance.

Here is how ABC Analysis looks like:

- CLASS A: 10% of total inventories contributing towards 70% of total consumption value.
- CLASS B: 20% of total inventories, which account for about 20% of total consumption value.
- CLASS C: 70% of total inventories, which account for only 10% of total consumption value.
- Although ABC analyses are often based on the value of the medicines, for inventory management, ABC analyses based on order frequency and volume are also important.

The ABC approach states that, when reviewing inventory, a company should rate items from A to C, basing its ratings on the following rules:

- A-items are goods which annual consumption value is the highest. The top 70-80% of the annual consumption value of the company typically accounts for only 10-20% of total inventory items.
- C-items are, on the contrary, items with the lowest consumption value. The lower 5% of the annual consumption value typically accounts for 50% of total inventory items.
- B-items are the interclass items, with a medium consumption value. Those 15-25% of annual consumption value typically accounts for 30% of total inventory items.

ACT WITHIN THE LIMITS OF ONE'S COMPETENCE AND AUTHORITY

Phlebotomist Roles and Responsibilities:

Phlebotomy (from the Greek words phlebo-, meaning "pertaining to a blood vessel", and -tomia, meaning "cutting off") is the process of making an incision in a vein with a needle. The procedure itself is known as a venipuncture. A person who performs phlebotomy is called a "phlebotomist",

ROLES AND RESPONSIBILITIES:

- 1) Dispose of contaminated sharps, in accordance with applicable laws, standards, and policies.
- 2) Document route of specimens from collection to laboratory analysis and diagnosis.
- 3) Draw blood from arteries, using arterial collection techniques.
- 4) Collect fluid or tissue samples, using appropriate collection procedures.
- 5) Dispose of blood or other biohazard fluids or tissue, in accordance with applicable laws, standards, or policies.
- 6) Draw blood from capillaries by dermal puncture, such as heel or finger stick methods.
- 7) Draw blood from veins by vacuum tube, syringe, or butterfly venipuncture methods.
- 8) Explain fluid or tissue collection procedures to patients.
- 9) Match laboratory requisition forms to specimen tubes.
- 10) Organize or clean blood-drawing trays, ensuring that all instruments are sterile and all needles, syringes, or related items are of first-time use.
- 11) Conduct standards tests, such as blood alcohol, blood culture, oral glucose tolerance, glucose screening, blood smears or peak and trough drug levels tests
- 12) Enter patient, specimen, insurance, or billing information into computer.
- 13) Perform saline flushes or dispense anticoagulant drugs, such as Heparin, through intravenous (IV) lines, in accordance with licensing restrictions and under the direction of a doctor.

- 14) Process blood or other fluid samples for further analysis by other medical professionals.
- 15) Provide sample analysis results to physicians to assist diagnosis.
- 16) Train other medical personnel in phlebotomy
- 17) Transport specimens or fluid samples from collection sites to laboratories.

RECORDS

Definition

A "record" is defined as any "document, book, paper, photograph, map, sound recording or other material, regardless of physical form or characteristics, made or received pursuant to law or in connection with the transaction of official business".

Different ways to maintain records

There are nine characteristics of a record that need to be safeguarded for the records you have identified to show that your environmental management system is working:

Identification – Have you identified where you need records, both for the mandatory records and all others you need? How do the people using the processes know a record is needed? If you have a target to reduce waste, then you will need to maintain records of waste disposal in order to track this.

Storage – How will you store the records? How will you ensure no damage is done to the records, either as a paper copy or electronic? If you are keeping paper records, store in a location where they will not be damaged by water or mold; if the records are electronic, properly back up the records so that they are not permanently lost due to a computer problem.

Protection – How are the records protected not only against damage, but also against unintended use? Who has access to records, and who does not? For instance, records that are sensitive should be kept on a controlled access computer drive so that they can only be seen by those with the proper approval.

Retrieval – When you need to look at a record that is in storage, how do you access it? Are the records freely accessible, or is there a record keeper who needs to grant permission? How quickly do you need to find a record if it is needed, and can you retrieve it in this time?

WORK EFFECTIVELY WITH OTHERS

The Laboratory department is a busy environment where lives are at risk and:

- the needs of individual patients must be met
- patient flow must be maintained
- adequate supervision of junior staff must be provided
- consultants must be communicated with
- the phone must be answered
- as well as numerous other tasks that must be performed!

KEY STEPS TO MANAGING A BUSY LABORATORY DEPARTMENT

1. manage risk in a defensible fashion and avoid solving non-Laboratory problems
2. communicate with patients
3. communicate other LD and non-LD staff
4. deal with admitting teams in a professional manner
5. constantly monitor departmental flow
6. manage your time
7. streamline the management of uncomplac LD patients
8. be an administrator and a delegator
9. be a space administrator
10. be cognizant of the LD philosophy

COMMUNICATE WITH PATIENTS



Develop a good rapport

- Be professional, be friendly, be interested, shake hands, use people's names and involve the whole family.
- This is good manners, helps with the 'healing process' and means you're less likely to get sued.
- Apologize when appropriate.
- Make sure you know who the patient is if the cubicle is crowded with family!

Get interpreters early

- Anticipate the need for interpreters
- Do what you can without them but don't waste time.

Focused exploration of the presenting complaint

- Aim to solve problems, use a focused history to get the information you need to know.

Make multiple short visits to the patient's bedside

- This is very important – it helps patient's take in and accept information, strengthens the patient-doctor relationship and keeps the patient up-to-date with progress.

Anticipate the outcome and communicate expectations to patients early

- patients get frustrated with the uncertainty of not knowing what they might have and not knowing when or whether they will be able to go home from the LD.
- Give the patient a time frame (always slightly over-estimate) for when investigations will occur and when decision nodes will arise, and what the possible outcomes will be.
- Anticipate these outcomes by lining up other services in advance, e.g. social work, 'settling in' services, etc.

Don't delay uncomfortable decisions

- If its inevitable, deal with it now!

MANAGE WORK TO MEET REQUIREMENTS

This can be achieved by proper time management proper recording of the data, act with in the limit,

Utilize time effectively

- Time Management refers to managing time effectively so that the right time is allocated to the right activity.
- Effective time management allows individuals to assign specific time slots to activities as per their importance.
- Time Management refers to making the best use of time as time is always limited.
- Ask yourself which activity is more important and how much time should be allocated to the same? Know which work should be done earlier and which can be done a little later.
- Time Management plays a very important role not only in organizations but also in our personal lives.

Time Management includes:

- Effective Planning
- Setting goals and objectives
- Setting deadlines
- Delegation of responsibilities
- Prioritizing activities as per their importance
- Spending the right time on the right activity

Effective Planning

Plan your day well in advance. Prepare a To Do List or a "TASK PLAN". Jot down the important activities that need to be done in a single day against the time that should be allocated to each activity. High Priority work should come on top followed by those which do not need much of your importance at the moment. Complete pending tasks one by one. Do not begin fresh work unless you have finished your previous task. Tick the ones you have already completed. Ensure you finish the tasks within the stipulated time frame.



Setting Goals and Objectives

Working without goals and targets in an organization would be similar to a situation where the captain of the ship loses his way in the sea. Yes, you would be lost. Set targets for yourself and make sure they are realistic ones and achievable.

Setting Deadlines

Set deadlines for yourself and strive hard to complete tasks ahead of the deadlines. Do not wait for your superiors to ask you everytime. Learn to take ownership of work. One person who can best set the deadlines is you yourself. Ask yourself how much time needs to be devoted to a particular task and for how many days. Use a planner to mark the important dates against the set deadlines.

Delegation of Responsibilities

Learn to say "NO" at workplace. Don't do everything on your own. There are other people as well. One should not accept something which he knows is difficult for him. The roles and responsibilities must be delegated as per interest and specialization of employees for them to finish tasks within deadlines. A person who does not have knowledge about something needs more time than someone who knows the work well.

Prioritizing Tasks

Prioritize the tasks as per their importance and urgency. Know the difference between important and urgent work. Identify which tasks should be done within a day, which all should be done within a month and so on. Tasks which are most important should be done earlier.

Spending the right time on right activity

Develop the habit of doing the right thing at the right time. Work done at the wrong time is not of much use. Don't waste a complete day on something which can be done in an hour or so. Also keep some time separate for your personal calls or checking updates on Facebook or Twitter. After all human being is not a machine.

For Effective Time Management one needs to be:

Organized - Avoid keeping stacks of file and heaps of paper at your workstation. Throw what all you don't need. Put important documents in folders. Keep the files in their respective drawers with labels on top of each file. It saves time which goes on unnecessary searching.

Don't misuse time - Do not kill time by loitering or gossiping around. Concentrate on your work and finish assignments on time. Remember your organization is not paying you for playing games on computer or peeping into other's cubicles.

MAINTENANCE OF A SAFE, HEALTHY, AND SECURE WORKING ENVIRONMENT

Hazard

A hazard is a situation that poses a level of threat to life, health, property, or environment. Hazards can be dormant or potential, with only a theoretical risk of harm.

Occupational Hazard

A risk accepted as a consequence of a particular occupation.

Occupational Hazards

Depending upon the occupation an industrial worker may be exposed to five types of hazards:-

- A. Physical Hazards
- B. Chemical Hazards
- C. Biological Hazards
- D. Mechanical Hazards
- E. Psychosocial Hazards

TYPES OF OCCUPATIONAL HAZARDS

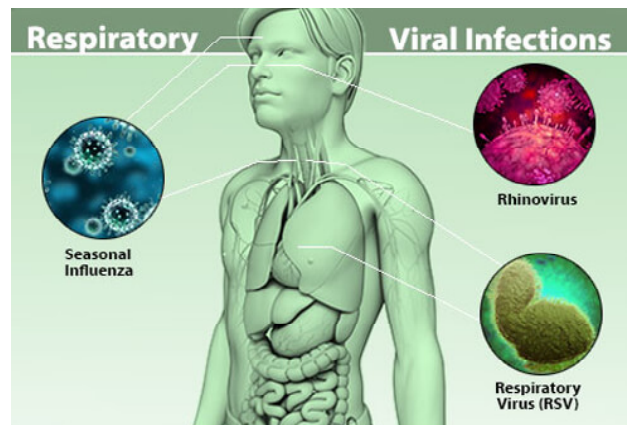
- Infections
- Slips/Falls
- N S I
- Latex Allergy
- B M W
- Chemical Exposure
- Repetitive Strain Injury
- Stress
- Fire Hazard
- Hazardous Spill
- Radiation
- Work Place Violence

Measures To Avoid Occupational hazards

Infections

- Hand wash a must
- Cover cuts with bandages and wear gloves for added protection (cuts are very vulnerable to infections).
- Artificial nails and chipped nail polish have been associated with an increase in the number of bacteria on the fingernails. Be sure to clean the nails properly

- Keep your hands away from your eyes, nose or mouth.
- Assume that contact with any human body fluids is infectious
- Use the Liquid soap in disposable containers . If using reusable containers, they should be washed and dried before refilling.



Slips/Falls

- Well Illuminated Floors, platforms, and walkways reasonably free of oil, grease, or water.
- Anti Skid Mats, Grates, or other methods that provide equivalent protection to be used on slippery surfaces.
- Slip-resistant floor coatings to be used in areas that are likely to get wet or subject to frequent spills.
- Guardrails on all open sides of unenclosed elevated locations.

IMPACT OF SLIPS, TRIPS & FALLS



Needle Stick Injury/Sharps Injury

- Do not recap needles
- Place a sharps disposal container close to the procedure area.

PRACTICE CODE OF CONDUCT WHILE PERFORMING DUTIES

1. Be accountable

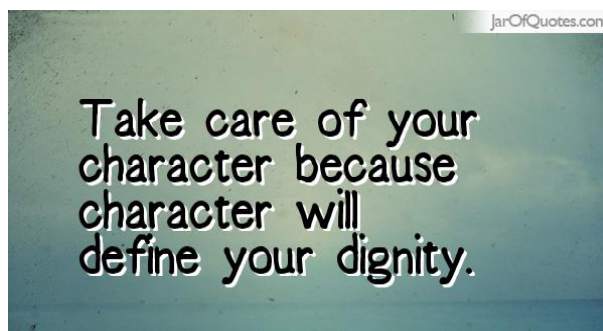
1. be honest with yourself and others about what you can do, recognize your abilities and the limitations of your competence and only carry out or delegate those tasks agreed in your job description and for which you are competent.
2. always behave and present yourself in a way that does not call into question your suitability to work



3. be able to justify and be accountable for your actions or your omissions – what you fail to do.
4. always ask your supervisor or employer for guidance if you do not feel able or adequately prepared to carry out any aspect of your work, or if you are unsure how to effectively deliver a task.
5. tell your supervisor or employer about any issues that might affect your ability to do your job competently and safely. If you do not feel competent to carry out an activity, you must report this.
6. establish and maintain clear and appropriate professional boundaries in your relationships with people who use health and care services, carers and colleagues at all times.
7. never accept any offers of loans, gifts, benefits or hospitality from anyone you are supporting or anyone close to them which may be seen to compromise your position.
8. comply with your employers' agreed ways of working.

9. report any actions or omissions by yourself or colleagues that you feel may compromise the safety or care of people who use health and care services and, if necessary use whistleblowing procedures to report any suspected wrongdoing

2. Promote and uphold the privacy, dignity, rights, health and wellbeing of people who use health and care services and their careers at all times



1. always act in the best interests of people who use health and care services.
2. always treat people with respect and compassion.
3. put the needs, goals and aspirations of people who use health and care services first, helping them to be in control and to choose the healthcare, care and support they receive.
4. promote people's independence and ability to self-care, assisting those who use health and care services to exercise their rights and make informed choices.
5. always gain valid consent before providing healthcare, care and support. You must also respect a person's right to refuse to receive healthcare, care and support if they are capable of doing so.
6. always maintain the privacy and dignity of people who use health and care services, their carers and others.
7. be alert to any changes that could affect a person's needs or progress and report your observations in line with your employer's agreed ways of working.
8. always make sure that your actions or omissions do not harm an individual's health or wellbeing. Never abuse, neglect, harm or exploit those who use health and care services, their carers or your colleagues.
9. challenge and report dangerous, abusive, discriminatory or exploitative behaviour or practice.

MONITOR AND ASSURE QUALITY

Quality:

Quality is defined as the extent of resemblance between the purpose of health care and the truly granted care.

Safety:

Safety is the condition of being protected from or unlikely to cause danger, risk, or injury.

JCI Recommendations:

JCI:



- A division of the joint commission
- Mission is to improve the quality of health care
- Accreditation is a voluntary process in which an agency assess a health care organization to improve quality of care
- Provides a visible commitment towards improving quality of patient care ensuring a safe environment and reducing risk to staff

Access to care & continuity of care:

- 5 focus areas:
 - Admission into the organization
 - Continuity of care
 - Discharge, referral, follow up

- Transfer of patients
- Transportation
- Reduction of barriers to care (Language, cultural, religious, physical)
- Discharge & transfer process
- Continuity of care
- Safety during transportation
- Informing patients regarding proposed care, expected outcomes and expected costs
- On pass policy
- Color coding in triage:
 - **Red: Most urgent**
 - **Yellow: Urgent**
 - **Green: Non urgent**
 - **Black: Dead**

Triage category	Priority	Color	Conditions
Immediate	1	RED	Chest wounds, shock, open fractures, 2-3 burns
Delayed	2	YELLOW	Stable abdominal wound, eye and CNS injuries
Minimal	3	GREEN	Minor burns, minor fractures, minor bleeding
Expectant	4	BLACK	Unresponsive, high spinal cord injury

- Discharge planning form:
 - D/C planning is done at the time of admission so that a patient’s needs even after discharge can be planned well ahead in time
 - This improves quality of patient care and decreases readmissions due to lack of availability of vital equipment at home, after discharge

