CHAPTER

1

General Aspects of History Taking

The health history is a systematic account of events related to the patient's current status. It includes all the information such as social, cultural, familial and economic factors; and other factors that affect health and well-being. It serves as a basis for developing a medical diagnosis and treatment plans. The health history aids both health care professionals and individuals by providing essential information which in turn, helps in diagnosis, treatment-related decisions and also in making a mutual relationship between layman and health care professional. This also gives us individual base line, what is normal and what is expected from that individual.

Every person should have a proper health history record as a part of periodic physical examination preferably. In adults, it should be done at least once in a year.

HEALTH HISTORY

The clinical interview is the most prominent way of obtaining a health history. If a person can communicate, then clinical interview is best means of obtaining information.

The information in the health history may be obtained from person's previous records. The depth and length of history taking process is influenced by numerous factors such as purpose of the visit, urgency of the complaint, willingness on the part of person or patient and the environment in which the information exists or available.

The health history can be organized in different ways. Identify basic demographic data that includes the following:

- Name
- Age
- Gender
- Date of birth
- Occupation
- Source of referral

Once we have gathered the basic data, the history is taken to correlate with the reason for the present visit or the chief complaints experienced by a patient. The full picture of chief complaints is called history of present illness.

The purpose of recording health history is to provide a data for assessing the care of the patient. It includes description of patient's symptoms and how they are developed. A complete history helps us identify the potential or underlying illness or disease state.

Purpose of Health History

The purpose of obtaining health history is to collect subjective data from the patient or his family so that health care team and the patient mutually create a plan that will help in promoting health and include acute health problems and minimize chronic health conditions.

Health history is a precious component in the health care system. It is of utmost importance because it is helpful in the diagnosis and treatment of a patient.

Basically, health history deals with collecting the desired information about health and correlating it with the family health history. It is a collection of **subjective data** from the patient or in other words, it is one of the types of interview technique where we collect subjective data of the patient for our interpretation. But this interview should follow the response and the mood of the patient and accordingly the interviewer can ask the question to get the desired results.

This data may be subjective or objective in nature. **Objective data** is information that health care personals collect during physical examination.

Subjective Data

Subjective data is information that health care professional receives directly from the patient and in this, patient's point of view (symptoms, feelings and concerns) is obtained through interview. In case, patient is unable to give the required information himself/herself, the data is collected from his/her knowledgeable companions.

Examples of subjective data findings:

- Pain
- Shortness of breath
- Dizziness
- Exhaustion
- Itching
- Coughing
- Vomiting

Objective Data

It is type of data which is obtained through observation, physical examination and through various tests. This data is observed by using our senses.

Objective findings come under measurement or direct observation. Objective data cannot be argued because it is measured with the help of reliable instruments and observed through vitals, tests, and physical examination.

Examples of objective data findings:

- Heart rate
- Blood pressure
- Body temperature
- Height
- Weight
- General appearance
- Levels of consciousness

The objective and subjective data are compared in the Table 1.

Table 1: Comparison between objective and subjective data

Basis for comparison	Objective	Subjective
Meaning	Objective data refers to neutral statement, which is completely true, unbiased and balanced	Subjective data means something, which does not show clear picture or it is just a person's outlook or expression of opinion
Based on	Facts and observations	Assumptions, beliefs, opinions
Truth	Provable	Subject related
Verification	Verified	Nonverified
Reporting	Same	Varies to a great extent, from person to person and day-to-day
Decision making	Yes	No
Used in	Textbooks and encyclopedias	Blogs, comments on social media and biographies

Examples of Objective and Subjective Data

- A patient complains of fever and the health caregiver checks the temperature on the thermometer.
- A patient complains of nausea and the health care giver can observe for gag reflex induced with vomiting in the container/tray.

- A patient complains of cold and shivering and health care giver observes his/her body shaking due to shivering.

Constituents of Health History

Recording of data	• Biodata of patient—name, age, sex, marital status, religion, occupation, qualification, etc. • Chief complaints by patient in own words but can be by a family or friend accompanying the patient • Referral and source of referral if any, with written statements from the referral institute or a party
Reliability of data	• Depends upon the mental state and trust of the patient
History of present illness	• Onset of signs and symptoms duration, any medication (at home) leading the patient to seek the medical attention
Present Illness	• Onset of signs and symptoms of patient • Patient's state of mind, feelings, any treatment, other complains like insomnia, loss of appetite • Alcohol, smoking and drug abuse related to present illness
Past history	• Any illness in the past • Any allergy from medicine, or other substance • Health checkups and immunization, screening test
Family history	• Collect information about all other family members family history of any illness, e.g., diabetes mellitus, cancer and hypertension
Lifestyle	• Food habits—vegetarian or nonvegetarian, Exercise pattern
Review of systems	• Symptoms related to body systems

Extensive Health History

The proper analysis shows that health history includes the date and time of the following components, age, gender, marital status, occupation and qualification which give us the authentic information related to the patient. Relevant aspects of history include data under the following heads:

- Biographic data
- Demographic data
- Physical data
- Mental data
- Emotional data
- Sexual data
- Spiritual data

Biographic Data

As the name suggests, it includes information regarding the client, such as name, address, phone number, gender, and the source of obtaining the information. This information is valuable for the care giver to know the needs of the patient and the beliefs for providing further health care.

Demographic Data

It is a statistical data which is obtained regarding the characteristics of the population. This data can be collected through sample surveys and questionnaires, e.g., race, ethnicity, gender, age, education, profession, occupation, income level, and marital status, all are the typical examples of demographics that are used in a survey.

Physical Data

It is a data design which is implemented or to be implemented. It describes all tables or columns.

Mental Data

It is a collected data which includes conditions like depression, anxiety, and concerns related to mental health and substance abuse.

Emotional Data

Emotional data is also called customer sentiment data and it includes important information like contact information, history and contextual information.

Sexual Data

It is a collection of statistics on sexuality, gender and reproduction.

Spiritual Data

Spiritual data consists of data about the person's beliefs, in religion and the common practices followed by a particular cast or sub cast according to its tradition.

This detailed information is analyzed on present health status, past medical history, family history, present condition and review of all body systems.

Nursing Consideration

- All the data should be collected in chronological order in a systematic way so that it can be analyzed easily without wasting crucial time.
- Use your wisdom and experience in handling the patient within limits of ethics and the data should be reliable so that we reach close to the probable cause of illness.

THE CLINICAL ENVIRONMENT

Clinical environment is entirely different from other setting areas, as it directly deals with the precious life of the human beings.

It is one of the important means of providing health care practices to the individual family and community. The clinical environment is very vast as it includes inpatients, outpatients and community setting. It includes surrounding having equipment, medications, records, reports, doctors, nurses, supportive health care providers, nurse mentors, nurse teachers, furniture, alarms, etc. The clinical environment is specialized area where students learn health care practices in a team or as individual while implementing the care plans with proper evaluation.

It is a specialized area where care is provided to the patients related to their problems and other related clinical activities which are already planned with their evaluation or in a simple way this is a place where planned actions are implemented.

It is area where health care team or health professionals interact with each other and work together to deliver the health care services as per their specialties using available material resources wherever needed. In this area students learn from the health care professions about care and what clinical practice is all about and with regular practice develop their skills and competencies.

The clinical environment is an area where learning can take place, thus becoming a part of educational environment. This type of setting is most suitable environment for learning the professional skills.

History of Present Illness

The history of present illness is also known as the primary history.

The history of present illness is vital part of the history taking because it helps to determine the nature of the complaint while talking to the patient both open- and closed-ended questions should be used for clarifying the patient's problem.

Questions may include the following:

- What is the main symptom you are experiencing?
- Are you experiencing any other symptoms along with these?
- How long has the symptom been affecting you?
- What makes the symptom worse?
- Is it is associated with any other symptoms?

Detail set of questions are formulated in closed-ended and open-ended questions in such a way to cover or on basis of the Who, What, When, Where. Question format should cover the following points:

- Elaborates the chief complaints in detail in chronological manner
- Onset of the symptoms
- Location of the symptoms
- Character of the symptoms
- Radiation or aggravating factor
- Relieving factor
- Course of symptoms—getting better or worsening with the time
- Effect on daily life activities
- Did the patient have same problem in the past if yes then get further information based on the set of questions when, where and by whom.
  - In which year you had same problem?
  - Name of the place from where you got the treatment?
  - Name of the diagnosis at that time, name of the hospital and name of the physician?

Format of Writing the Present Illness

For example:

- Mr Rajat a 35-year-old young Indian male came in emergency department with acute lower abdominal pain from last 3–4 days , pain worsening from last 1–2 days, now the patient is having very sharp and severe pain along with cramping.
- Pain scale 10/10
- No bloating, no constipation no rectal bleeding
- Have urinary frequency, urgency and dysuria × 2 days

- If the patient has problem related to a particular system, i.e., heart or lung, then you need to ask system-specific questions either open or closed-ended.

Duration of Symptoms

It is essential to determine when the problem started and how long it has been going on for, whether it is constant and whether it has been worsening or getting better.

Associated Symptoms

Always ask about associated symptoms such as nausea and vomiting, breathlessness, pain, dyspnea or fever.

Pain History (SOCRATES)

Pain is an extremely common symptom and it is essential that all clinicians should take pain history from a patient. The key parts to a pain history can be remembered by the mnemonic SOCRATES.

- S – Site of pain
- O – Onset of pain (e.g., sudden, gradual)
- C – Character of pain (e.g., sharp, dull, cramping)
- R – Radiation (e.g., spreads from one site to another)
- A – Associated symptoms (e.g., breathlessness, nausea, vomiting)
- T – Timing (e.g., seconds, days, weeks)
- E – Exaggerating and relieving factors (e.g., worse on lying down)
- S – Severity (e.g., on scale of 1–10)

System-Specific Questions

These are groups of questions that should be asked when patient is present with a particular complaint. They can be classified on the basis of organ system, like digestive system, respiratory system and cardiovascular system.

VITAL COMPLAINTS/CHIEF COMPLAINTS

Vital complaint/chief complaint is a statement in patient's own words, e.g., "I am having severe abdominal pain or my knee hurts". It is patient's self-reported primary reason for coming for medical care. These statements can be used to analyze and plan for emergency care.

Vital complaints are a concise statement which describes the symptom, problem, condition, diagnosis by a physician or other reason for medical encounter.

In this context, as much as possible information from the patient in his/her own words is obtained so that it could help in taking the course of action.

VITAL SIGNS

Vital signs are an objective measurement to know the physiological functions of a living organism.

The vital signs are measured to know the quick evaluation of the person's general physical health condition.

Normal vital sign ranges for the average healthy adult while restings are given as follows:

Vital signs	Normal values
Blood pressure	90/60 mm Hg to 120/80 mm Hg
Breathing	12–18 breaths/min
Pulse	60–100 beats/min
Temperature	97.8°–99.1°F (36.5°–37.3°C); average 98.6°F (37°C)

Body Temperature

- When temperature elevates above normal range, it is known as **hyperthermia**. Temperature may be elevated due to systemic infection or inflammation in the body, or due to heat-regulating problems. Adverse drug reactions or overdoses can also elevate the body temperature.
- If temperate decreases from normal range then it is known as **hypothermia**. Hypothermia frequently occurs due to chronic cold exposure, immersion accidents involving intoxicants or mental illness. It is commonly seen in nonambulatory patients and the patients suffering with comorbidities (Table 2).

Table 2: Table of normal temperature ranges

Method	Range (°C)
Oral	36.5–37.5
Rectal	37.0–37.8
Axillary	36.1–37.1

Pulse Rate

The pulse rate may vary due to exercise, fitness level, disease, emotions, and may also be due to effects of some medications. The pulse rate may also change as the age advanced.

Normal pulse rate: 60–100 beats/min.

Respiratory Rate

Respiration rate may change in asthma, anxiety, pneumonia, congestive heart failure, lung disease, use of narcotics or drug overdose (Table 3).

Table 3: Respiratory rate with efforts

Normal	Normal effort, no in-drawing, no apnea
Mild	Mild increased respiratory effort, nasal flaring, mild-in-drawing
Moderate	Moderately increased respiratory effort, nasal flaring, marked in-drawing with multiple muscle
Severe	Greatly increased respiratory effort, in-drawing, audible grunt, nasal flaring, head bobbing, tracheal tug, accessory muscles use, apneas

Blood Pressure

Some factors that can influence blood pressure are: stress, smoking, certain medicines, cold temperatures, exercise, caffeine intake, alcohol consumption, certain medicines, etc.
Normal blood pressure: 90/60 mm Hg to 120/80 mm Hg.

GATHERING INFORMATION

While talking to the patient try to gather maximum information from the patient related to the problem and associated symptoms. This information helps us in forming probable diagnosis. It can further be confirmed with investigation reports. In some cases diagnosis can be made just by talking to a patient, while others are further confirmed with the reports of the specific test.

As an integral part of medical team, health care provider either medical student, student nurse, physician or allied health care professional should learn the art of taking formal history from the patient, learn the techniques of examining patient, and how to interpret investigations.

The history is considered the most important aspect of the interaction between patient and student nurse. Health care provider should have good and effective communication skill to get maximum information from the patient while talking and taking history alone.

CURRENT ILLNESS

It is a detailed and step-wise account of the problems beginning with the time the patient was last well as compared with the current condition. In case there are more than one problem, then each should be described in a separate paragraph and in the written history of present illness.

Order of information

Collect the information in the following order:

- **Onset:** When it began.
- **Location:** Place, where symptoms were felt for first time; or whether symptoms are radiating.
- **Duration:** Time, interval and the frequency or just appearing abruptly.
- Aggravating/relieving factors
- Severity
- Timing
- Pain

Next prepare a list of medicines, their doses, routes, contraindications and any specific reaction to alcohol, tobacco, and drug use (Table 4).

Table 4: Recording of symptoms

Attribute	Observation
Onset of symptoms	
Date and time of onset	
Symptoms' nature (slow or abrupt)	
Setting	
Location of symptoms (local/general/radiating)	
Characteristics (burning/piercing/stabbing)	
Duration	
Frequency (daily/weekly/monthly)	
Trigger factor	
Relieving factors, if any	

Nursing Consideration

- Before taking the history of present illness you should be aware of all the normal parameters of the body.
- Any aberration from the normal parameters should be closely monitored with the probable cause of the condition noticed.
- When the preliminary examination depends upon the state and condition of the patient itself then it is reliable, otherwise look for other source to collect for information.

HISTORY TAKING

Past Health History

A comprehensive summary of the patient's past health is an important part of our data. First of all, prepare the list of disease and the age, at which he/she has suffered. Take data under the following heads:

- General suggestions
- Probe about current problems
- Ask questions
- Discuss medication with old patients
- Collect information by asking about family history
- Collect information about functional status
- Consider patient's life and social history

All questions in the health history questionnaire should be strictly confidential and become an integral part of history.

Order of collecting past health history

Broadly, we can collect health history under the following heads:

- Childhood illness
- Adult illness
- Injuries, burns, fractures
- Psychiatric illnesses
- Surgical and diagnostic procedures
- Current medication
- Hospitalization
- Any illness in the past
- Any allergy from medicine or other substance
- Health check-ups, immunization, screening tests

Development History

Prenatal and Health History

Low birth weight, premature delivery, childhood illness like Rubella, polio, whooping cough, chickenpox, rheumatic fever, sore throat.

Immunization

This includes immunization schedule along with the dates when they were administered. In immunizations, include polio, measles, mumps, rubella tetanus, hepatitis B virus, and human papillomavirus (Fig. 1).

Fig. 1: Immunization of infant

Family History

The family history includes the information about diseases prevalent in family members. It provides us with a ready view of problems within the family and helps in analysis of an inheritance or familial patterns of a disease.

Now collect information about other family members and take into consideration the family history of any illness like diabetes mellitus, cancer, hypertension, etc. Risk for diseases such as asthma, diabetes, cancer and heart disease also runs in families. Every individual's family health history is different. It varies in different combinations of diseases within the family, e.g., ovarian and breast cancers. An example of family tree on family history has been discussed in Figure 2 and 3.

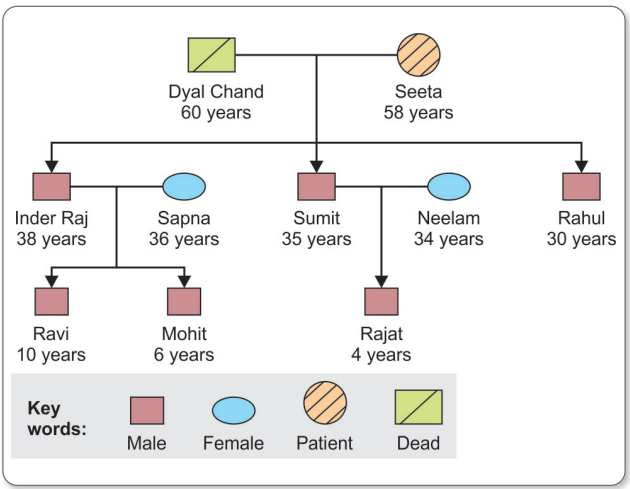


Fig. 2: Family tree

Family health history is a record of health problems and diseases in the family. Families have similar genetic backgrounds and also have common lifestyles and family atmosphere. These factors give clues to the health conditions that run in the family. Family history is one of the strongest points which may influence risk of developing family diseases, like heart diseases, stroke diabetes, asthma and cancer. By noticing these health problems in the family health care provider can judge the health status of the family and also can plan care to prevent risk factors which may influence the patients' health.

A complete record of three generations of the relatives, like children, brother and sisters and aunts, uncles, nieces and nephews, grandparents and cousins is noted.

Ask about the following health problems in the family:

- Asthma
- Birth defects, like spina bifida or a cleft lip
- Cancer including breast, ovarian, prostate, bowel/colon or melanoma skin cancer
- Diabetes

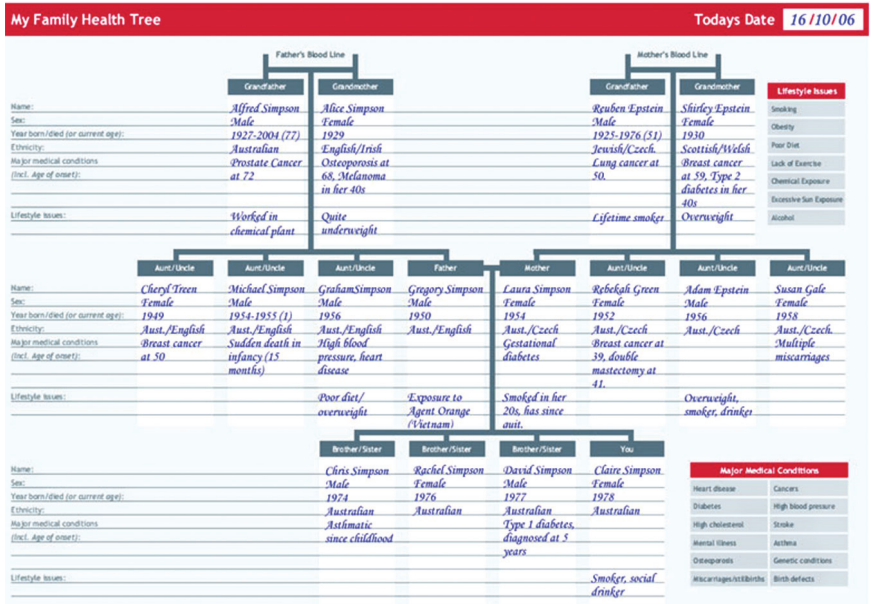


Fig. 3: An example of family health tree

- Genetic conditions, for example, cystic fibrosis or hemophilia
- Heart disease or sudden heart attack
- High blood pressure (hypertension) or high cholesterol
- Mental illness
- Osteoporosis
- More than three pregnancy losses to a couple or woman
- Stillbirths
- Stroke.

The key features of the family history may help in predicting risk for the patient:

- Diseases that have seen in the family in the earlier age than expected age.
- Disease in more close family member or relative.
- Disease that does have effect on certain gender, like breast cancer males.
- Combination of diseases, like diabetes, ovarian and breast cancer, etc.

Benefits of Family Health History

- A family health history can help to predict the higher risk for certain diseases because of shared genes and behaviors.
- If a health care provider identifies the family health patterns early, then with the consultation of concerned doctor of the patient can take steps or plan a care with team to reduce the risk factors and patient can get early treatment.
- If higher risks are recognized, concerned doctor and team can suggest lifestyle changes that may slow or stop the development of many conditions.
- Patient can also pass this knowledge to the relatives and children to help them plan for their future health problems.

Collect information about the following:

- Major health conditions in family
- The age of a person was diagnosed with a condition and if they are dead, their age at death
- Their ethnic or cultural background because some ethnic groups are at greater risk of developing certain health conditions
- General lifestyle information, like the person smoked or worked with harmful substances, for example asbestos.

Social History

Social history is the part of medical history including main aspects like familial, occupation, recreational aspects, economic and cultural history, hobbies, etc.

Information to be gathered on the following things:

- Substances
  - Alcohol
  - Tobacco (pack years)
  - Illicit drugs
- Occupation
- Sexual behavior, increased risk of various infections among prostitutes and males engaging in anal-receptive intercourse
- Prison (especially if tuberculosis needs to be ruled out)
- Travel
- Exercise
- Diet
- Firearms in household (especially if children or mentally handicapped persons are present)

Lifestyle

Health of families and their members is affected by transgenic genetic illness. Lifestyle indicates about health beliefs, attitudes and behaviors. Analyzing the individual health history can identify potential genetic diseases and lifestyle influences.

It is related to factors such as:

- Obesity
- Poor nutrition
- Physical inactivity
- Alcohol abuse
- Alcoholism/smoking
- **Food habits:** Vegetarian/nonvegetarian
- Exercise pattern

Nursing Consideration

- Be sure about the source of the history and check its authenticity with available source.
- Full cooperation from the patient is of utmost importance for reaching close to the probable source of problem.

DIETARY HISTORY

Dietary or nutritional history is also one of the important components of health history of the patient because it affects almost all the systems of the body. Assessing the patient's nutritional status is to understand their medical issues which are caused by lack of proper nutrition or malnutrition.

Obesity is one of the risk factors for many diseases, like hypertension, coronary artery disease and hepatobiliary disease.

Malnutrition is a problem seen in specific populations, like elderly persons, persons living alone, chronically ill patients, adolescents who eat erratically and patients with recently diagnosed cancer and are on chemotherapeutic and radiation therapeutic protocols may have nutritional problems.

Health-care providers have opportunity to educate patients for health-promoting behaviors related to eating pattern and can educate the patient related to supplementary diets containing all essential nutrients, which are essential for the patient's body. Also the patient can be educated regarding calories intake and limited salt consumption. He/she can be advised to reduce fat intake for limiting the cholesterol level, and also about its impact on the health and illness.

Appearance of the patient is to be observed and noted

A general appearance of the patient is always noted down in the beginning of starting history and as the patient enters in examination room. For example, Ms Ravenna is thin, tall, well groomed, whitish color and looks like:

- Emaciated
- Cachectic
- Malnourished
- Thin/slim
- Underweight
- Normal weight Fit
- Overweight
- Obese
- Edematous

Physiologic Categories Associated with Weight Loss

Category	Symptoms	Diseases
Decreased caloric intake	Loss of appetite (anorexia) or early fullness, change in taste, dry mouth, or sore mouth and tongue, difficulty chewing or swallowing, nausea or vomiting, Inability to feed self or obtain food, self-imposed diet	• Social isolation, depression dysmotility • Gingivitis, poor dentition • Gastroparesis • Obstruction (esophageal, gastric, or intestinal) • Anorexia nervosa • Cancer

Contd...

Category	Symptoms	Diseases
Maldigestion/malabsorption	• Diarrhea • Fatty, malodorous stools • Change in bowel habits • Food particles in stool	• Pancreatic insufficiency • Radiation enteritis • Crohn's disease • Short bowel syndrome • Lactose intolerance • Celiac disease
Impaired metabolism/increased requirements	• Fever • Increased or decreased appetite	• Acquired immunodeficiency syndrome (AIDS) • Pneumonia, sepsis • Major surgery or trauma • Hyperthyroidism • Chronic hepatic, renal, or pulmonary disease • Pregnancy and growth
Increased losses/excretion	• Draining fistulas or open wounds • Diarrhea • Increased urination • Excessive vomiting	• Burns • Occult gastrointestinal bleeding (iron loss) • Hemodialysis • Diabetes (glucosuria)

Drug Interactions and Nutrient Metabolism

Drug Class and Examples	Nutrients Affected
Antacids	
Aluminum hydroxide	Phosphorus
Magnesium trisilicate	Iron
Antibiotics	
Tetracyclines	Calcium, magnesium, iron, vitamin B_{12}
Neomycin, kanamycin	Fat-soluble vitamins, vitamin B_{12}
Sulfasalazine	Folate
Anticonvulsants	
Phenobarbital, phenytoin	Calcium, vitamin D, folate
Hypolipidémies	
Cholestyramine, colestipol	Fat and fat-soluble vitamins
Cytotoxic agents	
Methotrexate	Folate
Laxatives	

Contd...

Drug Class and Examples	Nutrients Affected
Mineral oil	Water, electrolytes, fat, and fat-soluble vitamins
Antituberculotics	
Isoniazid	Pyridoxine (vitamin B_6)
Anticoagulants	
Warfarin	Vitamin K
Analgesics	
Aspirin, nonsteroidal anti-inflammatory drugs	Iron
Diuretics	
Thiazides, furosemide	Potassium, magnesium, calcium, zinc
Antineoplastic agents	
Cisplatin	Potassium, magnesium

Common Manifestations of Nutritional Deficiencies

Site	Sign	Deficiency
Skin	Dry and scaly, cellophane appearance	Protein
	Flaking dermatitis	Zinc
	Follicular hyperkeratosis	Vitamin A
	Pigmentation changes	Niacin
	Petechiae	Vitamin C
	Purpura	Vitamin C , vitamin K
	Pallor	Iron, vitamin B_{12}, folate
Eyes	Night blindness	Vitamin A
	Conjunctiva pallor	Iron, vitamin B_{12}, folate
Mouth	Angular stomatitis	Riboflavin, pyridoxine, niacin
	Cheilosis (dry, cracking, ulcerated lips)	Riboflavin, pyridoxine, niacin
	Glossitis	Riboflavin, niacin, B vitamins, iron, folate
	Bleeding gums	Vitamin C , riboflavin
Muscles	Interosseous muscle atrophy, squaring off of shoulders, poor hand grip and leg strength	Protein, calories

OCCUPATIONAL HISTORY

Taking occupational history is very important aspect under health history in order to have probable diagnosis to give desired treatment. Occupational diseases are the groups of different sorts of illnesses that are often seen in daily practice.

Persons working in industrial segment have exposure to some harmful substances like working in chemical factory. These kinds of patients should not be ignored and should be closely observed and related data be compiled carefully.

Whereas occupational diseases may be the cause of almost every signs and symptoms from hematologic system to musculoskeletal system or skin to central nervous system. So, systemic review is very important.

An occupational history is a chronological list related to employment at workplace, joining and leaving dates year wise. Occupational history helps the care provider and physician to prevent onset of illness and prevent potential disability in their patients.

Occupation history can be collected under four levels:

- Knowledge of the patient's current occupation and implications of the present illness for employment
- Report of diagnostic tests of investigation and relation with the present illness
- Screening for individual surveillance
- Comprehensive to investigate complex

Physician can diagnose and treat patient properly on this basis.

According to WHO

- Needlestick injuries contribute to 39%, 37% and 4.4% of hepatitis C, hepatitis B and HIV infections respectively
- The prevalence of acute hepatitis B infection among health workers globally is 5.3%
- About 54% of health workers in low- and middle-income countries have latent TB infection

The major occupational diseases and their morbidity:

- Silicosis,
- Musculoskeletal injuries,
- Coal workers' pneumoconiosis,
- Chronic obstructive lung diseases,
- Asbestosis,
- Byssinosis,
- Pesticide poisoning and
- Noise-induced hearing loss.

- Cancer
- Musculoskeletal disorders
- Post-traumatic stress

An occupational infectious disease:
The most common occupational infections are:

- Tuberculosis
- Hepatitis B and C
- HIV/AIDS
- Respiratory infections (coronaviruses, influenza).

Importance

Taking occupational history can help the health care provider to plan care related to the patient and taking consideration of these occupational hazards. It also helps in prevention of onset and progression of illness and potential disability apart from protecting others in the same workplace.

SEXUAL HISTORY

Taking sexual history is one of the important key skills of all health care providers to know the overall health and wellness. The person of the health team should be aware about the social issues which may come across during taking sexual history like age of the patient, sexual partner, alcohol or drug consumption.

Before taking history, introduce yourself to the patient including your role and purpose of history taking and also make him/her aware that under this part of history, you will ask highly personal information and the patient has to give accurate and right information to assess the sexually transmitted disease. You have to give assurance to the patient that shared information will be highly confidential within the boundaries of the health team.

General communications needed for health care provider:

- Show empathy in response to verbal and nonverbal communication.
- Listen keenly and actively.
- Observe the body language and verbal response of the patient.
- Eye to eye contact should be maintained throughout the communication.
- Observe the body posture the way of sitting, like crossed legs or relax sitting on a chair.
- Observe the facial expression and hesitation to share and also observe the nervousness and shyness.

Factors to be noted during the interview include:

- The patient's marital state
- How many previous sexual partners
- Who is the current partner and for how long
- How many children the patient has
- How many of them live with the patient
- Whether there is obvious stress in the family
- Whether there are financial worries

The 5 Ps of Sexual Health

- Partners – Number, gender and HIV status of the partners
- Practices – Type of sexual practice-oral, vaginal or anal
- Protection – Use of condoms, other barrier methods
- Past History of STIs and HIV – repeat infections, HIV status and hepatitis risk, diagnosis of Gonorrhea, and signs of Syphilis
- Pregnancy – Wish to have pregnancy or use of protection methods

Basic Principles to Take Sexual History

- Be a good listener
- Assure the patient for confidentiality
- Know about the patient like his/her partners, children, employment atmosphere and living conditions
- Develop good trustworthy rapport
- Be a gender neutral
- Use simple and local language as per the requirement of event of the patient
- Don't be critical or judgmental at any point
- Use pen, pencil or charts to make him/her understand in any stage of confusion
- Ask about history of sexual abuse
- Inquire about the sexual practices

Importance of Sexual History

- Give opportunity to health care provider to assess the risk factors
- Plan to prevent or treat the risk factors
- Help in framing diagnosis
- Treat STIs
- Assess medication effects on sexual health
- Assess emotional and mental health
- Help to assess or understand overall health of the patient

PAST HISTORY

A person's past history is a vital part of our database as it gives us the clue for further investigations and thus saves the precious time. First of all, list down all the diseases and at which age the person suffered. The patient is asked to give information as per his or her own words. For our convenience, we can collect the information under the following headings.

- **Gynecological history**
  - Menstruation cycle—regular, irregular, dysmenorrheal.
  - Delivery and contraceptives used.
- **Mental health**
  - If under any type of mental health problem, e.g., depression and taking medicines for depression or not.
  - If the patient has any of the following information:
    - X-ray
    - ECG
    - Eye testing
    - Dental check-ups
    - Hearing tests
    - Pap smear and mammogram in females
    - Rectal examination
    - Ultrasound

PAST MEDICAL HISTORY

The past medical history is basically related to determine any previous medical or surgical problems that the patient had within his lifetime.

It is important to identify each problem, when it started, the treatment received and whether there is any ongoing follow-up.

For example, Myocardial infarction:

- Diagnosed in 2006
- Underwent percutaneous coronary intervention
- Had two stents placed
- Regular follow up in cardiology OPD yearly

For example

Mr Raju, 6 years back, in the age of 45 years had severe chest pain with palpitations and variation in blood pressure admitted in a hospital in cardiology ward with diagnosis of coronary artery atherosclerosis

{CAD} he underwent the percutaneous coronary intervention and two stents were placed. Since last 6 years regular follow up is there.
It is often useful to ask the patient specifically about the number of common conditions using the mnemonic MJTHREADS:

- M – Myocardial infarction
- J – Jaundice and liver disease
- T – TB
- H – High blood pressure
- R – Rheumatology (i.e., skin or joint problems)
- E – Epilepsy or seizures
- A – Asthma or other lung conditions
- D – Diabetes
- S – Stroke

DRUG HISTORY

The medication history is taken from the patient what medicine patient is taking including both prescribed and over-the-counter medications prescribed or non-prescribed medications. Also note the name of the medication, dose, route and frequency.

Right information of drug history from the patient is very important part of the health history. It is helpful in preventing prescription errors and drug-related changes in clinical signs in the patient. Both current and previous drug history is recorded. The following questions can be asked:

- Name of the drug with dose and route for which of the health problem
- Adverse drug reactions like hypersensitivity reactions, over the counter medication
- Medication history errors, like omitting drugs erroneously
- Current medications-indications, dose and how long
- Vitamins or supplements
- Alternative medications, like homeopathic or herbs
- Allergy history-allergens and severity, adverse drug reactions

The four things to ask about:

1. Prescribed medications
2. Over-the-counter medications
3. Herbal remedies
4. Recreational drugs (i.e., cocaine, etc.)

Always ask about any side-effects and any other changes if patient's family member and patient have observed. Ask about if any of medication need to be stopped, for what reason and effect of that medication on the body and ask whether hypersensitive to any drug.

PAST SURGICAL HISTORY

Past surgical history is taken in detail if undergone any surgery. Related information to be gathered and compiled and the following probable questions are asked related to the surgery:

- Year—when he/she had surgery
- Name of the surgery—what problem was there at that time and the name of diagnosis and name of the surgery
- Name of the hospital and name of the surgeon—
- Indication—what were symptoms appeared at that time and how long he suffered with those symptoms prior to the surgery
- Name of the medications—pre- and post-operative medication with dose and route taken for how long
- Complications—any complications related to surgery, like infection, inflammation, pain or bleeding
- Follow up—first follow-up after the surgery, prognosis of the surgery, regular follow-up intervals

SYSTEMS REVIEW

It helps us to find out the problems that the patient took casually and never reported at initial stages. If the patient has few symptoms then the systems review can be done along with the physical examination, otherwise it will make history taking and physical examination process lengthy and time-consuming, and therefore may hamper the cooperation we are getting from the patients (Fig. 4).

Here questions are generally asked starting from head to toe. For convenience, you can ask 'Yes/No' response questions and thus can complete your interview. It solely depends upon the response you are getting from the patient to extract maximum valuable information.

There are 11 systems that keep our bodies functioning. Learn the primary roles of each from Figure 4.

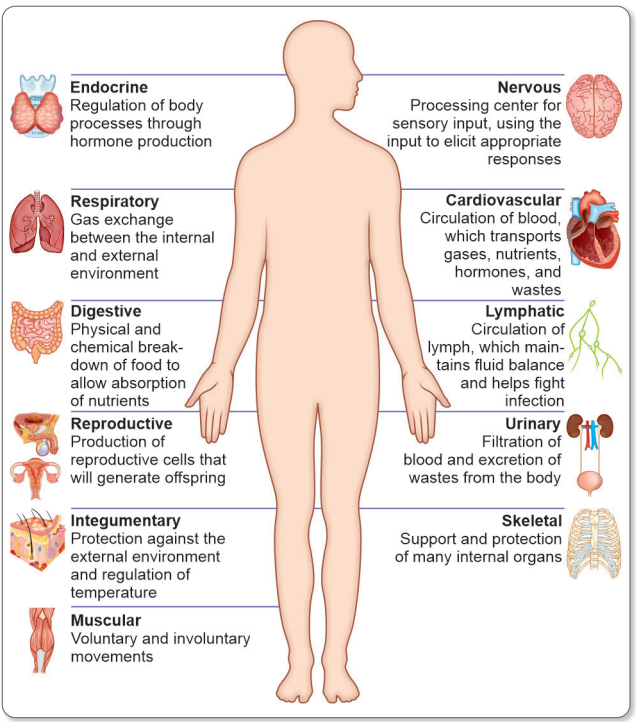


Fig. 4: Role of different systems of human body

Preliminary Details

Any change in weight gain or loss, general debility, emaciation, fatigue, fever.

Skin

- Any change in color
- Any eruptions, moles, warts (change in layer, shape or size)
- Lump
- Any sore

ENT

- **Eyes:** Eyesight, wearing glasses, pain or redness, blurred vision, cataract, response to flashy lights

- **Nose:** Cold, nasal discharge, epistaxis, sinusitis
- **Throat:** Any change in voice frequency, sore throat, and sensitivity.

Head

- Headache, migraine, or any traumatic injury

Respiratory system

- Cough history, the color of sputum, X-ray reports, breathing pattern, pneumonia, TB

Cardiovascular

- Discomfort, chest pain, palpitation, dyspnea, edema, past ECG, hypertension

Digestive system

- Loss of appetite, nausea, the color of stool, rectal bleeding, piles, loose stools or constipation, pain in the abdomen, jaundice, hepatitis, difficulty in swallowing

Peripheral system

- Varicose veins, leg swelling, swelling with redness

Excretory system

- Color of urine, frequency, polyuria, nocturia, burning sensation while urinating, kidney stones, dribbling of urine, hematuria, urinary tract infection (UTI)

Breast

- Any pain, nipple discharge, any mass

Genital system

- **Male:** Discharge from the penis, painful sores on the penis, sexually transmitted disease (STD) history, immune system disorder, contraceptive methods, sexual practices, self-examination practices
- **Female:** Menstruation cycle (regular, irregular, painful), amount of bleeding, last menstrual period, dysmenorrhea, painful intercourse, bleeding after intercourse, menopause symptoms, mood swings, number of pregnancies and number of deliveries.

Skeletal systems and muscles

- Pain in joints, stiffness, arthritis, back pain, any swelling, signs of inflammation, tenderness, weakness, neck pain and associated symptoms

Mental health

- Depression, memory loss, fluctuating mood, nervousness
- **Nerves**
  - Headache, dizziness, vertigo, weakness, loss of sensation, numbness, fainting and fluctuating mood

Blood system/circulatory system

- Anemia, bleeding, any transfusion history

Endocrine

- Hypothyroidism or hyperthyroidism, swelling, hot and cold feeling and hypothermia.

PHYSICAL EXAMINATION

It is a complete examination or comprehensive study of the body or parts of the body to determine the general condition of the body. Depending upon the complaints, we can assess the part of the body and its thorough examination gives us a complete assessment of the patient's physical and mental health status (Fig. 5).

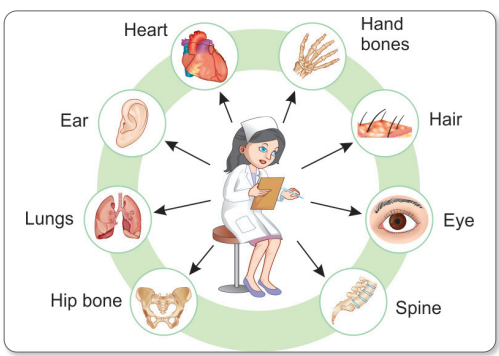


Fig. 5: Physical examination

The list of equipment used in physical examinations is given in Table 5.

Table 5: List of equipment needed for physical examination

Equipment	Purpose
Thermometer Cotton swabs Wristwatch	To check body temperature
Sphygmomanometer	To assess the blood pressure
Stethoscope	To listen the body system sounds
Tongue depressor	To examine the mouth and throat
Pharyngeal retractor	To examine the pharynx

Contd...

Equipment	Purpose
Laryngoscope	To examine the larynx
Fetoscope	To listen fetus heart sounds
Ophthalmoscope	To examine the inner part of the eyes
Otoscope	To examine the ears
Tuning fork	To test the hearing ability
Nasal speculum	To examine the nostrils
Percussion hammer, pins, hot and cold water in test bottles	To check the reflexes
Vaginal speculum	To examine the genital area in female
Proctoscope	To examine the rectum
Measuring tape	To measure circumference of height, head, arm and abdomen

Significance

- To examine physical and mental health of the patient
- Disease detection at an early stage
- Etiology and extent of the disease, communicable or zoonotic
- Nature of treatment and medical care

Points to Remember

- First of all, clearly explain your approach to the patient.
- It should be done in a well-lighted room.
- Make the patient comfortable in the new environment.
- The patient is asked to undress and is draped properly so that only a particular area is exposed. Keep privacy intact.
- Wash your hands before and after the examination.
- Choose equipment properly.
- Use personal equipment properly.
- Take standard precautions to prevent transmission of blood-borne pathogens like HIV and HBV.
- Close all the doors and draw curtains.
- Keep the patient informed in a humble manner and take his/her permission whether he/she is OK, as you proceed (taking his/her consent).
- Depending on your goal, you can take your own steps to reach a solution.

Nursing Consideration

Sequence, Scope and Positioning

- Maintain maximum comfort for the patient.
- Use the appropriate position to examine the appropriate part and avoid unnecessary changes in the position according to the area to be assessed.
- Now start doing complete examination beginning from head to toe.

General Appearance

Observe the general appearance, like thin or obese, well-nourished/undernourished. Check whether active or dull. The mood is happy or depressed. Now check the following parameters:

Vitals

- Take BP, pulse, respiration and measure body temperature
- Assess the level of pain using pain analog scale.

Integument (Skin)

- Examine for any bruises, abrasions, lacerations eruptions.
- Observe the face and check the color of the skin (cyanosed/pallor/flashy/red).
- See the texture (dry/oily/wrinkles) and lesions, vesicles, and wound.

Head

Check the scalp (clean, dandruff, any infection), and check hair.

Eyes

Examine the eyes for the following:

- Eyelids for edema, lesions any aversion/inversion
- Sclera and conjunctiva—pale red or jaundiced
- Check cornea and iris for abrasions and any irregularity
- Check pupil for reaction to light-dilated or constricted
- Check fundus for congestion and hemorrhage
- Check eyeball for protrusion/sunken
- Check vision for normal myopia, hyperopia

Ears

- Check external ears for discharge, obstruction in-ear passage
- Tympanic membrane for lesions, bulge and any perforation
- Check nostrils for any septal deviation

Mouth and Pharynx

- Check lips for redness, swelling, cyanosis
- See the odor of the mouth for the foul smell
- Check teeth for discoloration and caries
- Check gums and mucous membrane for ulcerations, redness, pus, pyorrhea, and condition of the tongue.

Neck

- Check lymph nodes whether enlarged or palpable
- See the condition of the thyroid gland
- Feel for any deviation trachea.

Chest

- Check breath—normal or with efforts
- See chest wall symmetry, the anteroposterior angle should be <90°
- Check breathing rate-normal/abnormal also see the breathing pattern/chest expansion, pulsation
- See chest wall for crepitus or pleural friction
- Check symmetry for normal, pneumonia and flail chest
- Chest thorax expansion curvature for scoliosis, kyphosis and vocal forumites for bilaterally equal.

Breast and Axilla

- **Female:** When the patient is sitting, come in front and inspect the breast with her arms relaxed, then elevate with her hands pressed on her hips.
- Check the areola for color, nipples for any discharge, bleeding and any lesions.
- Check axilla for any rashes, lesions and any mass.

Abdomen

- Lower the bed of the patient to a flat position and palpate lightly and deeply assess the liver and spleen by palpations and percussions.
- Check the kidney for any infection by percussion posterior.
- Palpations are done to assess spleen and liver for shape and position.

Back

- Now check and palpate the spine and its muscles for any abnormality like spina bifida.

Hips and Lower Limbs

- Inspect the client's feet and legs for muscle strength.
- See the skin characteristics, vascular sufficiency and deformity of toes.

Palpations of Feet and Lower Legs

- Check for any deformity, tenderness, any edema
- Check motion turgor and motor strength of toes, feet, knee, hips, and ankles.

Genital and Rectal Examination

- Inspect for any lesions and scars
- Check for any discharge and infection
- Check the color of urine

In males:

- Palpate for any mass, enlargement of prostate glands and palpate for inguinal hernia.
- Inspect penis, and scrotum for swelling

In females:

- Inspect for any redness swelling and discharge.
- Check rectum hemorrhoids and redness.

Skills of Physical Examination

Any organized and systematic approach to physical assessment is vital to prevent exclusion or deletion of important data. The skill required to do physical examinations are as follows:

Inspection (Look)

- Looking with careful eyes so as not to overlook significant findings and making incorrect conclusion.
- Good or adequate light.
- Inspect each area for shape, size, color, symmetry and look for any deviation from normal.
- Use additional lights for oral and other body cavities.
- Use olfaction to detect bad breath unhygienic mouth condition, acidosis smell for diabetic acidosis.

Palpation (Palpable)

- Examine his/her feet and one or both hands along with fingers.
- The degree of pressure applied for the palpations varies depending upon the tenderness of the area.
- It reveals any swelling, cold, hot, stiff, hard, smooth, pain, firmness and flaccidity.

Palpation (Percuss with Tap/Thumb)

- Parts of hands used for various palpations are tabulated as follows:

Part of hand	Type of palpation
Finger tips	To assess texture, shape, size, consistency and palpation
Dorsum of hand and fingers	To assess temperature
Palm of hand	To assess vibration
Pinching of fingers	To assess turgor, consistency and position

Percussion (Listen)

- Percussion is a method of tapping body parts with fingers, hands, or small instruments.
- It help to know the size, consistency, borders of body organs and the presence or absence of fluid in body areas.
- Percussion of a body part produces a sound, like playing a drum.

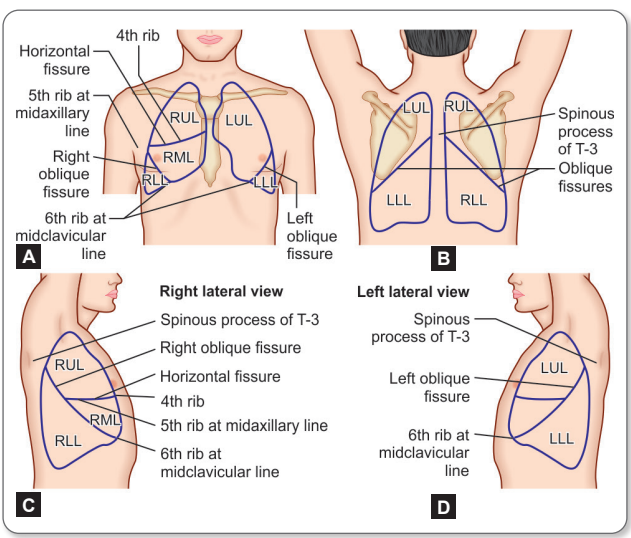
  - Lung's sound is hollow on percussion because they are filled with air.
  - Bones, joints, and solid organs such as the liver sound solid.
  - The abdomen sounds like a hollow organ filled with air, fluid, or solids.

Must Know

- **Resonance:** A low pitched and loud sound.
- **Hyper resonance:** Very loud and very low pitched longer than the resonance of booming quality signifies emphysema.
- **Tympany:** Drum-like sound over a gastric air bubble.
- **Dull:** Medium-pitched sound with medium duration heard over heart and liver (solid tissues).
- **Flat:** A high-pitched sound with short duration heard over complete solid tissues (hand and thigh).

Auscultation (Listen)

- It is listening to the internal sounds of the body with the help of stethoscope.
- Auscultation is performed for the purposes of examining the alimentary canal, circulatory and respiratory systems to assess sounds, like a cardiac sound or breath sounds.
- Health care professionals routinely listen to a person's lungs, heart, and intestines to evaluate about the sounds for:
  - Frequency
  - Intensity
  - Duration
  - Number
  - Quality
- Sites of lung auscultation and cardiac auscultation are shown here in Figures 6 and 7, respectively.



Figs 6A to D: **(A)** Anterior view; **(B)** Posterior view; **(C)** Right lateral view; **(D)** Left lateral view

Abbreviations: LLL, left lower lobe; LUL, left upper lobe; RLL, right lower lobe; RML, right middle lobe; RUL, right upper lobe

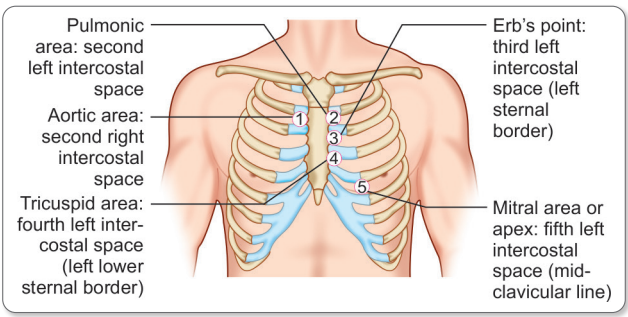


Fig. 7: Sites of cardiac auscultation

Olfaction (Smell for Odors)

- Olfaction helps in determining the abnormalities and diseases not recognized by other means.
- For example, odor of alcohol from oral cavity indicates the presence of alcohol, the odor of ammonia in urine indicates urinary tract infection.

CLINICAL ASSESSMENT

The collected findings are analyzed with proper reasoning and patient's problems are identified using clinical understanding logically. Share your findings in the patient record, which include the physical findings of the patient and logic for your assessment and plan should be noted and informed to other members of the health team. As we arrive at the clinical decision, correlate it with clinical evidence on the basis of your knowledge.

The detailed health history and physical examination form the basis of the clinical assessment. It should incorporate all the factors as patient education, change in medicines, required test, referrals from other physicians and practitioners.

The desired plan includes the response of the patient to the problems and suggestions you have recommended. It requires your mutual concern to the patient's objective taking into consideration.

HANDLING SENSITIVE INFORMATION

Majority of the doctors or health care providers avoid to ask patients about sensitive topics. The reason may be they don't feel comfortable while asking such type of question. But before taking a health history health care provider also should get ready with questions related

to sensitive issues related to his/her signs and symptoms of the problems with their personal problems.

Sensitive topics are highly personal information of the patient that he/she doesn't want to share with anyone. Sensitive topics are the following:

- Alcohol use
- Recreational drug use
- Intimate partner violence
- Sexual activities practices
- Prescription drug misuse

Potentially sensitive topic are:

- Physical and sexual abuse history
- Suicidal and homicidal ideation
- Mental health illness

The following steps should be considered while talking about the sensitive issues with the patient:

- Develop IPR: Very first step is start to talk with the patient with general communication, like what is your name, your age, etc. when it seems at the comfortability level while taking health history, related question or sign and symptoms can be asked from the patient related to problem.
- Invite the patient, don't insist: Invite the patient in history taking room politely and with humble approach. If patient doesn't want to express any kind of feeling don't ask the same question and give little time to think and relax.
- Pace yourself
- Listen to understand: Listen to each and every word of patient keenly and carefully, and try to understand instead of interrupting the patient in-between. If you have any query, ask at the end of the conversation or before closing the session.
- Don't interupt the silence: After narrating the whole thing, if patient is quiet and calm or stop talking then give little time to think relax and come back on same conversation point.
- Show empathy: While talking or asking a questions show concern toward the patient and listen to patient's each and every word very while answering.
- When appropriate ask question: For better and clear understanding, if there is need of any clarification, ask question but do it only when patient has completed his or her sentence. Try to understand what has happened and what was the effect.
- Be a good chap: The conversation shouldn't feel like interrogation. It should be like discussion for exploring the problem and to find

out the solution. Frame questions in such a way that should never cause inconvenience to the patient and never make others bad.

- Exhibit loyalty and provide guidance: Show your loyalty toward the patient and guide the patient related to the problem. Control and commands are not appropriate in this situation.
- Don't be defensive: Sometime while explaining some personal issues patients may get angry and irritated. Always remember that this behavior is not due to the visit in the hospital, the patient's anger may be due to some other trigger factors. Always mind your body language and show sympathy and empathy.
- End with positive note: Always end the conversation with positive note and greet the patient with thanks and welcome him for any further help. Motivate the patient to ask any kind of further guidance related to these sensitive issues.

CLOSING THE INTERVIEW OR HISTORY TAKING

Now after getting sufficient information regarding patient as per our requirement, we first analyze your need of any further additional information. If you have any doubt, get the clarification further, if needed. When sufficient information is gathered during the interview, then proceed for closing the interview.

The patient is now given opportunity to ask for any query or if he needs any explanation related to his or her diagnosis or treatment. All the queries of the patient are to be resolved appropriately and the interview is to be closed.

- **Overview the health history:** Now review whatever information you have collected and take the precaution to check even minor issues which are important must not be ignored and if any clarification is required it should be done at the earliest.
- **Compile the health history:** After getting sufficient information as per your requirement the next important step is to compile the data to easily understand and to evaluate the present condition of the patient which is an important part for progression of the treatment.
- **Clearing the doubts:** All the doubts and queries of the patient should be carefully addressed and if any clarification is required by the patient then it should be addressed and proper explanation be given to the patient. We should not ignore even the minor queries of the patient.
- Inform the patient regarding the probable treatment plan for probable diagnosis so as to prepare the patient mentally and physically for treatment. This will help to get cooperation from the patient during his treatment in the future.

Case Study 1

A 60-year-old female reported to the emergency department with acute onset and shortness of breath. Her symptoms began approximately 2 days before and had progressively worsened without associated, aggravating, or relieving factors noticeable.

She told that she felt pressure in the chest while doing work and even sometime she was unable to complete her assigned work and left without completion.

Chief complaints

- Retrosternal chest pain—last 2 days
- Mild chest discomfort—2 days
- Epigastric pain and feeling of indigestion or of fullness and gas—2–3 days
- Fatigue—2–3 days
- Malaise—2–3 days
- Radiation of pain to shoulder neck and jaw—2 days

She told that she was not having fever, chills, cough, wheezing or sputum production.

Past history

- **Childhood illness:** Measles and chicken pox. No history of other illness or rheumatic fever

Adult illness

- **Medical:** She was treated for tuberculosis at the age of 28 years (having fever, loss of appetite, loss of weight, productive cough) with tablet streptomycin, ethamabutomol, and rifampicin. Treatment was completed as per doctor's advice and X-ray and other reports were normal. No history of recurrence of infection.
- **Surgical:** Nothing significant
- **Psychiatric:** None

Health maintenance

- **Immunization:** Immunized as per prescribed schedule

Family history (Fig. 8)

- Father died at age of 47 years, in a roadside accident and mother died at the age of 60 years due to heart attack.
- One sister of 52 years was suffering from hypertension but otherwise fine; and one brother of 48 years was suffering with internal piles but otherwise he was well.

Contd...

- Daughter at the age of 34 was well; son of 28 years was well too.
- No history of diabetes, heart or kidney disease, cancer, epilepsy, or mental illness.

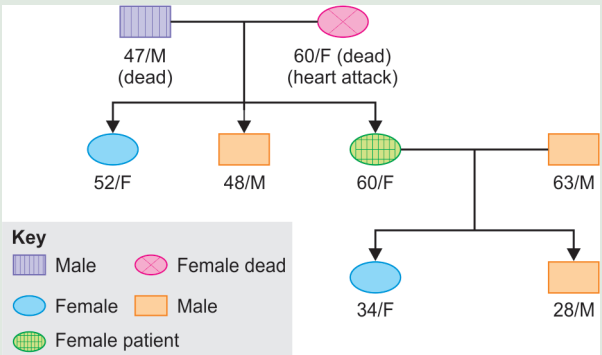


Fig. 8: Family tree of the case under study

Personal and social history

She completed high school at the age of 17 and graduation at the age of 21 years, got married at the age 25 years to a man aged 30 years. Moved to Canada along with husband on work visa. Stayed there for 3 years and came back to India. Daughter was born at the age of 29 years in India by normal delivery, both mother and newborn were healthy, no complications. Then son was born at the age of 31 by normal delivery, no complication.

Review of systems

- **General:** 5 feet 3 inch height, gained little weight in the last 5 years.
- **Skin:** Healthy skin, no rashes or any marks on the skin.
- **Head:** No history of head injury, vertigo or any kind of headache.
- **Eye:** Reading glasses last 6 years, no other history of eye injury or infection.
- **Ear:** No ear infection, no tinnitus, vertigo, no discharge.
- **Nose:** Occasionally sinus due to mild cold.
- **Neck:** No goiter, no lumps.
- **Breast:** No lumps, no discharge, no pain, perform self-breast examination after every three months.
- **Respiratory:** No cough, wheezing, shortness of breath is there.

Contd...

- **Cardiovascular:** Blood pressure 140/90, retrosternal chest pain, mild chest discomfort.
- **Gastrointestinal:** Epigastric pain, loss of appetite, feeling of indigestion or of fullness and gas, normal motion, no diarrhea, jaundice, no gallbladder or liver problem.
- **Urinary:** No hematuria, no frequency, dysuria, or no flank pain.
- **Peripheral vascular:** No varicose veins on both legs, not even during pregnancy period, no problem while long standing, no swelling in the lower legs and on the ankles.
- **Musculoskeletal:** Mild back pain after prolonged sitting or standing, no joint pain, daily routine for mild to moderate exercises for 30 minutes daily in the morning hours.
- **Psychiatric:** No history of depression, mania or mood disorder.
- **Neurogenic:** Good memory, no fainting, no motor or sensory loss.
- **Hematologic:** No anemia, no other problem, Hb 11 g.
- **Endocrine:** No history of heat and cold intolerance, no thyroid problem, no diabetes.

Physical examination

- Mrs XX was well groomed, little over weight, responses quickly to all questions, good memory. Worried about facing problems daily like unable to go to work due to shortness of breath, chest tightness, and epigastric pain and gas.
- Worried about her health, lies flat on the examination table without any discomfort and was cooperative.
- **Vital signs:** Height without shoes 5 feet 3 inches, weight 70 kg, heart rate 90/min regular, respiratory rate 22/min, temperature orally 98.6°F. Blood pressure (left arm) 140/90, blood pressure (right arm) 134/86.
- **Skin:** Normal skin in color and texture, hand and feet are in normal to touch, no cyanosis.
- **Head:** Hair are normal in texture, no lesions on the scalp.
- **Eyes:** Vision 20/30 in each eye, conjunctiva pink in color, sclera white, pupils round, regular and reactive to light, extraocular movements are intact, normal in shape.
- **Ears:** Left ear canal clear, Acuity good to whisper voice.
- **Nose:** Mucosa is pink in color, no sinus, no tenderness.
- **Mouth:** Oral mucosa pink in color, papillae red and slightly swollen tonsils absent, pharynx–absence of exudates.
- **Neck:** No JVP distention, neck flexible, trachea midline, thyroid isthmus hardly palpable.

Contd...

- **Lymph nodes:** Small and soft, not tender, axillary nodes absent, small inguinal nodes soft and tender.
- **Thorax and lungs:** Normal in symmetry, lungs normal-resonant sounds, breath sounds are soft and low pitch, no other edited sounds.
- **Cardiovascular:** JVP raised—1 cm above the sterna angle.
- **Breasts:** Loose, symmetric, no abnormal mass, nipple without discharge.
- **Abdomen:** Bulging, bowel sounds normal, no tenderness, spleen and kidney not palpable, no costovertebral angle tenderness (CVAT).
- **Genitalia:** No lesions on external genitalia, vaginal mucosa pink, cervix pink without discharge, uterus not enlarged, rectovaginal wall intact, without rectal masses.
- **Extremities:** Warm, no edema, no tenderness in calf muscles.
- **Peripheral vascular:** Trace edema on both ankles, no stasis, no varicose veins in lower extremities.
- **Musculoskeletal:** No joint deformity, good range of motion.
- **Neurologic:** Mental status—tense and cooperative.
- **Cranial nerves:** 2–12 intact, no impairment seen in cranial nerve.
- **Motor nerve:** Normal.
- **Cerebral:** Stable gait, point to point movement is normal.
- **Sensory:** Pin prick test—normal, light touch-patient feels symmetrical in all areas, normal sensation to hot and cold, normal vibration.
- **Reflexes:** Reflexes of biceps, triceps, brachioradialis, patellar, Achilles, plantar are under normal grading.

Initial evaluation

Mrs XX reached in an emergency ward with initial complaint of chest tightness and epigastric pain.

On observing the sign and symptoms, it was established that the probable cause was related to cardiac problem. A 12-lead electrocardiogram (ECG) was performed.

It was further confirmed with the ECG, which showed elevated ST segment. ST-segment elevation provided strong evidence of thrombotic coronary arterial occlusion. In this case patient needs either fibrinolysis or primary percutaneous transluminal coronary angioplasty (PTCA).

It was done within 10 minutes of the arrival of the patient. Now:

- Oxygen was given by nasal cannula
- Sublingual nitroglycerin was given

Contd...

- Morphine sulfate and aspirin 160–325 mg orally given
- Established intravenous access

The patient was admitted in the hospital for further treatment.

On admission to the hospital, a lipid profile and serum electrolyte concentration (including magnesium) should be measured in all patients.

Hospital management

The first 24 hours

- Once hospitalized, the patient with acute myocardial infarction (MI) was continuously monitored by electrocardiography and the diagnosis of acute MI was confirmed by serial ECGs and measurements of serum cardiac markers. The patient was monitored for adverse electrical or mechanical effects.
- The patient's physical activities was limited for at least 12 hours.
- Intravenous nitroglycerin was given for 24–48 hours after hospitalization.

After the first 24 hours

- After the first day in the hospital, the patient with acute MI was given aspirin 160–325 mg/day.
  - (Nitroglycerin should be infused intravenously for 24–48 hours, and magnesium sulfate should be given as needed to replete magnesium deficits for 24 hours).

Disease condition

A **myocardial infarction** is a life-threatening condition that occurs when blood flow to the heart muscle is abruptly cut off, causing tissue damage. This is usually the result of a blockage in one or more of the coronary arteries (Fig. 9).

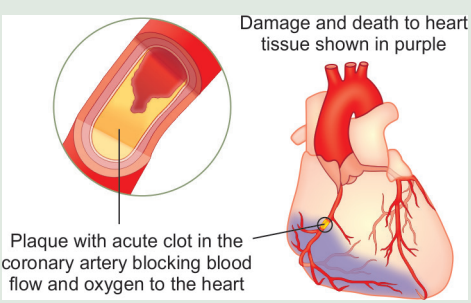
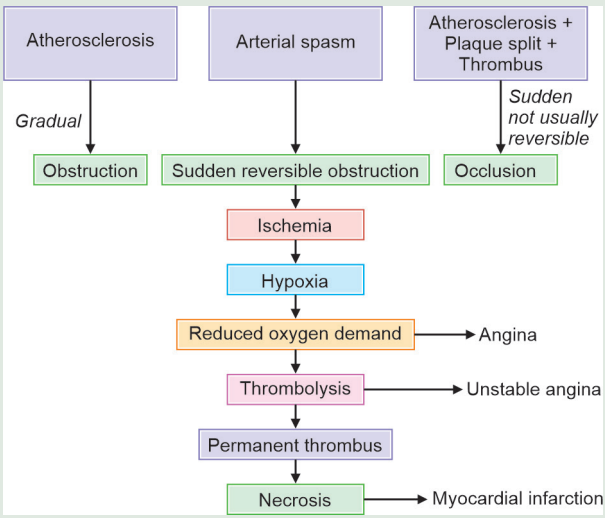


Fig. 9: Coronary artery blocked due to plaque

Contd...

Pathophysiology



Nursing management

- Balance the myocardial oxygen supply as per the requirement.
- Administer medicine as per order.
- Monitor cardiac function continuously.
- Monitor ECG and hemodynamic continuously.
- Recording input/output and monitor also.
- Give emotional support.
- Give nutritional support.
- Advise bed rest for couple of days and reduce stress factors.
- Give health education.
- Assess the patient level of pain, location, duration.
- Prevention of the complication.

Nursing diagnosis

- Acute pain related to tissue ischemia—as evidenced by patient reporting of chest pain, facial pain expression.
- Decreased cardiac output due to changes in myocardial contractility.
- Impaired gas exchanges due to interruption of blood flow to pulmonary alveoli.
- Imbalanced nutrition less than the body requirements due to inadequate intake and lack of appetite.

Contd...

- Activity intolerance due to imbalance between myocardial oxygen supply and needs.
- Anxiety due to hospitalization and fear of death
- Risk of ineffective tissue perfusion related to reduction of blood flow

Health education on:

- Related to disease condition 'myocardial infarction'
- Rest and sleep

Progress report

Day 1 & 2	Day 3 & 4	Day 5
• Patient's general condition looks unwell • Vital sign unstable (fever 100.6°F) • Dyspnea • SpO_2 was maintained via face mask of 3 L/m • Kept on liquid diet • Patient's general condition looks satisfactory	• Patient general condition looks fair • Vital signs were stable • SpO_2 was maintained via room air • Kept on soft diet • Patient general condition looks fair	• Patient's general condition looks fair • Vital signs were stable • SpO_2 was maintained via room air • Kept on normal diet
• Vital signs were unstable (SpO_2 fluctuating) • Shortness of breath • SpO_2 was maintained via face mask of 3 L/m • Kept on liquid diet	• Vital signs were stable • SpO_2 was maintained via room air • Kept on soft diet	• Mobilization was done

Preparation for discharge from the hospital

The patient with recent acute MI should undergo standard exercise testing (submaximal at 4–7 days or symptom limited at 10–14 days). This is done to:

- Assess the patient's functional capacity and ability to perform tasks at home and work
- Evaluate the efficacy of the patient's current medical treatment
- Classify risk for a subsequent cardiac event. The incremental value of radionuclide imaging or echocardiography during exercise is uncertain.

Although markers of electrical instability such as abnormal baroreflex stimulation or the presence of late potentials on a signal-averaged ECG are associated with increased risk of death, their positive predictive value is low, and appropriate therapy when these findings are observed is yet to be determined.

Contd...

Long-term management

- The patient should be instructed to achieve an ideal weight and educated about a diet low in saturated fat and cholesterol.
- The patient with a low-density lipoprotein (LDL) cholesterol measurement >130 mg/dL despite diet should be given drug therapy with the aim of reducing LDL to <100 mg/dL.
- Smoking should be stopped.
- The patient should be encouraged to participate in a formal rehabilitation program and ultimately to plan to engage in 20 minutes of exercise at the level of brisk walking at least three times a week.