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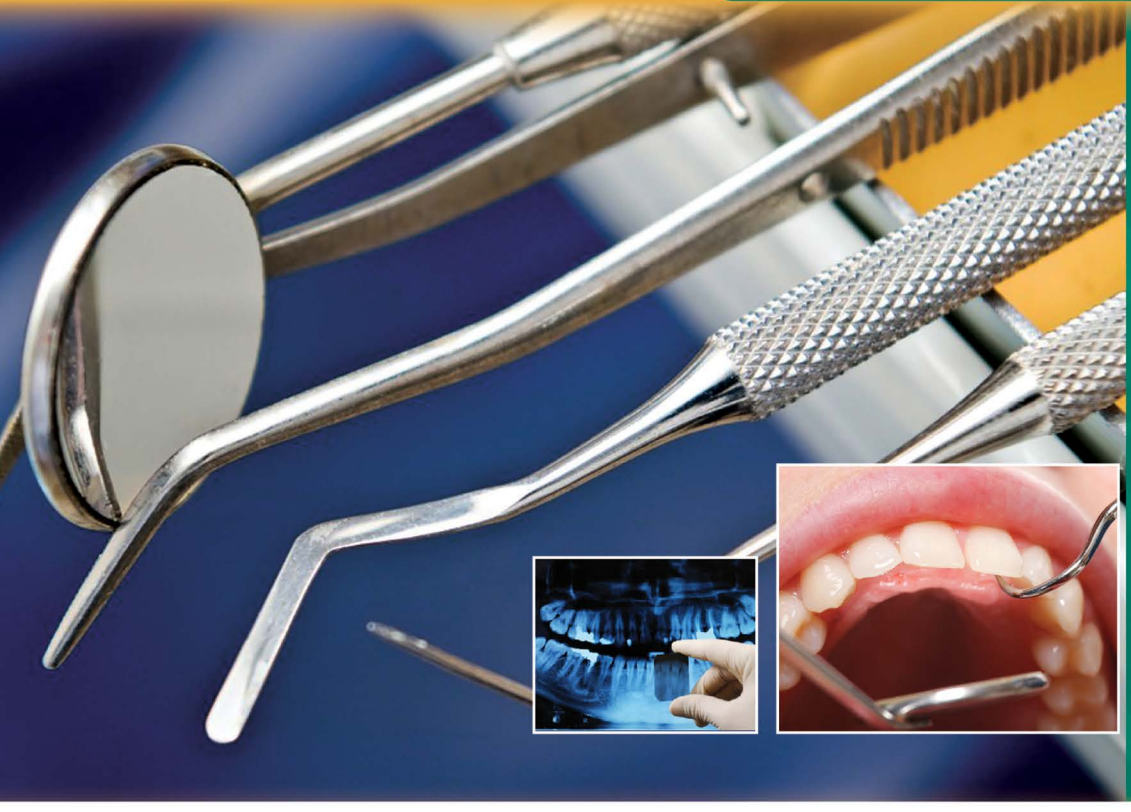
# Clinical Methods in DENTAL OFFICE

History Recording
Examination
Investigations
Therapeutics



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# 3

# Significance of Patient's History Recording

You are likely to have heard this during your first clinical postings 'There is no such thing as a poor historian, just a poor history taker.' This is true to a great extent. We have to learn the topics we need information on and the different ways of obtaining that information. Good clinical assessment is the cornerstone of good practice and underpins the advanced practitioner's differential diagnosis and subsequent treatment plan and is one of the most rewarding aspects of patient care. It is the hallmark of a good clinician and is a skill which never dates.

Case history constitutes foundation not only for an intelligent approach to diagnosis but also for a successful patient-clinician relationship. It is based on the interview with the patient, where they should be encouraged to tell their story voluntarily. The clinician should only interrupt to obtain clarification of, or further information regarding specific points. The quality of history is largely determined by the competence of the interviewer but is also affected by the ability of the patient to communicate.

## Definition

Case history is a planned professional conversation between patient and dentist which enables the patient to express his symptoms, fear and feelings to the clinician so that the nature of patient's real or suspected illness and mental attitude may be determined (Malcolm A Lynch).

Objectives of recording a case history:

- To formulate a pattern of asking relevant questions to get to the point data for the diagnosis as well as to alleviate the fear in the patient towards the disease and its treatment.
- To help in recording the intraoral and extraoral examination done based on the complaint of the patient.
- To record the specific intraoral lesions and extraoral lesions for the record purpose, diagnosis and effective treatment planning.
- Understanding the need for referral to other departments and the expectations of the outcome of the referral.

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Objectives of case history will guide and improve the efforts of any examiner to:

- Arrive at a tentative diagnosis.
- Determine any systemic factors that might affect formulation of diagnosis.
- Determine any systemic conditions that require special precautions prior, to or during dental procedures to protect health and life of patient.

In addition, to the above benefits other advantages to the dentist include establishment of written records that will serve as a diagnostic instrument, protection from possible disease contact, establishment of a basis of future reference and provision of a document that will serve as a legal evidence for forensic odontology.

## Types of Case History

1. *Structural case history:* Questions are asked in a logical manner according to a pre-decided format.
2. *Nonstructural case history:* Pattern of questions is changed according to patient's narration and there is no pre-decided format.

The importance of case history taking in the practice of dental offices and clinics cannot be overestimated. In many instances the history of a case is relatively more important in making a diagnosis. In many cases a carefully taken history, including salient data, carefully written, and properly appraised will alone establish the diagnosis. This is notably true of tic douloureux in which the physical and laboratory findings are of little help and the diagnosis is made chiefly from the history. Hemophilia, hemorrhagic tendencies, cardiac disorders, lung disease, stomatitis due to drug poisoning and idiosyncrasies, heavy metal poisoning, salivary gland obstructions, vitamin deficiencies, neuralgias, early acute osteomyelitis, and early deep infections are only a few of the many conditions in which the history is an important factor in diagnosis.

Case history taking is an art, and science which takes into account the ingenuity, judgment and tact of clinical experience of the examiner to the fullest extent. The ones with extensive clinical experience record the most valuable case histories, as this enables them to search out and evaluate the most important facts in the case. A wide clinical experience is a necessary pre-requisite, of keen diagnostic ability, which is not always related to years of experience. One man, making full utilization of the senses of sight, touch, hearing and smell, can gain more experience in a year than another in a lifetime who looks but does not see, touches but does not feel, listens but does not hear, and smells but does not detect. A history may be valueless and extremely misleading if hurriedly taken and improperly recorded. The length of a history is by no means an indication of its value. It is better to have a short accurate concise statement containing the important facts regarding the case than a voluminous amount of extraneous material. A brief history containing salient facts is at once obviously more valuable than one written at length, but because

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of the inexperience of the questioner contains an abundance of irrelevant data presented in an incoherent manner. By brief proper queries, valuable information can be obtained without much loss of time. A proper knowledge of various diseases and conditions is necessary in order to determine the questions to be directed and in order to distinguish the relevant information from the irrelevant.

This may sound rather discouraging to the newcomers and inexperienced in the field. However, if a practice of taking routine histories in a careful, orderly, systematic manner is developed, it will be soon observed that it is not as difficult as it first appears. Careful case history taking aids in concluding a definite diagnosis, but also affords an adequate record system, the careful study of which will eventually result in the crystallizing of very definite ideas regarding the diagnosis and treatment plan of oral diseases.

## Principles of Examination of Patient

Sir William Osler has said 'If you listen carefully to the patient they will tell you the diagnosis.'

How may you gain information from a patient? Visual and physical signs, obtained by examination of a patient, can be useful but the majority of information about a patient is obtained through verbal communication. Relevant and useful information can be obtained by careful and appropriate questioning. The type, quality and reliability of information gained by questioning a patient, friend or relative are dependent on how you ask the question in the first place. There are three major types of questions used in history-taking:

1. *Closed question:* A question that only gives a limited choice of answer, such as yes or no. For example: Do you have pain?
2. *Open question:* A question that can be answered freely, with as much or as little information as the responder wants to give. For example: What is troubling you at the moment?
3. *Probing questions:* These are more direct questions than open questions, as they are based on information already obtained but allow a free response. For example: In what way does your tooth pain affect your eating?

Where possible, ask open questions, especially at the start of the history. This makes it easier for patients to give accurate answers. Leading questions, like 'You do not have pain do you?' should not be asked. Such questions may lead to incorrect answers by the patients, because they may think it is what you want to hear. The timing of your questions is important. Multiple questions in one breath confuse patients and result in missed answers. You will feel like you are saving time but your history will not be as thorough. During the interview it is usual to use a combination of open-ended and closed questions. Normally, open questions are more commonly asked at the start of the interview with closed questions asked later, as information gathering becomes more focused in an attempt to elicit more detail.

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## Starting the Consultation

There are three main aspects to initiating the session: preparation, establishing initial rapport, and identifying the patient's problems and concerns.

### Preparation

In preparing for a consultation, you should plan for an optimal setting to conduct the interview. In general practice or in the outpatient department, the consulting room should be quiet and free from interruptions. Patients often find that the clinical setting stokes up anxiety and therefore the environment should be made welcoming and relaxing. Time should be appropriately managed when preparing for the consultation. Ideally the practitioner should not appear rushed, and ensure that you set aside adequate time for the patient. The patient's first judgment is also influenced by the dress of the clinician. Fashions may change, but most patients have clear expectations of an appropriate dress and hence, it is advisable to adopt a dress code that projects a professional image. This may vary according to setting and patient group, like children may feel more comfortable with a doctor who adopts a slightly more informal appearance. Along with the attire, attention should be paid to personal hygiene; for example ensure that the hands and nails are clean.

### Establishing an Initial Rapport

Creating a rapport with the patient and gaining their trust is a key skill when taking a history. This is not always possible due to the nature of the illness/injury, communication difficulties or previous bad experience. It is a chance for you to demonstrate from the outset your respect, interest and concern for them. Before you start with the history taking, patient's consent should be gained. On approach, introduce yourself and explain that you are there to take care of them. It may sometimes be appropriate to give an idea of how long the interview might take. Patient-clinician communication consists not only of verbal discourse but also includes body language, especially facial expression and eye contact. When possible be at eye level while recording the history. The first contact should also be used to obtain or confirm the patient's name and to check how they prefer to be called. Some people are at ease when addressed by their first name, whilst others may prefer the use of their surname. If anybody is with the patient, ask who they are to the patient and if the patient is happy for them to stay in the room. State the need for the patient's history and what will be done with the information gained. Only then do you ask if it is ok to continue with the history.

### Identifying the Problems and Concerns of the Patient

One of the most important factors in this relationship is letting the patient know that they have been heard, that you believe them and that you want what is best for them. Start by asking an open question relating to the presenting illness (e.g. What has brought you to the doctor today?). Allow for silences and use gentle encouragement to let them continue their story. Encourage the patient

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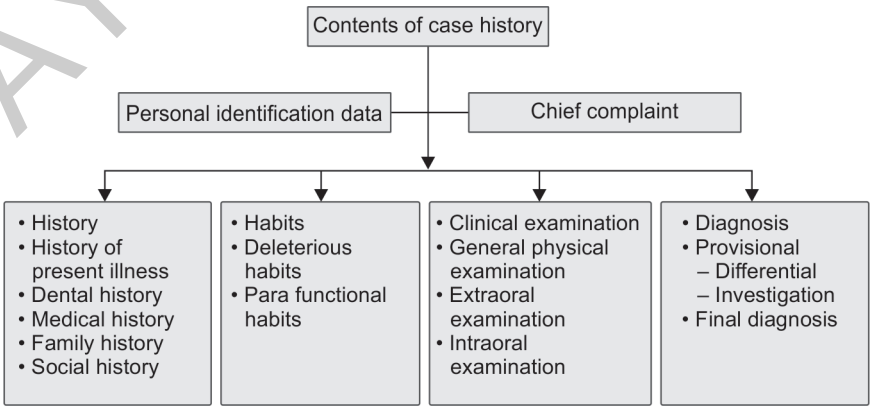
to describe how they feel, rather than tell you what someone else says is wrong with them. While open questions are always encouraged, there are times when closed questions are useful in the history or when the patient presents with multiple complaints (e.g. What is bothering you most at the moment?). The order of their problems may not relate to their importance from either the patient's or doctor's perspective. It is therefore particularly important in this initial phase not to interrupt the patient as this might inhibit the disclosure of important information. Try to avoid asking leading questions (e.g. Instead of asking Did the pain radiate into your neck and arm? You may ask Did the pain move?). Once the problems have been identified, it is worth reflecting on whether you have understood the patient correctly; which can be achieved by repeating the history to the patient. Closing the assessment with "Is there anything else you'd like to tell me?" is a good practice. A collateral history from relatives or friends, the patient's environment or apparent inconsistencies can inform the history. You may write down a summary of the patient's comments, but constantly maintain eye contact and avoid becoming too immersed in writing (or using a computer keyboard).

Gathering information on the patient's problems is one of the most important tasks to be mastered in clinical practice. The doctor must use a range of skills to encourage the patient to tell their complete information whilst maintaining a degree of control and a structure in the collection of information. As the history emerges, the doctor must interpret the symptom complex. The manner in which the interview is conducted, the conduct of the doctor and the type of questions asked may provide an insight on the information revealed by the patient. Obtaining all the relevant information from the patient can be decisive in formulating an accurate diagnosis **(Flow chart 1)**. The patient should feel that their welfare is central to the doctor's concern, that their complaint will be listened attentively, and their information and views will be highly valued. Since, most patients have no knowledge of anatomy, physiology or pathology, it is very important to use simple and patient friendly language and avoid medical terminologies.

**Flow chart 1:** Contents of case history

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## Personal Identification Data

*Name:* A patient usually likes to be called. It helps to elicit a better history and is of psychological benefit to the patients. This also helps in identification, record maintenance and communication when needed. Pediatric patients talk freely when addressed by their names or nicknames.

*Age:* Knowing the patient's age is important to the clinician as certain diseases are present at certain ages. For example

- Complete absence of teeth even at the age of 4–5 years is frequently associated with hereditary ectodermal dysplasia.
- Delayed eruption of teeth may be associated with rickets, cretinism or local factors such as fibromatosis gingivae.
- Delayed eruption of permanent tooth should be checked by radiographic examination, whether the teeth bud is present or absent. If present, the deciduous tooth needs to be extracted.
- In cases of ankylosed deciduous teeth, the ankylosed tooth should be surgically removed to prevent development of malocclusion, dental caries or local periodontal diseases.
- Behavior management techniques vary with the adults and children.
- The drug dosage differs for children and adults. The child dose can be calculated by the following formulas:
  *Clark's rule:* Child's age at next birthday/24 × Adult dose
  *Young's rule:* Child's age/Age + 12 × Adult dose
  *Dilling rule:* Age × Adult dose/20

*Sex:* Certain diseases show female predominance, whereas some others show, male predominance, such as dental caries due to more access to sweets, as their permanent teeth erupt at an early age (11–13 years) compared to males (14–16 years), so more exposure, female hormones, alteration in the composition of saliva and reduced flow during and more craving for food during pregnancy. Also females are more conscious of their esthetics when compared to males. Females are victims of sexual abuse and are also very sensitive and emotional. Thus dentists need to be careful with female patients.

*Out patient department number and date:* A unique out patient department (OPD) number or registration number should be given to each patient, which helps in identifying the patient and maintaining records at the dental office. This helps to know the details of the patient and the treatment done when the patient revisits.

*Occupation:* Enquire about working conditions as this may be very important if there is suspicion of exposure to an occupational hazard **(Table 1)**. Patients may attribute symptoms to work conditions, e.g. a headache from working in front of a computer screen. Other problems such as depression, chronic fatigue syndrome and general malaise may also be blamed on working conditions. Frequent job changes or chronic unemployment may reflect both socioeconomic circumstances and the patient's personality. Expensive treatments cannot be given to patients of low socioeconomic status. It is useful to enquire about specific stress in the workplace, such as bullying or the fear

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**Table 1:** Occupational hazards

| *Occupational disease* |
|---|
| • *Asbestos workers, builders:* Asbestosis, mesothelioma, attrition |
| • *Coal miners:* Coal worker's pneumoconiosis |
| • *Gold, copper, silicon and tin miners:* Pulmonary silicosis, attrition, erosion |
| • *Farmers, vets, abattoir workers:* Brucellosis |
| • *Aniline dye workers:* Bladder cancer |
| • *Health care professionals:* Hepatitis B |
| • *Carpenters, tailors, shoemakers:* Abrasion |
| • *Lead, bismuth or cadmium factories:* Gingival staining |
| • *Fisherman:* Cheilitis glandularis, carcinoma of lip |

**Table 2:** Travel-related risks

| *Travel-related risks* | |
|---|---|
| **Viral diseases** | **Bacterial diseases** |
| • Hepatitis A, B and C | • *Salmonella* |
| • Yellow fever | • *Shigella* |
| • Rabies | • Enteropathogenic *Escherichia coli* |
| • Polio | • Cholera |
| **Parasite and protozoan diseases** | • Meningitis |
| • Malaria | • Tetanus |
| • Schistosomiasis | • Lyme disease |
| • Trypanosomiasis | |
| • Amoebiasis | |

of unemployment. Certain conditions have strong relationships to depression; however, limitation of lifestyle (work or social) may result in some more subtle negative effects on mood. Ask the patient about their mood to open up this line of enquiry. Chronic long-term stress may induce periodontal destruction.

Certain patients are related to such occupations where they have to travel often **(Table 2)**. In such cases, ask the patient about recent foreign travel. If so, determine the countries visited and, if the patient has returned from an area where malaria is endemic, ask about adequate prophylaxis for the appropriate period.

*Education:* Enquire about the age at which the patient left school and whether they attained any form of higher education or vocational skill. In addition, to providing useful background information, this information provides a context for assessing diseases and disorders causing intellectual deterioration and social function. This will also help in determining the level of awareness regarding oral diseases.

*Address:* Patient's address reveals the locality where they live, which may be helpful in identifying conditions, common eating habits, locality and surroundings. This helps in identifying the common conditions that are prevalent in that particular region, such as fluorosis, eating habits may inform us about the sugar consumption which in turn will aid in knowing the prevalence of caries.

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*Martial status:* The martial status of patient/individual may be related to the stress associated with married individuals due to family pressure and consequent increased load due to other circumstances. However, stress may be a factor in patients who are single due to social pressure and work related pressure. The number of children that the patient has and their ages also should be taken into account.

## Chief Complaint

Ask why the patient has come for advice; the 'chief complaint' (CC). There are a number of ways of approaching this; however, 'Why are you here?' can sound rude. Phrases such as 'What problem has brought you here today?', 'What is troubling you at the moment?' may be more appropriate. It is symptom/symptoms in patient's own words relating to presence of abnormal condition. It indicates the special reason why the patient seeks health care. Chief complaint should be recorded in the patient's own words because the complaints expressed as symptoms leave no room for doubt regarding patient's problem. Patients may have present with numerous complaints. This presents a problem to the clinical student who will list them all. For patients with lists of multiple problems, refine your history in the following ways:

- All the complaints that a patient identifies must be listed with the major problem listed first. Taking the history in chronological order is important. Describe how the symptom first began. What happened next? In addition, duration of the complaint should be added.
- Learn those symptoms that indicate a serious disease process is going on. If you know these symptoms, you can concentrate on them.
- Define what the major symptoms are, that is, what the patient feels. It is these troublesome symptoms that reduce a patient's quality of life the most.

If a patient uses a medical term, ask them what they mean, as sometimes their understanding is different to yours. Asking a patient to point to the affected area is often useful. Establish if the symptoms are improving, deteriorating or unchanged. Common chief complaints related to oral diseases are:

- Pain
- Loose teeth
- Bleeding
- Halitosis
- Swelling
- Sores
- Burning sensation
- Delayed tooth eruption
- Dry mouth
- Excessive salivation
- Paresthesia/Numbness

Pain in the teeth, mouth, face or head usually has a local cause; often the sequela of dental caries (odontogenic pain) but, there is the possibility of other disorders causing the pain **(Table 3)**. The real significance to the patient

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of orofacial pain can range from the benign to potentially lethal conditions. Some orofacial pain or headaches have an obvious but relatively unimportant cause (e.g. a hangover). Others have no obvious underlying organic pathology (e.g. atypical facial pain); some can threaten sight (e.g. giant cell arteritis or benign intracranial hypertension); whereas yet others can be life-threatening organic disorders (e.g. subarachnoid hemorrhage, bacterial meningitis, or brain tumors).

**Table 3:** Causes of orofacial pain

| | |
|---|---|
| **Local disorders** | • Teeth, jaws and supporting tissues, maxillary sinus, salivary glands, pharynx and eyes |
| **Neurological disorders** | • Idiopathic trigeminal neuralgia<br>• Malignant neoplasms involving the trigeminal nerve<br>• Glossopharyngeal neuralgia<br>• Herpes zoster (including postherpetic neuralgia)<br>• Multiple sclerosis |
| **Possible psychogenic causes** | • Atypical facial pain<br>• Burning mouth syndrome<br>• Temporomandibular pain-dysfunction |
| **Vascular disorders** | • Migraine, migrainous neuralgia and giant cell arteritis |
| **Referred pain** | • Nasopharyngeal, ocular or aural<br>• Cardiorespiratory: Angina<br>• Lesions in the neck or chest (including lung cancer) |

## History of Present Illness

It is the record of narrative account of patient's problem from the onset to present time listing all the symptoms, signs and treatment undergone, if any in a chronological order. Once you have established the presenting complaint(s), identify the precise details of the current problem(s): the 'history of the presenting illness' (HOPI). Direct and specific questions are used to elicit the required information and can be recorded in narrative form as follows:

a. When did the problem start? and what did you notice first?
b. What makes the problem worse or better and have the symptoms become worse or better any time?
c. Any postural or diurnal (related to morning/evening time) variations?
d. Did you have any other problems or symptoms associated with this?
e. Any previous history of the same type?
f. Have you consulted any dentist or physician regarding the complaint?
g. Any treatment taken before or any medication being taken now and when did treatment start?

With pain problems history becomes more critical since it may be the only source of diagnostic information available. A well-described acronym, SOCRATES, is best used to elicit the features of pain; however, it is useful for many symptoms.

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| **SOCRATES:** The features of the history of the presenting complaint |
|---|
| *Site:* Where is the pain? And whether it is localized, diffuse or radiating?<br>*Onset:* When did pain first begin?<br>*Character (Nature):* Dull, piercing, throbbing, pulsating or burning?<br>*Radiation and manner of flow of pain:* Steady or paroxysmal?<br>*Associated features:* Lacrimation, nasal congestion or flushing.<br>*Timing:* How often does it occur? Is the pain constant, intermittent, recurrent or momentary?<br>*Exacerbating or alleviating features:* Does anything trigger it? Face movements, jaw movements, tongue movements, swelling, tensions or type of food consumed.<br>*Severity:* Mild, moderate, severe or excruciating? |

It is difficult to assess pain severity. Offering a patient a numerical score for pain, from '0' for no pain to '10' for excruciating pain, may provide a quantitative assessment of the symptom. So, each symptom should be expanded by detailed enquiry concerning development and relation to other symptoms. A comprehensive and valuable write up of the present illness necessitates a good basic knowledge of diseases of oral cavity so the interviewer is able to trace out leads given by a patient during interview.

## Past Dental History

It provides information about the various episodes of illness, its treatment and patient's response. The information gathered may or may not be significant in regard to patient's chief complaint but it can provide with patient's back ground and must always be reviewed. Past dental history provides us the basis to evaluate the patient's current dental status and how the patient will respond to the proposed treatment.

Following are the details that should be investigated:

- Frequency of visits to dentist.
- Past experience during and after local anesthesia.
- Past experience during and after extraction.
- Past periodontal therapy, orthodontic treatment, dental appliance history, restorations or root canal fillings.
- Any surgical procedures besides extraction.
- Complications, if any.

## Past Medical History

Why ask about past problems, illnesses and surgery? The past medical history (PMH) of a patient is incredibly important for ascertaining whether the patient is generally fit and well. Patients recall their medical history with varying degrees of detail and accuracy. Some provide a detailed history, whilst others need reminding. You can jog a patient's memory by asking if they have ever been admitted to hospital or undergone a surgical procedure, including cesarean sections in women. Certain conditions are often not volunteered or remembered when you ask, for example, high blood pressure

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(hypertension), ischemic heart disease (heart attacks, angina), high cholesterol (hypercholesterolemia), diabetes, epilepsy, asthma or other chest/lung/breathing problems, cancer, rheumatic fever and tuberculosis. Ask about these conditions specifically. Also included are any chronic childhood illnesses such as measles, rubella, mumps, whooping cough, chickenpox, rheumatic fever, scarlet fever, and polio. If the patient mentions specific illnesses or diagnoses, explore them in more detail. For example, if a patient mentions asthma, ask for a full description of the attacks so that you can decide whether or not the label is correct. Various questions may be required to obtain this information:

- Have you had any major illnesses in the past?
- Is there anything you regularly go to your physician for?
- Have you ever been into hospital before?
- Are you on any medication for X?

When taking the history of a child, it is usual to ask questions about the presence of any problems during pregnancy and birth, and about the progression of development. Learn the important developmental milestones of young children. Immunization history (or lack of it), growth and nutrition are all important in a pediatric history (if not immunized write down the reasons).

Past medical history (PMH) serves to establish a relationship between oral diseases and past systemic problems and consists of previously known and established medical facts. Primary function of this history is to avoid complications during dental treatment.

Past medical history (PMH) is usually organized in following sub-divisions:

- Any serious illnesses
- Hospitalizations
- Blood transfusions
- Allergies/immunizations
- Menstrual/pregnancy/menopause
- Medications
- Reviews of symptoms of systemic diseases of importance to the dentist
- Accidents/injuries

## Cardiovascular System

The cardiovascular history is obtained to identify evidence of organic heart disease or symptoms that suggest the presence, or possible presence, of cardiovascular abnormalities. A search for cardiac risk factors is also appropriately incorporated into the past history. Has the patient ever been told he or she has high or low blood sugar? (The latter is not a risk factor, but suggests that a blood glucose may have been drawn in the past). Has the patient had high cholesterol or triglycerides, or high or low blood pressure? Has the patient smoked, chewed tobacco, or used snuff in the past? What about parenteral drugs (legal or illegal)? Has the patient been overweight? A past history of cardiovascular disease is an extremely important part of the patient's evaluation and should not be dismissed as noncontributory.

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Has the patient ever had, or been told he or she had, a heart problem? If so, what? Taking a cardiac history involves checking that all components of the heart work. Dysfunction of any of these presents in the following manner:

- Reduced blood supply presents with chest pain or discomfort (often like a band or tightness) which may move or radiate into the neck, jaw, shoulder or left arm. The pain may come on with a fixed amount of exercise (stable angina) or suddenly at rest (suggesting a critical ischemia or acute coronary syndrome).
- An inefficient pump causes an accumulation of fluid and reduced output. Left heart failure results in fluid gathering in the lungs so the person may present with dyspnea (shortness of breath) or shortness of breath lying flat (orthopnea). To compensate for this positional problem it is often useful to ask patients how many pillows they sleep with. Right heart failure results in fluid gathering in the lower limbs (peripheral edema) or sacrum (sacral edema) and in the neck veins.
- Patients with pump failure may have a very limited exercise tolerance.
- Electrical disturbances may result in a feeling of palpitations (an awareness of the heart beating) which may be fast or slow, regular or irregular. The patient might be able to tap out the rhythm. Other disturbances may result in dizziness, light-headedness or collapse as not enough blood reaches the brain.
- Valve problems may result in sudden collapse, weakness/light-headedness or dizziness or reduced exercise tolerance.
- If the lower limb arteries are involved in atherosclerosis the patient may complain of intermittent claudication or they may have pale, cold, painful toes and feet, leg ulcers or ischemic toes. Atherosclerosis affecting the carotid arteries may cause a stroke (facial droop, weakness or slurred speech), a transient neurological deficit or loss of vision. Carotid artery calcification may be detected during routine orthopantomograms (OPG's) used for radiographic evaluation and may aid in identifying this life-threatening condition in affected individuals.

Obtain details regarding the diagnosis, when it was made, who made it, how it was diagnosed, and what was done about it. Ask questions such as:

- Did you have any operations of chest, heart valves in childhood? This indicates septal defects or presence of pacemaker.
- Did you suffer from fleeting joint pains, sore throat or fever? This indicates rheumatic fever which requires antibiotic prophylaxis during dental treatment to prevent the occurrence of sub acute bacterial endocarditis (SABE).
- Do you have any breathlessness on exertion? This would point towards congestive cardiac failure (CCF) which may be the cause of dry mouth due the side effects of digitalis and diuretics that are being administered.
- Do you have pain on left side of chest? This may point that the patient may have angina. Sublingual nitroglycerine is administered to these patients during the attack. If the patients do not respond it may lead to myocardial infarction. These patients may have a high caries rate as the binder of nitroglycerine is cariogenic.

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# Clinical Methods in DENTAL OFFICE

***Salient Features***

- The book is a step towards seeking educational formats that combine clinical research development with a provocative pedagogical approach—from our service to the patients
- Fulfills the lack of a comprehensive and precise book especially for dental students, who need to know basic examination principles, in general, and careful history recording for accurate diagnosis and management of patients in a simple manner
- Assists the dental undergraduates and postgraduates, professionals and practitioners to make informed clinical decisions on the optimal examination, diagnosis, management, and therapeutics of the patients.



**Santosh Patil** is currently working as a Reader, Department of Oral Medicine and Radiology, Jodhpur Dental College General Hospital, Jodhpur, Rajasthan, India. His passion towards the field of oral medicine and radiology has led him into research work, thereby understanding and solving the challenges of the field, particularly, related to oral submucous fibrosis, lichen planus, alternative oral treatment methodologies, etc., with a large number of scholars from various specialties in dentistry.

He has published more than 100 papers in several national and international journals that have been cited by researchers throughout the globe. His considerable talent has led him to pioneer the Indian Journal of Stomatology and International Journal of Women Dentists. He has been associated with several renowned journals and societies. He has also laid the foundation for a platform for researchers and professionals through the Dental Professionals Society and International Association for Dental Researchers and Practitioners.

Applying his experience and expertise, he has co-developed two android applications on oral lesions and oral radiology, which can help upcoming dentists and professionals to detect early signs of dental health issues using the intuitively organized information in them. These apps have been extremely popular.



**Sneha Maheshwari** is a Dental Practitioner, Jodhpur, Rajasthan, India. She has been a diligent researcher since her college days, wherein she was at the forefront of her peers in the study of dental science.

She has published several national and international research papers; which have been widely cited throughout her field. With her strong enthusiasm for spreading awareness about dental science, she has been associated with several renowned dentists and journals such as the Indian Journal of Stomatology; and International Journal of Women Dentists, where she is an Assistant Editor.

She has co-developed two android applications by the name of 'orodental lesions' and 'radiodent' which have been extremely popular with the students, practitioners and professionals.

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