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The Link: PEDIATRIC HISTORY-TAKING & PHYSICAL EXAMINATION



Foreword
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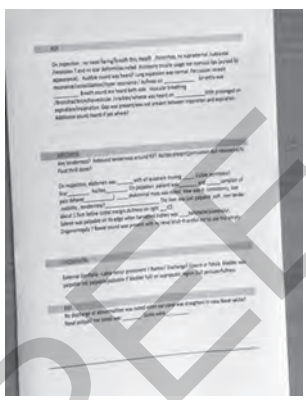
Chapter 3

Review of Systems

CORE OBJECTIVES

The review of systems (ROS)[1-28] is for the purposes of eliciting the following:

1. A list of questions focused on one organ system:
   a. Covers all important systems
   b. Covers all general symptoms of diseases[1-29]
   c. Utilizes a head-to-toe approach of organs in the body to clarify the history of present illness (HOPI) and all related symptoms



2. The collateral history of the mother pertaining to all related systems in the younger pediatric patient.
3. First-hand symptoms from the older patient himself or herself pertaining to all related systems.
4. Relevant negative symptoms of systems that will help exclude other diagnosis.



So the review of systems has a number of functions. Amongst the tasks are that it serves as a noninvasive tool that screens early symptoms of diseases. It also links and reviews symptoms that are relevant to the presenting problem. It is indeed a vital part of the pediatric history.

Features of the Review of Systems[5]

- Important health issues that involve systems other than the system in question, involved in the chief complaint are reviewed here
- These may be independently important or may contribute to making a diagnosis
- Strengthens the impressions or early differential diagnoses formed in the history of presenting illness (HOPI)
- Detailed questions of the systems with positive and negative answers which may allude to other differential diagnoses not already thought of after the HOPI may be asked here.
- Further defines the probable pathophysiological and etiological cause of the diagnosis
- Uncovers subtle symptoms of existing diseases
- Unmasks symptoms of early disease by direct questioning
- A history-taking tool to screen diseases.

SYMPTOMATIC ENQUIRY OF SYSTEMS

Examples to illustrate ROS in the gastrointestinal tract.

Take for example the importance of the systemic review in a child with abdominal symptoms:

Characteristics that may be linked to abdominal pain which are not already reviewed in the gastrointestinal system (i.e. the system in question).

1. **The importance of the review of system in a case of abdominal pain due to inflammatory bowel disease: elucidates disease etiology**
   In the review of systems, you may gather information of weight loss or weight gain indicating how the

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disease may have affected growth; you may ask about fever, joint complaints and rash.

- The occurrence of one or more of these indicates an inflammatory or infectious disease process.

2. **The importance of review of systems in vomiting due to gastroesophageal reflux: elucidates the influence of disease to other symptoms**

   In the review of systems, you may get information of the relationship of vomiting as a symptom in the HOPI to symptoms involving other systems.

   - Hyperactive airway disease, chronic cough and recurrent laryngitis may be more pronounced than the gastrointestinal symptomatology such as vomiting.

3. **The nondigestive tract causes of gastrointestinal symptoms: elucidates other causes of similar symptoms**

   In the review of systems, you get a chance to ask about similar symptoms that could occur in other systemic diseases.

   - Anorexia other than a sole symptom of gastrointestinal disease, could occur in many systemic diseases; vomiting can occur in gastrointestinal diseases, in urinary tract infections and increased intracranial pressure; diarrhea could be parenteral, constipation is seen in diverse simple etiologies and even in endocrine disorders like in hypothyroidism; dehydration can be due to many causes which can be individually asked in the ROS, abdominal pain can be a result of referred pain in many other etiologies, such as in renal diseases, pneumonias, some collagen vascular diseases and even as a psychogenic symptom. Hence, all other possible causes of the gastrointestinal symptom not reviewed in the HOPI can be thoroughly reviewed here.



The ROS varies in its length and details in different ages. It is usually briefer in the infant. In the older child, the tendency is for the ROS to be longer.

REVIEW OF SYSTEMS SPREADSHEET[2,5,6,11,19,27,28]

Review of systems (ROS)	*Symptoms*	*Yes or No*
In general:	Fever	
	Chills and rigors	
	Change in activity	
	Weight loss or weight gain	
	Others	
Mouth:	Ulcers	
	Bleeding gums or swollen gums	
	Lesions of soft and hard palate	
	Soreness of tongue	
	Dental caries	
	Others	
Head, ear, nose and throat:	Mouth breathing	
	Snoring	
	Excessive salivation	
	Change in vision	
	Decreased hearing	
	Ringing sensation in the ears	
	Runny nose	

Contd...

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Contd...

Review of systems (ROS)	*Symptoms*	*Yes or No*
	Thick white nasal discharge	
	Green nasal discharge	
	Ear pain	
	Ear discharge	
	Sore throat	
	Neck pain	
	Others	
Respiratory system:	Cough	
	Type of cough	
	Relieving and aggravating factors for cough	
	Wheezing and associated factors	
	Shortness of breath	
	Factors that reactivate breathlessness	
	Factors that relieve breathlessness	
	Recurrent chest infections	
	Other forms of noisy breathing	
	Change in color noted (e.g. pallor or cyanosis)	
	Others	
Cardiovascular system:	Shortness of breath	
	Sweating	
	Excessive sweating on scalp while feeding	
	Poor feeding	
	Unable to complete feeds	
	Color changes with feeding	
	Recent history of murmur detected	
	Chest pain	
	Palpitations	
	Fainting or dizziness	
	Exercise intolerance	
	Paroxysmal nocturnal dyspnea	
	Recurrent chest infections	
	Others	
Gastrointestinal system:	Stooling habits	
	Excessive regurgitation	
	Screaming episodes with legs drawn up	
	Abdominal pain	
	Nausea	
	Bloody vomitus or vomiting without blood	
	Bilious vomiting	
	Diarrhea	
	Constipation	
	Hematemesis	

Contd...

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Review of systems (ROS)	*Symptoms*	*Yes or No*
	Hematochezia	
	Melena	
	Symptoms indicative of gastroesophageal reflux disease (GERD)	
	Recurrent vomiting	
	Refusing to eat, gagging or even choking with feeding	
	Crying during feeding	
	Heartburn or “wind”	
	Symptom suggestive of abdominal pathology such as pain or discomfort	
	Others	
Genitourinary system:	Frequent unexplained fevers	
	Screaming episodes	
	Poor weight gain	
	Dysuria	
	Frequency	
	Urgency	
	Hematuria	
	History of sexual activity	
	Circumcision	
	Others	
Endocrine system:	Polyuria or polydipsia	
	Heat or cold intolerance	
	Precocious puberty	
	Delayed puberty	
	Feeding difficulties	
	Constipation	
	Growth pattern	
	Palpitations in teenage girl	
	Sweating excessively in teenage girl	
	Heat intolerance	
	Cold intolerance	
	Others	
Musculoskeletal system:	Myalgias	
	Arthralgias	
	Trauma	
	Limp	
	Muscle weakness	
	Others	
Neurological system:	Loud sounds are ignored	
	Does not follow objects with eyes	
	Head trauma	

Contd...

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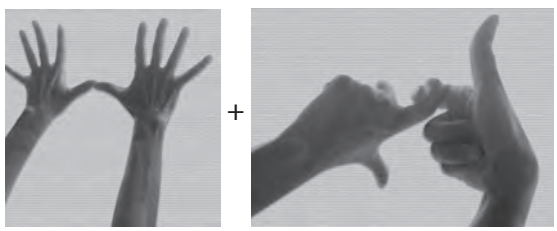
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Review of systems (ROS)	*Symptoms*	*Yes or No*
	Loss of consciousness (LOC)	
	Seizure activity	
	Developmental delays (later covered in detail under developmental history)	
	No eye contact	
	"Lazy eye"	
	Abnormal eye movements	
	Abnormalities involving chewing or swallowing	
	Constipation	
	Dysphagia	
	Recurrent chest infections (due to aspiration)	
	Pressure ulcers	
	Photophobia	
	Others	
Skin:	Rashes (with mother's description of site and nature)	
	Duration of rash	
	Exacerbating factors	
	Relieving factors	
	Noted petechiae	
	Noted bruising	
	Noted ecchymosis	
	Associated pruritis	
	Associated bruising	
	Associated petechiae	
	Associated nail problems	
	Associated hair problems	
	Others	
Infectious diseases:	Contact with adults with recent illnesses (later covered in detail under social history)	
	Contact with children in nursery with rashes (later covered in detail under social history)	
	Diarrhea	
	Cough	
	Fever	
	Recent travel to endemic areas (later covered in detail under travel history)	
	Immunizations (later covered in detail under immunization history)	
	Others	
Psychological or behavioral:	Decreased energy level	
	Extreme separation anxiety	
	Unusually obsessive	
	Cranky, temper tantrums (later covered in detail under behavioral history)	
	Others	

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SYMPTOMATIC ENQUIRY USING THE CARDINAL TEN (HISTORICAL) AND THE HISTORICAL LINK

- First and foremost, for an accurate and meaningful history, it has been emphasized earlier that you must ensure that, in pediatric history-taking, you and the mother (or caretaker) are talking about the same thing. Once that is established, the points listed under each system may be useful in the symptomatic enquiry of patients. Each case must be considered individually and all related questions pertaining to the condition must be asked.
- In the symptomatic enquiry, consider asking **The Cardinal Ten (Historical)** and the historical link whenever relevant and related.



In the symptomatic enquiry of systems, use these tools, i.e. The Cardinal Ten (Historical) and historical links, whenever necessary

RESPIRATORY SYSTEM[2,6,11,19,27,28]

- This is the most common system that is affected by diseases in the pediatric age group
- This is because the caliber of the air passages is much smaller in infants than they are in adults. For this reason, minor degrees of obstruction caused by mucus plugging or bronchospasm can make significant differences in the ability of air to enter or to leave the lungs
- The developmental immaturity of immunological functions render children susceptible to many infections of the respiratory tract; mucosal secretory IgA is deficient in the young infant. This deficiency is compensated to an extent by exclusive breastfeeding
- Remember that pediatrics covers a spectrum of age groups with different susceptibilities to various diseases. In all diseases of children, due consideration must be given to the age in thinking of the differential diagnosis and etiology. The respiratory diagnosis, too, must be thought of with the age of the child in mind
- The influence of congenital anomalies on some respiratory diseases in childhood must not be forgotten. The younger the child, the more important this consideration is. It is good practice to think of and try to exclude congenital problems of the respiratory tract in all children under one year of age
- In congenital anomalies involving the respiratory tract, such as tracheoesophageal fistula, the pregnancy and birth history (e.g. history of polyhydramnios) can be used to give some clues to the type of congenital anomaly. Such historical links are important
- To make your history practical and clinically apt, go into the enquiry of necessary details on all activities of daily living (ADL) especially in children with chronic airway diseases
- Common respiratory symptoms such as coughing, mouth breathing, noisy breathing, breathlessness, exercise tolerance, sputum production and nasal congestion are typical respiratory symptoms that must be elucidated in detail.



The history of polyhydramnios in pregnancy is a link to a possible diagnosis of a tracheoesophageal fistula with esophageal atresia

HISTORY OF COUGH AND ITS CHARACTERISTICS[2,6,11,19,27,28]

What do You Ask about Cough?

Expectoration

Remember that young children cannot effectively bring out their sputum and often swallow it, hence a productive cough is not routinely expected in young infants. If expectoration is present, ask about the color, quantity and nature. In the older child and adolescent ask about the color, where mucoid sputum occurs typically in chronic bronchitis when secondary infection is not present.

Tenacious sputum may be found in the older asthmatic child or the adolescent.



"I do remember the Charcot-Leyden crystals[22] and Curschmann spirals in the asthmatic sputum that I diligently learnt about in pathology. Such crystals may be seen in conditions associated with increased turnover of eosinophils and basophils"

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Mucopurulent sputum is seen in upper respiratory infections and indicates secondary bacterial infection. The purulent sputum is thick and greenish yellow, often seen in bronchiectasis, bronchopneumonia or lung abscesses.

In lobar pneumonia the adolescent may bring forth viscid, rusty sputum. Hemoptysis may be due to tuberculosis or bronchiectasis. Hemoptysis may also have important extrapulmonary causes and systemic causes like bleeding disorders and systemic infections.

Characteristic Association of the Cough

This is useful to clarify. It may point towards the etiology or pathophysiology.

- A whoop may indicate pertussis or pertussis-like disease
- A brassy cough or one that is barking in nature may indicate acute inflammation of the larynx and is heard in croup
- A dry or hacking cough is of a viral infection
- A staccato cough is heard in chlamydial infections
- A cough that occurs in paroxysms may suggest pertussis, chlamydia, or foreign body
- A "honking" cough may suggest psychogenic cough
- A cough absent during sleep is suggestive of a habitual cough or even psychogenic in origin
- A "chesty" cough or a wet cough in bronchitis and in like lower respiratory infections like pneumonia
- A nocturnal cough is seen in asthma
- A recurrent cough worse on lying down in postnasal drip, bronchial asthma and in cardiac failure.

Associated Symptoms

When there are associated symptoms such as cyanosis and dyspnea, explain these pertaining to change of color, rapid breathing, struggling for air and in-drawing of chest.

If vomiting occurs, enquire about the nature of vomitus, color of phlegm in vomitus, how much vomitus, when it occurred and other relevant associated symptoms.

Reflect upon the History

THINK

WATCH

LISTEN

TALK

THINK AGAIN

If the cough was associated with rapid breathing, the timing and association with cough or cyanosis or restlessness are important questions to ask. In the older child ask what activity brought it on. If breathlessness is sudden, explore the possibility of foreign body insertion into the nostrils or the choking associated with accidental aspiration of foreign bodies, such as peanuts. Here you must consider the age and development of the child.



Link the age of the child and the development of a pincer as a fine motor milestone which enables the child to pick the peanut in the diagnosis of peanut aspiration

Accompanying Symptoms

If there are accompanying symptoms such as noisy breathing when crying, quiet or asleep and if these noises were not there prior to the cough, try to define this by asking mother how intense the noises are. Elucidate with **The Cardinal Ten (Historical)**.

In inspiratory or expiratory noise, ask on onset whether abrupt or slow or if associated with drooling of saliva. Ask on the ability to feed. Ask if there is any associated fever. The activity of the child prior to this, in the preceding days, and the presence of a runny nose prior to onset of the inspiratory noise can give a clue to the diagnosis.

Duration of cough[2,6,11,19,27,28]	Days, weeks and months[2,6,11,19,27,28]
Timing	Nocturnal or all through the day, during sleep or feeding
In older child, with or without expectoration	If expectoration present, what color is it?
Any precipitating factors?	Certain foods, colored drinks, or runny nose. Children swimming in cold water, exercise, cold weather or certain foods, colored drinks, flavors or odors
Characteristic association of the cough	Whoop, barking, paroxysmal, nocturnal and so on
Associated symptoms	Vomiting, cyanosis, or dyspnea
Accompanying symptoms	Noisy breathing when crying, quiet or asleep

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If chronic stridor is suspected, ask briefly about birth history and neonatal history at this point. If such causes are likely, you may then proceed to indepth enquiry.

Uneasiness in the Chest or Chest Pain

This symptom may be elicited in the older child who is able to point to the chest when asked about this symptom. He or she may be able to point out to that part of the chest and to tell how painful it is, whether associated with symptoms suggestive of heart burn, when it occurs, during exercise, when playing at home or at school. In pleuritic pain, the chest pain is associated with deep breathing.

Feeding History

In infants a feeding history is important. This should be asked in depth as rapid breathing or tachypnea due to lower respiratory diseases can seriously interfere with the child's feeding. The feeding history is further elucidated under that section.

Hospitalization History or Visits to the Hospital

Information concerning hospitalization for respiratory illnesses, visits to the emergency department for treatment of respiratory illnesses and absence from school reflect the severity of the respiratory illness. Take note that missed school or inability to take part in school activities are vital components of the pediatric history. The past medical history is further clarified under that section.

Other History

If breathing difficulties are considered to be probably allergic in origin, ask of swellings of any part of the face suggesting urticaria. Angioneurotic edema can manifest as swellings involving the lips. The history of allergies are further dealt with in the section on allergies.

Immunization History

This is important (refer section on immunization history). Immunizations that are deemed immediately relevant to the presenting illness can be asked here. Remember that if the child is immunized against a disease, the likelihood of that disease is less than in an unimmunized child. A full immunization history can later be obtained under the section on immunization.

Family History

Concomitant occurrence of similar respiratory illness in the family is suggestive of an infective pathology, usually a viral etiology. The family history is important and should include questions about asthma, atopy, immune deficiencies and cystic fibrosis. Here too, relevant questions can be a clue to the differential diagnosis. Later, the family history can be explored under the appropriate section. In infections of the respiratory tract, a single virus may produce different illnesses in the family with typical flu-like symptoms in the parents, bronchiolitis in the infant, croup in the slightly older child, pharyngitis in another and a subclinical infection in yet another member of the family.

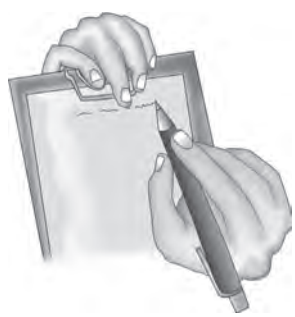
Environmental History

The link between the environment and many upper and lower respiratory illnesses are well known. The environmental history must include exposure to smoke, pets and pollutants. There is a recognized association between chronic pulmonary disease and air pollution. Air pollution also aggravates pre-existing pulmonary disease and impairs pulmonary function in children and teenagers. Smoking parents particularly whose children have chronic lung disease are subjecting their children's lungs to passive cigarette smoke at home. They should be educated in cessation of smoking.

Travel History

The History of Travel is Relevant

Remember that some respiratory diseases can be spread via travel including tuberculosis, influenza, SARS, meningococcal disease and measles. Visitors from endemic areas are also a source of infection. More details are stated under the appropriate section.



The History in Wheezing

Wheezing is both a common and an important symptom in respiratory diseases in children. Take the history of wheezing using **The Cardinal Ten (Historical)** and the historical link.

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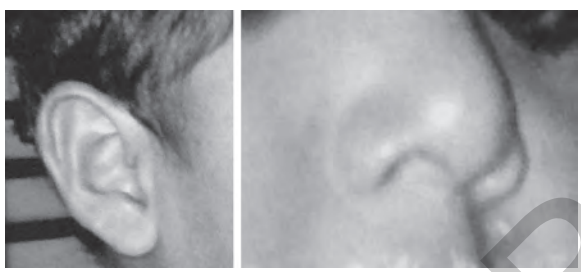
DISTINGUISHING FEATURES IN THE HISTORY OF WHEEZING[2,6,11,19,21,27,29]

History[2,6,11,19,21,27,29]	Interpretation of history[2,6,11,19,21,27,29]
	• When • What • How • How much • How long • How much less or how much more • What else • Worsened by • Lessened by • What was done
History[21]	**Interpretation of history[21]**
What is the child fed? Is there wheezing and chronic prolonged cough in the child fed cow's milk? Is there wheezing with rhinitis in the infant fed cow's milk? Is there recurrent wheezing, chronic cough, recurrent fever, tachypnea, failure to thrive or a family history of CMPA?	• Cow's milk allergy (CMPA) may be IgE mediated • CMPA may be IgE mediated • Non-IgE mediated respiratory reactions should be considered in infants with a form of chronic pulmonary disease (Heiner's syndrome)
At what age did the wheezing start?	• Differentiates congenital causes of wheezing from non-congenital causes
How did the wheezing start? Was it of acute or insidious onset?	• Foreign body aspiration is sudden or subacute in onset
Does the wheezing exhibit a particular trend or pattern?	• If it is intermittent wheezing, it suggests bronchial asthma • Wheezing that is persistent, suggests congenital or inherited genetic causes
Is the wheezing linked with a cough?	• Nocturnal cough and wheezing is suggestive of bronchial asthma
Is the wheezing precipitated by weather, cold air, smoke, chemicals, medications [e.g., aspirin and other nonsteroidal anti-inflammatory drugs (NSAIDs)], beta blockers, odors, exercise, bisulfite food additives and hormonal changes (menstrual cycle)?	• Varies triggers of bronchial asthma including drugs, food additives, emotion, activity, environment and pollutants
Is the wheezing linked to feeding?	• GERD (Gastro-esophageal reflux disease) or TOF (Tracheo-esophageal fistula)  *Link wheezing to feeding and ask about recurrent vomiting, choking and gagging if suggested by history*
Is wheezing recurrent with multiple incidences of respiratory ailments in a child who has problems like loose stools and multiple unusual infections?	• Cystic fibrosis, immunodeficiency
In temperate climates, one may investigate as to whether the wheezing is linked to a specific season. Seasonal links are partly due to aeroallergens such seasonal pollen, mould, spores, dust mites and animal allergens In tropical or equatorial climates, it tends to occur all year round	• Croup: Occurs frequently from autumn to winter • Respiratory syncytial virus (RSV): Occurs frequently from autumn to spring • Allergic asthma: Sensitization to domestic mites[3] in the tropics
Is the wheezing affected by changes in position?	• Tracheomalacia, a pedunculated polyp of the lower respiratory tract and anomalies of the great vessels.
Are there any family members who suffer from wheezing?	• Infections, allergies
Does the child have an underlying cardiac problem such as a VSD or PDA or a cyanotic heart disease? Is the infant failing to thrive with feeding difficulties and excessive scalp sweating during feeding?	• Wheezing due to heart failure.

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EAR, NOSE AND THROAT (ENT)[2,6,11,19,27,28]

- The nose is part of the upper respiratory system. The middle ear and throat are closely connected. Hence the history of the ENT is relevant independently and as a part of diseases of the respiratory tract and as part of some systemic diseases
- The ENT is commonly affected by viral and bacterial infection and may be the primary source of infection in children
- Infections of the middle ear are important to suspect in a febrile child and must be elucidated when there are historical clues
- Remember! While nose bleeds due to nose picking are common in children, a generalized hematological disorder may reveal itself by unilateral or bilateral epistaxis while epistaxis due to a foreign body is unilateral.



The history of problems of or related to the ear and nose are important in children (with kind permission from VRK)

Ears[2,6,11,19,27,28]	**Nose**[2,6,11,19,27,28]	**Throat**[2,6,11,19,27,28]
Ear pain	Watery nasal discharge (rhinorrhea) or thick or purulent nasal discharge (rhinitis)	Pain in the throat
Ear discharge	Nose block or obstruction	Difficulty swallowing (dysphagia)
Hearing loss or tinnitus	Noisy breathing	Painful swallowing (odynophagia)
Blocked sensation in ears	Nose bleeding, unilateral or bilateral	Neck swelling
History of insertion of foreign body	History of insertion of foreign body	Contact with persons with sore throat
Itching of the ear	Itching or discomfort of the nose	Itching of throat

Ears[23]

Ear Pain

The child may be pointing to the ears and crying or excessively rubbing the ears or may have difficulty going to sleep. Where foreign bodies are suspected, it may be useful to ask if the mother suspects that there is something in the ears; if so, ask her what she thinks it may be and for how long it has been in the ear.

Ear Discharge

Ask about the nature of discharge, color, amount, whether unilateral or bilateral, odor and nature whether mucoid, mucopurulent or blood stained. The carer may have seen the discharge or may have noticed staining of the child's pillow.

Remember that infections of the middle ear (otitis media) occur more frequently in the infant who has not been breastfed in children who habitually bottlefeed when sleeping, when there is a history of a sibling with ear infection, children taken care at day care centers and exposed to cigarette smoke. The symptoms of otitis media differ in the young infant compared to the older child. In the older child ear pain is an important symptom of acute otitis.

Symptoms of Otitis Media by Age[2,6,11,19,23,27,28]

Symptoms in infant	Fever, irritability, poor feeding (nonspecific symptoms)
Symptoms in the older child	Fever, ear pain (otalgia) (specific symptoms)

Otitis externa refers to a condition that involves inflammation of the external auditory canal. It is linked to swimming in pools or lakes. It is thus also called swimmer's ear. Ask about pain, tenderness and aural discharge. In otitis externa there is no fever. It is associated with pain on touch to the pinna or tragus of the ear.

Hearing

- Enquire about the child's response to sound from near and far. If there is difficulty in hearing, ask how parents noticed, enquire of recent flu. If sensorineural hearing loss is suspected, ask about parental concerns



Enquire about the child's response to sound from near and far. When a history of suspected hearing loss is elicited hearing tests must be done

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about learning, problems at school and language development.
- Ask about past hearing tests.

Tinnitus

- Does older child complain of buzzing in the ear?
- Ask for post-auricular swelling or tenderness (pain to touch) in association with history of upper respiratory illness.

Nose

Nasal discharge (Rhinorrhea) or Obstruction[23]

In a newborn, if the cyanosed child becomes pink on opening the mouth or when crying, think of the diagnosis of choanal atresia. Remember in the younger child, always exclude congenital anomalies. Ask if there is unilateral or bilateral discharge or obstruction seen. Also enquire if there is sneezing or a history suggestive of a post-nasal drip such as nocturnal cough or in an older child, a tickling sensation behind the throat.

Ask for history of a stuffy nose or frequent colds, if there is itching or a watery nose. Ask about the color and quantity of discharge (thick or light, mucous or blood stained). Enquire regarding disturbance of sleep due to breathing difficulty.

If there is a history of recent trauma, clear nasal discharge not associated with any symptom to suggest infection or allergy, must make you link the discharge to trauma and try to exclude this in the history and subsequent physical examination. If nasal discharge is offensive and unilateral enquire about possibility of foreign body in nose, like child playing with small toys or beads.

Sinusitis or paranasal sinuses infection may present with persistent mucopurulent bilateral or unilateral nasal discharge, nasal stuffiness and cough at night. This is a complication of the common cold or allergic rhinitis.

Pneumatization of the Sinuses in Children[23]

This information reminds the student of the age-related involvement of the paranasal sinuses. Hence frontal sinusitis is not a diagnosis made at birth!

Name of sinus[2,6,11,19,23,27,28]	Pneumatization of sinus[2,6,11,19,23,27,28]
Ethmoidal sinuses (formed at 3rd to 4th gestational month)	At birth
Maxillary sinuses (formed at 3rd to 4th gestational month)	At birth
Frontal sinus	7 years
Sphenoid sinus	5 years



This is good to know……

Kartagener's syndrome is a syndrome of defective mucociliary clearance where patients are afflicted with chronic upper and lower airway disease. Recurrent chronic sinusitis is a feature. They present with persistent thick mucoid nasal discharge early on in life. It is associated with bronchiectasis and situs inversus. Other links include infertility due to immotile spermatozoa. An autosomal recessive pattern of inheritance is recognized. The enquiry of a family history of consanguinity is relevant.

Coughing

Enquire if child coughs when asleep.

Noisy Breathing

Ask for aggravating and relieving factors and whether the child breathes with mouth open. Ask if child snores.

Vomiting

Ask if there is vomiting at night or after feeding.

Nose Bleeds

If bleeding from nose is present, ask if it is unilateral or bilateral and whether the blood is fresh and enquire about the quantity of blood. Also ask for how long and how often it occurs. It may be associated with nose picking or may be spontaneous.

Throat

Enquire if there is any pain in the throat, inability to swallow or pain on swallowing, any contact with people with sore throat or associated vomiting or fever. Any noticed swellings of the throat or neck? Ask for any history of malaise or associated nasal congestion.

ENT symptoms of allergic rhinitis[2,6,11,19,23,27,28]
• Sneezing, often paroxysmal
• Rhinorrhea, often watery and profuse
• Nasal obstruction
• Itching of the nose, palate, ears
• Itching, redness, tearing of the eyes
• Complaints of periorbital swelling in severe conditions

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GASTROINTESTINAL TRACT[2,6,11,19,27,28]

- There are many symptoms that begin in the gastrointestinal tract that may actually constitute important medical conditions within the gastrointestinal tract. Surgical causes of gastrointestinal symptoms must always be thought of and enquired into with **The Cardinal Ten (Historical)**.
- Remember that in children illnesses in other systems can cause abdominal pain. Therefore, ask about non-gastrointestinal symptoms like fever, headache, sore throat, cough, otalgia and dysuria.
- The influence of family illnesses on gastrointestinal symptoms of the index patient should not be forgotten. Hence, enquire about recent food ingestion with the family, members having similar symptoms help you with the diagnosis and the source of the infection. The history of gastrointestinal illnesses in the family, illnesses amongst classmates or in the nursery are factors that can help in making a diagnosis and to clarify etiology.
- Bear in mind that sometimes abdominal pain in children may not have an identifiable pathology with no specific diagnosis that can be made, hence a good and complete history and physical examination are important for clarification and appropriate management.
- The history (and examination) must focus at excluding life-threatening causes of abdominal pain and elucidate if a surgical cause must be considered. For example, bilious vomiting is always a sinister symptom in a child with abdominal pain.

Features that help in the characterization of abdominal pain in children[2,6,11,19,23,27,28]
• Severity
• Age of onset
• Location
• Timing of onset
• Character
• Associated features

ABDOMINAL PAIN[2,6,8,11,19,24,27,28]

Symptoms Suggestive of Abdominal Pathology such as Discomfort or Pain

Mother or caregiver will sometimes be able to tell if a child is having abdominal discomfort or not. Ask them what makes them think so; ask the details of 'when' and 'why'. The mother or caregiver may sometimes reveal their feelings about the cause of the pain (mothers may reveal important details about the time of day the child cries or the time the child is fussy or irritable or when the meal or milk feed was refused by the child.

Age of Onset

An important consideration in the history of abdominal pain is the age of the child.

The History of Pain



The causes of pain differ in etiology by the age of children. Pain is expressed in different ways by children. Abdominal pain in children is a symptom that challenges the diagnostic ability of the doctor.

- In a young infant, excessive inconsolable crying that is not relieved by the mother's touch or handling is indicative of pain. Many important points in the history (related to the child's age) can be asked
- Until children are much bigger they may not accurately express the onset or location of pain. The classic sequence of shifting pain from umbilicus to right iliac fossa usually occurs with acute appendicitis
- Young children who are unable to verbalize may present late. In such children, the history of vague nausea or periumbilical pain may be unnoticed. However, any child with pain that localizes to the right lower quadrant should be suspected of having appendicitis
- The pain of intussusception is intermittent and severe causing the child to draw up the legs in pain, a characteristic history to elicit
- In a child of school going age explore abdominal pain in relation to school, meals, eating of certain foods with each symptom detailed by **The Cardinal Ten (Historical)**
- Explore psychosocial stresses at school or at home, where applicable. Ask about teachers, homework, ability to cope, worsening and relieving factors of pain e.g. does the child experience similar pain during school holidays; do not forget to ask about friends at school, games and other activities
- However, in a child who is at an age where he or she is able to understand and give a reasonable history, the mnemonic acronym **SOCRATES**[7] is well-known and a tool in the history-taking of pain:

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