**MINISTRY OF HIGHER EDUCATION AND SCIENTIFIC RESEARCH**

**SOUTHERN TECHNICAL UNIVERSITY**

**TECHNICAL INSTITUTE / AMARA**

**NURSING DEPARTMENT**

**Learning package in field of**

# Paediatric Nursing

**Presented to the 2nd class students**

Designed by

Mohamed Abar

2019-2020

# The new born baby

Definition:- A newborn refers to an infant in the first 28 days after birth; the term applies to Premature infants, Postmature infants, and Full term infants .

## The features of new born baby :

A. Weight :- In developed countries, the average birth weight of a full-term newborn is approximately 3.4 kg and is typically in the range of 2.7-4.6 kg .
Over the first 5-7 days following birth, the body weight of a term neonate decreases by 3-7%, and is largely a result of the resorption and urination of the fluid that initially fills the lungs, in addition to a delay of often a few days before breastfeeding becomes effective. After the first week, healthy term neonates should gain 10-20 grams/day.

B. Length :- The length of new born baby range from ( 35.6- 60 cm). The average (50Cm) male new born baby is taller than female new born baby.

C. The skin:-it is usually dark pink covered with few lanugo hair

Lanugo hair :- it is a fine , immature hair covered the body of new born baby especially the premature baby and some dark hair baby it is usually disappear in the first week of life .
Infants may be born with full heads of hair; others, particularly Caucasian infants, may have very fine hair or may even be bald. Amongst fair-skinned parents, this fine hair may be blonde, even if the parents are not. The scalp may also be temporarily bruised or swollen, especially in hairless newborns, and the area around the eyes may be puffy.

Vernix caseosa :- soft white creamy layer covered the skin of the premature baby disappear by terms .

Mongolian spots :- transient dark blue to black pigment seen over the lower back , buttock , in 90 % of the black , Indian , and oriental babies disappear in (1-2 years ) of life.

Hemangioma :- transient pink macule in the back of the neck , eyelids, forehead.

Milia:- pin head whitish spot seen on the nose ,chin disappear in first (1-2 week ) of life.

D. Head:- Head circumference (HC) is ( 33 - 37 cm ) , 35 cm. there are two fontanels :-

1) Anterior fontanel :- it is a bony gap in the skull result from incomplete fusion of 2 frontals & 2 parietal bones, it is diamond in shape, measured (2.5 × 2.5 cm) closed in (15-18 month) of life causes of delay in closure in rickets , causes of bulging in crying , hydrocephalus.

2) Posterior fontanel :- it is a bony gap in the skull result from incomplete fusion of 2 occipitals & 2 parietal bones, it is a tiangulre in shape, measured (0.5 cm) in width, closed in (6-8 week) of life.

E. Chest :- chest circumference (CC) is ( 30 - 35 cm ) , it is like a bell. (CC) is equally or less than the (HC) .

F. Muscles:- it is fine and small , but have full strength.

## G. The nervous system (N.S)

The brain of the NBB is immature so that the reaction of the NBB to the external stimuli is by a reflex called primitive reflexes (PR) the presence of these PR indicate that the (N.S) was normal or (health)

### The primitive reflexes are

i. Motor PR include:- Moro reflex or (startle R) grasping , stepping, knee jerk, planter reflexes .
ii. Primitive reflexes related to the feeding include:- Rooting, sucking, swallowing reflexes .
iii. Protective reflexes include :- sneezing ,coughing Blinking, yawing, gagging reflexes .

### *i. Primitive reflexes related to Motor*

1. Moro reflex (startle R) :- when the NBB exposed to a high voice or sudden change of his position the baby will extend and abduct both arms and legs then flexion and adduction of both .
2. Grasping R:- when the index finger is placed across the palm will cause flexion and grasping of the fingers.
3. Stepping R when the baby is hold upright and the foot placed over affirm surface ,the other leg will flexed in the hip and knee in a stepping movement.

### *ii. Primitive reflexes related to the feeding*

1. Rooting R :- Is done by touching the check of the NBB he will turn his head toward the stimulus.
2. Sucking reflexes
3. Swallowing reflexes

Both motor reflexes and the reflexes related to the feeding disappears by 4-6 month of age.

### *iii. Protective reflexes*

1. Sneezing and coughing R when foreign body in the upper respiratory tract the NBB will sneeze or cough in order to discharge this foreign body.

2. Blinking R when foreign body near his eyelid or high light he will try to close his eyes.
3. Gagging R when there is a large amount of milk in his mouth and he cannot swallow he will try to discharge it out.

## H. Senses

The NBB has many sensation like touch, sight, hearing, taste, smell senses

1. Touch sense :- it is well developed in NBB especially in lips, tongue, ear, cheek so can feel these external stimuli to the skin like light touch, pressure, change in temperature.
2. Sight sense :- close his eyes to the light.
3. Hearing sense :- we can test the hearing by doing moro reflex or by a bell from a short distance.
4. Taste sense :- it is more developed than the sense of sight and hearing, the NBB like sweat liquid, refuse bitter.
5. Smell sense :- he has a good smell to his mother milk so can reach the breast of his mother

## I. Vital signs

The vital signs include the: -

1. Temperature : The temp of the NBB is unpredictable so he has sudden fall in the temp. immediately after birth then start to increase and his temp. is affected with the temp of the room and bed. Normal body temperature (36-37.70c). measured initially per rectum later on measured axillaries'.
2. Heart rate : Normal heart rate of the NBB is (120-160) beats/mint, it increase with crying.

3. Respiratory rate: Normal respiratory rate is (30-60) beats/mint we can monitor respiration by movement of the muscle of the chest and abdomen.

## Birth injury :-included :-

1) In forceps delivery:- marks on the face, wounds, ecchymosis.
2) In breech delivery:- edema of he testes with ecchymosis.
3) Caput succedaneum:- diffuse edematous swelling in the soft tissues of the scalp occur after prolonged labors because of pressure on the head subsided by 2-3 days .
4) Cephalhematoma :- sub periosteal hemorrhage .disappear in 4-6 weeks .
   - both caput succedaneum &cephalhematoma not need treatment .

## Assessment for Well-being

### APGAR SCORE - Dr. Virginia Apgar

Special Considerations:

- 1st 1 min - determine general condition of baby
- Next 5 min- determine baby's capabilities to adjust extra uterinely
- Next 15 min - dependent on the 5 min

A = appearance- color - slightly cyanotic after 1st cry baby becomes pink.
P = pulse rate - apical pulse - left lower nipple
G = grimace - reflex irritability- tangential foot slap, catheter insertion
A = activity - degree of flexion or muscle tone
R = respiration

Baby cry - within 30 secs
Failure to cry after 30 secs - asphyxia near the neatorum
Resp. depression - due mom given Demerol. Administer Naloxone

# Apgar Scoring System

| Indicator | | 0 Points | 1 Point | 2 Points |
|---|---|---|---|---|
| A | Activity (muscle tone) | Absent | Flexed arms and legs | Active |
| P | Pulse | Absent | Below 100 bpm | Over 100 bpm |
| G | Grimace (reflex irritability) | Floppy | Minimal response to stimulation | Prompt response to stimulation |
| A | Appearance (skin color) | Blue; pale | Pink body, Blue extremities | Pink |
| R | Respiration | Absent | Slow and irregular | Vigorous cry |

0 - 3 = severely depressed, need CPR, admission NICU

4 - 6 = moderately depressed, needs add'l suctioning & O2

7 - 10 =good/ healthy

CPR = Cardio pulmonary resuscitation or

CPR = Cardio pulmonary cerebral resuscitation

- 5 min no O2 - irreversible brain damage
  - shake, no resp, call for help
  - flat on head
  - head tilt chin lift maneuver except spinal cord injury over extension may occlude airway
- Breathing ( ventilating the lungs)

♥ check for breathlessness if breathless,

- give 2 breaths- ambu bag
- > 1 yr old- mouth to mouth, pinch nose
- < 1 yr - mouth to nose
- force - different between baby & child ( infant – puff )

- Circulation

♥ Check for pulslessness:

- Carotid- adult
- Brachial - infants

- CPR - breathless/pulseless
  - Compression - inf - 1 finger breath below nipple line or 2 finger breaths or thumb
  - CPR infant 1:5
  - Adults 2:15
- Assessment tool determines respiration of baby
  Silvermann Anderson Index

Respiration Evaluation - lowest score - best

| Criteria | 0 | 1 | 2 |
|---|---|---|---|
| Chest movement | synchronized | Lag on respiration | See - saw |
| Intercostal retraction | No retraction | Just visible | Marked |
| Xiphoid retraction | None | Just visible | Marked |
| Nares dilatation | None | Minimal | Marked |
| Expiratory grunt | None | Heard on stet only | Heard on naked ear |

Interpretation result:
0 -3 - normal, no RDS
4 - 6 - moderate RDS
7 - 10 - severe RDS

## Feeding of Baby

Breast milk has many advantages over formula such as

1. Requiring no mixing .
2. Being the correct temperature .
3. Requiring no sterilization
4. Being easily digested .
5. Having antibodies and immunoglobulin to many types of microorganisms, which are passed from mother to baby .
6. Being the correct temperature .
7. Being cost effective

## Family teaching :

Colostrums : it is first immunization , explain to the mother that breast milk does not come in until the 2nd or 4th day , until the newborn gets nutrients from colostrums , a product the breast produces prior to milk.

## Breastfeeding :

1. breast may be firm but feel softer after nursing.
2. Nurse at least 10-15 minutes on each side.
3. To prevent nipple tenderness hold infant correctly , cradle hold , football or side-lying down .
4. Make sure the newborn lips are behind the nipple , encircling areola .
5. Release the suction before the newborn is removed from the breast by placing a finger in the side of the mouth and between the jaws.
6. After nursing express a little breast milk , massage into the nipples and areola, and allow to air dry.
7. Avoid using soap , alcohol or creams on breasts or nipples , Express droplets of breast milk and allow to air dry , especially for cracks and reddened areas on nipples , clean with water during showering or bathing.
8. Baby s urine should be light yellow with soft yellow stools.
9. Burp baby between breasts and at the end of feeding.

## Complementary feeding ( weaning):

Definition : complementary feeding may be defined as a process by which the infant gradually becomes accustomed to semi-solid and solid food as supplements to breastmilk.

## When should complementary feeding( weaning) start?

It is recommended that complementary feeding \ weaning should start at the beginning of fifth month of age.

Parent guideline : introducing solid food to infants :

1. begin with 1 or 2 teaspoons and gradually increase to a couple of tablespoons per feeding.
2. introduce only one new food at a time , usually at intervals of 4 to 7 days to allow for identification of food allergies.
3. introduction of other foods besides breast milk before the fifth month is dangerous because the baby s stomach and digestive system are not ready for it.
4. Delay in starting complementary feeds beyond the fifth month can cause malnutrition and will make the baby vulnerable to disease and infections.
5. Salt : unnecessary salt intake can overload the baby s kidneys and digestive system.
6. do not introduce foods by mixing them with formula in the bottle.
7. weaning food prepared at home using traditional foods items is always fresh and nutritious and costs less as compared to processed baby foods.
8. good hygiene , proper handling of food and feeding habits are very important during the weaning process.

# The premature baby

Definition :- live born baby age from (28-37week)gestation.

❖ Features included :-

i. Somatic Features

A) wt (1- 2.5 Kg )
B ) length (35- 45 cm )
C) Head circumference less than full term (35cm) but appear larger in proportion to the small body.
- Small upper & lower limbs ,fingers,( nail& very thin).
-Little sub cutaneneous fat so the skin is wrinkled.
- Small face so the eye appear projected

ii. Physiological Feature

1.Weak or poor body temperature control.
2.Difficulty in breathing (R.D.S).
3.Cyanosis,apnea, more than in full term.
4. Immature immune system ( more infection).
5. Immature hematopoiesis( more infection).
6. Vitamin D deficiency more affection with rickets.
7. Immature liver so deficiency of money enzymes .
8. Immature kidney so Premature baby is liable to fluid over load.
9. Retrolental fibroplasia ( fibrosis in retina).
10.Weak sucking & swallowing

## Causes of Premature baby

### A. Fetal causes include:-

1.Abnormal lie
2. Congenital abnormality
3.Twin pregnancy

### B. Maternal causes include:-

1.Under nutrition.
2.External trauma.
3-Bleeding in pregnancy.
4-Medical diseases (heart, renal ,diabetes mellitus).
5. Infectious diseases (urinary tract infection.)
6. Rh incompatibility between mother & father.
7.Smoking & alcohol.

## Nursing care of premature baby :-

A. NC in delivery room .
B. NC in incubator.

### A. Care in the delivery room include: -

**1-Establishment and maintenance of respiration:-**

the first and most important care given to the NBB after birth is to a- Clean the mouth and the nose from the mucous, blood and amniotic-fluid so that the airway is open. b-The first respiration starts with the first crying so if this not occur in the first 30 second after the birth, so that the risks of asphyxia increase. c-If there is excessive secretion so can be drained with a sucker to prevent aspiration.

The head of the NBB put little down and the foot should be elevated to encourage the drainage of secretion. or the NBB put in aside position also to encourage the drainage.

## 2- Improve the body temperature by: -

*a.* Remove the excess vernix, mucous, blood, amniotic fluid and dry the NBB body.
*b.* Wrap the NBB in a heated blanket and exposed only to measure birth weight.

## 3- Care of the umbilical cord :-

*a.* Aseptic media is used to prevent cord infection like septicemia or tetanus and take care of bleeding from the cord.
*b.* Clamp the cord with 2 sterile artery forceps 2.5 cm from the umbilicus and the second one is applied 5cm from the umbilicus.
*c.* Cut the cord between the 2 forceps with sterile scissors.
*d.* In case of Rh negative mother Clamp the cord in distance more than 3 cm
*e.* Treat the cord at least once/day with 70% alcohol swab. Place the diaper below the cord to avoid irritation.

## 4- Care of the eye :-

The eyelid and surrounding skin should be cleaned carefully with a sterile cotton which may be moisten with sterile water ,in some hospitals they use 1% silver nitrate eye drop as 2 drops in each eye as prophylaxis for gonorrhea.

## 5- Skin care :-

*a.* clean the face, head, body of the baby from blood ,mucous with a piece of cotton cloth (towel ).
*b.* don't remove the vernix caseosa
*c.* to prevent prolonged exposure of the baby body exposed only the part of the body which want to clean & dry & covered immediately to keep this part warm then put on the cloths ( soft & comfortable ) & covered with blanket .

## NC in delivery room .

1. Airway should be open by suction of secretions.
2. Keep Premature baby warm to prevent cold injury.
3. Care of umbilical cord ,skin, eye .
4. Gentle movement of Premature baby.
5. Prevention from injury.
6. Prevention from infection.

B. NC in incubator include :

put Premature baby in incubator which was prepared for him befor with

a- Warm incubator

Premature baby need to be warm so incubator temperature should be (31.2-35.2) in order to keep Premature baby(35.5 -36.5) temperature

b- Oxygen with humidity with concentration of 30-40 % & not than 40% & humidity 55% .

Not

- O2 concentration not more than 40% to prevent retrolental fibroplasia.
- Ways of giving oxygen

1- by incubator

2- nasal tube.

3- mask.

# Premature baby feeding


Premature baby has weak sucking & swallowing.
Small stomach.
Decrease ability for fat absorption
Incomplete digestion of any food
Premature baby need 110-150 kcal/kg /day , protein5gm/kg/day, more cho & less fat than full term Vitamin D &C & iron add to feed
First feed is 5%-10% gloucose water as 5ml then increase gradually
Breast milk is the ideal ,if Premature baby has weak sucking &swallowing so given by spoon

## ❖ Ways of feeding:-

1) Bottle or breast in (good sucking &swallowing).

Use clean bottle, small and fine teat with suitable pole, warm formula, few amount & frequently in sitting or semi sitting position
Duration of feeding 10-15 minute &not more than 20 minute
Gas discharge in between & in the end of feeding
Nursing notes record during feeding Amount of feeding
Appearance of cyanosis, distress, vomiting in feeding

2) Small spoon in (poor sucking & good swallowing).

Be sure baby has good swallowing

3) drug drip in (poor sucking & good swallowing).
4) Naso gastric tube (gavages) in (week sucking &swallowing).

Appearance of cyanosis, distress in the three ways .

## ❖ Giving drugs to premature baby

In premature intensive care unit some drugs should be prepared like epinephrine, vitamin K .

## ❖ Prevention from infection

1. Wash the hand with water & soap.
2. Wear gown, mask, cap ,clean& sterile shoes .
3. Don't wear ring or jewel
4. Wash the hand with water & soap in between the patient to prevent cross infection.
5. If medical staff infected with influenza prevent from entrance to the ward.
6. Prevent foreigner person from entrance to premature intensive care unit
7. Take care of premature baby cleaning .
8. Isolation of premature baby with diarrhoea , meningitis.
9. prepare specialized room to prepare milk & baby feeding.

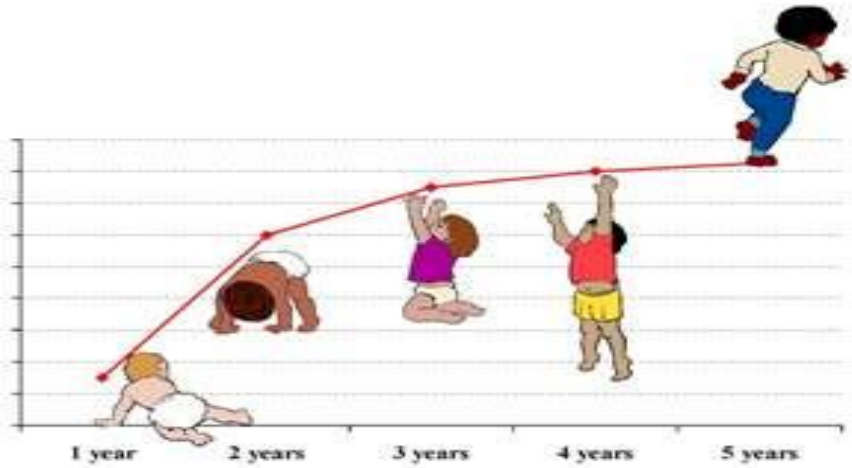
## ❖ Handling of premature baby

Take care of handling because has large head in proportion to small body , head put in hand & body between lower arm chest nurse chest

## ❖ Monitoring the premature baby

Nursing care & nurse has an important role & should have a good practice in take care of premature baby the important points recorded are
Color, respiration, movement, sucking & swallowing, feeding, crying, cyanosis, vomiting, bowel motion.

# The Growth and development of the child




## Growth

The changes that occur in all the body include an increase in his body length, weight and the internal organ size. Which lead to increase in his total size. The growth measure unites are kilogram (kg), meters.

## Development

It is a series of regular changes in behaviours and skills, this result from increase in the function of different parts and organs of the body.

## Stages of growth and development

There is a positive relationship between growth and development, there is some variation from one person to another.

The stages are: -

| | | |
|---|---|---|
| 1st. | From pregnancy to delivery | Embryo and fetus |
| 2nd. | 1-28 days of life | New born baby |
| 3rd. | I month - I year | Infant |
| 4th. | 1-3 year | Toddler |
| 5th. | 3-6 year | Preschool |
| 6th. | 6-12 year | School |
| 7th. | 12-18 year | Puberty and adolescence |

From fertilization of the ovum to the end of third month called First trimester
From the end of third month to the end of 6 month called Second trimester
From the end of 6 month to the end of 9 month called Third trimester

Rapid growth of the body of fetus In sec. Trimester
There in increase in subcutaneous fat mass and muscle bulk. In 3 rd trimester

## 1) Infant (oral stage).

This period is from (1 month - 12 months). In this period the infant depend completely on feeding in nutrition so is called the characterized by rapid increase in weight and size.

- Somatic growth and development

1. Weight :in the first 6mth, wt inc. by 150-200 gm/wk in the sec 6mth, wt inc. by 90-150 gm/wk So the wt in 6 mth was double his birth wt (6)kg in l yr was triple his birth wt (9.5-10)kg
2. Length: in the first 6 mth, leng. inc. By 2.5 cm/mth. in the sec. 6 mth, leng. inc By 1.5 cm/mth.
   So the length in: 6 mth = 65 cm.
   1 yr = 72 cm.

3. Head circumference and chest circumference
   In (lyr) of age the chest circum. is more than Hc. so Hc is (51) cm and cc is (63cm).
4. Vital signs
   a) HR : in lst month is 120-150 beat/mint
   1year is 100-130 beat/mint
   b) RR : in lst month is 30-50 cycle./mint
   1year is 20-40 Resp./mint
   c) Temp : body temp is affected by temp of room of the body and gradually there is self control on body temp and decrease the effect of the environment on his body temp.

## Teething

The NBB born with out teeth. Ist tooth appear bet 6 - 9 mth of age, in first yr there is 8 tooth . sec. yr 16 tooth.

## Development include :-

1. (motor)
   - First mth : When put the baby on his abdomen
     Move his arms and his legs
     (Prone position) Can move his head to Rt and lt
     Can't elevate his head above his body
   - Sec-mth : when put the baby on his abdomen can move his head & shoulder from bed.
   - Third mth : 1.Try to reach the bright object but can't touch it.
     2.Head control, start.
     3.Grasp reflex disappear.
   - 4th mth : 1. Good head control
     2. When put on his back (supine position) can move his body to each side.
     3. Can raise his head and chest (in prone posit)
   - 6 mth : Can sit with support
   - 7 mth : Can sit without support; put his foot in his mouth
   - 9 mth : Start crawling; hold his feeding bottle in his hand
   - 10-11 mth : Can stand and walk few steps. With support
   - 12 mth : Can walk alone

2. (Psychological and social development of infant)

At this stage the baby feel sense of trust which start naturally , this feeling may increase or decrease in the later stage of the life . And if this feeling is not present he will have a feeling of mistrust .

So he is completely depend on his mother and so the Psychological development occur gradually as fallow

- At ( 1 mth ) the infant smile with out stimulus , crying when feel hunger or irritable .
- At ( 2 mth ) listen to voice and words .
- ( 3 rd - 4 th mth ) smile with other and laugh with high voice ( 6 mth ) say BaBa , dada
- ( 8 mth ) the baby become happy when saw a person who love him.

- ( 10 mth) play with other , make by – by
- ( 11 - 12 mth ) say 2 words added to baba or mama , become more social .

## Protection baby from :

### A. Protection and prevention from accidents and injures

prevention from accidents and injuries that occur at home like :

1. Swallowing of foreign body in the mouth or put it in the nose .
2. Wound that result from playing with a sharp materials .
3. Burn with water or fire or electricity .
4. Crib death : The best way for protection from accidents is by use a special cage for playing , special chair with belt and special beds for infants .

a) Hygiene and Bathing .
b) It is very important which include change the diaper after each urination or defecation the area should be cleaned with water and soap . Daily bathing is important .
c) Exposure to fresh air and sun light .
d) Rest and sleeping for infant :-

At first month the baby sleep 18 - 20 hr / day .
The baby become irritable , awake or crying because of hunger , pain or his diaper is full with urine or feces which occur each 3 - 4 hr . At 3 mth of age the pattern of sleep change so the sleep become longer during the night as ( 6 hr ) then become ( 6 - 12 hr ) as he become older and awake at the day for playing .

## B. Protection from infectious disease by immunization .

| Age | Vaccine | Dose | Rout |
|---|---|---|---|
| First 24 hour | Hepatitis B | First | IM |
| 73 hour | BCG | ---------- | Intradermal |
| | Poliomyelitis | Zero | Orally |
| 2 month | Hexavalent (DPT, Hemophilus influenza B, Hepatitis B, IPV ) | First | IM |
| | Pneumococcal polysaccharide | First | IM |
| | Rota virus | First | Orally |
| | Poliomyelitis | First | Orally |
| 4 month | Hexavalent (DPT, Hemophilus influenza B, Hepatitis B, IPV ) | Second | IM |
| | Pneumococcal polysaccharide | Second | IM |
| | Rota virus | Second | Orally |
| | Poliomyelitis | Second | Orally |
| 6 month | Hexavalent (DPT, Hemophilus influenza B, Hepatitis B, IPV ) | Third | IM |
| | Pneumococcal polysaccharide | Third | IM |
| | Rota virus | Third | Orally |
| | Poliomyelitis | Third | Orally |
| 9 month | Measles + Vitamin A 100000 I.U | ---------- | Sc |
| 15 month | Measles Mumps and Rubella (MMR) | First | Sc |
| 18 month | Pentavalent (DPT, Hib, IPV ) | Booster 1 | IM |
| | Poliomyelitis | Booster 1 | Orally |
| | Vitamin A 200000 I.U | ---------- | Sc |
| 4-6 year | Pentavalent (DPT, Hib, IPV ) | Booster 2 | IM |
| | Poliomyelitis | Booster 2 | Orally |
| | Measles Mumps and Rubella (MMR) | Second | Sc |
| | Vitamin A 200000 I.U | ---------- | Sc |

## 2) Toddler

This stage start from 1 - 3 yr of age .

The growth and development :-

a) Somatic :-

- Weight and height → weight increase 2.3 kg / yr . length increase 7.5 cm / yr

The difference between male and female is to little .


- Vital signs →

1. Temperature is not affected by external condition like in premature baby and the infant .
2. Pulse rate : 90 - 100 beat / mint and more regular ( so it is decrease ).
3. Respiratory rate : 20 breath / mint ( so is decrease ) .
4. B . p : 85 / 60 mm Hg .

- Teething :- the deciduous teeth completed at 3 yr of age which was 20.

b) Motor development :

The baby movement is increase, and feeling proud of himself when he has control of his urination and defecation process and personal hygiene ( cleaning ), he can take off his cloths, can raise upstairs, can pull his toys behind him .

c) Social and psychological development :

In this stage the baby is active , hyperkinetic , look for things , express his feeling and his needs by talking , crying is less , his appetite is decrease because he has more pleasure with playing , he has interest in colored picture in books .

## 3) The preschool age child :

This stage start from 3 - 6 yr . characterized by playing and imagination.

### a)Somatic growth and development :

- Weight and height :

The wt increase by 1.8 - 2.7 kg / yr . The length increase by 7 cm / yr
The increments in wt and ht is less than in the previous stages . The increase in the lower limb is more than in trunk .

### b)Motor development :

The activity of the baby become more and rapid . can clean himself , can wear and underwear cloths , depend on himself in toilet .

### c ) Social development :

This stage characterized by playing and imagination very talkative , can know full name , play with other, can make good social relationship , has money question try to know the answers , can learn song , can learn money numbers , day of weeks

## 4) The school age child :

This stage start from 6 - 12 year . ( primary - school )

### a) Somatic growth and development :

- Weight and height : The wt increase by 2 kg/yr. The length increase by 5 cm/yr . at the end of this stage the girl has more increase in the height and wt than the boy .
- The bone and muscle : The bone growth is more than muscle growth .
- Teething : At 6 yr of age the deciduous teeth start to lose , and the permanent teeth start to appear , the first molar start to appear . The permanents teeth usually completed at 12 yr with out second and third molar .

### b ) social and psychological development and growth :

- 6 yr → may be aggressive , change in his thought and behaviours.
- 7 yr → may be love to be alone .
- 8 yr → may be proud of himself ( can know reading and writing )
- 9 yr → start to learn ( to be sick ) in order not to go to school .
- 11 yr → become an exited , not obey his parents .
- 12 yr → become more stable in his behaviours and more happy .

## 5) Puberty and adolescence .

This stage start from (10- 12 year in girls) &( 12-14 year in boys) till 18 year in both.

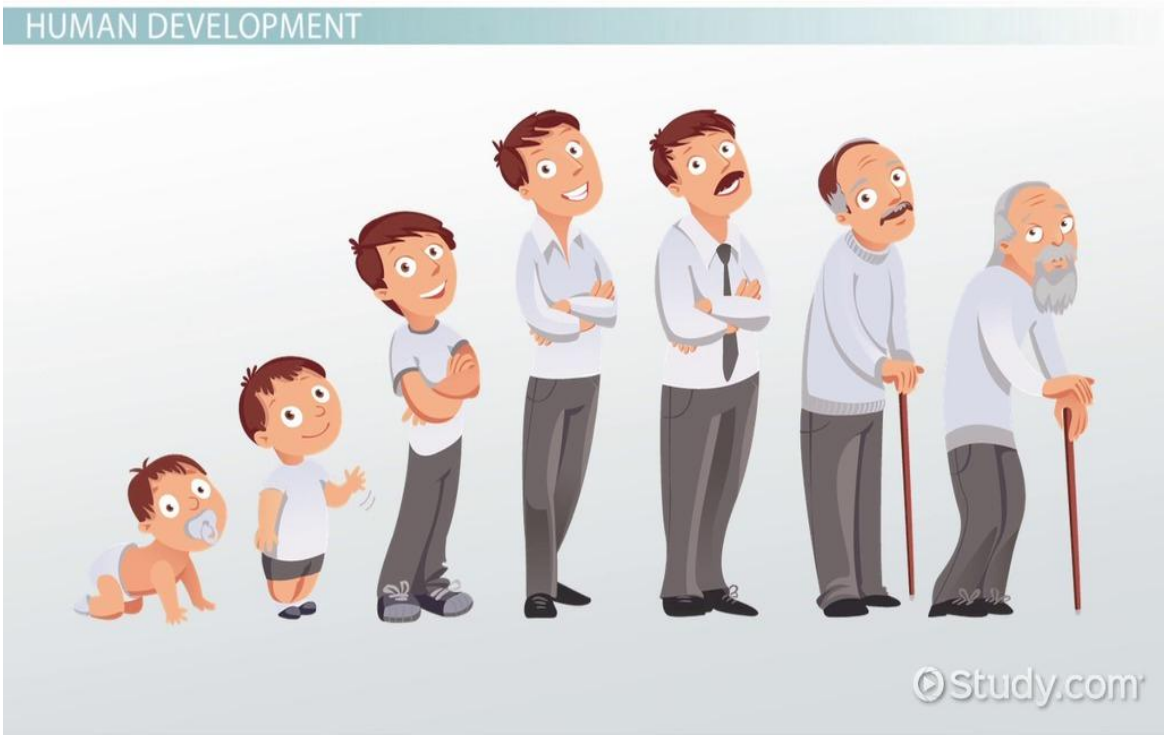
### a) Somatic growth and development :

- Weight and height : Weight and height characterized by rapid growth . The wt become (43-45 kg)&the height become (151-160 cm). The length increase by 5 cm / yr .
- The characteristic features of growth and development of both male & female in organs & system are un equal & not in the same time .
- The important changes that occur in boys are ;- The appearance of hair in face, chest, limbs, under axilla pubic region. Changes in voice, spermatozoa start to develop.
- The important changes that occur in girls are ;- Enlargement of breast , pelvis & hip ,menstrual period start to appear .
- The average increase in height & weight in girls is more earlier than in boys till 16 years of age after that the average increase height & weight in boys is more than in girls & the end result the boys are more taller than girls .

### b ) social and psychological development and growth :

The adolescent have

1. Felling of fear ,anxiety because of rapid changes in the body.
2. Take care of the body in the future.
3. Take more time to do the job or work so the parents should don't have a strong behaviours with them to finish their works.
4. Take care about way of speech with others to be greeting to him.
5. Felling of trust develop more & this feeling firstly develop in the infant stage .
6. Feeling of independence & autonomy.
7. Feeling of initiative .
8. Start to thinks about his future in learning , jobs social lives.




# Factors that affect growth and development

i. Genetic factors include: -

A. The genetic features which transfer to the embryo from both parents.

B. Other external factors affect the development of embryo include:

1) Infectious disease of the mother in pregnancy like rubella (German Measles) in first 3 months, disorders in endocrine gland function.
2) Exposure to radiation.
3) Placental disorder
   - placenta previa
   - abruption placenta
4) Nutrition of the pregnant woman.
5) Smoking and alcohol drinking
6) Drugs
7) External trauma
8) Rh incompatibility

ii. Race , nation and sex factors

iii. Environmental factors include

A. Parent environment.
B. Labour environment.
C. External.
D. Quality of nutrition
E. Socio eco. Status
F. Health
G. Ordinal position in family
H. Parent child relationship

- Height
  - ESTROGEN  responsible for increase in height in female
  - TESTOSTERONE  responsible for the increase in height in male
  - Stoppage of height coincide with the eruption of the wisdom teeth

## PRINCIPLES OF GROWTH AND DEVELOPMENT

- Growth and development is a continuous process (WOMB TO TOMB PRINCIPLE) begins from conception and ends with death
- Not all parts of the body grows at the same time or at the same rate (ASSYCHRONOUS GROWTH)
- Each child is unique
- Growth and development occurs in a regular direction reflecting definite and predictable patterns or trends

## PATTERNS OF GROWTH AND DEVELOPMENT

- Renal & Digestive & Circulatory & Musculoskeletal
  - ✓ childhood
- Brain & CNS & Neurologic Tissue
  - ✓ Rapid growth and development of brain from1 - 2 years
  - ✓ Malnutrition may result to Mild Mental Retardation
- Lymphatic System (Lymph Nodes)

Grows rapidly during infancy and childhood

- ✓ Provide protection against infection
- Reproductive
  - ✓ Grows rapidly during puberty

# RATES OF GROWTH AND DEVELOPMENT

- Fetal and Infancy
  - ✓ Period of most rapid growth and development
  - ✓ Prone to develop anaemia
- Toddler
  - ✓ Period of slow growth and development
- Toddler and preschool
  - ✓ Period of alternating rapid and slow growth and development
- School Aged
  - ✓ Slower growth and development
  - ✓ Least to develop anaemia
- Adolescent
  - ✓ Period of rapid growth
  - ✓ Secondary prone to anaemia

# Malnutrition disease

## 1) Marasmus

Marasmus is one of the types of protein-energy malnutrition that affects children under the age of one. One of the main causes of marasmus is the inability of the mother to breastfeed, either because she can no longer lactate or because she lacks nutrients to. (Affect infant and young child ,because of inadequate calories intake)

- Causes :-

1. under feeding .
2. sever and chronic infection e.g. chronic UTI .
3. congenital abnormality e.g. in kidney or heart .
4. cystic fibrosis .
5. metabolic disorder .

- Signs and symptoms

1. loss of subcutaneous fat , muscle wasting in all body gradually .
2. delay in growth and development . in sever cases loss of 60 % of body wt .
3. dehydration sign .
4. hypoglycemia sign .
5. later sign because of deficiency of protein and all foods ( edema, purpura , infection , skin ulcer , aspiration pneumonia ) .

* Almost half the deaths of children under five in protein-energy malnutrition PEM-affected countries are from marasmus

- Nursing care and Rx

1. Measure body wt daily .
2. Cheek sign of collapse ( by measuring vital sign ) .
3. Give food gradually ( easily digested , low calorie , small amount ) .
4. If can't take food orally and in case of severe dehydration give I .V fluid .
5. Give vitamins supplements .
6. Plasma or blood .
7. Clean and warm environment .
8. Prevention from infection .
9. Prevention from skin ulcer because of chronic lying by ( wash body with warm water then put cream or baby lotion and frequent movement ) .

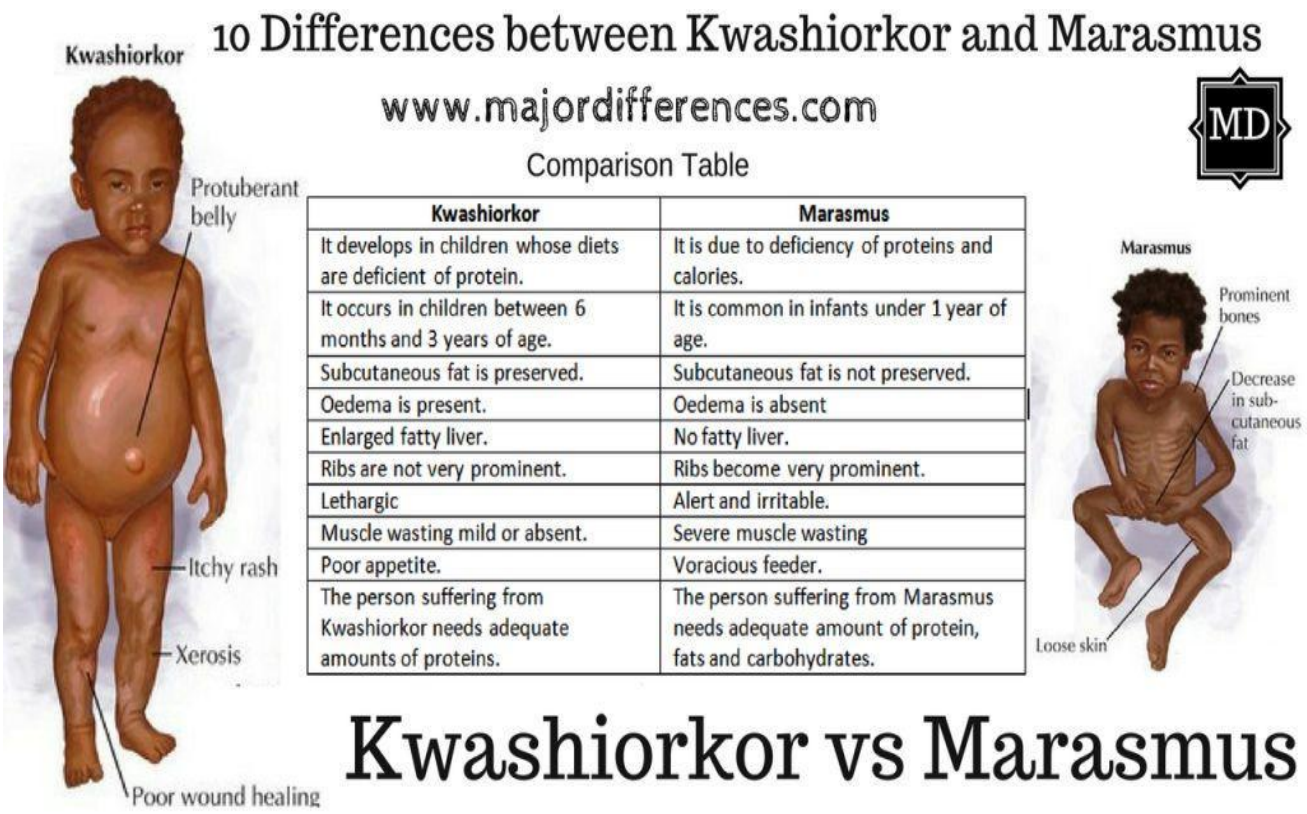
- Prevention

1. Nutrition education to the family .
2. Early Dx and Rx .
3. Prevention from infection .

## 2) Kwashiorkor

Result from protein deficiency, affect children from 6 months - 6 yr ( at time of weaning ).

The main difference between kwashiorkor and marasmus is caloric intake. Marasmus is characterised as minimal protein and energy intake, whereas kwashiorkor on the other hand is characterised as having minimal protein but with an average caloric intake. In other words, kwashiorkor is a protein deficiency disorder. Marasmus is inadequate calories intake)




| Kwashiorkor | Marasmus |
|---|---|
| It develops in children whose diets are deficient of protein. | It is due to deficiency of proteins and calories. |
| It occurs in children between 6 months and 3 years of age. | It is common in infants under 1 year of age. |
| Subcutaneous fat is preserved. | Subcutaneous fat is not preserved. |
| Oedema is present. | Oedema is absent |
| Enlarged fatty liver. | No fatty liver. |
| Ribs are not very prominent. | Ribs become very prominent. |
| Lethargic | Alert and irritable. |
| Muscle wasting mild or absent. | Severe muscle wasting |
| Poor appetite. | Voracious feeder. |
| The person suffering from Kwashiorkor needs adequate amounts of proteins. | The person suffering from Marasmus needs adequate amount of protein, fats and carbohydrates. |

## Causes

1. Protein deficiency .
2. Chronic diarrhea .
3. Chronic infection .
4. Acute infectious disease ( measles ) .
5. Warm infestation ( ascariasis ) .
6. Family factors .

## Signs and symptoms

1. Edema in all body .
2. Delay in growth and development .
3. Child is depressed , misery .
4. Color of hair red , dry .
5. Anorexia , vomiting , pallor .
6. Enlargement of liver .

- Nursing care and Rx

It is done by complete medical team .

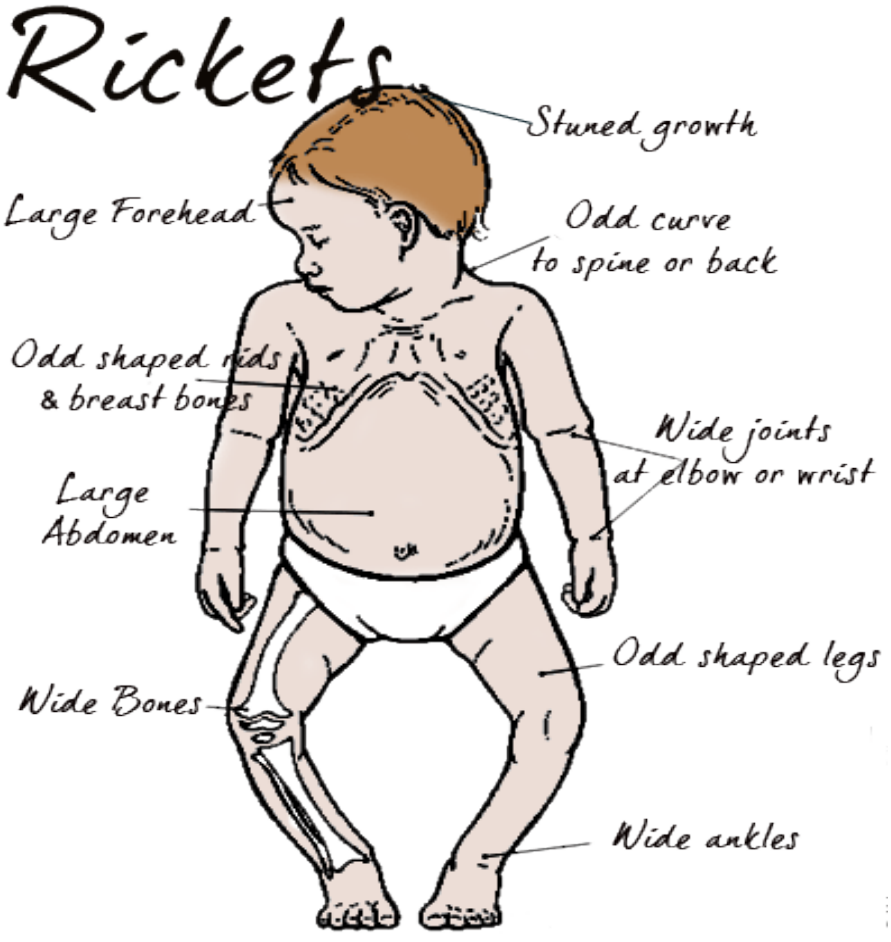
1. In simple cases ; give( half cream milk ) first in small amount ;
   In anorexia give feeding by NG tube ;
   In severe dehydration give I .V fluid .
2. Measure vital sign and body wt daily .
3. Cheek urine output and amount of stool .
4. Give vitamins , and K+ supplement .
5. Antibiotics if needed .
6. Psychological support .

- Prevention

1. Family nutrition education .
2. Prevention from infection .

## 3) Rickets

This nutritional disease is caused by vitamin ( D ) deficiency . It occur in children during the rapid growth especially between (3 months - 3 years ) of age.



## Predisposing factors :

1. In adequate exposure to sunlight ( ultra violet ) .
2. The feeding of infant by half cream milk for long time .
3. Premature baby .

## The effect of vit . D . deficiency appear in :

1. Epiphysis of the bone by decrease its calcification which lead into its widening .
2. In muscle by decrease muscle tone .

## Signs and symptoms

1. Head shape like square , delay in fontanel closure , craniotabes sign .
2. Chest : Rickitic rosary .
3. Kyphosis and scoliosis and narrowing of pelvis in female .
4. Upper limb : widening in wrist
5. Lower limb : bow ledge . knock knee , flat foot and widening in ankle .
6. Crunching : in advanced cases .
7. Decrease Muscle tone : delay in sitting , standing , walking .
8. Anemia .
9. Decrease Immunity so infectious disease mainly respiratory disease .

## Dx:

1. Blood sample : serum ca and ph in( early and simple cases ) .
2. Sign and symptom : in ( sever and advance cases ) .

## Rx and nursing care

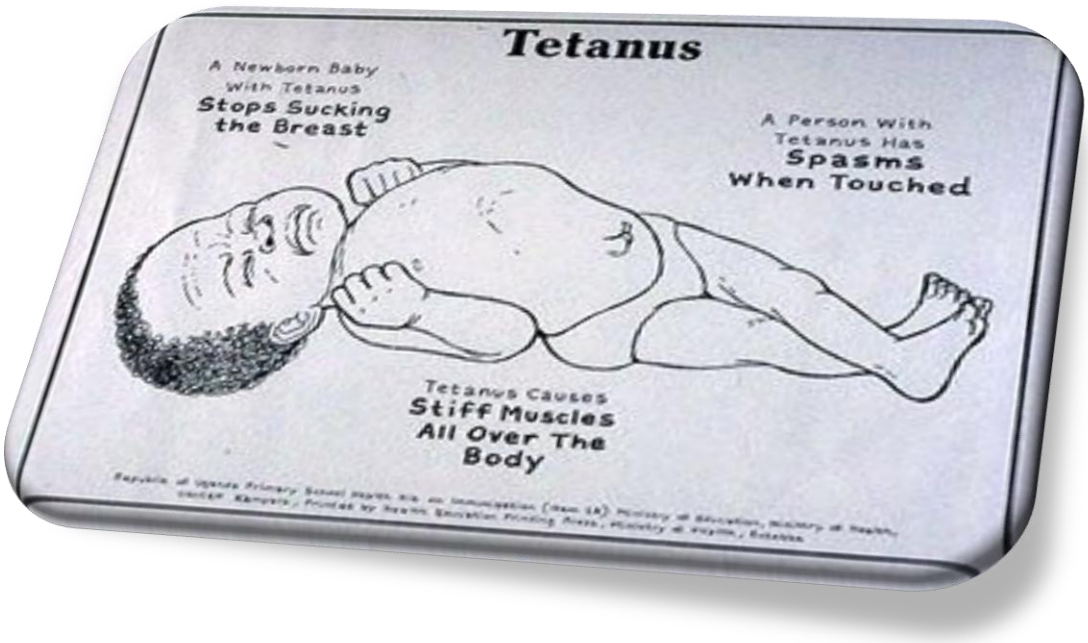
1. Vitamin D ( 1500 - 5000 / I.u / 24 hr) for 1 month and sometime 10.000 I.u
   The infant should be exposed to sunlight .
2. The infant should be exposed to sunlight .
3. Treat respiratory disease in hospital .
4. Take care of child movement .
5. Don't leave the child to sleep on the same side for long time and to stand or sit for long time to prevent deformity .
6. Surgical interference in cases of deformity by splints ,braces , osteotomy.

## Prevention

1. Breast feeding , good feeding that contain (400 I.u of vitamin D / daily) .
2. Exposure to sunlight directly .
3. Family health education .

## 4) Tetany

It is decrease of ca in blood and in bone It is caused by vitamin D deficiency .




## Signs and symptoms

1. Spasm in muscle of hand , foot ( contraction and relaxation )
2. Spasm in muscle of face .
3. Spasm in larynx ( strider )
4. In sever spasm in respiratory tract may lead to apnea and cyanosis .

## Rx & nursing care

1. Ca . i.v , i.m or orally .
2. Vitamin D .
3. Rx of spasm by valium
4. O2
5. Suction of ( secretion in mouth )
6. If these measure failed do tracheostomy or artificial respiration .

# Nursing care of respiratory tract disease

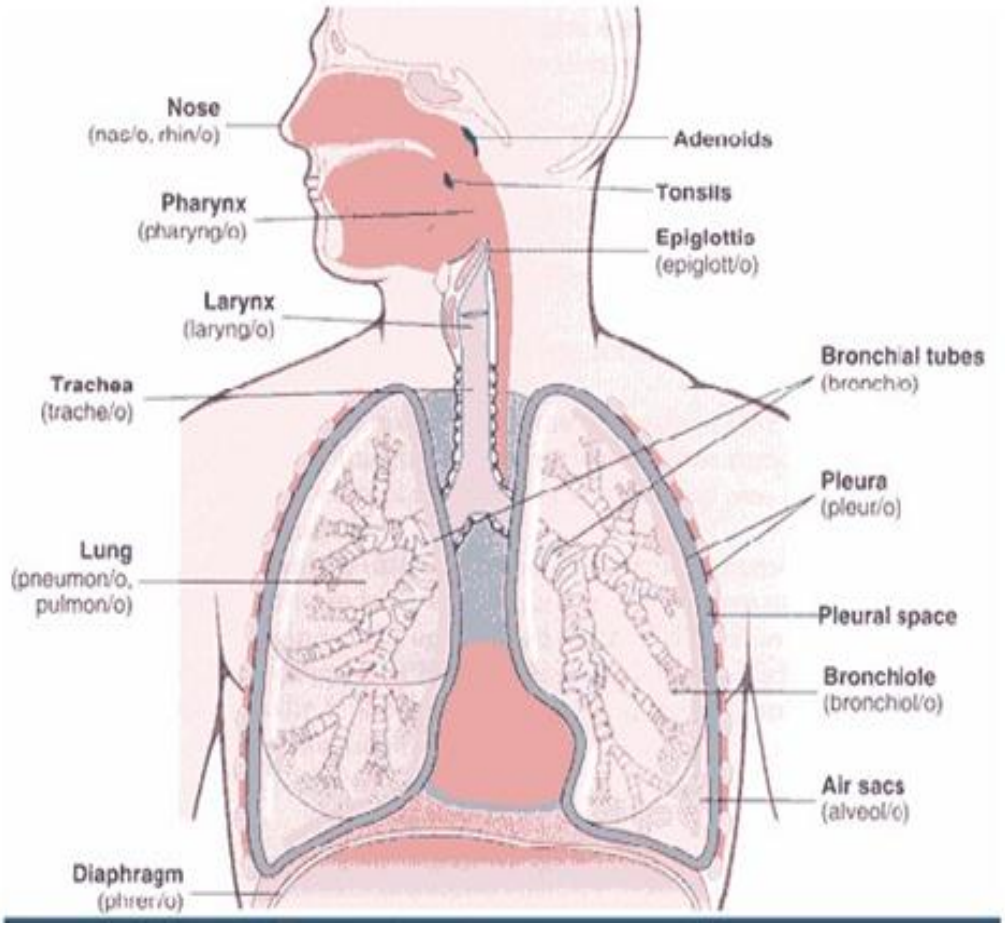
## Respiratory system consist of :

### i. Upper respiratory tract .

URT include :- Nose , pharynx ( nasopharynx, oropharynx , laryngopharynx ) , larynx , trachea ,main bronchus ( Rt bronchus , Lt bronchus ) .

### ii. Lower respiratory tract .

LRT include :- lung and inside it right bronchus left bronchus , bronchioles , alveolar tract and alveolar sac.




## Common cold , Influenza , Coryza

- Epidemiology
  - Causes : virus .
  - Way of transmission by air droplet during sneezing or coughing
  - Occur mainly in winter

### Signs and symptoms

1. Fever 38 - 40 c
2. Nasal discharge ( clear , watery then , yellow or green )
3. Headache , generalized weakness , sneezing , coughing .
4. Nasal obstruction lead to difficulty in breathing and feeding .
5. Anorexia .

These S & S continue for (3 - 7 days ).

- ### Nursing care & Rx

1. Bed rest , in warm and moist room . and isolation from other.
2. Increase warm fluid feeding .
3. Take care of nose and mouth cleaning .
4. Drugs ( antipyretic and analgesic ) + cold sponging .
5. Prevent transfer and contact with others to prevent contamination .

### Complication

1. Otitis media .
2. Sinisitis
3. Tonsillitis, pharangitis
4. Acute laryngitis
5. Acute bronchitis
6. Pneumonia .

## Tonsillitis

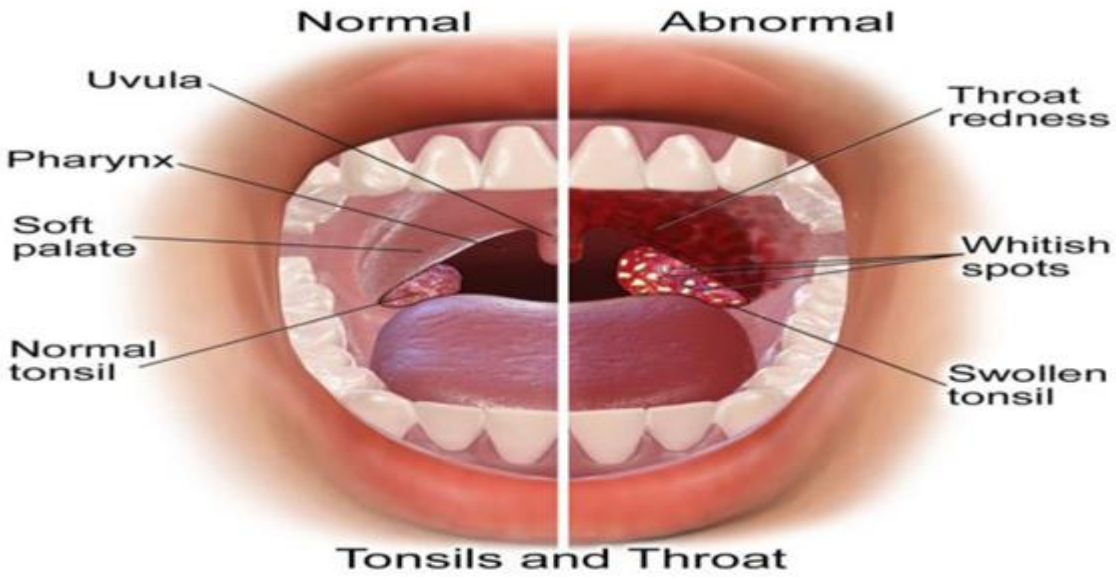
**Tonsils** : are 2 small lymph node in the mouth on each sides of or pharynx . it is regard as part of immune system .

**Acute tonsillitis :** It is an acute inflammation of tonsils .

- ### Causes

1. Group A beta hemolytic streptococus in school age .
2. And other virus and bacteria .

Rarely occur. before 6 months of age .



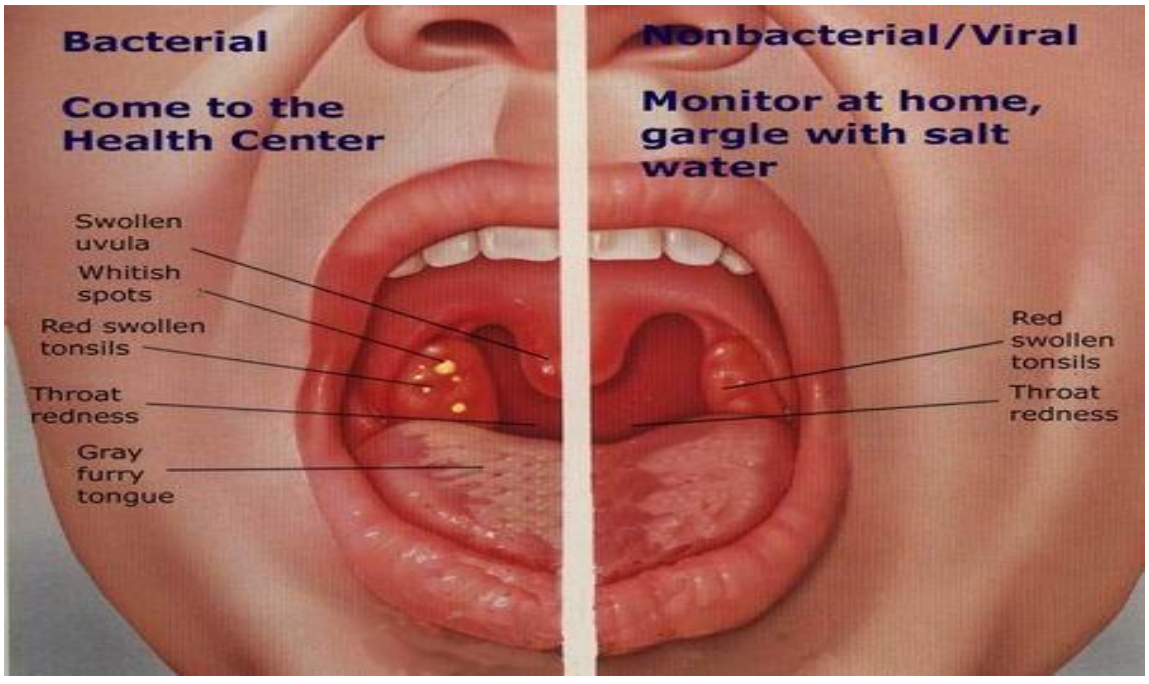
Tonsils and Throat

## Signs and symptoms

1. Fever ( 39 - 40 c ) with rigor .
2. Generalized weakness ,headache ,Ear, bone and joint ache .
3. Loss of appetite ( anorexia ), difficulty in swallowing, vomiting, and abdominal pain
4. Pain and redness in tongue , mouth , pharynx , larynx .
5. Enlargement of cervical lymph node .

## Type of acute tonsillitis

1. Follicular T
2. Lacunars T
3. Peri tonsillar abscess
4. Catarrhal ( enlargement + red ) .



## Nursing care & Rx

1. Bed rest and isolation .
2. Give fluid and semisolid food .
3. Give antipyretic, analgesic and cold sponging for fever and antibiotic on need .
4. Measure vital signs .

## Complication

1. Acute rheumatic fever .
2. Acute rheumatic carditis.
3. Acute nephritis .
4. Otitis media.

## Indication of tonsillectomy :

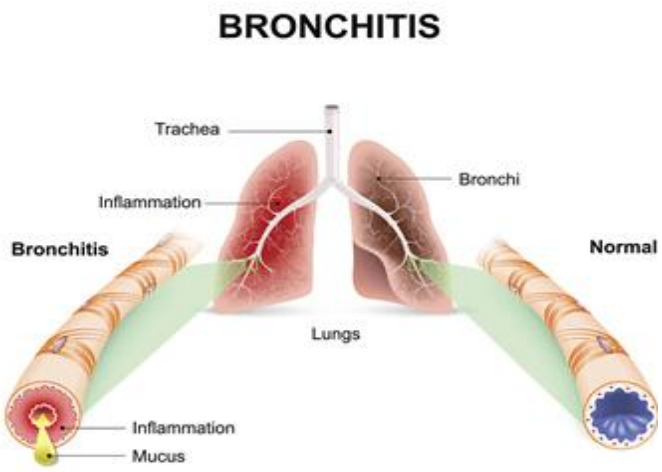
1. Frequent AT more than 10 times / yr .
2. Difficulty in breathing .
3. Risk of acute rheumatic fever .

## Acute bronchitis

It is an acute inflammations of mucous membrane of bronchi .

## Signs and symptoms

1. Running nose like influenza .
2. Dry cough for 1 - 2 day then productive cough , chest pain .
3. In sever coughing may lead to vomiting .
4. Fever for 2 - 3 day reach 39 - 40 c .
5. Generalized weakness .
6. Rapid breathing ( tachypnea ) with added sound in breathing



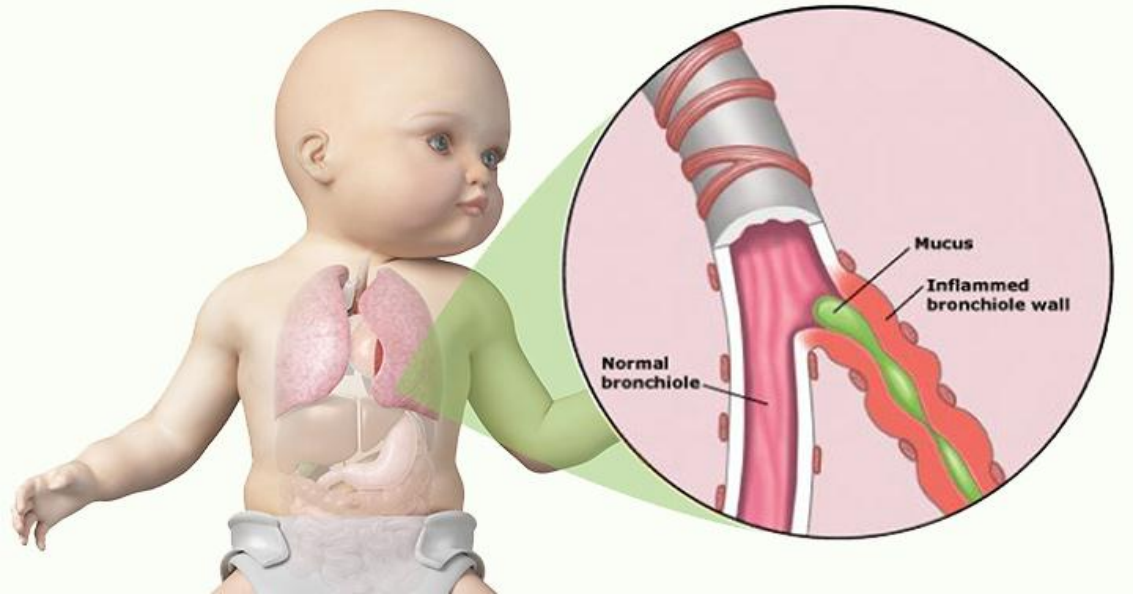

## Nursing care of acute bronchitis .

1. Bed rest in warm and moist room , isolation .
2. Increase warm fluid .
3. Take care of nose and mouth cleaning .
4. Drugs antipyretic , analgesic and other with cold sponging .
5. Measure vital signs .
6. Encourage the child to cough and get rid from sputum .
7. Put child in semi sitting position .
8. O2 on need and admission to hospital .

## Acute bronchiolitis

It is an acute inflammation of mucous membrane of bronchioles affect mainly young children from 1 - 4 years of age .

- Causes : virus that cause influenza for 2 - 5 day .




### Signs and symptoms

1. Running nose like influenza .
2. Dry cough for 1 - 2 day then productive cough , chest pain .
3. In sever coughing may lead to vomiting .
4. Fever for 2 - 3 day reach 39 - 40 c .
5. Generalized weakness .
6. Rapid breathing ( tachypnea )with added sound in breathing
7. Difficulty in breathing ( dyspnea ) .
8. Cyanosis .
9. Sever respiratory distress .

### Nursing care

1. Bed rest in warm and moist room , isolation .
2. Increase warm fluid .
3. Take care of nose and mouth cleaning .
4. Drugs antipyretic , analgesic and other with cold sponging .
5. Measure vital signs .
6. Encourage the child to cough and get rid from sputum .
7. Put child in semi sitting position .
8. Ask the mother if saw any abnormal sign on the child like cyanosis , sever dyspnea should consult a doctor .

## Complication

1. Pneumonia .
2. Heart failure and respiratory failure .
3. Otitis media .
4. Anemia .

# Pneumonia and asthma

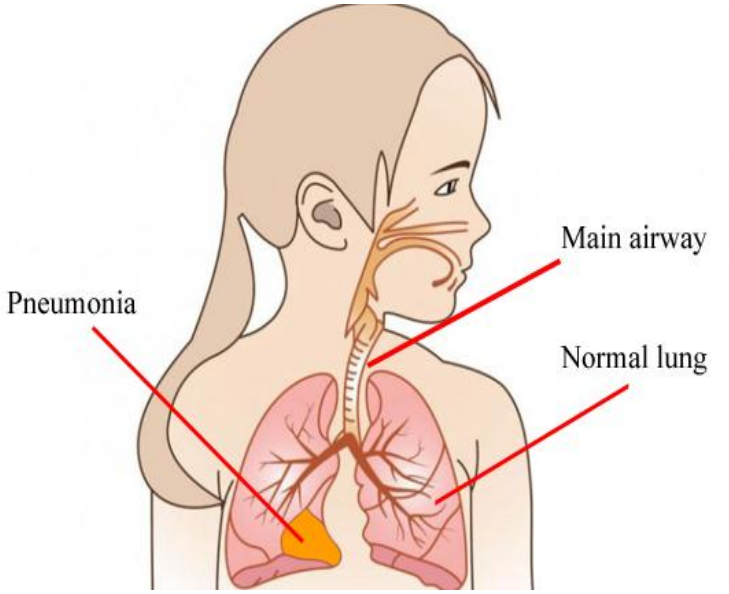
## Pneumonia

It is an acute inflammation of the lung tissue , either one lobe , 2 lobes or part of lobes or all lobes .

It occur mainly in winter and spring .

- **Causes**

1. Bacterial infection include :
   a) Staphylococcus
   b) Streptococcus
   c) Pneumococcus
2. Viral infection .




## Signs and symptoms

1. Sudden fever with rigor .
2. Tachypnea , dyspnea , added sound in expiration called grunting respiration .
3. Dry cough then productive cough and chest pain .
4. Cyanosis .
5. Difficulty in feeding , vomiting .
6. These s & s continue for 1wk then gradually decrease and disappear .

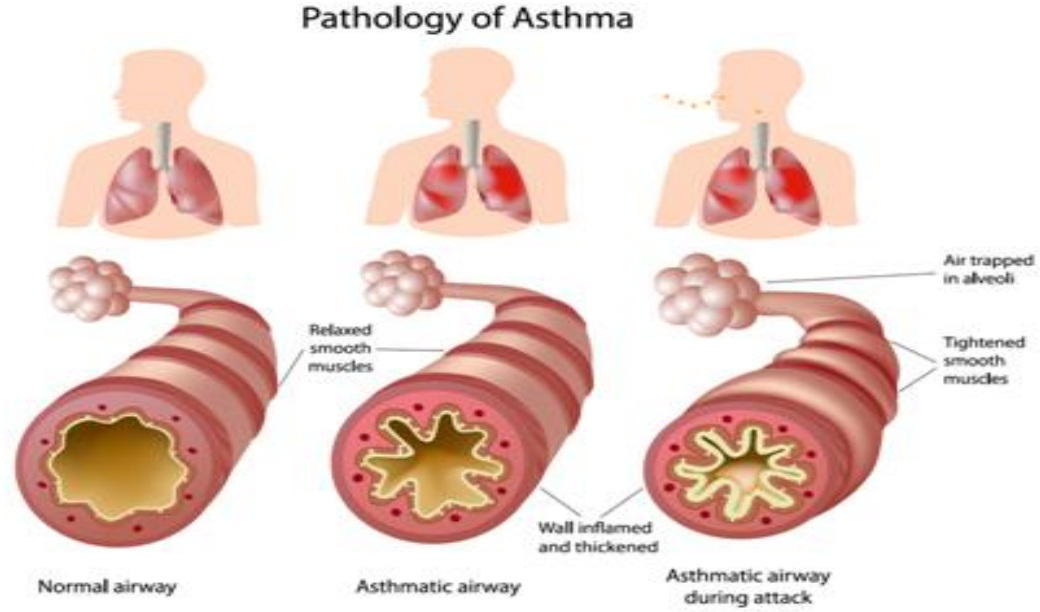
## Nursing care and Rx of Pneumonia

1. Bed rest in quiet room , good ventilated , with moderate moister .
2. Put child in semi sitting position in sever distress .
3. Increase giving warm fluid .
4. Cold sponging for fever with analgesic and antipyretic .
5. Take care of cleaning the nose , mouth .
6. Measure the vital signs / 6hr .
7. Admission in case of sever dyspnea and cyanosis for O2 .

8. Other drugs according to doctor prescription .
9. Physiotherapy to the chest .

## Asthma

It is an recurrent attack of dyspnea with wheezing because of temporary narrowing of bronchi and bronchioles. Asthma is a common respiratory condition. It affects the small and medium-sized airways (also called breathing tubes or bronchi) in the lungs




## Causes of narrowing :( mechanism)

In asthma the airways are inflamed and there is:

- swelling of the airway wall
- an increase in mucus or phlegm
- tightening of the muscle in the airway wall

These changes cause narrowing of the airways. This leads to difficulty with breathing and wheezing.

Wheezing is a musical, whistling sound with breathing, usually as you breathe out. It comes from the chest - not the nose or throat.

## Causes :

### Why do some children have asthma?

We do not know why some children will have asthma when others do not.

We do know that:

- asthma often runs in families
- asthma is associated with other conditions such as eczema, hay fever and allergies

- if one or both parents has an allergic condition such as asthma, hay fever or eczema, their child is more likely to develop asthma

We think that modern Western lifestyle may play a part in the rise in asthma that has occurred over the last few decades. Changes in housing, our diet and a more hygienic environment may be responsible - but we do not really know the cause of the increase in asthma.

We do know that:

- mother's smoking during pregnancy increases the risk of asthma in her child
- outdoor environmental pollution may make asthma symptoms worse but it does not actually cause asthma

One in four children in New Zealand will have asthma at some time during childhood.

## What are the triggers for asthma ?

Some children have asthma all year round; others may only have it in certain seasons or when they have a virus cold. It is not always possible to know when an attack will occur.

### Some common trigger factors for asthma are:

1. Colds (viruses)
2. changes in the weather
3. house dust-mites
4. mould
5. pollens
6. pets
7. cigarette smoke
8. exercise
9. emotions, such as being upset

Asthma symptoms and triggers may differ from child to child and from time to time. It is useful to know your child's triggers.

Asthma affects your child's breathing. In severe asthma it may be hard for them to get enough oxygen.

### Signs of not getting enough oxygen may include any of the following:

- looking very pale
- going blue in the tongue and lips
- becoming very sleepy and not easy to rouse

If your child has any of these signs, they will need to be given oxygen.


## Signs and symptoms

**When Signs and symptoms occur before 1yr of age not diagnosed as asthma (bronculitis) . when there is recurrent attack after 1yr diagnosed as asthma .**

1) **Dyspnea + wheeze .**
2) **Running nose , cough , sever mainly at night in sleep some time associated with cyanosis .**
3) **Child is anxious .**
4) **Difficulty in feeding , vomiting .**
5) **In severe cases if attack is prolonged and not treated lead to death .**


You should see your GP (general practitioner) and ask about asthma if your child:

- wheezes and coughs with a virus cold
- wheezes and coughs after exercise
- wheezes and coughs during the night
- cannot keep up when they are running around with children of the same age
- complains they feel tired or ask to be carried (depending on their age) when you go for a walk
- does not run around as much as children of the same age
- says they are out of breath or breathless

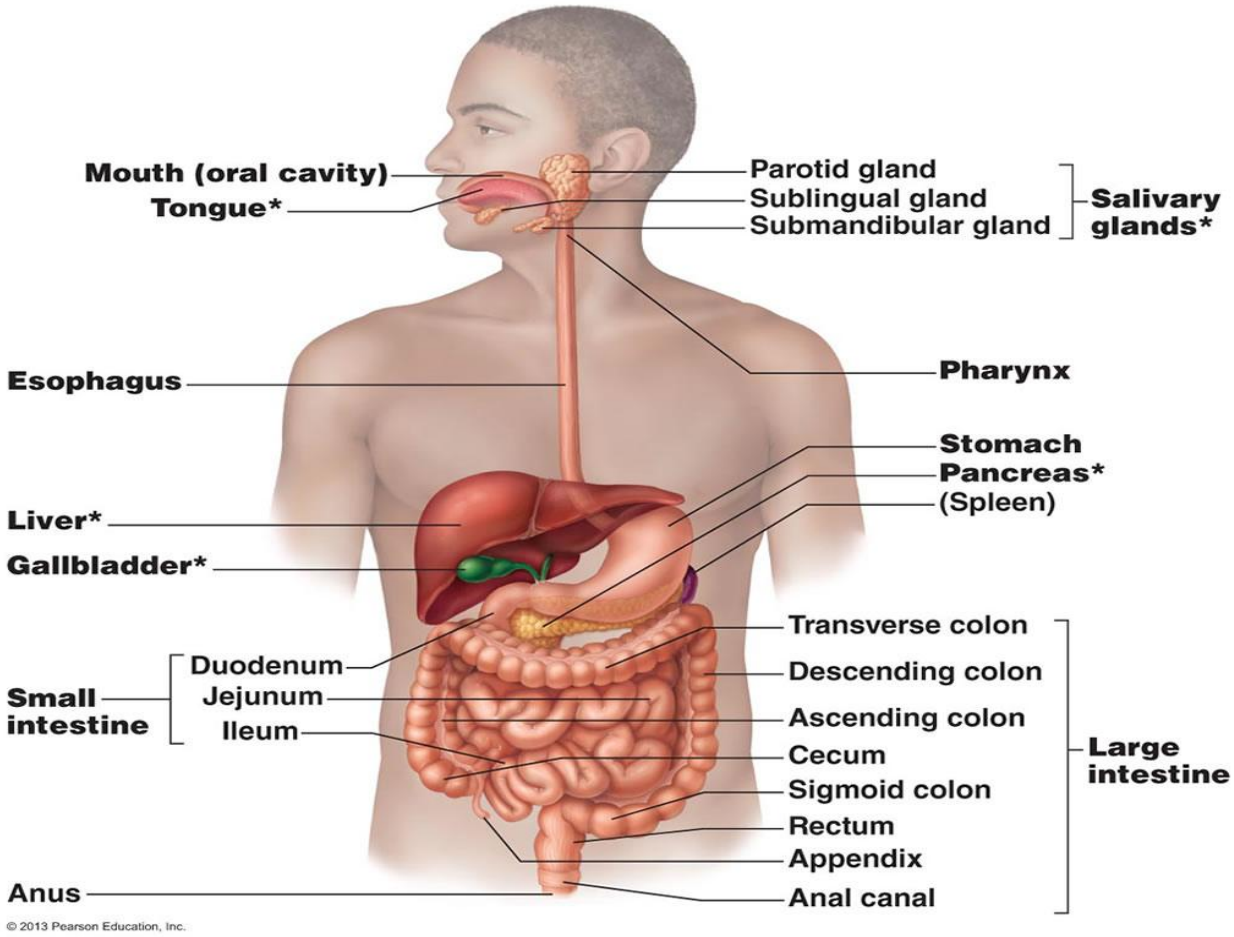
## Nursing care & Rx of asthma

1. Bed rest .
2. Try to discover the causes and to prevent the child from exposure .
3. Family education .
4. Give sufficient amount of fluid ( with caution ) .
5. Prevent smoking in the home .
6. Rx in simple cases in home, in severe cases in hospital.
7. Oxygen .
8. Drug treatment include bronchodilator either orally , S.C or I.V .
9. Antibiotic only if there is bacterial infection ( tonsillitis , bronchitis ) .

## Key points to remember about asthma

- asthma is a condition that leads to narrowing of the airways of the lungs
- symptoms include wheeze, cough and difficulty breathing
- common asthma triggers are colds, exercise, dust, pollens and cigarette smoke
- an asthma action plan can help you understand and manage your child's asthma

# Nursing care of alimentary diseases




# Nursing care of alimentary diseases

## A. Acute gastritis

Acute inflammation of the mucous membrane of stomach.

It is common disease in all age groups of children .

- **Causes :**

1. Poor family because of (little care) in nutrition.
2. Ingestion of infected food.
3. Ingestion of spices.
4. Food poisoning.

- **Signs and symptoms**

1. Fever.
2. Abdominal colic.
3. Diarrhoea if intestine affected.
4. Anorexia.
5. Vomiting.
6. Generalized weakness, crying.

- **Nursing care and Rx**

1. Stop oral feeding for 12 - 24 hours.
2. Oral fluid, glucose saline (Dextrolyte) ORS (frequent, in small amount).
3. In sever, repeated vomiting give I.V fluid in hospital till vomiting decrease, so try oral breast feeding gradually.
4. Record fluid input and out put, record vital signs, measure weight of infant.
5. Don't give any medication till doctor consultation.

## B. Gastroenteritis

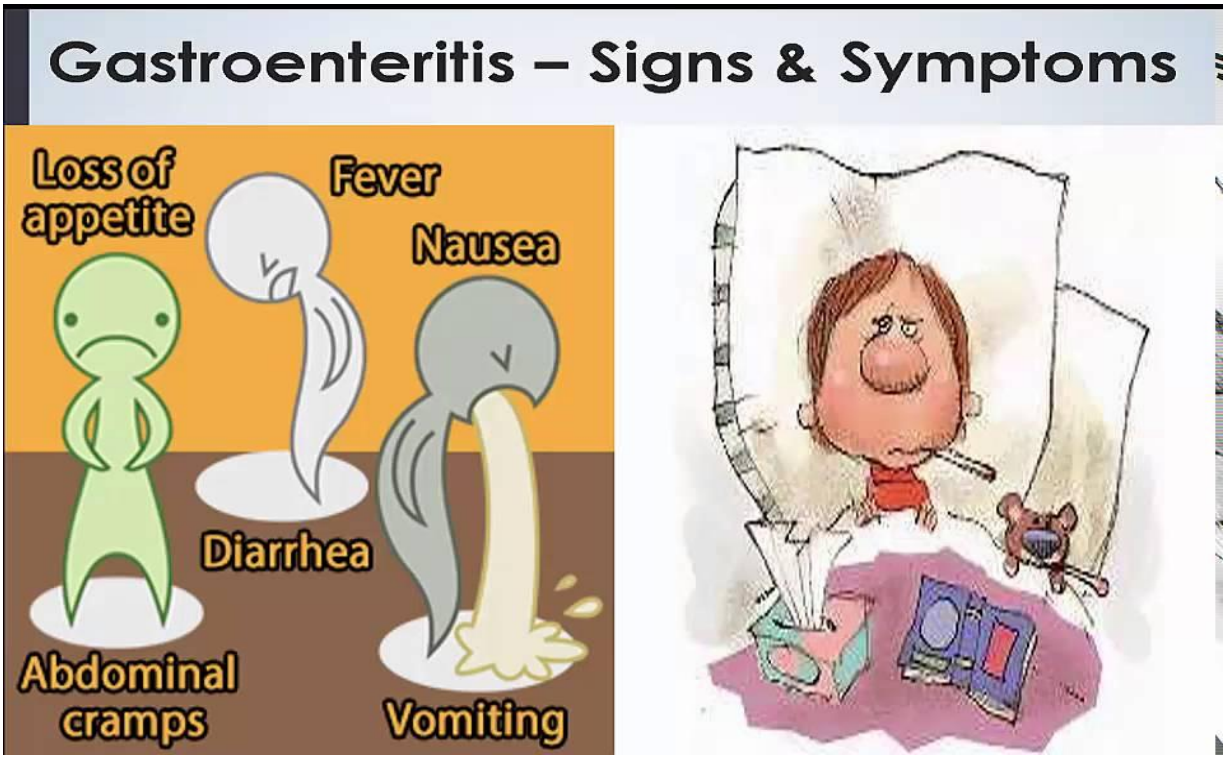
It is common disease in children and dangerous. Because can lead to death.
Mainly occurs in summer.

- **Causes**

1. Infected food (bacilli, salmonella) or viruses.
2. Fatty diet.
3. Infected (dirty bottle) .

- **Signs and symptoms**

1. Repeated vomiting.
2. Abdominal pain, distension.
3. Fever.
4. Anorexia.
5. Diarrhoea s-t with mucous and blood.
6. Signs of dehydration (dryness of tongue and others if not treated quickly), bad odour from mouth & loss of consciousness.




- Nursing care

1. Stop oral feeding for 12 - 24 hr, give oral dextrolyte in small amount and frequently.
2. Give oral fluid and semi liquid diet (soup) small amount and frequently, yoghurt.
3. Then try breast feeding later.
4. Record, fluid input & output, vital signs, weight , diarrhoea type.
5. Take care of water, bottle feeding cleaning (boiling of water).
6. Don't gives any drug only after doctor consultation.

C. Abdominal colic

It is not a disease, occurs mainly in infant below 6 month of age.

- Causes

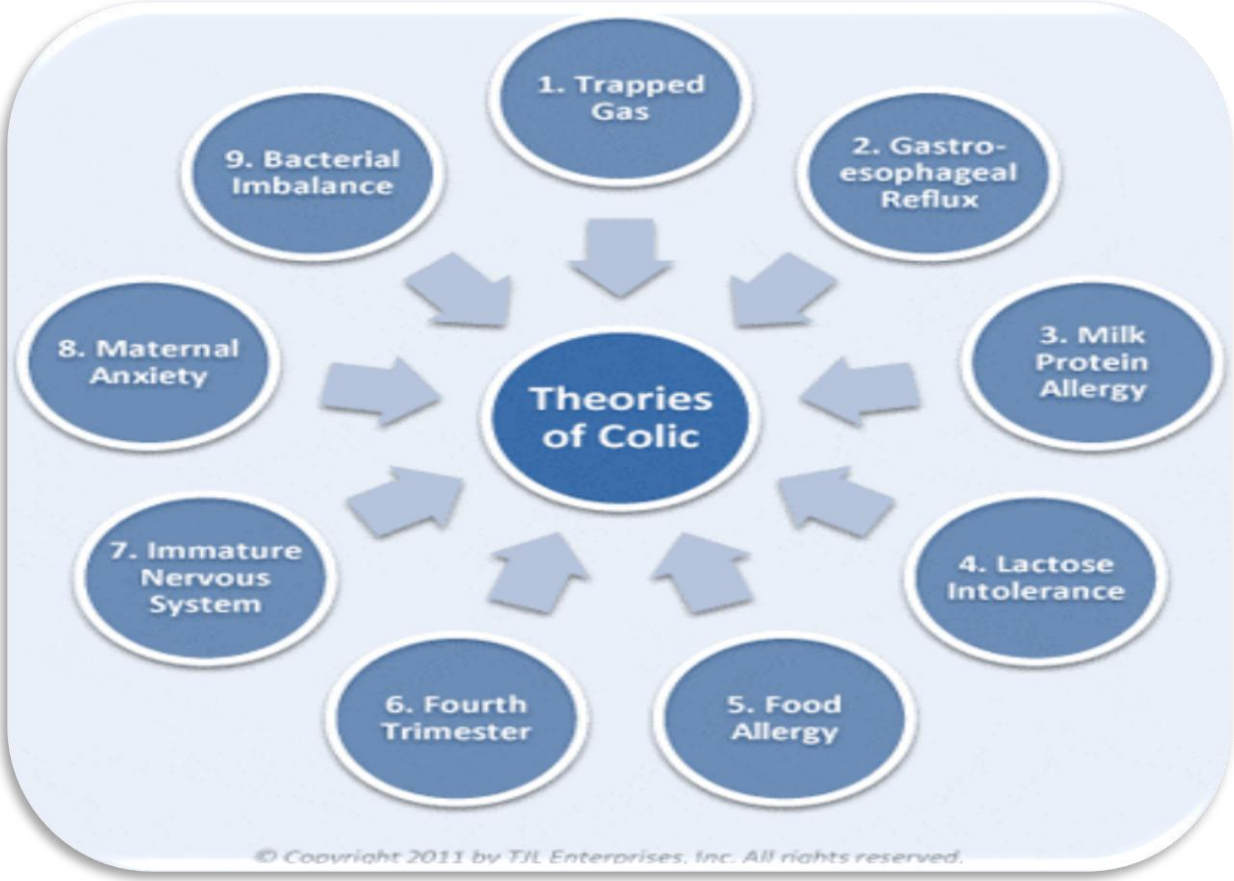
1. False technique in feeding which lead into ingestion of gases into stomach which cause abdominal colic.
2. Allergy to specific food or milk.
3. Gastroenteritis.

- Signs and symptoms

( Infant is uncomfortable, crying, face congestion, try to elevate his legs up, abdominal distension, pain ).

- Nursing care

1. Explain to the mother the true way in feeding and get out the gases after feeding by putting the infant on his abdomen to let the gases coming out.
2. Give warm fluid and water.
3. Drug not given until doctor consultation.




## Vomiting :

Vomiting in infant is not a disease by itself but it is symptom of many diseases.

- Causes

1. Fault or (error) in way of feeding or position of infant during feeding.
2. Acute gastro - enteritis.
3. Allergy to milk or other food.
4. Congenital deformity in (gastro - intestinal tract).
5. Abnormality or disease of the nervous system.
6. Metabolic causes.
7. Others Renal causes , respiratory disease , ear disease

- Nursing care and ℞ of vomiting

- Try to find the cause and treat it.

## Diarrhea

The normal consistency and frequency of bowel movements varies with a child's age and diet and the definition of diarrhea varies accordingly.

- Frequency : It is normal for young infants to have up to (3 to 10 stools per day), although this varies depending upon the child's diet (breast milk versus formula; breastfed children usually have more frequent stools). Older infants, toddlers, and children normally have (one to two bowel movements per day).

Diarrhea can usually be defined as an increase in stool frequency to twice the usual
number per day in infants, or three or more loose or watery stools per day in older children.

Consistency : The consistency and color of a child's stool normally changes with age,.

Young infants' stools may be( yellow, green, or brown, and may be soft and/or appear to contain seeds or small curds). All children's stools can vary as a result of their diet.

Development of stools that are watery, or contain mucus is a significant change that should be monitored. The presence of visible blood in stool is never normal and

## Duration :

i. Acute diarrhea (lasting less than one week).
ii. Chronic diarrhea(lasting more than one week).

- **Causes :**

### 1) Infections

*a.* **Viral infection** : Viral infection is the leading cause of diarrhea in children and is seen most commonly in the winter months in temperate climates. Symptoms of viral infection can include watery diarrhea, vomiting, fever (temperature higher than 100.4°F or 38°C), headache, abdominal cramps, lack of appetite, and muscle aches. Viral infection usually begins 12 hours to 4 days after exposure, and resolves within three to seven days. No specific treatment is available for viral causes of diarrhea. Children with diarrhea from viral infections are best treated with supportive measures (oral rehydration solution, limited diet, rest).

*b.* **Bacterial infection** : Bacterial infection is sometimes hard to distinguish from viral infection. Persistent high fever (higher than 40°C or 104°F) and diarrhea that is bloody or contains mucus are somewhat more common with bacterial infection. Most children with bacterial infection do not require antibiotics and will improve with time and supportive measures, however, treatment may be necessary in certain situations.

*c.* **Parasitic infection** : Generally, infection with a parasite is uncommon in developed countries but may be seen in children who have recently ingested contaminated water or who have traveled to or lived in developing countries. Diarrhea from parasitic infections may last longer than two weeks

2) **Side effects of antibiotics** : (penicillin, erythromycin). Antibiotic-associated diarrhea — A number of antibiotics can cause diarrhea in both children and adults. The diarrhea is usually mild and typically does not cause dehydration or weight loss. In most cases, antibiotics should not be stopped and the child's diet does not need to be changed. The diarrhea usually resolves one to two days after antibiotics are finished. Contact a healthcare provider if a child on antibiotics has diarrhea that is severe , contains blood, or does not resolve after the antibiotic is stopped.

3) **infections not related to the gastrointestinal (GI) system** :
Otitis media, meningitis, renal infection

4) **less common causes of diarrhea** : Fatty diet, Milk allergy.

## DIARRHEA EVALUATION

The evaluation of diarrhea in children requires a careful review of medical history, a physical examination, and, on causes, diagnostic testing. The clinician will perform a thorough examination because there are some infections unrelated to the bowels (such as an ear infection) that can cause diarrhea.

Many tests are available to diagnose the cause of diarrhea and to determine the severity of dehydration, although most children will not require testing.

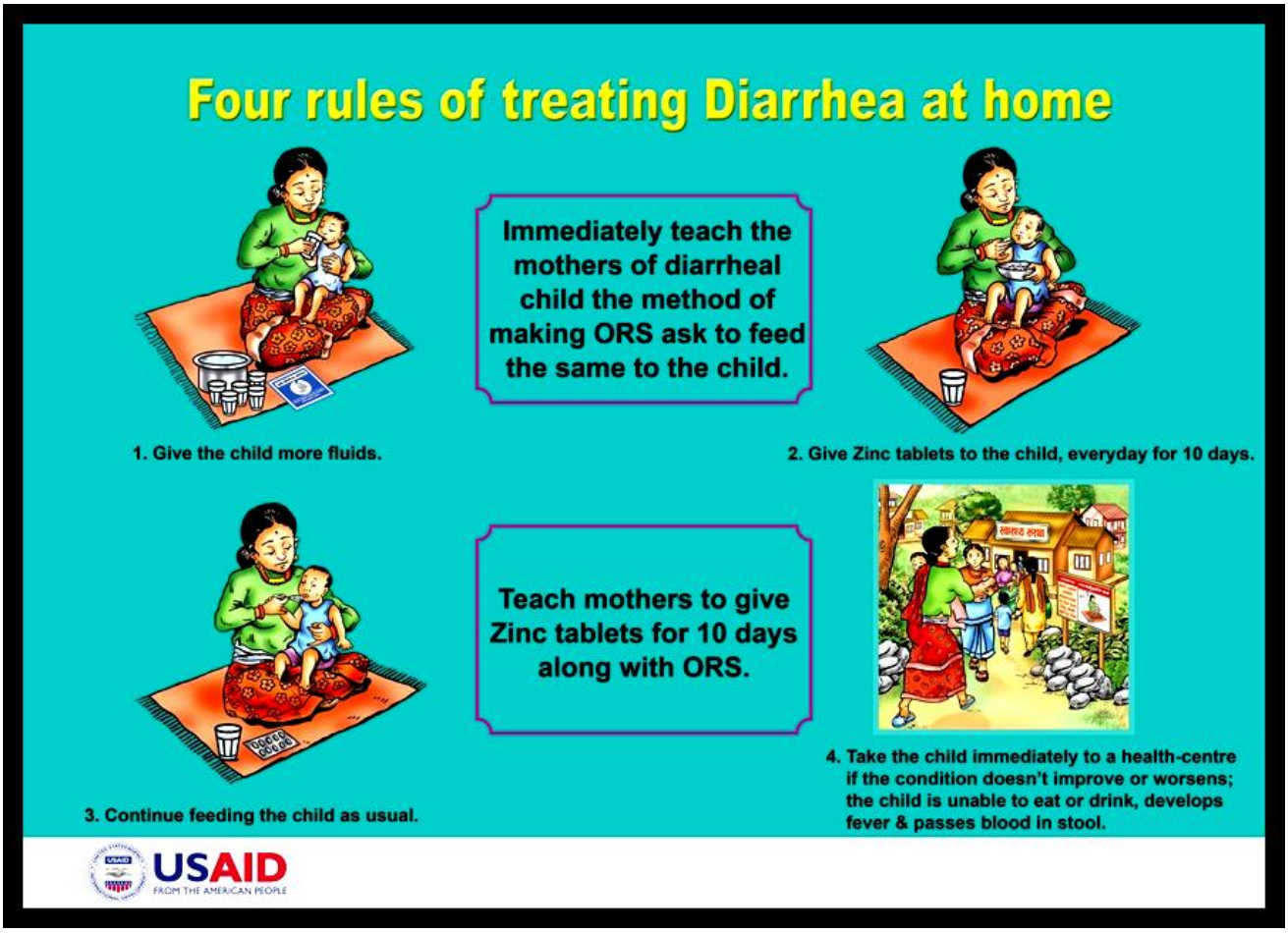
## HOME CARE OF DIARRHEA

### Dietary recommendations :

Children who are not dehydrated should continue to eat a regular diet and infants who are breastfeeding should continue to do so unless the parent(s) is told otherwise by their clinician. Dehydrated children require rehydration (replacement of lost fluid). After being rehydrated, many children will be able to resume a normal diet.

Specific suggestions for children who are tolerating a regular diet include the following:

- Most children with diarrhea tolerate full-strength cow's milk products. It is not necessary to dilute or avoid milk products (except in children with known allergies to cow's milk).
- Recommended foods include a combination of complex carbohydrates (rice, wheat, potatoes, bread), lean meats, yogurt,
- Apple, pear, and cherry juice, and other with high sugar content should be avoided.
- When clear liquids are recommended, the best choices are the commercially prepared oral rehydration solutions ORS for rehydration (eg, Pedialyte®).




## Monitoring for dehydration

**Mild dehydration** is common in children with diarrhea. Signs and symptoms of mild dehydration include:-

a slightly dry mouth, , and slightly decreased urine output (one wet diaper or void in six hours), increased thirst. Parents should monitor for signs of moderate to severe dehydration.

Common findings with **Moderate or Severe dehydration include :-**

dry mouth , markedly decreased urination (less than one wet diaper or void in six hours), lack of tears when crying, , and sunken eyes

- sunken fontanelle (in infants)
- sunken eyes
- lack of tears when crying
- wants to drink a lot of water (but may vomit), excessive thirst
- decreased urine output:
  - infants/babies – indicated by no wet diapers in a 6-8 hours period or diapers with a little dark-yellow urine
  - toddlers/older children – very little dark-yellow urine

- rapid breathing
- increased heartrate
- restlessness and/ or irritability
- lethargy/weakness
- poor skin turgor (pinching a fold of skin at the abdomen results in it returning slowly to normal)

**Table 2. Clinical Criteria Commonly Used For Classifying Dehydration Severity.**

| | Mild (3-5%) | Moderate (6-9%) | Severe (> 10%) |
|---|---|---|---|
| Mental Status | Well-appearing | Ill-appearing, non-toxic | Lethargic, toxic |
| Heart rate | Normal to increased | Tachycardia | Marked tachycardia |
| Breathing | Normal | Increased | Increased, deep |
| Pulse | Normal quality | Normal to decr quality | Poor quality |
| Capillary refill | Normal (< 2 sec) | Normal to sl prolonged (2-4 sec) | Markedly prolonged |
| Perfusion | Warm | Cool | Cold, mottled |
| Blood pressure | Normal | Normal | Hypotensive |
| Eyes | Normal | Slightly sunken | Very sunken |
| Tears | Normal | Decreased | Absent |
| Mucous Membranes | Moist | Tacky | Very dry |
| Skin turgor (recoil) | Instant recoil | Delayed (2 sec) | Very prolonged |
| Urine output | Normal to slightly decreased | Decreased | Minimal |

*Source: Adapted as a composite from: WHO, 1995; Gorelick MH, Shaw KN, Murphy KO, 1997; Friedman JN, Goldman RD, Srivastava R, et al, 2004. See references 6, 10, and 11.

**Oral rehydration therapy :** Oral rehydration therapy (ORT) was developed as a safer, less expensive, and easier alternative to intravenous fluids. Oral rehydration solution (ORS) is a liquid solution that contains glucose (a sugar) and electrolytes (sodium, potassium, chloride) that are lost in children with vomiting and diarrhea.. ORT does not cure diarrhea, but it does help to treat the dehydration that often accompanies it.

A few widely available brands include Pedialyte®, Infalyte®, and ReVital®, although generic brands are equally effective.

Parents should not try to prepare ORS recipes at home because the formulas must be exact.

ORS may be given at home to a child who is mildly dehydrated, refusing to eat a normal diet, or has vomiting and/or diarrhea. If needed, ORS can be given in frequent, small amounts by spoon, bottle, or cup over three to four hours.

## One method is described below:

- Parents should first measure out the total amount to be given with a standardized medicine syringe or measuring cup or spoon, rather than a regular cup or spoon.
- A total volume of 50 milliliters per kilogram, should be given over four hours. for a 9 kg child, this would equal 450 milliliters.
- The fluid can be given by teaspoonfuls (approximately equal to 5 milliliters each) every one to two minutes, or as tolerated.
- After the total amount has been given, a normal diet can be resumed.

A child who refuses to drink or vomits immediately after drinking ORT should be monitored closely for worsening dehydration. Children who are not dehydrated may drink ORS after every episode of vomiting to prevent dehydration.

**Medications :** Medications such as antibiotics and antidiarrheal agents are generally not necessary and could be harmful for infants or children with diarrhea. Rarely, antibiotics may be used in cases of bacterial infection when a specific cause of the diarrhea has been found or is strongly suspected, particularly after recent travel. Inappropriate use of antibiotics will not improve diarrhea. Furthermore, antibiotics can cause side effects and lead to development of antibiotic resistance.

Antidiarrheal agents (including Imodium®, Pepto-Bismol®, and Kaopectate®) are not recommended for infants or children, since the benefits do not outweigh the risks. One risk of using an antidiarrheal agent is that it could mask worsening symptoms and delay treatment.

**Preventing spread :** Parents with children who have diarrhea should be cautious to avoid spreading infection to themselves, their family, and friends. Care with hand washing, diapering, and keeping sick children out of school or day care until the diarrhea is gone are a few ways to limit the number of people exposed to the infection.

## Hygiene measures :

Hand washing is an essential and very effective way to prevent the spread of infection...

Hands should be cleaned after changing a diaper or touching any soiled item. They should also be washed before and after preparing food and eating, after going to the bathroom, after handling garbage or dirty laundry, after touching animals or pets, and after blowing the nose or sneezing.

## WHEN TO SEEK HELP FOR DIARRHEA

The following is a list of signs and symptoms that are worrisome and require immediate medical attention:

1. Bloody diarrhea
2. If an infant refuses to eat or drink anything for more than a few hours
3. Moderate to severe dehydration
4. Abdominal pain that comes and goes or is severe
5. Behaviour changes, including lethargy or decreased responsiveness

## SUMMARY

Most episodes of acute diarrhea resolve on their own, however, immediate medical attention should be sought for children who have any of the following

- The most common cause of acute diarrhea is a viral infection. Other causes include bacterial infections, side effects of antibiotics, and body wide infections not related to the gastrointestinal (GI) system. In addition, there are many less common causes of diarrhea.
- Children who are not dehydrated should continue to eat their regular diet.
- Children who are dehydrated should be rehydrated, after which they can resume their normal diet (possibly with some modifications).
- Children who are breastfeeding should continue to do so unless told otherwise by their clinician.
- Oral rehydration therapy (ORT) should initially be given to children who are dehydrated.

## Common signs and symptoms of dehydration

include decreased urination (less than one wet diaper or void in six hours), lack of tears when crying, dry mouth, sunken eyes, and weight loss.

## Medications

such as antibiotics and antidiarrheal agents are generally not recommended for infants or children with diarrhea. Parents with children who have diarrhea should be cautious to avoid spreading infection to themselves, their family, friends, and others. Care with hand washing, diapering, and keeping sick children out of school or day care are a few ways to limit the number of persons exposed to infectious microorganisms.

## Call your doctor if your child is vomiting or has diarrhea and:

1. Is younger than 6 months old.
2. Is older than 6 months old and has a fever higher than 101.4°F.
3. Has signs of dehydration (see box above).
4. Has been vomiting longer than 8 hours or is vomiting with great force.
5. Has blood in his or her stools.
6. Has blood in his or her vomit.
7. Has not urinated in 8 hours.
8. Might have swallowed something that could be poisonous.
9. Has a stiff neck.
10. Is listless or unusually sleepy.
11. Has had abdominal pain for more than 2 hours.

## Will my child need to go to the hospital?

Probably not, unless dehydration becomes severe. In this case, your child may need to be given fluids intravenously (through an IV) to replace fluids lost through vomiting or diarrhea.

## Signs of dehydration :

1. Little or lack of urine, or urine that is darker than usual
2. Urinating less frequently than usual (fewer than 6 wet diapers a day for infants and 8 hours or more without urinating for children)
3. Not eating as well as usual
4. Weight loss
5. Dry mouth
6. No tears when crying
7. In babies who are younger than 18 months old, sunken soft spots on the top of their heads
8. Skin that isn't as springy or elastic as usual

## Types of diarrhea :

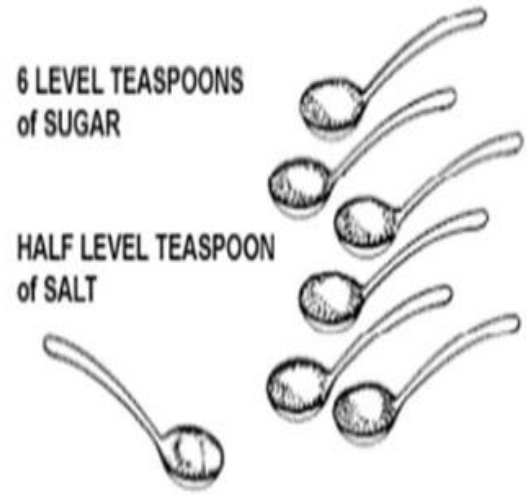
| Simple diarrhea | Sever diarrhea |
|---|---|
| Frequency of defecation (4 - 10 times/day) | Frequency more than (10 times/day ) |
| Feeling of thirst. | Sever thirst. |
| Sunken eyes, dryness of tongue, skin | Sever |
| Tachycardia + tachypnea | Mores sever |
| Fever (mild - moderate) | Sever |
| Loss of wt +depressed Fontanel | Mores sever |
| Uncomfortable feeling +anorexia +abdominal distension | Mores sever |

- Simple diarrhea if not treated can be worse, change in to sever, and if untreated lead to severe dehydration, loss of consciousness and death .

## * Nursing care and ℞ of diarrhea

| Simple diarrhea | Sever diarrhea |
|---|---|
| Oral dextrolyte for 12-24hrs (ORS) | Sever diarrhea if there is repeated vomiting ,severe dehydration, give I.V fluid |
| Oral semi liquid food soup (small amount, frequently). | = |
| Isolation of infant if need admission. | = |
| Measure vital signs/6w | = |
| Measure fluid input and output. | = |
| Take care of cleaning mouth, cloths, food, bottle. | = |
| Mother health education about how to use dextrolyte. | = |
| Measure wt. daily, frequency of stool and appearance and if need do stool examination G.S.E | = |

# Oral Rehydration Solution

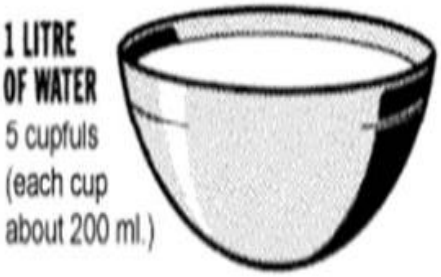



**Ingredients:**

**Half (1/2) level teaspoon of Salt**

**Six (6) level teaspoons of Sugar**

**One (1) Litre of clean drinking or boiled water and then cooled**
5 cupfuls (each cup about 200 ml.)




**Preparation Method:**
Stir the mixture till the salt and sugar dissolve.

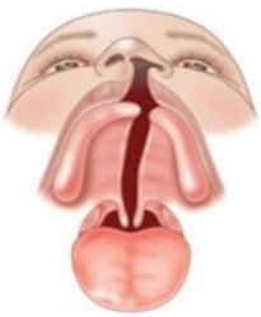
## Congenital abnormality of alimentary tract

### ❖ Cleft Lip and Cleft Palate

Normal Palate

Unilateral Cleft Lip and Palate

Bilateral Cleft Lip and Palate



**Cleft lip** and cleft palate are facial and oral malformations that occur very early in pregnancy, while the baby is developing inside its mother. Clefting results when there is not enough tissue in the mouth or lip area, and the tissue that is available does not join together properly.

**A cleft lip** is a physical split or separation of the two sides of the upper lip and appears as a narrow opening or gap in the skin of the upper lip. This separation often extends beyond the base of the nose and includes the bones of the upper jaw and/or upper gum.

**A cleft palate** is a split or opening in the roof of the mouth. A cleft palate can involve the hard palate (the bony front portion of the roof of the mouth), and/or the soft palate (the soft back portion of the roof of the mouth)

Cleft lip and cleft palate can occur on one or both sides of the mouth.
Because the lip and the palate develop separately, it is possible to have a cleft lip without a cleft palate, a cleft palate without a cleft lip, or both a cleft lip and cleft palate together

## Who Gets Cleft Lip and Cleft Palate?

Cleft lip, with or without cleft palate, affects one in 700 babies annually, and is the fourth most common birth defect in the U.S. Clefts occur more often in children of Asian, Latino, or Native American descent. Compared with girls, twice as many boys have a cleft lip, both with and without a cleft palate. However, compared with boys, twice as many girls have cleft palate without a cleft lip.

## What Causes a Cleft Lip and Cleft Palate?

In most cases, the cause of cleft lip and cleft palate is1. unknown. These conditions cannot be prevented. Most scientists believe clefts are due to 2.a combination of genetic and environmental factors. There appears to be a greater chance of clefting in a newborn if a sibling, parent, or relative has had the problem.
Another potential cause may be related to3. a medication a mother may have taken during her pregnancy. Some drugs may cause cleft lip and cleft palate. Among them: anti-seizure/anticonvulsant medications, acne medications containing Accutane, and methotrexate, a drug commonly used for treating cancer, arthritis, and psoriasis.
Cleft lip and cleft palate may also occur as 4.a result of exposure to viruses or chemicals while the fetus is developing in the womb.
In other situations, cleft lip and cleft palate may be part of another medical condition

## How Are Cleft Lip and Cleft Palate Diagnosed?

1. Prenatal ultrasound can sometimes determine if a cleft exists in an unborn child. If the clefting has not been detected in an ultrasound prior to the baby's birth,
2. A physical examination of the mouth, nose and palate confirms the presence of cleft lip or cleft palate after a child's birth.

## What Problems Are Associated With Cleft Lip and/or Cleft Palate?

1. **Eating problems.** With a separation or opening in the palate, food and liquids can pass from the mouth back through the nose. Fortunately, specially designed baby bottles and nipples that help keep fluids flowing downward toward the stomach are available. Children with a cleft palate may need to wear a man-made palate to help them eat properly and ensure that they are receiving adequate nutrition until surgical treatment is provided.
2. **Ear infections/hearing loss.** Children with cleft palate are at increased risk of ear infections since they are more prone to fluid build-up in the middle ear. If left untreated, ear infections can cause hearing loss. To prevent this from happening, children with cleft palate usually need special tubes placed in the eardrums to aid fluid drainage, and their hearing needs to be checked once a year.
3. **Speech problems**. Children with cleft lip or cleft palate may also have trouble speaking. These children's voices don't carry well, the voice may take on a nasal sound, and the speech may be difficult to understand. Not all children have these problems and surgery may fix these problems entirely for some. For others, a special doctor, called speech pathologist, will work with the child to resolve speech difficulties.
4. **Dental Problems.** Children with clefts are often have missing, extra, malformed, or displaced teeth requiring dental and orthodontic treatments. These problems can usually be repaired through oral surgery.

## Who Treats Children With Cleft Lip and/or Palate?

A team of doctors and other specialists is usually involved in the care of these children. Members of a cleft lip and palate team typically include:

1. Plastic surgeon to evaluate and perform necessary surgeries on the lip and/or palate
2. An otolaryngologist (an ear, nose, and throat doctor) to evaluate hearing problems and consider treatment options for hearing problems
3. An oral surgeon to reposition segments of the upper jaw when needed, to improve function and appearance and to repair the cleft of the gum
4. An orthodontist to straighten and reposition teeth
5. A dentist to perform routine dental care
6. A prosthodontist to make artificial teeth and dental appliances to improve the appearance and to meet functional requirements for eating and speaking
7. A speech pathologist to assess speech and feeding problems
8. A speech therapist to work with the child to improve speech
9. An audiologist); to assess and monitor hearing
10. A nurse coordinator to provide ongoing supervision of the child's health
11. A social worker/psychologist to support the family and assess any adjustment problems
12. A geneticist to help parents and adult patients understand the chances of having more children with these conditions

The health care team works together to develop a plan of care to meet the individual needs of each patient. Treatment usually begins in infancy and often continues through early adulthood.

## Cleft Lip and Cleft Palate Surgery

A cleft lip may require one or two surgeries depending on the extent of the repair needed. The initial surgery is usually performed by the time a baby is 3 months old. Repair of a cleft palate often requires multiple surgeries over the course of 18 years. The first surgery to repair the palate usually occurs when the baby is between 6 and 12 months old. The initial surgery creates a functional palate, reduces the chances that fluid will develop in the middle ears, and aids in the proper development of the teeth and facial bones.

## What Is the Outlook for Children With Cleft Lip and/or Cleft Palate?

Although treatment for a cleft lip and/or cleft palate may extend over several years and require several surgeries depending upon the involvement, most children affected by this condition can achieve normal appearance, speech, and eating.

make special appliances called "speech bulbs" or "palatal lifts" to help close the nose from the mouth so that speech sounds more normal. The prosthodontist coordinates treatment with the oral or plastic surgeon and with the speech pathologist.

## Nursing care after birth of newborn and before operation :

1. Psychological support to family.
2. Tell the parents that if only this deformity, it is not sever and not affect the life of the baby and can be corrected by surgery.

3. Tell the mother & explain to her (way of feeding):-
    a) Feeding by spoon, dropper, special bottle and teat.
    b) Elevate the head & shoulder of infant in feeding.
    c) Insure that the baby swallow the milk.
    d) Discharge abdominal gases after feeding.

## Nursing care after operation of cleft lip:

1. Pull arm of baby on each side of bed in order not to touch wound.
2. Daily dressing.
3. I.V fluid.
4. Sucker for mouth (suction )
5. A after I.V fluid start oral milk feeding by dropper on angle of mouth and the same way as before operation.

## Imperforated anus

Congenital abnormality, NBB born with out of anus opening.

## Causes:

**i.** Hereditary
**ii.** Drug
**iii.** Failure in fetal development

Children with imperforate anus may have other problems that are associated with the condition. These may include problems with:

1. The bones that make up the spine (vertebrae)
2. The lowest part of the spine, just above the tailbone (sacrum)
3. The windpipe (trachea)
4. The tube that connects the mouth to the stomach (esophagus)
5. Heart
6. Arms and legs
7. Kidneys

## Signs and symptoms of imperforate anus include:

1. No passage of stool within a day or two of birth
2. Passing stool through another opening, like the urethra in boys or vagina in girls
3. Swollen belly
4. Opening to the anus missing or not in the usual place
5. In girls, opening near the vagina

## Imperforate Anus Diagnosis

Doctors usually find imperforate anus when they examine a baby right after birth. Usually, a physical exam is enough to make the diagnosis. After identifying a potential problem, though, your baby's doctor may ask for some imaging tests:

i. X-ray of the belly
ii. Ultrasound

℞ :- Surgical ℞ is of 2 types it depend on severity of imperforated anus .
i. If simple do one step operation . ( Colostomy )
ii. If sever do 2 steps operation. ( Corrective operation )

## Pre-operative care (imperforated anus) :

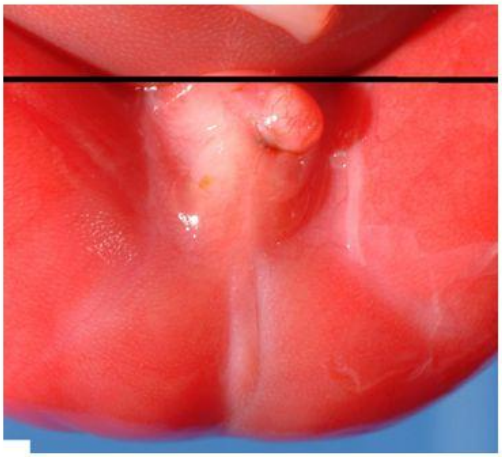
1. Prepare the child for operation.
2. Advice the parents not to delay operation.
3. Observe if there is vomiting, abdominal distension.

## Nursing care after operation

1. I.V fluid.
2. Take care of colostomy opening, cleaning it & cleaning it with special colostomy bag, change bag daily.
3. Train the mother about how to take care of colostomy.
4. Doctor visit time should be prepared to mother for baby follow up.

# Imperforate anus

- Includes agenesis and atresia of the rectum and anus
- Etiology: unknown
- Incidence: 1 in 4,500
- SEX: 60% male



# Nursing care of the urinary tract diseases

## What are the kidneys, and what do they do?

The kidneys are two bean-shaped organs located near the middle of the back, just below the rib cage. When blood flows through the kidneys, waste products and extra water are removed from the blood and sent to the bladder as urine. The kidneys also regulate blood pressure, balance chemicals like sodium and potassium, and make hormones to help bones grow and keep the blood healthy by making new red blood cells.

## What is glomerulonephritis?

Glomerulonephritis is an inflammation of the microscopic filtering units of the kidney called the glomeruli. Although both kidneys are usually affected, not all glomeruli are affected at the same time.

The inflammation damages the glomeruli so they can't sift waste products, salt and water effectively from the bloodstream. These harmful substances then build up in the body, causing complications.

Glomerulonephritis may be temporary and reversible, or it may progress to chronic renal (kidney) failure.

## Causes of glomerulonephritis in children

The precise cause of most cases of glomerulonephritis is often 1.unknown. In children, a common cause used to 2.bacterial infection with group A haemolytic streptococcus, typically a throat, upper respiratory tract or skin infection. This condition, often referred to as acute post-streptococcal glomerulonephritis (APSGN), is much less common now because of the widespread use of antibiotics.

Other common causes include 3.immune-mediated diseases such as systemic lupus erythematosus.

## Who's affected by glomerulonephritis?

Anyone can develop glomerulonephritis, but those people exposed to the factors listed above are most at risk. APSGN particularly affects children between the ages of six and ten, and develops one to two weeks after a throat infection or three to four weeks after a skin infection.

## Symptoms of glomerulonephritis in children

In mild cases, there may be no symptoms; the disease is only discovered by a routine urine test or when chronic kidney failure develops.

When present, symptoms may include:

1. Blood-stained, brown, smoky or foamy urine
2. Reduced amounts of urine (although sometimes it is increased)
3. Tiredness
4. Lethargy
5. Nausea
6. Vomiting
7. Sore throat
8. Headaches
9. Problems with breathing
10. Weight loss
11. Joint pains
12. Pale skin
13. Fluid accumulation in the tissues
14. High blood pressure
15. Seizures

## Diagnosis and treatment of glomerulonephritis

Glomerulonephritis must be diagnosed by a doctor, following

1. urine and blood tests
2. throat swabs (to look for a bacterial infection)
3. ultrasound scan of the kidneys or eventually a biopsy (where a small sample of tissue is taken from the kidney through a needle).

## Treatment aims

1. palliative the severity of the disease
2. prevent complications
3. improve the kidneys to do their functions

## Possible treatments include

1. fluid restriction
2. a diet low in protein, salt and potassium
3. diuretics (tablets that increase urine production)
4. blood pressure medicines
5. antibiotics
6. steroids and drugs that suppress the immune system. In severe cases,
7. kidney dialysis may be needed.

## Nursing care & Rx :

1. Bed rest till fever disappear and especially if there is heart failure .
2. Diet with salt restriction.
3. Daily wt. measurement.
4. Drugs according doctor prescription (antipyretic, antihypertensive).
5. Observation of urine (amount, color), edema, uremia.
6. If there is repeated vomiting and appear sign of dehydration give I.V fluid.In case of hyperkalemia or renal failure (oLiguria) can do peritoneal dialysis.

**Nephrotic syndrome:-** is kidney disease with proteinuria, hypoalbuminemia, and edema.

## Nephrotic syndrome Classification

Nephrotic syndrome can be primary, being a disease specific to the kidneys or it can be secondary, being a renal manifestation of a systemic general illness. Secondary causes include the following, in order of approximate frequency:

- Diabetes mellitus
- Lupus erythematosus
- Viral infections (eg, hepatitis B, hepatitis C, human immunodeficiency virus [HIV] )

In all cases, injury to glomeruli is an essential feature

cause is unknown.

## Signs and symptoms

1. Bufness of face (around eye) , ankle edema, then generalized edema (ascitis), hydrothorax, scrotum swelling.
2. Oliguria.
3. Increase wt of child.
4. Pallor
5. Anorexia + vomiting.
6. In G.U.E (albumin in urine) ,in serum ( increase cholesterol & decrease albumin).
7. B.P & temp normal.
8. Decrease immunity.

* Nursing care & Rx :

1. Prevention of infection by isolation of Nephrotic syndrome child from others with infectious disease.
2. Good & stable diet ( Increase protein with salt restriction).
3. Drugs diuretic + corticosteroid (prednisolone tab) in special regime for 3moths.
4. Bed rest + prepare toy for playing.
5. Measure wt, fluid intake & output daily.
6. Educate the family about (disease, side effects of drug & follow up).

(From a therapeutic perspective, nephrotic syndrome may be classified as steroid sensitive, steroid resistant, steroid dependent, or frequently relapsing. )

(Corticosteroids (prednisone), cyclophosphamide, and cyclosporine are used to induce remission in nephrotic syndrome. Diuretics are used to reduce edema. Angiotensin-converting enzyme inhibitors and angiotensin II receptor blockers are administered to reduce proteinuria. )

* Prognosis of Nephrotic syndrome :

With proper Rx and care complete cure gradually but some children develops complication.

* Complications :-

1.Chronic nephritis
2. Renal failure

Pyelitis and pyelonephritis

*Pyelitis = inflammation of renal pelvis.

*pyelonephritis = inflammation of renal Pelvis + renal parenchyma associated with inflammation of ureter and bladder.

*Age incidence 2 moths - 2 yr, affected **female** than **boys**.

*predisposing factor is congenital abnormality of the renal system.

*The causes are E-coli, proteus, pseudomonas.

* Signs and symptoms of Pyelitis and pyelonephritis

Fever, pallor, vomiting, diarrhea, (frequency, pyuria, hematuria, cast in G.U.E) + leukocytosis in C.B.P .

* Nursing care & Rx :

1. Bed rest.
2. G.U.E (clean the area with water and soap )then collect urine in urine bag or tube and put urine in clean cup .
3. urine C & S in sterile test tube.
4. Give antibiotic & antipyretic.
5. Encourage the child to drink a lot of fluid frequently . 4- Renal failure

It mean the kidney no longer meet the body's need to maintain water, electrolyte, acid base balance and to eliminate the end product of protein metabolism.

It is of 2 types: -

1- Organic :- either a. Acute or b.Chronic

Cause (glomerulonephritis ,Pyelitis and pyelonephritis).

2-Functional:Kidney is normal but because of decrease of blood that pass to kidney a.(hypovolemia) « sever vomiting, diarrhea , bleeding, sever burn ,».

* Signs and symptoms :

Anorexia, vomiting, edema (around eye, leg) then generalized, dyspnea, NA retention, hyperkalemia ,water retention, metabolic acidosis , increase urea in blood which may lead to encephalopathy.

* Treatment & NC of Renal failure :

1. Bed rest and Rx the cause.
2. Calculate fluid input & out put and wt measuring daily.
3. Regulars & special diet (restriction in salt, protein & rich in Vit.& glucose) .
4. In case of hypovolemia (should measure daily requirement ofsalt& give it.
5. laboratory investigation (urine, blood urea,creatinin &electrolyte
6. If these measure failed, should do dialysis (peritoneal dialysis .)

*This process done in dialysis unite to clear the blood from K & urea.

* Children preparation (aseptic media, measure & record vital sing, flu

It continues for (12-36) hr.

# Nursing care of the Blood disorder

## Blood disorder

1- Hemorrhagic disease: - Included ;

Hemophilia A = ( factor 8 deficiency ) , 85 % cases .
Hemophilia B = ( factor 9 deficiency ) , 15 % cases .

* Clinical picture

Repeated episode of bleeding ( spontaneous , traumatic )through out thelife it occur only in male .

* Diagnosis

PTT ( partial thromboplastin time ) prolonged .

* Treatment

1- Infant should receive ( hepatitis B - vaccine ) .
2- AID now second most common cause of death after uncontrolled bleeding .
3- Rx of acute bleeding either by
a- Fresh frozen plasma for ( f 8& f9 ) .
b- Cryoprecipitate for (factor 8) .
c- Or specific factor 8 or factor 9.

* Aim of Rx :- to prevent bleeding by increase the factor to ( 30 - 50 % ) of normal .

* Severity of hemophilia :-

depend on level of factor in blood ;
*less than 1% mean sever disease lead to( spontaneous or traumatic bleeding ) .
* 1 - 5 % mean moderately sever disease.

* 5 - 30 % mild hemophilia .

* Prevention of bleeding is done by:-

1. Protection of child from trauma .
2. clean mouth properly to prevent gum bleeding and use soft tooth brush .
3. Intramuscular injection is contraindicated .
4. Take care of venapuncture .
5. Give good instruction to the family about care their child in home and school to prevent bleeding .
6. Prevention of bleeding when the patient had surgery by replacin factor .

## 2- Anemia

It is a decrease in the hemoglobin level necessary to met the tissu need for oxygen delivery .

### * Causes

1- Reduce capacity to produce RBC :
a. Bone marrow failure e.g. a plastic anemia .
b. Deficiency of iron , folate , b12 ( megalo plastic anemia) .
2- Haemolysis :
a. Hemoglobinopathy : thalassemia & ( sickle cell anemia) .
b. Iso immune ( Rh & ABO incompatibility in neonate ) .
c. Intravascular ( transfusion reaction ).
3- Blood loss :
a. Gastrointestinal or other .
b. Truma .

### Sickle cell anemia

Formation of Hbs , which result in crystallization or formation of gel when deoxygenated .So RBC survival is shortened so leadto :
1- Infarction of bones , viscera, lead to pain .
2- Spleen is damaged so liability to infection .

### * Diagnosis :-

1- Presence of sickle cell in the peripheral smear .
2- Presence of Hbs only on Hb electrophoresis .

### * Treatment :-

1- Blood transfusion .
2- Pain medication .
3- Antibiotics with every fever episode .
4- Rehydration with alkalinization .

## * Thalassemia

Mean hereditary persistence of fetal Hb ( Hb f ) .Normally HbA,and this result in RBC destruction either in bone marrow or in spleen . It occur in the bordering the Mediterranean sea ,Africa , middle east , America
of Italian and Greek origins .
Age incidence ( 6mth - 1yr ) .

* Thalassemia either major or minor .

* Clinical picture of ( beta Thalassemia major )

1.Sever anemia which result in growth failure , and heart failure.
2. Sever hepto and splenomegally .
3. expansion of marrow of face and skull produce characteristic faces . maxilla is thick , prominence of the teeth.
4. Pallor & jaundice lead to a greenish brown complexion.maxilla is thic prominence the teeth.

* Diagnosis :-

1.Complete blood picture(C.B.P) → Hb is decrease .
2.confirm Dx by Hb electrophoresis .

* Rx and nursing care

a-Thalassemia minor, need no Rx. No regular blood transfusion and it like iron deficiency anemia .

b- thalassemia major need :

1- Regular and frequent blood transfusion + folic acid . 2- Psychological support .

3- Leukemia

It is malignant disease in which immature lymphoid cells (lymphoblast) accumulate in bone marrow , released in to peripheral blood , spread through out the body . Affect ♂more than ♀ .

Leukemia either :-

(A) Acute has repaid clinical coarse , bad prognosis.
(B) Chronic has long clinical coarse, better prognosis.

* S&S

1. Sever anemia, Pallor.
2. Fever, generalized weakness, lethargy, loss wt.
2. Generalized lymphadenopathy .
3. Pain &s.t swelling in joint.
4. Gum inflamation,&hypertrophy.
5. Purpura & internal bleeding.
6. Hepatospleno megally.
7. Nervous system sign &symptom if it affected.
8. decrease immunity.

* Rx & NC

1. General Rx

a. anemia (blood , plate let).

b. fever& pain (analgesic+ antipyretic).

c. infection ( antibiotics) .

2. Specific Rx

a. cytotoxic chemotherapy

b. Radiotherapy.

3. Psychological support to both child & family.

4. Tall the parents about side effect of drug (cytotoxic & steroid).

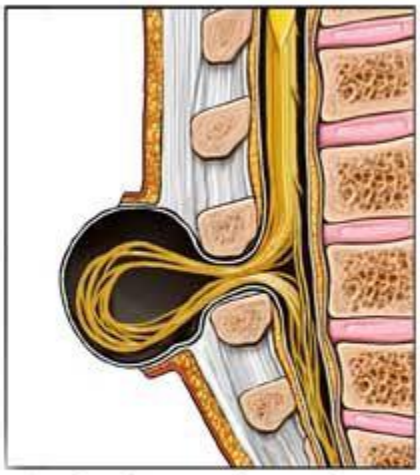
5. Take care when do venipuncture & bone marrow aspiration.

# Nervous system

## Congenital anomalies

### Spina bifid

Malformation of spine (posterior portion of lamina vertebra fail to close)



Defect in vertebrae allows spinal nerves to protrude

1. Spina bifida occulta: only vertebral defect
2. Meningocele: the meninges are protruded
3. Meningomyelocele: both the meninges and spinal cord

### Clinical features

Loss of sensation in lower limbs

### Nursing care

1. Avoid trauma and pressure
2. Prevent contamination with urine and feces

### Treatment

Surgical repair

### Mastoiditis

An infection of mastoid bone

### Infectious agents

(Streptococcus, H.influenze and pneumococcal)

### Clinical features

Pain, tender, fever, swelling and vomiting

### Nursing care

Clean, dryness

### Treatment

Antibiotic and surgical drainage

**Complication**

Brain abscess and meningitis

## Hydrocephalus

Due to in adequate absorption of cerebrospinal fluid, which lead to increased pressure in CSF spaces

### Causes

1. Congenital (spina bifida & maldevlopment of ventricular foramen)
2. Acquired (meningitis &trauma)

### Clinical features

1. Expanded OFC
2. Sings of increased ICP (sun-setting eyes, change in personality (irritability, poor sleep and feed), vomiting-seizures)

### Management

1. Ventricular shunt
2. Endoscopic surgery

### Nursing care

1. Oxygen therapy
2. Check vital signs
3. Check head circumference
4. Cleaning
5. Check output and input

### CNS Paroxysmal disorders

Disturbance of consciousness, posture, movement, behavior & sensation due to abnormally increased electrical activity of the cerebral neurons

## A-Epileptic

### Febrile convulsion

Any event involving abnormal movement associated with a febrile illness

**Characteristics**

- From 5 months to 5 years
- simple and complex types
- familial
- CNS infection should be excluded
- Prophylactic antiepileptic
- follow up is very important

**Nursing care**

1. reassure parents
2. put the child on his side
3. clean mouth by suction
4. cold sponging
5. intrarectal diazepam 0.5 mg/kg

**Epilepsy**

1. generalized seizures

a. tonic-clonic

b. clonic seizures

c. absence

d. infantile spasm

2. local: (partial seizure)

## Clinical feature

Typical tonic-clonic epileptic seizures

1. tonic stiffening
2. convulsive jerks
3. eye deviation
4. automatisms
5. incontinence
6. post-ictal sleepiness

## Etiology

1. Idiopathic, usually genetic
2. Symptomatic when there is structural brain damage (infection or post infection), metabolic (vit. B6 deficiency), brain injuries (trauma)

## Diagnosis

1. Clinically
2. EEG

## Management

1. Diagnosis
2. anti-epileptic drugs
3. communication

## B-Non-epileptic paroxysmal events

- syncope and anoxic seizures (breath holding attacks, cardiac dysarhythmias)
- migraine and migraine related disorders(vertigo, torticollis)
- psychological
- Headache
- Tension
- Migraine
- increase ICP
- scalp tissue pathology

# Meningitis

## Causes

1. Infection (bacteria, viruses, fungi and parasites)
2. Non infection (malignancies & drugs)

## Bacterial meningitis

6-12 months
Common microorganism
H. influenza

## Clinical features

1. Fever, nausea, vomiting, irritability, neck stiffness and reduced conscious level
2. Sings of increase ICP (bulging fontanel)
3. Tonic seizures & coma
4. Skin rash in meningococcal toxemia

## Diagnosis

1. Lumber puncture. CSF findings:
a. Raised WBC (polymorph)
b. Raised protein and decrease sugar
c. Organism and gram staining in culture
2. CT scan and MRI

## Treatment

1. High doses antibiotic in compensation
2. Steroids
3. Treatment the complication (seizures, dehydration)

## Nursing Care

1. Isolation
2. Good ventilation
3. Avoid contamination
4. Check vital signs

# Infectious disease

Infectious disease is an illness that caused by an infectious agent or its toxic product and transmitted from one person to another by direct or indirect contact. Infectious diseases usually considered as a leading cause of mortality among children also accounts for approximately in 50% of all visits to child health setting.

## Vulnerability of children to infection

1. Their immune responses are immature
2. Disease protection through immunization is yet incomplete.
3. Passively acquired maternal antibodies are decreasing with age.

## Stages of infectious disease

1. Communicability period: is the time during which an infected person can transmit the disease directly or indirectly to another person.
2. Incubation period: is the time between exposure to an infectious and the appearance of the first signs or symptoms (grow and multiply). The length of incubation period varies depending on the type of pathogen.
3. Prodromal period: time between the begging of non-specific and the specific symptoms (usually it is short and ranging from hours to a few days).
4. Illness period: during which specific symptoms are evident and have local symptoms related to the organ affected.
5. The convalescent period: when the symptoms began to fade and the patient returns to full wellness.

## A) Viral diseases

### Hepatitis

1. Hepatitis A virus (feco–oral route of transmission)
2. Hepatitis B virus (syringes & blood contamination)

### Clinical features

Nausea, vomiting, anorexia, abdominal discomfort and jaundice, yellow urine and clay color stool, itching & hepatosplenomegaly.

### Complications

Chronic Hepatitis

**Nursing care**

Isolation, rest, observe the sclera, avoid drug, encourage for small frequent diet & high carbohydrate, sterile equipment & avoid infection.

**Measles** (Rubeola)

**Clinical features**

Fever, conjunctivitis, coryza, cough, photophobia, Koplik spots (small whites spots on a red background in buccal mucosa) and skin rashes (brown or pinkish start behind the ear, forehead then extend to cheek &extremities within 5 days).

**Methods of spreads**

1. Direct contact & air borne droplet
2. Contaminated dust

**Complication**

Otitis media, bronchopneumonia and encephalitis

**Communicability**

5 days after rash

**Nursing care**

Rest, good feeding, dim light, cool room soft blanket and paracetamol,

**German measles (Rubella)**

**Clinical features**

Mild disease, pink nonproductive maculopapular rash, fever no koplik spots also no photophobia.

**Nursing care**

Antipyretic

**Chicken pox**

**Clinical features**

Fever, vomiting, itching and skin eruption (macules, papules & vesicles)

**Communicability**

1-2 days before and 5 days after symptom

**Transmission**

Direct &indirect

**Nursing care**

Feeding, antipyretics & anti-itching

**Complications**

Laryngitis ,pneumonia .meningitis

**Poliomeylitis**

Poliovirus

**Clinical features**

Fever and sore throat, affect respiratory and central nervous system so lead to stiffness, headache, vomiting, also respiratory distress.

**Transmission**

Feco-oral route

**Complications**

permanent paralysis, meningitis , encephalitis

**Nursing care**

Observe respiratory paralysis, feeding, iv fluid, immunoglobulin and rehabilitation

**Mumps (parotitis)**

Paramyxovirus

**Clinical features**

Fever, earache, pain in chewing, swelling of parroted gland

**Communicability**

1-6 days before and 9 days after symptoms

**Nursing care**

Cold application, soft food, clean mouth, antipyretic

Complications

Orchitis, oophritis and pancreatitis

**Nursing care**

Sick leave and analgesia

**B) Bacterial diseases**

**Pertussis (whooping cough)**

(Pordetella pertussis)

**Clinical features**

Coryza, paroxysmal cough, vomiting, dehydration.

**Communicability period**

4-6 weeks

**Complications**

Pneumonia, bronchitis, otitis media, and seizures (encephalitis)

**Nursing care**

Monitor respiration, oxygen and humidity in room, gentile suctioning with antitussive, salbutamol and broad spectrum A.B.

**TETANUS (lucked jaw)**

Clostridium tetani (found in soil and entre the body through deep injuries)

**Clinical features**

Fever, pallor, stiffness of neck and jaw. Painful muscles spasm (convulsion), difficulty in swallowing.

**Complications**

Laryngospasm and respiratory distress. Lect. 16 Pediatrics Dr. Yaser Alebadi

5

**Nursing care**
Feeding by n. g. tube, avoid movement & noise, skin and reparatory care, I. V. fluid, diazepam, broad-spectrum antibiotic with antitoxin.

**Diphtheria**
Coryne bacterium diphtheria

**Clinical features**
Fever, rhinorrhea, membrane over throat, foul odor, cough, hoarseness, pharyngitis, noisy breathing.

**Communicability**
2 weeks

**Complications**
Myocarditis, neuropathy.

**Nursing care**
Humidified oxygen, oral suction, mouthwash, liquid diet, observe respiration with immunoglobulin and antitoxoid also erythromycin to eradicate the bacteria

**Tuberculosis (T.B)**
Acid-fast bacilli (mycobacterium tuberculosis)

**Clinical features**
1. Symptomless
2. Fever
3. Decrease weight
4. Night cough
5. Hemoptysis
6. Sweating
7. Chest pain

**Communicability**
Till –ve culture

**Nursing care**
1. Anti. T.B. for 6 months (INH , streptomycin and rifampicin)
2. Isolation
3. Good feeding
4. Cleaning
5. Air ventilation

Lect. 16 Pediatrics Dr. Yaser Alebadi
6

**Typhoid fever**
Salmonella typhi. Transmitted by feco-oral route & dust inhalation.
**Diagnosis**
By
1. Low WBC
2. Widal test
3. Culture

**Clinical features**
Fever, headache, drowsiness, lymphadenitis, splenomegaly and skin rash.
**Nursing care**
Rest, fluid, cold sponging, cleaning, isolation, health education
**Treatment**
Antibiotics

# The endemic diseases

## Malaria

**Types**

1. Plasmodium
2. Plasmodium ovali
3. Plasmodium vivax
4. Plasmodium falciparum

**Clinical features**

Fever, rigor, anorexia, vomiting, diarrhea, anemia, fit and hepatomegaly

**Prevention**

Avoid mosquito anopheles

**Treatment**

(quinine, chloroquine)

## Cholera

Caused by vibrio cholera, transmitted by contaminated water, food and flies

**Clinical features**

Vomiting, frequent bowel motion, which lead to sever dehydration & electrolyte disturbance

**Prevention**

1. Sterilize water by boiling
2. Waste drainage
3. Wash vegetable
4. Pasteurizing milk
5. Health education
6. Immunization

**Treatment**

I.V. fluid and antibiotic

## Brucellosis (Malta fever)

**Source of infection** Animals directly or by milk and its products

**Clinical features**

Fever –headache, joints, muscle pain, profuse sweating and psychological disturbance
**Prevention**
1. milk pasteurization
2. Treatment of infected animal

## Schistomiasis (bilhareziasis)

**Types**
1. Schistomiasis Hematobum
2. Schistomiasis Mansoni
3. Schistomiasis japanicum

**Clinical features**
Fever, skin allergy, hematuria

## Tinia solium

Transmitted by contaminated vegetable

## Tinia saginata

Contaminated meat
**Clinical features**
abdominal pain, anemia, weight loss, increase appetite
**Treatment**
bibrazin

## Oxyuris

Transmitted by
1. Dirty nails
2. Contaminated food

**Clinical features:** anal itching mainly at night 2-enurisi & disturb sleep 3-anemia & wt. loss
**Nursing care:** cleaning, **Treatment**:vermox

# Care of orphan

Child who lost one parent or both so he is losing love & security .

**Country houses** ==social institute which are taking care of orphans.

**Accepting in country houses** ==

1-iraqi 2-lost care of parent because of death ,disability .or impression.

3-suffering from family problems 4-unknowen origin or vagrants.

**Objective of country houses==**

1-establish of children for normal life [ physical , mental &social ].

2-give name & identify the unknown origin.

3-prevent any differentiation between them to give them values in society.

**Services in country houses**==

1-provide family atmosphere—2-school &follow up developmental state

3- provide feeding , clothes &health care 4-solving social problems

5-follow up after graduating.

**Characteristics of education directors ==**

1-well trained & have experiences 2-intrrested in field

3-stading problems 4-can explain the child behaviors.

# Handicap child

**Causes--**

1-congenital anomalies 2-comunicale diseases 3- accidents [burns ,full from high & rode traffic accidents ] 4-metabolic disorders

**Prevention===**

1-labritory tests before marriage 2-prenatal & postnatal care 3-care of newborn babies 4-good nutrition 5- vaccination 6-health education

**Rehabilitation ---**

Recurrent of handicap to be able to live normally.

**Types of rehabilitations --**

1-physical 2- psychological 3-social 4- occupational .

**Values of rehabilitation ==**

1- Good physical , social &mental health
2- Can took care of himself
3- Rest in family & society
4- Can adapt with environmental factors.

**Prevent accidents** ===

**1-** Education about accidents [poisoning , burn & RTA]
**2-** Keep [oils , kerosene , drugs , chemical agents] in locked container
**3-** Keep knives &matches away from children .
**4-** Barriers for stairs .
**5-** Not leave child alone specially the hyperactive one
**6-** Educate mothers about growth & development
**7-** Arrange house furnishes specially in kitchen
**8-** Carefully observe the child specially nearswim mine , rivers &bathroom
**9-** In case of poisoning encourage child to vomit but not for kerosene
**10-** In case of burn warmth the child and not leave him cold

# Dying child

**Nsg care of child attending to death==**

1-call for doctor & not leave him alone 2-call parents

3-transfer the child foe separated room with good light &ventilation

4-provide any like or dislike for child 5- n. g. section

5-clean & humidify the mouth 6-check for urine &stole 7- check vital signs

8-give drugs as the doctor orders

**Care after death—**

1-close eyes &mouth 2-keep extremities in striate position

3-clean body &change clothes 4-cover him with clean sheet

5-record notes for the report of death

6-psychlogical support for the parents