

Likely OSPE Stations About Medical Equipment



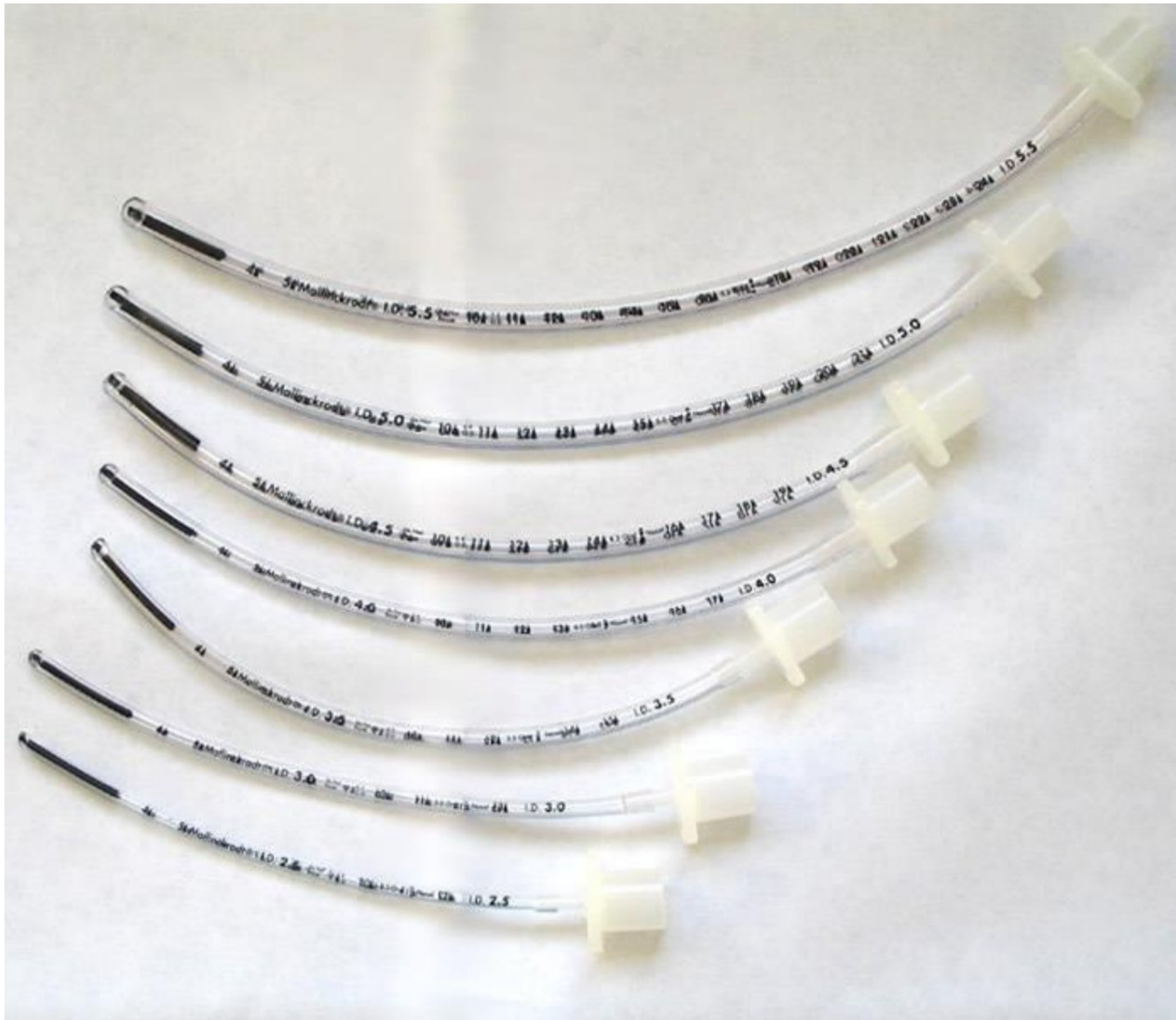
STADIOMETER

- A stadiometer is a piece of medical equipment used for measuring height of children > 2 Yrs while standing.
- It is usually constructed out of a ruler and a sliding horizontal headpiece which is adjusted to rest on the top of the head.



INFANTOMETER

- Instrument used to take length of children < 2Yrs in lying position.
- One post is fixed against which the head is placed and the other can be slid over a scale against which the heel is placed.



ENDOTRACHEAL TUBES

- Made of disposable portex
- They are used for intubation to maintain the airway in case of cardio-respiratory arrest to create artificial ventilation
- In neonates also, it is used in the treatment of meconium aspiration syndrome
- It is used in treatment of respiratory failure due to various causes to maintain artificial respiration.

- Come in cuffed and non-cuffed varieties
- The cuffed ET tubes help to:
 - Prevent aspiration of materials into the trachea
 - Maintain the position of the ETT & prevent its dislodgment
 - Create an airtight passage
- Cuffed tubes are used in children above 8 years and in those children who require more than 6 no. Tube

- Endotracheal tubes come in various sizes in increasing units of 0.5.
- In the full term neonates 3.0 Fr tubes is usually required.
- The sizes of the tubes require for intubation can be calculated from the formula.

$$\text{Size of tube} = \text{Age}/4 + 4 \text{ (age in years)}$$

- Length of tube = $\text{Age}/2 + 12$



OVERHEAD/RADIANT WARMER

- It's a body warming device to provide heat to the body
- This device helps to maintain the body temperature of the baby and limit the metabolism rate
- The heat loss in some newborn babies is rapid; hence body warmers provide an artificial support to keep the body temperature constant

- Radiant Warmers consists of an open tray (where the baby is kept) and the artificial heating is provided by a heating mechanism mounted overhead
- The skin temperature of the baby can be monitored by a temperature measuring knob that is kept continuously attached to the body
- The variation in the skin temperature can be seen on a small LCD panel which continuously shows the body temperature. Radiant warmers are equipped with alarm to indicate the change in temperature and hence attract attention of medical professional attending the baby

- Radiant Warmers can be manual or automatic (servo system – heater output is determined automatically based on skin temperature)



PHOTOTHERAPY UNIT

- Phototherapy equipment are means of detoxifying bilirubin to facilitate its excretion from the body via routes other than the normal biochemical pathway.
- When bilirubin absorbs a photon of light it is known that one of three photochemical reactions can occur to change its molecular structure.

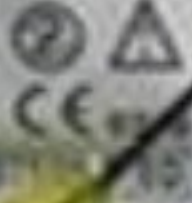
Wavelength :420 - 480nm



BD Spinal Needle



Spinal Needle Quincke Type Point
Aguja Espinal, punta tipo Quincke
Aguja de punta Quincke
Aiguille Spinal: Biseau de Quincke
Spinalkanüle mit Quinckeschiff
Ago Spinal: Punta tipo Quincke
Spinalni med Quincke tipad speni
Spinalni med Quincke spids



REF 405255

20 GA 3.50 IN
0.9 x 90 mm



0410003

2009-07

- LP needle with short bevel "Quincke" type with transparent hub and stylet.
- Ergonomic design of the hub to ensure easy handling and insertion.
- The hub of the stylet is fitted with a lug to indicate the bevel orientation and to easily reposition the stylet within the needle in case of necessity.
- The hub of the stylet is also colour coded according to the diameter of the needle.
- Some needles are supplied without introducer; other needles are supplied with a metallic introducer needle to limit the risk of bending / kinking of the Quincke needle and the risk of deviation of the needle tip
- 20 G needle (pink) used in children



INFANT INCUBATOR

- Incubators are device that provides sufficient warmth to the body to maintain a desired temperature
- Premature babies have very less fat around them and lose heat rapidly to the surrounding environment
- The incubator plays an important role in maintaining the small environment of desired temperature which minimizes the heat loss

- Incubators consist of the baby tray that is enclosed in a box like structure to provide a fix warm environment
- The box is generally made of fibre glass or acrylic which is transparent and the heating mechanism is placed below the tray
- The heat generated by heating mechanism is not used directly to heat the body
- This heat is used to warm the air mixture which is then circulated in the closed environment around the baby
- The temperature of the air as well as the baby is indicated on panels and the temperature control can be automatic as well as manual based on the incubators

- Incubators are armed with alarms to derive attention for temperature change
- Incubators are available with single wall and double wall, and the selection can depend on the environment temperature in which it is to be used
- When the baby starts gaining weight, it is a practice to gradually reduce the temperature of the incubator



2.5 volts
Halogen lamp



00

0

1

2

3

4



LARYNGOSCOPE

- It is an instrument **used for**
 - **ETT intubation**
 - **and direct laryngoscopy**
 - Laryngoscopy is also used to pick up any foreign body in the larynx, for passing a bronchoscope / esophagoscope and also for throat packing
- It consists of two parts – the blade and the handle
- The handle contains the battery container, which acts as an energy source for the light source
- The blade may be straight or curved

- Straight blade is used to depress the tongue whereas the curved blade pushes the epiglottis to one side to visualize the glottis
- In infants and younger children, the straight blade is preferred whereas in older children (more than 8 years), the curved blade is preferred
- There are various sizes of the laryngoscope available in different numbers e.g. 00,0,1,2,3,4. The numbers increase with the size of the blade.



AMBU BAG

- An instrument used to provide oxygen during intermittent positive pressure respiration (IPPR) via an ETT or a facemask.
- Used in emergencies when somebody is facing breathing difficulties to provide artificial ventilation.
- It is a compressible, self-inflating, non-rebreathing silicon bag, which has an inlet through which air and additional O₂ is supplied and an outlet through which, this can be transferred to the patient

- The gas enters in the self-expanding bag through one way valve which restricts the flow back from the inlet. When the bag is compressed, the air is pushed forward through the mask in the pharynx or throat which in turn leads to wind pipe and then in the lungs, hence assisting in artificial ventilation
- It can increase the FIO_2 of the inspired O_2 from 40% to almost 90% if used with a reservoir



NASOGASTRIC TUBE

- It is a polyvinyl, disposable tube,
 - used for feeding sick infants
 - If patient NPO, or unconscious
 - It is also used in treatment of volvulus in infants and for diagnosis of tracheo-esophageal fistula, duodenal atresia, choanal atresia and imperforate anus
 - It can be used to collect the gastric lavage for pus cells, meconium and for giving stomach wash

- It can be used as a urinary catheter for collection of urine, diagnosis of posterior urethral valve obstruction
- In the NICU, it can be used for umbilical vein cannulation
- In the intensive care unit, it is used for suction of the endotracheal tube in an intubated child
- In an older child, it may be used for venesection
- It comes in various sizes ranging from 5 to 9



Static Station 2

Static Station 2

Marks: 05

Time Allowed: 05 minutes

For Candidate:

Task:

Carefully examine the given photograph and answer the following questions:

1. Enlist 4 clinical signs in this picture 02
2. What is the diagnosis? 01
3. Name 3 types of chromosomal defects leading to this syndrome. 02

(Cut along the dotted line)



Static Station 2

Static Station 2

Marks: 05

Time Allowed: 05 minutes

For Candidate:

Task:

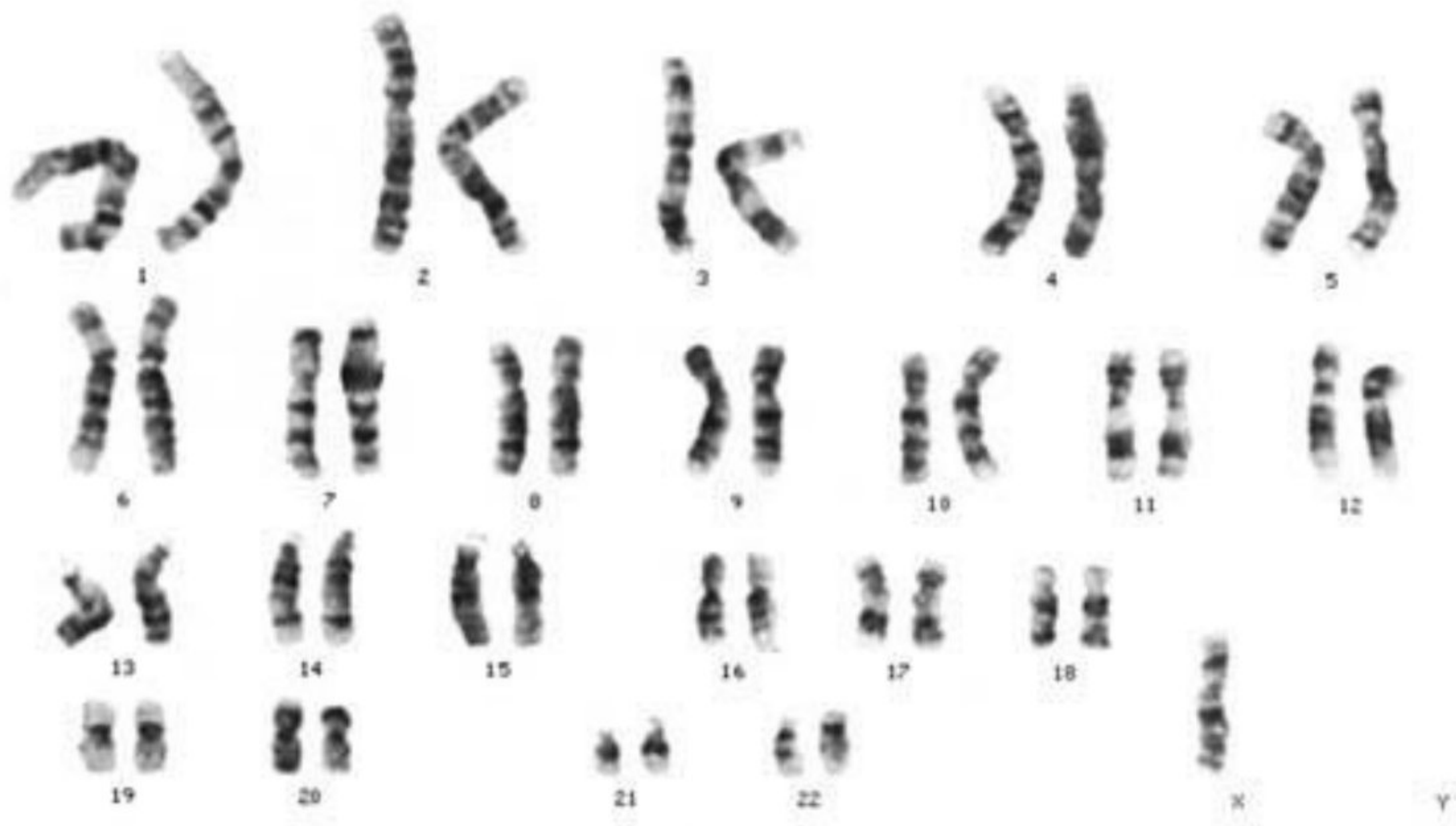
Carefully examine the given photograph and answer the following questions:

1. What is the most likely diagnosis? 01
2. Which is most the common associated anomaly? 01
3. What is the most important risk factor for this disease? 01
4. What is the specific treatment? 02

Trisomy 21 (47xx + 21)



Station No:1



Carefully read the above study and write down findings (1)

Name the above study performed? (1)

What is the most likely diagnosis? (1)

What further findings are expected on examination?(2)



Klinefelter syndrome





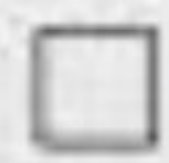
Male



Female



Sex unspecified



Proband



Affected



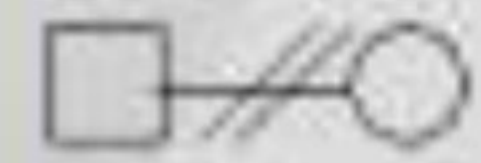
Carrier (autosomal)



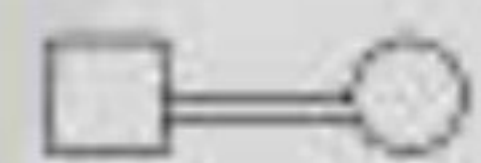
Carrier (X-linked)



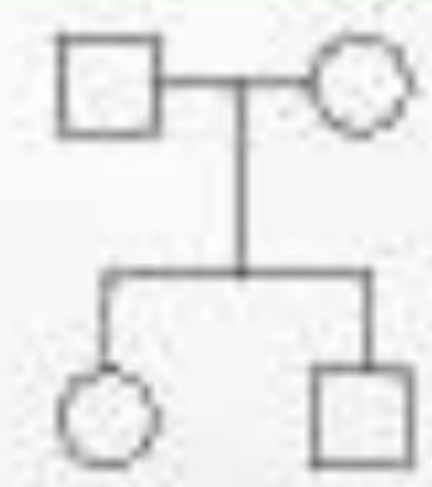
Deceased



Divorced



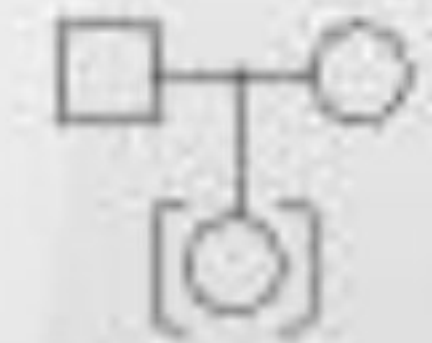
Consanguineous mating



Couple (horizontal line connects mates)



Adopted in



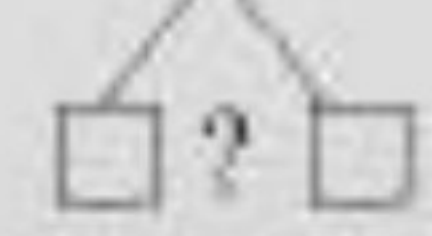
Adopted out



Monozygotic twins



Dizygotic twins



Zygosity unknown