



# Tips in Patient History and Physical Examination

**PROF. ABDULLAH S. AL-JARALLAH, MD.**

**CONSULTANT PEDIATRIC CARDIOLOGIST**

**KFCC, KSU-RIYADH**



Cardiac pathology should be suspected in infants with a history of **poor feeding, FTT, unexplained respiratory symptoms or cyanosis.**

# History

- ▶ **Demographic Data:**
- ▶ Name:                      Hosp No:
- ▶ Age:                      DOB:
- ▶ Sex:
- ▶ Referring Hosp or clinic:
- ▶ Care giver:
- ▶ **Complaint:**
- ▶ Detailed chronological events
- ▶ Systemic review

# History (cont)

- ▶ **Past medical history**

- ▶ ***Prenatal:***

- ▶ Infection? radiation drugs  
antenatal care and ultrasound

- ▶ ***Natal:***

- ▶ Where? When? apgar score

- ▶ ***Post-natal:***

- when discharged home? why?  
first visit when? and who?

# History (cont)

- ▶ ***Previous admissions and illnesses***
- ▶ **Medications:**
- ▶ Cardiac    non-cardiac
- ▶ who give it
- ▶ **Allergies**
- ▶ Drugs    environment
- ▶ **Immunization:**
- ▶ **Nutrition:**

# History (cont)

- ▶ **Growth and development:**
- ▶ **Social history:**
- ▶ Income transport      home  
situation
- ▶ help to mom
- ▶ School
- ▶ **Family history:**
- ▶ Pedigree      similar case      Cardiac  
diseases
- ▶ Impact on the family

# Examination

- ▶ **General appearance:**
- ▶ higher functions
- ▶ distress    cyanosis    pallor    clubbing  
    dysmorphic features    activity  
    monitors lines
- ▶ reaction parents attitude....
- ▶ **Growth chart:**



**2 to 20 years: Girls**  
**Stature-for-age and Weight-for-age percentiles**

NAME \_\_\_\_\_

RECORD # \_\_\_\_\_



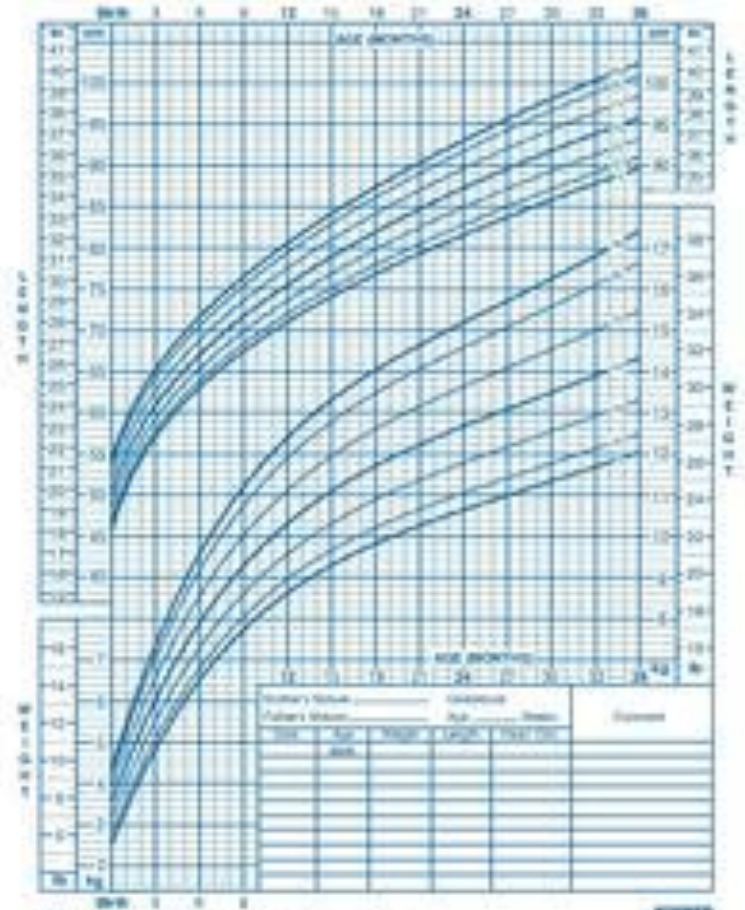
Published May 30, 2000 (modified 11/21/00).  
 SOURCE: Developed by the National Center for Health Statistics in collaboration with  
 the National Center for Chronic Disease Prevention and Health Promotion (2000).  
<http://www.cdc.gov/growthcharts>



**Birth to 24 months: Boys**  
**Length-for-age and Weight-for-age percentiles**

NAME \_\_\_\_\_

RECORD # \_\_\_\_\_



Published May 30, 2000 (modified 11/21/00).  
 SOURCE: Developed by the National Center for Health Statistics in collaboration with  
 the National Center for Chronic Disease Prevention and Health Promotion (2000).  
<http://www.cdc.gov/growthcharts>





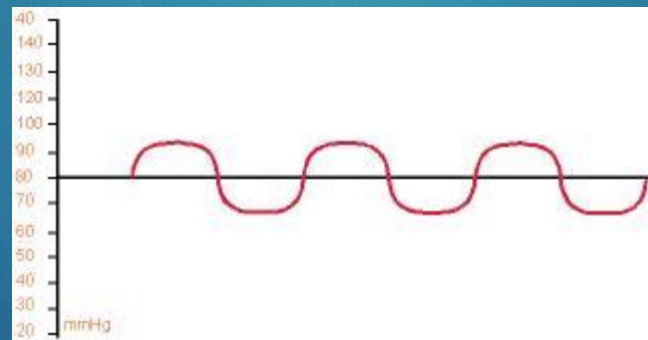
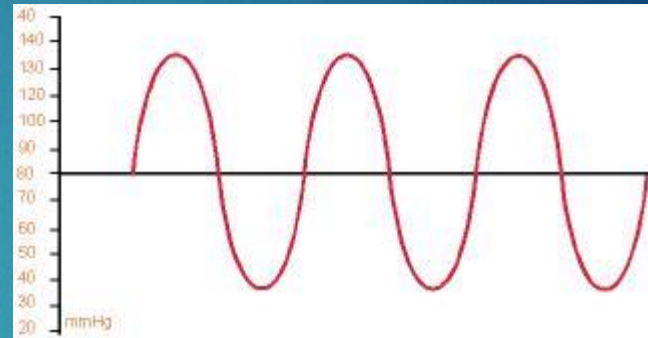
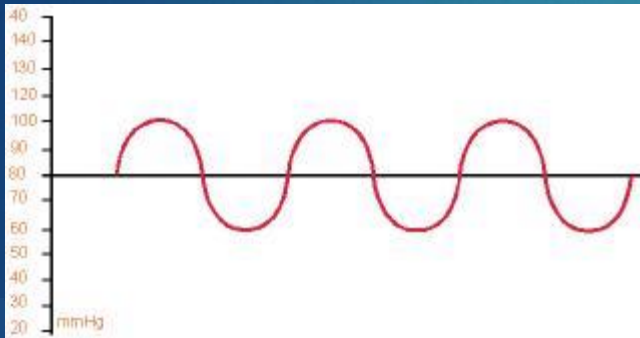
# Examination (cont)

- ▶ Vital signs:
  - ▶ Pulse all four limbs:
  - ▶ Blood pressure all four limbs:
  - ▶ Pulse Oxymetry:



## Pulses:

Pulses are the result of difference between systolic and diastolic status of the vasculature. Increase in the difference between systole and diastole results in a more pronounced pulse.



## Cyanosis:

This is best determined by examining the patient in sunlight. Artificial light may alter patient color.



## Clubbing:

This is enlargement of the tips of digits caused by hypoxia to peripheral tissue due to poor cardiac output and/or cyanosis. Peripheral tissue compensate by forming more capillaries to improve oxygenation, this results in swelling of the peripheries of digits.



# Formulas and General Rules

## Children over 1 year old

► Rough Approximations

	Pulse	SBP	RR
Infant	160	80	40
Preschool	120	90	30
Adolescent	100	100	20

# Formulas and General Rules Children over 1 year old

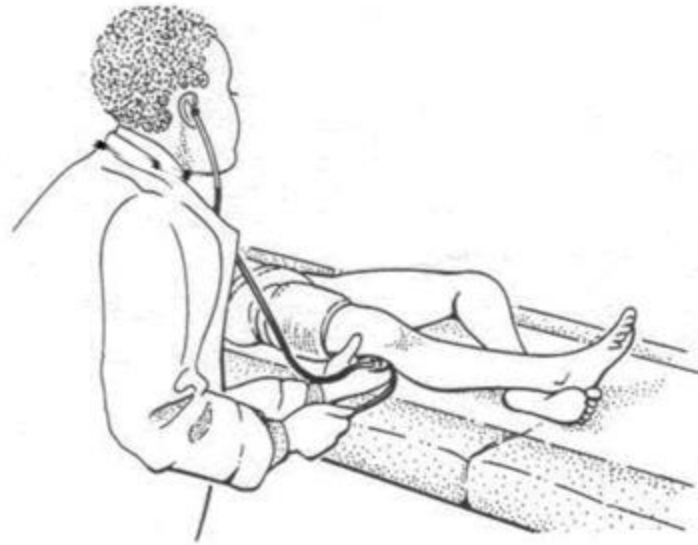
## Formulas (Systolic Blood Pressure)

(Median SBP =  $90 \text{ mmHg} + (2 \times \text{Age in years})$ )

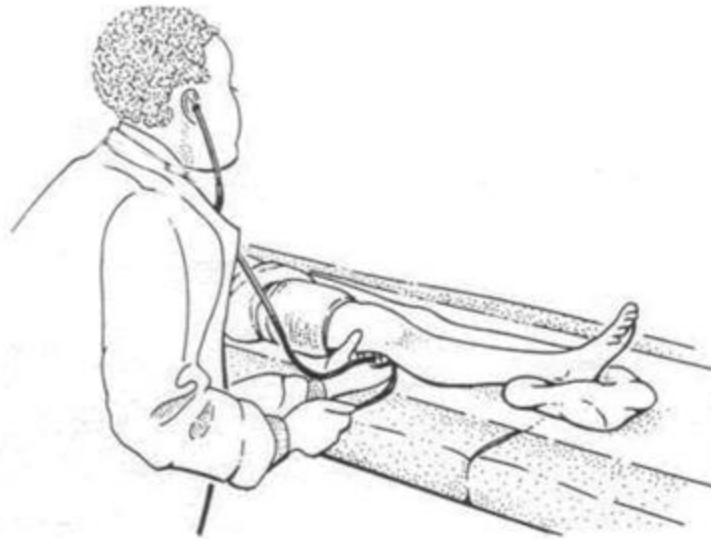
Minimum SBP =  $70 \text{ mmHg} + (2 \times \text{Age in years})$



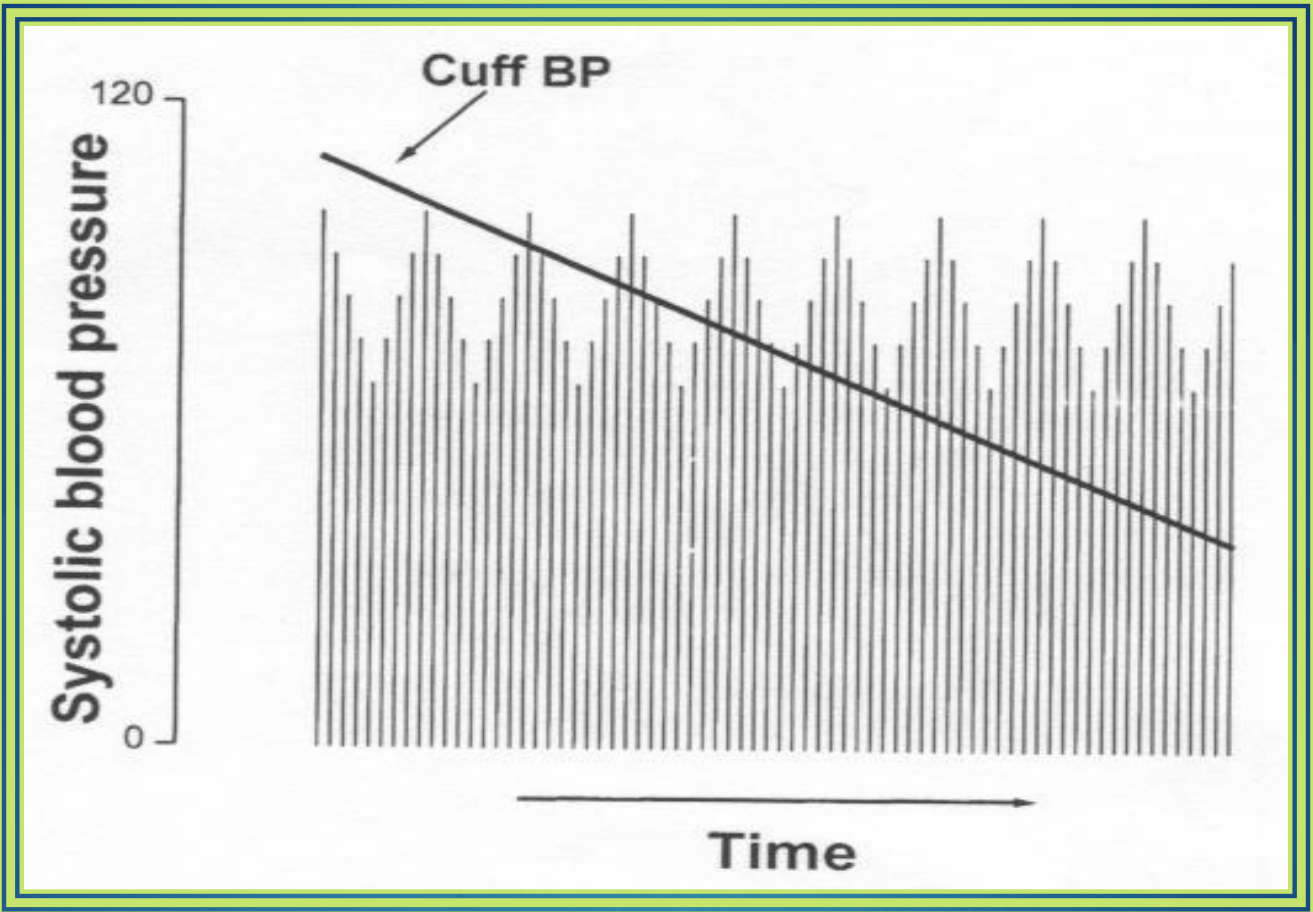




A



B





# Examination (cont)

- ▶ **Cardiovascular:**
  - ▶ **Inspection:**
  - ▶ **Palpation:**
  - ▶ **Percussion?**
  - ▶ **auscultation**
    - ▶ 1st and 2nd heart sounds
    - ▶ 3rd (gallop) and 4th
  - ▶ **murmur: site, phase, duration, radiation, intensity, grade**
  - ▶ **clicks**
  - ▶ **bruit: liver, renal, brain**



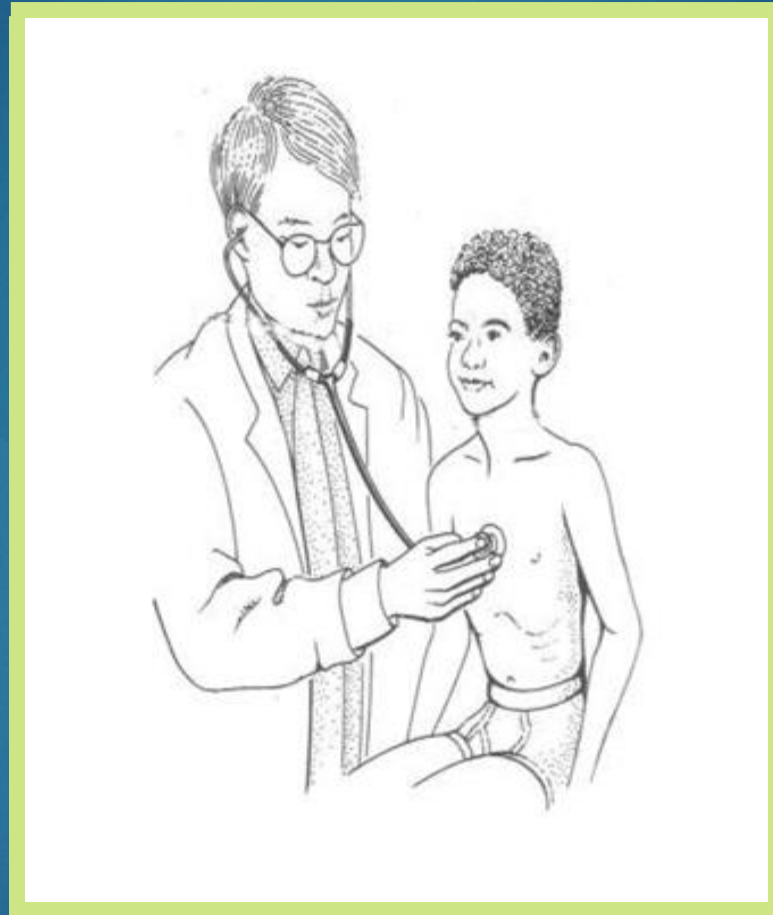


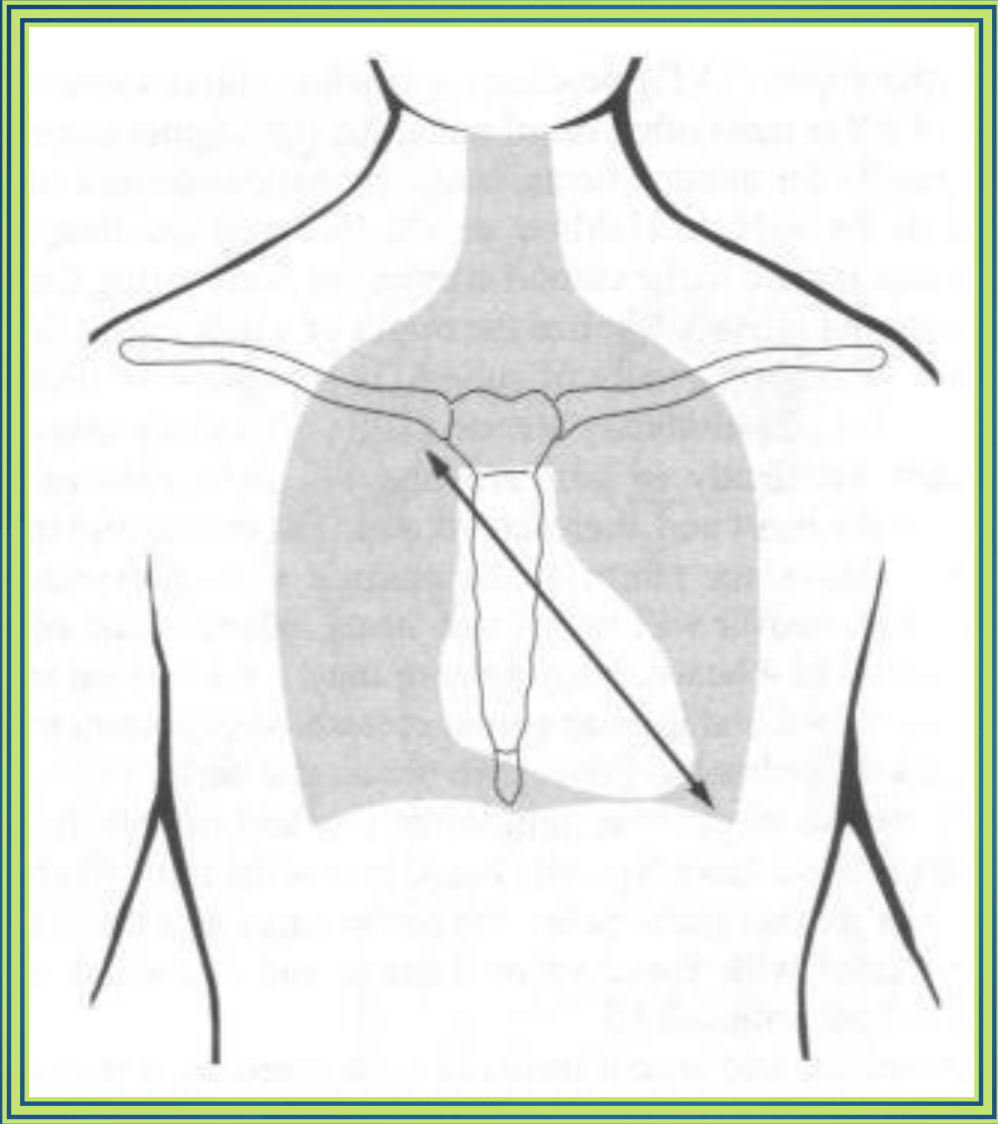
The sounds of a venous hum should disappear when the child is in the supine position, when light pressure is applied over the child's jugular vein or when the child's head is turned.

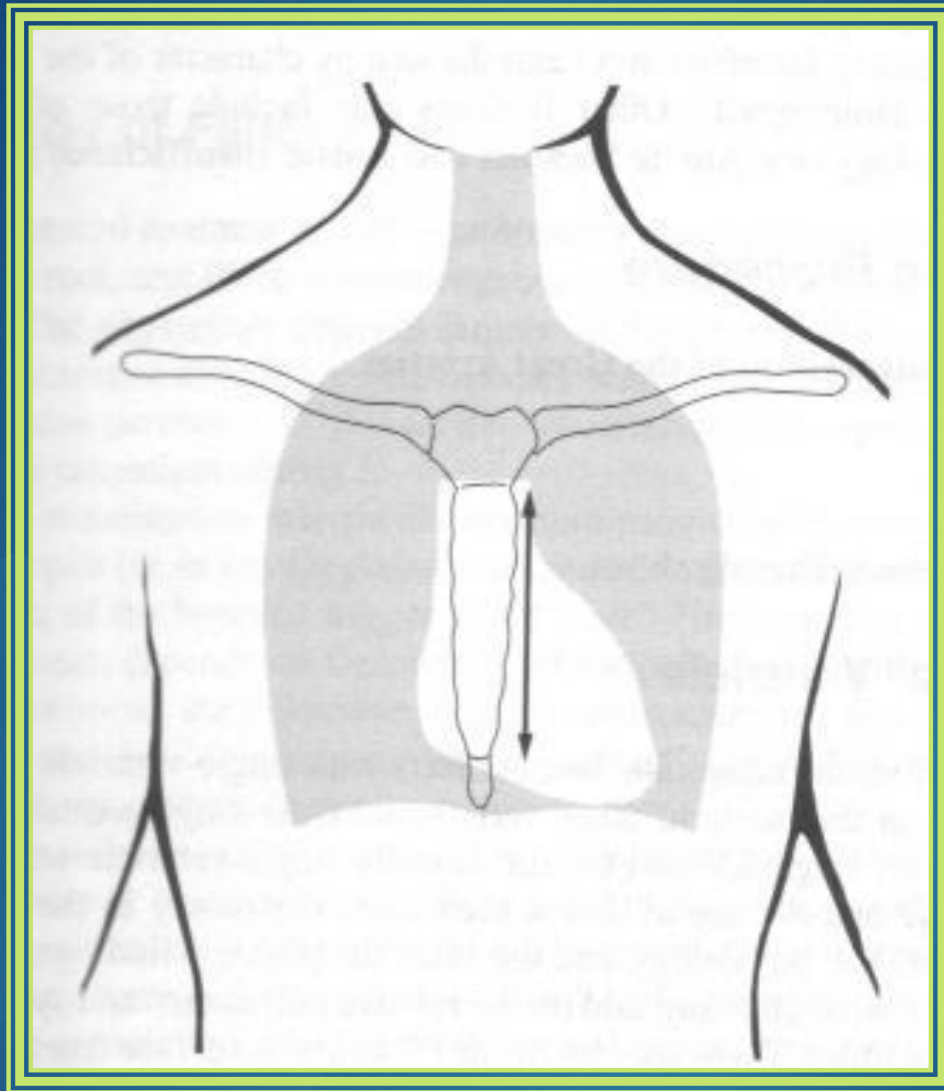


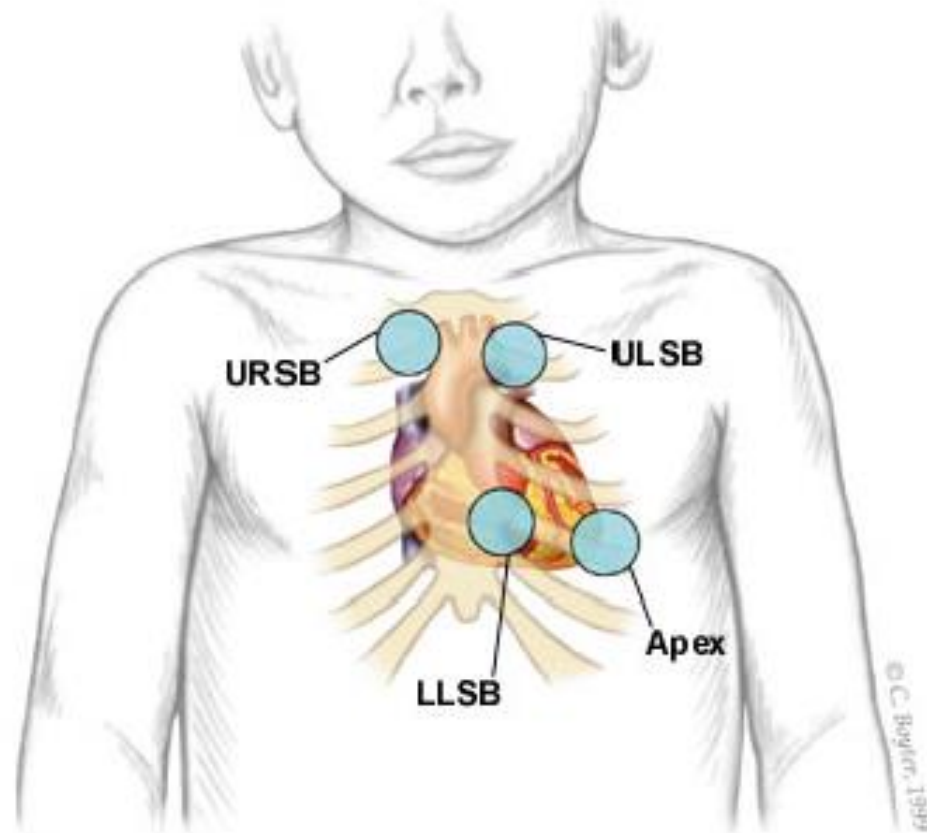












**FIGURE 1.** Listening areas for clicks: upper right sternal border (URSB) for aortic valve clicks; upper left sternal border (ULSB) for pulmonary valve clicks; lower left sternal border (LLSB), or the tricuspid area, for ventricular septal defects; apex for aortic or mitral valve clicks.

---

**TABLE 1****Listening Areas for Common Pediatric Heart Murmurs**

---

Area	Murmur
Upper right sternal border	Aortic stenosis, venous hum
Upper left sternal border	Pulmonary stenosis, pulmonary flow murmurs, atrial septal defect, patent ductus arteriosus
Lower left sternal border	Still's murmur, ventricular septal defect, tricuspid valve regurgitation, hypertrophic cardiomyopathy, subaortic stenosis
Apex	Mitral valve regurgitation

---

# Maneuvers with auscultation

- ▶ **Supine, sitting and standing:**
  - ▶ Increase pre-load in supine.....exaggerating flow murmurs
- ▶ **Valsalva maneuver:**
  - ▶ Increase intensity of MVP
  - ▶ Decrease intensity of innocent heart murmurs
- ▶ **Respiratory cycle**
  - ▶ Inspiration.....increase blood flow to right heart
  - ▶ Expiration.....increase blood flow to left heart

# Epidemiology

- ▶ Overall Murmur Prevalence:
  - ▶ **50%** of all children
- ▶ Innocent murmurs more common than pathologic **10:1**
- ▶ Age of murmur onset related to pathology
  - ▶ Murmur onset at 24 hours of life: 8% pathologic
  - ▶ Murmur onset at 6 months of life: 14% pathologic
  - ▶ Murmur onset at 12 months of life: 2% pathologic

# Etiologies: Innocent Murmurs

- ▶ Still's Murmur ( Aortic Vibratory Systolic)
  - ▶ Most common innocent murmur
- ▶ Venous Hum of late infancy and early childhood
  - ▶ Second most common innocent murmur
- ▶ Septal hypertrophy due to myocardial fat deposition
  - ▶ Resolves over six months
- ▶ Pulmonary Flow Murmur
  - ▶ Neonatal Pulmonary branch murmur
- ▶ Physiologic PPS
  - ▶ Supraclavicular murmur



---

**TABLE 3**  
Features That Increase the  
Likelihood of Cardiac Pathology

---

Symptoms such as chest pain

Family history of Marfan syndrome or sudden  
death in young family members

Malformation syndrome (e.g., Down syndrome)

Increased precordial activity

Decreased femoral pulses

Abnormal second heart sound

Clicks

Loud or harsh murmur

Increased intensity of murmur when patient stands

---

# Etiologies: Pathologic Murmurs

- ▶ Ventricular Septal Defect (VSD) 38%
- ▶ Atrial Septal Defect (ASD) 18%
- ▶ Pulmonary Valve Stenosis 13%
- ▶ Pulmonary Artery Stenosis 7%
- ▶ Aortic Valve Stenosis 4%
- ▶ Patent Ductus Arteriosus (PDA) 4%
- ▶ Mitral Valve Prolapse 4%
- ▶ Others 4%

# Examination (cont)

- ▶ **The back**
  - ▶ Deformities    thrill    murmur
- ▶ **Neck:**
- ▶ JVP , visible pulsation and thrill,
- ▶ web neck    short
- ▶ **Liver and spleen:**
- ▶ **Respiratory:**
- ▶ Air entry    asymmetry    wheezes
- ▶ basal crepetations

# Examination (cont)

- ▶ **Abdomen:**

- ▶ masses      scars      ..etc

- ▶ **Skin:**

- ▶ rashes      neurofibromatosis  
    hemangiomas      depigmentations  
    ..etc

- ▶ **CNS:**

- ▶ Cranial nerves

- ▶ motor      sensory

- ▶ cerebellar function

# Examination (cont)

- ▶ **Muscle-skeletal:**

- ▶ Muscular dystrophy    Joints deformity    swellings    pains

- ▶ **HEENT:**

- ▶ microcephaly, shunts....

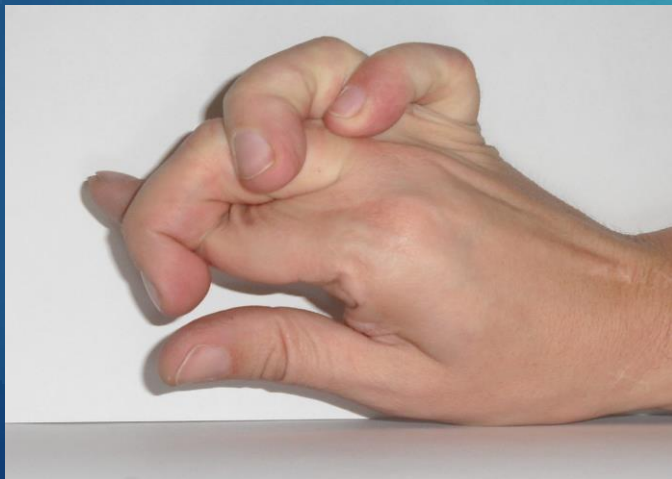
- ▶ Eyes: squint, cataract...

- ▶ Ears: deafness, deformities, tags  
throat obstruction, adenoids,  
tracheostomy

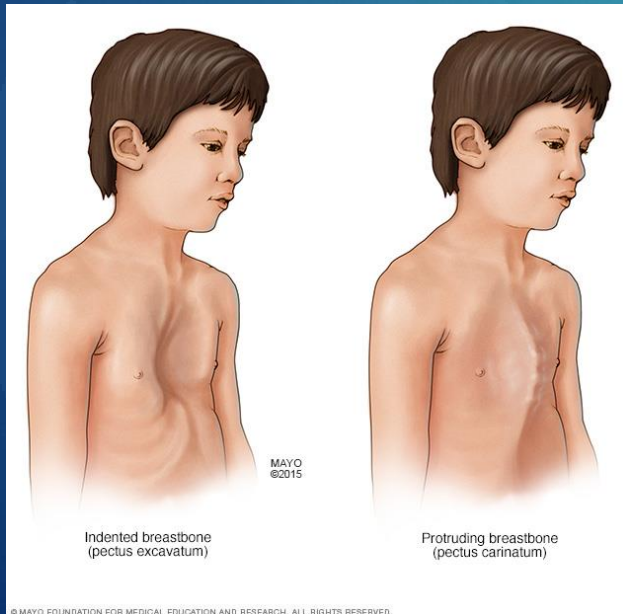
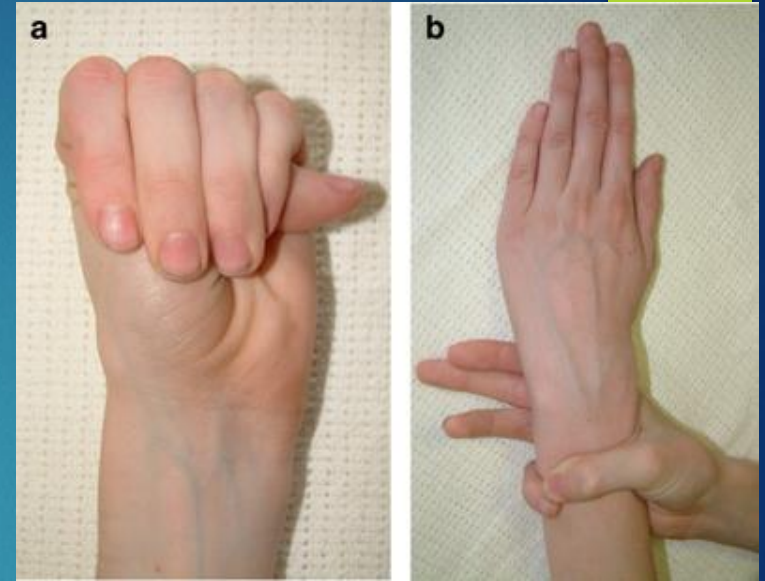
# Provisional Diagnosis

- ▶ after history 1,2,3...
- ▶ limit it after examination to 1,2,3
- ▶ Your differential diagnosis:
  - ▶ 1-.....
  - ▶ 2-.....
  - ▶ 3-.....

# Ehlar danlos



# Marfan





# RH Fever



## Rheumatic fever-diagnosis



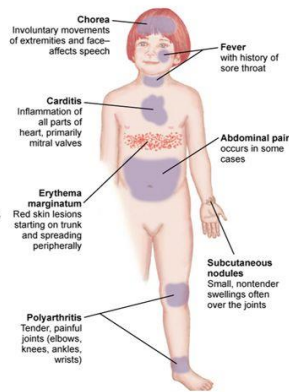
Subcutaneous nodules  
(nodules of rheumatoid arthritis are larger)



## Rheumatic Fever - Assessment

### Major

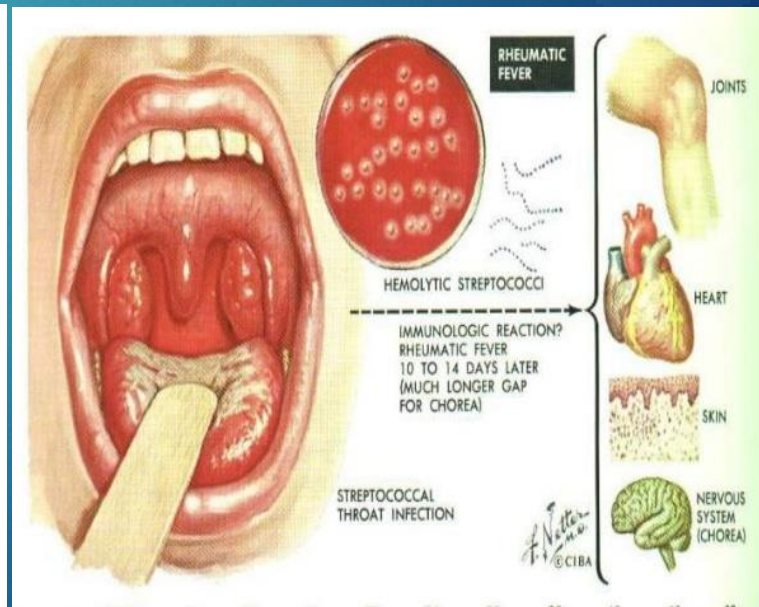
- Carditis
- Polyarthrits
- Chorea
- Erythema marginatum
- Subcutaneous nodules



### Jones Criteria

### Minor

- Arthralgia
- Fever
- Laboratory Findings:
  - ↑ Erythrocyte sedimentation rate
  - ↑ C-reactive protein
- Prolonged PR interval



# Splinter Hemorrhage



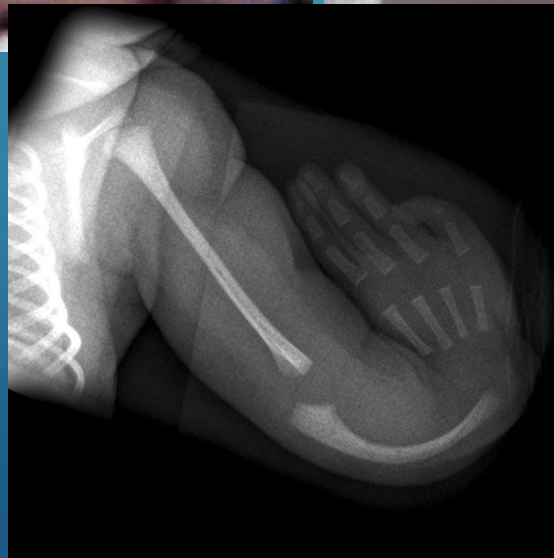


## Williams Syndrome

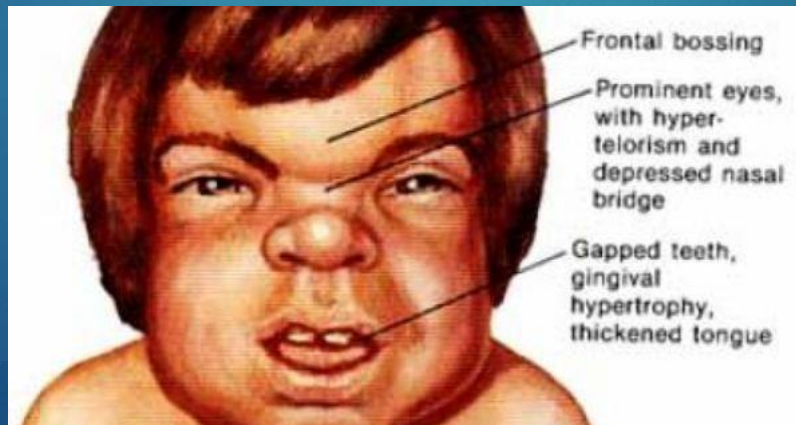
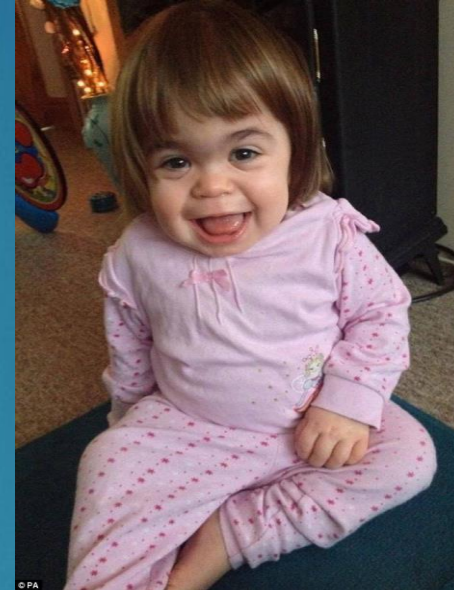
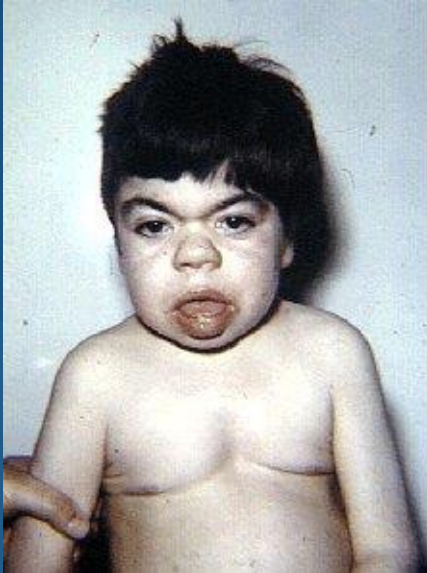
- Rare genetic condition. The clinical manifestations include a distinct facial appearance, cardiovascular anomalies that may be present at birth or may develop later in life, idiopathic hypercalcemia
- Defect in the elastin synthesis
- low nasal bridge
- developmental delay
- coupled with strong language skills
- supravalvular aortic stenosis



# Holt Oram



# MPS (Hurler's)



# Investigation

- ▶ Plan what investigation will help you:
- ▶ ECG, Slide 50
- ▶ CXR, Slide 51
- ▶ ECHO, Slide 52
- ▶ CATH Slide 53
- ▶ Others. Slide 54
- ▶ Explain to the child and his family what is going on

# Thank you



<http://fac.ksu.edu.sa/jarallah/course-material/272830>

