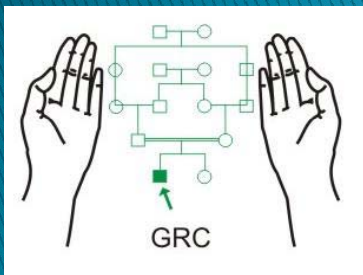


# Prenatal Diagnosis of Inherited Bleeding Disorders

Maj Gen (R) Suhaib Ahmed, HI (M)  
MBBS; MCPS; FCPS (Pak); PhD (London)

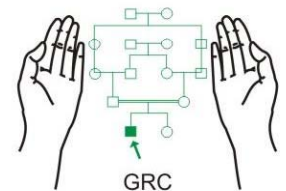
Genetics Resource Centre (GRC)  
Rawalpindi



[www.grcpk.com](http://www.grcpk.com)

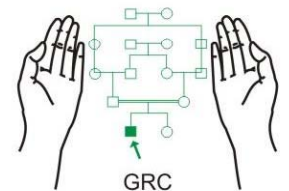
# Inherited Bleeding Disorders

- ▶ Presence since birth
- ▶ Another affected family member
- ▶ But not always!



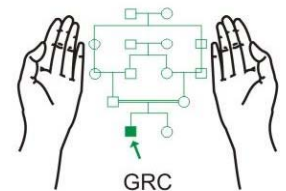
# Inherited Bleeding Disorders

- ▶ X-Linked
  - Haemophilia-A
  - Haemophilia-B
- ▶ Autosomal
  - von Willebrand Disease
  - Uncommon coagulation factor deficiencies
  - Platelet Function Disorders



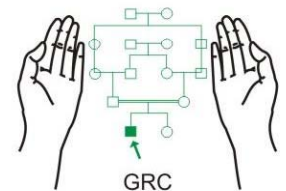
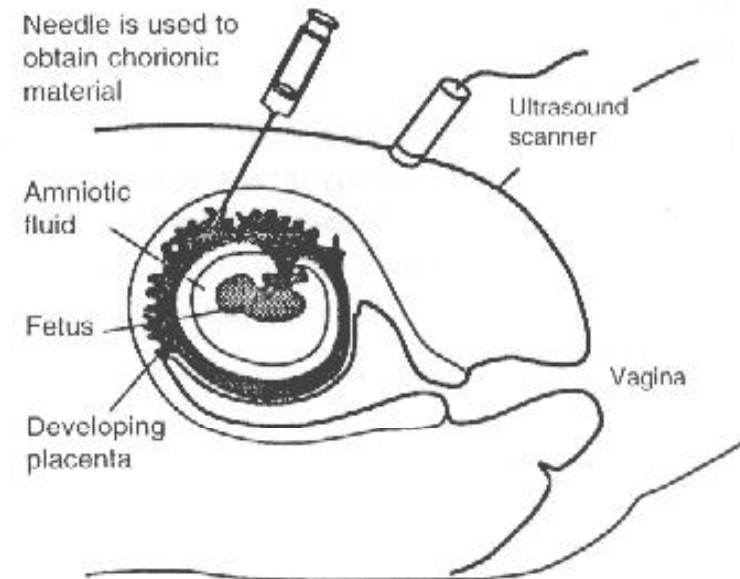
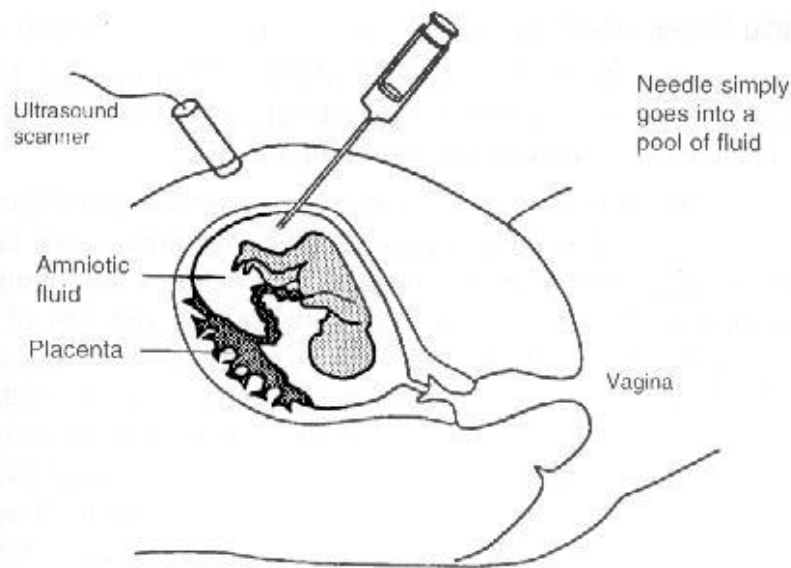
# Non Invasive Prenatal Diagnosis

- ▶ Fetal Sex determination for X-Linked Disorders
- ▶ Ultrasonography
  - 70.3% at 11 weeks
  - 98.7% at 12 weeks
  - 100% at 13 weeks
    - (Efrat et al, 1999)
- ▶ Fetal DNA in maternal blood
  - 100% after 10 weeks
    - (Hromadnikova, et al 2003)
- ▶ Pre-Implantation Genetic Diagnosis (PGD)

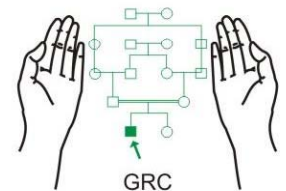
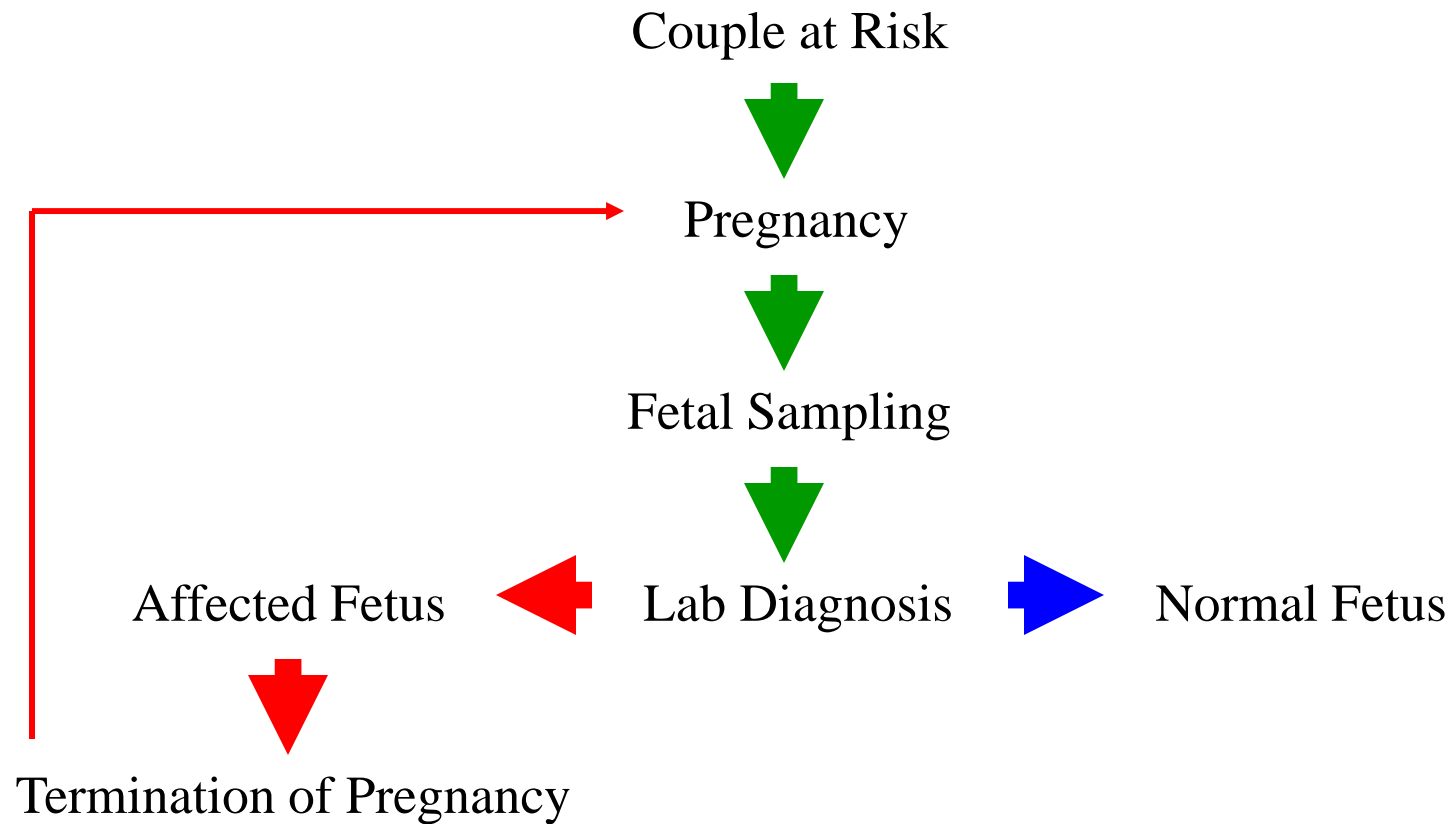


# Invasive Prenatal Diagnosis

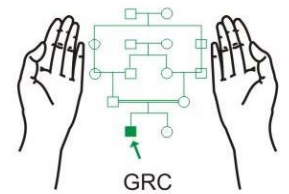
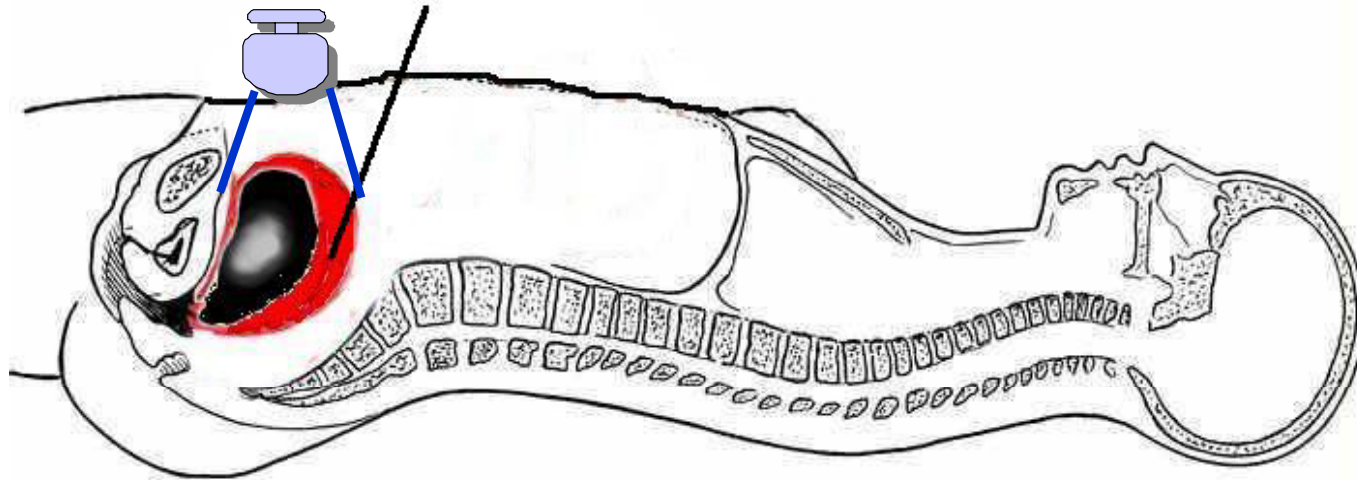
- ▶ Chorionic Villus Sampling (CVS)
- ▶ Amniocentesis

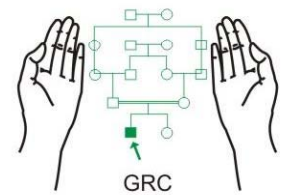
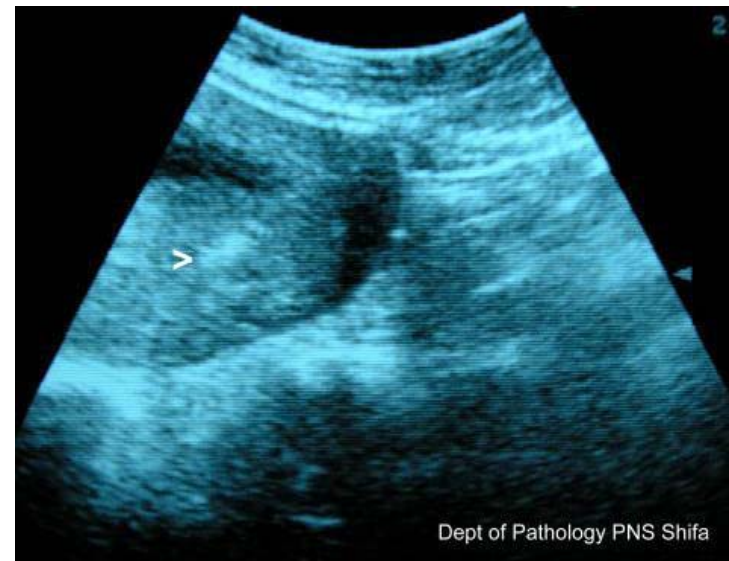


# Prenatal Diagnosis











# DNA Testing

- ▶ Mutation analysis
- ▶ Linkage analysis

