

IMPORTANCE OF TIMELY MANAGEMENT OF 3C'S SCREENING CHD

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NEW DELHI

CONGENITAL HEART DISEASE

Congenital Heart Disease is a birth defect with problem with heart structure



More than
2,00,000
children are estimated
to be born with
Congenital Heart Disease
in India every year



**Thank you,
Doctor**
for keeping my heart healthy!

Detect by Ultrasound (level II) or Fetal Echocardiogram

Examine Newborn at Birth

May appear normal

- ✓ **Look** – Respiratory rate, Heart rate, Cyanosis
- ✓ **Feel** – Pulse, Perfusion
- ✓ **Hear** – Murmur
- ✓ **Do** – Pulse Oximetry
(Effective Non-Invasive Screening tool)

Do Timely

Management for:

- ✓ Improved survival
- ✓ Adequate growth
- ✓ Mental and Physical well-being



AGENDA

- **WHY SCREEN**
- **WHEN IS SCREENING EFFECTIVE**
- **5W AND 1H OF CHD SCREENING**
- **WHAT THE HCW SHOULD LOOK FOR– SIGN /SYMPTOMS**
- **HEALTH SYSTEM BARRIERS**
- **WAY FORWARD**

WHY IS SCREENING CHD IMPORTANT ?

- **SDG– to end preventable deaths in neonatal and children < 5 year
By 2030**
- **INDIA- IMR > 25/1000- 2024**
- Nearly half (47%) of all deaths in children under 5 years of age occur in the newborn period
- Premature birth, birth complications (birth asphyxia/trauma), neonatal infections and **Congenital Anomalies** remain the leading causes of neonatal deaths.

WHEN IS SCREENING EFFECTIVE

Disease

- Serious consequences
- High prevalence

Treatment

- Effective
- Practical

Screening test

- High accuracy
- Detection of disease before critical point
- Little morbidity
- Inexpensive

Screening for CHD-5 Ws and 1 H

WHAT

WHY

WHO

WHEN

WHERE

Screening for CHD-5 Ws and 1 H

WHAT

WHY

WHEN

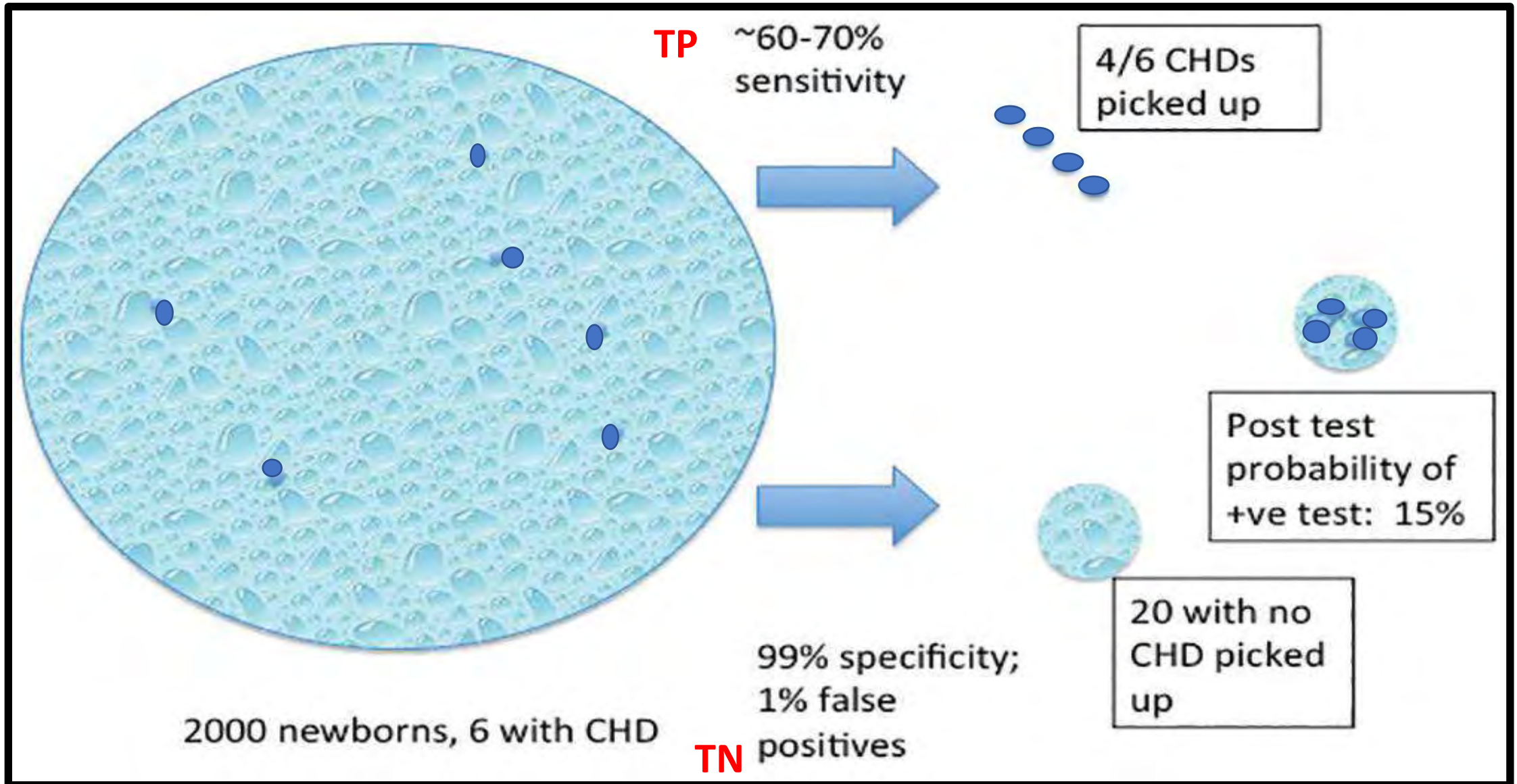
WHO

WHERE

HOW?

PULSE OXIMETRY

IDEAL SCREENING TEST



PRIMARY CARE DOCTOR/HCW

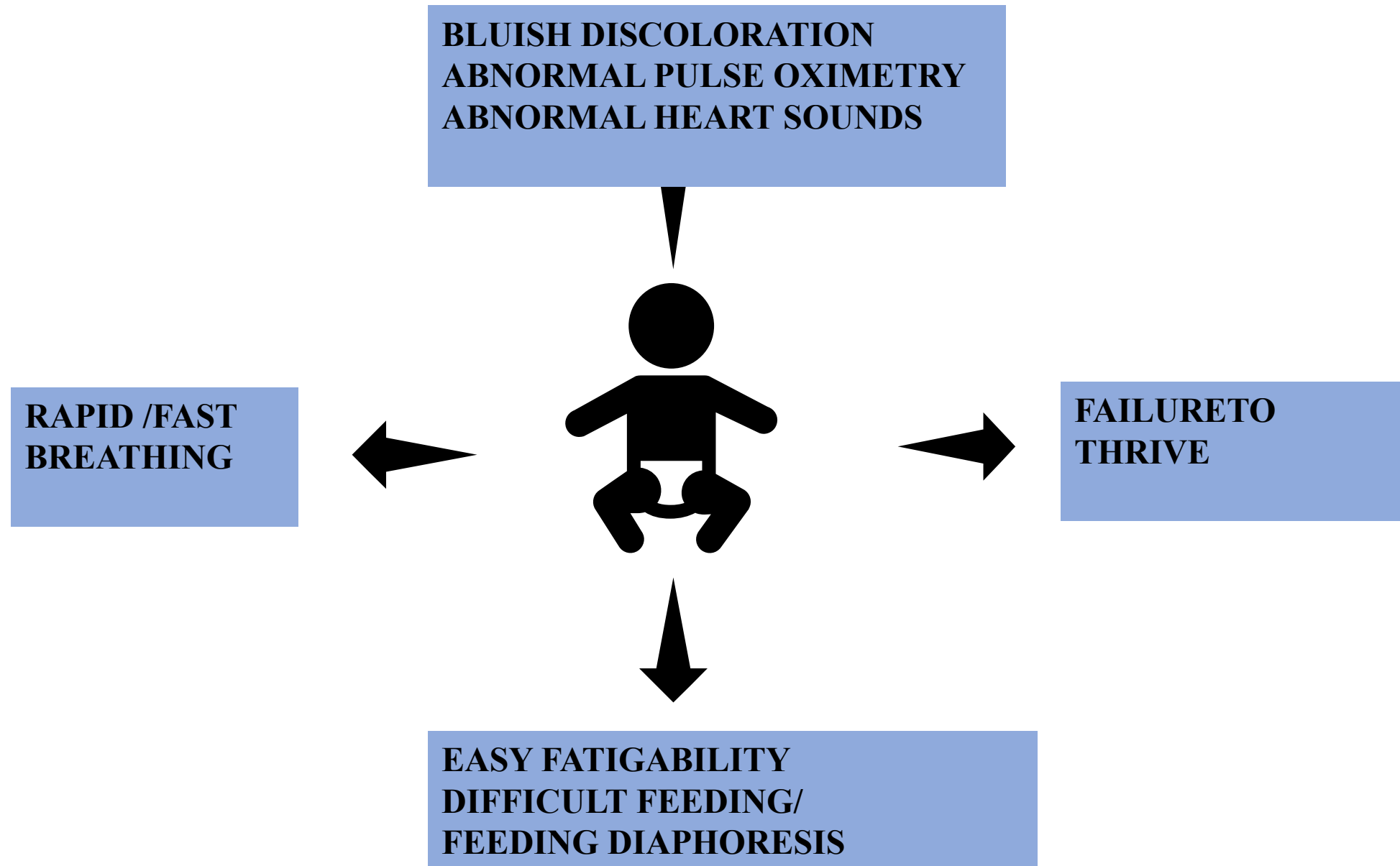
LOOK--- Respiratory rate; cyanosis

FEEL--- Pulse, perfusion

HEAR--- Murmur, second heart sound

DO--- Pulse oximetry

SYMPTOMS AND SIGNS



Symptoms and Signs



Symptoms and Signs



Birth

Off supplemental Oxygen?

Yes

Age \geq 24 hours
OR Pending Discharge

Yes

Pulse Ox #1
Right Hand **AND** one
Foot

Newborn Screening for Critical Congenital Heart Disease: A New Algorithm and Other Updated Recommendations: Clinical Report



RH Application Site



Foot Application Site

Pulse Ox $<$ 90%
in **either** Right Hand
OR Foot

Yes

No

Pulse Ox
 \geq 95% at **BOTH** Sites **AND**
Saturation Difference
 \leq 3%

Yes

No

Retest
in **1 hour**

Pulse Ox #2
Right Hand **AND** one Foot

Pulse Ox
 \geq 95% at **BOTH** Sites **AND**
Saturation Difference
 \leq 3%

No

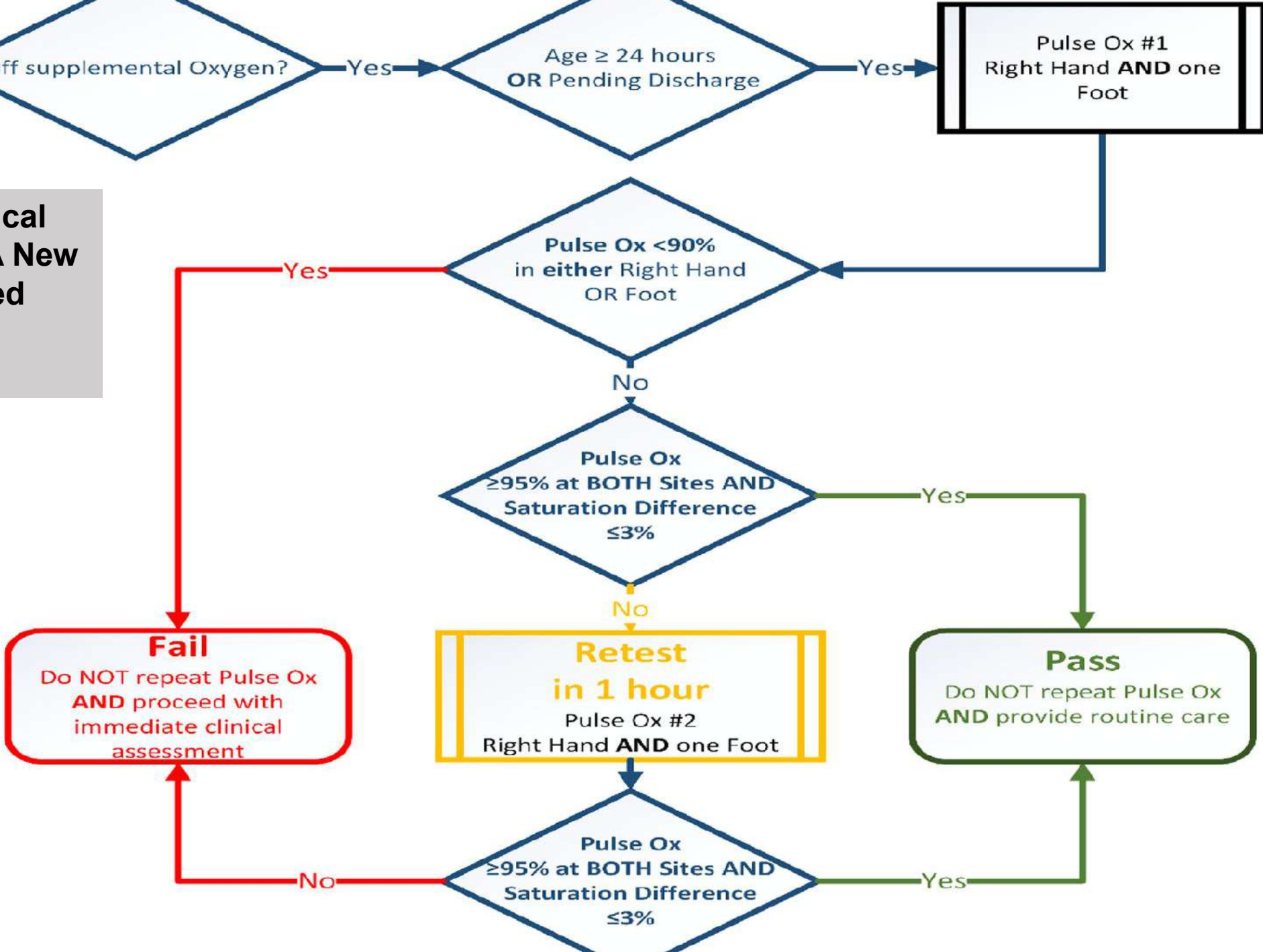
Yes

Fail

Do **NOT** repeat Pulse Ox
AND proceed with
immediate clinical
assessment

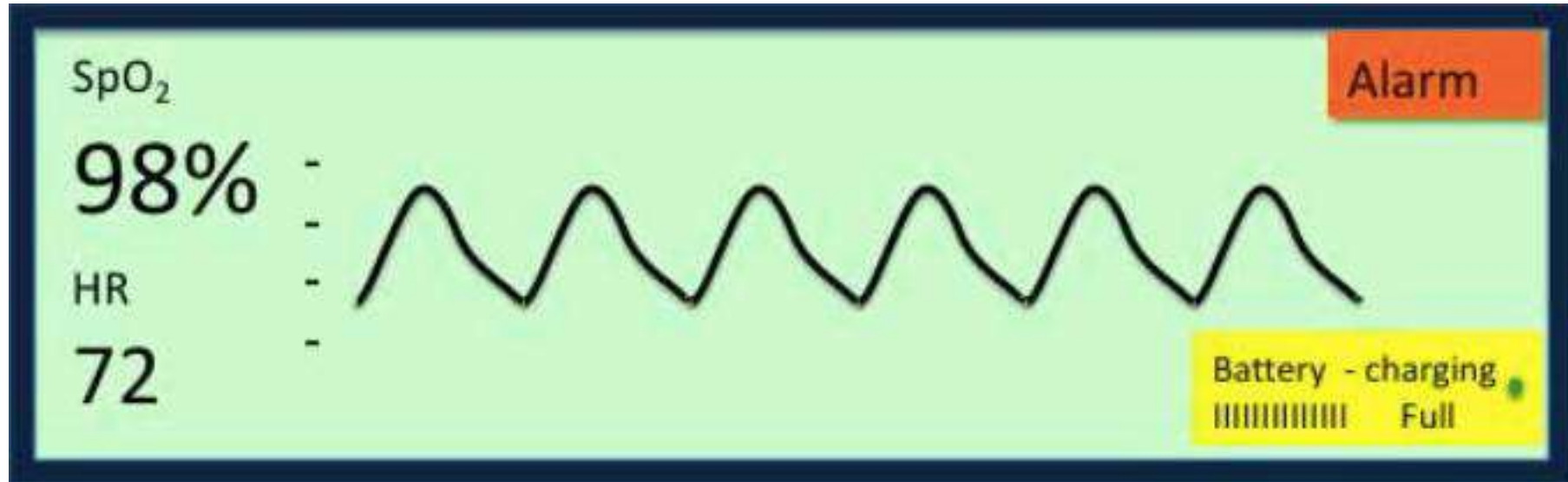
Pass

Do **NOT** repeat Pulse Ox
AND provide routine care





NORMAL PULSE OXIMETER TRACE



HEALTH SYSTEM BARRIERS FOR DELIVERING NEWBORN AND INFANT HEART CARE

Detection of CHD

- Home deliveries
- Limited awareness among caregivers about clinical CHD diagnosis
- Limited accuracy of pulse oximeter when performed by untrained personnel
- Limited expertise in echocardiography for CHD

Referral to Pediatric Heart Program

- Limited awareness of treatment options
- Absence of pediatric heart centers in the region
- Limited awareness on initial management
- Gender bias and sociocultural factors

HEALTH SYSTEM BARRIERS FOR DELIVERING NEWBORN AND INFANT HEART CARE

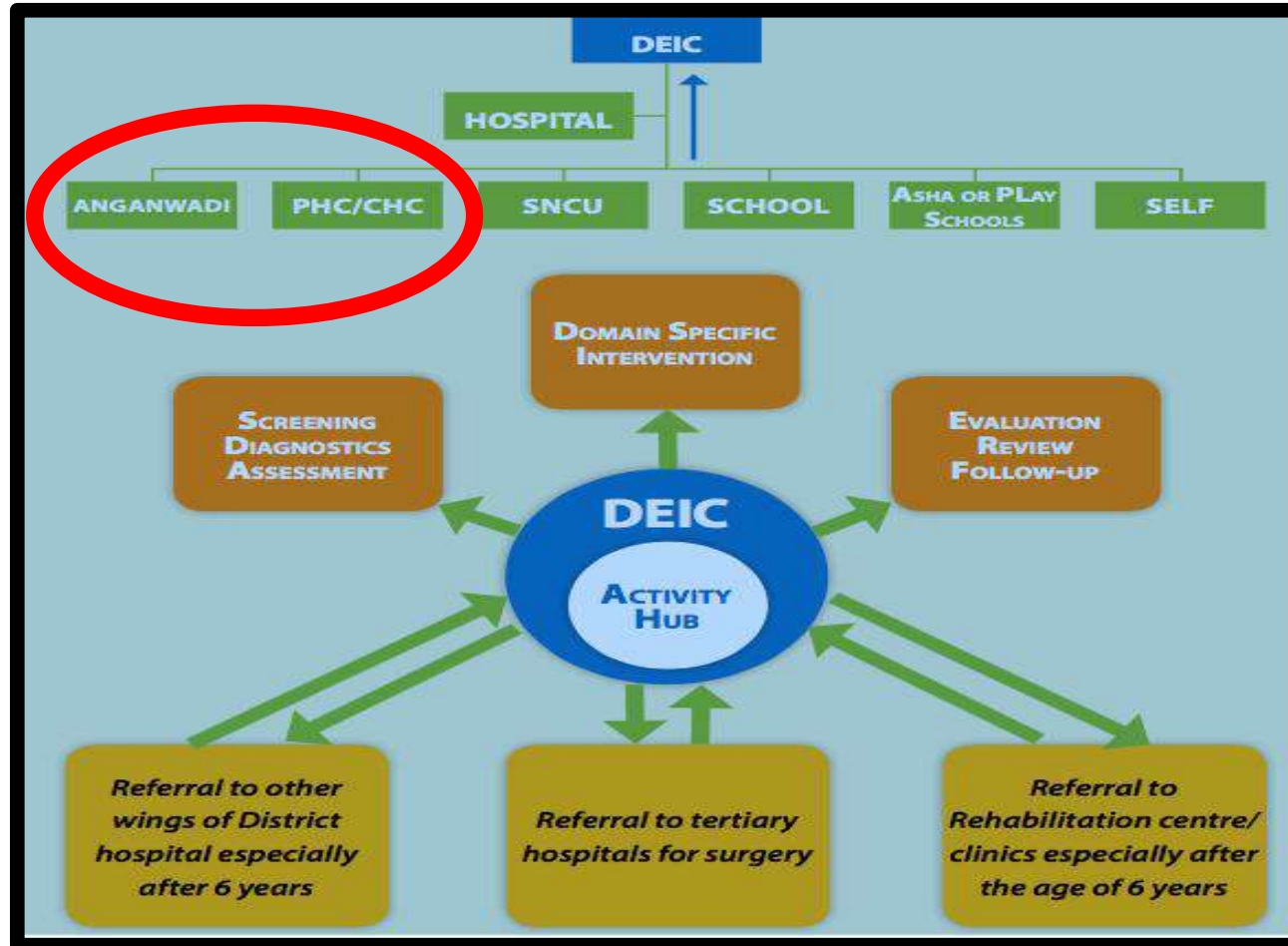
Treatment

- Paucity of comprehensive pediatric programs with facilities for newborn and infant surgery
- Long waiting lists in government institutions
- Cost of treatment in private institutions

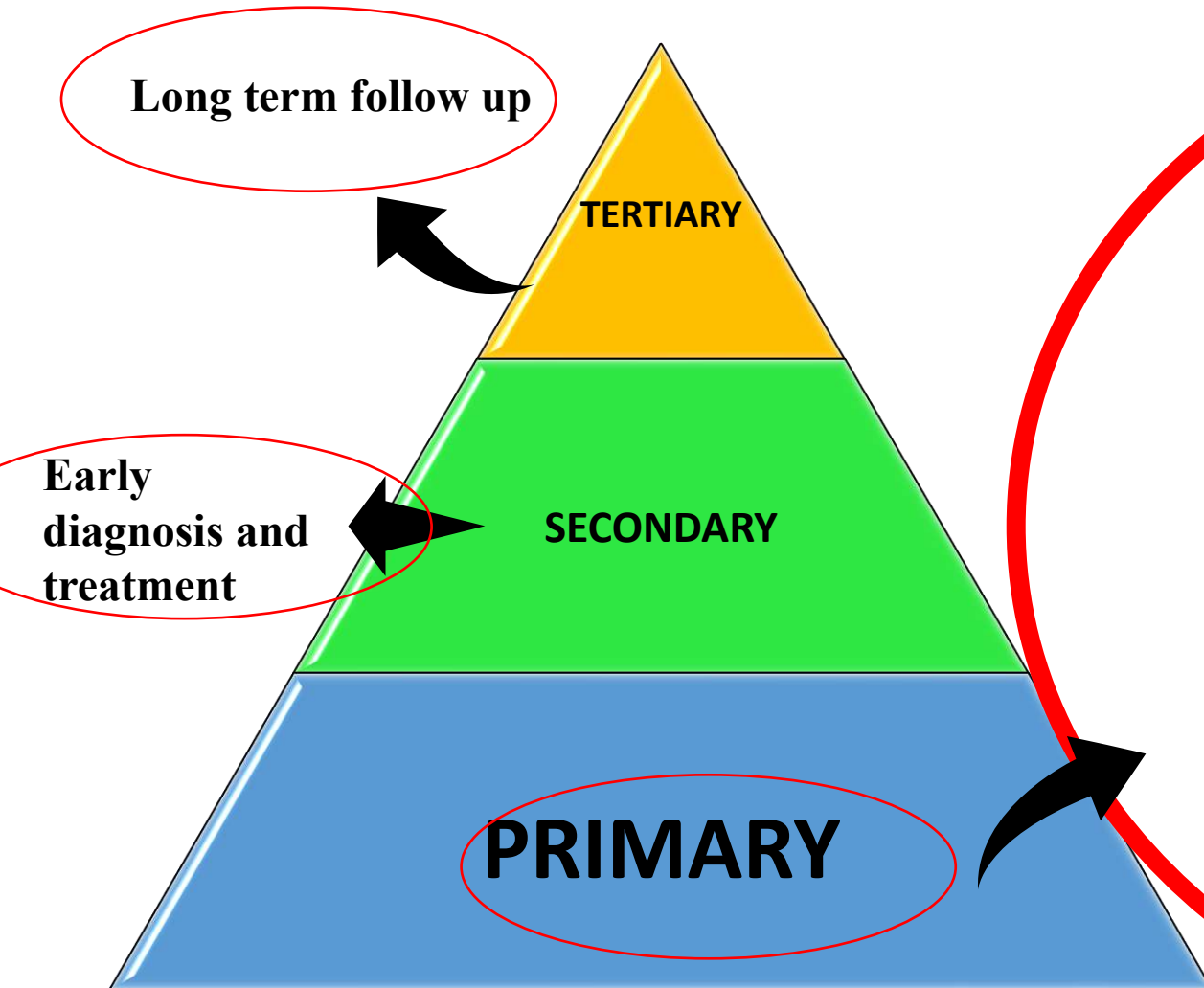
Transport

- Poorly developed newborn transport systems in most parts of the country
- Geographic distances
- Cost of transport

WAY FORWARD – Enhancing the skills of grass root level workers for Early Detection



WAY FORWARD – Prevention at all levels



Stress on Primary Prevention

- Rubella Vaccination
- Management of overt diabetes/PKU in preconception period
- Folic acid supplementation
- Avoidance of teratogens (drugs/ alcohol /smoking)

SPOTTERS

SPOT 1

Pulse ox screening is useful in detecting all forms of CHD

1. True
2. False

SPOT 2

Which of the following can affect the accuracy of the pulse oximetry reading?

1. Movement
2. Cold extremities or shivering
3. Crying
4. Bilirubin lamps and surgical lights
5. All of the above

SPOT 3

The screening guidelines state that pulse ox should be performed on:

1. Right hand
2. One foot
3. Both 1 and 2
4. Can be placed anywhere

SPOT 4

All of the following can affect the accuracy of the pulse ox reading except ?

1. Placing the pulse ox probe on the same extremity that you are taking the blood pressure
2. Performing the pulse ox test while the infant is crying
3. Using a clip on the finger of an infant
4. Infant skin color or jaundice

SPOT 4

Pulse ox screening should be performed when the infant is what age?

1. Less than 8 hours
2. Between 8 hours and 18 hours
3. Greater than 24 hours
4. Less than 24 hours

SPOT 5

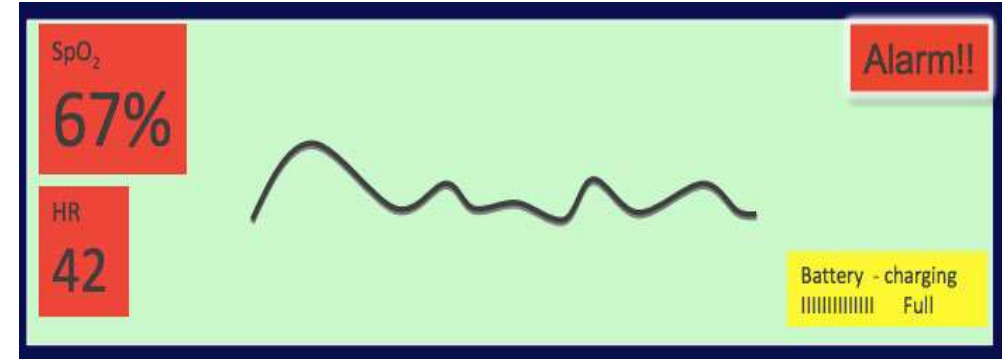
An infant's pulse ox readings should be reported to the physician or nurse practitioner caring for the infant if:

1. Pulse ox readings are greater than 95% for both right hand and one foot **and** there is greater than a 3% difference between the two on three measures each separated by one hour
2. Pulse ox readings are less than 95% for both right hand and one foot **or** there is greater than a 3% difference between the two on three measures each separated by one hour
3. Pulse ox reading is less than 90% for either or both the right hand and one foot
4. All of the above

SPOT 6

What can cause such a pulse oximetry trace?

1. Poorly placed probe
2. Hypothermia
3. Low cardiac output state
4. All of the above



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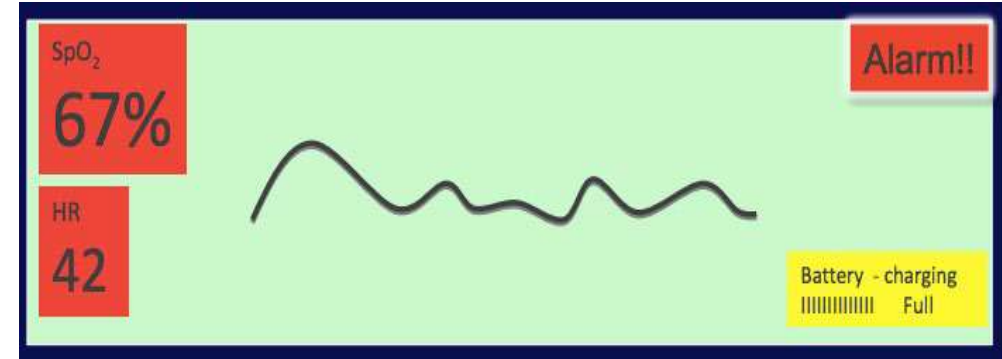
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Prenatal screening and Prevention of Birth Defects

Dr Bharti Sharma

Birth defect burden

- Worldwide 7.9 million births occur annually with serious birth defects and 94% of these births occur in middle and low-income countries.
- Birth defects account for 7% of all neonatal mortality and 3.3 million under-five deaths.
- In India birth defects prevalence varies from 61 to 69.9/1000 live births.
- Major birth defects include **congenital heart defects, neural tube defects** and **Down syndrome, hemoglobinopathies, and glucose-6-phosphate dehydrogenase deficiency**
- **It has been estimated that 70% of birth defects are preventable.**

World Health Organization. Management of birth defects and hemoglobin disorders: Report of a Joint WHO-March of Dimes meeting. Geneva, Switzerland, Geneva: WHO; 2006.

Causes of Birth defects

Genetic 25%	Environmental - 15%	Complex (Multifactorial)-60%
<ul style="list-style-type: none">• Down syndrome• Mendelian single-gene defects• Age• Consanguineous marriages	<ul style="list-style-type: none">• Infections – rubella• Maternal diseases – DM, High fever• Teratogenic drugs, Alcohol Smoking Environmental pollutants	<ul style="list-style-type: none">• Gene-environmental interaction eg. Isolated neural-tube defects, orofacial clefts

Types of birth defects

- **Lethal defects:** cause stillbirth or infant death or pregnancies are terminated after the prenatal diagnosis. eg- Anencephaly, Renal agenesis, or Hypoplastic left heart syndrome
- **Severe defects:** without medical intervention cause handicap or death. eg- cleft lip, congenital pyloric stenosis
- **Mild defects:** require medical intervention but life expectancy is good. eg-congenital dislocation of the hip or undescended testis

Major risk factors for Indians

- Large number of unplanned pregnancies
- Poor coverage of antenatal care
- Poor maternal nutritional status
- High consanguineous marriage rate
- High carrier rate for hemoglobinopathies

Unplanned pregnancies and no antenatal care

- Unplanned pregnancies and no antenatal care straightway mean pregnancies do **not benefit from preventive strategies against birth defects.**

- **Antenatal care- NFHS-5 (2019-21)**

Mothers who had at least 4 ANC visits -58.1 %

Mothers who had antenatal check-up in the first trimester -70%

Registered pregnancies for which the mother received a Mother and Child Protection (MCP) card (95.9%)

Medical condition of mother

- Exact prevalence of chronic conditions like diabetes, epilepsy, hypertension during pregnancy is not known.
- About 8% of pregnant women need permanent drug treatment due to various chronic diseases and pregnancy-induced complications.

Maternal nutritional status

- Maternal deficiencies of iodine, folic acid, and other macro and micronutrients associated with birth defects.
- Mothers who consumed iron folic acid for 100 days or more when they were pregnant- 44.1%
- According to NFHS 3, just over half (51%) of households were using salt that was adequately iodized, NFHS 4 -93% NFHS-5 94.3%
- 52.2% of pregnant & 57.2% of nonpregnant women were Anaemic
- High prevalence of nutritional deficiency -18.7% of women have a BMI below 18.5 & Obesity 24%

Consanguineous marriages

- Consanguinity rates in India varies from as low as 1% to 4% in the northern region to as high as 40-50% in the southern region.
- In comparison to a non-consanguineous couple, consanguineous are more likely to have
 - Early age at marriage and at first birth
 - Higher number of infants born
 - Higher rates of postnatal mortality
 - Higher rates of congenital malformations and genetic disorder.

Parent's carrier status of a genetic disorder

- Carrier frequencies for various genetic disorders are high among Indians.
- **Sickle cell hemoglobin** - 17% to 30% or more in the population.
- **Hb E** - found in the eastern half of the Indian sub-continent, and throughout South-East Asia, where carrier rates may exceed 60% of the population in some areas.
- **β thalassaemia** ranges from 0.3% to 15%, while that for the milder forms of α thalassaemia varies from 15% to 80% (tribal population) in northeastern parts of India.

Exposures to teratogens

- According to NFHS 5- 8.9% of reproductive age group females were using any form of tobacco.
- Children of women who smoke during pregnancy are found to have multiple birth defects 1.5-2 times more than expected
- Alcohol- Fetal alcohol syndrome, usage among reproductive age group females was 1.3% (NFHS-5).
- Exposures to other categories of drugs during their first trimester vary from 55.28% for category A to 6% for category D drugs (*DRUG UTILIZATION PATTERN DURING PREGNANCY IN NORTH INDIA 2006*)
- Easy availability of drugs, intake of non-prescribed drugs, and self-medication.

Prevention

Primary

- Avoiding the cause

Secondary

- Early detection followed by effective early treatment

Tertiary

- complete recovery of congenital abnormalities by early surgical intervention without residual defects or minimal after effects.

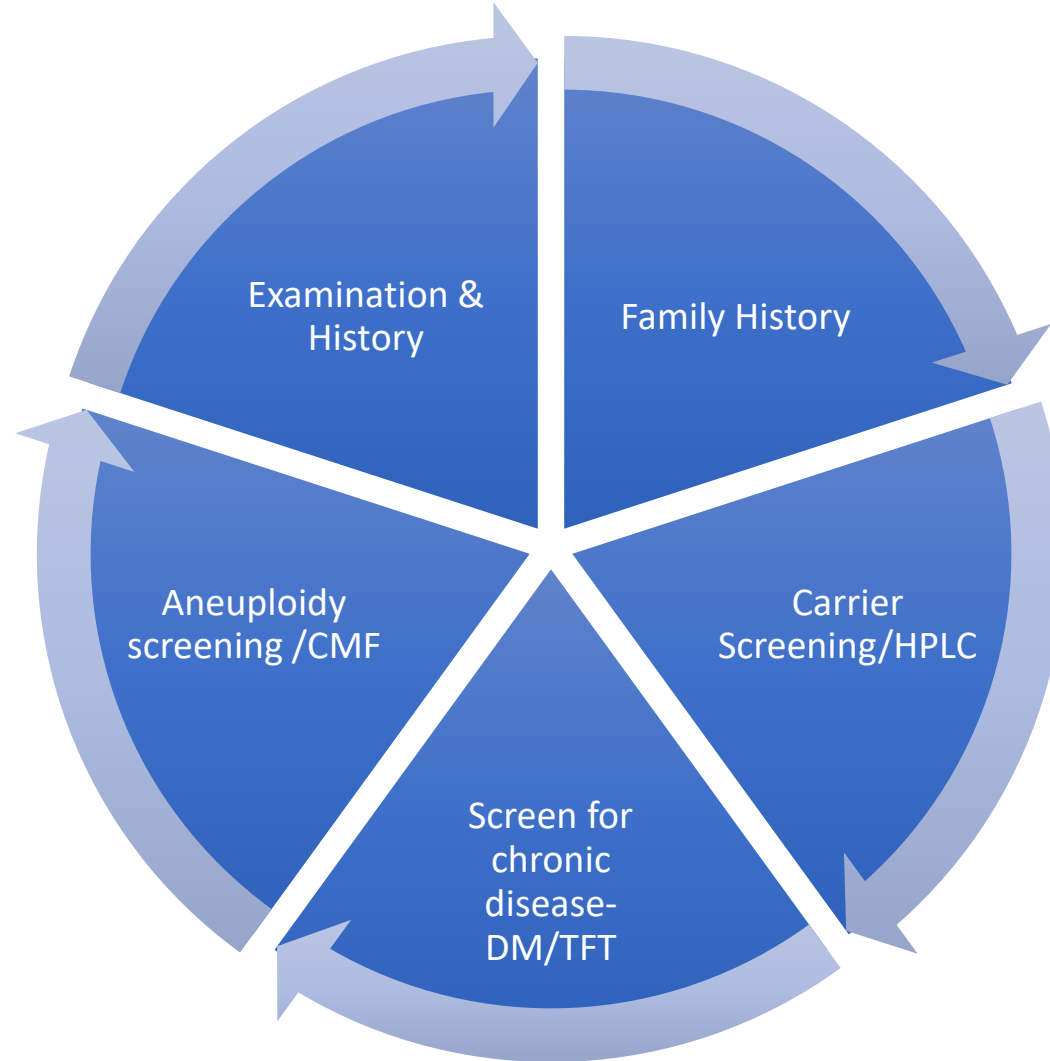
Primary Prevention

- Right care
- Peri-conceptual folic acid
- Rubella vaccination
- Maintain a healthy weight
- Planned pregnancy
- Optimization of underlying disease- DM, Epilepsy
- Antenatal care –At least 4 antenatal visits (8 antenatal visits)
- USG 18-20 weeks to rule out anomaly (WHO)

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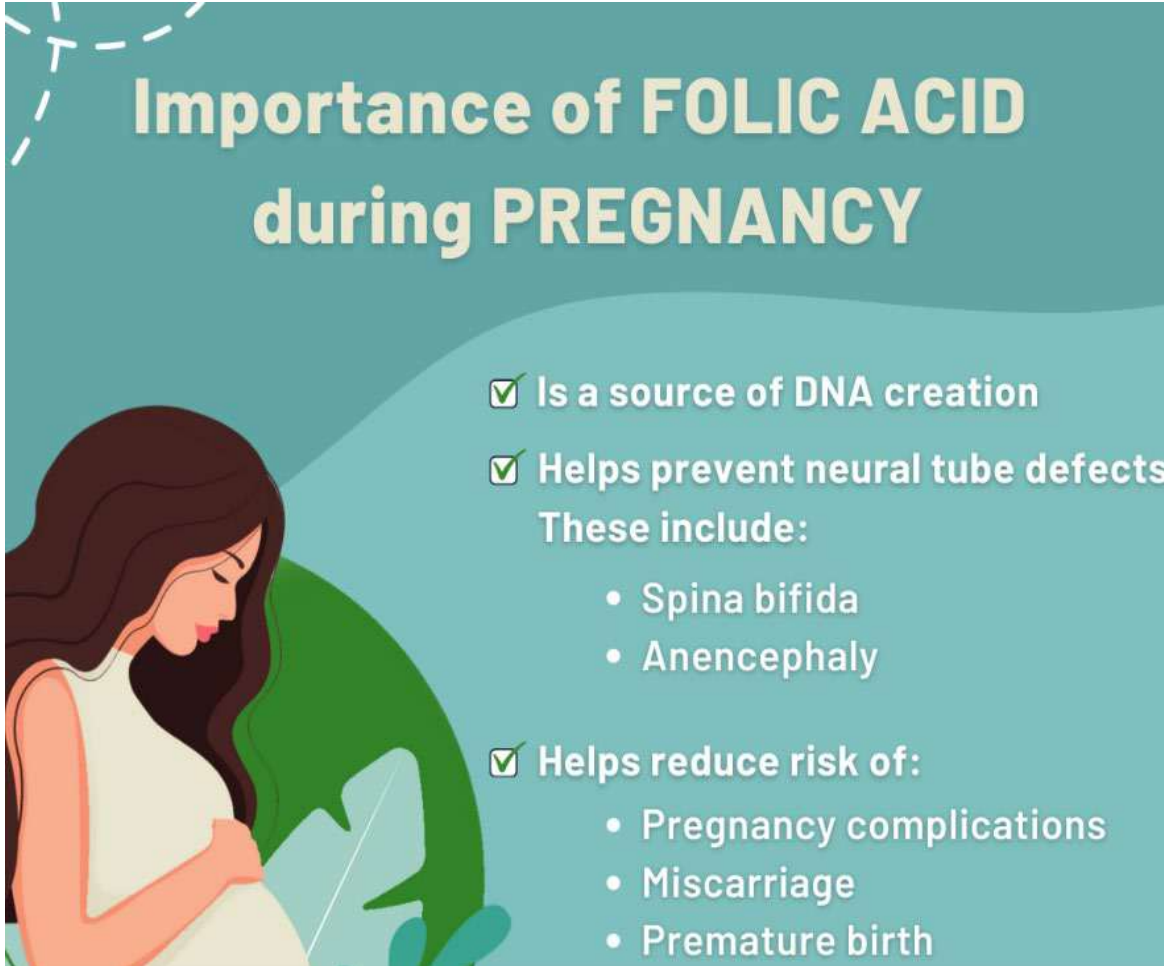
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Peri-conceptual Folic acid



**Importance of FOLIC ACID
during PREGNANCY**

- ✓ Is a source of DNA creation
- ✓ Helps prevent neural tube defects
These include:
 - Spina bifida
 - Anencephaly
- ✓ Helps reduce risk of:
 - Pregnancy complications
 - Miscarriage
 - Premature birth

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Intrauterine infections

Prevention of Congenital Rubella (Viral Infection)

01 Get MMR Vaccine

02 Avoid People with Rubella

03 Clean and Disinfect Surfaces

04 Practice Good Hygiene

CMV is short for **cyto-megalo-virus**

CMV is preventable



Pregnant women who already have young children, or who work with young children, are at highest risk of catching CMV

CMV is found in home and daycare settings



Avoid contact with saliva - Kiss kids under the age of 6 on the forehead instead of lips or cheek



75% of toddlers have CMV in their urine or saliva in studies at child-care settings



Wash your hands after contact with bodily fluids of kids under the age of 6



Don't share utensils, drinks, or toothbrushes with kids under the age of 6

Intrauterine infections-Toxoplasmosis

How to Reduce the Risk of Toxoplasmosis



Peel fruits & vegetables or wash thoroughly.



Cook meat to safe temperatures.



Wash food prep surfaces & utensils after use.



Have someone else change cat litter. (if pregnant/compromised immune system)



Wear gloves & mask to change cat litter. Wash hands thoroughly afterwards.



Wear gloves & wash hands after working in soil/sand.

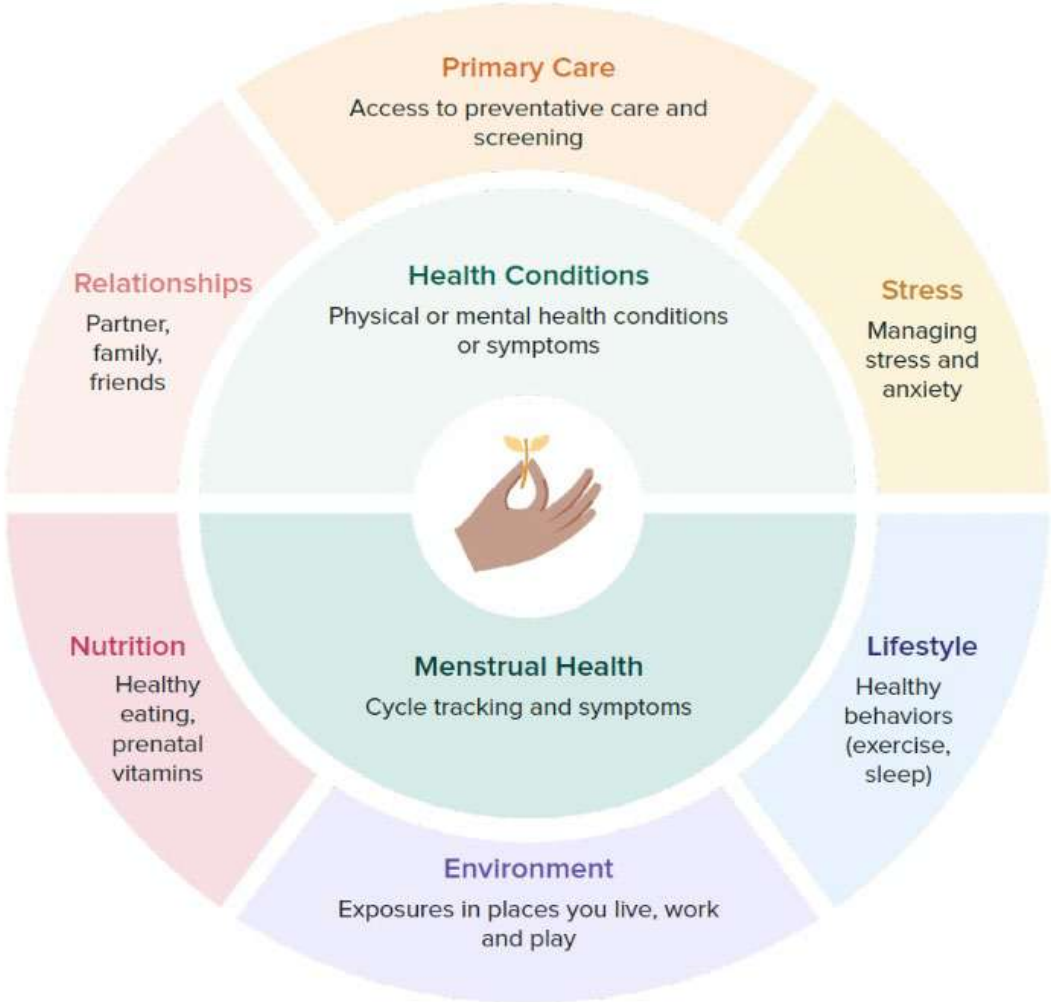
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Antenatal care visits

WHO FNAC model	2016 WHO ANC model
First trimester	
Visit 1: 8-12 weeks	Contact 1: Up to 12 weeks
Second trimester	
	Contact 2: 20 weeks
Visit 2: 24-26 weeks	Contact 3: 26 weeks
Third Trimester	
Visit 3: 32 weeks	Contact 4: 30 weeks
	Contact 5: 34 weeks
Visit 4: 36-38 weeks	Contact 6: 36 weeks
	Contact 7: 38 weeks
	Contact 8: 40 weeks
Return for delivery at 41 weeks if not given birth	

To summarize -Right care



Secondary prevention

- **Level 2 USG 18-22 weeks of gestation**

Elective termination of pregnancy after the prenatal diagnosis of severe fetal defects was also named as secondary prevention.

- **Neonatal orthopedic screening** - early detection and treatment of deformities such as congenital dislocation of the hip based on Ortolani click and treated with different conservative methods (e.g. Pavlik pillow).
- **Patent ductus arteriosus** can be corrected by drugs immediately after birth.

Prenatal Counselling for fetus with BD

To provide comprehensive information about

- Nature and severity of congenital anomalies
- Potential outcomes
- Available treatment
- Impact on the baby's health
- Emotional support

A multidisciplinary approach (Pediatric surgery/Cardiology/genetic consultation)

Option of MTP/Genetic tests/ Autopsy

Initiatives to prevent preventable Birth defects

- **Folic acid supplementation:** Promoting folic acid intake among pregnant women, which is known to significantly reduce neural tube defects.
- **Iodization of salt:** To address iodine deficiency, which can lead to developmental issues.
- **Nutritional counseling:** Providing dietary advice to pregnant women through antenatal care visits
- **Genetic counseling and carrier screening:** Especially for families with a history of genetic disorders
- **Awareness campaigns:** Educating the public about the importance of preconception care and preventing risk factors for birth defects
- **Food fortification programs**
- **Antenatal care , Level II Ultrasound**
- **Pradhan Mantri Surakshit Matritva Abhiyan-** High Risk pregnancies

Prevention of Neural Tube Defects

Thank you Maa,
for taking the magic pill “Folic Acid”
to prevent Neural Tube Defect (NTD)



More than 70% of NTD are Preventable

- Periconceptual **Folic Acid** for all women of child-bearing age
- ANC check-up along with Level II Ultrasound

Timely Intervention

- Surgery
- Physiotherapy

Thank you

for making healthy choices to Prevent Birth Defects



Pre-pregnancy Planning

- Folic Acid supplementation (400 µg/day)
- Regular intake Folic Acid rich food like green leafy vegetables, pulses
- Rubella Vaccination
- Intake of fortified food



Care during Pregnancy

- Discuss your genetic and family history with your health care team
- Get your regular antenatal checkup at least four times during pregnancy
- Inform your doctor before starting or stopping any medications



Avoid Harmful Substances: alcohol/ smoking (including passive smoking) at any time during pregnancy

- Maintain healthy lifestyle
- Maintain a healthy weight
- Keep diabetes under control



Getting Family Support

- Family members to maintain positive environment at home
- Avoid any maternal stress and domestic violence



Keeping Personal Hygiene



Questions

Q.1 Which of the following vaccines should be taken before getting pregnant because of the danger of disease or birth defects to the fetus?

- A. Tetanus
- B. Diphtheria
- C. Rubella
- D. Flu

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Q.2 Healthcare providers advise people to take 400 mcg of folic acid daily before they get pregnant and during pregnancy. What can this help prevent in the baby?

- A. Respiratory distress
- B. Brain and spinal defects
- C. Blood disorders
- D. Learning disorders

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B. Drinking alcohol

C. Taking illegal drugs

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Q.5 When is an unborn baby most at risk of developing a birth defect?

- A. First trimester (First 3 months)
- B. Second trimester
- C. Last trimester
- D. All 9 months

Q.5 When is an unborn baby most at risk of developing a birth defect?

A. First trimester (First 3 months)

B. Second trimester (3-6 months)

C. Last trimester(6-9 months)

D. All 9 months

Thank you

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Keeping Personal Hygiene



Clubfoot : Importance of Phases of Ponseti Method



NOT A CURSE , NOT A SHAME – JUST A CONDITION , FULLY TREATABLE

**Dr. Mohammad Afshar Khan, Senior
Consultant Orthopedic Surgeon
District Hospital, Barabanki, Uttar Pradesh**

CLUB FOOT

Birth defect in which
foot is twisted out of position/shape



Thank you,
I can now run, walk and play !

- **Identifiable at Birth**
- **Start treatment as early as possible after birth**
 - Serial Casting and Braces/Shoes treats most of the cases
 - Some cases may require surgical intervention
 - Regular follow-up is essential
- **Parental counselling for completion of treatment**
- **Excellent outcome**



CLUBFOOT RELATED STIGMA

For generations, myths and stigma have turned a simple medical condition into a lifelong burden, labeling children as cursed, families as guilty, and futures as doomed. The truth is simple: clubfoot is fully treatable, and stigma is the real disability. With awareness, acceptance, and timely treatment within the first two years of life, children can grow into valuable assets for society—excelling in everything from sports to scientific achievements and inspiring others to follow their path.

What is Clubfoot

- Clubfoot is a congenital birth defect wherein one or both the feet are turned inwards, making it a leading cause of disability in children in the developing world.
- Scientific name is Congenital Talipes Equino Varus (CTEV)
- Clubfoot is one of the 30 conditions recognized by RBSK under NHM
- Clubfoot: Visual identification is possible
- Treatment is recommended within 1 week to 1 month of birth and treatment can still happen within 1 year to two years of birth
- Therefore, Early identification is recommended



Epidemiology of Clubfoot

- The global incidence is approximately **1.2 per 1,000 live births**.
- More common in Males (**2:1 male-to-female ratio**)
- In India, approximately **33,000 children** are born with clubfoot each year. Only 15% are getting treatment. Incidence is approximately **1 per 800 live births**
- Clubfoot is one of the most common orthopedic disabilities in developing nations.



Classification of Clubfoot

Not all clubfoot cases are the same. A standardized classification system ensures effective communication and treatment:

- **Idiopathic Clubfoot:** No identifiable cause.
- **Secondary Clubfoot:** Associated with neurological or syndromic disorders.
- **Positional Clubfoot:** Not a true clubfoot; fully correctable.

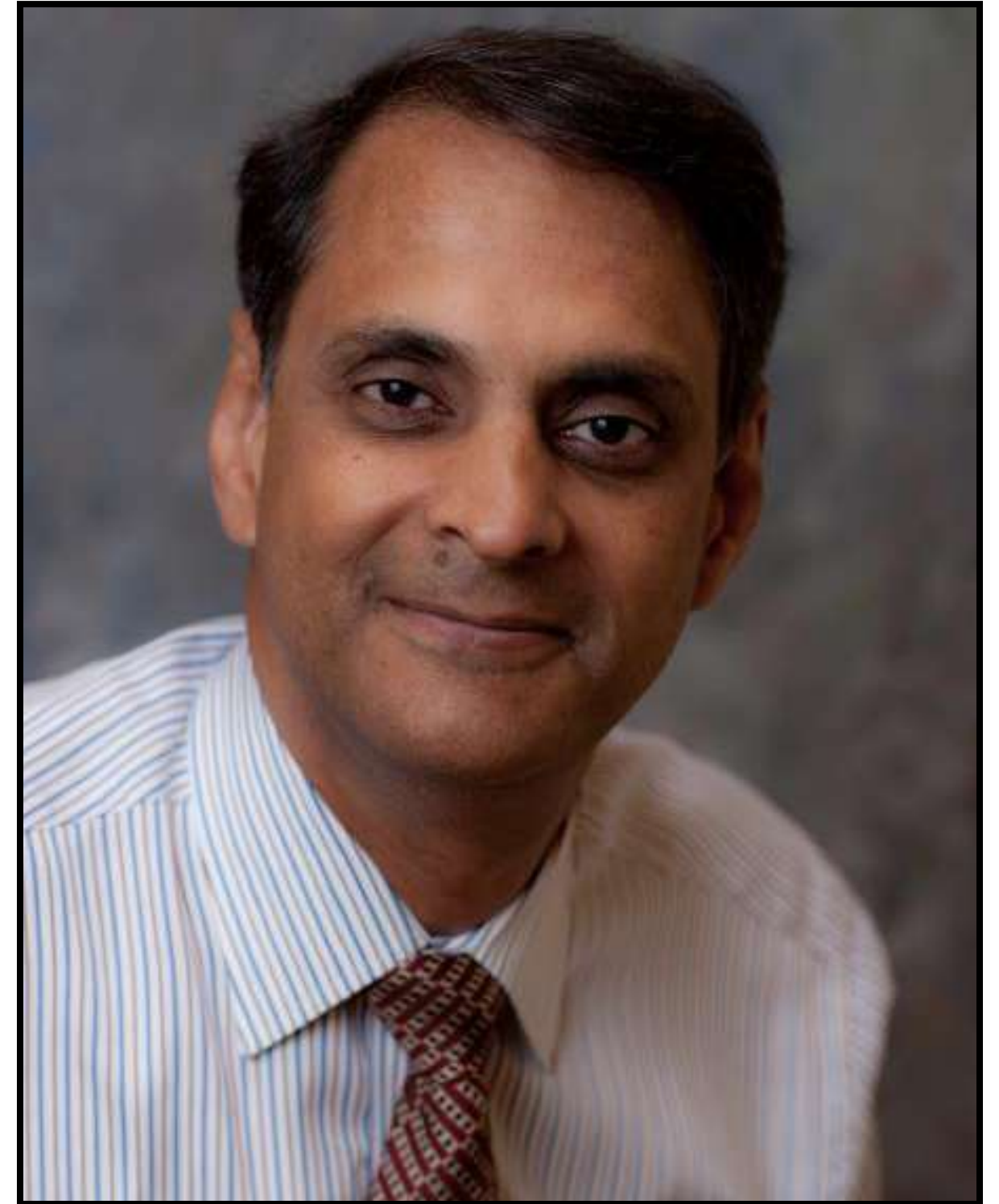
Types of Idiopathic Clubfoot

- **Untreated Clubfoot**: Newborns up to 2 years old with little or no treatment.
- **Treated Clubfoot**: Successfully corrected through Ponseti treatment and bracing.
- **Recurrent Clubfoot**: Deformity recurs, often due to premature discontinuation of bracing.
- **Neglected Clubfoot**: A clubfoot in children over 2 years old with little or no treatment.
- **Complex Clubfoot**: Deformity complicated by previous non-Ponseti treatments.
- **Resistant Clubfoot**: Correct Ponseti treatment fails to show significant improvement, often due to underlying syndromes
- **Atypical Clubfoot**: Uncommon cases with additional complications, such as a swollen foot or extended big toe.

Assessing Clubfoot Severity

The Pirani Scoring System

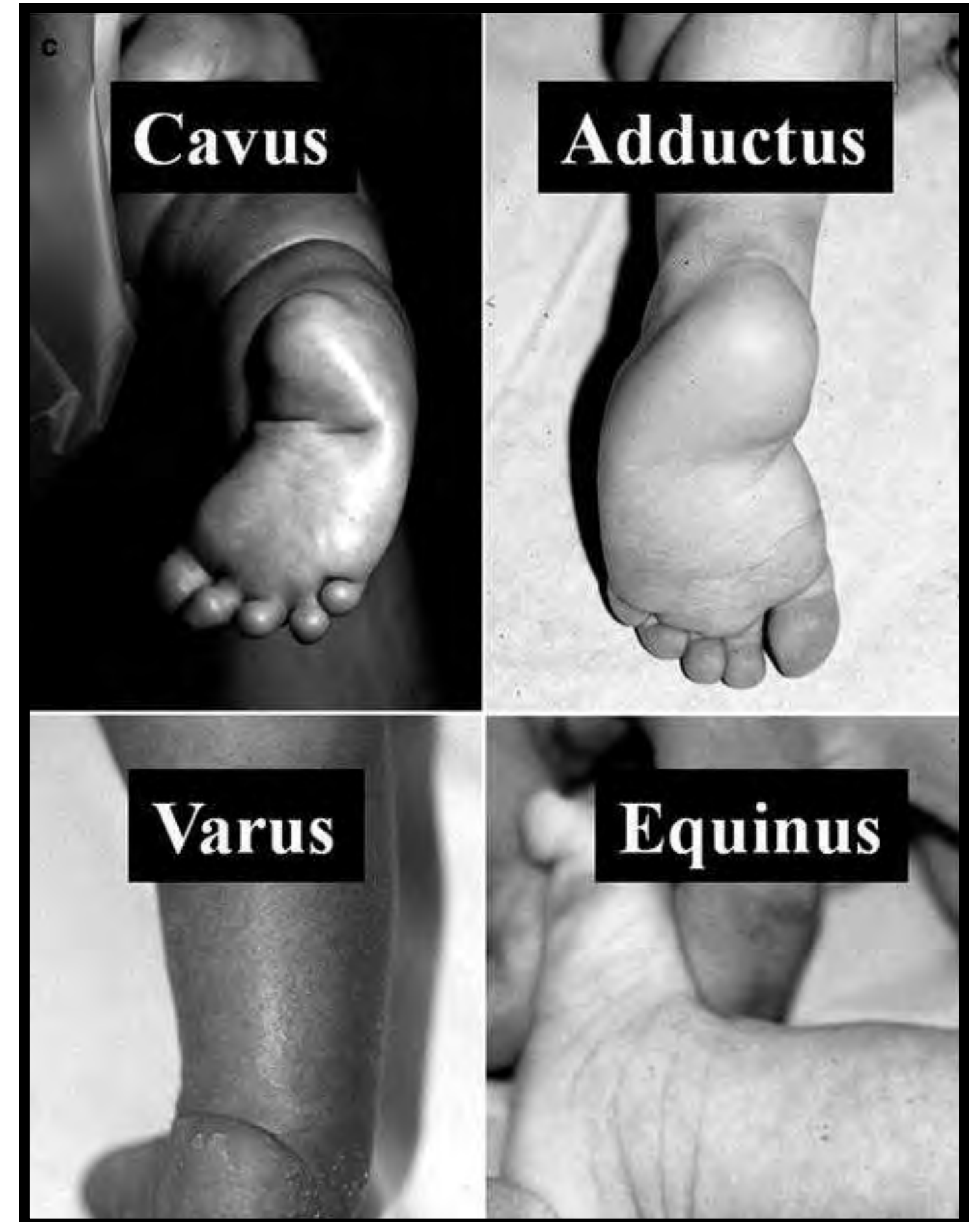
Dr. Shafiq Pirani, a Canadian orthopedic surgeon, developed the **Pirani scoring system** to objectively assess the severity of clubfoot and monitor treatment progress.



Understanding Clubfoot Deformity

The CAVE Mnemonic Clubfoot deformity consists of four key components, summarized as '**CAVE**':-

- **C – Cavus:** High arch due to plantar flexion of the first metatarsal.
- **A – Adductus:** Medial displacement of the navicular bone.
- **V – Varus:** Heel shifts inward (toward the midline).
- **E – Equinus:** Excessive plantar flexion of the foot.



Ponseti Method: The Gold Standard for Clubfoot Treatment

The 'Ponseti method' is a Non-Surgical technique that has been extensively researched and has shown 95% effectiveness in clubfoot treatment.









It consists of two phases:

Manipulation & Casting PHASE : Weekly manipulation & casting for 4 to 6 weeks.

Final deformity is equinus which required 'Percutaneous **tenotomy**' to cut achlis tendon (minor surgical procedure) for complete correction in more than 90% cases.

MAINTENANCE PHASE : Bracing for 4 to 5 years to prevent recurrence.

Challenges with Casting

	What is Wrong?		What can Parent do?
	Cast was not applied properly and is slipping.		Go back to the doctor and do not remove cast at home.
	Cast has become wet due to child peeing.		Ensure that diapers are used correctly and the cast is not wet.
	Child has skin irritaion due to the cast.		In case of any reddness or irritation, immediately visit the doctor.
	Child is crying continuously after casting.		Do not remove or adjust the cast at home. Consult doctor immediately.









Percutaneous Achilles Tenotomy

Over 90% of cases require tenotomy.

- Performed using a No. 15 surgical blade.
- Ensures 10–20 degrees of additional dorsiflexion.
- Final cast applied post-tenotomy for 3 weeks.



Challenges with Tenotomy

	What is Wrong?		What can Parent do?
	Parents refuse tenotomy because they are afraid.		Tenotomy is a simple painless procedure done under local anaesthesia.
	Parents think its a big surgery.		Tenotomy is an out-patient procedure and the child can go home after a few hours on the same day.
	Child is crying a lot.		Some discomfort is common, try soothing the child.
	Parents try to remove the cast after a week.		Cast after tenotomy has to stay for 3 weeks.

What is the Foot Abduction Brace wear protocol?

- 23/24 hours for 3 Months
- Night and nap times until 4–5 years

What strategies can help improve adherence with bracing?

- Parent advisors
- Ensuring patient comfort in the brace
- Clear communication with parents
- Regular review & follow - ups













What are the features of an effective Foot Abduction Brace?

- Currently we are using new type of FAB in which Shoes can be adjusted to bar at 70° abduction or as per required
- In-built Dorsiflexion 10–15°
- Heel cup
- Heels as far apart as shoulders



Challenges with Bracing

	What is Wrong?		What can Parent do?
	Brace is not worn correctly.		Connect with Clinic Staff to learn how to put on the brace.
	Brace is not worn for adequate amount of time.		Follow instructions for wearing brace as demonstrated by the Clinic Staff.
	Since the foot looks corrected, parents stop visiting the clinic for follow up.		Keep wearing the brace till the due course as recommended by doctor.
	Parents relocate and discontinue treatment.		In case of relocation, connect with Clinic Staff to check if we have a clinic in the new location.
	Only shoes are worn without the bar		The Foot Abduction Brace is effective only when both shoes and bar are worn together.

Consequences of Untreated Clubfoot

If left untreated, clubfoot leads to severe lifelong consequences:-

- Permanent physical disability.
- Social stigma and discrimination.
- Limited educational and employment opportunities
- Increased burden on families and society.
- Negative economic impact, including loss of GDP

Signs of Relapse

- Increase in Pirani score.
- Return of CAVE signs .
- Callus formation.
- Dynamic supination while walking.
- If relapse occurs, not to hesitate to repeat casting and re-tenotomy as well.



Conclusion

Clubfoot is a treatable condition, and no child should grow up disabled due to lack of awareness or access to treatment. With early intervention, proper medical training, and a commitment to the Ponseti method and Pirani scoring system, we can ensure that every child with clubfoot in India has the opportunity to lead a normal, fulfilling life.

Thank You

Craniofacial clefts and their early diagnosis and management



Results



Early diagnosis

Timely treatment

Prevent aesthetic deformity

Prevent functional deficits

Prevalence of CLP –27000-33000

3 infants every hour born with CLP

Problems with cleft lip and palate

- Appearance
- Feeding
- Swallowing
- Nasal regurgitation
- Recurrent URTI
- Hearing deficit
- Speech deficit
- Dentition
- Bony growth of face

Multidisciplinary treatment

Complete rehabilitation (3mnths to 18 yrs age)

Incomplete treatment

- Functional and psychosocial problems
- Adversely influences health and social integration of affected child
- Emotionally burnt out by adolescence

Preop considerations

- Feeding advice – Breast feeding
 - Bottle feeding with long nipple /large hole
 - Haberman feeder
 - Pala dai
 - Katori / spoon



Paladai



Dr. Brown's Specialty Feeding System



Madela Special Needs Feeder/Haberman Feeder



Mead Johnson Cleft Lip/Palate Nurser



Pidgeon Bottle and Nipple

- Inadequate feeding -- malnutrition
 - Failure to thrive
 - Anaemia
 - Hypoproteinemia
 - Low weight



Lip repair – 3 months

Early surgery – 3 weeks

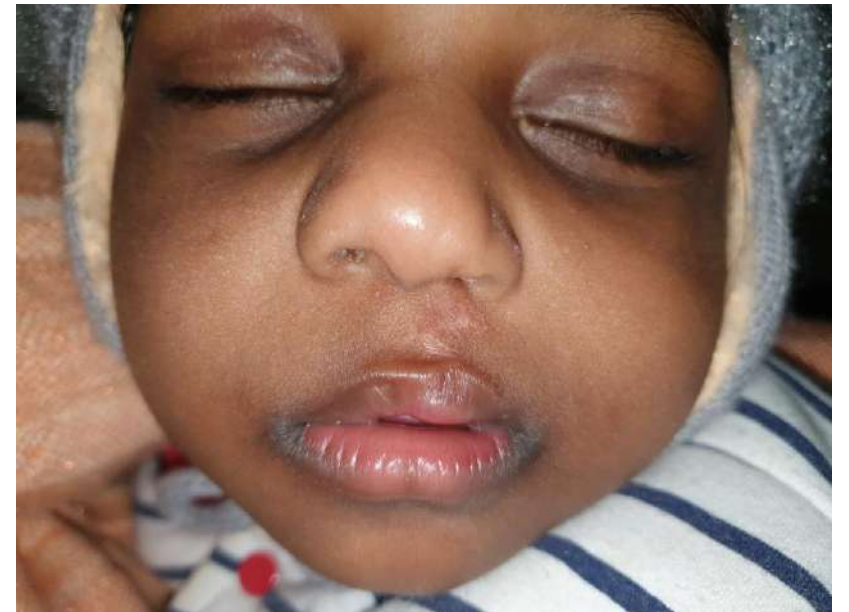
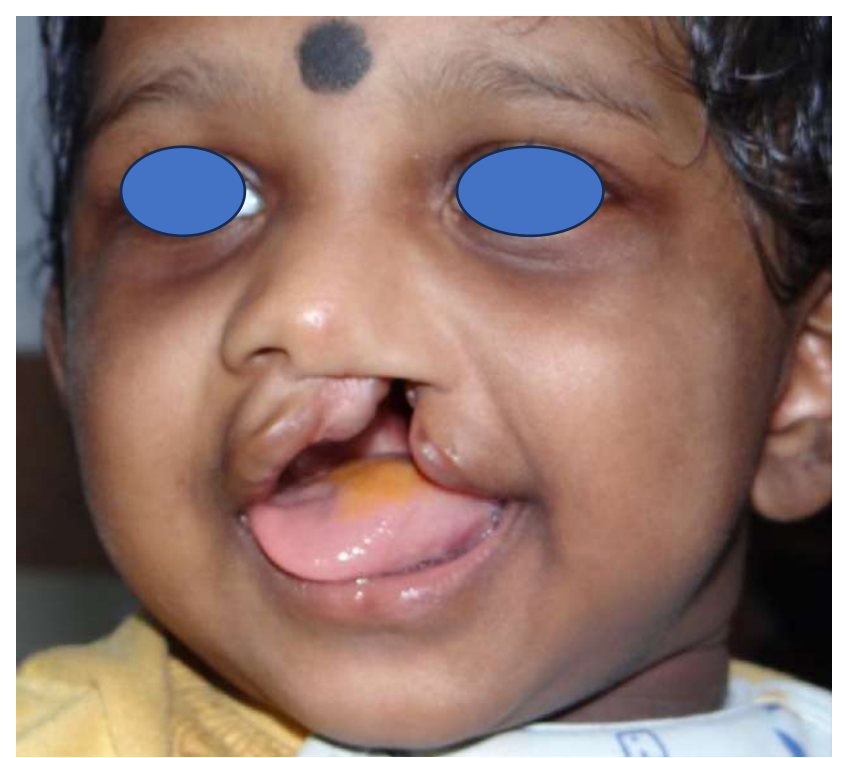


Associated anomalies— not to be missed
-- addressed timely





Nasoalveolar
moulding appliances
4 weeks



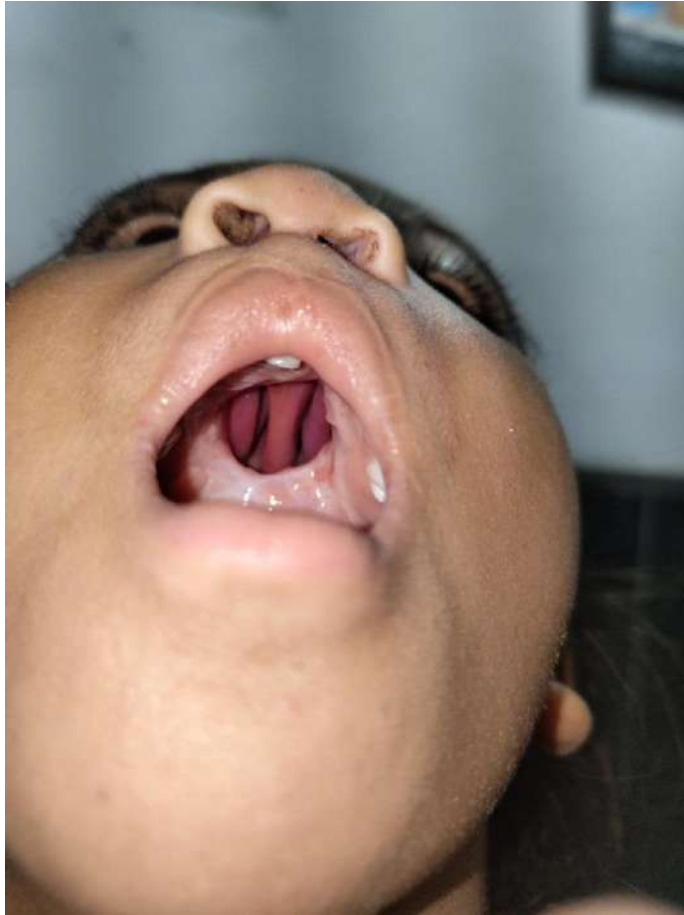
Palatoplasty — 10 – 12 mnths



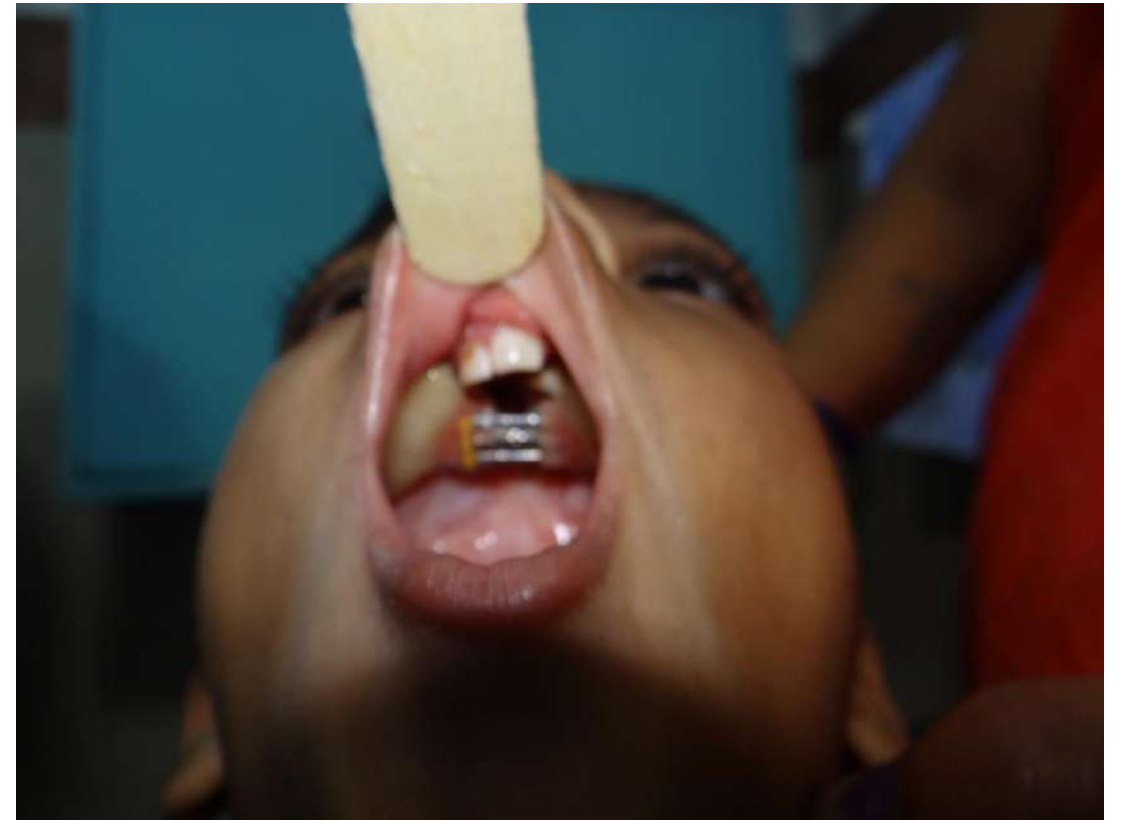
Genetic counselling –syndromic cases



Palatal fistula — flap cover — as early as possible

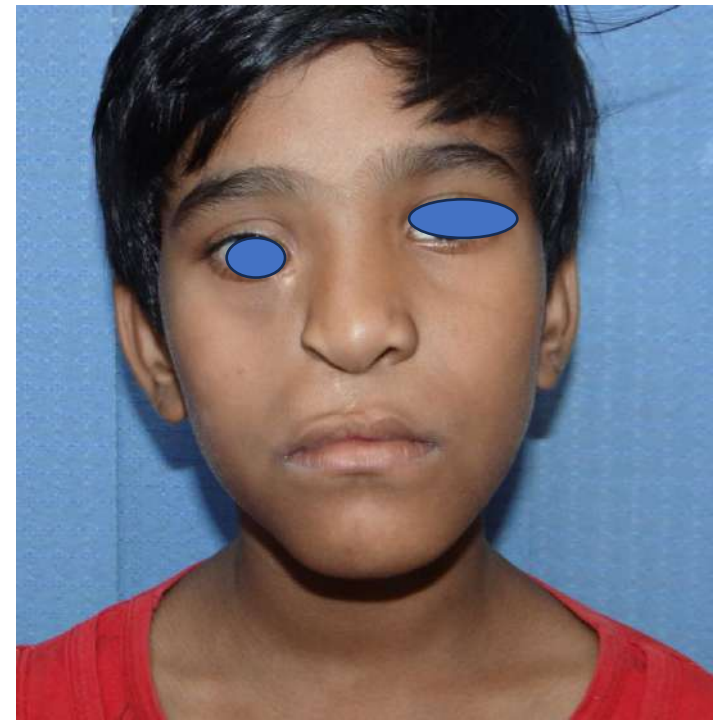


Orthopedic appliances –for collapsed arches –
6-7 yrs

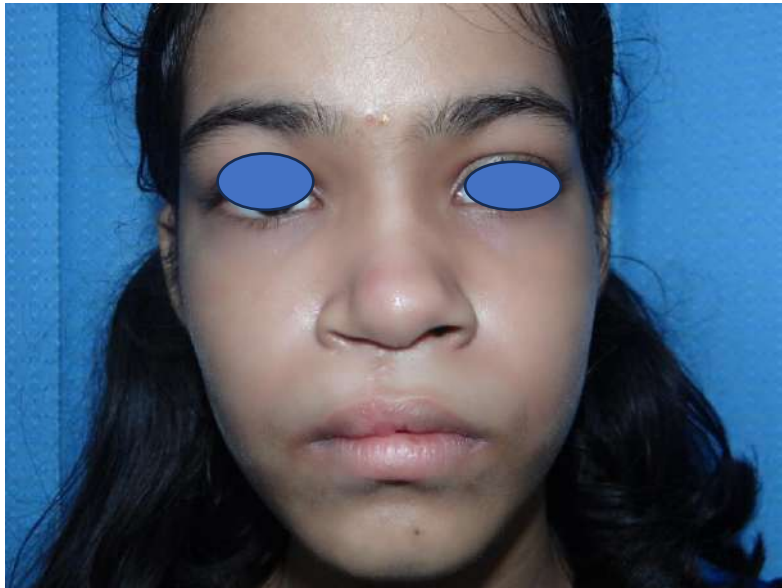
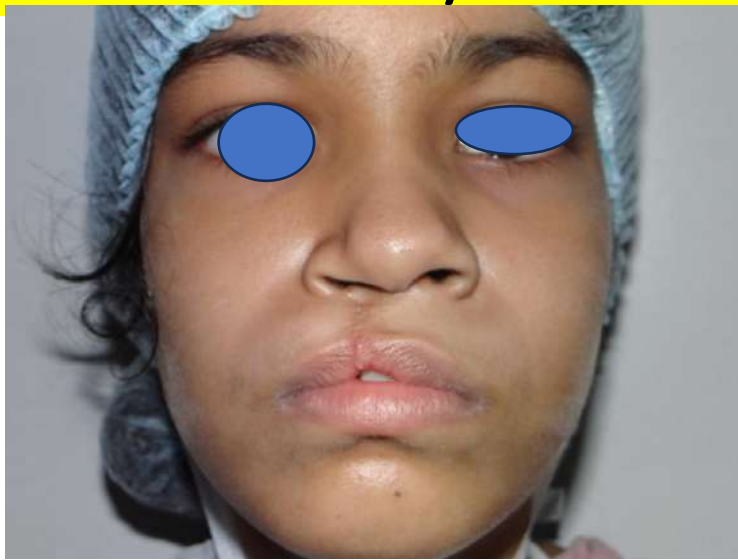




Bone grafting
in cleft
9-11yrs



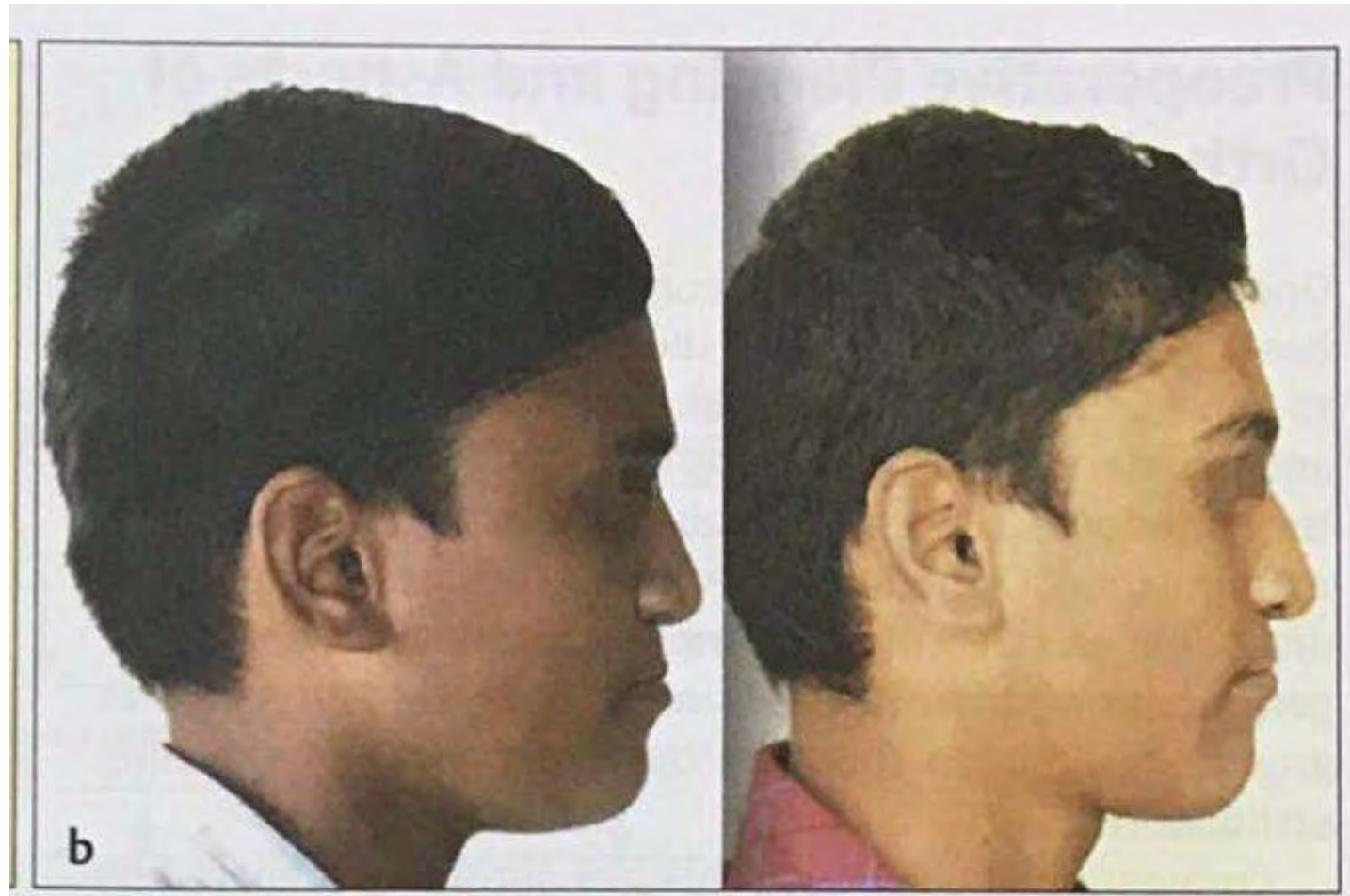
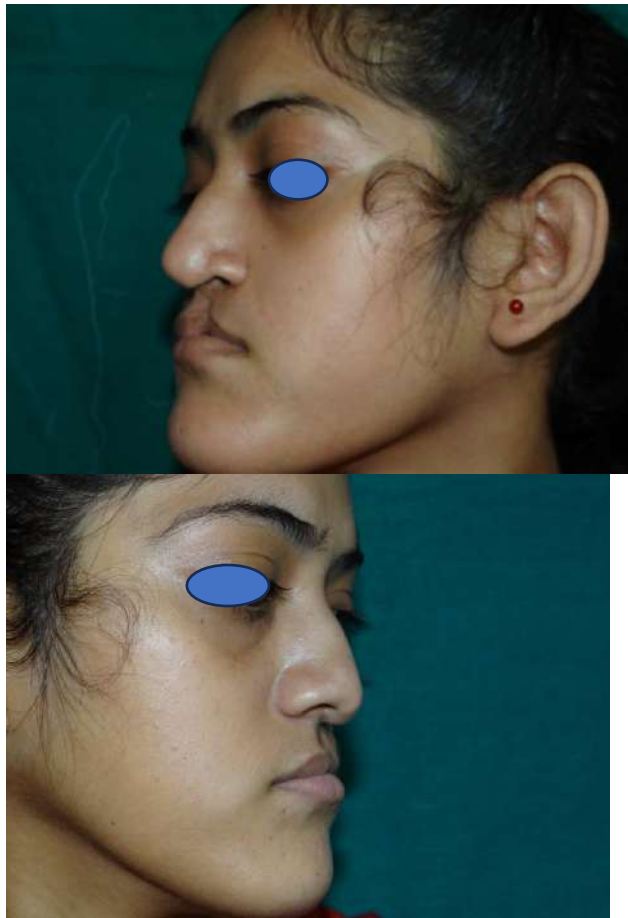
Secondary revisions and ABG --9-11 yrs



Orthodontic treatment – at permanent dentition



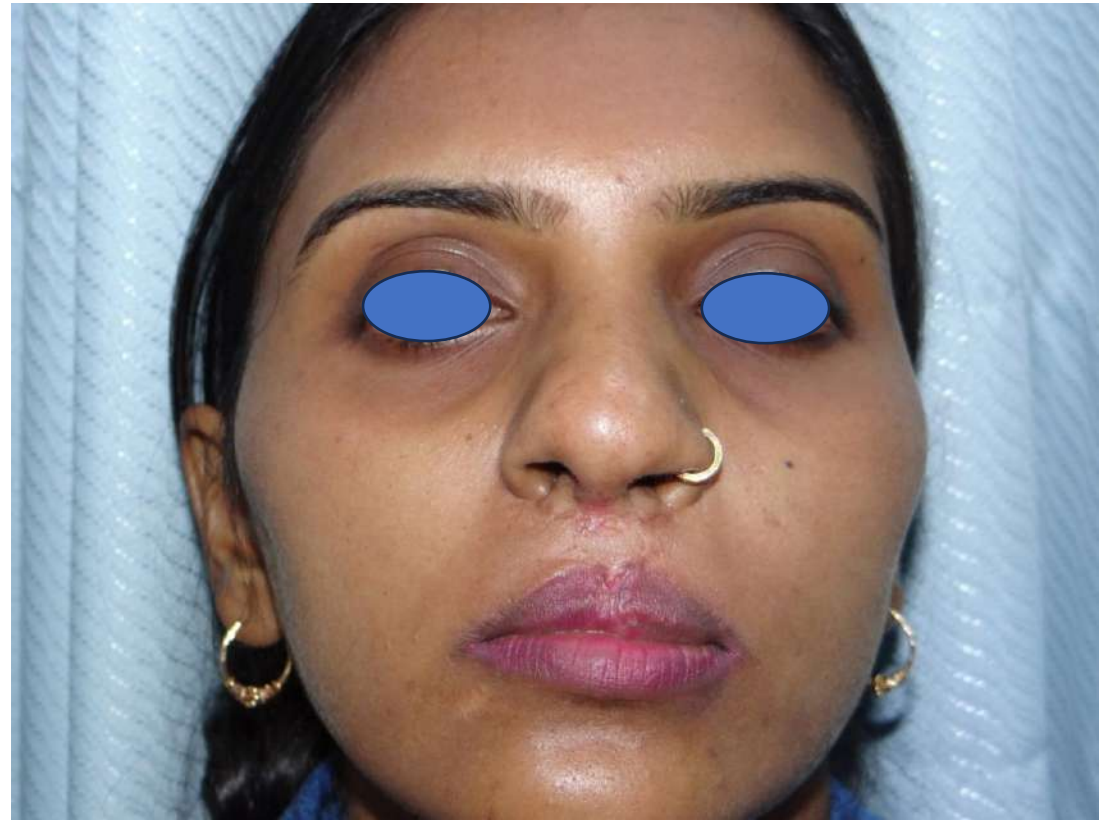
Orthognathic surgery—after growth completed (14-15yrs females / 17-18 yrs males)



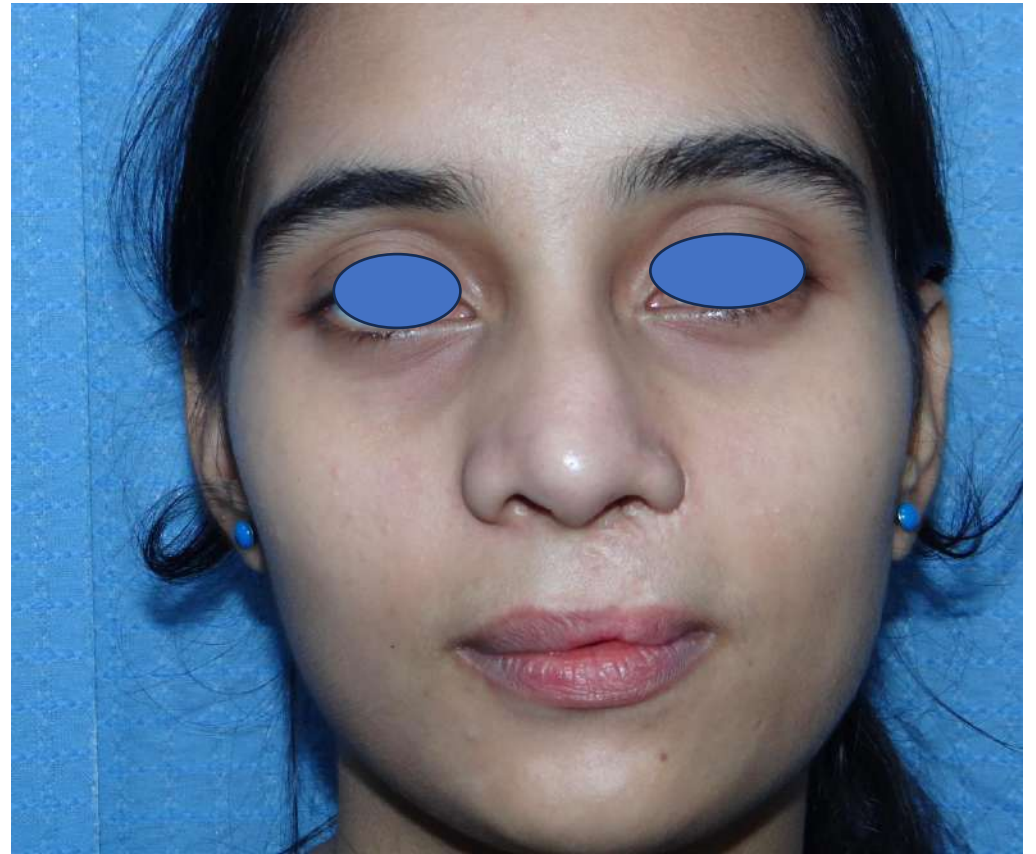
Speech –Velopharyngeal incompetence

- After orthognathic surgery(advancement procedures)
- Nasoendoscopy essential for diagnosis

Secondary revisions----marriageable age



Rhinoplasty –15-17 yrs



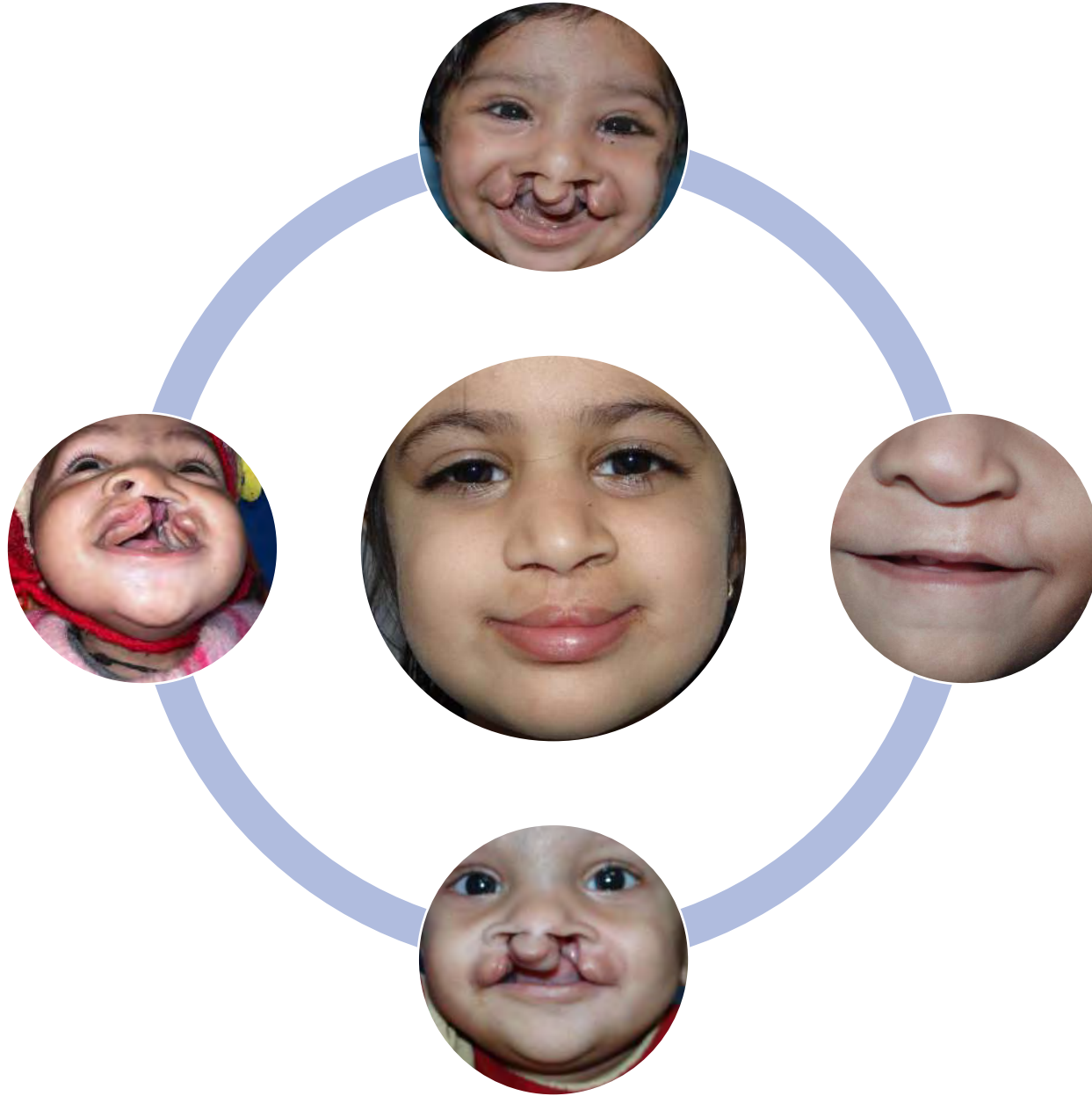
Limitations in a government setup

- Delay in seeking medical care for deliveries in rural areas
- Lack of awareness that CLP is a correctable deformity
- Lack of family resources
- Fixed OT time
- Lack of coordination between different departments
- Non availability of speech therapist / orthodontist/ prosthodontist

Possibilities to be explored

- Make craniofacial anomalies a notifiable disease
- Improve surveillance and research
- Create awareness that it is correctable
- Guidelines for standard of care to be followed uniformly all over the country
- Each tertiary centre well equipped with all facilities under one roof
- Reduce hospital visits
- Less number of schooldays wasted
- Audit of cleft care – to assess quality of care
 - compare with different centres
- Cleft support groups
- Occupational rehabilitation

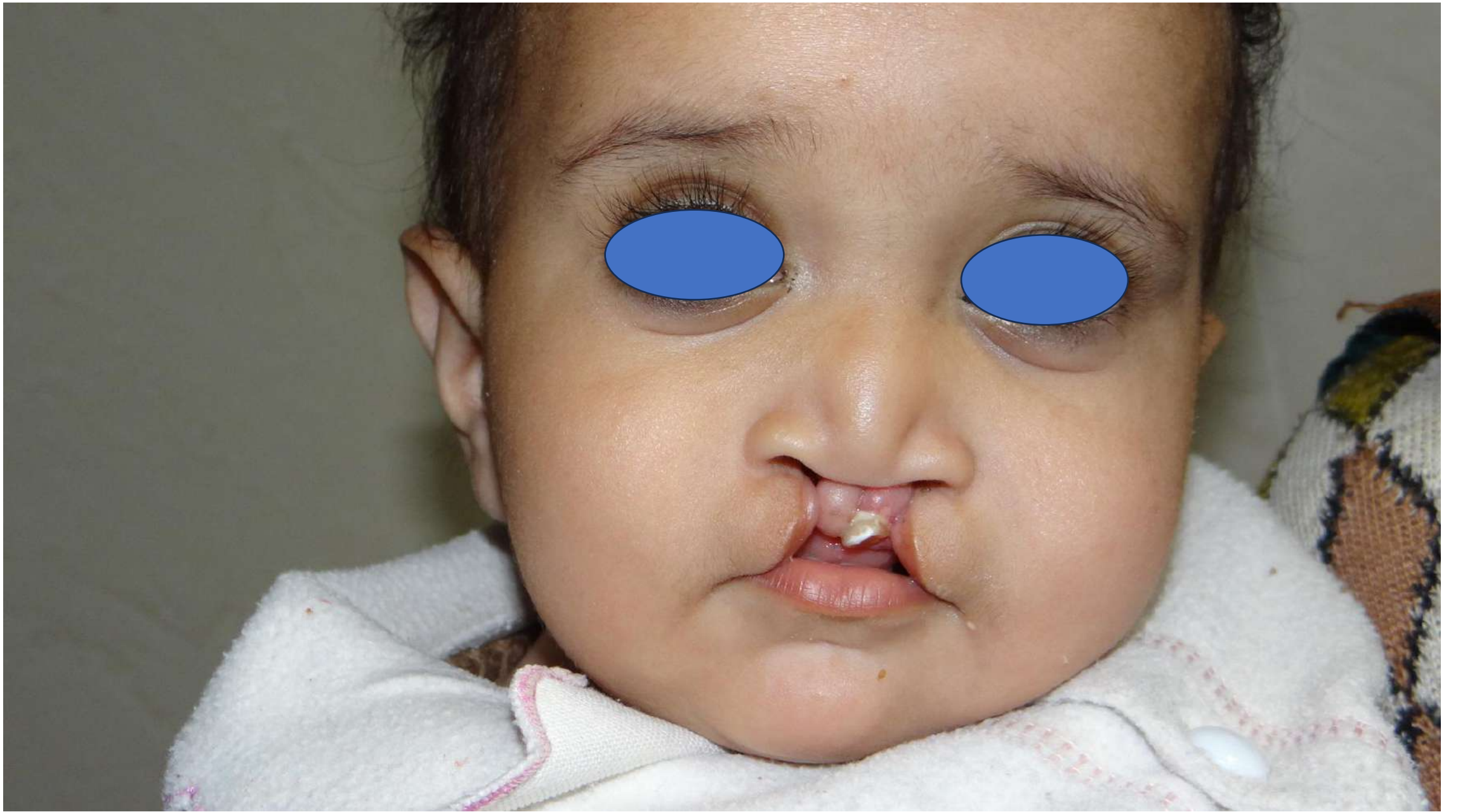
Make a smile not only beautiful but perfect



Thank you















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