BrienHoldenVisionInstitute

CHILDHOOD BLINDNESS

THINK

Half a million children become blind each year.

A child in a developing country is four times more likely to be blind than a child growing up in a developed country.

In developing countries, 60–80% of children who become blind will die within 1–2 years. For those who survive, being blind will affect their education, social interaction, and ability to earn an income as an adult.

Many causes of childhood blindness are either treatable or avoidable.

Through education on prevention, early detection and treatment, we can decrease the number of children who become blind.

WHAT YOU WILL LEARN

When you have worked through this unit you should be able to:

- Identify the main causes of childhood blindness
- Describe methods of assessing children's vision
- Discuss ways to prevent childhood blindness in the community through referral, education and advocacy.

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CHILDHOOD BLINDNESS

- The main causes of blindness in children are not the same as in adults
- Childhood blindness is often caused by preventable or treatable conditions
- The World Health Organization (WHO) estimates that 40% of the causes of childhood blindness are treatable or preventable
- To eliminate childhood blindness in the world, we will need the support and participation of the children's families and their communities
- WHO defines blindness in children as presenting visual acuity in the better eye of less than 3/60, and visual impairment as presenting visual acuity of less than 6/12.

HOW ARE CHILDREN AND ADULTS DIFFERENT?

- Diseases that are not serious in adults (such as a cataract) can be sight threatening in children – therefore we need to treat adults and children differently
- When a baby is born, the centres in the brain that control vision are not fully developed yet
- The brain continues to develop until the child is about eight years old
- The vision centres in the brain need good vision from both eyes to develop normally; if one eye does not see well, then the part of the brain that receives vision from this eye will not develop properly
- This means that even if you treat the cause of the poor vision when the child is older, the child will still not see well as the brain is unable to interpret the image properly because these visual pathways in the brain did not form properly in the first eight years of the child's life – we call this amblyopia
- Amblyopia can be treated if it is diagnosed early enough
- Amblyopia is treated by first treating the cause of the amblyopia (such as refractive error or cataract), followed by patching the eye with good vision for some time, to force the brain to recognise the eye that had poor vision
- Amblyopia treatment must be done before the child's visual system is developed fully (usually before 8 years old), and should be done by an eye care practitioner who specialises in this type of vision disorders in children
- Some of the causes of childhood blindness are caused by problems that are contagious (passed from person to person)
- Conditions such as conjunctivitis and trachoma are spread easily person to person, and if the problem is not treated quickly, many people in the community can become infected
- Also, many causes of childhood blindness are caused by problems that are life threatening (such as retinoblastoma or Vitamin A deficiency). If these problems are left untreated, they can be fatal
- It is very important that any child suspected of having an eye problem or poor vision is referred for treatment immediately.

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HEREDITARY DISORDERS

WHAT IS A HEREDITARY DISEASE?	• A hereditary disorder is passed on within families from one generation to the next • Normal features such as brown eyes or curly hair can be passed on from one or both parents • In the same way, children can also inherit certain disorders or diseases from their parents.

RETINOBLASTOMA
 	
White pupils in both eyes due to retinoblastoma
 	
[photo courtesy of Volker Klauss: ICEH]
	• A form of cancer of the retina
	• Usually develops before a child is 5 years old
	• Retinoblastoma is very dangerous, as it is often fatal
	• The most common sign is a white pupil
	• Other less common signs are:
	  ○ Blurry vision
	  ○ Squint (eye turn).

CONGENITAL GLAUCOMA
 	
Large left eye and hazy cornea from glaucoma
 	
[photo courtesy of Murray McGavin: ICEH]
	• Congenital means “present at birth”
	• Aqueous humor in the anterior chamber of the eye normally drains out of the angle of the eye (where the iris and cornea meet)
	• In congenital glaucoma, aqueous does not drain properly from the eye due to the improper development of the drainage system of the eye
	• When the angle of the eye is blocked the aqueous cannot flow out of the eye – which causes an increase in pressure inside the eye
	• If the pressure in the eye gets too high, it can destroy the optic nerve – this can lead to blindness
	• Either one eye or both eyes can be affected by congenital glaucoma
	• As babies’ eyes are still not fully developed, the signs of glaucoma in babies are different than in adults
	• Common signs of congenital glaucoma are:
	  ○ Large eye (buphthalmos)
	  ○ Hazy cornea.

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CONGENITAL CATARACT
 	
White pupils in both eyes caused by cataracts
 	
[photo courtesy of Allen Foster & Murray McGavin: ICEH]
	• Cataracts are clouding or opacification of the lens of the eye
	• Congenital cataract is present at birth
	• Either one eye or both eyes may be affected
	• Because a cataract in a baby may cause amblyopia, it is much more serious than a cataract in an adult
	• Common signs of congenital cataract are:
	  ○ A cloudy, milky appearance of the lens
	  ○ A black spot in the red reflex of the eye when you are looking at the eye with a torch.

PREVENTION OF CHILDHOOD BLINDNESS	**Refer** • Urgently any child you think has a cataract, glaucoma or retinoblastoma. **Educate** • Hereditary conditions are passed in the genes from parent to child • If a child has a hereditary disorder, we should educate parents to watch out for similar signs in their other children. **Advocate** • For resources for education about hereditary eye disorders.

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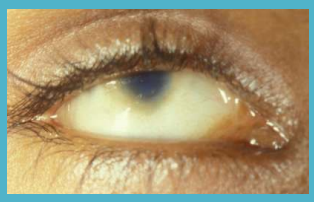
CONDITIONS THAT OCCUR DURING PREGNANCY

DESCRIPTION 	• Maternal health can impact the development of the baby • The mother's lifestyle can affect the weight and health of a newborn baby • Factors such as the mother's immunisation status, smoking, alcohol intake and nutrition can all affect the development of the baby during pregnancy.
ALCOHOL Coloboma of the iris (note how the pupil is not round and is not in the centre of the iris) *[photo courtesy of Clare Gilbert – ICEH]*  Microphthalmos (small eye) *[photo courtesy of Clare Gilbert – ICEH]*	• Alcohol can cause permanent damage to the cells of a developing baby • It can affect the development of the baby in the womb, which can lead to birth defects, learning disabilities and life threatening conditions • If the mother drinks large amounts of alcohol during pregnancy, this can cause several disorders in her unborn baby, including: ○ Optic nerve damage ○ Strabismus (turned eye) ○ Coloboma of the iris (the iris is not fully formed so the pupil is not round) ○ Microphthalmos (small eye) ○ Miscarriage / premature birth ○ Learning difficulties.

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SMOKING
 	
Squint
[photo courtesy of Murray McGavin: ICEH]
	• Smoking allows harmful chemicals to enter the bloodstream
	• If a mother smokes during pregnancy, these harmful chemicals are passed on to her unborn baby
	• These chemicals shrink the blood vessels, reducing the amount of oxygen and nutrients that can reach the baby
	• Smoking during pregnancy can cause a restriction in the baby's growth – which will lead to a lower birth weight and a baby more prone to becoming ill after birth
	• Smoking during pregnancy can also increase the chances of the baby having:
	  ○ Strabismus (eye turn)
	  ○ Asthma or respiratory problems
	  ○ Childhood cancers
	  ○ Facial abnormalities (e.g. cleft palate or cleft lip)
	• If a mother smokes during pregnancy, there is also a higher risk of:
	  ○ Spontaneous abortion (miscarriage)
	  ○ Stillbirth
	  ○ Premature birth.

RUBELLA
 	
Rubella cataract
[photo courtesy of Allen Foster and Murray McGavin: ICEH]
	• Rubella is a viral infection
	• Also known as German Measles
	• When a pregnant woman contracts rubella, she can pass the infection on to her unborn baby
	• This is particularly problematic if it occurs during the first trimester (i.e. the first three months of pregnancy)
	• Many pregnant women who contract rubella will have a miscarriage, or a still born baby
	• Rubella may also cause premature births or low birth weight
	• Women who have been vaccinated against rubella are much less likely to contract the disease
	• Babies born with rubella can have several disorders, including:
	  ○ Cataract
	  ○ Microphthalmia (small eye)
	  ○ Congenital heart disorders
	  ○ Hearing loss or deafness.

PREVENTION OF CHILDHOOD BLINDNESS	**Refer** • Mothers for pre- and post-natal care • Any child you think has a vision problem, eye problem or cataract.

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	Educate • Women in the community about the importance of not smoking and limiting alcohol consumption during pregnancy • The community on the importance of immunisation, especially for measles and rubella. **Advocate** • For affordable and accessible immunisations for young women • For quit smoking campaigns and supportive resources in your community.

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CONDITIONS THAT OCCUR AT BIRTH

DESCRIPTION	• Some eye disorders can occur at birth • This can be because the disease is passed on from mother to child during child birth • Or it can occur due to premature birth.
RETINOPATHY OF PREMATURITY (ROP) New blood vessels in the retina due to ROP *[photo courtesy of Anna Ells: ICEH]*	• The retina of an unborn baby develops mostly between weeks 28 and 40 of pregnancy • If a baby is born prematurely, the blood supply to the retina may not yet be fully developed • When this happens, new, abnormal blood vessels can grow throughout the retina – this is called retinopathy of prematurity (ROP) • These new blood vessels are fragile and can leak – which can lead to retinal detachments and blindness • ROP usually occurs in both eyes • Premature babies (born before 32 weeks gestational age) or low birth weight babies (less than 1500 g birth weight) are at high risk for developing ROP • Due to the increased rate of survival of low birth weight children, ROP is becoming more common.

CONJUNCTIVITIS OF THE NEWBORN (neonatal conjunctivitis)
 	
Pus and swollen eyelids in newborn conjunctivitis
 	
[photo courtesy of Harjinder Chana: ICEH]
	• Blocked tear ducts may cause conjunctivitis in a newborn baby
	• Neonatal conjunctivitis can also be caused by infection
	• During childbirth, bacteria and viruses in the mother's vagina can cause conjunctivitis in the baby
	• Even if a mother has no symptoms, she may still carry bacteria or viruses that can cause conjunctivitis
	• Conjunctivitis in a baby is very serious as it can cause blindness
	• Conjunctivitis in the newborn usually affects both eyes
	• The conjunctivitis typically develops between one day and two weeks after birth
	• If infectious conjunctivitis in a newborn baby is not treated, it can spread and be fatal
	• Babies with neonatal conjunctivitis will usually have:
	  ○ a lot of pus
	  ○ swollen, red and tender eyelids
	  ○ watery, bloody discharge.

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PREVENTION OF CHILDHOOD BLINDNESS	**Refer** • All pregnant women for pre- and post-natal care • Urgently, any baby you suspect of having retinopathy of prematurity or conjunctivitis of the newborn. **Educate** • Women in the community on the importance of pre- and post-natal care • The community about the importance of having sexually transmitted diseases diagnosed and treated. **Advocate** • For access to pre- and post-natal care for pregnant women.

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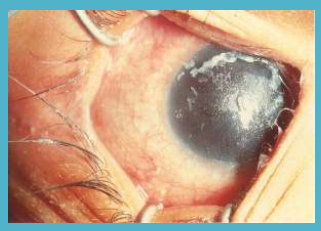
CONDITIONS THAT OCCUR DURING CHILDHOOD

DESCRIPTION	• There are many factors during childhood that can cause vision loss or blindness • Diet, injury, environment and poor access to health care services can all impact the development and vision of a child's eyes.

VITAMIN A DEFICIENCY
 
Dry rough patches on the cornea
 	
Bitot's spots on the conjunctiva
[photos courtesy of the WHO]
	• Vitamin A helps to keep our eyes, bones and skin healthy
	• We get vitamin A from the food we eat, such as liver, milk, eggs, fresh fruit and vegetables
	• Vitamin A deficiency means there is not enough vitamin A in the body
	• Vitamin A deficiency can occur when:
	  ○ A person does not eat enough foods containing vitamin A
	  ○ A person's body is unable to absorb the vitamin A that is eaten
	  ○ A person uses all the vitamin A stored in the body (for example during pregnancy or measles)
	• Young children and mothers who have just given birth are most at risk of vitamin A deficiency
	• The effects of vitamin A deficiency are more severe in children and young people – if it is not treated it can cause growth problems, blindness, infections and even death
	• Although vitamin A deficiency can be very serious, it is easily treated
	• Someone with vitamin A deficiency will complain of:
	  ○ Problems with night vision and dark adaptation
	  ○ Dry eyes
	  ○ Watery eyes
	  ○ Light sensitivity
	• When you examine the eyes of somebody with vitamin A deficiency, you might see:
	  ○ Dry, rough patches on the cornea
	  ○ Xerophthalmia – drying, hardening and thickening of the cornea and conjunctiva
	  ○ Bitot's spots: cheesy or foamy spots on the bulbar conjunctiva, which can be wiped off
	  ○ Corneal ulcers – which are painless, but they can lead to corneal scarring and cause blindness.

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TRACHOMA

Lumps on the everted eyelid due to trachoma – a disease which can be spread by flies

[photo courtesy of Hans Limburg: ICEH]

- Trachoma is a bacterial infection of the eye that can cause complications – including blindness
- It is the most common cause of infectious blindness
- Trachoma is associated with poor personal and community hygiene
- It is common in poor, rural communities with:
  - overcrowding and limited access to rubbish removal services
  - poor hygiene and sanitation – especially poor face and hand washing
  - limited access to clean water
  - limited access to health services
- The early stages of trachoma are most often seen in young children, mostly under five years old
- A child with trachoma may have:
  - watery eyes
  - photophobia (light sensitivity)
  - swollen eyelids
  - follicles (lumps) on the conjunctiva of the eyelid (you will need to evert the eyelid to see this)
  - scar tissue on the conjunctiva of the eyelid
  - trichiasis (the eyelashes turn inwards and scratches the eye)
  - corneal scarring
- Trachoma is very contagious, and is easily spread from person to person
- Children usually get re-infected over and over again, which causes scarring of the upper lid conjunctiva
- This scarring of the upper eyelid which can eventually cause the eyelid and eyelashes to turn inwards, towards the eyeball
- If the eyelashes turn in on the cornea, the cornea becomes scarred from the scratching of the lashes and infection – which can lead to vision loss and blindness in the long term.
- The WHO proposes the SAFE strategy for trachoma control:
  - **S**urgery (to correct advanced stages of the disease)
  - **A**ntibiotics (to treat active infection)
  - **F**acial cleanliness (to reduce disease transmission)
  - **E**nvironmental improvement (to increase access to clean water and improved sanitation).

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TRADITIONAL EYE MEDICATIONS
 	
	• Traditional eye medications are medications that are given by a local healer, family member or member of the community
	• People often use traditional medications before seeking other treatment, especially because medical treatment can be expensive or difficult to access
	• Using traditional medications in the eyes can be dangerous, as some traditional remedies can damage the eye
	• For example:
	  ○ Powders made from plants can cause infection
	  ○ Hot medications can burn the eye
	• The use of traditional eye medications can lead to:
	  ○ Infection
	  ○ Corneal scarring
	  ○ Blindness
	• Even if the traditional medication does not damage the eye, it can still be harmful if it delays a person from getting the correct treatment
	• If a disease is contagious (like trachoma or measles), the delay in getting effective treatment can mean that many people in the community are infected
	• If the problem is caused by an underlying health problem (such as Vitamin A deficiency), the delay in getting the right treatment can even cause death.

CORNEAL OPACITIES
 	
Corneal scar
[photo courtesy of ICEH]
	• Corneal opacities occur when the cornea is damaged and scarred
	• Corneal opacities can cause vision loss or blindness – because the cornea must be clear to allow light to get through to the retina
	• Corneal opacities can be caused by many things such as:
	  ○ Infection (trachoma)
	  ○ Poor nutrition (Vitamin A deficiency)
	  ○ Use of traditional eye medications
	  ○ Trauma to the eye.

REFRACTIVE ERROR *(photo courtesy of Clare Gilbert ICEH)*	• Refractive error happens when light does not focus correctly on the retina • An eye has refractive error if it is not the correct size and shape • A child that has refractive error will have eyes that look normal; however they will not see well • A person who has refractive error requires spectacles to see clearly • If left uncorrected, refractive error can lead to amblyopia and visual impairment • It is very important that any child you suspect cannot see well is referred – even if you think the eyes look normal.

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CHILD ABUSE	• Child abuse is the mistreatment of children. This can be physical, emotional, sexual or neglect.
	• Major risk factors for child abuse include:
	  ○ Parents that were abused as children
	  ○ Alcoholism
	  ○ Drug abuse
	  ○ Lack of education
	  ○ Poverty
	• A child that has been abused may have:
	  ○ Blunt trauma to the eye (e.g. a black eye)
	  ○ Sub-conjunctival haemorrhage
	  ○ Bruises
	  ○ Burns
	  ○ Retinal detachment
	  ○ Multiple injuries
	• It is very important that any child that you suspect of being abused is referred to a medical professional
	• If child abuse continues, it can result in death
	• If one child in a family is being abused, it is likely that other children in the same family will be affected.

PREVENTION OF CHILDHOOD BLINDNESS	**Refer**
	• Any child you suspect of having Vitamin A deficiency, trachoma, uncorrected refractive error or being abused.
	
	Educate
	• Your community about:
	  ○ dangers of using traditional medications
	  ○ the importance of a healthy diet
	  ○ importance of immunisation
	  ○ living in a clean environment to stop disease from spreading
	  ○ importance of hand and face washing to prevent disease
	  ○ recognising the signs child abuse
	
	Advocate
	• For easily accessed, affordable, high quality health care in your community
	• For immunisation in your community
	• For access to clean water and community controlled sewage and garbage removal
	• For easy access to social and family services to provide support to parents, children and families.

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ASSESSING CHILDREN'S VISION

- We need to assess a child's vision differently to the way we do for adults
- Small children cannot talk to us, so they cannot tell us what is wrong
- Children also do not always know what is 'normal', so they often are not aware and do not tell us that they have a problem
- Small children cannot read, so we cannot use a conventional visual acuity chart, and must find other ways of finding out how well they see
- Small children also become bored easily, and do not always cooperate with us during an eye examination
- To get the best results we can, we use different tests on children – which can get more complex as they get older.

TIPS FOR EXAMINING A CHILD'S EYES

Language

- Tell the child what you will do in a language that they will understand
- A child that understands what you will do and is not scared of being hurt and will be a lot easier to test than a child who is screaming and terrified!

Work quickly

- Children get bored easily
- If a child gets tired, bored or starts to cry, end the examination if you can and ask the parents to come back another time when the child feels better
- However, you should not do this if you suspect the child has something wrong with their eyes, or if the family has travelled a long way to see you.

Keep it fun

- Treat each test like a game with the child
- If the child is having fun, they are more likely to be cooperative.

Use mum and dad

- Children will usually present with a parent or family member
- By using the family members during the eye examination, you will help the child to feel comfortable with what you are doing
- For example, if a child is scared of a test (say ophthalmoscopy), demonstrate the test on mum or dad before performing it on the child – that way, mum and dad can help to reassure the child that it doesn't hurt.

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BABIES' EYES

Visual acuity: *Newborn*

- If you show a baby a toy or a bright light, they should be able to look at it, and then follow it if you move it across the baby's field of vision
- Try and do this with each eye, getting mum or dad to cover the other eye
- If a baby has poor vision in one eye, they will often cry when you cover the good eye
- If the baby cries or screams when you cover one eye, but not the other, this can be a strong sign that there is something wrong.

Visual acuity: *3 to 7 months*

- If you show a baby a toy, they should be able to reach towards it
- Eye movements should move smoothly and the eyes should be able to move in all directions

Visual acuity: *7 to 12 months*

- A baby 7-12 months old should be able to move objects and look at the result
- Should be able to watch movements and play looking games
- Should be able to copy other people's facial expressions and large body movements

Red Reflex:

- Check the red reflex with a pen torch
- Look for dark spots in the red reflex, or for a white or cloudy pupil

Hirschberg test:

- Check the corneal reflexes with a pen torch to make sure the eyes are straight and aligned
- The corneal reflections should be in or very close to the centre of each pupil and the eyes should be straight
- If there is a squint in one eye, the corneal reflex will not be in the same part of the pupil in each eye.

External examination:

- Use a pen torch to look at the eyes and areas around the eyes
- Look closely at the eyelashes and eyelids, for pus, watery eyes or lumps
- Make sure that the eyelashes turn away from the eye and are not scratching the eye.

Reflexes:

- A baby should be able to turn their head to see a light
- Quickly bring your hand close to the baby's eyes, and see if they blink
- Shine a bright light into the baby's eyes and see if they blink.

Referral:

- A baby that is born more than 3-5 weeks early and/or less than 2 kgs, they should be screened for retinopathy of prematurity within 2-4 weeks and up to 7 weeks, or at least once between 6-7 weeks.

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CHILDREN AGED 1 TO 3 YEARS

You should try to complete all the baby tests described above (except for the reflex tests), as well as the following:

Visual acuity

- A small child should be able to pick up a small ball rolled towards them
- They should also be able to pick up small objects (like small stones or paper clips) off the floor
- If you do this test, however, you need to make sure the child does not try to swallow the objects.

Pupils

- At this age you should be able to test pupil reactions as well
- A small toy will help to keep the child's attention as you check pupil reactions.

CHILDREN AGED 3 TO 4 YEARS

You should try to complete all of the baby tests (except for the reflex tests) described above, as well as the following:

Visual Acuity

- Above 3 years old, a child should be able to match a shape on a card to the shape on the visual acuity chart you are pointing at
- The child may get bored, so make sure you work quickly.

Colour vision

- If you have a colour vision testing book, the child may be able to do the trace plates at the back of the book.

OVER 4 YEARS

You should try to complete all of the baby tests (except for the reflex tests) described above, as well as the following:

Visual acuity

- Children over 4 years old should be able to complete the Tumbling E visual acuity test.

Ophthalmoscopy

- At this age you should be able to view the fundus using an ophthalmoscope
- You may not be able to view the peripheral fundus, however you should be able to look at the optic disc and macula.

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SUMMARY – CHILDHOOD BLINDNESS

CHILDHOOD BLINDNESS

- Caused by preventable and treatable conditions
- 40% of the causes of childhood blindness are treatable or preventable
- WHO definition of blindness in children is presenting visual acuity in the better eye of less than 3/60
- WHO definition of visual impairment in children is presenting visual acuity of less than 6/12.

HEREDITARY DISEASES

- Hereditary diseases are passed in the genes from parent to child
- If a child has a hereditary disease, other children of the parents are more likely to have the same condition
- Retinoblastoma is a form of cancer of the retina that usually develops before the age of 5 years of age and can be fatal
- Congenital glaucoma occurs when aqueous does not drain properly from the eye due to the improper development of the drainage system of the eye
- Congenital cataract in a baby is much more serious than cataract in an adult, as a cataract in a baby may cause amblyopia.

CONDITIONS THAT OCCUR DURING PREGNANCY

- Factors such as the mother's immunisation status, smoking, alcohol intake and nutrition can all affect the development of the baby during pregnancy
- Alcohol can affect the development of the baby in the womb, which can lead to birth defects, learning disabilities and life threatening conditions
- Smoking during pregnancy can cause a restriction in the baby's growth; this will lead to a lower birth weight and a baby more prone to becoming ill after birth
- When a pregnant woman contracts the rubella virus during the first trimester, this can lead to blindness and other serious complications for the unborn baby
- The community needs to be educated on the importance of immunisation, not smoking and limiting alcohol consumption during pregnancy.

CONDITIONS THAT OCCUR AT BIRTH

- Certain eye disorders can occur at birth, either from being passed on from mother to child during labour, or can occur due to premature birth
- Retinopathy of prematurity (ROP) occurs when the baby is born prematurely, before the blood supply to the retina has fully developed – which causes new, fragile retinal vessels to form
- These new blood vessels are fragile and can leak, which can lead to retinal detachments and blindness
- Conjunctivitis in a baby is very serious as it can cause blindness. If the infection is not treated, it can spread and be fatal
- Educate the women and the community of the importance of pre- and post-natal care and having sexually transmitted diseases diagnosed and treated.

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CONDITIONS THAT OCCUR DURING CHILDHOOD

- Diet, injury, environment and poor access to health care services can all impact the development and vision of a child's eyes
- Vitamin A deficiency occurs when there is not enough vitamin A in the body
- Vitamin A deficiency is very serious; if it is not treated it can lead to blindness or death
- Trachoma is very contagious and children can be re-infected over and over again
- The constant re-infection causes scarring of the upper eyelid conjunctiva – which can lead to trichiasis, corneal scarring, and blindness
- Traditional eye medications are medications that are given by a local healer, family member or member of the community
- These traditional eye medications can be dangerous, as some traditional remedies can damage the eye
- Corneal opacities occur when the cornea is scarred – this can cause vision loss or blindness as the cornea must be clear to allow light to get through to the retina
- A child that has refractive error will have eyes that look normal, but they will not see well
- A person who has refractive error requires spectacles to see clearly
- If left uncorrected, refractive error can lead to amblyopia and visual impairment
- Child abuse is the mistreatment of children. This can be physical, emotional, sexual or neglect
- It is very important that any child that you suspect of being abused is referred to a medical professional
- The community needs to be educated on:
  - dangers of using traditional medications
  - importance of a healthy diet
  - importance of immunisation
  - living in a clean environment to stop disease from spreading
  - importance of hand and face washing to prevent disease
  - recognising the signs of child abuse.

ASSESSING CHILDREN'S VISION

- We need to assess children's vision differently to the way we do it for adults
- Babies and small children can't read, they can't tell us if something is wrong and they get bored easily
- When examining a baby or small child:
  - talk to them make and them feel comfortable
  - work quickly
  - make it fun
  - obtain help from mum and dad.

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TEST YOURSELF QUESTIONS

1. **Name three hereditary conditions that can cause childhood blindness:**
   a. _____
   b. _____
   c. _____

2. **What is the most common sign you will see in a baby with retinoblastoma?**
   _____

3. **Name three conditions associated with a baby whose mother contracted rubella during the first trimester of pregnancy:**
   _____
   _____
   _____

4. **What might you see in a baby whose mother drank a lot of alcohol during pregnancy?**
   _____
   _____
   _____

5. **Name three possible causes of a corneal scarring:**
   _____
   _____
   _____

6. **What are some tests you would perform to examine the eyes of a child who is 2 years old?**
   _____
   _____

7. **Why can it be dangerous for people to use traditional medicines for their eyes?**
   _____
   _____
   _____

8. **Why do we typically see a higher incidence of trachoma in poor communities?**
   _____
   _____
   _____

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