

# **VISUAL STANDARDS AND BLINDNESS**

**DR SAMINA  
AP OPHTHALMOLOGY**

# VISUAL STANDARDS

- Many occupations and activities require people to have particular levels of vision.
- For which we require certain visual standards.
- Visual standards are needed for personal and public safety.
- What professions require visual standards?
  - Motor vehicle drivers
  - Train operators
  - People in the maritime industry
  - Metropolitan Ambulance
  - People in the aviation industry
  - Defence Force and Federal Police
  - Metropolitan Fire and Emergency Services

- Visual standards are also required for
  - Operators of Cranes and forklifts
  - Laser users
  - People involved in motor sports
- Visual standards are used by
  - General Practitioners
  - Medical Specialists
  - Optometrists
  - Psychologists
  - Physiotherapists
  - Occupational therapists

- So Vision standard is define as

**the minimum expected level of vision that is required for the efficient and safe performance of tasks of an individual at the workplace.**

# TESTS FOR VISUAL STANDARD

- Visual acuity
- Colour vision
- Visual field
- Binocular function

# VISUAL ACUITY

- A measure of how clearly you can see
- Measured with a letter chart at a distance (usually 6m)
- Decreased by refractive error, cataract, etc

# COLOUR VISION DEFECTS

- Most commonly red/green
- 8% of males, 0.5% of females
- Affects
  - colour discrimination,
  - colour matching and career choices

# VISUAL FIELD

- A measure of how well you can see with your side vision
- Decreased with eye disease
  - Glaucoma
  - Retinitis Pigmentosa
- Computerised test



# BINOCULAR VISION

- Two eyes work together for full depth perception or “stereopsis”.
- Glasses can help eyes focus equally



**BLINDNESS**

# DEFINITIONS

- There are 4 levels of visual function, according to the International Classification of Diseases.
- NORMAL VISION
- MODERATE VISUAL IMPAIRMENT
- SEVERE VISUAL IMPAIRMENT
- BLINDNESS.

# NORMAL VISION

- Visual acuity is usually measured with a Snellen chart.
- The Snellen chart displays letters of progressively smaller size.
- "Normal" vision is 20/20.
- This means that the test subject sees the same line of letters at 20 feet that a normal person sees at 20 feet

# GENERAL CONCEPT OF LOW VISION AND BLINDNESS

- **Low vision**
- Best corrected visual acuity in the better eye less than 6/18 and/or visual field less than 20 degree from the point of fixation.
- **'Blindness'**
- **defined** as the best corrected visual acuity in the better eye less than 3/60, and/or visual field less than 10 degree from the point of fixation.

# WHO CLASSIFICATION/CRITERIA FOR BLINDNESS

SN	Visual acuity (Snellen notation)	Classification	Grading
1	$\geq 6/18$	Normal/Near Normal	NORMAL
2	$<6/18- 6/60$	Moderate VI	LOW VISION
3	$<6/60-3/60$	Sever VI	
4	$<3/60-PL$	Legally Blind	BLINDNESS
5	NPL	Blind	

# MAGNITUDE OF PROBLEM

- Estimated 180 million people are visually disabled, nearly 45 million

blind, 4 out of 5 living in developing countries.

# TYPES OF BLINDNESS

- Economic Blindness
- Social Blindness
- Manifest Blindness
- Absolute Blindness
- Curable Blindness
- Preventable Blindness
- Avoidable Blindness



- **Visual Acuity**:- Sharpness of vision, measured as maximum distance a person can see a certain object, divided by the maximum distance at which a person with normal sight can see the same object.
- **Economic blindness**:- – Inability of a person to count fingers from a distance of 6 meters or 20 feet.

- **Social blindness:-**
  - Vision 3/60 or diminution of field of vision to 10 degrees
- **Manifest blindness:-**
  - Vision 1/60 to just perception of light.
- **Absolute blindness:-**
  - No perception of light
- **Curable blindness:-**
  - That stage of blindness where the damage is reversible by prompt management e.g. cataract
- **Preventable blindness:-**
  - The loss of vision that could have been completely prevented by institution of effective preventive or prophylactic measures.

# LEGAL BLINDNESS

- Is a level of vision loss that has been legally defined to determine eligibility for benefits.
- The clinical diagnosis refers to a central visual acuity of 20/200 (3/60) or less in the better eye with the best possible correction, and/or a visual field of 20 degrees or less.

# GLOBAL CAUSES OF BLINDNESS

- Cataract ,
- Glaucoma
- DM
- Vascular disease
- Accidents & degeneration of ocular tissue
- Leading causes of childhood blindness
  - Xerophthalmia,
  - congenital cataract,
  - congenital glaucoma &
  - optic atrophy.

# EPIDEMIOLOGICAL DETERMINANTS

- **Age:** ◦
  - In children & young:
    - Refractive error,
    - trachoma,
    - conjunctivitis,
    - malnutrition.
  - In adults:
    - cataract,
    - refractive error,
    - glaucoma,
    - DM
- **Sex:** ◦
  - Higher prevalence of trachoma, conjunctivitis and cataract in women leading to higher prevalence of blindness in women

- **Malnutrition:** ◦

- Infectious diseases of childhood especially measles & diarrhoea
- Severe blinding corneal destruction due to vit.A deficiency in first 4 to 6 years of life.

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- **Occupation:** ◦

- People working in factories, workshop, industries are prone to eye injuries because of exposure to dust, airborne particles, flying objects, gases, fumes, radiation.

- **Social class:** ◦

- Surveys indicate that blindness twice more prevalent in poorer classes than in the well to do.

- **Social factors:** ◦

- Basic social factors are ignorance, poverty, low standards of personal and community hygiene and inadequate health care services.

# PREVENTION OF BLINDNESS

- The components for action in national programmes for the prevention of blindness comprise the following
- **Initial assessment**
- **Methods of intervention**
  - primary eye care
  - secondary care
  - tertiary care
- **Long term measures**



# METHODS OF INTERVENTION

- **Primary care**
- Wide range of eye conditions can be treated or prevented at grass root level by locally trained health workers who are first to make contact with the community.
- They are also trained to refer the difficult cases to the nearest PHC or district hospital.
- Their activities also involve promotion of personal hygiene, sanitation, good dietary habits and safety in general.

- **Secondary care:**

- Involves definitive management of common blinding conditions as cataract, trichiasis, entropion, ocular trauma, glaucoma.
- It is provided in PHCs and district hospitals where eye depts are established.
- May involve the use of mobile eye clinics

- **Tertiary care**

- Established in the national or regional capitals and are often associated with medical colleges and institutes of medicine.
- Provide sophisticated eye care such as retinal detachment surgery, corneal grafting which are not available in the secondary centres.
- Other measures of rehabilitation comprise education of blind in the special schools & utilisation of their services in the gainful employment

# **SPECIFIC PROGRAMMES FOR CONTROL OF BLINDNESS**

- Trachoma control
- School eye health services: Screening and treatment , Health education
- Vit.A prophylaxis
- Occupational eye health services

# LONG TERM MEASURES

- Aimed at improving quality of life and modifying the factors responsible for eye problems.
- Poor sanitation
- Lack of adequate safe water supply
- Poor nutrition
- Lack of personal hygiene

# VISION 2020

- The Right to Sight is the global initiative for the elimination of avoidable blindness, a joint programme of the World Health Organization (WHO) and the International Agency for the Prevention of Blindness (IAPB).
- It was launched in 1999 to promote: “A world in which nobody is needlessly visually impaired, where those with unavoidable vision loss can achieve their full potential.”

**Thanks**