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## CHAPTER 10

### CONTRIBUTION OF THE OPHTHALMIC NURSE IN THE IDENTIFICATION AND MANAGEMENT OF VISION DISORDERS IN INCLUSIVE SCHOOLS

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#### **Introduction**

Ophthalmic Nursing provides a setting for ophthalmic nurses roles.-It helps the nurses to understand how the eye functions, why and how problems occur and relate them to the care and needs of the people with eye/vision challenges.(Shaw & Lee, 2018)

Ophthalmic nurses advise patients about their eye health, eye drops and how to manage their well-being. Therefore individuals with eye/vision challenges along with their families are cared for before, during and following procedures, eye examinations and treatments by ophthalmic nurses.Ophthalmic nurses therefore play some important roles in global eye health delivery, prevention of disease, eye health promotion, diagnosis and treatment, low vision and rehabilitation, and referral of patients as may be needful (Adeyemo et al., 2020). It is important to note that ophthalmic nursing is evolving and dynamic to meet the increasing demand of patients and the ophthalmic profession.

Vision disorders are the causes of blindness and low vision which include myopia, astigmatism, hyperaemia, cataract, glaucoma, diabetic retinopathy and macular degeneration among others (Center for Disease Control and Prevention (CDCP), 2020). Department of Health, New York (2012), further stated that vision disorders may also include strabismus (crossed-eyes), amblyopia (lazy eye), and refractive errors which are most common in children and pose as vision problems.

Inclusive schools can be described as the provision of equal opportunities and access for all students to education and learning (UNICEF, 2020). Inclusion is a state of being made a part of something. Therefore, inclusive education is a process of teaching and learning that includes everyone, with persons of special needs among those without special needs (UNICEF, 2020). The Concept of this philosophy urges that schools, neighbourhoods, and communitiesshould value and welcome every individual irrespective of differences, as everyone belongs, a diversity is valued and promotes interactive learning (UNICEF, 2020).

An inclusive classroom features students of all learning styles and ability levels such as a class having a person with auditory learning needs, visual learning needs, student on wheel-chairs and gifted students all in a mix (Eredics, 2019).



There are various vision disorders that could be diagnosed identified and managed by well-trained ophthalmic nurses in an inclusive school setting which goes a long way to aid early detection and treatment of ocular problems that would have become complicated if the nurse was not there early enough.

Inclusion starts with the heart that every child should have equal access to education and should learn alongside their peers. There are several justifications for inclusive education which value input and participation from the whole community, not just the students, but everyone being worthy of inclusion based on improved resources and assistive technology. The support from students, special need teachers, speech/language specialists, and para professionals such as ophthalmic nurses help learners and promotes quality education (Eredics, 2019).

Learners have the ability to interact with one another in the class, the teachers with specialized skills determine appropriate student centred curriculum through differentiated activities based on ability (Eredics, 2019).

This chapter discusses the roles of an ophthalmic nurse in the inclusive school, identification of vision disorders, training teachers on how to test vision, types of vision disorders, management of vision disorders, as well as inclusive school, recommendation and conclusion.

### **The Roles of an Ophthalmic Nurse in inclusive school**

Ophthalmic nurses have to engage in different tasks each day in order to meet the expectations and needs of patients. The ophthalmic nurse is a specialist who has undergone basic general nursing training and further acquires specialized post-basic training in ophthalmics for eye care. Post qualification, the ophthalmic nurse is registered and licensed by the Nursing and Midwifery Council nationally and internationally for global eye care services. Ophthalmic nurses play significant roles in eye care delivery, this may include eye health promotion, disease prevention, low vision and rehabilitation, diagnosis and treatment (Adeyemo et al., 2020).

The ophthalmic nurse as a health expert has an important role to play in an inclusive school. Her roles include evaluating the school children ' health status, impacts of their health conditions on their learning processes and to guide professionally what steps to be taken to minimize learning challenges among students with special needs. This is supported by Cluskey & Schwend (2015), who stated that Ophthalmic nurses provide leadership in promoting a healthy and safe school environment, collaborating between school and family in management of the student with visual impairment.

It is the duty of the ophthalmic nurse in inclusive schools to identify and refer students with visual impairment that require modification in their learning styles (Yorkaitis & Shannon, 2017). Ophthalmic nurses can refer students with special needs to inclusion schools and essential community resources while meeting the actual and potential needs of all students along those with special needs.



The primary responsibility of the ophthalmic nurse in schools is to facilitate effective education of students through emphasizing the importance of eye health as well as providing eye care services for students. The students' general health status as well as visual function are directly related to the ability to learn effectively at school and in their homes (Cluskey & Schwend, 2015). Further, the ophthalmic nurse do provide health education and guidance to the school staff and students in inclusive education settings through provision of information either at group or individual levels. This is a crucial role in an ideal programme of comprehensive health services to school children or students. Provision of eye health in inclusive education settings require identification and management of eyes challenges that may be necessary to enable them fit-in properly and perform satisfactorily in their academic endeavours.

### **Identification of Vision Disorders**

The ophthalmic nurse is an essential member of educational team participating in the education, identification and monitoring of students who may be eligible to various services. The Individuals with disability Act 2004 and the Rehabilitation Act of 1973 as amended through the Americans with Disabilities Amendment Act (ADAA) in 2008 has provided that individuals with impairments must have comprehensive evaluation, multi-factorial and non-discriminatory assessment in the identification of challenges (Yorkaitis & Shannon, 2017). Furthermore, Heward (2015), opined that these team members which include the ophthalmic nurse must be qualified professionals who will conduct accurate examination to identify cases for management. The ophthalmic nurse in the school identifies health issues, outlines plans of care, bringing about nursing services and evaluates the effectiveness of the health and educational services provided to the students (Arnold et al., 2017).

The ophthalmic nurse can serve as a link between students with visual impairment and the educational communities. They can also connect students to important resources and staff by using their professional knowledge to assess and identify students who need inclusive education as well as those who have health, socio-economic or developmental issues that pose as risks for learning challenges and other school problems. The ophthalmic nurse do serve as specialized instructional support personnel who can provide disease management as part of a comprehensive plan of services for student's success (ESSA, 2015).

Schools are responsible for identifying, locating and evaluating all children with special needs regardless of severity. Schools also specify students who need special education. These functions can also be enhanced by the ophthalmic nurse who is part of the educational team. (American Academy of Paediatric Council of School Health, 2016). This is referred to as 'child find' and includes all children from birth to age 21. Children identified through child find can be eligible for inclusive education and other services.



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The ophthalmic nurse has to understand all laws related to working with persons with vision disorders and the like (Alfano et al., 2017). This is because such laws require license or credential prior to performing eye care/school services (Yorkaitis & Shannon, 2017). They assist in identifying students who may need special education, inclusive education or health related services (Child Find) (Gibbons-Lehr, & Selekman, 2013), as well as assessing the identified student's visual function and physical health status in collaboration with the student, parents/guardians, teachers and other social staff. The ophthalmic nurse develops inclusive education based plans on nursing assessments and recommends appropriate education and health care strategies for specific cases as may be required (Gibbons et al., 2013). There may be some need for the students, parents and teachers to be assisted by the ophthalmic nurse to identify and eliminate health related challenges in learning. In this light, the ophthalmic nurse may also identify treatable and non-treatable causes of vision disorders that may impede meaningful learning.

The ophthalmic nurse working in an inclusive school can observe and ask questions when a student is not able to see objects, such as the board (white or Black board), having difficulty learning to read or reading, not participating in class, unable to focus on or follow objects,, rub eyes persistently, squint often and many have red eyes, or is very sensitive to light (Hirsch, 2021). Students with visual impairment may also be seen tearing from the eyes while reading, bumping into objects or having visual loss which cannot be corrected or treated medically (use of eye medications), surgically, or with contact lens or glasses (low vision). They could have partial or complete vision loss (blindness). When identified, ophthalmic nurse might recommend that these students be offered special education programmes with purposeful involvement of teachers and parents.

Vision disorders can be caused by eye conditions like amblyopia (lazy eye) or strabismus (misaligned or crossed eyes), congenital or birth defects as well as brain injuries affecting the eyes. Inclusive education could be beneficial to these students through improvised classroom instructions backed up with relevant support services and assistive technologies., (Hirsch, 2021).

### **Training Teachers on how to Test Vision**

Vision can be tested by carrying out Visual acuity, Visual field or Colour vision (Rajak & Sandford-Smith, 2015), but for the purpose this chapter, only visual acuity will be discussed in details.

### **Visual Acuity**

Visual acuity (VA) test is an eye examination that checks how well you can see the details of a letter or symbol from a specific distance.

It is important to test the visual acuity in each eye separately, if possible. This is usually measured with a Snellen's chart, showing either letters, or pictures



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for persons who cannot read. If the vision is very poor, other tests are usually more appropriate.

Unfortunately, the method for recording visual acuity is rather complicated. Near each line on the chart is a small number. This number is the distance (in meters) at which a person with normal sight should be able to see that line. For example, a normal person can see the top letter at 60 meters, the second line at 36 meters, and so on. The person stands 6 meters away from the chart, and reads as much as he can.

If the person can only see the top letter of the chart, his vision is 6/60. If he can see as far as the second line, his vision is 6/36, and so on (the top number of the fraction is the distance between the patient and the chart. The bottom number is the number of the smallest line of letters the person can read). A person with normal sight should reach the line which is marked with a 6. This is 6/6 vision (normal vision).

If the vision is below 6/60 and the person cannot even see the top letter, he should come nearer the chart until he can see it. If he sees it at 2 meters, his vision is 2/60. If he can only see it at 1 metre, his vision is 1/60. Another method of testing people with poor vision is to ask the person to count fingers. The human finger is about same size as the top letter on the chart, and so counting fingers at 6 meters is about equal to 6/60 vision. Counting fingers (CF) at 1 metre distance is therefore the same as 1/60.

If the vision is below 1/60, the person may still be able to detect the movement of a hand in front of his eye. If not, the final test is to shine a light into his eye.

There are therefore 3 more categories: -

- i. HM- Hand movements can be seen in front of the eye
- ii. PL- Perception of a light shone into eye
- iii. NPL-No perception of light, or total blindness.

If there is perception of light, it is also important to test if the person can identify the direction the light is coming from. This is called projection of light. Good projection usually indicates that the retina and optic nerve are functioning normally. The defect is probably opacity in the cornea, lens or vitreous body, and is treatable. Poor projection of light indicates retinal or optic nerve disease, and is probably untreatable.

It is necessary to re-test any person with defective visual acuity through a pinhole. This minimizes any refractive errors. If the visual acuity improves when the person looks through a pinhole, it indicates an error of refraction, which spectacles can usually correct. If there is no improvement, then the loss of vision is from eye disease.

It is also a task which an assistant can easily be trained to do.

Interpretation of Visual Acuity (V/A)

The WHO (2021) classification of visual impairment and blindness

6/6 - 6/18 : Normal vision



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<6/18 - 6/60 : Visual impairment  
<6/60 - 3/60 : severe Visual impairment  
<3/60 - NPL : blindness

Blindness is defined as visual acuity of less than 3/60 in the better eye with the best possible correction.

### **Management of Vision Disorders**

The need of special students can be met in inclusive schools when every team member is determined to assist students achieve their maximum potentials (Heward, 2015). By addressing special needs and offering support when needed, students with vision disorders can learn as best as possible. To achieve this goal, it may be necessary to take certain actions such as making seat changes when necessary to enable students see better especially those with low vision.. Increased light source may be necessary. . This is because they are target by others who see them as different. The focus should be on the interests that students share. It is important to be mindful of bullying and create a policy that improves interaction and a zero tolerance for wrong behaviour.

The walkways should be kept open. It is important to make sure the classroom is easy to move through and free of obstacles. Students may need extra help around or in reaching things or places they could be referred to for orientation and mobility (Hirsch, 2021). Further, students should have knowledge about assistive devices, technology or other learning aids. Students with low vision can be taught how to use magnifiers for reading or read from large printed books. Audio-books are alsosome good alternatives. For those who cannot type, voice activated computers can help them do classwork. Teachers can allow verbal responses for assignments and tests to measure learning as well as have a plan for missed instruction, assignments and testing. students with a visual disorder may learn while visiting doctors, so it is necessary to arrange for it (Heward, 2015).

The team may ensure that educators pay attention to and meet the student's visual needs, for instance if a child requires glasses for a task, it will be ensured for the child to follow through and comply, where he or she fails the parents must be consulted (Giddens optometry, 2020).

The special need teachers should choose a teaching method that accommodates the vision needs of the student which may include use of block or dark coloured markers on the white board. Avoid bright coloured markers like orange, red, and yellow. While writing on the board say the words/numbers aloud to assist those who may have difficulty reading or seeing the text (Giddens optometry, 2021). There should be avoidance of languages that relies on vision heavily such as 'like this one' or 'over there'. It is necessary to be patient when a student with vision disorder stares off into space, this is a symptom of visual dysfunction, not merely lack of attention (Hirsch, 2021).

Visual skills are necessary for learning and where lacking, there should be an assessment and identification of what level of vision skills are lacking to



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determine the form or type of management needed for maximum learning, this is because 80% of classroom learning are vision based. For this reason, inclusion education, teaching and learning must be adapted to the vision skills or needs of the students. If this is not done students with low or no vision may lag behind their mates academically. It is not necessarily about visual acuity but visual skills. While visual acuity defines what an eye can see in comparison to a specific distance, visual skills rely on brain-eye communication. These vision skills include eye teaming, tracking, accommodation and focusing, of which are important for writing, proficient reading and reading comprehension (Gidden Optometry, 2020). However, these vision disorders can only be detected during functional visual examination by a specialist (Hirsch, 2021).

### **Types of Vision Disorders**

The common eye diseases that affect children or cause loss of vision are :cataract, trachonma, retinopathy of prematurity, night blindness, amblyopia, astigmatim, cortical visual impairment, glaucoma, paediatric ptosis, nystagmus, hyperopia (far-sightedness) and myopia (near-sightedness) (Agashe, 2021).

#### **Cataract**

This is the clouding of the lens of the eyes. Cataract is a condition that is important to detect and treat early in childhood to minimize the impact of vision loss on the child's development. It is a rare condition but can be treated successfully (American academy of paediatric ophthalmology, 2021).

#### **Trachoma**

It is a bacteria infection that affects both eyes. It causes roughening of the inner surface of the eyelids. Trachoma is caused by chlamydia trachomatis bacteria. The symptoms may include itching irritation to eyes and eyelids, discharge from eyes. It is a disease that can be treated easily but if not treated on time can cause blindness (Agashe, 2021).

Childhood blindness due to vitamin deficiency

Vitamin A deficiency is the leading cause of preventable childhood blindness, this condition can cause blindness in children in the developing world (WHO, 2021). A well balanced diet rich in vitamin A can prevent childhood blindness (Nazario, 2021).

#### **Retinopathy of prematurity (ROP).**

This is also known as retrolental fibroplasia. It is a disease of the eye affecting preterm or premature born babies. When a baby is born prematurely, the retina and its blood vessels are not fully developed. Scarring in the retina usually in both eyes follows this damage and can cause blindness (Lazarus, 2021).



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### **Amblyopia**

It is known as “lazy eye”. A condition in which the vision is reduced in an eye due to opacity in the refractive media of the eye or misplacement of the eye. If recognized early, it responds to treatment very well but if recognized late, it is difficult to treat and the child may experience permanent loss of vision (American Academy of Paediatric Pphthalmology, 2022).

### **Night-blindness**

Night blindness is the difficulty for the eyes to adjust in dim light due to deficiency of vitamin A. Individuals with night blindness have poor vision in darkness but see normally when adequate light is present (Lazarus, 2021).

### **Childhood tearing**

This is termed epiphora and presents with excessive tearing. It can be observed soon after birth but may occur later in life. In infancy it is usually due to the blockage of the drainage system (Agashe, 2021).

### **Glaucoma**

It is a disease resulting in damage to the optic nerve. Elevated pressure is the most common risk factor. Childhood glaucoma can be observed with symptoms such as enlarged eyes, sensitivity to light, excessive tearing and cloudiness (Lazarus, 2021).

### **Stye**

A stye is an infection of the eyelash follicle usually caused by bacteria, staphylococcus aureus. A stye looks like a red sore lump near the edge of the eyelid. It causes swelling of the surrounding eyelid and can be quite painful (American Academy of Paediatric Ophthalmology, 2022).

### **Conjunctivitis**

Conjunctivitis, is the inflammation of the conjunctiva. It presents with a pink or red eye. It has several causes such as bacteria, virus or allergy among others. It may present with fever and running nose in a child when the cause is virus (Lazarus, 2021).

### **Chalazion**

It appears as a small lump on the eyelid. It may occur when a meibomian gland (an oil secreting gland in the eyelid) becomes clogged. A chalazion can start out as a puppy seed and grow to the size of a pea. It can be on both eyes or on one eye and either on the lower or upper lid. It can happen more than once (Agashe, 2021). Unlike stye, it is painless.

### **Hyperopia (Far-Sightedness)**



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It is a condition where an individual can see distant objects more clearly than the near objects. It occurs infant or young children but it reduces as the eye grows. Some children may have higher hyperopia which can cause a constant blurry image in one or both eyes and prevent normal visual development (Agashe, 2021).

### **Nystagmus**

This is an involuntary rhythmic oscillation of the eyes. The eye movements can be side to side and up to down or rotary. It may be present at birth or acquired later in life (Nazario, 2022).

### **Ptosis (Drooping Eyelids)**

In children drooping of the eye lids is due to weakness of the muscles that elevate the eyelids. A droopy eye can block light passing to the retina in the back of the eye and or create significant astigmatism that produce a blurred image in the eye. These situations can lead to a lazy eye which if untreated results to further loss of vision (Nazario, 2022).

### **Myopia (Near-Sightedness)**

It is a condition where an individual can see near objects more clearly than distant objects. Excessive myopia leads to lazy eye (amblyopia) in children. Holding objects very close to the eyes and squinting is an indication of significant myopia (American Academy of Paediatric Ophthalmology, 2022).

There are several eye conditions that can impact the learning and teaching process As soon as they are identified by the ophthalmic nurse through early eye screening a referral is done for further evaluation, diagnosis and treatment by the ophthalmologist, educators, counsellors and rehabilitationist among others. It is important to note that early detection, diagnosis and treatment is very crucial to minimize the number of individuals with lifelong vision loss, visual impairment and blindness.

### **Inclusive School**

A supportive environment always plays a major role in the education of children with special needs. It is therefore important to note that inclusive school is where every child irrespective of their health status or handicapping condition, studies together with their regular counterparts ' in the same school environment with appropriate instructional materials and resource teachers made available for them.

For success to be achieved in an inclusive setting, teachers must be trained, right architectural structures put in place, and the support of multidisciplinary services sought including the services of ophthalmic nurses.



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## Recommendation

The ophthalmic nurse along with parents, eye doctors as well as special needs educators should work as a team to develop individualized educational and health programmes to help students with ocular challenges to attain their maximum potentials. Where every team member understands the goal of achieving maximum potentials, necessary actions are taken to support meaningful education of students with visual impairment in inclusive settings.

## Conclusion

Contributions of ophthalmic nurses to the education of the visually impaired school children in inclusive schools cannot be over emphasized. Their duties include identifying school children with vision challenges, providing necessary care for them and promoting eye health for school children through education and nursing services as well as evaluating the effectiveness of the eye care services and making referral where necessary.

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