

MODULE SPECIFICATION

Academic Year (student cohort covered by specification)	2026-27
Module Code	3409
Module Title	Childhood Blindness, Infectious and Non-Communicable Eye Diseases
Module Organiser(s)	Astrid Leck, Aesha Malik, Charles Cleland
Faculty	Infectious & Tropical Diseases
FHEQ Level	Level 7
Credit Value	CATS: 15 ECTS: 7.5
Term of Delivery	Term 2
Mode of Delivery	This module will be delivered predominantly via face to face teaching, complimented by online resources and learning activities, including field visits. There will be a combination of live and interactive activities (synchronous learning) as well as recorded or self-directed study (asynchronous learning).
Mode of Study	Full-time
Language of Study	English
Pre-Requisites	Previous experience in eye health care is advantageous
Accreditation by Professional Statutory and Regulatory Body	None
Module Cap (Indicative number of students)	25
Target Audience	This module is compulsory for MSc Public Health for Eye Care and open to students from other MSc programmes with the appropriate background. It is suitable for Ophthalmologists or those aspiring to pursue ophthalmology in their medical career; Optometrists; Researchers; Eye Care Programme Managers and other health workers involved in planning or delivery of eye care services.
Module Description	This module teaches students how to evaluate the evidence and propose control strategies for causes of blindness/low vision from infectious and non-communicable eye diseases, as well as causes of childhood blindness in a variety of global contexts.
Duration	5 weeks at 2.5 days per week
Timetabling slot	C2

Last Revised (e.g. year changes approved)	Both 3404 and 3403 module specifications had minor amendments in 2024 following a periodic review
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Programme(s)	Status
This module is linked to the following programme(s)	
MSc Public Health for Eye Care	Compulsory

Module Aim and Intended Learning Outcomes

Overall aim of the module
The overall module aim is to: Equip students with knowledge and skills to develop inclusive services for the control of blinding eye diseases in children, ocular infections and non-communicable eye diseases in different global contexts.

Module Intended Learning Outcomes
Upon successful completion of the module a student will be able to: - Describe the epidemiology and critically evaluate public health strategies for the control of conditions causing vision loss in children, focusing on low- and middle-income countries; - Describe the epidemiology and critically evaluate public health strategies for the control of ocular infections, focusing on low- and middle-income countries; - Critically evaluate the evidence on the epidemiology and public health strategies for the control of cataract blindness, and demonstrate understanding of strategies to monitor and evaluate cataract services including equity of access; - Critically evaluate the evidence on the risk factors and public health management of glaucoma, diabetic retinopathy, age-related macular degeneration and refractive errors, including the role of screening programmes in preventing blindness; - Synthesise evidence on the public health requirement for vitreo-retinal surgical services in different global contexts, particularly regarding retinal detachment and complications of diabetic retinopathy that need vitreo-retinal surgical interventions; - Critically evaluate the evidence on the magnitude, risk factors and inclusive strategies for management of low vision in different contexts.

Indicative Syllabus

Session Content

Non-communicable eye diseases

- Cataract pathophysiology, aetiology and epidemiology. Management options for cataract blindness and control strategies in specific settings.
- Glaucoma pathophysiology, aetiology and epidemiology. Management options for glaucoma and control strategies in specific settings.
- Diabetic retinopathy (DR) pathophysiology, aetiology and epidemiology. Management options for DR and control strategies in specific settings.
- Refractive Error (RE) pathophysiology, aetiology and epidemiology. Management options for RE control strategies in specific settings.
- Age-related Macular Degeneration (AMD) pathophysiology, aetiology and epidemiology. Management options for AMD and control strategies in specific settings.
- Principles of screening programmes and their application in non-communicable eye diseases.
- Low vision: epidemiology, management and control strategies. Low vision services.

Childhood Blindness

- The epidemiology and strategies for needs-prioritisation and control of potentially blinding eye diseases in children including the following conditions:
 - preventable conditions that can lead to corneal blindness e.g. vitamin A deficiency, measles infection, ophthalmia neonatorum and harmful tradition eye remedies;
 - treatable conditions that require early diagnosis and treatment e.g. cataract, retinopathy of prematurity and refractive errors;
 - management of children with low vision.

Ocular infections:

- The epidemiology and community control strategies of the following conditions:
 - Trachoma;
 - Microbial keratitis;
 - Onchocerciasis;
 - HIV/AIDS and associated infections and malignancies;
 - Infectious uveitis.

Teaching and Learning

Notional Learning Hours

Type of Learning Time	Number of Hours	Expressed as Percentage (%)
Contact time	75	50
Directed self-study	20	13
Self-directed learning	30	20
Assessment, review and revision	25	17
Total	150	100

Student contact time refers to the tutor-mediated time allocated to teaching, provision of guidance and feedback to students. This time includes activities that take place in face-to-face contexts such as lectures, seminars, demonstrations, tutorials, practical classes, project supervision as well as where tutors are available for one-to-one discussions and interaction by email. Student contact time also includes tutor-mediated activities that take place in online environments, which may be synchronous (using real-time digital tools such as Zoom or Blackboard Collaborate Ultra) or asynchronous (using digital tools such as tutor-moderated discussion forums or blogs often delivered through the School's virtual learning environment, Moodle).

The division of notional learning hours listed above is indicative and is designed to inform students as to the relative split between interactive (online or on-campus) and self-directed study.

Teaching and Learning Strategy
The teaching and learning strategy is a combination of face to face and online activities, with small group teaching and some self-directed Moodle based learning, augmented by field trips to give an insight into UK non-communicable eye disease management strategies.

Assessment

Assessment Strategy
The assessment for this module has been designed to measure student learning against the module intended learning outcomes (ILOs) as listed above. Formative assessment methods may be used to measure and promote students' progress towards these ILO. The grade for summative assessment(s) only will go towards the overall award GPA.
Summative assessment This will be in two parts:



Assessment Strategy

1. Presentation (50% weighting)

Students select one eye disease in children OR non-communicable eye disease OR one ocular infection (whichever disease or infection is selected must have been covered in the module), relevant to a situation of your choosing, and prepare a presentation regarding control of blindness from this cause for the Ministry of Health.

2. Applied Question papers (50% weighting).

A 180-minute short answer question paper will be structured to cover all ILO with questions on Ocular Infections, Childhood Eye Disease and Non-Communicable Eye Diseases.

Summative Assessment

Assessment Type	Assessment Length (i.e. Word Count, Length of presentation in minutes)	Weighting (%)	Intended Module Learning Outcomes Tested
Presentation	6 minutes for presentation with a further 4 minutes for questions	50	1-6
Applied Questions Timed Assessment	180 minutes	50	1-6

Resitting assessment

Resits will accord with [Chapter 8a](#) of the LSHTM Academic Manual

[The Resit assessment will be the same assessment type as the first attempt \(see previous table\).](#) Resit assessments of the Presentation should address a different eye condition to that from the first assessment.



Resources

Indicative reading list

Cataract

- Cicinelli MV, Buchan JC, Nicholson M, Varadaraj V, Khanna RC. Cataracts. Lancet 2023; 401(10374): 377-89
- Prasad M, Malhotra S, Kalaivani M, Vashist P, Gupta SK. Gender differences in blindness, cataract blindness and cataract surgical coverage in India: a systematic review and meta-analysis. Br J Ophthalmol 2020; 104(2): 220-224.
- Han X, Zhang J, Liu Z, Tan X, Jin G, He M, Luo L, Liu Y. Real-world visual outcomes of cataract surgery based on population-based studies: a systematic review. Br. J Ophthalmol 2022; Apr 11.

Refractive Errors

- Donaldson KE. The Economic Impact of Presbyopia. J Refract Surg 2021; 37 (S1): S17-S19.
- Mayo-Wilson E, Ng SM, Chuck RS, Li T. The quality of systematic reviews about interventions for refractive error can be improved: a review of systematic reviews. BMC Ophthalmol 2017; 17(1): 164



Age Related Macular Degeneration

- Wong WLS. Global prevalence of age-related macular degeneration and disease burden projection for 2020 and 2040: a systematic review and meta-analysis. *Lancet Global Health*. 2014;2(2):e106-e116-. doi:10.1016/S2214-109X(13)70145-1
- Lambert NG, Elshelmani H, Singh MK, et al. Risk factors and biomarkers of age-related macular degeneration. *Progress in Retinal and Eye Research*. 2016;54:64-102. doi:10.1016/j.preteyeres.2016.04.003

Diabetic Retinopathy

- *IDF Diabetes Atlas - 10th Edition*. <https://diabetesatlas.org/>.
- Hashemi H, Rezvan F, Pakzad R, Ansari pour A, Heydarian S, Yekta A et al. Global and Regional Prevalence of Diabetic Retinopathy: A Comprehensive Systematic Review and Meta-analysis. *Semin Ophthalmol* 2022; 37(3):291-306.
- Teo ZL, Tham YC, Yu M, Chee ML, Rim TH et al. Global Prevalence of Diabetic Retinopathy and Projection of Burden through 2045: Systematic Review and Meta-analysis. *Ophthalmology* 2021; 128(11): 1580-1591.

Glaucoma

- Tham Y-C, Li X, Wong TY, Quigley HA, Aung T, Cheng C-Y. Global Prevalence of Glaucoma and Projections of Glaucoma Burden through 2040: A Systematic Review and Meta-Analysis: A Systematic Review and Meta-Analysis. *Ophthalmology*. 2014;121(11):2081-2090. doi:10.1016/j.ophtla.2014.05.013
- Kyari FW. Ethnicity and deprivation are associated with blindness among adults with primary glaucoma in Nigeria: results from the Nigeria National Blindness and Visual Impairment Survey. *Journal of Glaucoma*. 2016;25(10):861-872-. doi:10.1097/IJG.0000000000000487

Low Vision

- van Dijk KK. *Low Vision Care in Africa: Practical Approaches to Clinical Services, Educational Engagement and Planning*. KCCO; 2014.
http://www.kcco.net/uploads/2/5/5/3/25532706/low_vision_manual.pdf.

Childhood Eye Diseases

Worldwide Causes of Childhood Blindness. *Pediatric Retina* 3rd Edition, 2021. Editor: Mary Elizabeth Hartnett; Publisher: Wolters Kluwer; Chapter 50.

Epidemiology. Taylor and Hoyt's *Pediatric Ophthalmology and Strabismus*. Rahi J and Gilbert C. Elsevier 2017 5th edition; Chapter 2.

Before start of week 4:



Malik, A.N.J., Mafwiri, M. & Gilbert, C. (2017) Integrating primary eye care into global child health policies. *Archives of Disease in Childhood*. [Online] 103 (2), 176–180. Available from: doi:10.1136/archdischild-2017-313536.

Malik, A.N.J., Mafwiri, M., Gilbert, C., Kim, M.J., et al. (2020) Integrating eye health training into the primary child healthcare programme in Tanzania: a pre-training and post-training study. *BMJ paediatrics open*. [Online] 4 (1), e000629–e000629. Available from: doi:10.1136/bmjpo-2019-000629.

Self JE, Taylor R, Solebo AL et al. Cataract management in children: a review of the literature and current practice across five large UK centre. *Eye* 2020 Dec; 34(12):2197-2218. Available from: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7784951/>

Microbial Keratitis

Austin, A., Lietman, T. & Rose-Nussbaumer, J. (2017) Update on the Management of Infectious Keratitis. *Ophthalmology*. [Online] 124 (11), 1678–1689. Available from: doi:10.1016/j.opththa.2017.05.012.

Ung, L., Bispo, P.J., Shanbhag, S.S., Gilmore, M.S., et al. (2019) The persistent dilemma of microbial keratitis: Global burden, diagnosis, and antimicrobial resistance. *Survey of Ophthalmology*. [Online] 64 (3), 255–271. Available from: doi:10.1016/j.survophthal.2018.12.003.

Lottie Brown, Ms.A.K.L. (2020) The global incidence and diagnosis of fungal keratitis. *The Lancet Infectious Diseases*. [Online] Available from: [https://www.sciencedirect-com.ez.lshrm.ac.uk/science/article/pii/S1473309920304485](https://www.sciencedirect.com.ez.lshrm.ac.uk/science/article/pii/S1473309920304485).

Trachoma

Taylor, H.R., Burton, M.J., Haddad, D., West, S., et al. (2014) Trachoma. *The Lancet*. [Online] 384 (9960), 2142–2152. Available from: doi:10.1016/S0140-6736(13)62182-0.

Matthew Burton, E.H. (2015) Interventions for trachoma trichiasis. *The Cochrane Database of Systematic Reviews*. [Online] 2015 (11). Available from: doi:10.1002/14651858.CD004008.pub3.
https://lshrm.alma.exlibrisgroup.com/leganto/public/44HYG_INST/citation/2253418030003736?auth=SAML



Abstract only: WHO (2020) WHO Alliance for the Global Elimination of Trachoma by 2020: progress report, 2020. WHO Weekly Epidemiological Record. [Online]. Available from: <https://www.who.int/publications/i/item/who-wer9631-353-364>

Onchocerciasis

Hopkins, A. (2012) Onchocerciasis. In: Gordon J. Johnson (ed.). The epidemiology of eye disease / edited by Gordon J. Johnson ... [et al.]. 3rd ed. [Online]. London :, Imperial College Press. pp. 487–507. Available from: <https://contentstore.cla.co.uk/secure/link?id=b97d4e14-0cef-e811-80cd-005056af4099>.

Abstract only: WHO (2020) Progress report on the elimination of human onchocerciasis, 2020. WHO Weekly Epidemiological Record. [Online]. Available from: <https://www.who.int/publications/i/item/who-wer9646-557-567>

HIV

IeDEA (2019) Research priorities to inform “Treat All” policy implementation for people living with HIV in sub-Saharan Africa: a consensus statement from the International epidemiology Databases to Evaluate AIDS (IeDEA). Journal of the International AIDS Society. [Online] Available from: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6338103/>.

Hayes, R.J., Donnell, D., Floyd, S., Mandla, N., et al. (2019) Effect of Universal Testing and Treatment on HIV Incidence — HPTN 071 (PopART). The New England Journal of Medicine. [Online] 381 (3), 207–218. Available from: doi:10.1056/NEJMoa1814556.



Teaching for Disabilities and Learning Differences

The module-specific site on Moodle gives students access to lecture notes and copies of the slides used during the lecture. Where appropriate, lectures are recorded and made available on Moodle. All materials posted on Moodle, including computer-based sessions, have been made accessible where possible.

LSHTM Moodle is accessible to the widest possible audience, regardless of specific needs or disabilities. More detail can be found in the [Moodle Accessibility Statement](#) which can also be found within the footer of the Moodle pages. All students have access to “SensusAccess” software which allows conversion of files into alternative formats.

Student Support Services can arrange learning or assessment adjustments for students where needed. Details and how to request support can be found on the [LSHTM Disability Support pages](#).