MODULE SPECIFICATION

Academic Year (student cohort covered by specification)	2024-25
Module Code	3404
Module Title	Non-Communicable Eye Disease
Module Organiser(s)	GV Murthy; John Buchan
Faculty	Infectious & Tropical Diseases
FHEQ Level	Level 7
Credit Value	**CATS:** 15 **ECTS:** 7.5
HECoS Code	100261:100036:101317 (1:1:1)
Term of Delivery	Term 2
Mode of Delivery	In 2024-25 this module will be delivered predominantly via face to face teaching, complemented by online resources and learning activities, including field visits for observing how Diabetic Retinopathy screening services are implemented in UK. 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)	20 (numbers may be capped due to limitations in facilities or staffing)
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 senior health workers involved in planning or delivery of eye care services.
Module Description	This module teaches students how to evaluate the evidence for and propose alternative control strategies for non-

	communicable adult causes of blindness/low vision, with emphasis on the student's own work situation.
Duration	5 weeks at 2.5 days per week
Timetabling slot	Slot C2
Last Revised (e.g. year changes approved)	August 2024

Programme(s) This module is linked to the following programme(s)	**Status**
MSc Public Health for Eye Care	Compulsory

Module Aim and Intended Learning Outcomes

Overall aim of the module
The overall module aim is to: • Evaluate and propose alternative control strategies for non-communicable adult causes of blindness/low vision, with emphasis on the student's own work situation.

Module Intended Learning Outcomes
Upon successful completion of the module a student will be able to: 1. Critically evaluate the evidence on the risk factors and management of cataract; 2. Interpret and use indicators evaluating cataract services (output, outcome and outlay) and equity of access; 3. Propose inclusive control strategies for the elimination of cataract blindness appropriate to the student's place of work; 4. Critically evaluate the evidence on the risk factors and management of glaucoma, diabetic retinopathy, age-related macular degeneration and refractive errors; 5. Discuss the role of screening programmes in preventing blindness in the student's geographical location; 6. 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; 7. Assess the evidence on the magnitude, risk factors and management of low vision and propose inclusive strategies for control appropriate to the student's place of work.

Indicative Syllabus

Session Content
The module is expected to cover the following topics: • 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 pathophysiology, aetiology and epidemiology. Management options for DR and control strategies in specific settings. • Refractive errors 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.

Teaching and Learning

Notional Learning Hours

Type of Learning Time	Number of Hours	Expressed as Percentage (%)
Contact time	42.5	28.3
Directed self-study	22.5	15
Self-directed learning	35	23
Assessment, review and revision	50	33.3
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, supervised laboratory workshops, practical classes, project supervision as well as where tutors are available for one-to-one discussions and interaction by email.

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. There are also computer practicals that will allow the students to apply the module knowledge to their own populations and a field trip to see diabetic retinopathy screening in action.

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 students' progress. The grade for summative assessment(s) only will go towards the overall award GPA. The assessment for this module may be held face to face or online. The assessment will consist of a written timed paper: Short answer questions from the module content.

Summative Assessment

Assessment Type	Assessment Length (i.e. Word Count, Length of presentation in minutes)	Weighting (%)	Intended Module Learning Outcomes Tested
Timed Paper	180 minutes	100	1-7

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 but a new set of short answer questions will be prepared for the written paper.

Resources

Indicative reading list

Cataract

- Gower EW, Johnson GJM. In: *Age-Related cataract, The Epidemiology of Eye Disease (3rd Edition)*. London: Imperial College Press; 2012:177-196.
- Aravind Eye Hospitals Seva Foundation, Johnston J, Murali N, Thulasiraj C. *Quality Cataract Surgery Series : for High Quality, Large Volume, Sustainable Cataract Surgery Programmes : [introduction /*. Tamil Nadu :: Aravind Communications/LAICO; 2001.
- Yorston D, Gichuhi S, Wood M, Foster A. Does prospective monitoring improve cataract surgery outcomes in Africa? *British Journal of Ophthalmology*. 2002;86(5):543-547. doi:10.1136/bjo.86.5.543
- 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.
- Olry de Labry Lima A, Spacirova Z, Espin J. Description of day case costs and tariffs of cataract surgery from a sample of nine European countries. Cost Eff Resourc Alloc 2022; 20(1): 11
- 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

- Resnikoff SP. Global magnitude of visual impairment caused by uncorrected refractive errors in 2004,Bulletin of the World Health Organization. 2008;86(1):63-70-. doi:10.2471/BLT.07.041210
- Naidoo KSR. Refractive Error and Visual Impairment in African Children in South Africa,Investigative Ophthalmology & Visual Science. 2003;44:3764-3770-. doi:10.1167/iovs.03-
- Walline JJL. Interventions to slow progression of myopia in children,Cochrane Database of Systematic Reviews. 2011. doi:10.1002/14651858.CD004916.pub3
- 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

- Lim LS, Mitchell P, Seddon JM, Holz FG, Wong TY. Age-related macular degeneration. *The Lancet*. 2012;379(9827):1728-1738. doi:10.1016/S0140-6736(12)60282-7
- 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/.
- Leasher JLB. Global estimates on the number of people blind or visually impaired by diabetic retinopathy: a meta-analysis from 1990 to 2010,Diabetes Care. 2016;39(9):1643-1649-. doi:10.2337/dc15-2171
- Wild SR. Global prevalence of diabetes: estimates for the year 2000 and projections for 2030,Diabetes Care. 2004;27:1047-1053-. http://www.who.int/entity/diabetes/facts/en/diabcare0504.pdf.
- Hashemi H, Rezvan F, Pakzad R, Ansaripour 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.ophtha.2014.05.013
- Quigley HA, Broman AT. The number of people with glaucoma worldwide in 2010 and 2020. *British Journal of Ophthalmology*. 2006;90(3):262-267. doi:10.1136/bjo.2005.081224
- 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

Ocular Injuries

- Journal CEH. *Eye Injuries: Improving Our Practice*.; 2015. http://www.cehjournal.org/eye-injuries-improving-our-practice/.

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.

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.