Course Information Sheet for entry in 2026-27: MSc in Paediatric Infectious Diseases

Course facts

Mode of study	Part Time Only
Expected length	12 months

About the course

The MSc in Paediatric Infectious Diseases is a part-time, research-based course for those who have completed the PGDip. It focuses on paediatric infection and includes an independent research project.

Course structure

An overview of the course structure is provided below. Details of the compulsory elements of the course are provided in the *Course components* section of this page.

The MSc is intended to assess your capacity to formulate research questions, and select, design and manage a research project. You will complete a research project of between eight and fourteen weeks and write a dissertation. The research can be carried out in Oxford or locally, making the programme suitable for overseas as well as UK residents.

While there is no formal teaching programme for the MSc year, you may attend any of the regular series of University lectures and seminars in relevant disciplines, particularly those run by the Department of Paediatrics.

Attendance

This course is part-time only. You will be encouraged to attend residential sessions in Oxford during the course. You may also be required to conduct field work for your project.

Resources to support your study

As a graduate student, you will have access to the University's wide range of resources including libraries, museums, galleries, digital resources and IT services.

The Bodleian Libraries is the largest library system in the UK. It includes the main Bodleian Library and libraries across Oxford, including major research libraries and faculty, department and institute libraries. Together, the Libraries hold more than 13 million printed items, provide access to e-journals, and contain outstanding special collections including rare books and manuscripts, classical papyri, maps, music, art and printed ephemera.

The University's IT Services is available to all students to support with core university IT systems and tools, as well as many other services and facilities. IT Services also offers a range of IT learning courses for students to support with learning and research, as well as guidance on what technology to bring with you as a new student (https://www.it.ox.ac.uk/what-to-bring) at Oxford.

The department has state-of-the-art laboratories with a number of research groups at different locations in Oxford, with most of the groups based at the John Radcliffe Hospital and WIMM, the Centre for Vaccinology and Tropical Medicine at the Churchill Hospital, and the Science Centre at South Parks Road.

Students will have access to the department’s IT support and University library services. Workspace will be related to individual circumstances. If undertaking experimental work, bench space will be provided within a laboratory. The provision of other resources specific to a project should be agreed with the supervisor as part of the planning stages of the agreed project.

Supervision

The allocation of graduate supervision for this course is the responsibility of the Department of Paediatrics and it is not always possible to accommodate the preferences of incoming graduate students to work with a particular member of staff. Under exceptional circumstances a supervisor may be found outside of the Department of Paediatrics.

You will receive support and guidance from your dedicated Oxford supervisor during the preparation of your dissertation. If you are completing your research project outside of Oxford you will also be required to find a local supervisor to be approved by the Course Director. It is your responsibility to agree the frequency of meetings with your supervisor(s).

Assessment

The course will be assessed by a dissertation of not more than 15,000 words, which will be based upon your research project.

MSc projects will be developed with a supervisor and might involve, for example, a laboratory project, a clinical study, a systematic review or an analysis project using existing data. Projects are usually based in Oxford (but may exceptionally be conducted elsewhere with a supervisor from the University of Oxford) and consist of data collection and analysis followed by writing up.

Examples of recent projects include:

- Persistence of immunity against Salmonella Typhi after vaccination;
- A review of CMV detection and management in neonates in a hospital setting;
- Neonatal anti-microbial resistance in a low income setting;
- Epidemiology, resistance and sequencing of bacteria causing UTI in a LMIC setting.

Research areas

Supervision for students on this course may be provided by the individuals listed below:

Simon Drysdale

Systematic review & meta-analysis on an ID topic:

- Impact of point of care tests in ED on antimicrobial use
- Use of immunoglobulin + ribavirin for treatment of RSV in immunocompromised patients
- Long term outcomes of infants with cCMV

Daniela Ferreira

Human Challenge Models for Respiratory infections

Despite available vaccines, pneumonia is still a major killer affecting particularly vulnerable populations, such as children and the elderly. Pneumococcal infections are most common in the winter with secondary pneumococcal pneumonia being the major cause of mortality following seasonal and pandemic influenza infection. Our group uses Human Challenge models in which participants are deliberately infected with live respiratory viruses and bacteria to study host-pathogen interactions, immune responses, pathogen transmission and to accelerate development of vaccines.

We have several projects in the following areas:

- Host and pathogen gene expression associate with pneumococcal shedding
- Correlates of protection to respiratory infection and vaccination
- Susceptibility to respiratory disease: why children and older people get sick
- Interaction of viral and bacterial co-infections and immune response modulation
- Computational biology and machine learning

Each project can be tailored to give the student exposure to their methods of interest including B and T cell ELISPOTs, ELISAs, Luminex, multicolour flow cytometry and cell sorting, handling of data including transcriptomic analysis and extensive data analysis (including R) and computational biology (machine learning).

Examples of desk-based projects – computational biology and systems analysis

Colonisation of the upper respiratory tract by pneumococcus is important for disease development and transmission across the population. The immunological mechanisms that contain pneumococcus during colonisation are well-studied in mice but remain poorly explored in humans.

1. Using machine learning methods and bulk/mRNA sequencing data, this project will identify potential molecular biomarkers to discriminate between those protected vs susceptible to colonisation.
2. The human genome is estimated to encode approximately 25,000 protein-coding genes, and their expression could be determined by several factors, such as

microRNA regulation, alternative splicing, RNA editing, and others, that are important to protection or susceptibility to infectious diseases such as pneumonia. This project will use systems biology and gold-standard bioinformatic methods to identify whether alterations of RNA regulators associate with protection from colonisation.

3. Community-acquired pneumonia (CAP) is leading cause of death worldwide. CAP disproportionally affects children under the age of five years and older adults. Our research group has been using the Experimental Human Pneumococcal Challenge (EHPC) to understand the older population's mucosal immunology better. In older pneumococcal challenge cohorts, we have identified an important activation of B and T cells by pathways enrichment analysis associated with colonisation. In this project, we will identify B and T receptors repertoire using our existent bulk RNA sequencing data and well-established computational biology tools.

Examples of laboratory-based projects

1. Vaccine induced nasal mucosa antibody-mediated agglutination of pneumococcus. The agglutinating effect of antibodies has shown to be an important factor in the protection against pneumococcal colonisation. There is a clear need for adequate methods to assess and quantify this antibody functionality particularly against different serotypes of pneumococcus. We will utilize a novel flow cytometric assay to quantify the agglutinating capacity of anti-pneumococcal antibodies using nasal mucosa samples from people vaccinated with Pneumococcal Conjugate Vaccine vs Polysaccharide Vaccine against a variety of serotypes of Spn. This assay will allow us to examine the role of pneumococcal surface antigens and demonstrate the importance of antibodies to its immunodominant antigen, the differential role of the capsular polysaccharide (CPS) in humoral responses in eliciting agglutinating IgG that confers protection from the acquisition of colonization.
2. Using an experimental pneumococcal challenge model, we have recently shown that older adults susceptible to pneumococcal colonisation have higher levels of transcripts associated with inflammation in the nasal mucosa compared to older adults protected from colonisation. During the project, candidates will determine whether (1) these soluble markers of inflammation can be detected in nasal mucosa samples before and after experimental challenge with pneumococcus by ELISA and (2) concentrations of soluble markers of inflammation in nasal lining fluids can predict susceptibility for colonisation before challenge.

Seilesh Kadambari

ChiMES study. Potential MSc projects could be:

- Conduct transcriptomic and proteomic assessment of serum and CSF to better understand the pathogenesis of meningitis and encephalitis in children. (Funding required)
- Conduct next generation sequencing of enterovirus using CSF samples in children with meningitis and encephalitis. (Funding required)
- Evaluate the quality of life of children admitted with meningitis and encephalitis. (Funding potentially required)

cCMV. Caroline Trotter to co-supervise an MSc student. Potential MSc projects could be:

- Conduct a systematic review and meta-analysis of the global DALY attributed to congenital CMV
- Conduct a seroprevalence study to assess the age specific prevalence of CMV antibodies using samples from UKHSA and the OVG biobank (this is a study that we have both submitted previously for funding but been unsuccessful). (Funding required)

Xinxue Liu and Angela Minassian

The recommendations for face mask use during the COVID-19 pandemic varied between different countries. The data on personal protective equipment (PPE) use were collected during the Oxford-AstraZeneca vaccine trial from healthcare worker participants in the UK and Brazil.

This project aims to describe PPE use among healthcare workers in the trial and evaluate the associations between PPE use and the risk of SARS-cov-2 infection. The student will clean the data, conduct all the analysis and interpret the results with the support from OVG clinical and stats team.

Daniel O'Connor

Differentiating infants with adverse events following immunisation (AEFIs) or invasive bacterial infection (IBI) is a significant clinical challenge. Febrile events following infant vaccinations are common and can lead to hospital admissions, invasive procedures, and antibiotic use to address the risk of coincidental cases of IBI. Moreover, blood biomarkers of IBI such as C-reactive protein and absolute neutrophil counts can also be elevated post-vaccination, further complicating the clinical assessment. This issue has been exacerbated by the introduction of the group B meningococcal vaccine — 4CMenB — into the routine UK immunisation schedule. This vaccine has been shown to be highly effective in preventing group B infection in infants but with fever being a common adverse reaction. This project will assess novel gene-based biomarkers to rapidly rule out bacterial infection in infants presenting with fever post-vaccination.

Daniel O'Connor and Merryn Voysey

Systematic review and meta-analysis examining the impact of maternal antibiotic use on infants' risk of infection, antibiotic use, vaccine response, and infection-related hospitalisation.

Samantha Vanderslott

A review using systematic approaches on a topic related to vaccine hesitancy and policy, or clinical trials. Can include all types of study methodologies – qualitative, quantitative or mixed methods. After conducting a review of the literature, apply meta-analysis techniques. Examples of previous reviews:

- 'MMR Vaccine Attitude and Uptake Research in the United Kingdom: A Critical Review'
- 'How can community engagement in health research be strengthened for infectious disease outbreaks in Sub-Saharan Africa? A scoping review of the literature'
- 'The representation of ethnic and racial minority groups in European vaccine trials: a quantitative analysis of clinical trials registries'
- 'Charting mandatory childhood vaccination policies worldwide'
- 'A systematic scoping review on how public and patient attitudes toward the use of monitoring technologies in healthcare differ across countries'

Merryn Voysey

Systematic review and meta-analysis of the global distribution of Group B streptococcus serotypes and genotypes colonising pregnant women

Changes to this course

The University will seek to deliver this course in accordance with the description set out in this course page. However, there may be situations in which it is desirable or necessary for the University to make changes in course provision, either before or after registration. The safety of students, staff and visitors is paramount and major changes to delivery or services may have to be made if a pandemic, epidemic or local health emergency occurs. In addition, in certain circumstances, for example due to visa difficulties or because the health needs of students cannot be met, it may be necessary to make adjustments to course requirements for international study.

Where possible your academic supervisor will not change for the duration of your course. However, it may be necessary to assign a new academic supervisor during the course of study or before registration for reasons which might include illness, sabbatical leave, parental leave or change in employment.

For further information please see our page on changes to courses (//www.ox.ac.uk/admissions/graduate/courses/changes-to-courses) and the provisions of the student contract (//www.ox.ac.uk/admissions/graduate/after-you-apply/your-offer-and-contract) regarding changes to courses.

Costs

Annual course fees

The fees for this course are charged on an annual basis.

Fees for the 2026-27 academic year at the University of Oxford

Fee status	Annual Course fees
Home	£10,210
Overseas	£15,190

What do course fees cover?

Course fees cover your teaching as well as other academic services and facilities provided to support your studies. Unless specified in the additional information section below, course fees do not cover your accommodation, residential costs or other living costs. They also don't cover any additional costs and charges that are outlined in the additional costs information below.

How long do I need to pay course fees?

Course fees are payable each year, for the duration of your fee liability (your fee liability is the length of time for which you are required to pay course fees). For courses lasting longer than one year fees will usually increase annually, as explained in the University's Terms and Conditions (//www.ox.ac.uk/students/new/contract) .

Our fees and other charges (//www.ox.ac.uk/admissions/graduate/fees-and-funding/fees-and-other-charges) pages provide further information, including details about:

- course fees and fee liability (//www.ox.ac.uk/admissions/graduate/fees-and-funding/fees-and-other-charges/courses-fees-and-liability) ;
- how your fee status is determined (//www.ox.ac.uk/admissions/graduate/fees-and-funding/fees-and-other-charges/fee-status) ; and
- changes to fees and other charges (//www.ox.ac.uk/admissions/graduate/fees-and-funding/fees-and-other-charges/changes-to-fees-and-charges) .

Information about how much fees and other costs will usually increase each academic year is set out in the University's Terms and Conditions (//www.ox.ac.uk/students/new/contract) .

Additional costs

This course has residential sessions in Oxford. You will need to meet your travel and accommodation costs in attending these sessions. Further, as part of your course requirements, you may need to choose a dissertation, a project or a thesis topic. Depending on your choice of topic and the research required to complete it, you may incur additional expenses, such as travel expenses, research expenses, and field trips. You will need to meet these additional costs, although you may be able to apply for small grants from your department to help you cover some of these expenses.

Living costs

In addition to your course fees and any additional course-specific costs, you will need to ensure that you have adequate funds to support your living costs for the duration of your course.

Living costs for part-time study

Your living costs may vary depending on your personal circumstances but you will still need to cover your cost of living on a full-time basis for the duration of your course, even if you will not be based in Oxford throughout your studies. While the range of likely living costs for a single, full-time student living in Oxford in the 2026-27 academic year is between £1,405 and £2,105 per month, living costs outside Oxford may be different.

Part-time students who are not based in Oxford will need to calculate travel and accommodation costs carefully. Depending on your circumstances and study plans, this may include the cost of a visitor visa to attend for short blocks of time (//www.ox.ac.uk/admissions/graduate/fees-and-funding/living-costs) (if visitor visa eligibility criteria (//www.ox.ac.uk/students/visa/before/visitors) are met).

Further information about living costs

The current economic climate and periods of high national inflation in recent years make it harder to estimate potential changes to the cost of living over the next few years. For study in Oxford beyond the 2026-27 academic year, it is suggested

that you budget for potential increases in living expenses of around 4% each year – although this rate may vary depending on the national economic situation.

A breakdown of likely living costs for one month during the 2026-27 academic year are shown below. These costs are based on a single, full-time graduate student, with no dependants, living in Oxford.

Likely living costs for one month in Oxford during the 2026-27 academic year

	Lower range	Upper range
Food	£315	£545
Accommodation	£825	£990
Personal items	£160	£310
Social activities	£50	£130
Study costs	£35	£90
Other	£20	£40
Total	£1,405	£2,105

For information about how these figures have been calculated as well as tables showing the likely living costs for nine and twelve months, please refer to the living costs (//www.ox.ac.uk/admissions/graduate/fees-and-funding/living-costs) page of our website.

Document accessibility

If you require a more accessible version of this document please contact Graduate Admissions and Recruitment by email (graduate.admissions@admin.ox.ac.uk).