**Job title**  
Researcher in Geospatial Epidemiology

**Division**  
Medical Sciences

**Department**  
Nuffield Department of Medicine

**Location**  
Big Data Institute Building, Li Ka Shing Centre for Health Information and Discovery, Old Road Campus, Oxford, OX3 7LF

**Grade and salary**  
Grade 7: £31,604 - £38,833 p.a (with a discretionary range up to £42,418 p.a)

**Hours**  
Full time

**Contract type**  
Fixed-term until 30 June 2021

**Reporting to**  
Senior Research Manager

**Vacancy reference**  
133135

**Research topic**  
The Global Burden of Disease - Antimicrobial Resistance (AMR) project

**Principal Investigator / supervisor**  
Professor Simon Hay

**Funding partner**  
The funds supporting this research project are provided by the UK Department Of Health.

**Introduction**

**About the University of Oxford**

Welcome to the University of Oxford. We aim to lead the world in research and education for the benefit of society both in the UK and globally. Oxford’s researchers engage with academic, commercial and cultural partners across the world to stimulate high-quality research and enable innovation through a broad range of social, policy and economic impacts.

We believe our strengths lie both in empowering individuals and teams to address fundamental questions of global significance, while providing all our staff with a welcoming and inclusive workplace that enables everyone to develop and do their best work. Recognising that diversity is our strength, vital for innovation and creativity, we aspire to build a truly diverse community which values and respects every individual’s unique contribution.

While we have long traditions of scholarship, we are also forward-looking, creative and cutting-edge. Oxford is one of Europe's most entrepreneurial universities. Income from external
research contracts in 2015/16 exceeded £537.4m and we rank first in the UK for university spinouts, with more than 130 companies created to date. We are also recognised as leaders in support for social enterprise.

Join us and you will find a unique, democratic and international community, a great range of staff benefits and access to a vibrant array of cultural activities in the beautiful city of Oxford.

For more information please visit www.ox.ac.uk/about/organisation

**Medical Sciences**

The Medical Sciences Division is an internationally recognized centre of excellence for biomedical and clinical research and teaching. We are the largest academic division in the University of Oxford

World-leading programmes, housed in state-of-the-art facilities, cover the full range of scientific endeavour from the molecule to the population. With our NHS partners we also foster the highest possible standards in patient care.

For more information please visit: www.medsci.ox.ac.uk

**Nuffield Department of Clinical Medicine (NDM)... fostering your career in science**

The Nuffield Department of Clinical Medicine (NDM) is one of the largest departments of the University of Oxford and is part of the Medical Sciences Division, with responsibility for a significant part of the teaching of clinical students within the Medical School.

NDM has significant financial turnover and complexity, resulting from its diverse research portfolio, its geographical spread and its close links with NHS funding and strategic teams involved in the development and delivery of increasingly integrated clinical research platforms. For more information please visit: http://www.ndm.ox.ac.uk/home

The Nuffield Department of Clinical Medicine has been presented with a Departmental Athena SWAN Silver award in recognition of the commitment made to promote gender equality through our organisational and cultural practices and our efforts to improve the working environment for both men and women. For more information please see our Departmental Athena SWAN pages: https://www.ndm.ox.ac.uk/working-for-ndm/aboutndmatheneswan/

**Oxford Big Data Institute (BDI)**

The Big Data Institute (BDI), is a newly opened, interdisciplinary research centre located within the University of Oxford’s Old Road Campus. The Institute will combine researchers from genomics, epidemiology and infectious disease alongside those from computer science, statistics and engineering to develop the field of big data as applied to biomedical research. Scientists working in the Institute will form an analytical hub, deeply connected to the wider experimental and clinical community in Oxford and beyond, working to solve some of the major challenges in medical research. The BDI aims to develop, evaluate and deploy efficient methods for acquiring and analysing information at scale and for exploiting the opportunities presented by large-scale studies. The Institute will provide core facilities in high-performance computing and high-capacity data management. When fully occupied it will house over 350 researchers.
For more information please visit: http://www.bdi.ox.ac.uk

Partner Institution for this grant: Institute for Health Metrics and Evaluation (IHME), University of Washington

The Institute for Health Metrics and Evaluation (IHME) is an independent research center at the University of Washington focused on expanding the quantitative evidence base for health. A core research area for IHME is the Global Burden of Diseases, Injuries, and Risk Factors (GBD) enterprise. A systematic, scientific effort to quantify the comparative magnitude of health loss due to diseases, injuries, and risk factors by age, sex, and geography over time, the GBD is the largest and most comprehensive effort to date to measure epidemiological levels and trends worldwide. The GBD’s aim is to provide policymakers, donors, and researchers with the highest-quality quantitative evidence base to make decisions that achieve better health.

For more information please visit: www.healthdata.org

Overview of the role

This is an exciting opportunity to join the new Big Data Institute (BDI), based at the University of Oxford. Research at the BDI will be focussed on analysis of biomedical big data, and generation of health knowledge and information. The post holder will be based in the BDI, reporting to the Senior Research Manager in the BDI. The grant Principle Investigator (PI) is Professor Simon Hay (Principle Investigator for this grant) based at the Institute for Health Metrics and Evaluation (IHME), University of Washington, Seattle, WA, USA.

The post holder will contribute to The Global Burden of Disease - Antimicrobial Resistance (AMR) project which is a collaborative grant funded by the UK Department Of Health, the Wellcome Trust and the Bill and Melinda Gates Foundation. The grant is in partnership with the Institute for Health Metrics and Evaluation (IHME), University of Washington. The purpose of the grant is to collect and synthesise data on the burden of disease associated with AMR and ensure that this data is included in the Global Burden of Disease study (GBD). Ultimately this will increase global awareness of AMR and drug resistant infections (DRI) and drive support for strategies that can reduce AMR/DRI. This will be achieved by the following activities:

1. Data collection from desk review, data preparation and management.
2. Geospatial disease mapping of AMR.
3. Dissemination of AMR mapping data through policy briefs, reports, infographics, conference and workshops.
4. Collaboration and support of AMR data collection networks through workshops, the creation of data networks, and expansion of data users.

The post holder will be integrally involved in producing, critiquing, improving, and disseminating results. The researcher will primarily work on spatial models of anti-microbial resistance (AMR). Through the development and use of geospatial techniques, they will produce high-resolution maps of disease prevalence and burden, in partnership with key collaborators around the world.

The Researcher must develop a command of methods used to model the spatial variation in antimicrobial resistance. The individual is expected to create and deploy code to carry out complex geo-statistical methods. The individual will be a key contributor to discussions about methods development, strategic decision-making.
The individual will also be responsible for contributing to papers, presentations, and other materials to help disseminate results. This position is contingent on project funding availability.

Responsibilities/duties

- To provide statistical analysis plans for studies and participate fully in the overall planning regarding assessment of data quality, managing analytic processes and estimation to deadlines, implementation, and recalibration of efforts. Lead discussion in research meetings about results and analyses in order to vet, improve, and finalize results.

- Undertake innovative applied research and application of model based geostatistics, addressing issues such as sample bias and spatial dependence.

- Develop and implement new computational and statistical methods such as creating diagnostics and quality review mechanisms that help to track, monitor, and manage complex analytic processes. Create, test, and use relevant computer code (e.g. R, Java, C, C++, or Python). Document code and analytic approaches systematically so that analyses can be replicated by other team members.

- Develop new methods to utilize health system usage and health facility data in geospatial mapping projects, including collation of health facility censuses and definitions of catchment areas.

- To advise and assist other members of the group working on relevant projects where appropriate. Effectively communicate and work with other staff at all levels in order to achieve team goals for the analyses and related outputs.

- Contribute ideas to methodological advancements; identify and troubleshoot technical or scientific problems, working collaboratively with database experts and scientific programmers and external collaborators.

- Contribute to manuscripts, presentations and other means of disseminating results.

- Attend scientific seminars, meetings and training as appropriate.

- Develop and maintain relationships with designated collaborators. Respond to and, as appropriate, integrate feedback from collaborators into the analyses. Work directly with collaborators to understand data to which they have access, and to in turn help them understand the methods being applied. Help to manage and orchestrate joint strategies for analysis.

- Develop and keep current an understanding of the methodology and research of the global burden of disease and geospatial analyses.
Selection criteria

Essential

- A degree in a relevant subject and a post-graduate degree in computer science, statistics, mathematics, epidemiology or a related subject.
- Disease and/or risk-specific expertise, including familiarity with data sources and epidemiology.
- Demonstrated interest in the research described.
- Experience of and demonstrated success in geostatistics, spatial-temporal modeling or equivalent areas.
- Demonstrable ability to organise and prioritise work efficiently whilst delivering results to the required standard and to an agreed schedule with limited guidance.
- Experience in developing a geospatial modelling strategy
- Excellent communication skills, including track record of success in writing for publication, presenting research proposals and results, representing research groups at meetings, working with collaborators and advising team members.
- A theoretical and practical understanding of disease modelling

Desirable

- PhD (or equivalent experience) in computer science, statistics, mathematics, epidemiology or a related discipline.
- A theoretical and practical understanding of infectious disease epidemiology.
- Experience with administrative data from health facilities, e.g. DHIS2
- Expertise in R, Python or STATA programming languages

How to apply

Before submitting an application, you may find it helpful to read the ‘Tips on applying for a job at the University of Oxford’ document, at www.ox.ac.uk/about_the_university/jobs/research/

If you would like to apply, click on the Apply Now button on the ‘Job Details’ page and follow the on-screen instructions to register as a new user or log-in if you have applied previously. Please provide details of two referees and indicate whether we can contact them now.

You will also be asked to upload a CV and a supporting statement. The supporting statement should explain how you meet the selection criteria for the post using examples of your skills and
experience. This may include experience gained in employment, education, or during career breaks (such as time out to care for dependants). Your application will be judged solely on the basis of how you demonstrate that you meet the selection criteria stated in the job description. All applications must be received by midday on the closing date stated in the online advertisement.

Information for priority candidates

A priority candidate is a University employee who is seeking redeployment because they have been advised that they are at risk of redundancy, or on grounds of ill-health/disability. Priority candidates are issued with a redeployment letter by their employing departments.

If you are a priority candidate, please ensure that you attach your redeployment letter to your application (or email it to the contact address on the advert if the application form used for the vacancy does not allow attachments)

Should you experience any difficulties using the online application system, please email recruitment.support@admin.ox.ac.uk. Further help and support is available from www.ox.ac.uk/about_the_university/jobs/support/. To return to the online application at any stage, please go to: www.recruit.ox.ac.uk.

Please note that you will be notified of the progress of your application by automatic emails from our e-recruitment system. Please check your spam/junk mail regularly to ensure that you receive all emails.

Important information for candidates

Pre-employment screening

Please note that the appointment of the successful candidate will be subject to standard pre-employment screening, as applicable to the post. This will include right-to-work, proof of identity and references. We advise all applicants to read the candidate notes on the University’s pre-employment screening procedures, found at: www.ox.ac.uk/about/jobs/preemploymentscreening/.

The University’s policy on retirement

The University operates an Employer Justified Retirement Age (EJRA) for all academic posts and some academic-related posts. From 1 October 2017, the University has adopted an EJRA of 30 September before the 69th birthday for all academic and academic-related staff in posts at grade 8 and above. The justification for this is explained at: www.admin.ox.ac.uk/personnel/end/retirement/revisedejra/revaim/.

For existing employees, any employment beyond the retirement age is subject to approval through the procedures: www.admin.ox.ac.uk/personnel/end/retirement/revisedejra/revproc/

Form 1 October 2017, there is no normal or fixed age at which staff in posts at grades 1–7 have to retire. Staff at these grades may elect to retire in accordance with the rules of the applicable pension scheme, as may be amended from time to time.
Equality of Opportunity

Entry into employment with the University and progression within employment will be determined only by personal merit and the application of criteria which are related to the duties of each particular post and the relevant salary structure. In all cases, ability to perform the job will be the primary consideration. No applicant or member of staff shall be discriminated against because of age, disability, gender reassignment, marriage or civil partnership, pregnancy or maternity, race, religion or belief, sex, or sexual orientation.
Benefits of working at the University

University Club and sports facilities

The University Club provides social, sporting and hospitality facilities. It incorporates a bar, café and sporting facilities, including a gym. Staff can also use the University Sports Centre on Iffley Road at discounted rates, including a fitness centre, powerlifting room, and swimming pool. See: www.club.ox.ac.uk and www.sport.ox.ac.uk/oxford-university-sports-facilities.

Information for international staff (or those relocating from another part of the UK)

If you are relocating to Oxfordshire from overseas, or elsewhere in the UK, the University's International Staff website includes practical information related to moving to and settling in Oxford such as advice on immigration, relocation, accommodation, or registering with a doctor. See: www.internationalstaffwelcome.admin.ox.ac.uk/

The University of Oxford Newcomers' Club

The University of Oxford Newcomers' Club is an organisation run by volunteers that aims to assist the partners of new staff to settle into Oxford and to provide them with an opportunity to meet people in the area. See www.newcomers.ox.ac.uk/

Childcare

The University has excellent childcare services with five University nurseries, as well as University-supported places at many other private nurseries.
For full details including how to apply and the costs, see www.admin.ox.ac.uk/childcare.

Family-friendly benefits

The University subscribes to My Family Care (www.admin.ox.ac.uk/personnel/staffinfo/benefits/family/mfc/) and staff are eligible to register for emergency back-up childcare and adultcare services, a 'speak to an expert' phone line and a wide range of guides and webinars through a website called the Work + Family space.

Disabled staff

We are committed to supporting members of staff with disabilities or long-term health conditions. Please visit www.admin.ox.ac.uk/eop/disab/staff for further details including information about how to make contact, in confidence, with the University’s Staff Disability Advisor.

Staff networks

The University has a number of staff networks including the Oxford Research Staff Society, BME staff network, LGBT+ staff network and a disabled staff network. You can find more information at www.admin.ox.ac.uk/eop/inpractice/networks/

Other benefits

Staff can enjoy a range of other benefits such as free visitor access to the University's colleges and the Botanic Gardens as well as a range of discounts.
See www.admin.ox.ac.uk/personnel/staffinfo/benefits