



St George's School of Health and Medical Sciences

City St George's, University of London

Population Health Research Institute

Research Fellow / Senior Research Fellow in Medical Statistics or Data Analytics

Ref: 435-24-R2

JOB DESCRIPTION

Post Title	Research Fellow or Senior Research Fellow in Medical Statistics or Data Analytics
Grade	CSG 6
Contract type	Fixed term (2 years)
Responsible to	Professor Christopher Owen (Professor of Epidemiology), Head of Section, Chronic Disease Epidemiology, Professor Alicja Rudnicka (Professor of Statistical Epidemiology)
Accountable to	Professor Charlotte Clark, Institute Director, Population Health Research Institute
Responsible for	n/a
Liases with	Prof Christopher Owen (Professor of Epidemiology), Prof Alicja Rudnicka (Professor of Statistical Epidemiology), Professor Adnan Tufail (Professor of Ophthalmology, Moorfields Eye Hospital/UCL) Dr Cathy Egan (Associate Professor, Moorfields Eye Hospital/UCL), Professor Sarah Barman (Professor in Computer Vision, Kingston University), Dr John Anderson (Homerton Healthcare NHS Foundation Trust), Dr Aaron Lee (Assistant Professor, UW Medicine, USA)

Overall purpose of job

We are seeking an ambitious researcher with strong statistical and data analytic skills and experience in using big data. The newly created data are from one of the largest, most ethnically diverse English Diabetic Eye Screening Programmes in North East London, with over 200,000 people living with diabetes with up to 10 years of follow-up. The data-set includes diabetic eye screening data linked to primary and secondary health data, with cause



of death. The postholder will compare analyses of statistical prognostic approaches with AI based retinal image analysis, genotyping and linked health record data to predict diabetes complications, to identify early warning systems for intervention.

This Wellcome Trust funded work is of national and international importance and is being led by investigators at St George's and Moorfields Eye Hospital NHS Foundation Trust, with a team of investigators from UCL, Homerton Healthcare NHS Foundation Trust, Kingston University, UK; University of Washington and the National Eye Institute National Institutes of Health (NEI NIH), USA. The post holder will be based at the Population Health Research Institute (PHRI) at St George's, University of London, and will work under the direction of Professor Christopher Owen, Professor of Epidemiology and Head of Section for Chronic Disease Epidemiology and Professor Alicja Rudnicka, Professor of Statistics Epidemiology, with regular oversight and input from the wider team of investigators from prestigious institutions both in the UK and USA.

Background: Diabetes mellitus (DM) is an increasing public health problem, especially among Asian and Black African-Caribbean (BAC) ethnic groups, affecting 1 in 11 adults globally. DM is a major cause of premature death and morbidity, especially from cardiovascular disease (including coronary heart disease and stroke).

DM costs the NHS around £10 billion per year, with 80% being spent on complications. Averting complications offers huge potential savings, by reducing morbidity and mortality. This Wellcome Trust funded project aim to develop models that accurately predict and reduce DM related complications. This internationally leading project is being led by investigators at St George's and Moorfields Eye Hospital, with a team of investigators from prestigious institutions both in the UK and USA, some of whom have worked together for over a decade.

Project outline: The postholder will use newly created data from one of the largest, most ethnically diverse Diabetic Eye Screening Programmes (DESP) in North East London (NEL), where in excess of 100,000 patients are screened annually. Uniquely the NEL DES contains a high proportion of patients from different ethnic groups (e.g., 30% white, 40% Asian and 20% BAC in 2017/18), allowing the effectiveness of artificial intelligence (AI) based retinal image analysis, genotyping and linked health record data from people with DM to predict diabetes related complications, including incident diabetic eye disease (particularly progression to sight-threatening retinopathy) and systemic outcomes (including nephropathy, neuropathy, cardiovascular disease) to be compared across ethnic groups (as well as different age groups). This will allow sociodemographic equity in prognostic performance to be examined. We will apply statistical prognostic modelling approaches utilising data generated by the application of AI/machine learning approaches to retinal images to extract relevant retinal features as candidate predictors for statistical models and compare risk prediction models performance with novel end-to-end AI techniques applied to the NEL DESP data source with 200,000 people living with diabetes.

1. Main Duties and Responsibilities

Research: The postholder will apply statistical prognostic modelling approaches utilising data generated by the application of AI/machine learning approaches to retinal images to extract relevant retinal features as candidate predictors for statistical models and compare risk prediction models performance with novel end-to-end AI techniques applied to the NEL DESP data source in 200,000 people living with diabetes with up to 10 years of follow-up. The aim is to generate and validate prognostic models for diabetes complications that can be used to direct and triage healthcare for patients living with diabetes.



This post will be available as full-time non-clinical posts, but could also be configured as a combination of part-time appointments or as a job share arrangement. The appointment will be for 2 years subject to a probation period.

All academic staff at St George's School of Health and Medical Sciences are expected to act as a personal tutor and contribute to teaching. This includes research project supervision (undergraduate and Master's level), lecturing, small-group teaching and assessment. The ratio of these may vary across academic staff.

Academic staff without a teaching qualification are normally expected to obtain Fellowship/Senior Fellowship of Advance HE (formerly Higher Education Academy) through the in-house framework (SHINE), or take the PG Cert in Health and Biomedical Education. New Lecturers without Advance HE Fellowship or a PG Cert are required to complete four core workshops in EduFocus to pass probation at the end of their first year.

Academic staff are also expected to represent St George's School of Health and Medical Sciences at academic events and assist with fund raising activities, as requested.

It is expected that staff working with St George's School of Health and Medical Sciences, will be involved in our mentoring and tutoring activities, as appropriate, as well as supporting admissions, student recruitment and access and widening participation activities (MMI interviews, Open Days, school visits, clearing etc) where applicable. All academic staff are expected to act as a personal tutor.

You are also expected to undertake other activities appropriate to your grade as directed by your manager. This job description reflects the present requirements of the post. As duties and responsibilities change, the job description will be reviewed and amended in consultation with the post holder from time to time. City St George's, University of London aims to provide opportunities for all its employees to develop the skills required to be successful in their role and to further develop their careers.

St George's School of Health & Medical Sciences, University of London, is committed to [the San Francisco Declaration on Research Assessment \(DORA\) principles](#).

2. Nature and Scope of Job

The researcher post will be based in the Population Health Research Institute (PHRI) at St George's, University of London. The Institute comprises ~60 staff from a wide range of disciplines including medical statistics, epidemiology, public health, health service research, general practice, psychiatry, paediatrics, psychology and sociology. Medical statistics is well represented, including a Professor of Medical Statistics (Joan Morris) and a Professor of Statistical Epidemiology (Alicja Rudnicka). The Institute conducts research into the epidemiology, prevention and medical care of a wide range of chronic diseases, with strong emphases on life course, genetic, environmental, ophthalmic and primary care epidemiology. Longstanding research interests in cardiovascular disease, diabetes, respiratory and allergic diseases have been extended more recently to include congenital abnormalities, ophthalmic epidemiology, mental health and environmental pollution. Population health research has performed strongly over several research assessments, with strong research outputs ranked in the top half of similar departments nationally.

The post would suit a medical statistician, data analyst, epidemiologist with previous relevant experience seeking to develop their career in a university setting



Person Specification

Criteria	Description	Essential/ Desirable	How it is tested
Qualifications	Masters level degree in medical statistics, or a closely related discipline	E	PQ/AF
	PhD in medical statistics, data analytics, or a closely related discipline	E* *Senior Research Fellow in Medical Statistics or Data Analytics	PQ/AF
Experience	Research related to medical statistics, data analytics, epidemiology or a closely related discipline	E	SS1 , INT
	Experience in the analysis of large and/or longitudinal datasets	E	SS2 , INT
	Record of peer reviewed publications in a relevant field	E	INT
	Experience in project management	D	INT
Knowledge/ Skills	Excellent written and verbal communication and interpersonal skills	E	SS3 , INT
	Ability to present research to a general scientific audience	E	SS4 , INT
	Self-motivated and able to work independently limited supervision	E	AF, INT
	Excellent knowledge of advanced statistical methods in health research, and competent in analysis of large and complex datasets	E	ST, AF, INT
	Computer literacy: highly competent in the use one or more of the standard data analysis software packages (including STATA), as well as Office packages (Microsoft Word, Excel and Powerpoint)	E	AF, INT



	Competent in the use of other statistical packages, e.g., Python, R	D	AF, INT
	Excellent organizational skills and ability to work on several tasks at the same time	E	AF, INT
Personal Attributes	Enthusiasm for population-based research	E	AF, INT
	Ability to work under pressure and within agreed deadlines	E	AF, INT
	Ability to participate in a collaborating team both internal and external to SGUL	E	AF, INT
	Committed to embedding practices which embrace diversity and promote equality of opportunity	E	SS5 INT
	Committed to Continuing Professional Development (CPD)	E	INT

Key:

PQ=Prerequisite Qualification, AF=Application Form, CV=Curriculum Vitae,
 SS=Selection/Supporting Statements, ST=Selection Test/Presentation, INT=Interview

Note: Elements marked SS (Supporting Statements) in the Person Specification will be highlighted in Step 6 (Supporting Statements) on the online application form. Applicants' answers to Step 6 are an essential part of the selection process. Applicants should write individual supporting statements to demonstrate how their qualifications, experience, skills and training fit each of the elements highlighted in this section.

*Applicants should address other elements of the Person Specification in Step 7 (Additional Information). Shortlisting will be based on applicants' responses to Step 6 **and** Step 7. Therefore applicants should complete both sections as fully as possible on the online application form.*

3. Date

October 2024



About us

St George's School of Health and Medical Sciences is dedicated to medical, biomedical and allied health education, training and research. Sharing a clinical environment with a major London teaching hospital in southwest London, our innovative approach to education results in well-rounded and highly skilled clinicians, scientists, and health and social care professionals.

St George's has a long and illustrious history of training healthcare professionals, dating back more than 270 years. We are well known for our innovative approach to medical education, being the first UK institution to launch a Graduate Entry Medicine Programme, a four-year fast-track medical degree course open to graduates in any discipline. Now part of City St George's, University of London, St George's was the number one university in the UK for Graduate Prospects (on track), according to the Complete University Guide 2024 and second for Graduate Prospects in the 2024 Times UK University Rankings.

Our internationally recognised research delivers cutting-edge scientific discovery through four specialist Research Institutes, directly helping patients through our close links to the clinical frontline and London's diverse community. St George's was ranked joint 8th in the UK by the Times Higher Education in their Research Excellence Framework (REF) 2021 Impact Scores. 36% of St George's research was assessed as 'world-leading' and 100% of our impact cases were judged to be either 'world-leading' or 'internationally excellent.' Our Institutes focus on biomedical and scientific discovery, advancing the prevention and treatment of disease in the fields of population health, neuroscience, heart disease and infection - four of the greatest challenges to global health in the 21st century. Our values keep St George's striving to deliver its mission and demonstrate how we aspire to CARE for ourselves and others:

- Collaboration - We work as a community and engage external partners to deliver our mission.
- Ambition - We strive to achieve the best for ourselves and others, responding dynamically to new challenges.
- Respect - We are open-minded, listening to others and valuing different perspectives.
- Equity - We are inclusive, tackling inequity in all its forms.

The diversity of the people within our community at St George's is one of our strengths. We benefit hugely from the range of perspectives that come from the different backgrounds, opinions and beliefs of our staff and students and, in recognising that, we want to put our approach to diversity and inclusion firmly at our core.

More information about St George's School of Health and Medical Sciences can be found at www.sgul.ac.uk.

City, University of London and St George's, University of London completed a merger on 1 August 2024, creating a powerful multi-faculty, multi-site, institution. The combined university will become one of the largest suppliers of the health workforce in the capital, as well as one of the largest higher education destinations for London students. If you have any questions, you can email hrhelp@sgul.ac.uk with enquiries.



St George's School of Health and Medical Sciences currently offers a range of employee benefits:

Salary: £41,732 pa, (pro-rated for part-time staff). The salary range **CSG 6** is £41,732 – £48,350 and appointment is usually made at the minimum point.

Hours: 35 hours per week which can be done flexibly in various ways or part time/job share can also be considered. Staff are expected to work the hours necessary to meet the requirements of the role and this will be dependent on the service area.

Annual leave: 30 days per annum. Plus eight UK public holidays and four days when City St George's, University of London is closed (usually between Christmas and New Year). Part time staff receive a pro rata entitlement.

Pension: Membership of competitive pension schemes with generous employer contribution and a range of extra benefits.

[Superannuation Arrangements of the University of London \(SAUL\)](#)

[London Pension Fund Authority \(LPFA\)](#)

[Universities Superannuation Scheme \(USS\)](#)

[National Health Services Pension Scheme \(NHSPS\) \(existing members only\)](#)

Flexible working Flexible working, including part-time or reduced hours of work, opportunities to work from home for many posts, compressed hours and local flexibility in agreeing start and finish times of work.

Travel City St George's, University of London offers an interest free season ticket loan and participates in the [Cycle to Work Scheme](#).

Gift Aid If you would like to make a tax-free donation to a charity of your choice, this can be arranged through our Payroll.

Sports and Leisure Facilities Rob Lowe Sports Centre, situated on the St George's Healthcare NHS Trust site offers exercise facilities that can be utilised by City St George's, University of London staff.

Within walking distance from St George's is Tooting Leisure Centre. Facilities include a swimming pool, gym and various exercise classes. The Centre offers staff an all-inclusive corporate membership. For more information please contact [Tooting Leisure Centre](#).



Shops and facilities There are a number of shops and facilities situated on site including ATMs, student bar and shop, Pret a Manger, M&S Simply Food store, library and multi-faith room.

Informal enquiries

Informal enquiries may be made via email to: cowen@sgul.ac.uk and/or arudnick@sgul.ac.uk

Making an application

All applicants are encouraged to apply on line at <http://jobs.sgul.ac.uk> as our system is user friendly and the online application form is simple to complete. Please note that CVs only will not be accepted.

For any accessibility issues please contact hrhelp@sgul.ac.uk

Closing date: **14 November 2024**

Interview date TBC. As shortlisted candidates will be notified by email, it is imperative that you provide an email address that is accessed frequently.

Please quote reference **435-24-R2**

We are delighted that you are interested in working at St George's School of Health and Medical Sciences. You will be notified of the outcome of your application by email. We aim to respond to all candidates within 5 weeks of the closing date of the vacancy.

