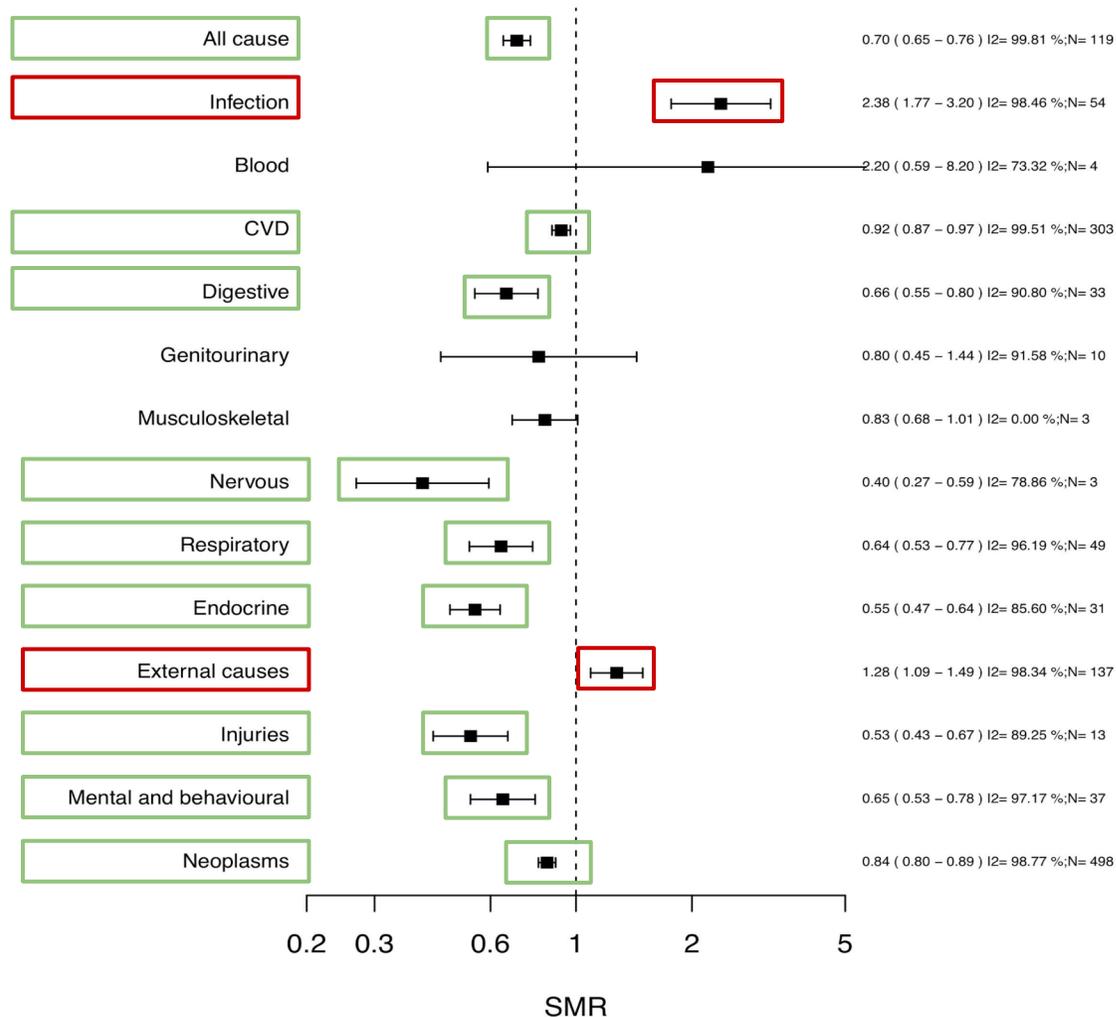# Rachel Burns

Research Fellow at the UCL Centre of Public Health Data Science

Using public health data science to investigate the health of people migrating to the UK.

International migrants have a mortality advantage and this advantage persisted across the majority of ICD-10 disease categories

Category	SMR
All cause	0.70 (0.65 – 0.76) I2= 99.81 %;N= 119
Infection	2.38 (1.77 – 3.20) I2= 98.46 %;N= 54
Blood	2.20 (0.59 – 8.20) I2= 73.32 %;N= 4
CVD	0.92 (0.87 – 0.97) I2= 99.51 %;N= 303
Digestive	0.66 (0.55 – 0.80) I2= 90.80 %;N= 33
Genitourinary	0.80 (0.45 – 1.44) I2= 91.58 %;N= 10
Musculoskeletal	0.83 (0.68 – 1.01) I2= 0.00 %;N= 3
Nervous	0.40 (0.27 – 0.59) I2= 78.86 %;N= 3
Respiratory	0.64 (0.53 – 0.77) I2= 96.19 %;N= 49
Endocrine	0.55 (0.47 – 0.64) I2= 85.60 %;N= 31
External causes	1.28 (1.09 – 1.49) I2= 98.34 %;N= 137
Injuries	0.53 (0.43 – 0.67) I2= 89.25 %;N= 13
Mental and behavioural	0.65 (0.53 – 0.78) I2= 97.17 %;N= 37
Neoplasms	0.84 (0.80 – 0.89) I2= 98.77 %;N= 498

SMR

We examined global patterns of mortality and synthesised data on 14.8 million migrants and 1367 mortality estimates

Evidence gaps:
- Lack of data on vulnerable subgroups (e.g refugees)
- Changes in health over time since migration

Source: Aldridge et al. 2018. The Lancet.

The highest relative mortality in migrants was from infectious and external causes of death and yet research is lacking in these areas

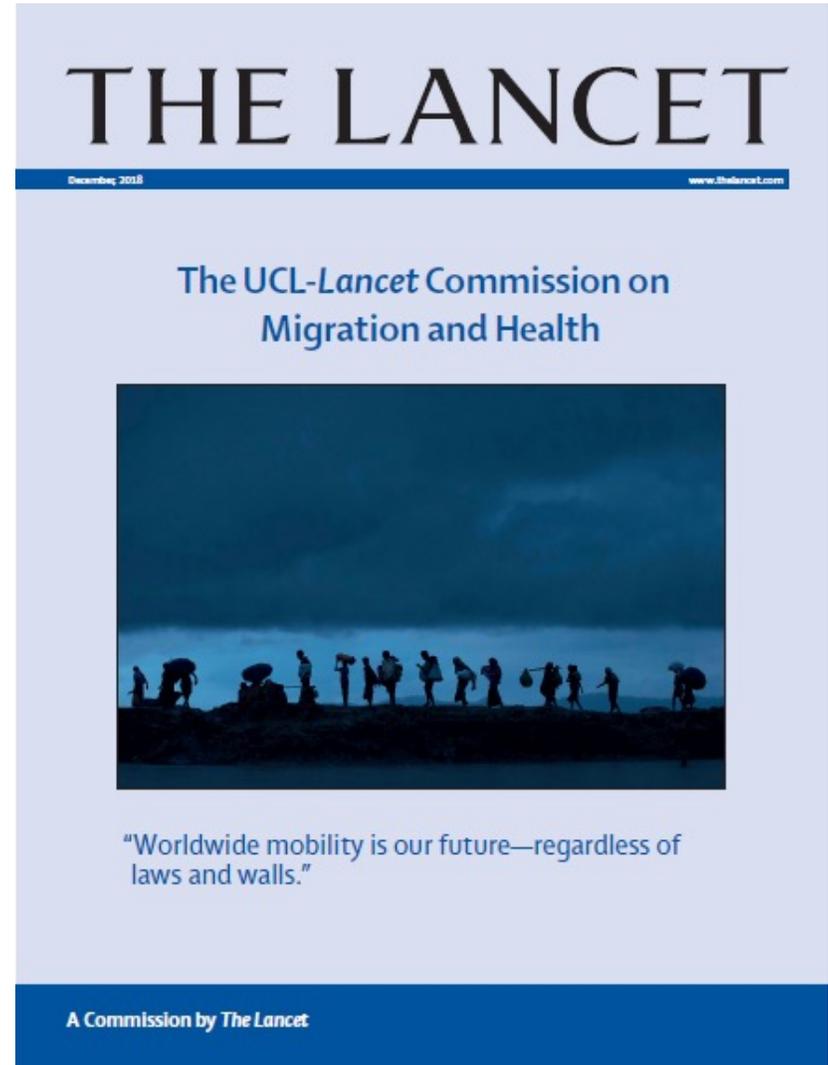| Neoplasms | | | External causes of morbidity and mortality | | |
Diseases of the circulatory system	Certain infectious diseases	Diseases of the respiratory system	Endocrine and		
	Diseases of the digestive system	Mental and behavioural	Injuries	1	
			2	3	

Summary SMR

0.400   2.400

Mortality data points included in systematic review, by ICD-10 group and summary SMR.

Ibrahim Abubakar Commission Chair, Director and Professor, UCL Institute for Global Health (UK)

Rob Aldridge Clinical Lecturer, Farr Institute for Health Informatics, UCL (UK)

Mauricio Barreto Professor and Senior Investigator, Center for Data and Knowledge Integration for Health (Brazil)

Jocalyn Clark Executive Editor, The Lancet (UK)

Fouad M Fouad Assistant Professor, American University of Beirut, Beirut (Lebanon)

Yan Guo Professor of Public Health, Peking University Health Science Centre (China)

Nora Groce Director, Leonard Cheshire Centre for Disability and Inclusive Development (UK)

Delan Devakumar Clinical Lecturer, UCL Institute for Global Health (UK)

Bernadette Kumar Director, Norwegian Centre for Minority Health Research, Oslo (Norway)

Jaime Miranda Professor, Universidad Peruana Cayetano Heredia (Peru)

Nyovani Madise Professor of Demography, University of Southampton (UK)

Sally Hargreaves Senior Research Fellow, Imperial College London (UK)

Terry McGovern Professor and Interim Chair, Mailman School of Public Health (USA)

Leonard Rubenstein Professor, Human Rights, John Hopkins University (USA)

Miriam Orcutt Coordinator, UCL-Lancet Migration and Health Commission (UK)

Davide Mosca Director, Migration Health Department, IOM Geneva (Switzerland)

Susan Sawyer Professor, Centre for Adolescent Health, University of Melbourne (Australia)

Stephen Tollman Director, Rural Public Health Research Unit, University of Witwatersrand (South Africa)

Kabir Sheikh Joint Director, Health Research and Policy at the Public Health Foundation of India

Peter Sammonds Professor of Geophysics, UCL Institute of Risk and Disaster Reduction (UK)

Paul Spiegel Professor, Director of Johns Hopkins Center for Humanitarian Health

Cathy Zimmerman Professor, Gender Violence and Health Centre, LSHTM (UK)

#LancetMigration

@MIGHCommission

info@migrationandhealth.org

THE LANCET

December 2018   www.thelancet.com

The UCL-*Lancet* Commission on Migration and Health

"Worldwide mobility is our future—regardless of laws and walls."

A Commission by *The Lancet*

The Commission's conceptual framework examined the wider influences on migration and health

Check for updates

STUDY PROTOCOL

Million Migrants study of healthcare and mortality outcomes in non-EU migrants and refugees to England: Analysis protocol for a linked population-based cohort study of 1.5 million migrants [version 1; peer review: 2 approved, 2 approved with reservations]

Rachel Burns [1], Neha Pathak [1,2], Ines Campos-Matos [3], Dominik Zenner[4,5], Srinivasa Vittal Katikireddi [6], Morris C. Muzyamba[3], J. Jaime Miranda [7,8], Ruth Gilbert[2,9], Harry Rutter [10], Lucy Jones[11], Elizabeth J. Williamson [12], Andrew C. Hayward [2], Liam Smeeth[13], Ibrahim Abubakar[5], Harry Hemingway[14], Robert W. Aldridge [1,3]

[1]Centre for Public Health Data Science, University College London, London, UK
[2]Institute of Epidemiology and Healthcare, University College London, London, UK
[3]Public Health England, London, UK
[4]Migration Health Division, International Organization for Migration, Brussels, Belgium
[5]Institute for Global Health, University College London, London, UK
[6]MRC/CSO Social and Public Health Sciences Unit, Institute of Health and Wellbeing, College of Medical, Veterinary and Life Sciences, University of Glasgow, Glasgow, UK
[7]CRONICAS Center of Excellence in Chronic Diseases, Universidad Peruana Cayetano Heredia, Lima, Peru
[8]School of Medicine, Universidad Peruana Cayetano Heredia, Lima, Peru
[9]Administrative Data Research Centre for England, University College London, London, UK
[10]Faculty of Humanities and Social Sciences, University of Bath, Bath, UK
[11]UK programme manager, Doctors of the World, London, UK
[12]Faculty of Epidemiology & Population Health, London School of Hygiene and Tropical Medicine, London, UK
[13]Department of Non-Communicable Diseases Epidemiology, London School of Hygiene and Tropical Medicine, London, UK
[14]Institute of Health Informatics Research, Faculty of Population Health Sciences, University College London, London, UK

Open Peer Review

Reviewer Status ✓ ? ? ✓

Invited Reviewers

| 1 | 2 | 3 | 4 |

Abstract
Background: In 2017, 15.6% of the people living in England were born abroad, yet we have a limited understanding of their use of health

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Check for updates

STUDY PROTOCOL

Healthcare resource utilisation and mortality outcomes in international migrants to the UK: analysis protocol for a linked population-based cohort study using Clinical Practice Research Datalink (CPRD), Hospital Episode Statistics (HES) and the Office for National Statistics (ONS) [version 1; peer review: 1 approved with reservations]

Neha Pathak [1-4], Parth Patel [1,2], Rachel Burns [1,2], Lucinda Haim[1,2], Claire X. Zhang [1,3], Yamina Boukari[1], Arturo Gonzales-Izquierdo[1,2], Rohini Mathur [5], Caroline Minassian[5], Alexandra Pitman[6], Spiros Denaxas [1,2,7], Harry Hemingway[1,2], Andrew Hayward [3], Pam Sonnenberg[8], Robert W. Aldridge [1-3]

[1]Institute of Health Informatics, University College London, London, NW1 2DA, UK
[2]Health Data Research UK, London, UK
[3]Institute of Epidemiology & Healthcare,, University College London, London, WC1E 6BT, UK
[4]Guy's & St Thomas's NHS Foundation Trust, London, SE1 9RT, UK
[5]London School of Hygiene and Tropical Medicine, London, WC1E 7HT, UK
[6]Division of Psychiatry, University College London, London, W1T 7BN, UK
[7]The Alan Turing Institute, London, NW1 2DB, UK
[8]Institute of Global Health, University College London, London, WC1E 6JB, UK

Open Peer Review

Reviewer Status ?

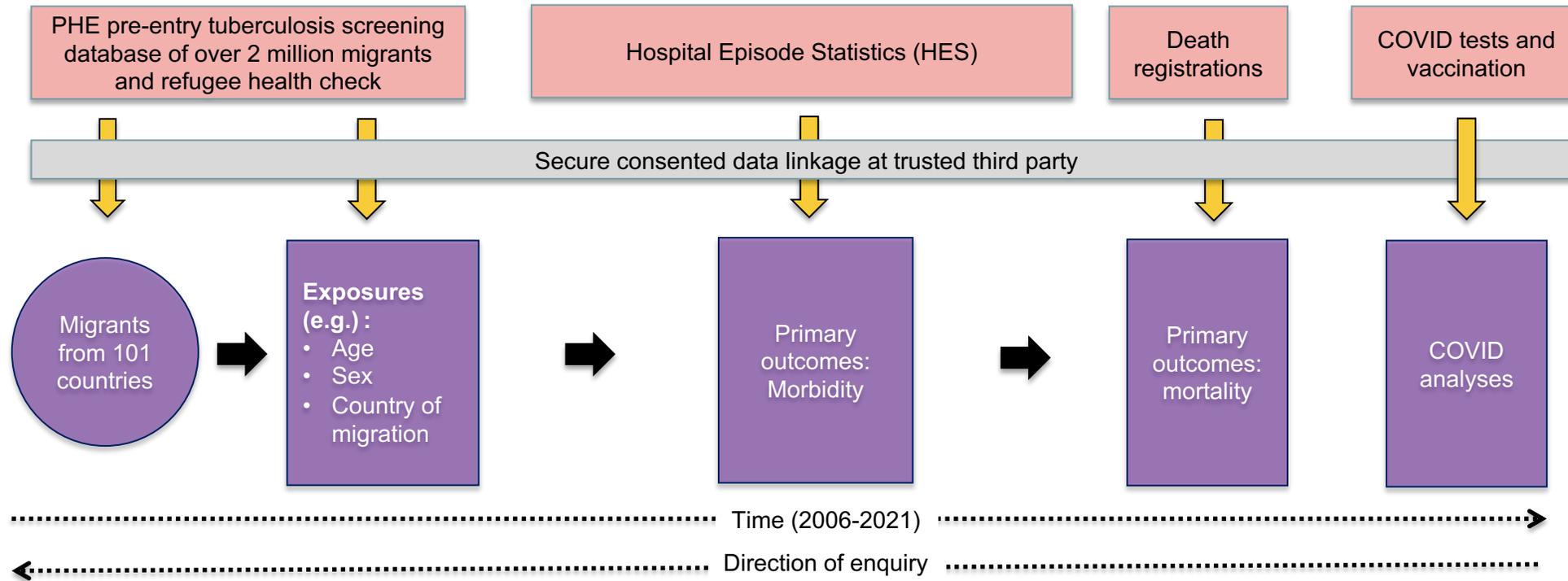| | Invited Reviewers |
	1
version 1	?
03 Jul 2020	report

Abstract
An estimated 14.2% (9.34 million people) of people living in the UK in 2019 were international migrants. Despite this, there are no large-scale national studies of their healthcare resource utilisation and little is known about how migrants access and use healthcare services. One ongoing study of migration health in the UK, the Million Migrants study, links electronic health records (EHRs) from hospital-based data,

Check for updates

STUDY PROTOCOL

Million Migrants study of healthcare and mortality outcomes in non-EU migrants and refugees to England: Analysis protocol for a linked population-based cohort study of 1.5 million migrants [version 1; peer review: 2 approved, 2 approved with reservations]

Analysing and deriving the datasets for the **Million Migrants Study** using refugee health assessment and pre-entry tuberculosis screening data
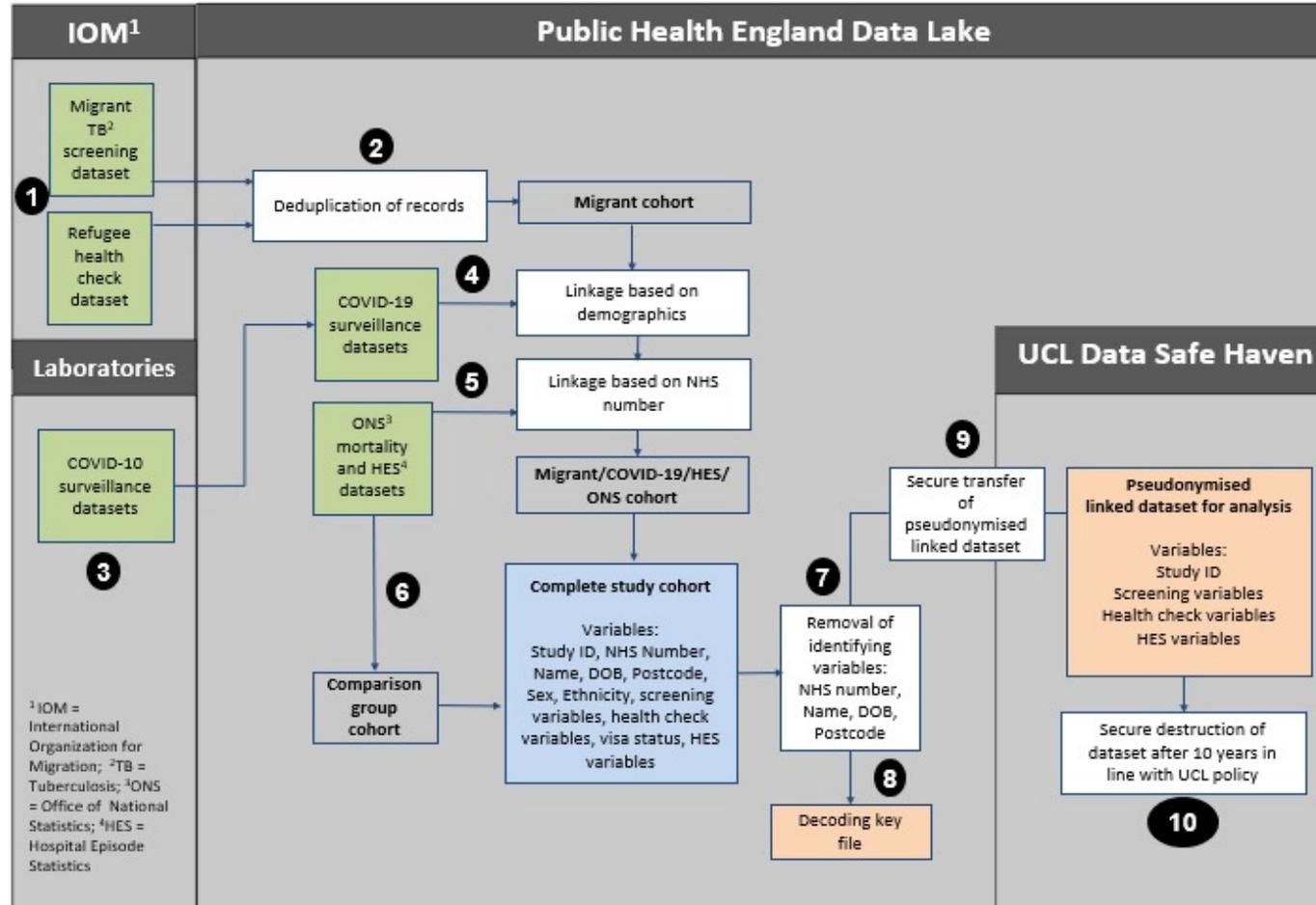
A population-based cohort

STUDY PROTOCOL

Healthcare resource utilisation and mortality outcomes in international migrants to the UK: analysis protocol for a linked population-based cohort study using Clinical Practice Research Datalink (CPRD), Hospital Episode Statistics (HES) and the Office for National Statistics (ONS) [version 1; peer review: 1 approved with reservations]

Development, description and validity of a migration code list in CPRD GOLD

Category type	Category name	Definition
Type of clinical term	Visa status indicating migration to the UK	Any code indicating the individual had a visa status for migration to the UK e.g. "asylum seeker", "student visa".
	Main/first language not English	Any code indicating English as a second language; this included having a main or first language that was not English, specific terms indicating English as a second language, and terms indicating the need for an interpreter.
	Country of birth outside of the UK	Any code indicating birth outside of the UK e.g. "Born in Morocco".
	Non-UK origin	Any code indicating an origin from an nation outside of the UK e.g. Middle-eastern origin.
Certainty of migration status	Definite	Patient had a code from any of the following clinical term categories: •Visa status indicating migration to the UK •Country of birth outside of the UK
	Probable	Patient had a code from the following clinical term category: Main/first language not English.
	Possible	Patient had a code from the following clinical term category: Non-UK origin.

# Categorisation of migrants by certainty of migration status using type of migration code


Type of code

Visa status

Any code indicating the individual had a visa status for migration to the UK e.g. "Asylum seeker, 13ZN.00", "Has United Kingdom student visa, 13Zw.00"

Number of events coded (% of total coded migration events) = 48,232 (10·3%)

Country of birth

Any code indicating birth outside of the UK e.g. "Born in Morocco, 13gV.00"

Number of events coded (% of total coded migration events) = 140,767 (30·1%)

Main/first language

Any code indicating English as a second language; this included having a main or first language that was not English, specific terms indicating English as a second language, and terms indicating the need for an interpreter e.g. "Main spoken language Arabic, 13I0.00"

Number of events coded (% of total coded migration events) = 265,425 (56·8%)

Non-UK origin

Any code indicating an origin from an nation outside of the UK e.g. "Middle Eastern origin, 1348"

Number of events coded (% of total coded migration events) = 12,765 (2·73%)

Certainty of migration status

Definite migrants

Number of individuals (% of total CPRD population) = 178,749 (1·11%)

Probable migrants

Number of individuals (% of total CPRD population) = 216,731 (1·35%)

Possible migrants

Number of individuals (% of total CPRD population) = 8,288 (0·05%)

All migrants

Total number of coded migration events (%) = 467,189 (100%)
Number of individuals (% of total CPRD population) = 403,768 (2·51%)

Percentage of international migrants in CPRD and international migrants in ONS by certainty of migration status (2004-2018).
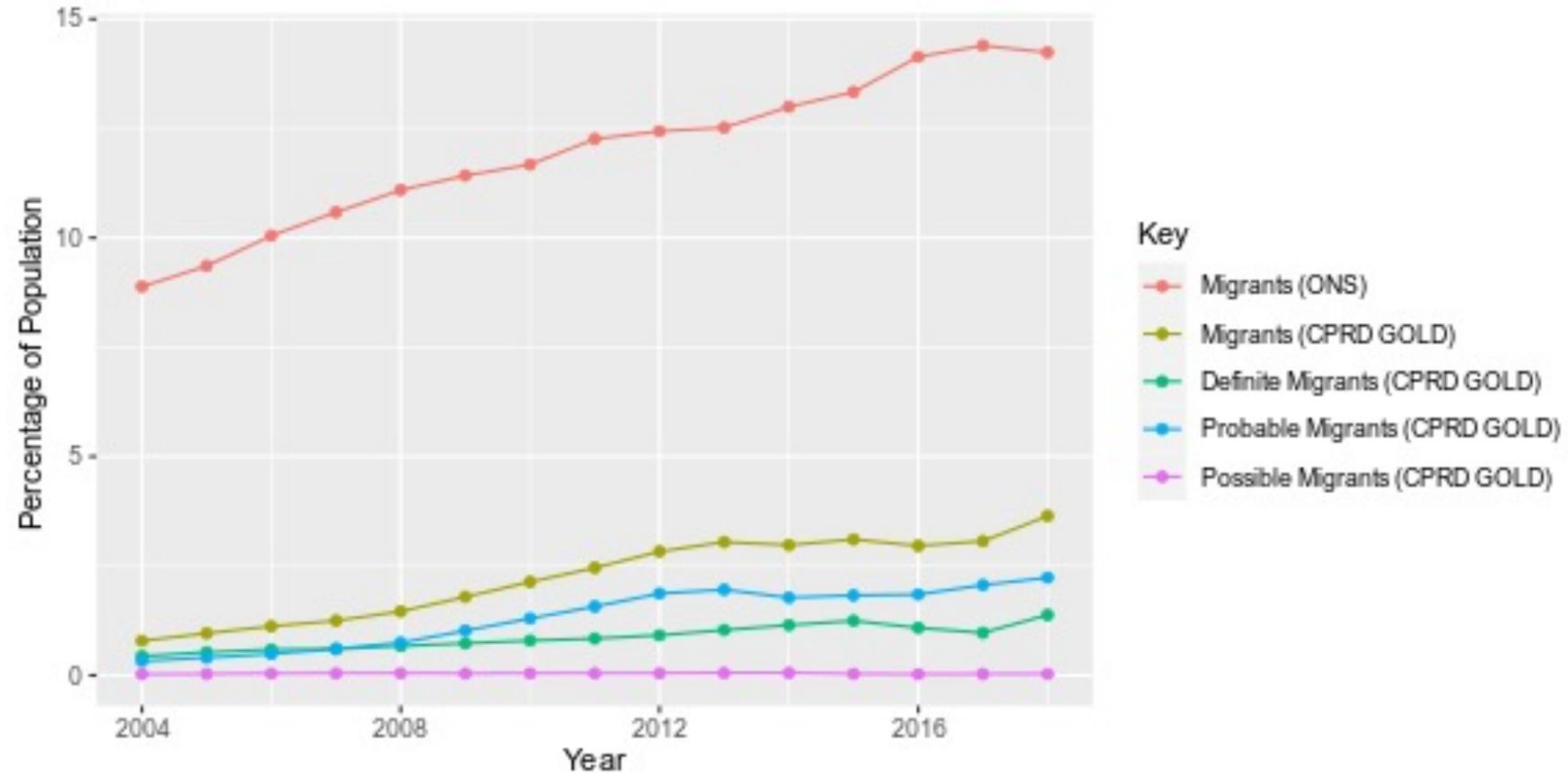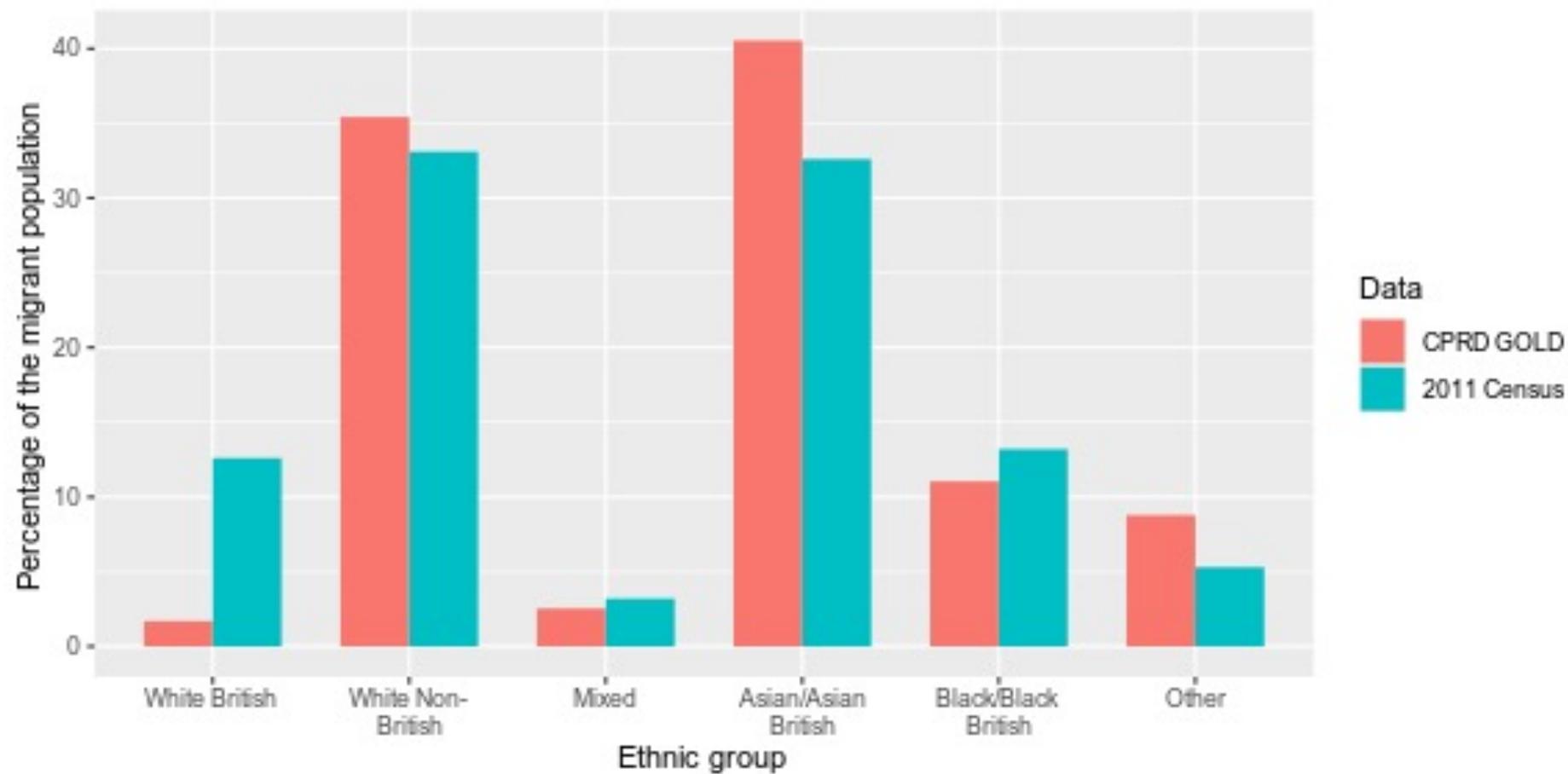
**Percentage age breakdown of CPRD (2011) and ONS migrant population at the time of the 2011 census**
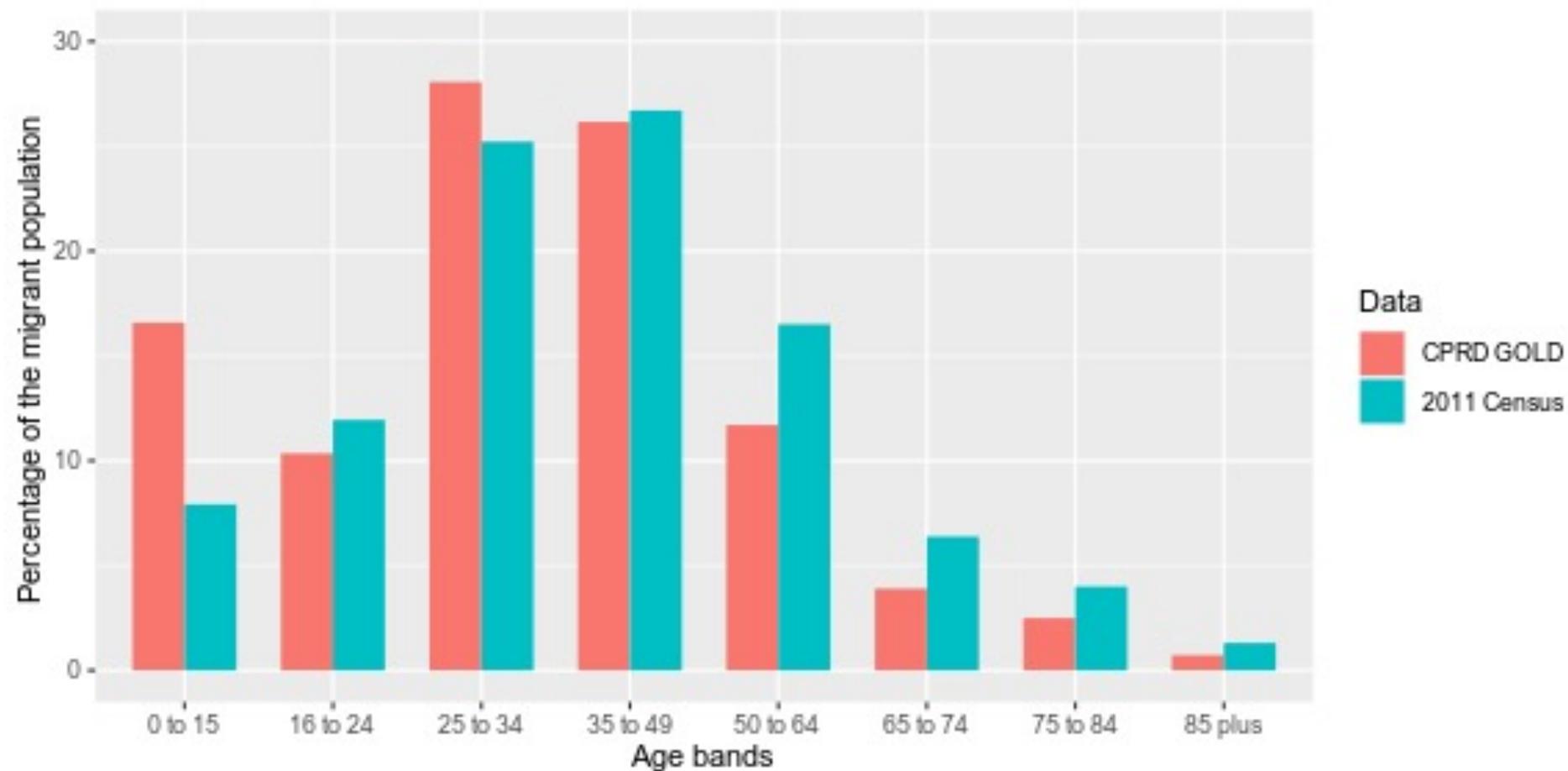
**Percentage of migrants in CPRD (2011) and 2011 census according to continent of birth as defined by ONS**
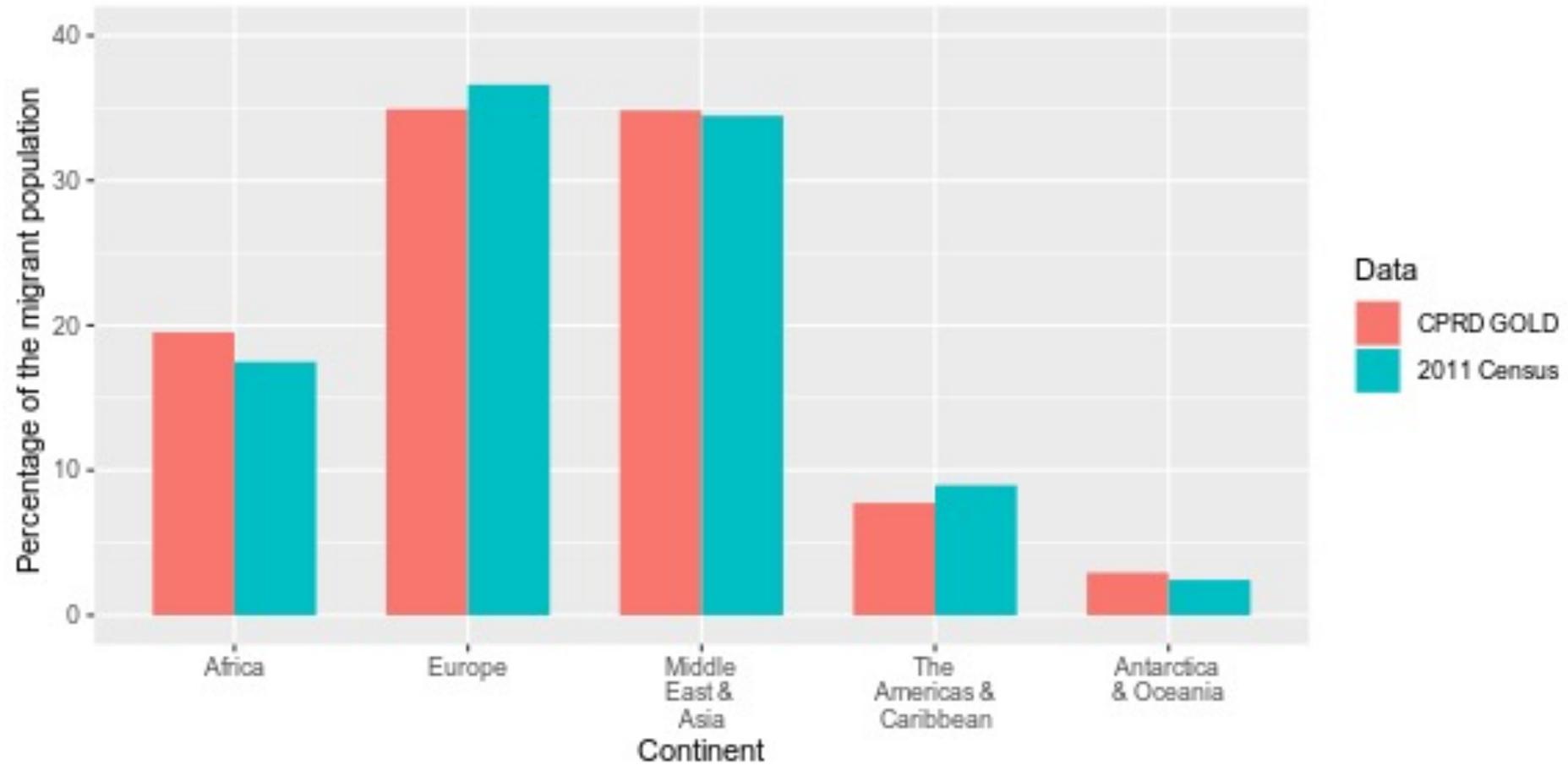
Percentage of migrants in CPRD (2011) and 2011 census by 6 higher-level ethnic groups

Weekly consultation rates by migration status in England: predicted rates from interrupted time-series analysis and observed rates, truncated view July 2019 - November 2020
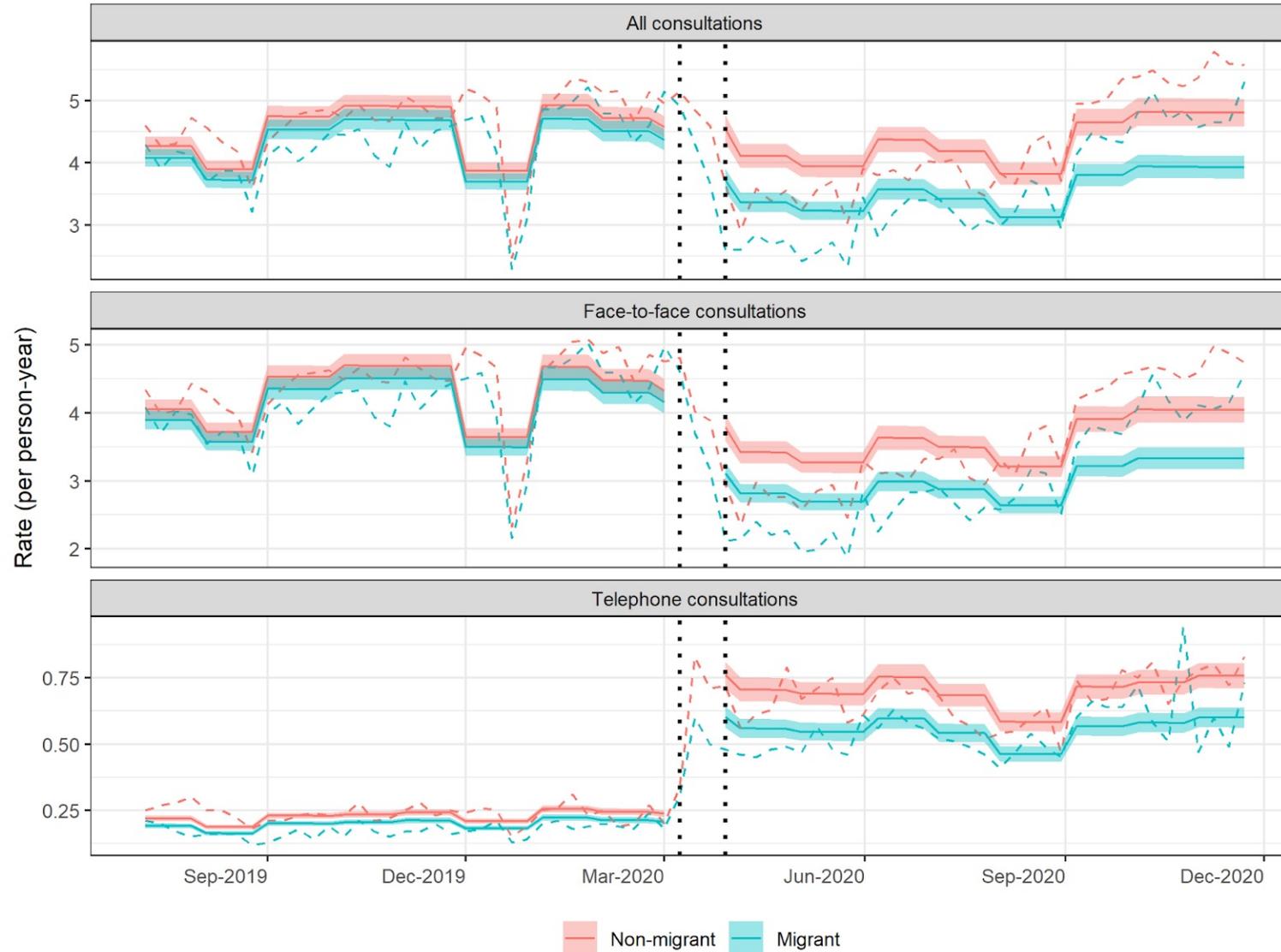
In the UK, we examined data from a humanitarian healthcare organisation and found barriers to accessing NHS healthcare in migrants
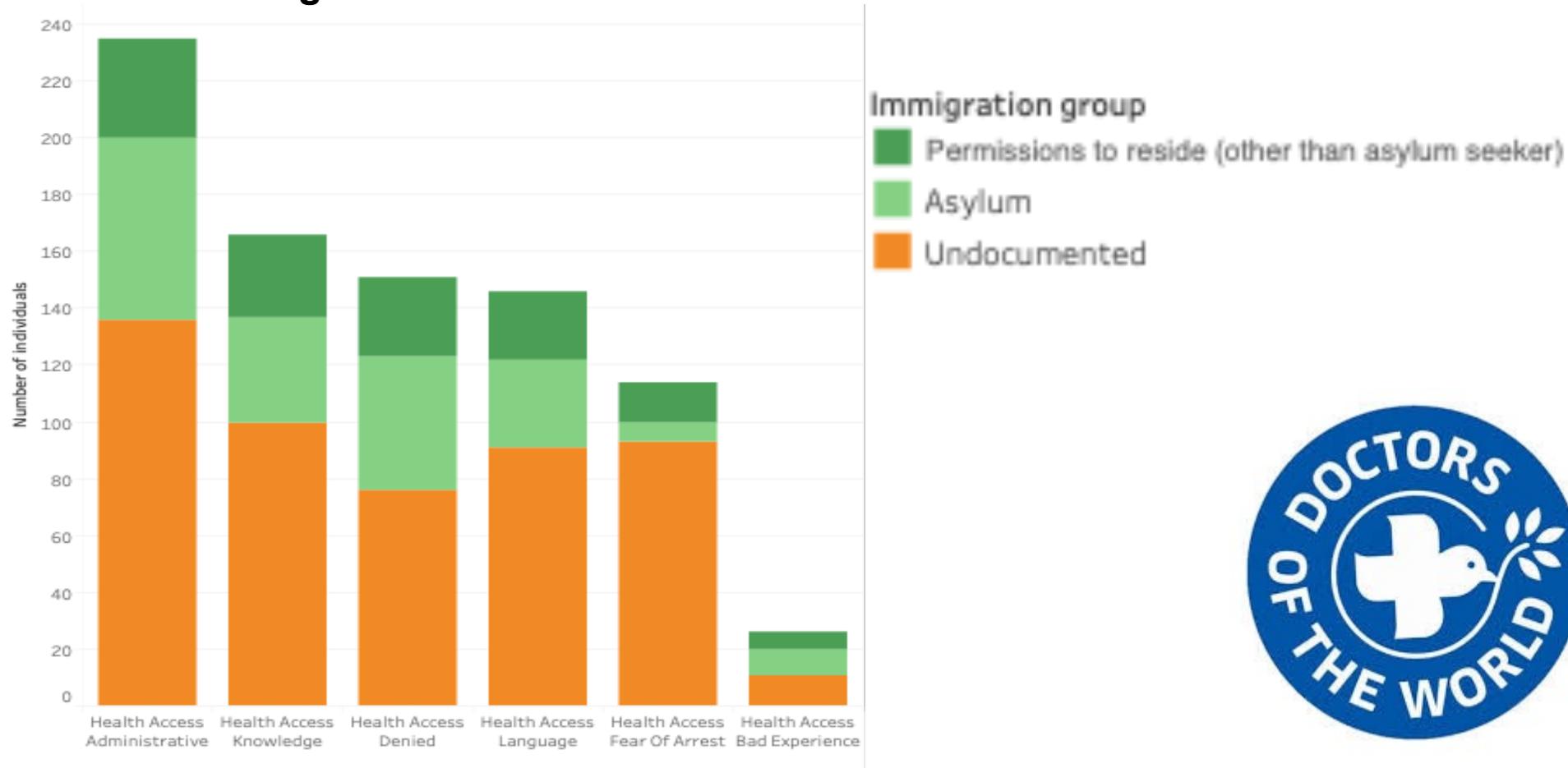
Total number of individuals reporting health access barriers by immigration sub-group

Right to care: improving access to primary care for inclusion health groups

Thank you

Collaborators: Robert Aldridge, Neha Pathak, Claire Zhang, Yamina Boukari

r.burns@ucl.ac.uk