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Drivers of international migration of doctors to and from the United Kingdom

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General Medical Council

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DRIVERS OF INTERNATIONAL MIGRATION OF DOCTORS TO AND FROM THE UNITED KINGDOM

FINAL REPORT

ITT GMC996

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List of Abbreviations & Acronyms

BAME	Black and Asian Minority Ethnic
BMA	British Medical Association
Brexit	Britain leaving the EU
CAMERA	Collaboration for the Advancement of Medical Education and Research
CGS	Certificate of Good Standing
EEA	European Economic Area
EU	European Union
FY1	Foundation Year 1
GMC	General Medical Council
GPs	General Practitioners
HIC	High Income Countries
HEE	Health Education England
IMG	International Medical Graduates. Doctors who gained their primary medical qualification outside the UK, EEA and Switzerland and who do not have European Community rights to work in the UK.
IMGTI	International Medical Graduates Training Initiative
IELTS	International English Language Testing System
Indirect migration	Indirect migration is where doctors migrate from their country of qualification to one country and from there migrate on to another country.
LE	Locally employed doctors
LIC	Low Income Countries
LMIC	Low and Middle Income Countries
MCI	Medical Council of Ireland
MIC	Middle Income Countries
MTI	Medical Training Initiative
NGO	Non-Governmental Organisation
NHS	National Health Service
NVivo QSR	Qualitative Analysis Software
OECD	The Organisation for Economic Co-operation and Development
ONS	Office of National Statistics
Overseas doctor	A doctor who gained their Primary Medical Qualification outside of the UK
PLAB	Professional Linguistics and Assessment Board
PMQ	Primary Medical Qualification
PGQ	Postgraduate Qualification
PROSPERO	Prospective register for systematic reviews
Rayyan QCRI	Systematic Review Software
SAS	Specialty and Associate Specialist
SoMEP	The State of Medical Education and Practice
RQs	Research questions
WP	Work Package
WHO	World Health Organisation

Executive Summary

Background

Research on the migration of doctors to and from the United Kingdom (UK) is urgent for many reasons. The UK is heavily dependent on overseas qualified doctors to staff its healthcare system. According to the General Medical Councils (GMC) Workforce Report 2019, over 34.5% of doctors on the register received their primary medical qualification (PMQ) abroad. At the same time, despite there being shortages of doctors in many specialities, an average of 4% of doctors have left the UK medical workforce each year since 2012, with data on reasons for leaving suggesting around half of these are migrating overseas and a further third are retiring. Another important issue relates to Brexit. As the UK has left the European Union (EU) and the new registration process is not quite as straightforward as it was previously, this may have an impact on the number of doctors choosing to migrate to the UK. Finally, the current COVID-19 pandemic crisis is also likely to influence future doctor migration flows and medical turnover more generally.

The purpose of this research is to understand the drivers of international migration of doctors to and from the UK. The research will enable the GMC to anticipate and respond to, emerging doctor migration trends. The findings have direct implications for GMC operational planning as well as contributing to the wider debate on workforce planning. The research will also identify any significant knowledge gaps in the patterns of migration of doctors to and from the UK and will inform the GMC's interest in commissioning further research on this important issue.

Aim of study & research questions

The aim of the research was to identify the factors that explain recent and longer-term patterns in migration of doctors to and from the UK. To achieve these aims, the study addressed the following research questions (RQs):

- RQ1. What are the recent patterns in the migration of doctors to and from the UK?
- RQ2. What are the drivers of overseas qualified doctors coming to work in the UK?
- RQ3. What are the barriers to overseas qualified doctors coming to work in the UK?
- RQ4. What are the drivers of doctors leaving the UK to work abroad?
- RQ5. How does migration of doctors to and from the UK compare to migration of doctors to other high-income countries?

Methods

A mixed methods design was adopted to investigate the drivers of international migration of doctors to and from the United Kingdom including:

1. *An analysis of secondary data on the migration patterns of doctors to and from the UK.*

The primary data source was the GMC who provided, at an anonymised individual level, data on the UK medical register from 2009-2019 and leavers data from 2013-2019. Secondary data was also analysed from the OECD and regulatory bodies in Ireland, Australia, New Zealand and Canada.

2. *A systematic review of the literature on the drivers and barriers to the migration of doctors.* The search strategy involved searches of key medical and education databases, citation searching and grey literature searches. Searches returned over 3,700 articles which were independently double-screened against the inclusion criteria. The drivers and barriers were coded in NVivo 12 building on an existing framework and categorised into macro- (global and national factors), meso- (profession led factors) and micro-level (personal factors). There were 114 studies included in the synthesis.
3. *Semi-structured qualitative interviews with stakeholders from relevant organisations to supplement our understanding of the factors that drive the migration of doctors, and to explore recent factors that may not yet have appeared in published literature e.g. Brexit and Covid-19.* Interviews lasting 45-60 minutes were conducted with 18 participants across 15 organisations e.g. NHS Employers, locum/recruitment agencies, professional bodies and international regulators. The interviews were coded in NVivo and thematically analysed.

The discussion section of the report triangulates evidence from the literature review and interviews with the trends identified in migration data.

Results

RQ1: What are the recent patterns in the migration of doctors to and from the UK?

This section mainly analyses secondary data relating to joining and leaving the UK medical register up to the year 2019. It also presents data from other available sources e.g. OECD, other professional regulators, international medical regulators. The following migration trends were identified:

Migration to the UK:

- A steady increase in doctors migrating from non-UK PMQ countries from 2009 onwards, with a particularly sharp increase from 2017-2019.
- Since 2013 there has been a large increase in the proportion of doctors migrating to the UK from Middle Income Countries and to a smaller extent Low Income Countries, and a reduction in those coming from High Income Countries.
- The vast majority of doctors migrating to the UK do not join the GP or specialist register at the time of initial entry and relatively few go on to gain specialist or GP registration.
- Unlike UK-PMQ entrants to the register, the majority of doctors migrating to the UK are male. This is especially the case for those migrating from LICs.
- Doctors are migrating to the UK earlier in their medical career and enter the register with an average of 9-10 years of experience.
- In recent years the migration of EU trained doctors to the UK has largely been in line with general migration, however the migration of IMG doctors to the UK has been much higher than general migration.

- Compared with nursing and dentistry, the medical workforce has the highest reliance on non-UK PMQ staff.

Migration from the UK:

- Currently around 4% of doctors are giving up their right to practice in the UK each year, with around half stating their reason for leaving as 'overseas'.
- The number of doctors leaving, including those that leave to move overseas, has fallen since 2015.
- A much higher proportion of non-UK PMQ doctors leave to move overseas than UK trained doctors, especially doctors with a European Economic Area (EEA) PMQ.
- The most popular place UK PMQ doctors migrate to are other English-speaking high-income countries, especially Australia and New Zealand
- A similar proportion of male and female doctors leave to move overseas each year.
- The highest proportion of UK PMQ doctors moving overseas are under 30, whereas the highest proportion of non-UK PMQ doctors moving overseas are aged 30-39.
- Doctors on neither the specialist or GP register and not in training are more likely to leave to move overseas than doctors on other register types.
- International Medical Graduate (IMG) doctors, especially doctors with a PMQ from Middle Income Countries, spend longer on the medical register before leaving than EEA doctors. However, the gap has closed since 2013.
- Ireland and New Zealand have a higher reliance on foreign doctors than the UK.

RQ2. What are the drivers of overseas qualified doctors coming to work in the UK?

The systematic review of the literature identified the following drivers as being most important:

1. Macro-level: employment opportunities, active recruitment and poor working conditions
2. Meso-level: better training and development opportunities, a desire to experience working in a different environment, opportunities to gain clinical experience through short-term employment and opportunities for research
3. Micro-level: financial gain for self (and/or family), desire for life change or a better quality of life.

The stakeholder interviews provided further insight into some of these macro-level (global and national) drivers of doctor migration. The UK was seen to be heavily reliant upon international doctors and that the interest from overseas doctors increases in line with workforce demand. The stakeholders interviewed also mentioned active recruitment whereby employers commission recruitment agencies to recruit doctors internationally but many felt that it had generated mixed results in boosting the UK workforce. One interviewee felt the success of active recruitment was dependent on the specialty. Poor

working conditions within the health system of one's home country acted as a push factor driving overseas doctors to the UK to work.

One of the main meso-level (profession-led) drivers related to there being more training opportunities in the UK, in the form of postgraduate training, fellowships, specialty training and clinical observerships. Another attractive element of training in the UK is the development of a skill-set and education that doctors can use to benefit their own healthcare system if they return home. The status of UK training on the global stage was also highlighted. The prestige of holding professional qualifications and/or professional experience from the UK was attractive, as well as the transferability of accreditation from the Medical Royal Colleges, which open doors for career progression internationally due to their reputation and global reach.

Micro-level drivers included financial gain for oneself and one's family related primarily to the prospect of an increased income in the UK, within the NHS, or in comparison with one's home country. Interestingly, the prospect of financial gain was not a prevalent factor discussed by the interviewees. The desire for a life change was cited in order to have the opportunity for travel and adventure, and to take a break from a predictable way of life, while "the British way of life" was also a pull factor. Despite the challenges of working in the NHS, the UK is still considered to be comparatively more fulfilling in terms of work-life balance than many other countries.

RQ3. What are the barriers to overseas qualified doctors coming to work in the UK?

The systematic review identified the following barriers as being most important:

1. Macro-level: stricter immigration policies, the process of gaining registration and a healthcare system that is difficult to enter
2. Meso-level: negative job security, limited training opportunities and a negative experience of induction scheme
3. Micro-level: concerns about a new working environment, a lack of support and language difficulties.

The primary barrier for non-UK PMQ doctors wishing to migrate to the UK is political, specifically stricter immigration policies that limit or make it difficult to work in the UK, primarily for non-EEA migrants. Additional political factors include specific UK policy changes to reduce net immigration after the UK leaves the EU, and bilateral agreements moderating active recruitment. The qualitative stakeholder interviews also found that the UK's decision to leave the EU and the uncertainty that this brings was a significant political barrier. The perception that Brexit means, that socially and culturally, the UK is no longer a welcoming place for immigrants including overseas doctors, is one that could have real ramifications for recruitment into the medical workforce. However, this does not appear to

be fully reflected in the migration data as yet with EEA migration remaining relatively stable since 2016.

While it is pertinent that the UK has a framework in place to assure the quality of doctors and appropriateness of qualifications to ensure overseas doctors are as safe as UK trained doctors, this does create barriers for some would-be migrants. The systematic review highlighted the difficulties of getting registered within the UK, particularly for IMGs who must undertake the PLAB exam, presented as a “delaying factor” for one interviewee, and also due to the difficult or costly process of registering with the GMC. Other stakeholders, including two UK-based medical education training bodies, and one UK-based locum agency mentioned the difficult and costly process of gaining registration to practise from the GMC. Furthermore, difficulties posed by the GMC in terms of unrecognised PMQs were also noted.

Barriers to inward migration to the UK may include differences between home and destination health systems, for example, differences in the specialties practised, and *how* those specialties are practised, which may make transition to the UK difficult. There may also be differences in the qualifications obtained by doctors coming from overseas, which may disadvantage non-UK PMQ doctors, due to perceived prioritisation of UK trainees.

Perceptions of systematic bias through the prioritisation of UK trainees over overseas doctors, or the idea that overseas doctors are on an unequal footing in the UK system, is a significant concern mentioned. The issue described by one interviewee, is not that selection processes are not accessible to international candidates, but in fact, an implicit language/hidden curriculum exists that only UK trainees understand.

In addition to potential bias within the health system, overseas doctors also face barriers when it comes to registration in the UK, and advancing on to the specialist register. An increase in UK medical graduates may result in a decrease in workforce opportunities, creating medical unemployment and presenting a further health system barrier as the competition for positions increases. The consequence of this is that it may increase the experience of systematic bias faced by overseas doctors as they compete with a larger number of UK candidates for positions at key bottleneck points within the training and promotions process.

Additional micro-level barriers affecting immigration into the UK were linguistic difficulties stress, isolation and a lack of transition support e.g. induction

RQ4. What are the drivers of doctors leaving the UK to work abroad?

The systematic review identified the following drivers as being most important:

1. Macro-level: poor working conditions in the UK, attractive working conditions overseas, and employment opportunities

2. Meso-level: pushed/desire to leave the NHS, better training and development opportunities, feeling undervalued professionally
3. Micro-level: better quality of life, family reasons, desire for a life change, financial gain for self.

The qualitative interviews with stakeholders confirmed that many of the reasons associated with attracting doctors to the UK, also constituted push factors for UK doctors to decide to leave the UK and practise abroad, typically in Australia, New Zealand or mainland Europe. Two factors that aid migration are the extent to which the destination health system is comparable to the UK, and the ease of the registration process within the destination country. Doctors in the UK are attracted to emigrate by the general notion of a better balance between work and one's personal life, and overall a better quality of life. There is a perception of a better work-life balance, a better work rota, the ability to take breaks during working hours, and have days off and protected annual leave, as well as a greater appreciation of well-being. These factors are extremely significant because altogether they contribute to better employee well-being, but also a sense of appreciation, of being valued professionally, and of being able to provide better patient care. Finally, UK-PMQ doctors may also be drawn overseas by the desire to experience a new healthcare system. Stakeholder interviewees described this migration trend as a rite of passage that will make them a more competitive and well-rounded candidate with a more interesting CV.

RQ5. How does migration of doctors to and from the UK compare to migration of doctors to other high-income countries?

The systematic review found that the drivers of the migration of doctors to and from HICs and LMICs are similar to that of the UK. Furthermore, the interviews conducted with respondents representing the core English-speaking higher-income countries (Ireland, Australia, New Zealand, USA and Canada) revealed extremely similar patterns of migration to those experienced directly by the UK. This shows the relative and contextual nature of the push-pull dichotomy.

The barriers to the migration of doctors in to and out of HICs were also similar to those of the UK. The systematic review revealed a more positive barrier for LMICs related to investment in working and living conditions at home, which reduced the push factors driving the desire to emigrate. It also revealed the cost of migration/relocation and a sense of loyalty to the profession in one's home country as unique barriers for LMICs.

Discussion & conclusion

Our data shows an increasing dependence on non-UK PMQ doctors (particularly from India, Pakistan, Sudan, Egypt and Nigeria) to staff the UK's healthcare system. The decision for a doctor to migrate is multi-layered and is a complex balance between push/pull at macro-/meso-/micro-level. It is also relative to a doctors' own values and experiences, reflecting individual priorities. Many of the key drivers of migration to the UK, for example better working conditions, are also factors driving migration from the UK and into other countries.

It is concerning that doctors with a non-UK PMQ find it difficult to progress within the UK health-system, particularly when for many career progression is a key ambition and reason for joining the UK workforce.

With the international market for doctors becoming even more fiercely competitive, our findings suggest that how welcoming a country is perceived as being, working conditions in the health sector, and training/career opportunities for non-domestic doctors are key for a country having a competitive advantage in this area. Immigration and smooth processes for joining the register that still assure quality and safety are vital to getting the benefit of any competitive advantage.

1. Introduction

The United Kingdom (UK) is heavily dependent on internationally trained doctors to staff its healthcare system.¹ Doctors with overseas qualifications are a core part of the UK medical workforce, with over 34.5% of licensed doctors receiving their primary medical qualification (PMQ) abroad.² Over half of new doctors who joined the workforce in 2019 were non-UK graduates.² Of non-UK graduate doctors, 74.3% qualified outside the European Economic Area (EEA), mainly in South Asia, but with increasing numbers coming from Africa and the Middle East.² Not only do non-UK PMQ doctors increase the number of registered practitioners in the UK, but they are also more likely to work in areas of deprivation and contribute to out of hours work in General Practice compared to UK qualified General Practitioners (GPs).³

At the same time, an average of 5% of doctors have left the UK medical workforce each year since 2012, with data captured on their reasons for leaving suggesting that around half are going overseas with a further third retiring.² GMC data is limited on where exactly doctors move to when they leave the UK. However, the Organisation for Economic Co-operation and Development (OECD) data suggests that UK-trained doctors are mainly going to other high-income English-speaking countries like New Zealand, Australia, Canada and the United States of America (USA).¹

The global geographic maldistribution of doctors has been an ongoing problem for many decades.⁴ The migration patterns of doctors tend to follow typical patterns for highly qualified people, and has been described as the 'brain drain'.⁵ The term 'brain drain' was coined in the mid-1950s to capture the social and professional dimensions of doctors leaving their home country.⁶ It generally involves the flow of doctors from low to higher income destinations. Two major categories of driving forces for medical migration have been identified: the 'push' and 'pull' factors.⁷ Factors that 'push' doctors away from their country of origin can include below standard working conditions and facilities, low pay, high-stress levels, lack of clinical and administrative support, and a poor quality living environment. Combined with this are 'pull factors' attracting doctors into a new country including quality of life, better working conditions, higher incomes and training opportunities.⁸ There are also involuntary factors that often force emigration including social and political unrest, human rights violations, ethnic and religious tensions, political persecution, wars, and economic collapse.⁷

There has been some research carried out to date on the migration of UK doctors.^{2, 5, 8-15} Some of these studies have concentrated on the migration of doctors into the UK^{9-12, 15} including motives for migrating to the UK, and the experiences of European Union (EU) qualified doctors in the UK.^{12, 9} Other studies have examined migration out of the UK^{5, 8, 13, 14, 16} including the characteristics of these doctors and their motivations for leaving. In terms of the methods utilised in these studies there have been a number of cross-sectional

surveys,^{5, 8, 10, 13, 14} analysis of secondary data,¹¹ a qualitative study,¹² and a systematic review.⁹

There has been one systematic review of qualitative studies conducted on the migration of healthcare professionals into the UK by Davda in 2018.⁹ The aim of this review was to examine the migration motives, the barriers to and facilitators of international dental graduates, compared with nurses and doctors in the United Kingdom. Based on the 31 studies included in the synthesis, the review found that the migration of health professionals to the UK is determined by personal and professional factors, along with source country-specific and UK drivers. Common drivers include active recruitment, desire to gain postgraduate training and financial gain; however the extent to which each of these drivers influence healthcare professionals migration is different. The review highlights the complexity of, and the differences in, healthcare professionals' motivations to migrate to the UK. The main limitation of this review is that it only focused on qualitative studies of doctors, dentists and nurses and their migration into the UK and the results do not distinguish between migration motives for the different healthcare professionals included in the study.

Further research is required to understand the recent trends in the flow of doctors to and from the UK and the reasons for these trends. The importance of this further research has been amplified by recent global events. As the UK has left the EU this may have a significant impact on the regulation, movement and education of doctors. The current Covid-19 crisis is also likely to influence future doctor migration flows and medical turnover more generally. Effective workforce planning is dependent upon an understanding of the complex migration patterns of doctors and the drivers behind them. By summarising the knowledge on this topic, the research will put the GMC in a stronger position to anticipate, and respond to, emerging doctor migration trends. The findings will have direct implications for GMC operational planning as well as contributing to the wider debate on workforce policy and planning. The research will also identify any significant knowledge gaps in the patterns of migration of doctors to and from the UK and will inform the GMC's interest in commissioning further research on this important issue.

1.1 Aim of study & research questions

The aim of the research is to identify the factors that explain recent and longer-term patterns in migration of doctors to and from the UK. To achieve this aim, the study addressed the following research questions (RQs):

- RQ1. What are the recent patterns in migration of doctors to and from the UK?
- RQ2. What are the drivers of overseas qualified doctors coming to work in the UK?
- RQ3. What are the barriers to overseas qualified doctors coming to work in the UK?
- RQ4. What are the drivers of doctors leaving the UK to work abroad?
- RQ5. How does migration of doctors to and from the UK compare to migration of doctors to other high-income countries?

2. Methods

The research used a mixed methods design to investigate the drivers of international migration of doctors to and from the United Kingdom. The research involved three phases including an analysis of secondary data on migration patterns, a systematic review of the literature on push and pull factors of the migration of doctors with a specific focus on the UK, and interviews with experts from relevant organisations. Table 1 shows how the research methods map to the research questions.

Table 1: Mapping research questions to work packages

	Research Questions	Secondary Data Analysis	Systematic Review	Qualitative Interviews
RQ1.	What are the recent patterns in migration of doctors to and from the UK?	X		
RQ2.	What are the drivers of overseas qualified doctors coming to work in the UK?		X	X
RQ3.	What are the barriers to overseas qualified doctors coming to work in the UK?		X	X
RQ4.	What are the drivers of doctors leaving the UK to work abroad?		X	X
RQ5.	How does migration of doctors to and from the UK compare to migration of doctors to other high-income countries?	X	X	X

2.1 Phase 1 - Analysis of secondary data

The overall aim of this phase of the research was to understand the flow of doctors to and from the UK from 2009-2019. Previous research has shown that no single source of data can fully reflect the complexity of migration. However, examining different data sources together provides a much clearer picture.¹⁷ Thus a range of existing secondary data sources were drawn upon including data from the GMC, OECD, EUROSTAT, Office of National Statistics (ONS), Medical Council of Ireland, Department of Border Immigration and Border Protection (Australia) Medical Council of New Zealand, and Citizenship and Immigration (Canada).

The high-income countries we refer to in RQ5 are Ireland, Australia, New Zealand, Canada and the USA. These are all high-income English-speaking countries where the majority of emigrating UK-trained doctors move to practise.¹

2.1.1 Secondary data on the migration of doctors to the UK

The main source of data utilised to understand the recent patterns of migration to the UK was GMC data.¹⁸ The GMC publishes aggregate data on the current distribution of the medical workforce across the four nations of the UK¹⁹ and on the sources of the medical workforce by country of primary medical qualification (PMQ).¹⁸

Raw data from the register dataset containing the characteristics of doctors and details of their location as derived by the GMC were provided by the GMC to the research team. The following assumptions were applied to the data and the following limitations need to be acknowledged:

1. The analysis looks at registered doctors as of the of the 30th June each year. As such, a doctor who entered the register after the 30th June and left before the next 30th June would therefore not be included in this analysis.
2. Furthermore, doctors who have not registered, or have been suspended or erased from the list of Registered Medical Practitioners are excluded from the analysis.

Another important part of answering this research question was to compare the migration of doctors to the UK with the migration of the general population. This enabled us to understand if the migration of overseas-qualified doctors is similar or different to the migration of other groups of people. This was achieved by comparing the GMC data with Office for National Statistics (ONS) data.¹⁷ This data contained information on people moving into and out of the UK, long-term migration, short-term migration, and non-UK residents' data, providing a picture of those entering and leaving the UK and covering all lengths of stay.

2.1.2 Secondary data on the migration of doctors from the UK

While we cannot pinpoint through GMC data exactly where doctors are moving to when they leave the UK, we can examine the characteristics of those that leave the profession. A leaver is defined as any doctor giving up their right to practice. After the introduction of licensing in 2009 this means any doctor giving up their licence. Since 2012 the GMC has collected data on the reason why doctors give up their right to practise e.g. retirement, going overseas. Data on those leavers who stated their reason for leaving as 'overseas' was used to identify trends in the migration of doctors from the UK. Aggregate data was split by key variables including PMQ, age, gender, specialty and number of years practising.

We also analysed data from four key destination countries (Ireland, Australia, New Zealand and Canada) via professional registers and/or immigration records (see Table 2). We attempted to obtain secondary data on the USA but were not successful.

Table 2: Data from destination countries

Country	Source of Data	Subject of Data
Ireland	Medical Council of Ireland	No. of new UK entrants
Australia	Department of Immigration and Border Protection	Visas granted to UK citizens
New Zealand	Medical Council of New Zealand	UK trained doctors joining the New Zealand Register
Canada	Citizenship and Immigration Canada	UK doctors issued with work permits

2.1.3 Migration of doctors to the UK compared with migration of doctors to other high-income countries

We used OECD²⁰ and EU Eurostat²¹ data to compare the dependence on overseas qualified doctors of selected higher-income countries', with the UK. This provided a global summary of migration at the national level.

2.1.4 Summary of secondary data sources

A summary of the secondary data sources analysed in Phase 1 of the research is presented in Table 3.

Table 3: Summary of secondary data sources

Topic	Source of Data
Migration of doctors to the UK	GMC Registry 2009-2019 ¹⁸
Migration of doctors from the UK	GMC Registry 2012-2019 ¹⁸
Comparing migration of UK doctors to other HIC's	OECD ²⁰ EUROSTAT ²¹ Medical Council of Ireland Department of Immigration and Border Protection Australia Medical Council of New Zealand Citizenship and Immigration Canada
Comparing migration of UK doctors to general migration trends	ONS ¹⁷

2.2 Phase 2 – Systematic review of literature

2.2.1 Review protocol

A systematic review protocol was developed by the research team and was registered with PROSPERO (a prospective register of systematic reviews) to help avoid unplanned duplication and to enable comparison of reported review methods with what was planned in the protocol.²² The PROSPERO reference number is CRD42020165748.

2.2.2 Search strategy

The search strategy was designed, piloted and carried out by an information specialist with experience of carrying out searches for medical education systematic reviews. The search strategy included a variety of search methods. We searched both medical and other health professions databases (EMBASE, MEDLINE, CINAHL) as well as educational databases (e.g. ERIC, BEI). The searches were carried out on the 23rd of January 2020. We searched for relevant items published from 2009 to 2020. The databases were searched with free text keywords and controlled vocabulary where appropriate using terms such as 'doctors' OR 'physician' AND 'migration' OR 'emigration' or 'brain drain' OR 'working overseas' OR 'come to the UK' OR 'overseas trained' OR 'internationally trained'. See Appendix A for full search histories.

Grey literature searching was also carried out. The grey literature databases HMIC and ETHOS were searched on the 21st of May 2020. The websites of key organisations were searched for relevant publications on the 30th of May 2020. The key organisations were the WHO, the ONS, Euro Stat, OECD, Medical Council of Ireland (MCI), GMC, Australian Medical Council, New Zealand Medical Council, Medical Council of Canada, American Medical Association.

We searched the bibliographies of included papers identified by the search of electronic databases. The abstracts for any relevant papers were sought and then the inclusion criteria were applied. For studies about the UK we undertook exhaustive citation searching, however for any studies outside the UK, only one round of citation searching was completed due to resource limitations.

2.2.3 Study selection

In order to select studies relevant to our research questions we applied the following inclusion criteria:

- Topic of interest - the international migration of doctors.
- Countries of interest – any country. Any studies from developing countries that mentioned migration to the UK were included. Those that did not were excluded.
- Type of participants – all studies about doctors.

- Study design – all articles that reported empirical research. Literature reviews were also included if they were systematic reviews of the literature or reported systematic search methods.
- Language – studies published in English language.
- Date - 2009 to present. This was a sufficient timeframe to access recent relevant literature.
- Outcome measures – all outcome measures.

The potential relevance of all titles and abstracts was assessed using Rayyan QCRI (systematic review software) by three reviewers independently. All articles were double screened and any discrepancies were discussed until agreement was reached.

The literature identified by the systematic review are summarised in Figure 1. The characteristics of the 114 included studies are presented in Appendix B.

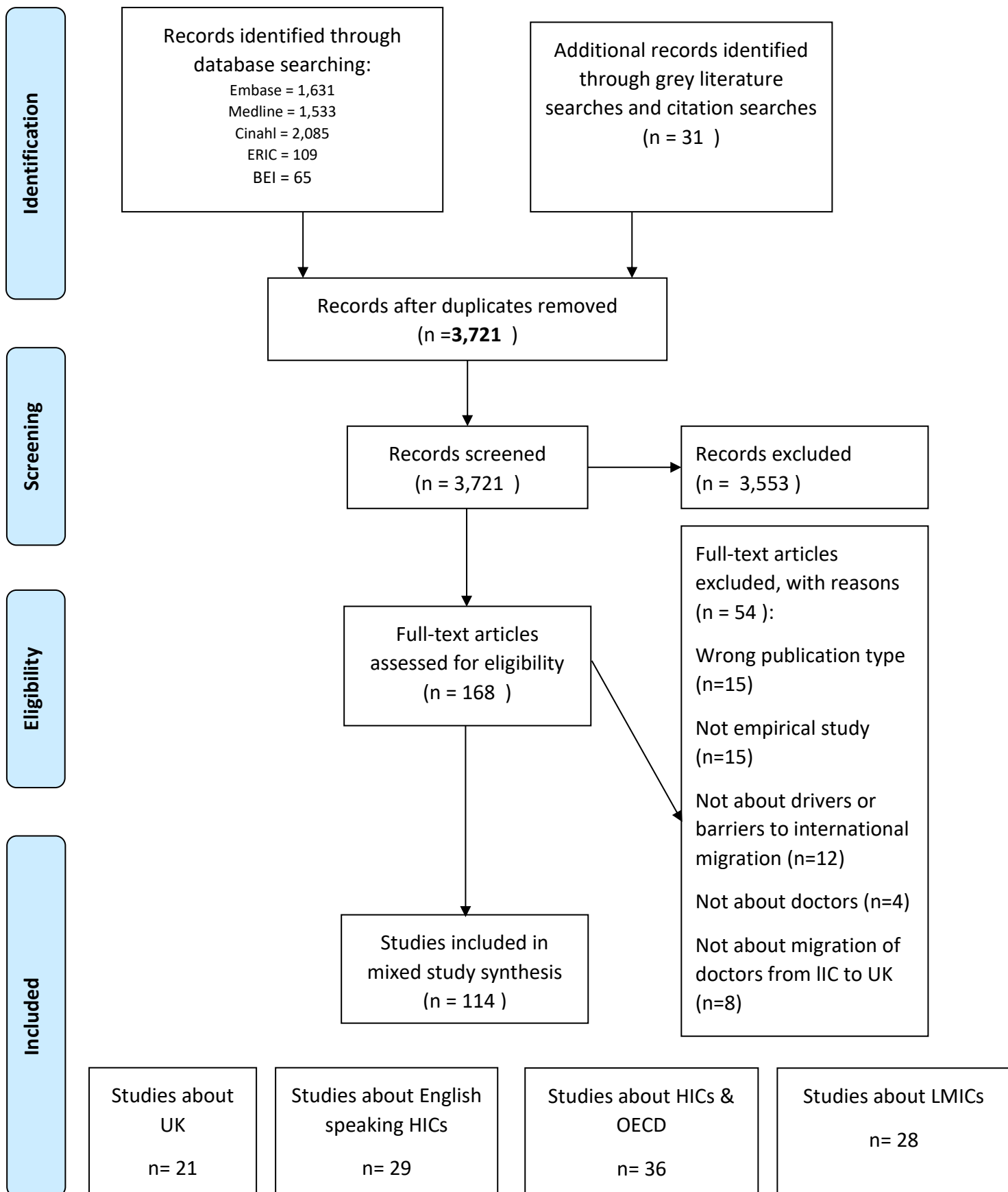
2.2.4 Data extraction

The papers of all eligible studies were obtained and read in full. A standardised data extraction review form was piloted and utilised. The extraction was carried out in Microsoft Excel by two researchers. A random sample of 10% of all articles were data extracted independently by both researchers and then compared for consistency.

2.2.5 Data synthesis

Data extracted on drivers and barriers was then exported into NVivo 12 (QSR). NVivo is a computerised indexing system for coding and analysing qualitative data. In order to consistently categorise the drivers and barriers we decided to develop a coding framework. As a coding framework had already been developed by Young²³ and successfully used in the Davda⁹ systematic review we decided to use the same framework as a starting point for coding our data. Young's model categorises the factors attracting health professionals to the UK into three broad categories including macro-level (global and national factors), meso-level (profession led factors) and micro-level (personal factors) drivers of migration.²³ Additional codes identified in our data were added to Young's framework. See Appendix D for the full coding framework. We also developed another arm to the coding framework to capture the barriers. A 10% sample of the articles was coded by two reviewers to compare for consistency. One reviewer then coded the remaining papers. Our review adopted a narrative synthesis approach.

Figure 1: PRISMA Flow Diagram



2.3 Phase 3 – Qualitative research Interviews

We conducted a series of qualitative interviews with field experts and key stakeholders (n=18) between September and November 2020. The purpose of these interviews was to supplement our understanding of the factors that drive doctors to move between countries during their careers, in particular by generating insights in recent trends or factors which may not yet appear in published literature, for example the impact of Brexit or NHS workload pressures on doctors' decision-making, and the causes of the recent surge of doctors from the Middle East/Africa. It also provided the opportunity to discuss migration within the current Covid-19 pandemic.

2.3.1 Sampling and participant recruitment

We used a purposive sampling strategy to recruit participants from organisations who had relevant expertise and knowledge about the international migration of doctors e.g. professional bodies, locum agencies, medical education training organisations and international regulators (see Appendix D for full list of organisations). Some of the participant organisations were identified and recruited via existing links between the GMC and the organisations. Others were identified via links with the research team. Participants were sent an information sheet and asked to complete a consent form.

2.3.2 Data collection

The interviews were semi-structured in format, using a topic guide developed by the research team to cover the research questions, but allowing the conversation to develop depending on the individual participant's particular perspective and expertise. The interview schedule is available in Appendix E.

Interviews were conducted by video between 22/9/2020 and 5/11/2020. Interviews were digitally audio-recorded, and transcribed by a professional transcriber bound by a confidentiality agreement. Participants were anonymised prior to transcription and were referred to by a signifier (country and type of organisation). Interviews were completed with 17 participants in 14 organisations. Three of these were group interviews. One organisation provided a written response to the interview schedule.

2.3.3 Data analysis

The interview transcripts were uploaded into NVivo 12. The data were analysed using an inductive approach to thematic analysis. A coding framework was developed by three researchers who each coded four transcripts independently. Each developed their own coding framework and then met as a group to discuss and finalise the coding framework. One researcher then completed the remainder of the coding with regular meetings to discuss any potential queries or issues. Once we had completed and written up the analysis we identified a lot of overlap between our coding framework and Young's framework used in the systematic review, as a result of this we were able to structure the write up based around Young's framework.

2.3.4 Ethical approval

Ethical approval was received from the University of Plymouth Faculty of Health Research Ethics and Integrity Committee and was approved on the 3rd of June 2020 (ref no: 19/20-1222).

2.4 Integration of findings

Our mixed-method study took a sequential explanatory approach whereby the findings of the analysis of secondary data and the systematic review are further explored using the qualitative interviews. Integration of the findings took place during data interpretation. We used the discussion section to revisit the data trends identified in Chapter 3, triangulating the findings from the literature review and interviews to better understand these patterns.

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3. RESULTS RQ1: What are the recent trends in the migration of doctors to and from the UK?

3.1 Migration to the UK

In this chapter we describe the trends in the migration of doctors to and from the UK. Further details on the data sources are outlined in section 2.1. Firstly, we examine the migration trends of non-UK qualified doctors to the UK. Then we examine the migration trends of doctors leaving the UK.

Throughout this section there are some small discrepancies between the data provided to the research team by the GMC and data reported elsewhere e.g. the State of Medical Education and Practice report. This is because the raw data has been treated differently by different teams. We calculated joiners to the register in the following way: firstly, we took a “snapshot” of the GMC register as of 30th June each year, then we used these annual snapshots to identify joiners who are in the current snapshot but not in the previous. This will mean that the small number of doctors who:

1. enter then leave the register between the 1st July and 30th June are excluded from the analysis
2. return to the register after lapsing their registration, will only be considered as joining at year of first registration.

This may account for the discrepancies with data reported elsewhere e.g. SoMEP data. It is important to note that the data analysis uses PMQ not nationality (although generally this is a good proxy for nationality).²⁵

3.1.1 Overall number of doctors migrating to the UK

Trend 1: A steady increase in doctors migrating from non-UK PMQ countries to the UK from 2009 onwards, with a particularly sharp increase from 2017-2019.

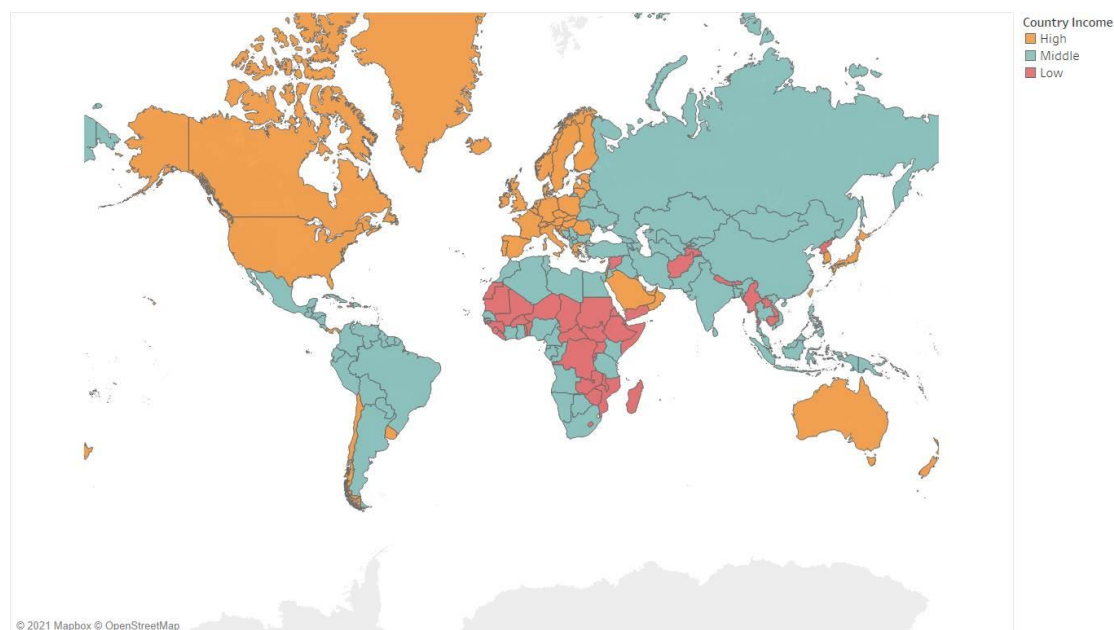
The number of non-UK PMQ doctors joining the register almost doubled over the last 10 years, increasing from 4,880 in 2009 to 9,353 by 2019 (Table 4). The increase has been particularly sharp between 2017-2019 with an overall increase of 61% during this time.

3.1.2 PMQ of doctors migrating to the UK

For the purposes of the analysis, the PMQ country of doctors has been grouped by income into high (HICs), middle (MICs) and low income (LICs) countries (see Figure 2). This is a useful categorisation as it is known that health worker migration is often connected to the economic status of a country. Other studies on health worker migration have also used this categorisation.^{26, 27} In some instances we have also referred to European Economic Area (EEA) countries to demonstrate a particular trend.

The categorisation of countries into different income groups is based on The World Bank’s Atlas method.²⁸ Low-income economies (n=29) are defined as those with a Gross National Income (GNI) per capita of \$1,035 or less in 2019; middle-income economies (n= 106) are those with a GNI per capita between \$1,036 and \$12,535; high-income economies (n= 83) are those with a GNI per capita of \$12,536 or more. A full list of the countries in each category is included in Appendix F.

Figure 2: Classification of Countries by Income



Source: World Bank

Trend 2: Since 2013 there has been a large increase in the proportion of doctors migrating to the UK from Middle Income Countries and to a smaller extent Low Income Countries, and a reduction in those coming from High Income Countries.

Overall, the number of doctors migrating from MICs has increased from 2,209 in 2009 to 5,827 in 2019 (Table 4). There has also been an increase in the overall number of doctors from LICs increasing from 216 in 2009 to 876 in 2019. The proportion of new registrants from HICs has fallen from 62.5% in 2013 to 28.3% in 2019 (Figure 3).

Table 4: Annual new non-UK PMQ registrations by income group 2009-2019

	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
HICs	2,455	3,281	3,648	3,451	3,640	3,828	3,085	2,488	2,495	2,459	2,650
MICs	2,209	2,868	2,408	2,161	1,939	2,148	2,154	2,594	2,968	4,209	5,827
LICs	216	304	330	287	242	257	253	295	356	488	876
Total	4,880	6,453	6,386	5,899	5,821	6,233	5,492	5,377	5,819	7,156	9,353

Source: GMC Data - Doctor Details and Derived Doctor Location datasets

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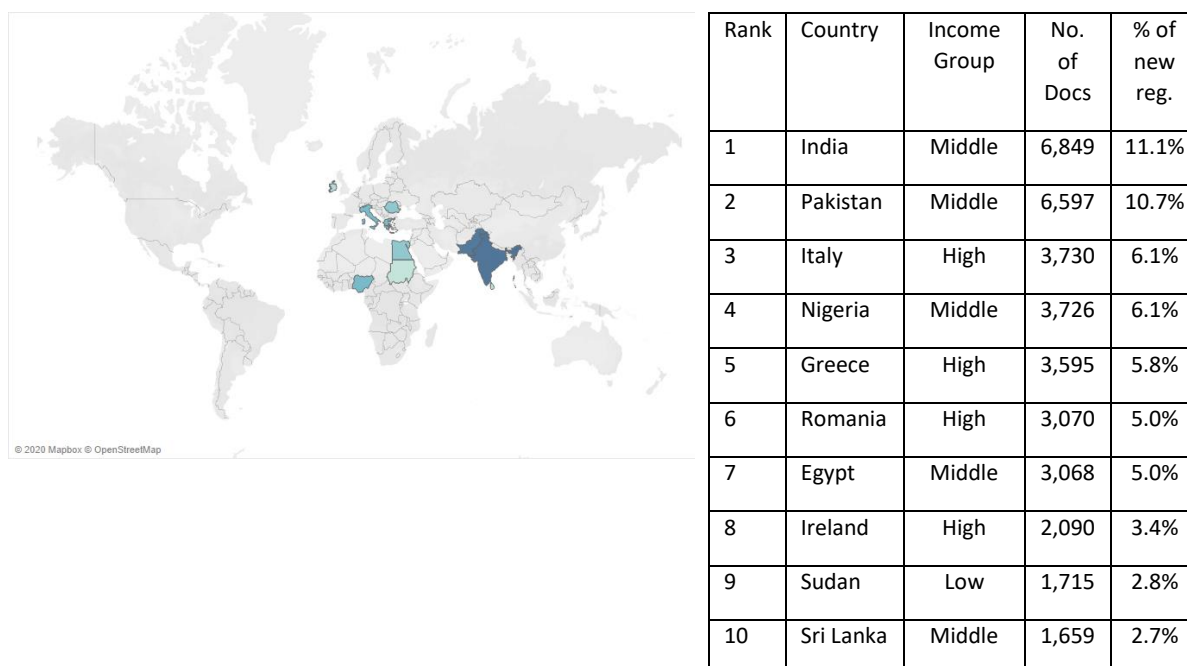
Figure 3: Percentage of annual non-UK PMQ registrations by income group 2009-2019



Source: GMC Data - Doctor Details and Derived Doctor Location datasets

The recent increase in doctors migrating from MICs has been primarily driven by migration of doctors from India, Pakistan, Nigeria and Egypt. While the numbers of doctors migrating from these countries dropped in the first half of the decade; between 2015-2019 there was a 328% increase (Figures 4-7). In 2019, these four countries made up almost half (49.4%) of new non-UK PMQ registrations (Figure 7). The reduction in doctors migrating from HICs during the same time period has been primarily driven by fewer doctors migrating from European countries, with a particularly sharp decrease in doctors with a PMQ from Southern European countries, e.g. Italy and Greece, since 2015.

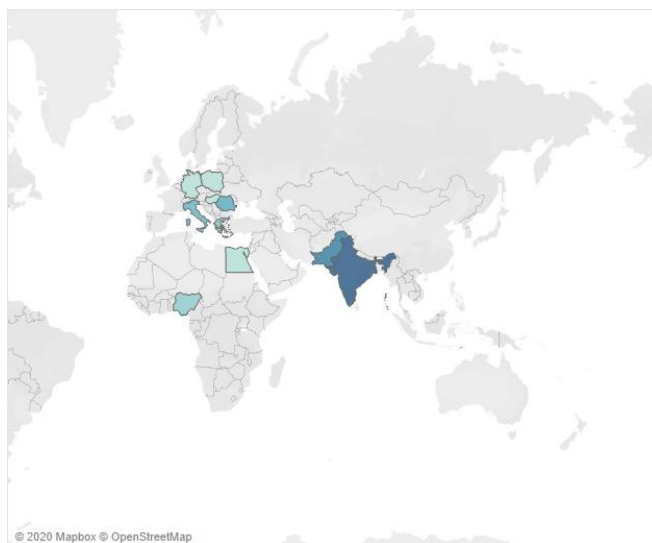
Figure 4 Countries with highest levels of migration to the UK from 2010 to 2019



Source: GMC Data - Doctor Details and Derived Doctor Location datasets

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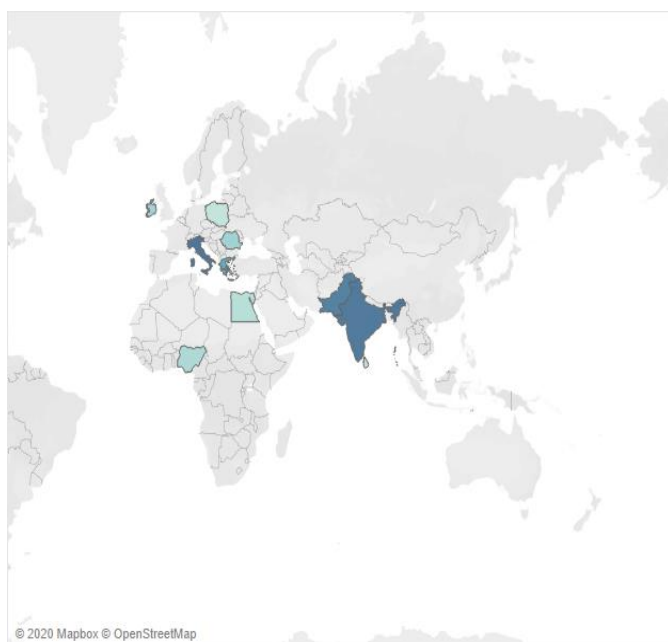
Figure 5: Countries with highest level of migration to the UK in 2010



Rank	Country	Income group	No. of Docs	% of new reg.
1	India	Middle	790	12.3%
2	Pakistan	Middle	636	9.9%
3	Romania	High	443	6.9%
4	Italy	High	414	6.4%
5	Greece	High	327	5.1%
6	Nigeria	Middle	309	4.8%
7	Egypt	Middle	218	3.4%
8	Poland	High	210	3.3%
9	Germany	High	209	3.2%
10	Hungary	High	201	3.1%

Source: GMC Data - Doctor Details and Derived Doctor Location datasets

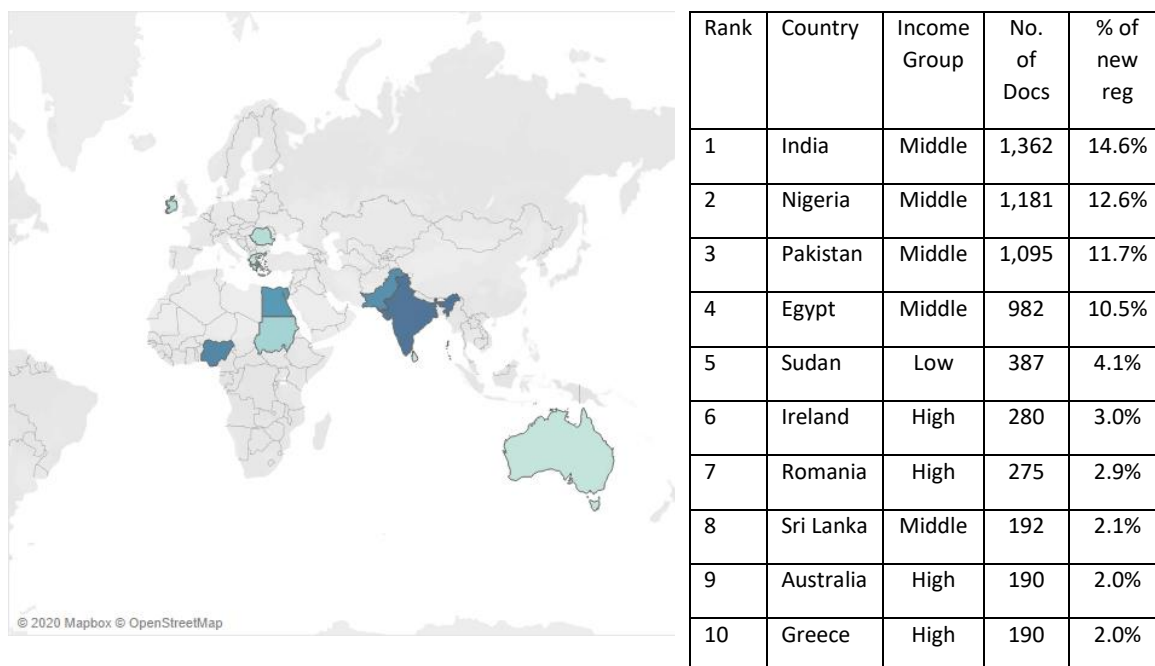
Figure 6: Countries with highest level of migration to the UK in in 2015



Rank	Country	Income Group	No. of Docs	% of new reg.
1	Italy	High	541	9.9%
2	India	Middle	524	9.5%
3	Pakistan	Middle	494	9.0%
4	Greece	High	360	6.6%
5	Ireland	High	232	4.2%
6	Romania	High	230	4.2%
7	Nigeria	Middle	204	3.7%
8	Egypt	Middle	188	3.4%
9	Sri Lanka	Middle	176	3.2%
10	Poland	High	164	3.0%

Source: GMC Data - Doctor Details and Derived Doctor Location datasets

Figure 7: Countries with highest levels of migration to the UK in 2019



Source: GMC Data - Doctor Details and Derived Doctor Location datasets

3.1.3 Specialty of doctors migrating to the UK

Trend 3: The vast majority of doctors migrating to the UK do not join the GP or specialist register at the time of initial entry and relatively few go on to gain specialist or GP registration.

We did not have data for the proportion of non-UK PMQ doctors that go into training or specialty or associate specialist (SAS)/locally employed (LE) roles. For doctors in training NTS data is not available before 2012 and for SAS/LE doctors’ register data is not available before 2013.

The vast majority of new registrations by non-UK PMQ doctors from 2009-2019 do not have a specialty at the initial time of registration (96.2% in 2019) (Table 5). General Practice, Physician and Surgery were the most common specialties entered at the point of GMC registration since 2009, however these proportions had diminished by 2019. Table with data on all specialties is available in Appendix G.

Table 5: Proportion of non-UK PMQ registrations joining the specialist/GP register 2009-2019

	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Specialist/GP	10.0%	10.3%	12.7%	11.6%	13.0%	12.6%	15.4%	8.2%	7.1%	4.4%	3.8%
Non-specialist	90.0%	89.7%	87.3%	88.4%	87.0%	87.4%	84.6%	91.8%	92.9%	95.6%	96.2%

Source: GMC Data - Doctor Details and Derived Doctor Location datasets

Table 6 looks at those doctors who did not enter the specialist or GP register at the point of initial registration to see whether they did so subsequently. Only a relatively small number of non-specialist doctors at registration go on to gain specialist or GP registration. Looking at the cohort of doctors that registered in 2009, within 5 years only 448/3,860 doctors (11.6%) had joined the specialty register, but for those that have been on the register for 10 years (2019) the percentage rises to 27.2% (2009 cohort). Note that this analysis does not take into consideration doctors who have left the register.

Table 6: Progression of non-UK PMQ into specialist or GP registration of those not on either register at initial time of registration

Year of registration	Year of Specialist or GP registration											Total No. of doctors registered	% of doctors that gained registration by 2019
	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Total		
2009	76	64	65	105	138	125	122	111	115	129	1,050	3,860	27.2
2010	2	93	71	79	132	146	152	146	185	193	1,199	5,125	23.4
2011	0	2	93	67	89	116	133	139	129	149	917	4,856	18.9
2012	0	0	0	103	93	77	109	126	130	138	776	4,508	17.2
2013	0	0	0	0	105	93	87	95	114	138	632	4,228	14.9
2014	0	0	0	0	1	114	110	88	110	132	555	4,566	12.2
2015	0	0	0	0	0	1	115	76	79	120	391	4,237	9.2
2016	0	0	0	0	0	0	1	90	63	90	244	4,529	5.4
2017	0	0	0	0	0	0	0	1	74	80	155	5,052	3.1
2018	0	0	0	0	0	0	0	0	0	78	78	6,590	1.2
2019	0	0	0	0	0	0	0	0	0	0	0	8,690	0.0

Source: GMC Data - Doctor Details and Derived Doctor Location datasets

3.1.4 Gender of doctors migrating to the UK

Trend 4: Unlike UK PMQ entrants to the register, the majority of doctors migrating to the UK are male. This is especially the case for those migrating from LICs.

From 2009 to 2019 on average 54-59% of non-UK PMQ doctors who joined the register were male, compared to 43.0% of UK PMQ doctors (Table 7). While the proportion of male doctors arriving from HICs has reduced from 58.3% in 2009 to 48.9% in 2019, doctors migrating from LICs have remained predominantly Male. The proportion of male doctors arriving from MICs during this time has fluctuated year on year by up to 10%.

Table 7: Proportion of new male registrations in UK and income groups 2009-2019

	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Average
HICs	58.3%	56.6%	56.3%	55.1%	56.8%	55.3%	54.4%	51.3%	49.0%	48.1%	48.9%	54.0%
MICs	58.8%	61.5%	65.5%	55.7%	58.3%	51.8%	47.0%	48.5%	52.8%	49.8%	55.3%	54.8%
LICs	57.9%	60.0%	61.7%	56.2%	57.2%	59.3%	58.9%	57.4%	57.9%	59.0%	60.8%	59.0%
UK	39.8%	39.4%	41.1%	40.8%	42.5%	43.8%	44.7%	44.5%	44.4%	45.5%	46.2%	43.0%
Total	47.4%	48.3%	49.3%	47.3%	48.9%	49.5%	49.3%	48.5%	48.5%	50.0%	52.2%	49.1%

Source: GMC Data - Doctor Details and Derived Doctor Location datasets

3.1.5 Level of experience at time of migration

Trend 5: Doctors are migrating to the UK earlier in their medical career and enter the register with an average of 9-10 years of experience.

In the UK, the vast majority of medical students are provisionally registered with the GMC when they complete their primary medical qualification. They then undertake the two-year Foundation Programme as the first step in their medical career as trainee doctors. After they have successfully completed the first year of the Foundation Programme (FY1) they become fully registered with the GMC.

EU PMQ doctors are eligible for the Foundation Programme, although before 2017 there were restrictions on eligibility for the first year of the Foundation Programme. For non-UK PMQ doctors the most common way to enter the register is after completion of the Professional and Linguistics Assessment Board (PLAB) exam, although significant numbers also use the postgraduate qualification (PGQ) and sponsorship routes. Successful completion of PLAB demonstrates that a doctor has gained the competencies expected of a doctor who has completed the Foundation Programme. Given it takes a UK PMQ doctor two years to complete the Foundation Programme, it is likely that doctors needing to pass PLAB will have gained medical experience prior to the successful completion of PLAB. As a measure of experience, the number of years since gaining their PMQ and entering the register is used as a proxy here.

In 2019, 67.7% of non-UK doctors had over 5 years experience when they joined the register, this has decreased slightly since 2009 when 73.1% of non-UK joiners had over 5 years experience (Table 8).

Table 8: Years of experience of non-UK PMQs at point of registration into the UK register

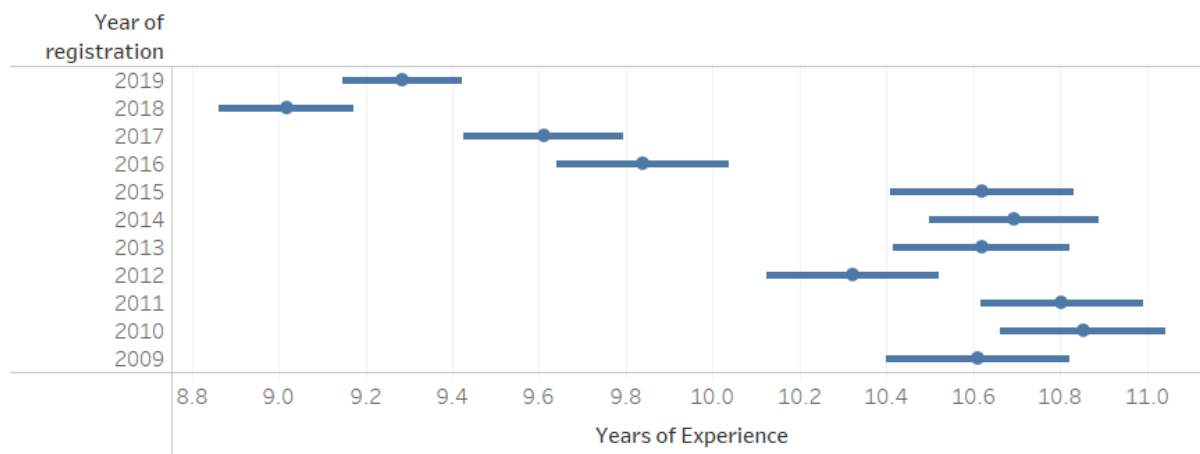
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No. of Years	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
1	5.3%	4.5%	4.5%	6.4%	6.8%	5.8%	6.3%	6.2%	6.8%	7.7%	6.5%
2	4.1%	4.4%	4.7%	5.1%	4.3%	4.6%	5.3%	5.5%	5.4%	5.4%	5.8%
3	4.9%	4.8%	5.3%	5.5%	5.6%	5.3%	5.5%	5.9%	5.4%	6.3%	6.2%
4	6.3%	6.5%	5.6%	5.7%	5.6%	5.0%	4.9%	7.1%	6.3%	6.3%	6.9%
5	6.4%	7.0%	6.5%	7.1%	6.4%	6.6%	6.2%	7.0%	6.9%	7.6%	6.7%
6-10	33.2%	31.1%	31.7%	31.9%	30.8%	32.2%	31.3%	31.3%	33.8%	35.1%	33.9%
11-15	18.6%	19.8%	20.8%	18.7%	19.7%	19.6%	20.4%	20.4%	20.2%	18.4%	19.4%
16-20	10.0%	10.6%	9.9%	9.3%	9.2%	9.6%	9.1%	8.4%	7.8%	7.1%	7.7%
21-25	6.1%	5.6%	5.5%	5.1%	5.7%	5.4%	5.2%	3.9%	3.5%	3.0%	3.6%
26-30	3.0%	2.9%	3.3%	3.0%	3.3%	3.2%	3.0%	2.0%	1.8%	1.7%	1.7%
30+	2.2%	2.8%	2.4%	2.4%	2.7%	2.8%	3.0%	2.3%	2.2%	1.4%	1.4%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Source: GMC Data - Doctor Details and Derived Doctor Location datasets

Figure 8 shows that between 2009 and 2015 the average level of experience for a non-UK PMQ doctor entering the register, was around 10.5 years. However, since 2016 the average level of experience has reduced to approximately 9.1 years. This indicates that more non-UK PMQ doctors are coming to work in the UK earlier in their medical careers.

Figure 8: 95% Confidence interval of average years of experience 2009-2019



Source: GMC Data - Doctor Details and Derived Doctor Location datasets

3.1.6 Migration of doctors to the UK compared with the general population and other healthcare professions

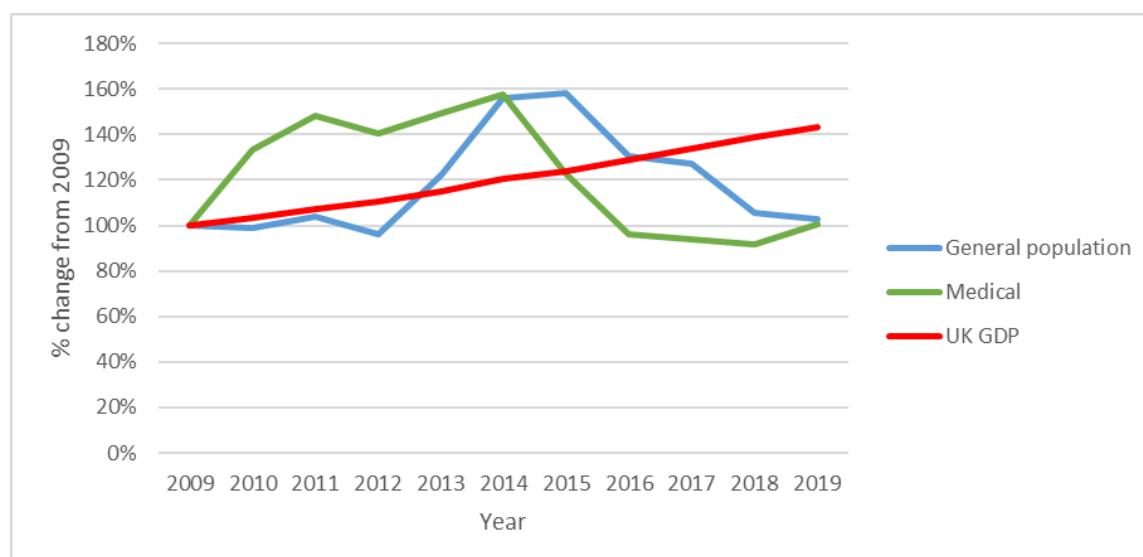
Trend 6: In recent years the migration of EU trained doctors to the UK has largely been in line with general migration, however the migration of IMG doctors to the UK has been much higher than general migration.

Figure 9 compares the EU general population and medical population migration to the UK from a baseline of 2009. The migration of EU doctors has generally been in line with the migration of the general population (Figure 9). There have been three phases of inward migration:

1. 2010 to 2013 - had a large inward migration of doctors from the EU relative to the general population
2. 2014 - reached peak levels of inward migration for doctors from the EU and the general population
3. 2015 to 19 - reduced levels of inward migration of doctors from the EU and general population to similar levels in 2009, despite a significant rise in UK GDP.

The figure also includes the UK GDP growth to compare if the strength of the UK economy has any correlation with in-migration. Between 2009 and 2014 there seemed to be a positive association between migration and GDP growth however from 2014 onwards there was a negative association.

Figure 9: Relative change of EU general population migration to the UK with EU medical migration to the UK, and UK Gross Domestic Product (GDP) from base line of 2009

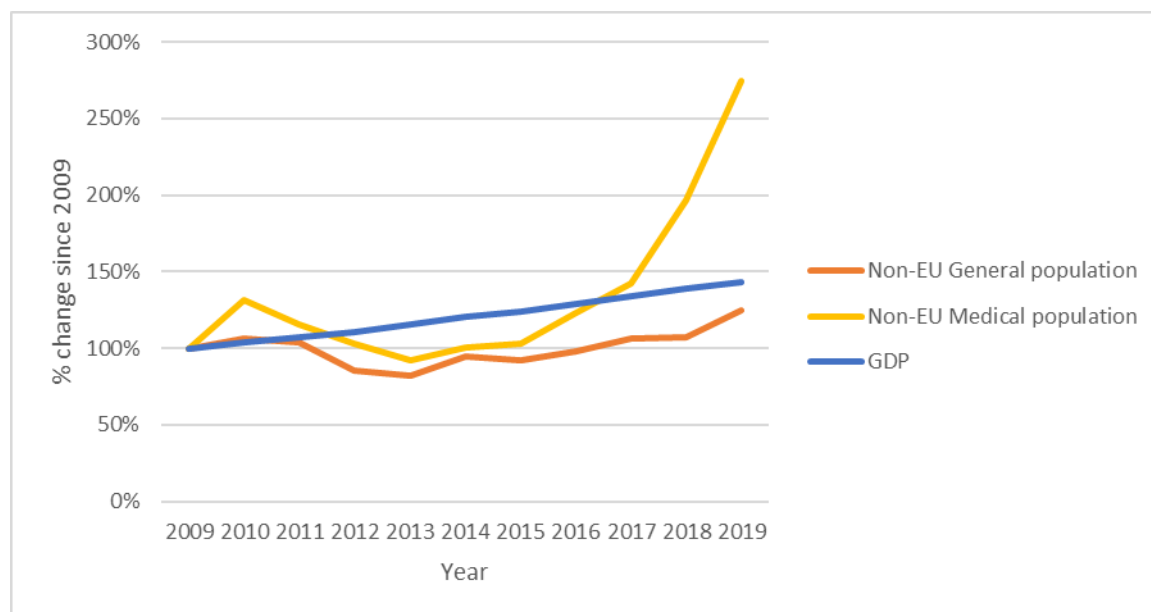


Source: A millennium of macroeconomic data for the UK, Bank of England 2017 for the EU population in-migration and UK GDP

There have been consistent levels of migration to the UK by the non-EU general population and non-EU doctors from 2009 – 2015 (Figure 10). However, there has been a steep increase in the proportionate change of doctors migrating into the UK from non-EU countries since 2015 from approximately 110% to 275% in 2019.

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Figure 10: Comparison of non-EU general population and non-EU medical migration to the UK



Source: A millennium of macroeconomic data for the UK, Bank of England 2017 for the EU population in-migration and UK GDP

Trend 7: Compared with nursing and dentistry, the medical workforce has the highest reliance on non-UK PMQ staff.

Table 9 compares the register composition by country of qualification of nurses, dentists and doctors in the UK. In 2019, the medical workforce had the lowest proportion of UK-trained registrants with an average of 62.6%, compared to 84.8% for nurses and 72.0% for dentists.

Table 9: Comparison of nursing and midwifery, dental and medical registers by country of training

	NMC Register*				GDC Register**				GMC Register			
	Total	% EEA	% RoW***	% UK	Total	% EEA	% RoW	% UK	total	% EEA	% RoW	% UK
2013	675,306	2.2	10.4	87.5	40,425	16.9	11.1	72.0	246,029	10.1	27.2	62.7
2014	680,899	2.7	10.1	87.1	41,038	16.9	11.4	71.7	252,476	10.4	26.7	62.9
2015	686,811	3.6	9.9	86.5	41,095	16.6	11.5	71.9	259,971	10.8	26.3	62.9
2016	692,556	4.7	9.9	85.4	41,483	16.3	11.8	71.9	266,876	11.0	25.9	63.0
2017	690,773	5.2	10.0	84.8	41,706	16.0	11.9	72.0	274,005	11.1	25.9	63.1
2018	690,278	4.8	10.2	85.0	42,088	16.0	11.9	72.0	281,323	11.0	26.0	63.0
2019	698,237	4.5	10.7	84.8	42,470	16.0	12	72.0	289,737	10.9	26.5	62.6

* Nursing and Midwifery Council. Freedom of Information Request February 2020

** General Dental Council. Freedom of Information Request February 2018

*** Rest of world

3.2 Migration from the UK

3.2.1 Overall levels of doctors emigrating from the UK and place of PMQ

Trend 8: Currently around 4% of doctors are giving up their right to practice in the UK each year, with around half stating their reason for leaving as ‘overseas’. The number of doctors leaving, including those that leave to move overseas, has fallen since 2015.

In 2019, 10,624 doctors left the UK medical workforce, representing 3.9% of the total number of doctors on the register that year (Table 10). This figure includes all doctors who have given up their right to practise; while some doctors will be leaving permanently, others will take a break before returning to practise in the UK. Of those leavers, 45.9% (4,872) stated that their reason for leaving was to go overseas.

Since 2013, on average 2.1% of doctors leave the UK to move overseas each year. This figure was highest between 2014-2015 (average 2.7%), but this has since dropped in the last few years.

Table 10: Doctors leaving the UK to go overseas, 2013-2019

	2013	2014	2015	2016	2017	2018	2019
All doctors	250544	252873	250669	249290	252832	260158	270580
All leavers	12583	16397	16353	12541	10560	10364	10624
Proportion of doctors leaving	5.0%	6.5%	6.5%	5.0%	4.2%	4.0%	3.9%
All overseas leavers	5124	6588	6881	5476	4744	4575	4872
Proportion of doctors leaving overseas	2.0%	2.6%	2.7%	2.2%	1.9%	1.8%	1.8%

Source: Doctors leaving UK practice dataset

Trend 9: A much higher proportion of non-UK PMQ doctors leave to move overseas than UK trained doctors, especially doctors with an EEA PMQ.

A higher proportion of non-UK PMQ doctors leave to move overseas each year (3.4% in 2019) compared to UK PMQ doctors (0.9% in 2019). A particularly high proportion of EEA PMQ doctors leave to move overseas each year (5.1% in 2019) (Table 11). The country income group with the highest rate of doctors leaving to move overseas in 2019 was High Income Countries (5.6%) (Table 12).

Table 11: Overseas leavers by PMQ region 2013-2019

		2013	2014	2015	2016	2017	2018	2019	2013-19
EEA	Overseas leavers	1214	1728	1953	1574	1191	1148	1253	10061
	Proportion of doctors	4.5%	6.3%	7.5%	6.4%	5.0%	4.7%	5.1%	5.7%
IMG	Overseas leavers	2343	2942	2758	1899	1758	1736	1993	15429
	Proportion of doctors	3.7%	4.7%	4.5%	3.2%	2.9%	2.7%	2.8%	3.5%

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Non-UK	Overseas leavers	3557	4670	4711	3473	2949	2884	3246	25490
	Proportion of doctors	3.9%	5.2%	5.4%	4.1%	3.5%	3.2%	3.4%	4.1%
UK	Overseas leavers	1567	1918	2170	2003	1795	1691	1626	12770
	Proportion of doctors	1.0%	1.2%	1.3%	1.2%	1.1%	1.0%	0.9%	1.1%

Source: Doctors leaving UK practice dataset

Table 12: Overseas leavers by income group 2013-2019

		2013	2014	2015	2016	2017	2018	2019	2013-19
LIC	Overseas leavers	84	141	136	98	82	90	102	733
	Proportion of doctors	3.2%	5.3%	5.3%	3.8%	3.1%	3.1%	2.9%	3.8%
MIC	Overseas leavers	1931	2391	2289	1572	1461	1429	1640	12713
	Proportion of doctors	3.3%	4.1%	4.1%	2.8%	2.6%	2.4%	2.5%	3.1%
HIC (Exc. UK)	Overseas leavers	1542	2138	1910	1806	1406	1380	1515	11697
	Proportion of doctors	5.3%	7.2%	6.9%	6.8%	5.5%	5.3%	5.6%	6.1%

Source: Doctors leaving UK practice dataset

3.2.2 Destination countries for emigrating doctors

Trend 10: The most popular place UK PMQ doctors migrate to are other English-speaking high-income countries, especially Australia and New Zealand.

Table 13 shows the number of UK PMQ entrants to destination countries. Between 2009 and 2019 the number of new registrations of UK PMQ doctors was highest in Australia (n= 599 in 2019) followed by New Zealand (n=409 in 2019).

Table 13: Number of UK PMQ entrants to destination countries

	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Australia*	647	688	930	953	815	808	949	974	849	707	599
New Zealand**	-	319	412	420	426	369	268	317	397	394	409
Canada***	0	76	75	118	121	114	126	103	105	92	-
Ireland****	-	100	72	77	83	62	139	99	106	80	126
UK *****	6949	7281	7354	7428	7317	7682	7623	7638	7352	7279	7402

Data sources:

* Australian Government, Department of Home Affairs. Temporary resident (skilled) visas 2005 to 2019

** New Zealand Medical Council

*** Canadian Institute for Health Information, Supply Distribution and Migration of Physicians in Canada 2018 – Quick stats

**** Irish Medical Council

***** General Medical Council

3.2.3 Gender of doctors emigrating from the UK

Trend 11: A similar proportion of male and female doctors leave to move overseas each year.

In 2019, 2.0% of male doctors left the register to move overseas, while 1.6% of female doctors left the register to move overseas (Table 14). The proportion was the same for male UK PMQ doctors (0.9%) and female UK PMQ doctors (0.9%). Across all income groups, slightly more non-UK PMQ male doctors left to go overseas compared to non-UK PMQ female doctors (Table 15).

Table 14: Proportion of doctors leaving to go overseas 2013-19, by PMQ region and gender

		2013	2014	2015	2016	2017	2018	2019	2013-19
UK	Male	1.0%	1.3%	1.4%	1.2%	1.1%	1.0%	0.9%	1.1%
	Female	1.0%	1.1%	1.3%	1.2%	1.0%	1.0%	0.9%	1.1%
Non-UK	Male	4.1%	5.6%	5.8%	4.2%	3.6%	3.4%	3.5%	4.3%
	Female	3.5%	4.5%	4.8%	3.9%	3.3%	3.0%	3.3%	3.7%
All	Male	2.3%	3.0%	3.2%	2.4%	2.1%	1.9%	2.0%	2.4%
	Female	1.7%	2.1%	2.3%	2.0%	1.7%	1.6%	1.6%	1.8%

Source: Doctors leaving UK practice dataset

Table 15: Proportion of doctors leaving to go overseas 2013-19, by income group and gender

		2013	2014	2015	2016	2017	2018	2019	2013-19
LIC	Male	3.7%	5.6%	5.8%	4.0%	3.3%	3.5%	3.1%	4.1%
	Female	1.9%	4.6%	4.1%	3.4%	2.6%	2.2%	2.7%	3.0%
MIC	Male	3.5%	4.5%	4.5%	3.0%	2.7%	2.6%	2.7%	3.4%
	Female	2.9%	3.4%	3.3%	2.5%	2.4%	1.9%	2.1%	2.6%
HIC (exc. UK)	Male	5.7%	7.9%	7.5%	7.1%	5.9%	5.4%	5.8%	6.5%
	Female	4.6%	6.1%	6.3%	6.3%	5.0%	5.1%	5.5%	5.6%

Source: Doctors leaving UK practice dataset

3.2.4 Age of doctors emigrating from the UK

Trend 12: The highest proportion of UK PMQ doctors moving overseas are under 30, whereas the highest proportion of non-UK PMQ doctors moving overseas are aged 30-39.

In 2019, 2.2% of doctors under 50 left to move overseas compared to 0.8% aged 50 and over (Table 16). Of doctors under 50 leaving UK practice, 69.0% stated their reason for leaving as 'overseas', compared to just 13.6% of doctors over 50 leaving UK practice.

Table 16: Doctors leaving UK practice 2013-19, by Age group

		2013	2014	2015	2016	2017	2018	2019
Under 50	Proportion of doctors leaving	3.7%	4.5%	4.9%	4.2%	3.4%	3.2%	3.1%
	Proportion of doctors leaving overseas	2.2%	2.7%	3.1%	2.6%	2.3%	2.1%	2.2%
	Proportion of leavers going overseas	59.9%	60.1%	62.2%	62.9%	66.9%	66.4%	69.0%
50+	Proportion of doctors leaving	8.4%	11.5%	10.7%	7.3%	6.3%	6.1%	6.1%
	Proportion of doctors leaving overseas	1.6%	2.3%	1.9%	1.1%	0.9%	0.8%	0.8%
	Proportion of leavers going overseas	19.5%	20.3%	17.9%	14.7%	13.8%	13.3%	13.6%

Source: Doctors leaving UK practice dataset

The biggest group of UK PMQ overseas leavers are aged under 30 (48.5% in 2019). In 2019, 2.3% of UK PMQ doctors in this age group left to move overseas. The biggest group of non-UK PMQ overseas leavers are aged 30-39 (44.4% in 2019). In 2019, 5.2% of non-UK PMQ doctors in this age group left to move overseas. There was also a substantial proportion of 40-49 year olds leaving to move overseas (3.5% in 2019).

Table 17: Doctors leaving to go overseas in 2019, by PMQ region and Age group granular

	Non-UK			UK			All		
	N	%	% of all doctors	N	%	% of all doctors	N	%	% of all doctors
>30	191	5.9%	2.7%	789	48.5%	2.3%	980	20.1%	2.4%
30-39	1442	44.4%	5.2%	528	32.5%	0.9%	1970	40.4%	2.3%
40-49	1125	34.7%	3.5%	195	12.0%	0.5%	1320	27.1%	1.9%
50-59	366	11.3%	1.9%	90	5.5%	0.3%	456	9.4%	0.9%
60-69	108	3.3%	1.4%	23	1.4%	0.2%	131	2.7%	0.7%
70+	14	0.4%	0.6%	1	0.1%	0.1%	15	0.3%	0.4%

Source: Doctors leaving UK practice dataset

3.2.5 Register type and specialty of doctors emigrating from the UK

Trend 13: Doctors on neither the specialist or GP register and not in training are more likely to leave to move overseas than doctors on other register types.

In 2019, 4.0% of doctors on neither the specialist or the GP register and not in training (the majority of these doctors are in specialty/associate specialist or local employed roles) left to move overseas, compared with 1.7% of specialists, 0.8% of trainees and 0.6% of doctors on the GP register (Table 18) .

The largest group of overseas leavers are non-UK PMQ doctors on neither the specialist or the GP register and not in training (4.8% of these doctors in 2019). However, there is still a

notable proportion of non-UK PMQ doctors on the specialist register who leave to move overseas (3.4% in 2019).

Table 88: Proportion of doctors leaving to go overseas 2013-19, by PMQ and Register Type

		2013	2014	2015	2016	2017	2018	2019	2013-19
Non-UK	GP	1.8%	2.2%	2.0%	1.5%	1.1%	1.3%	1.3%	1.6%
	Specialist	3.7%	5.4%	5.5%	4.1%	3.5%	3.1%	3.4%	4.1%
	Trainee	0.4%	0.2%	0.4%	0.3%	0.3%	0.2%	0.3%	0.3%
	Neither	6.0%	7.4%	7.9%	6.1%	5.1%	4.8%	4.8%	6.0%
UK	GP	0.6%	0.6%	0.5%	0.4%	0.4%	0.4%	0.4%	0.5%
	Specialist	0.9%	1.1%	1.1%	0.8%	0.6%	0.7%	0.6%	0.8%
	Trainee	0.7%	0.7%	1.1%	1.3%	1.1%	1.0%	0.9%	1.0%
	Neither	2.7%	3.3%	4.0%	3.6%	3.5%	2.9%	2.8%	3.3%
Total	GP	0.9%	1.0%	0.9%	0.6%	0.5%	0.6%	0.6%	0.7%
	Specialist	2.0%	2.9%	2.9%	2.1%	1.8%	1.6%	1.7%	2.1%
	Trainee	0.6%	0.7%	1.0%	1.2%	1.0%	0.9%	0.8%	0.9%
	Neither	4.7%	5.8%	6.4%	5.1%	4.4%	4.0%	4.0%	4.9%

Source: Doctors leaving UK practice dataset

3.2.6 Number of years practising before leaving UK practice

Trend 14: IMG doctors, especially doctors with a PMQ from MICs, spend longer on the medical register before leaving than EEA doctors. However, the gap has closed since 2013.

IMG doctors who left in 2019 had spent on average 12.1 years on the register. However, this has dropped since 2013 when IMG doctors who left had spent an average of 16.0 years registered in the UK (Table 19). In comparison, EEA doctors who left in 2019 had on average spent 8.4 years on the register, and this has remained fairly stable since 2013. It must be noted that some routes to registration necessitate that doctors can only stay in a country for a certain amount of time.

Table 19: Average number of years on the register before leaving 2013-2019, by PMQ region

		2013	2014	2015	2016	2017	2018	2019
EEA	All leavers	7.6	8.5	7.6	7.0	7.4	8.2	8.4
	Overseas leavers	7.1	7.6	6.4	5.5	6.2	6.5	6.1
IMG	All leavers	16.0	16.7	15.7	13.6	13.8	12.9	12.1
	Overseas leavers	12.0	12.4	10.8	8.9	9.0	8.0	7.6
UK	All leavers	28.3	29.1	26.8	22.9	23.1	23.8	24.4
	Overseas leavers	13.1	13.8	10.9	8.0	7.9	8.6	8.2

Source: Doctors leaving UK practice dataset

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In 2019, leavers from MIC's had on average spent the longest time on the register before leaving (13.0) (Table 20).

Table 20: Average number of years on the register before leaving 2013-2019, by income group

		2013	2014	2015	2016	2017	2018	2019
LIC	All leavers	11.2	11.6	11.7	9.6	12.0	9.9	9.1
	Overseas leavers	9.6	9.6	9.7	8.6	10.9	9.2	8.5
MIC	All leavers	16.5	17.1	16.3	14.6	15.0	14.0	13.0
	Overseas leavers	11.8	12.3	10.7	9.2	9.4	8.5	7.8
HIC (exc. UK)	All leavers	8.6	9.6	8.3	7.1	7.2	7.8	8.2
	Overseas leavers	8.6	8.8	7.2	5.7	6.1	6.1	6.0

Source: Doctors leaving UK practice dataset

4. RESULTS RQ2: What are the drivers of overseas qualified doctors coming to work in the UK?

In this section the drivers of overseas qualified doctors coming to work in the UK are outlined, integrating findings from the systematic review with those from the qualitative interviews. As outlined in the methods section, drivers were classified into macro- (global and national factors), meso- (profession-led factors) and micro- (personal factors) level drivers of migration based on Young's model.²³

There were 21 studies included in the systematic review that specifically addressed migration into and out of the UK. Table 21 summarises the top three most common macro-, meso- and micro-level drivers of doctors with a non-UK PMQ coming to work in the UK.

Table 21: Drivers of the migration of doctors into the UK

Macro-level Drivers	
<i>Coding Descriptor</i>	<i>References</i>
1.5* Employment opportunities	9, 11, 12, 29-32
1.1 Active recruitment	9, 31, 33-36
1.16 Poor working conditions	5, 9, 33, 36-38
Meso-level Drivers	
2.1 Better training and development opportunities	9, 11, 12, 31, 33, 36, 37, 39-41
2.10 Desire to experience working in a different environment	9, 33, 36, 37, 39, 41
2.19 Opportunities to gain clinical experience through short-term employment	9, 33, 36, 37, 39, 41
Micro-level Drivers	
3.17 Financial gain for self (and/or family)	5, 9, 11, 12, 33, 36, 38, 39, 42
3.2: Desire for life change	5, 9, 33, 36, 37, 41
3.1: Better quality of life	33, 36, 37, 39

*The numbers correspond to the codes in the coding framework in Appendix C

4.1 Macro-level drivers

Drivers of migration include both push and pull factors; what is pushing doctors to decide to leave their current location and what is pulling them to the UK as a destination. The major pull factors attracting overseas doctors to the UK to practise are health system based, including employment opportunities within the UK^{9, 11, 12, 14, 29} and active recruitment to work in the UK medical profession.^{9, 31, 33-36, 43} Poor working conditions within one's health system at home was also a major push factor driving migration.^{5, 9, 33, 36-38}

4.1.1 Employment opportunities

The interviews with key stakeholders also found employment opportunities to be a pull factor for overseas doctors coming to the UK, and this may take the form of a clinical observership, or locum posts (Medical Education Training Body #1, UK). The UK was seen to be heavily reliant upon international doctors. A second interviewee felt that the interest from overseas doctors increases in line with workforce demand. It was also felt that this workforce demand was currently being filled by agency locums on expensive hourly rates,

and therefore there was a need for overseas doctors to come to the UK and support the healthcare system (Locum Agency #1, UK).

*“People are not daft, **they will look at the labour market and see whether or not we’re looking, are we saying we’ve got X number of vacancies and training posts, and when we do that then there’s a lot of interest.**” (NHS Organisation, UK)*

4.1.2 Active recruitment

Active recruitment was also mentioned by the stakeholders interviewed but many felt that it had had mixed results in boosting the UK workforce. Active recruitment occurs when employers commission agencies to recruit internationally, and recruitment may be directly focused on specific areas where there is a workforce shortage, for instance General Practice. Furthermore, active recruitment drives encourage a perception of the UK as welcoming to overseas doctors. However, some of the interviewees acknowledged that the success of active recruitment drives has been mixed, and that often online and offline social networks support recruitment through ‘word of mouth’.

*“My local board, had a drive to go to Australia to recruit nurses, and **I think they managed to get about 40 people interested and five or six came at the end of the day... these drives they don’t really work I think, people leave and they don’t want to come back by and large**” (Medical Education Training Body #1, UK)*

*“I’m aware that HEE has initiatives in terms of actively recruiting numbers of GPs, **my understanding is that they haven’t met the targets most years so it doesn’t seem to be going as well as they’d anticipated.**” (NGO, UK)*

*“Obviously there’s active recruitment into the medical profession that is both primarily looking at the UK market and we will advertise, but **there’s very little placing of direct marketing overseas, but in some respects the internet does that for you.**” (NHS Organisation, UK)*

Conversely, some interviewees emphasised the prevalence and significance of active recruitment into the NHS.

*“As an organisation we recruit our own candidates, **but the NHS has been recruiting overseas directly for the last two decades**” (Locum Agency #2, UK)*

*“Ever since the advent and inception of the NHS **overseas recruitment has been very fundamental, we have relied quite heavily on doctors who were trained overseas coming to work for the NHS, and I think that’s a trend that’s obviously continued up to this day, and this both in medicine and also other aspects of healthcare as well**” (Professional Organisation #1, UK)*

One interviewee felt the success of active recruitment was dependent on the specialty and the amount of support the recruiting body was able to provide in terms of travel, logistics and training, with well-supported drives tending to be more successful than those that treated active recruitment as a “side issue” (Medical Education Training Body #2, UK). It was

also felt that it was important to remove known barriers to recruitment, such as the time it takes to be appointed, which may deter doctors or lead them to recant decisions to immigrate to the UK.

*“All of a sudden they find something else to do, say actually I don’t want that anymore, or **they say life’s too short, I’ve been waiting for PLAB exam for God knows how long.** So I think **the barriers are a big part of how successful active recruitment is**” (Medical Education Training Body #2, UK)*

Interestingly, one interviewee found that active recruitment of overseas doctors into the UK had a positive cultural effect, by portraying the NHS as welcoming to foreign doctors.

*“Those sorts of schemes and campaigns obviously have a more active impact in deliberately soliciting people to come from abroad, but **it also sets the kind of culture I suppose, it portrays the NHS as needing working from abroad, as wanting to welcome them here,** so it has a longer-term impact as well” (Professional Organisation #1, UK)*

4.1.3 Poor working conditions

Poor working conditions within the health system of one’s home country acted as a push factor driving overseas doctors to the UK to work. Within the literature there was little elucidation on what constituted poor working conditions at home, however some studies included poor salaries as a factor,^{9, 33, 36, 37} while another included working hours, location, workload and the ability to leave work on time.³⁸ Two of the studies cited the NHS as attracting overseas doctors due to its working conditions.^{5, 38} Within the stakeholder interviews there was no comment on working conditions at home as a push factor driving the migration of doctors into the UK. Instead, poor working conditions were highlighted as a reason to *leave* the UK, a point that is discussed further in Section 6.

4.1.4 Additional factors

Additional pull factors that encouraged inward migration to the UK include the attractiveness, and desire to work within the safety and security of the NHS health system,^{5, 9} a comparable health-care system with the UK and the ability to transfer accreditation. Furthermore, the general perception of the UK as having a quick assessment procedure,¹¹ and the level of support offered to non-UK PMQ doctors for their relocation or induction,⁴⁴ contributed to the attractiveness of the UK for employment. The latter point is supported by one of the interviewees concerning active recruitment; however another interviewee felt the UK is seen as having slow assessment and registration processes.

Factors that pushed non-UK PMQ doctors to leave their home countries and migrate to the UK included unemployment or underemployment,^{9, 37} a poor or hierarchical health system infrastructure,^{9, 12} as well as poor salaries.^{9, 37} Other factors included larger macroeconomic

factors such as economic instability or recession,^{9,12} changes in remuneration,⁹ and corruption in everyday life.⁹

Varied political factors within the country of origin also pushed overseas doctors to seek employment within the UK. For example, a generally negative political situation.^{37,45} One of the interviewees mentioned conflict as a political push factor from one's home country, while the UK was perceived as "politically stable, safe and secure" (NGO, UK). More positive political factors may include bilateral agreements that facilitate migration between the UK and source countries,⁹ or even historical or colonial connections with the UK.^{11,46} Doctors may be persuaded to migrate to the UK due to historical social patterns of migration that become part of a 'culture of migration'. One interviewee referred to this embedded culture as part of the "*natural pattern*", or "*lifecycle of your career*" (Recruitment Agency, New Zealand). A longstanding tradition of medical migration may be an influencing factor in decisions to migrate to the UK.^{11,37}

Furthermore, favourable immigration policies also encouraged migration to the UK,^{9,44} as did freedom of movement between EU countries under the 1992 Maastricht Treaty, which facilitated EU to UK migration between 1992-2020 while the UK was still an EU member state.^{37,44} One interviewee also highlighted how changes in immigration policies can rapidly affect inward migration to the UK, as occurred in 2018 when the UK lifted its annual cap of 20,700 on tier 2 visa applications and there was a surge in applications to the PLAB test (NHS Organisation, UK).

4.2 Meso-level drivers

Meso-level factors identified in the systematic review include factors associated with training and career prospects, including better training and development opportunities,^{9,11,12,31,33,36,37,39-41} a desire to experience working in a different environment,^{9,33,36,37,39,41} as well as further career development opportunities through research, and the chance to gain clinical experience through short-term employment.^{9,33,36,37,39,41}

4.2.1 Better training and development opportunities

The most cited reason given for immigrating to the UK was the prospect of better training and development opportunities.^{9,11,12,31,33,36,37,39-41} The UK was identified as providing better career progression³⁷ and was recognised for research and training.⁵ This also included a better structure of medical education, including the opportunity to work in a different healthcare system and gain new skills and experience,³⁹ as well as the pull of being able to advance one's knowledge.^{11,12,33,36} For some this meant the medical schools within the UK were experienced in additional training for IMGs,¹¹ while in one's home country there was a shortage of postgraduate training opportunities.^{33,36}

Better training and development opportunities were also highlighted in the stakeholder interviews as a driver of inward migration to the UK. One interviewee mentioned that overseas doctors may come to the UK for the Medical Training Initiative (MTI)⁴⁷ scheme which allows overseas doctors to enter the UK for a maximum of two years so that they can

benefit from training and development in the NHS (Medical Education Training Body #1, UK). This training scheme tends to attract doctors from LMICs, including for example, India, Egypt, Pakistan and Sri Lanka. Furthermore, for some doctors the system is less competitive and so it becomes easier for doctors to obtain a training place in the UK than within their own country. An example of this would be the competitive nature of the Irish training system, whereby the majority of those leaving the register name the UK as their next practice location, and state the reason for leaving as to take up training positions.

*“So **there is a driver for people to come here to pick up training**, and we see that, there’s the MTI scheme which encourages people to come for a couple of years, and we’ve had people from Sri Lanka... and India particularly coming for a couple of years, also from the Middle East” (Medical Education Training Body #1, UK)*

*“**There are training opportunities, and structured programmes are good**, and the opportunities through training programmes to acquire college diplomas and fellowships is also useful” (Medical Education Training Body #1, UK)*

*“I think **the NHS is attractive because in normal conditions it’s got good learning opportunities for health professionals**, and it’s public sector, it provides reasonably fair and ethical treatment for migrant health workers in terms of **equal access to career development opportunities and so on**” (NGO, UK)*

*“I think **there would also be people who perceive the values of the NHS as attractive** and might want to be part of that system” (Professional Organisation #1, UK)*

Access to good training and development opportunities in the UK is a long-standing driver of the immigration of overseas qualified doctors. Over the last two decades initiatives have been in place that encourage and facilitate migration for such purposes. For instance, in addition to the MTI scheme, there was permit-free training, which has attracted doctors from India and Pakistan (NHS Organisation, UK). While permit-free training in the UK was withdrawn in 2006, the UK retains a good reputation for training and development. It is important to acknowledge the status and reputation of UK training on the global stage. For example, the prestige and global reach of holding professional qualifications and developed experience from the UK, as well as the transferability of accreditation from the Medical Royal Colleges, is considered to open doors for career progression.

*“...it’s useful for people if they want to go back home and practise, **it’s external recognition of a quality of attainment**, which again it’s a prestige thing I think” (Medical Education Training Body #1, UK)*

*“[T]hey may well come and seek the opportunity to train in the UK, **and that’s attractive either because the professional qualifications and the accreditation transferability of royal colleges badges gives people.**” (NHS, UK)*

Despite the global reputation of UK qualifications, one interviewee highlighted the need to avoid complacency that overseas doctors would continue to seek training opportunities in

the UK, when in fact there is a need to offer the same level of support to overseas doctors that is provided to UK trainees.

*“And the offer that we have for people, particularly some of the sort of accreditation and the global recognition, whether it be through research or whether it’s through the royal college set-up, **is still held in really high regard, but I do think we need to not be complacent** that people should just choose here and then we should hope that they get on and be the best they can be, **actually we do have to support people in a way that we support our UK trainees to go through their training programme if we want to see them, well if we want to uphold that reputation, but also if we want people to succeed**” (NHS, UK)*

Another attractive element of training in the UK is the development of a skill set and education that doctors can use to benefit their own healthcare system if they return home. This is also a positive factor of the MTI scheme, during which time doctors contribute to the UK health workforce while also benefitting from formal training as well as exposure to different medical techniques and procedures, which they can use within their clinical practice on their return home. A proposed initiative in one UK region emphasised the reciprocal nature that upskilling could take, with formal relationships established with institutions overseas so that doctors on both sides can take part in exchanges of skills and education (Medical Education Training Body #2, UK). While this may not represent a large proportion of doctors, the benefit of developing a geographically transferable medical skill set to advance clinical knowledge and procedure in one’s home country is still an important element of the pull of training and development in the UK.

*“so it’s a bit like a factory line and they go with their blessing coming overseas because **they know they’re going to get a better education**, so when they return one day, which some of them do, **they’ll bring that skill-set home with them**” (Locum Agency #1, UK)”*

*“it’s a sort of **reciprocal benefit more ethical recruitment model** whereby we benefit from their contributions over a two year period and **they’re also able to train and have exposure to different procedures and techniques that they can take back to their home countries**” (Professional Organisation #1, UK)*

The interviews with key stakeholders revealed that migration to the UK for career progression purposes tends to occur relatively early on in a doctor’s career so that they can benefit from the postgraduate training opportunities offered within the NHS. This is often compounded by comparatively poor career progression opportunities within one’s home country. Therefore, career progression constitutes a core push and pull factor for many overseas doctors (Professional Organisation #2, UK).

*“Then the opportunity to then progress your career, either in the UK or somewhere else, **so there are a number of people who come and look to migrate early on in their career for that reason.**” (NHS, UK)*

*“sub-specialisation as well **there’s a lot of experience available as well in the UK to do that so it’s quite attractive for career progression**” (Recruitment Agency, New Zealand)*

The status of gaining medical qualifications from the UK was also identified as a less prevalent driver of inward migration within the systematic review.^{29, 37} However, as aforementioned this was a prominent factor discussed within many of the stakeholder interviews, with the UK’s training, qualifications and experience attaining a global status and reputation, which “holds kudos” in one’s home country (Medical Education Training Body #2, UK).

4.2.2 Desire to experience working in a different environment

Linked to the pull of better training and development opportunities in the UK, is the desire to experience working in a different environment.^{9, 33, 36, 37, 39, 41} The literature highlighted how feedback from IMGs in the UK revealed that they value the opportunity to work in a different healthcare system,³⁹ and the professional challenge associated with different working experiences.^{33, 36, 37} For some there is a specific desire to experience working within a developed country.⁴¹ Similarly, career progression factors were identified in the literature as core meso-level drivers for inward migration to the UK. These included the opportunity for research,^{33, 35-39} as well as the opportunity to gain clinical experience through short-term employment.^{9, 33, 36, 37, 39, 41} These pull factors were not explicitly mentioned within the stakeholder interviews, however, it may be that they feed more broadly into the desire for better training and development opportunities through the exposure to different clinical knowledge, procedures and techniques, as mentioned above (Professional Organisation #1, UK).

4.3 Micro-level drivers

Micro level drivers are individual circumstances and values that influence the decision to migrate to the UK. The key drivers attracting overseas doctors to work in the UK identified in the systematic review (Table 21) were firstly financial factors, specifically financial gain for oneself or one’s family,^{5, 9, 11, 12, 33, 36, 38, 39, 42} and secondly, personal fulfilment, specifically the desire for an adventure or life change,^{5, 9, 33, 36, 37, 41} or a better quality of life or work-life balance.^{33, 36, 37, 39}

4.3.1 Financial gain for self (and/or family)

Financial gain for oneself and one’s family related primarily to the prospect of an increased income in the UK, within the NHS, or in comparison with one’s home country. Interestingly,

the prospect of financial gain was not a prevalent factor discussed by the interviewees. Although the comparative income gain between the UK and one's country of origin was mentioned (Medical Education Training Body #2, UK).

4.3.2 Desire for life change or better quality of life

The desire for a life change was cited in order to have the opportunity for travel and adventure,^{9, 33, 37} and to take a break from a predictable way of life,^{33, 36, 37} while "the British way of life"⁵ was also a pull factor. The interviews with stakeholders elaborated, suggesting it was the desire for a new start (NHS Organisation, UK), or the opportunity to travel and experience a different culture that attracted overseas doctors to the UK. The systematic review revealed that the prospect of a better quality of life was a pull factor for inward migration to the UK, with overseas doctors aspiring to have an improved standard of living for themselves and their families. Interviewees similarly highlighted the positive lifestyle elements attributed to living in the UK.

"the thing about the UK is it's a cosmopolitan country and overall people are welcomed and accepted greatly, and **most people have a great experience**, you only hear in the press about the thin end of the wedge, but I think people want to come and live here, **it's a good place to be, look at the people who are trying to cross the channel, they come for a reason because they think it's a better life**" (Medical Education Training Body #2, UK)

Despite the challenges of working in the NHS, the UK is still considered to be comparatively more fulfilling in terms of work-life balance than some countries, for instance Ireland, as was suggested by one interviewee. Furthermore, not only is this an individual concern, but a desire for a better quality of life for one's family is also significant. Some doctors may migrate to the UK because of existing family ties, or because their spouse has found a position here, and so consideration of family placements should not be overlooked (Medical Education Training Body #1, UK). Furthermore, migration that occurs later in a doctors' career when there is a desire for a 'new start', will often involve an accompanying family (NHS, UK).

*"I think as well in terms of work / life balance it's tipped to be more balanced, I know there are challenges in the UK system as well, I know some of the doctors in the UK talk about, but it is extremely challenging here and **comparatively it is better in the UK**" (Regulator, Ireland)*

*"but the more experienced somebody is when they come to the UK and are **seeking to put down the roots**, the feedback employers give us is actually **somebody's looking to settle** and they're looking to progress either that section of their career or the remainder of the career, and put roots and have family, **and if they have family and they're bringing them that's a massive part of it because it's about family education and spousal employment as well as their own career**" (NHS, UK)*

For some doctors, personal fulfilment is satisfied by migrating to the UK due to an unfavourable economic situation at home, or an unappealing geographic location in which one is working.

4.3.3 Additional Factors

Additional micro-level pull factors involved the family; either to join a spouse in the UK, or to seek a better education for one's children. ^{9, 37, 39} Further individual factors included the desire for personal growth, and to improve English language proficiency. ^{12, 37} The decision to choose the UK as the destination country was influenced by common language ties, ^{11, 37} and this was also highlighted by the interviewees.

“one of the big plusses for the UK is that we speak English and health professionals in dozens of countries are trained in and speak English, and so we can cast our net relatively wide in terms of where we can recruit from without having to factor in additional issues around language training” (NGO, UK)

“I think for similar reasons it's a system that they understand, the language is the same, the technology is the same, the level of medicine will be similar” (Regulator, Australia)

Finally, the location of the UK as providing a “gateway to Europe” ^{33, 36, 48} were less prevalent pull factors driving migration of overseas doctors into the UK. As one interviewee mentioned, for some migrant doctors, like those in Ireland, the proximity of the UK and the closeness of family at home are attractive elements (Regulator, Ireland).

5. RESULTS RQ3: What are the barriers to overseas qualified doctors coming to work in the UK?

The opposite side of the push-pull model driving migration of overseas qualified doctors into the UK, are barriers to migration. These factors may hinder, or make difficult the ability to migrate, or they may be factors that dissuade doctors from setting the intention to migrate in the first place, for example, positive improvements to factors that were pushing migration in one's home country. The literature contained few references to the barriers to migration, prioritising instead the push/pull factors driving doctors to either immigrate into, or emigrate out of, the UK. The likely reason for this is that methodologically it is much more difficult to ascertain changed intentions to migrate, and what may have changed or obstructed a decision to migrate. A summary of the barriers to the migration of doctors identified in the literature is presented in Table 22.

Table 22: Barriers to the migration of doctors into and out of the UK

Macro-level Barriers	
<i>Coding Descriptor</i>	<i>References</i>
4.21*Stricter immigration policies	16, 34, 36, 44, 49
4.26 Process of gaining registration	12, 39, 50, 51
4.1 Healthcare system difficult to enter or differences in healthcare system	12, 36, 39
Meso-level Barriers	
5.14 Negative job security contract	16, 52
5.3 Limited training opportunities	36, 45
5.16 Negative experience of induction scheme	12
Micro-level Barriers	
6.8 Concerns about a new working environment	37, 39
6.19 Lack of support	39, 52
6.22 Language difficulties	12, 37

*The numbers correspond to the codes in the coding framework in Appendix C

5.1. Macro-level barriers

The key macro-level barriers identified in the literature include stricter immigration policies, the process of gaining registration and a healthcare system that is difficult to enter.

5.1.1 Stricter immigration policies

The primary barrier for overseas doctors wishing to migrate to the UK is political, specifically stricter immigration policies that limit or make it difficult to work in the UK, primarily for non-EU migrants. ^{16, 34, 36, 44, 49} In combination, the primary barriers involve physical or logistical problems with entering the country or health system. The stakeholder interviews revealed immigration issues to be a prevalent barrier to the inward migration of doctors. One interviewee stated the cost of the immigration skills charge, which may add financial pressure to smaller trusts who wish to recruit overseas doctors. Another highlighted visa-related costs such as the immigration health surcharge, although they acknowledge that as of May 2020 this has been incorporated into the Health and Care Visa. Despite the systematic review highlighting the ease of UK immigration policies (see Section 4), one interviewee explained how it was still a barrier one had to get through.

“there still are various immigration requirements which perhaps are reduced or fast-tracked for doctors compared to most others, but still are there as a challenge to get through” (NGO, UK)

Other interviewees highlighted the changeable nature of UK immigration policies, which may present greater barriers to inward migration depending on the policy context. The interviewee below describes not only the limits placed on overseas recruitment in line with workforce demand, but also the perception of how far the UK is “open for business”, and the complexities of navigating these changes for those coming into the country from overseas.

“When we reached a point where there were more applicants than we needed there was a bit of pressure on to change some of the visa and immigration system, which made it more tricky and more challenging to accept the larger numbers. So we then saw quite a very quick change in the volume in applications into doctors in training posts, so then moving to almost like a visa system, then the UK government’s decision to introduce a cap to the number of visas that were available for all industries, not just in our sector, made a big difference on the perception of whether or not both the UK and the NHS is open for business” (NHS Organisation, UK)

Additional political factors include specific UK policy change to reduce net immigration after the UK leaves the EU.^{44, 45} This had only a limited presence within the systematic review despite the recognised uncertainty that this may bring for immigration. One interviewee described the uncertainty around whether ‘Brexit’ will make it a lot more difficult for overseas doctors to come to the UK, forcing those doctors within the EU to face the same immigration process that non-EU migrants have, which may result in inevitable delays unless we have recognition of certain overseas qualifications (NHS, UK).

“I think the complexities of navigating visa systems, and coming from abroad, often there’s changing policies or legislation that might make it difficult for people planning their careers to navigate, obviously more recently we’ve seen the implications of Brexit and how that might affect people either because they may have concerns about the environment or the atmosphere that they’re coming into, or sort of maybe having less certainty about how the visa process will work and whether they’ll be able to stay long-term. So I think the barriers are probably a mixture of the more kind of procedural bureaucratic administrative, and then also maybe anxieties about whether they would feel welcomed socially” (Professional Organisation #1, UK)

A negative political climate in the UK was described as another barrier to the inward migration of overseas doctors, this included the perception of the UK’s immigration rules, particularly how “permissive” and accessible these rules are. Another contributing factor is the cost involved with migration, which may discriminate against those from LMIC countries. One interviewee felt that visa related costs in the UK were

expensive (Professional Organisation #2, UK). Finally, interviewees emphasised the perception of the UK as being unwelcoming to doctors from the EU.

*“Several of my European colleagues from various parts of the country have told me that **they no longer feel welcome in Britain...** I do feel that we will lose a source of potential recruitment by doing that, and that’s at all levels not just consultant levels” (Medical Education Training Body #1, UK)*

*“whether they’re allowed to come or not they won’t because the message is clear that **we’re no longer hiring thanks very much, and that was the message that went to the rest of the world**” (Medical Education Training Body #2, UK)*

The perception that Brexit means that socially and culturally, the UK is no longer a welcoming place for immigrants including overseas doctors, is one that could have real ramifications for recruitment into the medical workforce. One interviewee described a “cultural barrier”, whereby being considered as “foreign” within the UK is not a very nice experience, and where both xenophobia and racism occur (Medical Education Training Body #1, UK).

*“you see some of the way in which from overseas are treated in this city, we’ve now got quite a lot of people from **Poland and Eastern Europe** generally, and again **there are times when that community has had quite a lot of antagonism towards it**” (Medical Education Training Body #1, UK)*

*“The UK is considered as having a **‘hostile environment’ towards migration**” (Professional Organisation# #2, UK)*

This experience of xenophobia aligns with the discussion of systematic bias experienced within the UK health care system (see sections 5.1.3 and 5.2.1), described by one interviewee as “*institutional racism*” whereby overseas doctors are considered as not suitable (Locum Agency #1, UK). As explained in section 5.1.3 and 5.2.1, the consequences of this is that overseas doctors are placed in a competitive situation with UK trainees, but they start from an unequal position. Brexit is likely to exacerbate cultural and social fractures, and present “*a huge challenge for the service*” (Locum Agency #1, UK).

The immigration rules within one’s home country may also present a barrier for overseas doctors wishing to immigrate to the UK, particularly during the current Covid-19 restrictions (NHS, UK). In some countries, doctors may also be bonded for a certain number of years of return service at home,⁵³ while the UK also needs to comply with the global standards on ethical recruitment from LMICs, both of which may affect the number of international doctors emigrating to the UK (NGO, UK).

*“There was a perception that **the cost of the process is discriminatory against those from a poor background**. Once you take into account the various exams, paid resources, travel costs and visas it ruled out doctors from poorer backgrounds” (Professional Organisation #2, UK).*

*“other countries’ restrictions on either flights or the opening of their immigration and visa offices for people to get stamps to leave the country, and **whether or not there’s been restrictions that home governments have placed on their health professionals from leaving to go and practise their trade elsewhere**” (NHS, UK)*

5.1.2 Process of gaining registration

The systematic review highlighted the difficulties of getting registered within the UK. This was particularly the case for IMGs who must undertake the PLAB exam,^{39, 50, 51} which was presented as a “delaying factor” for one interviewee (Medical Education Training Body #2, UK), and also due to the difficult or costly process of registering with the GMC.¹² The stakeholder interviews raised some similar issues regarding the process of registration. One interviewee mentioned the high bureaucratic barriers for Australian doctors migrating to the UK, and the need to provide a large evidential requirement, “*almost having to go to find a kindergarten teacher to prove that you really did speak English*” (Regulator, Australia). Three of the UK stakeholders, mentioned the difficulties posed by working with the GMC (Medical Education Training Body #1, UK; Locum Agency #1, UK; Medical Education Training Body #2, UK) when it came to unrecognised PMQs, and the additional hurdle this presents.

*“to actually get onto the specialist register **the GMC makes it nothing but a nightmare if you haven’t got a recognised PMQ**. So we’ve had an example recently of a doctors we’ve had to have what we call a ‘letter of equivalence’ drawn up from the royal college, **and it just becomes a complete hassle, it’s a headache**” (Locum Agency #1, UK)*

5.1.3 Difficulties entering the healthcare system or differences in healthcare system

The healthcare system in the UK was also considered difficult to enter. Reasons provided for this difficulty included the economic crisis which increased the entry barriers for IMGs entering the UK,³⁶ recent scandals within the healthcare system,¹² and a system that was based on patronage,³⁹ and therefore disadvantaged non-PMQ doctors.

In addition, some of the interviewees noted barriers may include differences between home and destination health systems, for example, differences in the specialties practised, and *how* those specialties are practised, which may make transition to the UK difficult. For example, there may be differences in the types of specialties practised, such as General Practice (NHS Organisation, UK). Similarly, the evidence required for joining the specialist register may be unfamiliar, or may not be equivalent between the UK and one’s home country (Professional Organisation #1, UK). There may also be differences in the qualifications obtained by doctors coming from overseas, which may be to the disadvantage of non-UK PMQ doctors, due to perceived prioritisation of UK trainees. Perceptions of systematic bias through the prioritisation of UK trainees over overseas doctors, or the idea that overseas doctors are on an unequal footing in the UK system, is a significant concern mentioned by interviewees.

*“if you’d asked me pre-Covid the barriers to coming here, the only barrier is **if you have a postgraduate qualification or a royal college exam qualification you are at the front of the queue**, if you have the standard what we call the PLAB, **but if you have PLAB you’re at the back of the queue**. Those are the only barriers really” (Locum Agency #1, UK)*

5.2 Meso-level barriers

The primary meso-level barriers related to employment, specifically negative job security and the difficulties in obtaining employment for non-EU migrants, as well as concerns around securing employment for those returning to work in the UK.^{16, 52} Training and development opportunities were considered to have been affected by the economic crisis.³⁶ An additional factor affecting the ability of overseas doctors to work in the UK was the doctors’ negative experiences of the induction scheme, specifically the costs and testing involved.¹² These meso-level barriers were not explicitly cited within the stakeholder interviews, however interviewees highlighted additional factors which may present hurdles to the migration of overseas doctors to the UK.

5.2.1 Additional Factors

One of the barriers referred to within the interviews related to UK speciality training selection processes which are geared to favour those who have undertaken their foundation training in the UK. One interviewee highlighted cultural differences that may impact on training, such as a lack of experience with screening programmes, as well as selection processes that are not accessible to international candidates, or contain an implicit language using specific terminology e.g. feedback, that only UK trainees understand.

*“it’s like the **hidden curriculum in undergraduate medicine**, if you know it you can learn it, you can address it, **if you’re unaware of it you have no clue how to answer these questions**” (Medical Education Training Body #1, UK)*

Perceptions of systematic bias through the prioritisation of UK trainees over overseas doctors, or the idea that overseas doctors are on an unequal footing in the UK system, is a significant concern mentioned by the same interviewee.

*“I believe the **UK selection processes at ST1 are quite biased against non-UK people**, they tick all the boxes for equality and diversity but the way that it’s set up is set up deliberately to favour foundation doctors who’ve done their foundation in the UK” (Medical Education Training Body #1, UK)*

The issue described by interviewees, is that selection processes are not accessible to international candidates and that an implicit language exists that UK trainees understand.

Another interviewee referred to the problem of the recognition of equivalent training and competencies which presents a bureaucratic barrier to inward migration.

*“if it was made easier and there was **more acknowledgement of overseas qualifications then it wouldn’t be a problem**, but that’s partly the GMC but it’s not their fault, they are the gatekeeper after all, so from a compliance*

standpoint that's where they stand, if they relax the rules but obviously in a safe manner that would be very different" (Medical Education Training Body #2, UK)

5.3 Micro-level barriers

The key micro-level barrier to the migration of doctors into the UK identified in the systematic review related to personal factors, specifically concerns regarding starting a new life away from friends,^{37, 39} lack of support from family to leave one's home country³⁹ and the potential for language difficulties, particularly with colleagues.^{12, 37}

5.3.1 Language difficulties

The stakeholders interviewed also highlighted the possibility of language difficulties as a barrier to overseas immigration to the UK, in particular potential barriers with colleagues,¹² and the expectations of language requirements from the GMC with some overseas candidates struggling with the International English Language Testing System (IELTS) exam.

"Main barriers is being probably the English level, cos obviously with the GMC the expectations are quite high, so that's probably been one of the biggest barrier I would say" (Locum Agency#2, UK)

5.3.2 Additional factors

Additional barriers affecting immigration into the UK were stress and isolation,³⁹ and a lack of support.³⁹ The level of support available prior to registration was variable, and often lacking in the areas of communication and ethical decision-making.³⁹ One interviewee stated negative word of mouth through social structures would also act as a potential barrier (Medical Education Training Body #2, UK).

In addition to potential bias within the health system, overseas doctors also face barriers when it comes to registration in the UK, and advancing on to the specialist register. An increase in UK medical graduates may result in a decrease in workforce opportunities, creating medical unemployment and presenting a further health system barrier as the competition for positions increases. The consequence of this is that it may increase the experience of systematic bias faced by overseas doctors as they compete with a larger number of UK candidates for positions at key bottleneck points within the training and promotions process. Additional negative factors that may serve as barriers to the migration of overseas doctors into the UK, as well as the retention of UK trained doctors are; poor salaries, poor working conditions, and "second-rate" workplace management (Medical Education Training Body #1, UK; Locum Agency#2, UK).

"pay them more, train them more, progress them more within their career" (Locum Agency#2, UK).

The scale of evidence from the systematic review and stakeholder interviews in relation to the barriers hindering the migration of overseas doctors into the UK is limited, and it is

acknowledged that more research is warranted in this area to create a more informed picture of the inward flows and sticking points.

6. RESULTS RQ4: What are the drivers of doctors leaving the UK to work abroad?

A summary of the drivers of doctors leaving the UK to work abroad identified in the literature are presented in Table 23. The majority of these studies refer to the migration of UK-PMQ doctors.

Table 23: Drivers encouraging doctors in the UK to emigrate overseas

Macro-level Drivers	
Coding Descriptor	References
1.16* Poor working conditions	5, 8, 14, 16, 45, 54-56
1.6 Attractive working conditions elsewhere	5, 8, 15, 16, 37, 45, 55, 56
1.5 Employment opportunities	5, 15, 45, 55
Meso-level Drivers	
2.14 Pushed/desire to leave the NHS	8, 14, 15, 54-56
2.1 Better training and development opportunities	8, 45, 55, 56
2.17 Undervalued professionally	45, 55, 57
Micro-level Drivers	
3.1 Better quality of life	8, 14-16, 45, 55, 56
3.4 Family reasons	5, 14, 16, 37, 55
3.2 Desire for a life change	5, 8, 14, 16, 37, 45, 56
3.17 Financial gain for self	8, 14, 16, 37, 45, 55, 56

*The numbers correspond to the codes in the coding framework in Appendix C

6.1. Macro-level drivers

The systematic review found that many of the reasons associated with attracting doctors to the UK, also constituted push factors for UK doctors to decide to leave the UK and practise abroad, typically to Australia, New Zealand or mainland Europe. Macro-level health system drivers included poor working conditions in the UK, ^{5, 16, 37, 45} more attractive working conditions elsewhere, ^{5, 8, 45, 56} and better employment opportunities abroad. ^{8, 14, 45, 54, 55}

6.1.1 Poor working conditions at home, and attractive working conditions elsewhere

The interviews with key stakeholders also found one of the primary drivers for UK doctors to emigrate abroad was due to the pull of more attractive working conditions than they currently experienced within the NHS. Many of the interviewees cited the desire for working conditions that were better structured, better supported, and with protected annual leave and generally better rosters that support individuals with challenging working patterns such as days off after night shifts. One interviewee felt that this was particularly the case for younger doctors who were “voting with their feet” (Medical Education Training Body #2, UK).

*“I think, my understanding is that **pay and condition here are pretty good as compared with the NHS**, I don’t know that for a fact but **that’s what I’ve heard people say**” (Regulator, Australia)*

*“concerns about the **work / life balance in the UK, on-call time, overtime, we saw that particularly I think around kind of 2015 / 16 concerns about new contracts**, a lot of like news coverage of doctors going to Australia and reporting back on some of the improved work / life balance conditions abroad”*
(Professional Organisation #1, UK)

*“when we speak to doctors about how rosters and things are structured here, compared to the UK **even down to things like annual leave and how they’re protected, that’s really appealing to people**”* (Recruitment Agency, New Zealand)

*“many people, particularly, **younger people these days, are voting with their feet**, saying well hang on you might have thought dad or uncle or auntie that your loyalty’s to the NHS but I don’t think like that, and off they go and they find another place where **they can get better work / life balance, but it’s not just that, the work itself is better delivered and better supported**”* (Medical Education Training Body #2, UK)

In some destination countries, such as Australia and New Zealand, there is a general impression that the way of life is more relaxed, as well as a greater appreciation of well-being. These factors are extremely significant because altogether they contribute to better employee well-being, but also a sense of appreciation, of being more valued professionally, and of being able to provide better patient care.

*“**UK doctors are very well regarded here, and that’s probably a bit of an attraction too, you come over you’re appreciated**”* (Regulator, Australia)

6.1.2 Employment opportunities

The interviews also highlighted other health system factors that feed into the broader assessment of working conditions that push UK doctors to decide to migrate overseas. These included workforce issues and the number of vacancies in the UK health system, and concerns around NHS doctor contracts, which in part affects the level of satisfaction with working in the NHS. Specifically, there are concerns around whether the NHS is seen as a priority for the UK government, and whether the current issues with contracts will improve in the future, or whether they will deteriorate. These issues affect the number and nature of employment opportunities in the UK, which may push doctors to decide to leave the UK for better employment opportunities abroad.

6.1.3 Additional factors

The stakeholder interviews highlighted the favourable cost of living in destination countries when compared to the UK and favourable immigration policies for UK doctors seeking to migrate to places like Australia, both of which may act as additional drivers of migration. Two factors that ease the migration transition are whether the destination health system is comparable to the UK, and the ease of the registration process within the destination country. Having a similar health system to the UK is an attractive pull factor for some as it enables UK doctors to integrate more easily within a new healthcare system. Moreover,

recognition of this equivalency has resulted in an ease of transition, as part of a deliberate strategy of recruitment (Regulator, Australia).

“we make it really easy for them, and that is a deliberate strategy because there’s a recognition that the UK medical education system is equivalent, well close to equivalent, with ours, which is why we have the competent authority”
(Regulator, Australia)

Recognition as part of a ‘competent authority’ means that in some destination countries, such as Australia, it is much easier for UK doctors to become registered to practise. The removal of the “registration burden” means there are less barriers in place and this can be an encouraging driver of migration (Regulator, Australia), as can active recruitment. Certain regions in Australia, such as Western Australia and Queensland, are known to recruit heavily from the UK workforce.

Politically, the UK’s 2016 referendum vote to leave the EU is a significant reason for doctors to leave the UK, ^{57, 58} contributing to a sense of uncertainty around immigration policies, ⁵⁸ difficulties for non-UK nationals to obtain visas to stay in the country, ⁴⁵ a sense of xenophobia towards people from other EU countries working in the UK, ⁵⁸ and a feeling of under appreciation of non-UK doctors by the UK government. ^{16, 45, 57} One interviewee felt that this would have an effect on younger doctors who may wish to be in a country that was felt to be more cosmopolitan. Another suggested this may in fact reduce UK doctors emigrating as the UK will have to work on retaining its medical workforce, and that there may instead be increased numbers of doctors from Australia and New Zealand immigrating.

*“so I think **Brexit can definitely be a push, and particularly for younger people who feel that this isn’t their country anymore and they want to be in a cosmopolitan place** and maybe they see Canada as that cosmopolitan place”* (Academia, Canada)

*“So **Brexit’s a multifaceted threat and opportunity, right now all I could give you is a series of guesses; my guess is that we’ll have less Brits coming and more New Zealanders going**”* (Academia, New Zealand)

6.2 Meso-level drivers

The primary meso-level drivers pushing UK doctors to leave the UK and migrate overseas included dissatisfaction with the NHS. The prospect of better training and career development opportunities abroad also encouraged migration from the UK to other destinations.

6.2.1 Dissatisfaction with NHS

The primary meso-level factors that push UK doctors to leave the UK are negative factors associated with employment, principally, the disillusionment with, or desire to leave, the NHS. ^{8, 45, 54-56} Tied up in this reasoning is the perception of being undervalued professionally by the UK public or government, ^{16, 45, 57} leading to an erosion of morale;¹⁶ and the idea that healthcare professionals are more valued overseas. ⁴⁵ Additional factors leading to a

dissatisfaction with morale included a lack of support from senior staff, and workplace loneliness or bullying.⁴⁵ Employment overseas carried the perception of greater job satisfaction,¹⁴ better working relationships and more senior support.⁴⁵

Many interviewees reported doctors' desire to leave the NHS.

*"There's another group who have done their specialist training who think **the NHS sucks, I'm out of here**" (Academia, New Zealand)*

*"you hear people say things like **I just can't work in the NHS the way it's going**" (Recruitment Agency, New Zealand)*

*"the general impression that I've had is that **it's really a push factor in that they were not satisfied with the NHS**" (Professional Organisation, Canada)*

*"obviously we've seen lots of statistics and evidence of people facing bullying, harassment, which often seems to be **more pronounced among IMGs and doctors who are from the BAME background, so some doctors may be choosing to leave because of specific instances of bullying or harassment that they faced**" (Professional Organisation #1, UK)*

An additional factor mentioned in the quotation above is the experience of bullying or harassment experienced within the NHS, which may be felt more prevalently by IMGs or doctors from the BAME community. This may push not only UK BAME doctors to decide to emigrate, but may be a factor in the onward or return migration of those overseas doctors already working in the UK.

6.2.2 Better training and development opportunities

In section 4, one of the key drivers behind the migration of overseas doctors into the UK was the prospect of better training and development opportunities, however, the systematic review found that this was also a factor driving doctors to *leave* the UK. The prospect of improved training opportunities were also important to UK doctors,^{8, 45, 55} with a lack of mentorship and teaching, and a rigid training structure or "conveyor belt of training", seen as negative aspects of the UK system⁴⁵ which pushed doctors to emigrate overseas.

UK PMQ doctors may be drawn overseas by the desire to experience a new healthcare system, to gain valuable skills, experience and qualifications overseas, to gain a more holistic experience, as well as a rite of passage that will make them a more competitive and well-rounded candidate with a more interesting CV. One of the interviewees felt that the training experience was better in New Zealand, and that trainees received greater clinical exposure than in the UK (Academia, New Zealand). Speaking about a contact currently working in Australia, one interviewee described the supportive training and development that has enabled the individual to progress rapidly. Another referred to the decision to emigrate to Australia as being for reasons related to their return to training.

*"he arrived there and **he has progressed rapidly through the grades because he has been supported, taught, encouraged and mentored to that position, so he's confident that he can do anything he needs to do in the position that it's in,***

so he's gone rapidly to a registrar level, a middle grade nearly senior grade level very rapidly. Now you wouldn't have got that over here, it just wouldn't have happened as well" (Medical Education Training Body #2, UK)

"Around three-quarters of junior doctors that chose to work in a non-training post outside the UK, opted to go to Australia and New Zealand. However, the reasons for this were for factors such as to take time to decide on a preferred specialty, to improve their chances of securing a preferred post and a range of reasons to support their return to training" (Professional Organisation #2, UK)

With regard to career development, working overseas provided the opportunity for career advancement,⁵ and to broaden clinical experience by working in a different environment,^{55, 56} while deferring decision-making about specialisation.⁴⁵ Other push factors were the perceived lack of research opportunities in the UK, and the level of administration and bureaucracy.¹⁶ These factors were not specifically referred to within the stakeholder interviews, but may contribute to the overall desire for a better working life, and workplace or career opportunities.

6.3 Micro-level drivers

Key micro-level drivers influencing UK doctors' decisions to emigrate were firstly factors related to personal fulfilment, specifically quality of life considerations,^{14, 16, 45, 55} including a better climate,^{5, 16} family motivations,^{5, 14, 16, 55} as well as the desire for a life change,^{5, 14, 37, 41, 56} and to provide better patient care.⁵⁵ There was a perception that "things would be better elsewhere", and a desire for more positive lifestyle factors.⁵⁵

6.3.1 Better quality of life

Personal fulfilment factors were also highlighted within the stakeholder interviews, with the desire for a better quality of life or work-life balance a key driver pushing doctors to leave the UK. One interviewee recognised that although outward migration is currently limited due to Covid-19, the desire to emigrate remains, and this could mean a post-Covid spike in doctors leaving the UK for a better quality of life overseas.

Part of the aspiration for personal fulfilment involves the desire to travel, or for adventure. Many UK doctors immigrate early in their careers to places like Australia and New Zealand before they become committed to a particular specialty or training programme. This may be due to the desire for an adventure, a break, to travel, to experience a new country, and also for the lifestyle and consideration of one's wellbeing and that of one's family. The emigration is usually temporary unless they place down roots within the destination country, which may happen through developing personal relationships. Other interviewees relate a temporary migration to a period of training or up-skilling.

"...it's the Neighbours way of life" (Regulator, Australia)

*“I lived in Australia for several years and asked doctors there from the UK and **they were all there because the sun shines and they’re paid a lot more**” (NGO, UK)*

*“they want to get away from those grey drizzly months that you guys have in the UK so **they come here for a holiday, and that explains why within a year of being here half of them have gone, they never intended to stay, they always came as a tourist**” (Academia, New Zealand)*

6.3.2 Family reasons

The second group emigrate later and usually with their families, in order to seek a better quality of life and better opportunities for their families. This decision may be weighed against stagnant career progression in the UK, leading to a reprioritisation of career and personal aspirations, and this tends to lead to a more permanent emigration.

“...I’m never going to be the professor of medicine at Barts, ultimately I’d rather go sailing on the weekends” (Academia, New Zealand)

6.3.3 Financial gain for self

Economic factors, specifically the prospect of financial gain^{5, 8, 16} was an additional driver of the migration of UK doctors overseas. The desire for better earning potential was also highlighted by the interviewees, particularly in comparison with the NHS. Comparably, Australia, New Zealand, Europe and the Middle East are attractive destination countries for UK doctors to have increased salaries. While for some, migration to destinations such as Australia and New Zealand occurs at an early career stage, some UK-PMQ doctors migrate to the Middle East during a later stage of their career in order to earn a much higher comparable income which will be used as a “retirement fund” (Locum Agency #1, UK; Locum Agency#2, UK).

6.3.4 Additional Factors

In addition to a comparable healthcare system, a comparable culture is another pull factor for UK doctors, as is a common language, which eases the transition culturally as well as vocationally. Historically, a cultural pattern of migration from the UK to some key destination countries has resulted in the transference of some elements of British culture, for example the Canadian system of Medicare which is similar to the NHS (Professional Organisation, Canada). Positive word of mouth through social networks of peers and colleagues who have migrated overseas can positively influence doctors’ migration intentions.

Family reasons were also identified within the literature as a driver of the migration of doctors overseas. This included joining family abroad, and other non-specified reasons; one interviewee suggested wanting a better life for one’s family. Finally, for international doctors in the UK the strict adult dependent rule makes it difficult for migrants to bring

family members into the country, resulting in some of them leaving for alternative destinations.

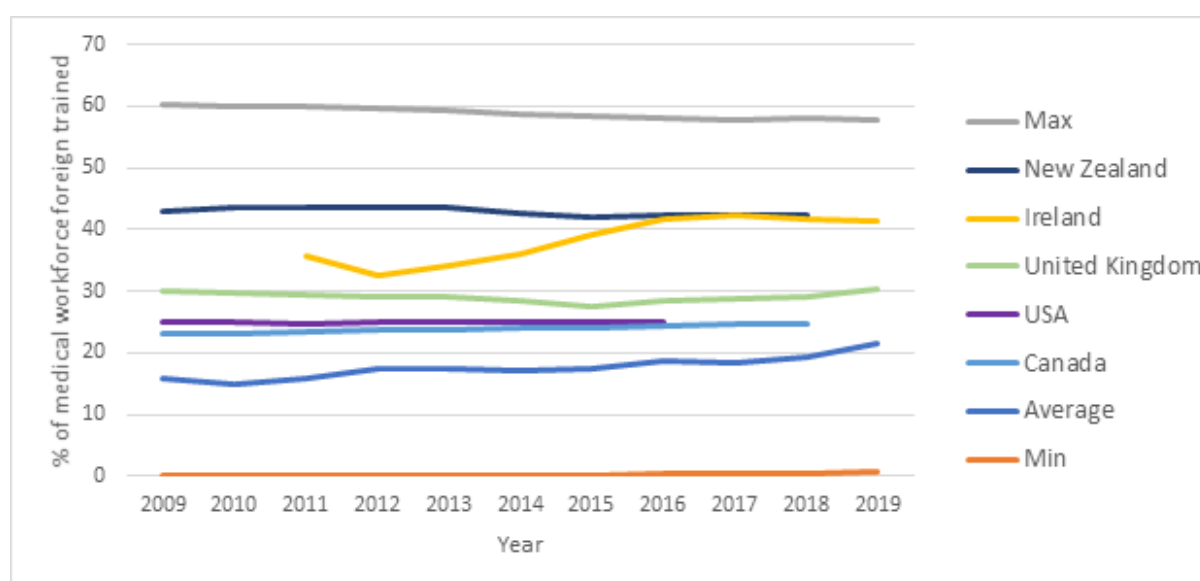
7. RESULTS RQ5: How does the migration of doctors to and from the UK compare to migration of doctors to other high-income countries?

7.1 Migration trends

Trend 15: Ireland and New Zealand have a higher reliance on foreign doctors than the UK.

The OECD publishes data on the percentage of foreign doctors²⁰ by country. Figure 11 shows that historically the UK has had an above average percentage of foreign doctors compared to the USA and Canada. Ireland and New Zealand have a higher reliance on foreign doctors than the UK. It is worth noting the UK level has remained fairly level compared with Ireland which increased between 2012 and 2019.

Figure 91: OECD data on the international level of foreign trained doctors in the UK and destination countries



7.2 Countries of origin and destination

This section presents immigration patterns into destination countries as perceived by interviewees.

7.2.1 Ireland

Immigration patterns into Ireland tended to involve doctors from LMICs such as Sudan, Pakistan, Malaysia and India as well as countries from within the EU, such as Hungary and Romania. A smaller proportion of this international cohort come from the UK. Immigration patterns out of Ireland predominantly involve Irish medical graduates immigrating to the UK, which accounts for approximately 40% of those leaving the register annually. Other destination countries for Irish doctors include Australia and Canada, which are similarly popular destinations for UK medical graduates. While historically Irish doctors have immigrated for a fixed duration to these countries before returning to Ireland, recent patterns suggest migrations may be more long-term due to retention issues within the Irish

health workforce. Furthermore, IMGs facing similar issues with the health system in Ireland may return to their home country, or participate in onward migration to countries such as the UK or Australia (Regulator, Ireland).

7.2.2 Australia & New Zealand

For Australia, doctor immigration was predominantly from the UK, Ireland, India, Sri Lanka, South Africa, Egypt, Pakistan. Similarly, the UK and Ireland are large contributors to the IMG workforce in New Zealand, while other doctors come from the Indo-Asian region, and South Africa. The countries of Europe, the US, Canada, Singapore, and Israel are viewed to have comparative health care systems enabling easier registration for doctors immigrating into New Zealand. The UK has historically been a destination country for Australian doctors, however changes in UK immigration policies in recent years has seen more favourable rules facilitating immigration from the EU, as opposed to the Commonwealth countries, rendering UK immigration a more difficult process. However, the UK's formal departure from the EU in January 2021 may present more opportunities for doctors from Australia and New Zealand to work in the UK if the UK becomes less reliant upon doctors from the rest of the EU (Academic Institution, New Zealand).

7.2.3 USA & Canada

Conversely, UK doctors form only a small percentage of the immigrant doctor workforce within the US. Historically, the US has attracted a large cohort of doctors from India and Pakistan, and although this appears to be a waning trend, this cohort are still primary contributors of IMGs within the US. Interestingly, there appears to be an increase in US nationals who received their PMQ outside of the US (for example in the Caribbean), re-entering the US medical workforce, where they are classed as IMG doctors. Historically, there has been a pattern of immigration of UK and Irish doctors into Canada, in addition to doctors from South Africa, Philippines, India, the Caribbean and Jamaica, and the EU, among other countries. Increasingly, there has been a similar trend identified to that seen within the US, of Canadian nationals receiving their PMQ training outside of Canada (for example in the UK, Ireland, Poland, or Caribbean countries), and then re-entering the Canadian workforce as IMG doctors (Academia, Canada and Regulator, USA).

7.3 Drivers of migration into and out of HICs, and LMICs compared to the UK

Similarly, to the factors driving inward migration to the UK, the drivers of inward migration to other higher-income countries include factors related to the health system i.e. training opportunities, personal fulfilment, socio-cultural and political issues, training and career opportunities, and economic considerations. The drivers of migration into and out of the UK, HICs and LMICs identified in the systematic review are presented in Table 24. As the systematic review did not separately distinguish between the drivers/barriers for inward and outward migration for HICs and LMICs we have also presented both for the UK for comparison, while acknowledging that this evaluation is less distinct. As in previous sections, the findings of the review are then integrated with the qualitative interviews.

Table 24: Drivers of migration of doctors into and out of the UK, HICs, and LMICs

UK		HICs	
Coding descriptors	Refs	Coding descriptors	Refs
Macro-level drivers			
1.5* Employment opportunities	8, 9, 11, 12, 14, 29, 54, 59	1.16 Poor working conditions	27, 30, 33, 40, 61-81
1.16 Poor working conditions	5, 9, 16, 45, 59, 60	1.6 Attractive working conditions	27, 31, 33, 36, 40, 63, 65, 67, 70, 75, 78, 82-91
1.6 Attractive working conditions	5, 8, 45, 56, 59	1.5 Employment opportunities	30, 31, 38, 50, 62-64, 73, 81, 85, 88, 92-96
1.30 Immigration policies	9, 43-45, 58	1.28 Safety for family or self/fleeing violence	31, 63, 75, 77, 79, 82, 85, 87, 92, 94, 97, 98
		1.45 Established networks	30, 36, 50, 78, 80, 81, 89, 91, 92, 97, 99, 100
Meso-level drivers			
2.1 Better training & development opportunities	5, 8, 9, 11, 39, 41, 45, 59, 60	2.1 Better training & development opportunities	27, 30, 31, 33, 36, 50, 61-64, 66-69, 74, 76, 78, 79, 84, 89, 92, 94, 98, 115
2.10 Desire to experience working in a different environment	9, 39, 41, 56, 59, 60	2.18 Career progression	33, 36, 62-64, 70, 72, 79, 81, 82, 85, 89, 93, 96, 116
2.19 Opportunities to gain clinical experience through short-term employment	9, 39, 41, 45, 56, 60	2.7 Shortage of postgraduate training opportunities	30, 33, 36, 50, 76, 81, 85, 97
2.14 Pushed/desire to leave the NHS	8, 14, 54, 56, 59	2.3 Status of gaining qualifications/ training from specific country	27, 30, 33, 36, 61, 68, 85, 86
Micro-level drivers			
3.1 Better quality of life	8, 9, 14, 16, 39, 45, 56, 59, 60	3.17 Financial gain for self	27, 30, 31, 33, 36, 38, 63, 64, 67, 70, 75, 76, 78-88, 94, 96, 98, 99, 115, 119
3.17 Financial gain for self	5, 8, 9, 11, 16, 39, 42, 59	3.1 Better quality of life	27, 30, 31, 33, 36, 61-63, 65, 67, 75, 77-79, 83, 85-87, 92, 93, 97, 119, 120
3.2 Desire for life change	5, 9, 14, 41, 56, 60	3.14 Family reasons	27, 36, 63, 64, 75, 81, 115, 120-122
3.4 Family reasons	5, 14, 16, 37, 39, 55		

*The numbers correspond to the codes in the coding framework in Appendix C

7.3.1 Macro-level drivers

The primary macro-level drivers of migration into HICs were due largely to health system factors and domestic political factors. Specifically, poor working conditions in source countries pushed doctors to emigrate, ^{27, 62, 63, 66, 68, 71, 75, 77, 79, 116} and subsequently, more attractive working conditions attracted them to work overseas. ^{31, 63, 69, 75, 79, 82, 87, 92, 125} Greater employment opportunities and having established networks abroad also pulled doctors to migrate abroad. Politically, the safety of oneself or one's family, or fleeing from violence or insecurity at home were also key reasons why doctors immigrate to HICs. ^{27, 31, 40, 75, 82, 87, 89, 91} and was a macro-level push factor for doctors in LMICs who seek greater security and safety through emigration. ^{48, 51, 102, 103, 126-129} While the core macro level drivers in to and out of HICs were very similar to those experienced in the UK, the core macro level drivers for LMICs included a poor political ^{48, 101-104, 107-109, 126, 129, 130} and macroeconomic situation, ^{46, 51, 103, 104, 110, 111, 126-128} poor job opportunities at home ^{48, 51, 53, 103, 108, 111, 128, 130} and comparatively better political, economic and employment circumstances elsewhere.

Destination countries with a similar culture can attract migrant doctors. For example, UK doctors may perceive Australia as being “similar but sufficiently different” (Academia, New Zealand), and this is true of Canada and New Zealand as well. Positive word of mouth feedback from friends and colleagues also encourages migration to HICs.

*“I think likely **there’s a good degree of networking and conversation that already happens within the IMG community, and I think that may be the kind of thing that probably would be more closer to active recruitment**, when you’ve got a family member of a colleague that’s been able to navigate the system here, find some success, and can then offer at the very least advice to someone in terms of here’s how you navigate this system in the US” (Regulator, USA)*

*“B: Certainly with the junior doctors between friends who’ve moved and worked abroad, **they hear all these wonderful stories about what it’s like to work here, and that’s more effective than any advertising we can possibly do***

A: Oh absolutely, and it’s something we hear all the time, oh my friend did it, my friend did this, my friend did that, it’s really funny” (Recruitment Agency, New Zealand)

A negative political climate within one’s home country may drive medical graduates to consider migrating overseas to other HICs.^{87, 92, 94, 97, 131} Canada, for example, is considered to have a positive political environment. One interviewee suggested that this has been a motivating factor for doctors migrating from the US. Whereas safety and security issues are of concern for doctors emigrating from South Africa. While this may be a driver for migration *into* the UK, it was not a specific factor influencing outward migration from the UK.

“[D]uring the first Trump / Biden debate the [NZ] immigration website was crashed by Americans” (Academic Institution, New Zealand)

*“[what the Trump Administration says] it has a bit of a chilling effect because **I’m not sure how many of these individuals are in positions where they can simply afford to be halfway through a programme and find out this administration’s cutting this, you’re going to be sent home**” (Regulator, USA)*

*“they come here because they think it’s no longer safe to live in South Africa, they’re worried about their kids, they’re worried about living behind a wall with barbed wire fence, they’re worried about having to have two Rottweiler’s, they’re worried about having to have loaded guns in the house. **They think I don’t want to leave South Africa, I love living in South Africa, but I want my kids to grow up somewhere safe**” (Academic Institution, New Zealand).*

Other political drivers include the ease of immigration into the HIC, bilateral agreements that facilitated a system of recruitment, and the perception of a positive handling of the Covid-19 pandemic, which for example has, “shown New Zealand in a really good light”

(Recruitment Agency, New Zealand). Economically, a more favourable cost of living may drive doctors to migrate (Regulator, Australia).

7.3.2 Meso-level drivers

The meso-level factors driving the migration of doctors into and out of HICs and LMICs were very similar to those experienced in the UK. The two most prevalent drivers cited within the systematic review were the prospect of better training and development opportunities and career progression. A shortage of postgraduate training opportunities within HICs constituted a driver of outward migration,^{30, 33, 36, 50, 81, 85, 97, 132} and the status of gaining qualifications or training from a specific country attracted migrating doctors to destinations such as the UK.^{27, 30, 33, 36, 68, 85, 86, 116} For LMICs the desire for increased job satisfaction,^{48, 49, 101, 128} greater professional value,^{49, 51, 81, 103, 129} and the opportunity for research^{35, 110, 117, 118} pushed doctors abroad. The aspiration for better training and development opportunities was a prevalent factor across the country groupings, and this was also evident within the stakeholder interviews.

Interviewees described how New Zealand attracts doctors from Indo-Asia who immigrate for the good standard of education, as well as the possibility of using New Zealand as a stepping-stone to employment in Australia. The high quality of education in New Zealand is due to the large degree of clinical exposure, which provides trainees with a significant amount of practical experience. Similarly to the UK, in Ireland the international medical graduate training initiative (IMGTI) supports international medical graduates to migrate for a defined period of up to two-years with a commitment to not practice in Ireland again for at least a year. This initiative exchanges workforce labour for training, and graduates can take newfound skills and knowledge back to their own countries or onward to another country. This scheme has tended to attract graduates from Malaysia due to government contractual agreements, which provide funding for the opportunity. Career progression opportunities within the Irish system are perceived to be limited, and the consequence of this is that even those not within the IMGTI scheme tend to migrate onwards once they have attained training and English-language skills. While not part of a formal initiative, the prospect of up-skilling through training opportunities before returning home is a pattern also seen in the US, and this may in part be due to “brand reputation” and the perception of quality training within the country.

As in the UK, career progression is a driver for international doctors immigrating into New Zealand. For many the country is seen as a “backdoor” into Australia, which is a much larger health economy and so there is more assurance of career and employment opportunities. As described above, this is also a factor for doctors in Ireland who often migrate onwards to the UK for better opportunities. The desire to experience a different healthcare system is also a driver for career progression, and may be seen as a ‘rite of passage’ for junior doctors to enhance their CVs and be seen as more employable.

“So they’re here, we train them here, and then we give them no surety, there’s no career planning” (Academic Institution, New Zealand).

conditions.^{34, 95, 121, 122, 141} Both of these reflect positive improvements, which may reduce push factors that would otherwise constitute drivers of migration as seen in Table 24. For LMICs strict immigration policies acted as a barrier to outward migration, while investment in working and living conditions reduced the push factors driving the desire to emigrate.^{51, 128, 130, 138}

The stakeholder interviews revealed barriers to inward migration to HICs also include health system factors. Differences between the health care system within one's home and destination countries, including the local terms for specific drugs, or differences in accents which can create difficulties, or less access to very specific areas of practice. Other difficulties include passing the requisite licensing exam, and a difficult registration process. Other health system barriers include financial considerations and the requirement to repay student loans at home, issues around the recognition of qualifications, and difficulties finding a residency position due to bottlenecks in the system. Covid-19 has similarly pressurised the employment landscape, for instance doctors in New Zealand, are no longer leaving the country, which has equated to a "98% drop off in vacancies for junior doctors" (Recruitment Agency, New Zealand).

In terms of macro-level social and cultural barriers, a lack of 'cultural competency' (an understanding, appreciation and interaction with different cultures or beliefs) with the destination country, as well as concern around racism or xenophobia may negatively influence decisions to migrate.^{85, 121} A poor political climate within the destination country, such as the US, may lead to a migratory push towards other countries. As with the UK, difficult immigration factors may also present barriers to migration.^{15, 33, 34, 36, 49, 68, 97, 117, 128, 140, 141, 144} Restrictions on travel due to the Covid-19 pandemic, or a negative handling of the pandemic within destination countries may also dissuade international doctors from immigrating to HICs.

Table 25: Barriers to the migration of doctors into and out of the UK, HICs and LMICs

UK		HICs		LMICs	
Coding descriptors	Refs	Coding descriptors	Refs	Coding descriptors	Refs
Macro-level barriers					
4.1* Healthcare system difficult to enter	12, 39	4.21 Stricter immigration policies	33, 36, 65, 68, 84, 97, 140, 141	4.5 Investment in working & living conditions	51, 128, 130, 138
4.21 Stricter immigration policies	16, 44	4.1 Healthcare system difficult to enter	36, 62, 68, 139, 140	4.21 Stricter immigration policies	49, 117, 128, 144
4.26 Process of gaining registration	12, 39	4.3 Improvements to healthcare system in home country	76, 95, 139, 142, 145		
		4.5 Investment in working & living conditions	84, 95, 121, 122, 141		
		4.26 Process of gaining registration	33, 62, 88, 97, 116		
Meso-level barriers					
5.14 Negative job security/contract	16, 52	5.15 Lack of recognition of qualifications or experience	33, 36, 78, 81, 88, 141	5.3 Limited training opportunities	117, 128
5.3 Limited training opportunities	45	5.3 Limited training opportunities	33, 36, 140	5.9 Cost of training/relocation	109, 117
5.8 Training deanery	52	5.5 Difficult to get a specialist training post	62, 139		
5.16 Negative induction scheme	12	5.14 Negative job security/contract	33, 116		
Micro-level barriers					
6.1 Family ties	8, 52	6.1 Family ties	33, 36, 61, 67, 82, 115, 119, 140	6.1 Family ties	48, 51, 53, 111, 117
6.8 Concerns about a new working environment	39, 60	6.22 Language difficulties	33, 36, 67, 68, 78, 88, 141, 146	6.4 Loyalty to profession in home country	49, 53, 109, 111, 117
6.19 Lack of support	39, 52	6.9 Concerns regarding appraisal/revalidation/certification	68, 94	6.19 Lack of support	109, 117
6.22 Language difficulties	12, 60				

*The numbers correspond to the codes in the coding framework in Appendix C

7.4.2 Meso-level barriers

As seen in Table 25, the availability of training was an important factor in the systematic review across all three country groupings. Similarly, limited training opportunities acted as a meso-level barrier to migration for all three as well. For HICs, the perception of negative job security or a negative contract deterred migration,^{33, 35} as did concerns about the process of appraisal, revalidation or certification associated with a move.^{68, 94} Difficulties with gaining a specialist training post,^{62, 139} and a lack of recognition of qualifications or experience also presented barriers.^{33, 36, 78, 81, 135, 141} For doctors in LMICs the cost of training and relocation presented an economic barrier to migration abroad.^{109, 117}

A perceived limitation in career development opportunities may present a barrier to migration for IMGs, in addition to more limited research opportunities. In Australia, IMGs may need to demonstrate progression towards gaining full registration or specialist qualifications in order to stay long-term within the country, and this is something that UK doctors do not need to do. A lack of training opportunities and clinical experience may act as a barrier to migration to HICs, as may the eligibility criteria for internship posts.

*“if they come directly here **they sometimes haven’t done any clinical placement at all, that’s a real issue** for us. An example for that would be Romania, and there’s other countries that don’t do it as well” (Recruitment Agency, New Zealand)*

7.4.3 Micro-level barriers

Finally, for all three country groups the top micro-level barrier to migration was family ties within one’s home country.^{8, 33, 36, 48, 51-53, 61, 67, 82, 111, 115, 117, 119, 140} Both UK and HIC doctors were concerned about potential language difficulties in the destination country and this presented a hurdle to migration,^{33, 36, 67, 68, 78, 135, 141, 146} while LMIC doctors were concerned about a lack of support from family or employers,^{109, 111} or felt that loyalty to the profession in one’s home country reduced the moral capacity to emigrate.^{49, 53, 109, 111, 117}

The stakeholder interviews similarly revealed personal fulfilment barriers to migration including one’s distance away from family and friends. A lack of consideration of the geographic placement of spouses who may also be international doctors, may also present a personal barrier for migrating couples. However, the international doctors that tend to stay within New Zealand are those that have developed social roots, for instance through marriage or owning property within the country, which complicates any decisions to return (Academia, New Zealand).

A poor geographic location, or poor weather conditions within the destination country,⁷⁹ and comparatively attractive destination countries elsewhere, may also present barriers to migration. Language issues, and the logistical factors associated with the migration process can also dissuade doctors from deciding to migrate.

8. Discussion

The aim of this study was to identify the factors that explain recent and longer-term patterns in migration of doctors to and from the UK. To achieve this aim we answered five research questions:

- RQ1. What are the recent patterns in migration of doctors to and from the UK?
- RQ2. What are the drivers of overseas qualified doctors coming to work in the UK?
- RQ3. What are the barriers to overseas qualified doctors coming to work in the UK?
- RQ4. What are the drivers of doctors leaving the UK to work abroad?
- RQ5. How does migration of doctors to and from the UK compare to migration of doctors to other high-income countries?

Using a mixed-methods approach we carried out an analysis of secondary data, a systematic review of the literature and qualitative interviews with key stakeholders. Here we triangulate the findings generated by each of the research methods relating to some of the key trends in the data, and consider the wider implications of these findings. Where available evidence is not sufficient to fully explain trends, we have made recommendations for further research.

8.1 Migration to the UK trends

Trend 1: A steady increase in doctors migrating from non-UK PMQ countries from 2009 onwards, with a particularly sharp increase from 2017-2019.

It is clear that the UK is heavily dependent on doctors from overseas to staff the medical workforce. In fact the UK's reliance on overseas doctors is among the highest in the OECD along with New Zealand, Ireland and Australia.¹⁴⁷ The results of the secondary data analysis revealed an increase in the number of non-UK PMQ doctors working in the UK by nearly 4,500 doctors between 2009 -2019 with a particularly sharp increase from 2017. It is not clear from the literature as to why there was a particularly sharp increase around this specific time. There are many different reasons as to why doctors choose to migrate to the UK. The systematic review of the literature identified a variety of push and pull factors at the macro-, meso- and micro level. At the macro-level i.e. global and national factors, the main drivers of migration to the UK included employment opportunities, active recruitment and poor working conditions. Meso-level drivers include professional level factors that encourage doctors to migrate to the UK for employment. The key factors were the UK's training opportunities, the desire to gain more general experience of a new working environment in a different country and the desire to gain clinical experience through short-term employment in the UK. The key micro-level drivers attracting doctors to work in the UK were firstly economic factors, specifically the prospect of a comparative increase in pay when compared to the country of origin, and financial gain for oneself or one's family, and secondly, personal fulfilment, specifically the desire for an adventure or life change.

As the literature shows, the decision for a doctor to migrate is multi-layered and is a complex balance between push/pull at macro-/meso-/micro-levels. The decision to migrate is also relative to a doctors' own values and experiences, reflecting individual priorities. Furthermore as Franco et al point out "not all workers will have the same mix of motives and goals, and the relative importance of particular values and work goals will change over time and situations".¹⁴⁸ Similarly Davda⁹ highlighted the complexity in healthcare professionals' motivation to migrate to the UK. This complexity poses a significant challenge to policy-makers in terms of planning and ensuring a supply of doctors for the UK workforce.

Trend 2: Since 2013 there has been a large increase in the proportion of doctors migrating to the UK from Middle Income Countries and to a smaller extent Low Income Countries, and a reduction in those coming from High Income Countries.

Analysis of the secondary data found that in 2019, the countries where most doctors migrated to the UK from were India (14.6%), Nigeria (12.6%), Pakistan (11.7%), Egypt (10.5%) and Sudan (4.1%). Over the last few years there has been a substantial increase in the number of doctors migrating from all five of these countries. For example, the number of doctors migrating with a PMQ from Nigeria has increased by 579% from 2015 (204 doctors) to 2019 (1,181 doctors).

The majority of the literature focusses on migration of doctors from the Indian sub-continent. Research by Blacklock in 2012,⁴³ showed how, despite a reduction in the number of doctor registrations from India and Pakistan between 2004-2007 following changes to UK immigration policies in 2005 and 2006, doctors from both these countries remained an important part of the UK healthcare workforce. Their research suggested that bilateral agreements in place historically between the UK and several countries as well as colonial links may also have played a role in these patterns of migration, setting agreements that active recruitment may take place from countries like India. Improved national economy in India facilitates better lifestyle and professional development opportunities, retaining doctors in India instead of driving them to emigrate. However, Indian doctors are still a significant contributor to the medical workforce within the UK.

Research by George set out to ascertain if there is a financial incentive for doctors to immigrate to the UK from India, by exploring salary differentials and the cost of living in India and popular destination countries.⁴² The study showed that purchasing power parity is in fact lower for doctors in the UK than it is in India,⁴² and this is substantiated by stakeholder interviewee comments. While financial factors may not be a key motivator driving migration from India, a myriad of other pull factors may influence decisions to work in the UK, such as the status attributed to gaining qualifications and experience in the UK, a point made by some of the interviewees. The UK is globally recognised for its "professional weight" with regard to quality medical education and training, and therefore to gain either qualifications or experience provides overseas doctors with a standard of quality that is externally recognised.

Similarly another study that explored the drivers of doctors from South East Asia (India, Bangladesh, Sri Lanka, Pakistan and Burma) to the UK found that the combination of status

attributed to working in the UK, historical colonial ties, and the failure to attract UK PMQ doctors to work within geriatrics, has meant that significant opportunities existed within geriatrics which doctors from South East Asia have frequently filled.²⁹ Not only have there been employment opportunities created by these workforce gaps, but gaining experience through contributing to the UK workforce has become a social and cultural factor “central to notions of career progression... embedded in South East Asian doctors’ professional cultures... [and] crucial to being recognized as a good doctor”.^{29, 70} This culture of medical migration means that doctors from these countries cannot progress in their careers in their home countries without international experience.⁸⁰

There is more limited evidence within the systematic review as to the country-specific drivers of migration from Nigeria, Egypt and Sudan. However, one study highlights the main drivers of doctor immigration from Sudan to the UK, Ireland, USA, Saudi Arabia and the Gulf States, as being financial, alongside a lack of training and career development opportunities at home.¹¹⁸ This supports the general findings of the qualitative analysis in Section 4, however it does not explain the specific prevalence of doctor immigration from these countries to the UK.

An observation made by Herfs¹¹ is that many IMGs in the UK originate from Commonwealth countries i.e. India, Pakistan, Nigeria. However, Pakistan, India and Sudan are also major source countries for Ireland.¹⁴⁹ These migrant doctors could possibly be migrating from Ireland to the UK with Irish citizenship. This could explain the fact that they can still move to the UK despite tightening immigration rules from their countries of origin.

It is interesting to see a high level of doctor migration from India, Pakistan and Sudan with the literature pointing to bilateral agreements or active recruitment as being one of the reasons. India is now the only one of these countries where active recruitment still takes place.¹⁵⁰ Very recently a revised code of practice on the international recruitment of health personnel for health and social care organisations in England has been published.¹⁵¹ Based on the WHO code of practice¹⁵² this revised code includes Pakistan, Nigeria and Sudan on its Red List meaning active recruitment is not permitted in these countries. International recruitment of healthcare workers has sparked intense ethical debate globally and has been partly blamed for the persisting health crisis in developing countries.⁴³ Such codes of practice are policy interventions to help promote more ethical sourcing of healthcare workers. However, despite this code of practice if doctors in these countries still see the UK as an attractive place to work this migration trend will continue.

While there has been a reduction in doctors migrating to the UK from HICs, this has been primarily driven by fewer doctors migrating from the EEA, especially Southern European countries e.g. Italy and Greece. For example, in 2015, 9.9% of all doctors migrating to the UK (541) had an Italian PMQ, by 2019 this number had dropped to 1.8%.

This could in part be due to the effects of the aforementioned uncertainty surrounding Brexit. The UK referendum to leave the EU in 2016 has generated a large amount of uncertainty for those EU-PMQ doctors working in the UK, or those EU-PMQ doctors with a desire to migrate to the UK, and this was highlighted within the stakeholder interviews.

There may be uncertainty about potential changes to UK immigration policies or visa rules, and concern about how welcoming the UK is, potential discrimination, xenophobia, or anti-immigrant sentiment.

A British Medical Association (BMA) survey of 1,720 doctors carried out between September and November 2017 revealed that almost half (45%) of the doctors from the EEA working in the UK were considering leaving following the result of the Brexit referendum result, while, of those considering leaving, 39% had actually made plans to do so.⁵⁸ Iacobucci reports that the top three reasons given for considering leaving the UK were; 1) the UK's decision to leave the EU, 2) a negative attitude towards EU migrants working in the UK, 3) uncertainty regarding the UK's future immigration policies.⁵⁸ European doctors working in the UK reported feeling "significantly less committed" to working in the UK, and "substantially less appreciated" in the wake of the referendum result.⁵⁸

However despite these perceptions, GMC data shows that while the number of EEA doctors migrating to the UK fell after the introduction of English language requirements in 2014, since the June 2016 referendum there has actually been a small but consistent increase in the number of registered and licensed EEA doctors joining the UK medical register.¹⁵³ It is possibly too early to be definitive as to the impact of Brexit on the level of migration from EU/EEA countries and this may change over time. There is also a possibility that there have been some changes in the migration patterns that have not yet been reflected in the data or the literature.

A potential reduction in EU-PMQ doctors due to a more complex application process in the post-Brexit era could see new opportunities open up again for the Commonwealth countries like Australia.^{154, 155} One interviewee suggested that a shortage of doctors from the EU may result in more Australian and New Zealand doctors going to the UK, "as they used to do in the old days", and less outward migration of UK doctors to Australia and New Zealand.

Trend 3: The vast majority of doctors migrating to the UK do not join the GP or specialist register at the time of initial entry and relatively few go on to gain specialist or GP registration.

The analysis of secondary data found that most of the non-UK PMQ registrants come to the UK as non-specialists, this was the case for 96.2% of non-UK joiners in 2019. This could be due to doctors immigrating to the UK earlier in their careers to gain training in the UK, or perhaps the desire to gain experience abroad before settling on one's specialty, as suggested by one interviewee. Another factor, highlighted by interviewees that may generate greater concern, is that non-UK PMQ doctors may find it difficult to gain employment, or are underemployed within the UK workforce. For instance, one interviewee suggested that UK postgraduate qualifications put candidates at the "front of the queue" as opposed to overseas doctors who hold the PLAB.

Another trend identified in the analysis of secondary registration data was that the majority of doctors that do enter the register are from EEA countries. However, a study by Legido found EEA-PMQ doctors spoke of finding it difficult to get into and that the positions offered

to EEA-PMQ doctors were “only for a few years”, while advancing to a consultant post was “nearly impossible”.¹²

Overseas doctors may also experience difficulty entering particular specialties within the UK. For those wishing to become a GP, the UK was described as having a complex process, with varying requirements, and EEA-PMQ doctors described a lack of knowledge about the GP Induction and Refresher Schemes and the associated high cost involved. Several interviewees were also surprised that it was not within the remit of the GMC to help them find a job.¹²

In addition to the majority of non-UK PMQ doctors coming to the UK as non-specialists, our secondary analysis of data found that few doctors go on to gain specialist or GP registration. Of those doctors in the 2009 cohort of joiners, 27.2%¹ had gone on to join the specialist or GP register within 10 years. This leads to concerns that these doctors may continue to face hurdles progressing through the UK health system, may be underemployed, or may be leaving clinical practice, or indeed the UK. As previously discussed, the study by Legido¹² highlighted the difficulties for non-UK PMQ doctors to enter and then progress through the UK health system, to the degree that to get ahead relied upon “old school networks”, this was particularly found to be the case when trying to attain the top positions. The study also highlighted the difficulties of attaining training positions for non-UK PMQ doctors if you were not already working within the UK system. For this reason non-UK PMQ doctors may also find that they are underemployed in the UK, working in positions lower than their training and experience would qualify them for. Davda⁹ reports a misalignment of “education, skills and expectations between migrants, managers and employers”, which results in “dissatisfaction, devaluation and deskilling”. Contributing factors may be a lack of recognition of non-UK training, skills and qualifications, “career stagnation” in non-training posts, and communication difficulties, due to a lack of English language skills or non-verbal, interpersonal or technology-related skills.⁹ The difficulties found by non-UK PMQ doctors¹² progressing within the UK system is concerning, and could be suggestive of institutional discrimination, a point also recognised by Davda,⁹ and many of the interviewees.

Our findings suggest that overseas doctors can become caught in a “training trap” and are unable to progress. This has traditionally been the case for IMGs in Ireland.¹³⁶ Bornat’s research found that in 2003 only 17% of South East Asian doctors in the UK were in senior positions, compared to 42% of UK PMQ doctors, suggesting that the hierarchical nature of the NHS health system inhibited career progression for these migrant doctors.²⁹

The specialist register pathway through deanery training was described as “hugely competitive” by one of the interviewees leading many doctors to enter the non-deanery training route as SAS doctors. However, the combination of full-time SAS employment and an additional work requirement in order to provide evidence to the GMC of equivalency with deanery training, means advancement onto the specialist register through the non-deanery route is “onerous and not practical”. Furthermore, the interviewee went on to

¹ Of those on neither register at the time of migrating and who have not subsequently gone on to leave the register.

point out that although both are viable pathways to joining the specialist register, biased perspectives may result in the non-deanery route being considered of lesser value. Another interviewee similarly highlighted these issues for overseas doctors entering the UK and questioned whether we “block and stop people’s aspiration and potential because of some of the systems and processes”. While another interviewee spoke about the “hidden curriculum” which affects selection processes, predisposing them towards UK medical graduates due to their language and format. Finally, two interviewees spoke about ‘differential referral’, whereby there is a noticeable difference in the number of overseas BME doctors who are referred to the GMC compared with overseas white doctors, and questioned whether this is due to a different standard of medical education or training, or whether this is due to systematic discrimination against Black and Asian Minority Ethnic (BAME) non UK doctors.¹⁵⁶

It is concerning that non-UK PMQs find it so difficult to progress within the UK health-system, particularly when for many career progression is a key ambition and reason for joining the UK workforce. This is particularly important for those doctors that come to the UK to specifically progress their career in the UK as opposed to those that come to the UK in order to gain experience which will improve their opportunities once returning to the country of origin. Either way this perceived lack of career progression opportunities is a cause for concern. A study by Humphries et al ⁴⁰ found that when the migration motivation of the IMG clashes with the requirements of the health system this leads to dissatisfaction among the IMG medical workforce and onward migration resulting in a cycle of ‘brain gain, waste and drain’.

Trend 4: Unlike UK-PMQ entrants to the register, the majority of doctors migrating to the UK are male and this is especially the case for those migrating from LICs

The analysis of secondary data showed that unlike UK-PMQ doctors joining the register, non-UK PMQ doctors migrating to the UK are still predominantly male. The gender balance in doctors migrating from HICs has shifted towards more females over the last ten years (48.9% male in 2019). However, the gender balance of doctors migrating from MICs has fluctuated a lot over this time (55.3% male in 2019), while the majority of doctors migrating from LICs are still male (60.8% in 2019).

This trend could be due to gender disparities within the countries doctors are emigrating from. For instance, gender roles within society may follow traditional, cultural or religious conventions that hinder women from undertaking further education or employment, and therefore, fewer women may graduate in medicine, or be in a position to emigrate. This was a point raised by some of the interviewees, whereby the pattern of immigration from particular regions, such as the Middle East, reflects domestic cultural or religious practices, and may result in more men immigrating and women following. While some interviewees had not noticed any gender disparity, others had found a greater number of male applications, or felt it was generally a more male-led pattern. Our systematic review found that discrimination, gender stigmatization, and the search for more equitable systems pushed doctors from Africa and Asia to decide to migrate to the UK. ¹⁴⁴

Alternatively, non-UK PMQ female doctors may choose not to stay within the medical profession, or have difficulties doing so, particularly if they also assume domestic family responsibilities. Davda supports this, finding that female doctors found it difficult to secure employment and were more likely to have long gaps between employments, and to take on domestic roles.⁹ Furthermore, migration itself may be gender-specific with fewer women choosing to emigrate due to the pull of family responsibilities at home.¹¹⁵ Again, this point is supported by one of the interviewees who acknowledges that decisions to migrate are often made around considerations of family-life, which historically, has tended to be a female domain. Furthermore, one interviewee described a generational emphasis for social and domestic wellbeing, predominantly amongst female medical graduates, with the effect that there is a much higher regard for other lifestyle factors such as closeness to family and friends versus career ambitions.

8.2 Migration from the UK trends

Trend 8: Currently around 4% of doctors are giving up their right to practice in the UK each year, with around half stating their reason for leaving as 'overseas'. The number of doctors leaving, including those that leave to move overseas, has fallen since 2015.

The systematic review found that better employment opportunities, more attractive working conditions and the desire for a better quality of life were all key factors attracting UK-PMQ doctors to emigrate overseas, whereas poor working conditions and a desire to leave the NHS pushed doctors to consider leaving the UK. While the majority of the literature focused primarily on the emigration of UK-PMQ doctors the drivers for non-UK PMQ doctors may be different e.g. they want to return to their home country.

The systematic review highlighted the reasons why UK-PMQ doctors decide to leave the UK, including a myriad of health system and employment factors, such as disillusionment with the NHS and employment opportunities in the UK, while others involve the desire to feel valued professionally, and have a better quality of life. The most frequently cited macro-, meso- and micro-level push factors driving doctor emigration *from* the UK are, poor working conditions^{5, 16, 37, 45, 55}, a desire, or perception of being pushed to leave the NHS,^{8, 14, 54-56} a sense of being undervalued professionally^{16, 45, 57}, and a desire for a life change.^{5, 14, 37, 56} The most frequently cited macro-, meso- and micro-level pull factors, which attract UK doctors to destination countries include, better employment opportunities^{8, 14, 54, 55} more attractive working conditions^{5, 8, 45, 55, 56}, better training and development opportunities^{5, 8, 37, 45, 55}, and overall a better quality of life overseas.^{8, 14, 16, 45, 55, 56}

Trend 10: The most popular place UK PMQ doctors migrate to are other English-speaking high-income countries, especially Australia and New Zealand

The systematic review and stakeholder interviews revealed that the core destinations that UK doctors emigrate to are Australia and New Zealand. While the COVID-19 global pandemic has (at the time of writing) reduced the capacity to work abroad, it was felt by interview participants that there was still a desire to do so, and that once global travel was more

conducive UK doctors would resume emigration plans which may generate a post-Covid exodus. This pattern is beginning to emerge in Ireland.¹⁵⁷

The pull factors driving this migration (explored in Section 6) primarily involve the desire to enhance the quality of life for oneself and one's family, and the attraction of better working conditions. Research by Gauld similarly found the importance of quality of life for oneself and one's family as a key motivator for relocation to New Zealand ranking as 'important' or 'highly important' for 96% of survey respondents.⁸ Attractive working conditions (72%) and career opportunities (87%) were evaluated to be key motivators for migration, while 65% cited a desire to leave the NHS, and 80% found the New Zealand health system more attractive to work in than the NHS.⁸ Survey research by Sharma similarly found that UK-PMQ doctors moved to New Zealand primarily to undertake a medical job, for a better lifestyle in New Zealand, and because of disillusionment with the NHS.¹⁴ Furthermore, the majority of those surveyed (89%) intended to continue working in New Zealand, and only 9% expressed an intention to return to the UK.¹⁴

Interviewees spoke of UK doctors' desire to experience travel, adventure and take a break from training. As such emigrations to Australia and New Zealand tended to occur early on in one's career, after Foundation training. One of the interviewees highlighted that there was also the desire to experience a different lifestyle, and culture, and to work within a different, and more relaxed healthcare system. While improvements to the climate, and macro social and political conditions may be outside of the control of the UK healthcare, there are significant aspects of the healthcare system in Australia that attract UK doctors, and significant factors that push doctors to leave the UK. In order to remain competitive the UK needs to consider ways of replicating these 'relaxed' healthcare systems and the NHS is making steps towards this with its People plan.¹⁵⁸

In Australia, diagnostics such as scans and blood analysis are readily available within Australia from private providers, subsidised by Medicare, which speeds up investigations and treatment management.⁵⁴ Furthermore, GPs in Australia are far more in control of their workload than they are in the UK. Risk averse doctors may be more likely to migrate to Australia due to the level of uncertainty in the UK both clinically and career wise.⁵⁴ In a study exploring the UK FY2 doctors' intentions to emigrate, the drivers provided included, being valued professionally in Australia, while morale in the NHS was described as poor.⁵² Other factors included the prospect of a better, and more relaxed working environment, more formal teaching, synchronised rotas with one's partner or spouse, less labour intensity, better support and treatment from senior staff, and a much improved work-life balance where there was time off to relax and maintain wellbeing.⁵² As such, both push and pull factors work to influence the desire to emigrate to Australasia.

Lambert explored the changes that would need to take place within the NHS for UK doctors in Australia and New Zealand to consider returning to practise. Doctors spoke of wishing the NHS was less political, and less micro-managed so that they could provide better care. They also spoke of wanting better pay and working conditions, better job security and training schemes, and a complete overhaul of the UK system to be more like that in Australia.¹⁶

Trend 12: The highest proportion of UK PMQ doctors moving overseas are under 30, whereas the highest proportion of non-UK PMQ doctors moving overseas are aged 30-39.

While there was no qualitative data specifically relating to the age of UK PMQ doctors moving overseas, interviewees suggested that UK-PMQ doctor migration tends to be an early career phenomenon. The reasons for this include, wanting a break from training and education, wanting a holiday, adventure, or travel opportunity, wanting to experience a different culture or workplace environment, or for training abroad. This was typically something that occurred before a doctor decided on specialty training, or advanced too far in one's career, at which point long periods overseas may be more difficult for workplace or personal reasons. Migration at a later stage in one's career tends to involve an accompanying spouse or family. This may also involve the perception that one's career has not advanced and lifestyle factors have declined, leading doctors to prioritise the latter and see permanent migration for a better quality of life as an attractive factor.

Trend 15: Ireland and New Zealand have a higher reliance on foreign doctors than the UK

The analysis of secondary data from the OECD showed that the UK has an above average percentage of foreign doctors (approx. 30%) compared to the USA and Canada (25%). Ireland and New Zealand have a higher reliance (approx. 42%) on foreign doctors than the UK. However, the drivers of and barriers to the migration of doctors to other HICs, were extremely similar to the factors influencing migration into and out of the UK. This is largely due to a failure to retain the medical workforce in Ireland^{71, 73, 98}, and in some rural areas of New Zealand (Academia, New Zealand). Humphries et al. acknowledge several issues in the Irish health system, including an overstretched, understaffed system that has faced austerity-driven cuts to resources and changes to salary scales, and has typically tended to focus on training and recruitment rather than the retention of doctors.^{71, 73, 98} These factors, coupled with a change in attitude of newly qualified doctors to seek more fulfilment and workplace well-being has led many to leave the Irish system in pursuit of a better life overseas.^{71, 73, 98}

However the drivers of and barriers to the migration of doctors to other HICs, were extremely similar to the factors influencing migration into and out of the UK. The systematic review found that many of the reasons associated with attracting foreign doctors to the UK, also constituted push factors for UK doctors to decide to leave the UK and practise abroad, typically in Australia, New Zealand or mainland Europe. For instance, the NHS was seen as an attractive health system to some IMG doctors, yet it remained a core meso-level driver of outward migration from the UK. Similarly, working conditions within the UK were perceived as poor and a driver of the outward migration of UK doctors, yet for IMG doctors they were a reason for moving to the UK, particularly when in comparison to working conditions at home, such as in Ireland where working conditions are generally perceived to be very poor.¹⁵⁹ Tables 24 and 25 presents the core macro, meso and micro drivers and barriers for HICs and LMICs (primarily, Africa and Asia from the systematic review). It is evident from this that not only are the core drivers and barriers similar to the UK, but they are also similar between these groupings.

The comparison with other higher-income countries is both nuanced and contextual, and demonstrates that whatever health system gets these aspects right will be successful in attracting and retaining IMGs. Humphries also found this in relation to the migration of doctors into Ireland.^{69, 71}

9. Conclusion

Our mixed-methods study identified recent trends in the migration of doctors to and from the UK, as well as the factors that may have contributed to the patterns of migration. Our data shows an increasing dependence on non-UK PMQ doctors (mainly from India, Pakistan, Egypt and Nigeria) to staff the UK's healthcare system.

According to the literature, the decision for a doctor to migrate is multi-layered and is a complex balance between push/pull at macro-/meso-/micro-level. It is also relative to a doctors' own values and experiences, reflecting individual priorities. Many of the key drivers of migration to the UK, for example better working conditions, were also factors driving migration from the UK and into other countries. It is concerning that doctors with a non-UK PMQ find it difficult to progress within the UK health-system, particularly when for many career progression is a key ambition and reason for joining the UK workforce.

The evidence examined here was not able to contribute to our understanding of all identified trends which suggests that further research is needed in these areas. The research has also raised other issues that potentially warrant further research. Key examples include career progression of non-UK PMQ doctors; separating perceptions and reality when it comes to the impact of Brexit; and exploring the future impact of the Covid-19 pandemic through the lens of the macro/meso/micro framework.

The UK is not the only nation with a dependency on overseas doctors and with a recent study projecting a deficit of 400,000 doctors by 2030 spread across 32 OECD countries, there is a huge cause for concern in terms of medical workforce planning.¹⁶⁰ This projection suggests the international market for doctors could become fiercely competitive.¹⁶¹ Our findings suggest that how welcoming a country is perceived as being, positive working conditions in the health sector, and training/career opportunities for non-domestic doctors are key for a country having a competitive advantage in this area. Immigration and smooth processes for joining the register that still assure quality and safety can be helpful in getting the benefit of any competitive advantage.

In order to sustain the UK's supply of overseas doctors, it is vital that UK migration policy tools are developed that recognise and support where possible the drivers of migration while addressing any potential barriers, as well as developing policies to retain an engaged and committed migrant workforce. Our research on the recent trends in the migration of doctors to and from the UK should support this endeavour while also highlighting significant gaps for future research.

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Appendix A: Systematic review search histories

Search Histories 23.01.2020		
Database	Results	
Ovid Embase	1631	
Ovid MEDLINE	1533	
CINAHL via EBSCOhost	2085	
ERIC via EBSCOhost	109	
BEI via EBSCOhost	62	
Total before dedup	5423	
Embase <1974 to 2020 January 23>		
Search history sorted by search number ascending		
#	Searches	Results
1	exp physician/	720194
2	("doctor*" or physician or "general practitioner*" or "GP*" or "G.P*").tw.	667950
3	"physician*".tw.	530375
		135362
4	1 or 2 or 3	6
5	foreign medical graduate/ or foreign physician/ ((emigrat* or migrat* or immigrat*) adj3 (doctor* or physician* or "general	277
6	practitioner*" or "GP*" or "G.P*").tw.	775
7	((work* or practi?e) adj3 (overseas or abroad or "another country")).tw.	940
8	"brain drain".tw. ((work or practise) adj3 (UK or Britain or "U.K." or EU or "European Union" or	620
9	"E.U." or Ireland or Canada or Australia or Zealand or USA or "U.S.A" or	
	America)).tw.	1569
	((leave or come to) adj3 (UK or Britain or "U.K." or EU or "European Union" or	
1	"E.U." or Ireland or Canada or Australia or Zealand or USA or "U.S.A" or	
0	America)).tw.	359
1	((trained or qualified or graduated) adj3 (overseas or abroad or international* or	
1	"another country")).tw.	511
1		
2	international medical graduate*.tw.	943
1	((doctor* or physician* or "general practitioner*" or "GP*" or "G.P*") adj2	
3	(mobility or movement)).tw.	332
1		
4	5 or 6 or 7 or 8 or 9 or 10 or 11 or 12 or 13	5966
1		
5	4 and 14	2662
1		
6	limit 15 to yr="2009 - 2020"	1705
1		
7	limit 16 to english language	1631

Ovid MEDLINE(R) and Epub Ahead of Print, In-Process & Other Non-Indexed Citations, Daily and Versions(R) <1946 to January 23, 2020>		
Search history sorted by search number ascending		
#	Searches	Results
		13616
1	exp Physicians/	0
		32388
2	("doctor*" or "general practitioner*" or "GP*" or "G.P*").tw.	8
		37764
3	"physician*".tw.	9
		73483
4	1 or 2 or 3	7
5	foreign medical graduates/ ((emigrat* or migrat* or immigrat*) adj3 (doctor* or physician* or "general	3443
6	practitioner*" or "GP*" or "G.P*").tw.	684
7	((work* or practi?e) adj3 (overseas or abroad or "another country")).tw.	826
8	"brain drain".tw. ((work or practise) adj3 (UK or Britain or "U.K." or EU or "European Union" or	612
9	America)).tw. ((leave or come to) adj3 (UK or Britain or "U.K." or EU or "European Union" or	1094
10	"E.U." or Ireland or Canada or Australia or Zealand or USA or "U.S.A" or	
11	America)).tw.	277
12	((trained or qualified or graduated) adj3 (overseas or abroad or international* or	
13	"another country")).tw.	391
14		
15	international medical graduate*.tw.	809
16	((doctor* or physician* or "general practitioner*" or "GP*" or "G.P*") adj2	
17	(mobility or movement)).tw.	289
18		
19	5 or 6 or 7 or 8 or 9 or 10 or 11 or 12 or 13	7462
20		
21	4 and 14	4973
22		
23	limit 15 to yr="2009 - 2020"	1662
24		
25	limit 16 to english language	1533
#	Query - Database - CINAHL Plus with Full Text	Results
1	(MH "Physicians+")	103,131
2	TI ("doctor*" or "general practitioner*" or "GP*" or "G.P*" or "medical	
3	personnel") OR AB ("doctor*" or "general practitioner*" or "GP*" or "G.P*" or	85,840
4	"medical personnel")	
5	TI physician* OR AB physician*	128,694
6	S1 OR S2 OR S3	269,064
7	(MH "Foreign Medical Graduates")	795

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6	TI ((emigrat* or migrat* or immigrat*) N3 (doctor* or physician* or "general practitioner*" or "GP*" or "G.P*")) OR AB ((emigrat* or migrat* or immigrat*) N3 (doctor* or physician* or "general practitioner*" or "GP*" or "G.P*"))	204
7	TI ((work* or practi?e) N3 (overseas or abroad or "another country")) OR AB ((work* or practi?e) N3 (overseas or abroad or "another country"))	564
8	TI ((work* or practise) N3 (UK or Britain or "U.K." or EU or "European Union" or "E.U." or Ireland or Canada or Australia or Zealand or USA or "U.S.A" or America)) OR AB ((work* or practise) N3 (UK or Britain or "U.K." or EU or "European Union" or "E.U." or Ireland or Canada or Australia or Zealand or USA or "U.S.A" or America))	10,406
9	TI ((leave or come) N3 (UK or Britain or "U.K." or EU or "European Union" or "E.U." or Ireland or Canada or Australia or Zealand or USA or "U.S.A" or America)) OR AB ((leave or come) N3 (UK or Britain or "U.K." or EU or "European Union" or "E.U." or Ireland or Canada or Australia or Zealand or USA or "U.S.A" or America))	469
10	TI ((trained or qualified or graduated) N3 (overseas or abroad or international* or "another country")) OR AB ((trained or qualified or graduated) N3 (overseas or abroad or international* or "another country"))	296
11	TI ("international medical graduate*" or "brain drain") OR AB ("international medical graduate*" or "brain drain")	598
12	TI ((doctor* or physician* or "general practitioner*" or "GP*" or "G.P*") N2 (mobility or movement)) OR AB ((doctor* or physician* or "general practitioner*" or "GP*" or "G.P*") N2 (mobility or movement))	118
13	S5 OR S6 OR S7 OR S8 OR S9 OR S10 OR S11 OR S12	12,831
14	S4 AND S13	3,119
15	S4 AND S13	3,119
16	S4 AND S13	2,085
		Results
#	Query - Database - British Education Index; ERIC	
1	(MH "Physicians+")	15
2	TI ("doctor*" or "general practitioner*" or "GP*" or "G.P*" or "medical personnel") OR AB ("doctor*" or "general practitioner*" or "GP*" or "G.P*" or "medical personnel")	22,43
3	TI physician* OR AB physician*	6,182
4	S1 OR S2 OR S3	28,13
5	(MH "Foreign Medical Graduates")	3
6	TI ((emigrat* or migrat* or immigrat*) N3 (doctor* or physician* or "general practitioner*" or "GP*" or "G.P*")) OR AB ((emigrat* or migrat* or immigrat*) N3 (doctor* or physician* or "general practitioner*" or "GP*" or "G.P*"))	1,218
7	TI ((work* or practi?e) N3 (overseas or abroad or "another country")) OR AB ((work* or practi?e) N3 (overseas or abroad or "another country"))	35
8	TI ((work* or practise) N3 (UK or Britain or "U.K." or EU or "European Union" or "E.U." or Ireland or Canada or Australia or Zealand or USA or "U.S.A" or America)) OR AB ((work* or practise) N3 (UK or Britain or "U.K." or EU or "European Union" or "E.U." or Ireland or Canada or Australia or Zealand or USA or "U.S.A" or America))	449
		6,114

	or "E.U." or Ireland or Canada or Australia or Zealand or USA or "U.S.A" or America))	
	TI ((leave or come) N3 (UK or Britain or "U.K." or EU or "European Union" or "E.U." or Ireland or Canada or Australia or Zealand or USA or "U.S.A" or America))	
9	OR AB ((leave or come) N3 (UK or Britain or "U.K." or EU or "European Union" or "E.U." or Ireland or Canada or Australia or Zealand or USA or "U.S.A" or America))	507
1	TI ((trained or qualified or graduated) N3 (overseas or abroad or international* or "another country"))	
0	OR AB ((trained or qualified or graduated) N3 (overseas or abroad or international* or "another country"))	131
1	TI ("international medical graduate*" or "brain drain")	
1	OR AB ("international medical graduate*" or "brain drain")	407
1	TI ((doctor* or physician* or "general practitioner*" or "GP*" or "G.P*") N2 (mobility or movement))	
2	OR AB ((doctor* or physician* or "general practitioner*" or "GP*" or "G.P*") N2 (mobility or movement))	37
1		
3	S5 OR S6 OR S7 OR S8 OR S9 OR S10 OR S11 OR S12	7,548
1		
4	S4 AND S13	310
1		
5	S4 AND S13	310
1		
6	S4 AND S13 174 = 109 in ERIC and 65 in BEI	174
Databas		
#	e Search term	Results
1	HMIC exp "MEDICAL STAFF"/	22072
2	HMIC "doctor*" OR physician OR "general practitioner*" OR "GP*" OR "G.P*"	35935
3	HMIC (1 OR 2)	42114
4	HMIC exp "LABOUR MOBILITY"/	61
5	HMIC "LABOUR MIGRATION"/	87
6	HMIC (emigrat* OR migrat* OR immigrat*) ADJ3 (doctor* OR physician* OR "general practitioner*" OR "GP*" OR "G.P*")	50
7	HMIC ((work* OR practi?e) ADJ3 (overseas OR abroad OR "another country")).ti,ab	166
8	HMIC ("brain drain").ti,ab	34
9	HMIC (work OR practise) ADJ3 (UK OR Britain OR "U.K." OR EU OR "European Union" OR "E.U." OR Ireland OR Canada OR Australia OR Zealand OR USA OR "U.S.A" OR America)	271
1		
0	HMIC (leave OR come to) ADJ3 (UK OR Britain OR "U.K." OR EU OR "European Union" OR "E.U." OR Ireland OR Canada OR Australia OR Zealand OR USA OR "U.S.A" OR America)	80
1		
1	HMIC ((trained OR qualified OR graduated) ADJ3 (overseas OR abroad OR international* OR "another country")).ti,ab	80
1		
2	HMIC (doctor* OR physician* OR "general practitioner*" OR "GP*" OR "G.P*") ADJ2 (mobility OR movement)	28
1		
3	HMIC (4 OR 5 OR 6 OR 7 OR 8 OR 9 OR 10 OR 11 OR 12)	766
1		
4	HMIC (3 AND 13)	247

1
5 HMIC 14 [DT 2009-2020]

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BL ETHOS:

Doctor (title) AND migration (title) AND UK (abstract) = 1 result

The migration of medical doctors from Poland to the United Kingdom following the expansion of the European Union in May 2004 <https://discovery.ucl.ac.uk/id/eprint/1302279/> (not available)

Doctors (title) AND migration (title)
Doctors (title) AND "brain drain" (abstract)
Doctors (title) AND immigration (title)
Doctors (title) AND emmigration (title)
Doctors (title) AND migrate (title)
Doctors (title) AND abroad (title)
Doctors (title) AND Britain (title)
Doctors (title) AND United Kingdom (title)
General Practitioners (title) AND United Kingdom (title)
General Practitioners (title) AND Britain (title)
Doctors (title) AND abroad (title)
General Practitioners (title) AND migration (title)
General Practitioners (title) AND migrate (title)
General Practitioners (title) AND immigration (title)
General Practitioners (title) AND emmigration (title)
General Practitioners (title) AND mobility (title)
= 0 results

Appendix B: Characteristics of included studies

	Author	Year	Aim of Study	Methods	Country	DRIVER CODES	BARRIER CODES (Table 26)
1.	Abdalla ¹¹⁸	2016	To explore the potential contributions for the Sudanese Medical Diaspora Options to the healthcare delivery system (HCDS) in Sudan	Mixed Methods	Africa/Asia	2.20, 3.17, 3.1	
2.	Al-Khalisi ¹⁰¹	2013	To explore the independent predictors of physicians emigration from Iraq and the emigration temporal trends of Iraqi doctors.	Quantitative	Africa/Asia	1.6, 1.26, 2.12, 2.1,	
3.	Bailey ⁴⁹	2012	To explore the factors influencing the career plans of medical students and recent graduates with regard to four policy-relevant aspects	Qualitative	Africa/Asia	1.12, 1.16, 1.3, 2.10, 2.12, 2.17, 2.5, 2.7, 3.17, 3.18	4.21, 4.22, 6.4, 6.20
4.	Benamer ¹¹⁰	2009	To identify possible reasons behind emigration of Libyan doctors and factors that might motivate them to return	Quantitative	Africa/Asia	1.19, 2.20	
5.	Bezuidenhout ³²	2009	To investigate the profile of South African qualified physicians who emigrated from South Africa.	Quantitative	Africa/Asia	1.5, 3.17	4.10, 4.13,
6.	Bidwel ³⁵	2014	To gain a deeper understanding of reasons for migration from South Africa and post-migration experiences	Qualitative	Africa/Asia	1.1, 2.20, 2.18, 3.4	
7.	Blacklock ¹²⁹	2014	To systematically analyse factors influencing healthcare workers' decisions to migrate from Africa	Literature Review	Africa/Asia	1.13, 1.5, 1.26, 1.28, 2.25, 2.13, 2.16, 2.17, 2.3, 2.7, 2.9, 3.17, 3.16, 3.7	
8.	Burnham ¹⁰²	2009	To explore how migration of specialists has affected staffing of tertiary hospitals	Quantitative	Africa/Asia	1.26, 1.28, 3.4	
9.	Cassim ¹⁰³	2014	To identify the factors that influence the global migration of South African anatomical pathologists working in the province of Kwazulunatal, South Africa	Qualitative	Africa/Asia	1.19, 1.14, 1.26, 1.28, 1.37, 2.17	
10.	Castro-Palaganas ¹¹¹	2017	To trace the outflows of HRH from the Philippines, map out its key causes and consequences, and identify relevant policy responses	Mixed Methods	Africa/Asia	1.19, 1.1, 1.11, 1.12, 1.13, 1.14, 1.16, 1.18, 1.6, 1.8, 1.26, 1.29, 1.40, 2.12, 2.16, 2.7, 3.17, 3.4	4.11, 6.13, 6.1, 6.4, 6.19

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11.	Chikanda ¹⁰⁴	2011	To investigate the leading cause of physician migration from Zimbabwe and to highlight the patterns of physician migration over the past-two decades	Mixed Methods	Africa/Asia	1.19, 1.26, 1.45,	
12.	Crush ¹²⁸	2010	To explore the exodus of health professionals from sub-Saharan Africa	Quantitative	Africa/Asia	1.19, 1.14, 1.16, 1.3, 1.5, 1.28, 1.38, 2.12, 2.13, 2.6, 3.17, 3.14, 3.15, 3.4, 3.5	4.5, 4.21, 5.12, 5.3
13.	De Silva ⁵³	2013	To describe the migration of medical specialists from Sri Lanka	Qualitative	Africa/Asia	1.14, 1.6, 1.38, 2.23, 3.1, 3.14, 3.5	4.8, 4.27, 4.31, 6.10, 6.1, 6.4
14.	Imran ¹¹⁷	2012	To survey final year students and recent graduates about their intentions to train abroad, their post training plans as well as to identify the factors responsible for their motivation for international migration	Quantitative	Africa/Asia	1.5, 1.6, 2.19, 2.20, 2.1, 2.3, 3.17,	4.19, 4.20, 4.21, 4.33, 6.11, 6.1, 6.4, 6.7, 5.3, 5.9
15.	Labonté ⁵¹	2015	To better understand the drivers of skilled health worker migration, its consequences, and the strategies countries have employed to mitigate negative impacts	Mixed Methods	Africa/Asia	1.19, 1.21, 1.25, 1.1, 1.13, 1.14, 1.15, 1.16, 1.5, 1.6, 1.28, 2.18, 2.17, 2.6, 3.17, 3.20, 3.1, 3.16, 3.4	4.17, 4.12, 4.14, 4.3, 4.5, 4.23, 4.26, 4.31, 6.1, 6.2
16.	Lakhey ¹³⁸	2009	To understand the problem of brain drain	Quantitative	Africa/Asia		4.5, 5.10
17.	Nair ¹³⁰	2012	To identify the patterns of health professionals' migration, factors influencing migration and present evidence of successful national and international measures to address the problem of health professionals' migration in the EMES.	Literature Review	Africa/Asia	1.21, 1.14, 1.15, 1.5, 1.26, 2.23, 2.7, 3.17, 3.4	4.19, 4.4, 4.5, 4.6, 4.27, 5.11
18.	Okeke ⁴⁶	2013	To investigate whether economic conditions "push" doctors out of developing countries	Quantitative	Africa/Asia	1.19	
19.	Okeke ¹⁶²	2014	To explore the impact of raising health workers salaries on migration	Quantitative	Africa/Asia		4.4
20.	Okeke ¹²⁶	2012	To study the impact of economic conditions on the migration of physicians from developing countries	Quantitative	Africa/Asia	1.19, 1.26, 1.28, 1.36,	
21.	Oman ¹⁰⁷	2009	To explore the reason for losses from the Fiji public workforce	Qualitative	Africa/Asia	1.16, 1.26, 3.17, 3.4	
22.	Opoku ¹⁶³	2014	To identify the relationship between career satisfaction and the intention of active Ghanaian physicians to leave the country within the next 5 years	Quantitative	Africa/Asia	1.15	

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23.	Qureshi ¹⁰⁸	2014	To review the trend of Pakistani physicians pursuing their professional careers outside the country and to identify the factors that lead to this massive efflux of physicians from a country having an underdeveloped healthcare delivery structure	Literature Review	Africa/Asia	1.13, 1.14, 1.16, 1.26, 2.18, 2.24, 2.17, 2.1, 3.17	
24.	Reardon ⁴⁸	2014	To explore the migration intentions and the factors that influence these intentions amongst Community Service (CS) nurses and doctors; explore their views and opinions about the Bilateral Agreement between the UK and South Africa and other UK policies around the recruitment and employment of foreign health professionals and understand the impact of these policies on the migration plans of these CS doctors and nurses	Qualitative	Africa/Asia	1.13, 1.14, 1.15, 1.16, 1.5, 1.6, 1.26, 1.28, 1.29, 2.10, 2.12, 2.1, 2.4, 3.17, 3.21, 3.1, 3.11, 3.3, 3.4	4.13, 6.1, 5.14
25.	Sohail ¹⁰⁹	2016	To explore doctors career intentions, future practice locations and their satisfaction with work conditions in home country and also to determine the factors behind leaving and staying in the country	Quantitative	Africa/Asia	1.13, 1.15, 1.16, 1.6, 1.26, 2.18, 2.4, 2.6, 3.17	4.28, 4.30, 6.16, 6.4, 6.19, 5.9
26.	Murphy ¹²⁷	2016	To better understand the drivers of migration, its consequences, and the various strategies countries have employed to mitigate its negative impacts	Mixed Methods	Africa/Asia	1.19, 1.3, 1.6, 1.27, 1.28, 1.30, 1.38, 2.18, 2.1, 2.6, 3.17, 3.1, 3.16, 3.4	4.8, 4.22, 4.27
27.	Wojczewski ¹⁴⁴	2015	To explore the experiences of high-skilled female African migrant health-workers (MHW) utilising the framework of Global Care Chain (GCC) research	Qualitative	Africa/Asia	1.42, 1.43, 2.23,	4.1, 4.21, 4.23, 5.15
28.	Arnold ⁹²	2010	To determine why more than 2000 doctors have migrated from South Africa to Australia since 1948	Quantitative	Australia	1.18, 1.5, 1.26, 1.28, 1.42, 1.45, 2.1, 3.17, 3.1, 3.4, 3.6	
29.	Gureje ³¹	2009	To understand the brain drain of health professionals	Mixed methods	Australia	1.1, 1.14, 1.15, 1.5, 1.6, 1.28, 2.24, 2.25, 2.12, 2.13, 2.1, 2.4, 2.9, 3.17, 3.1, 3.5	
30.	McGrath ⁷⁹	2013	To explore IMGs experiences during entry into their chosen country	Qualitative	Australia	1.19, 1.16, 1.28, 2.18, 2.16, 2.1, 3.17, 3.1, 3.3, 3.4, 3.5, 3.6	
31.	McDermott ¹⁵	2015	To explore the increasing numbers of emergency medicine (EM) registrars that obtained their primary medical degree from UK or Irish universities, who work in emergency departments (ED) throughout Australia and New Zealand.	Quantitative	Australia	1.21, 1.16, 1.6, 2.25, 2.14, 3.1	4.21.

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32.	Islam ⁷⁵	2014	To explore the juxtaposition of seemingly conflicting ideas and interests related to IMG migration to Canada within the scope of national and transnational instruments.	Qualitative	Canada	1.16, 1.6, 1.28, 1.30, 3.17, 3.1, 3.14	
33.	Klein ⁷⁷	2009	To explore the personal side of migration and transition experiences of international medical graduates	Qualitative	Canada	1.13, 1.16, 1.28, 2.6, 3.1	
34.	Vanasse ¹²⁵	2009	To ascertain the short-term intentions of Canadian clinically active family physicians (CAFPs) to change their practice locations	Quantitative	Canada	2.12	
35.	Bourgeault ⁹⁷	2010	To examine the experiences of internationally educated physicians, nurses and midwives who were pursuing professional integration	Qualitative	Canada	1.20, 1.21, 1.4, 1.26, 1.28, 1.30, 1.31, 1.39, 1.45, 2.23, 2.4, 2.7, 3.1, 3.2, 3.3, 3.4, 3.7	4.21, 4.22, 4.25, 4.26, 4.28, 6.22, 5.15, 5.3, 5.6, 5.9
36.	Domagala ⁶⁷	2019	To evaluate the scale of migration intentions amongst Polish physicians and identify the main predictors and barriers related to migration.	Quantitative	Europe	1.16, 1.6, 2.13, 2.1, 3.17, 3.1, 3.4	4.31, 6.10, 6.8, 6.22, 6.1
37.	Dubas-Jakóbczyk ⁸⁶	2019	To assess the level of carrier satisfaction among physicians working in three university hospitals in Poland (1); to assess whether the physicians have the intention to migrate and what the main reasons for migration are (2); and to identify the actions that might be taken at the hospital level to mitigate physicians' intentions to migrate (3).	Quantitative	Europe	1.16, 1.6, 2.22, 2.1, 2.3, 2.9, 3.17, 3.1	
38.	Gostautaitė ¹⁰⁰	2018	To investigate the prevalence and underlying reasons for emigration intentions among physicians, nurses, residents, and medical students in Lithuania	Quantitative	Europe	1.38, 1.45, 2.25, 2.13, 3.20	
39.	Gyórfy ¹⁶⁴	2018	To explore the potential association between the willingness to migrate and the degree of the different dimensions of burnout	Quantitative	Europe	3.16	
40.	Heponiemi ¹²¹	2019	To examine the turnover intentions and intentions to leave the country of foreign-born physicians	Quantitative	Europe	1.14, 1.42, 3.25, 3.14	4.5, 4.6, 5.12, 5.2
41.	Huijskens ¹⁴⁰	2010	To identify the barriers that confront and the facilitating factors that support IMGs before, during and after their supplementary medical training.	Qualitative	Europe	1.8, 3.12, 3.9	4.1, 4.21, 4.25, 4.30, 6.13, 6.15, 6.21, 6.22, 6.1, 6.5, 6.19, 5.3

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42.	Ifanti ⁷⁴	2014	To explore the dimensions of the Greek brain drain problem and to consider ways to address this effect of the financial crisis, and to contribute to stopping the mass departure of Greek physicians	Qualitative	Europe	1.11, 1.13, 1.14, 1.15, 1.16, 2.1	
43.	Jirovsky ⁹⁴	2015	To explore the reasons for migration to Austria, as well as the personal experiences concerning the living and working situation in Austria.	Qualitative	Europe	1.5, 1.26, 1.28, 2.1, 3.17, 3.4	6.9
44.	Kopetsch ⁹⁰	2009	To analyse the role of Germany in the context of the strong international migration of doctors. In doing so, the migration of German doctors abroad and foreign doctors to Germany is qualitatively and quantitatively presented.	Quantitative	Europe	1.6, 3.17	
45.	Pantenburg ¹¹⁵	2016	To examine the extent of burnout, and the association between burnout and wishes to leave clinical practice or to go abroad for clinical work in a sample of young physicians in Saxony.	Quantitative	Europe	3.14, 3.16	4.5, 5.13
46.	Pantenburg ¹²²	2018	To identify the “push” factors motivating German physicians to emigrate.	Quantitative	Europe	1.16, 2.12, 2.13, 2.1, 3.17, 3.14	4.32, 6.11, 6.1,
47.	Poppe ¹³¹	2014	To explore the reasons for migration of health workers from sub-Saharan Africa to Belgium and Austria.	Qualitative	Europe	1.19, 1.26, 1.38, 2.4, 3.4	
48.	Ramos ³⁸	2017	To determine the prevalence of migration intentions among Portuguese junior doctors and to identify the most important drivers of career choice for those who are considering migrating in the near future	Quantitative	Europe	1.16, 1.5, 2.20, 3.17	
49.	Schumann ⁵⁰	2019	To explore the driving forces in a group of Egyptian physicians and final-years medical students preparing to migrate to Germany.	Qualitative	Europe	1.13, 1.18, 1.3, 1.5, 1.40, 1.45, 2.25, 2.1, 2.7,	
50.	Solberg ¹⁶⁵	2013	To explore how many specialist doctors in Iceland have considered migrating and whether economic factors at work and in private life are related to doctors’ migration considerations.	Quantitative	Europe	2.12, 3.20, 3.23	
51.	Starkienea ¹⁴²	2013	To review the research evidence and health policy decisions taken from 2000 to 2010 in Lithuania and evaluate the chronological links over time between scientific recommendations and policy decisions	Qualitative	Europe		4.3, 4.4,
52.	Sturesson ¹⁴⁶	2019	To explore how migrant physicians with a medical degree from outside EU/EEA enter and advance within the medical labour market in Sweden and to identify perceived barriers and facilitating aspects in the process	Quantitative	Europe		4.30, 4.31, 4.32, 6.12, 6.14, 6.22, 5.7

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53.	Varga ⁸⁰	2017	To analyse the effect of EU accession on the probability of out-migration on the part of Hungarian physicians and dentists between 2003 and 2011	Quantitative	Europe	1.16, 1.30, 1.45, 3.17,	
54.	Iyadurai ¹²⁴	2019	To find out the career destination of a cohort of doctors who have graduated from Christian Medical College and to identify the reasons for their choice	Quantitative	Europe	2.4, 3.1	
55.	Becker ⁹⁶	2020	To investigate migration patterns of European physicians in Germany as an example of high-skilled intra-EU migration	Mixed Methods	Europe	1.6, 2.18, 2.4, 2.8, 3.17, 3.4	
56.	Kuusio ¹³⁵	2014	To examine, the numbers of foreign-born physicians migrating to Finland and their employment sector, foreign-born GPs' experiences of accessing employment and work in primary health care in Finland,; and to compare experiences of the psychosocial workplace environment among foreign-born physicians working in various health care sectors	Mixed Methods	Europe	1.19, 1.5, 1.6, 1.27, 1.33, 3.17, 3.21, 3.4	4.26, 6.22, 5.15
57.	Leone ¹³³	2013	To describe the profile of mobile physicians and nurses; to elicit the opinions of employers on mobility factors; to describe incentive policies to retain or attract health professionals; and to collect and analyse employers' opinions on the impact of this mobility on their health services.	Qualitative	Europe	1.11, 1.14, 1.3, 1.5, 2.18, 2.8, 3.17, 3.1	
58.	Ognyanova ³⁴	2012	To shed light on the changes in the scale of movement, trends and directions of flows of health professionals pre and post 2004 and 2007 EU enlargements.	Quantitative	Europe	1.1, 1.6, 1.33, 2.1, 3.17, 3.21	4.4, 4.5, 4.21,
59.	Ribeiroa ¹³²	2014	To explore the mobility of health professionals in Portugal	Mixed Methods	Europe	1.1, 1.15, 1.16, 1.18, 1.4, 1.26, 1.27, 1.29, 2.1, 2.7, 3.17	4.3, 4.7, 5.10
60.	Teney ¹³⁷	2019	To highlight the relevance of the concept of brain gain for intra-EU migration and to demonstrate the relevance of these concepts for the analyses of micro-data	Quantitative	Europe	1.19, 1.5, 3.21, 3.24, 3.4	

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61.	Boström ¹³⁴	2012	To analyse narratives of migrating Polish physicians with a transnational medical competence, telling about their experiences of establishing themselves as professionals in Sweden, both in national and local cultural contexts	Qualitative	Europe	1.26, 2.16, 3.20, 3.1, 3.14	
62.	Makulec ⁷⁸	2012	To provide a national profile of migration of health professionals in Austria	Quantitative	Europe	1.19, 1.20, 1.1, 1.10, 1.15, 1.16, 1.18, 1.3, 1.4, 1.6, 1.9, 1.29, 1.31, 1.33, 1.45, 2.1, 2.4, 3.17, 3.21, 3.24, 3.1, 3.3, 3.4	4.11, 4.30, 6.22, 5.15
63.	Wismar ³³	2011	To enhance knowledge on the nature and extent of health professional mobility in the EU, assess its impact on country health systems and outline some major policy strategies to address mobility	Quantitative	Europe	1.20, 1.21, 1.23, 1.25, 1.1, 1.11, 1.12, 1.14, 1.15, 1.16, 1.2, 1.3, 1.4, 1.6, 1.8, 1.9, 1.26, 1.27, 1.31, 1.32, 1.33, 1.38, 1.44, 2.18, 2.19, 2.20, 2.21, 2.24, 2.25, 2.10, 2.12, 2.16, 2.17, 2.1, 2.2, 2.3, 2.4, 2.6, 2.7, 2.8, 2.9, 3.17, 3.21, 3.22, 3.23, 3.24, 3.25, 3.1, 3.11, 3.12, 3.15, 3.2, 3.3, 3.4, 3.5	4.11, 4.21, 4.26, 6.21, 6.22, 6.1, 5.14, 5.15, 5.3
64.	Buchan ³⁶	2014	To assess the scale of mobility of health professionals from the new to the old EU Member States before and after the 2004 and 2007 EU enlargements	Quantitative	Europe	1.20, 1.21, 1.23, 1.25, 1.1, 1.11, 1.12, 1.13, 1.15, 1.16, 1.3, 1.6, 1.8, 1.26, 1.32, 1.38, 1.45, 2.18, 2.19, 2.20, 2.21, 2.25, 2.10, 2.13, 2.17, 2.1, 2.2, 2.3, 2.6, 2.7, 2.8, 3.17, 3.22, 3.24, 3.1, 3.11, 3.12, 3.14, 3.2, 3.3, 3.4, 3.5	4.1, 4.11, 4.21, 4.31, 6.22, 6.1, 6.3, 6.4, 6.18, 5.15, 5.3
65.	OECD ¹⁴¹	2015	To examine how the international migration of health workers to OECD countries has evolved since 2000	Quantitative	Europe	1.29	4.17, 4.2, 4.4, 4.5, 4.21, 6.22, 5.15
66.	WHO ⁸¹	2014	To identify factors influencing the migration of Moldovan health professionals to Italy and other countries in the European Union (EU), as well as factors that influence their possible return to the Republic of Moldova	Mixed Methods	Europe	1.21, 1.13, 1.15, 1.16, 1.18, 1.5, 1.26, 1.38, 1.41, 1.45, 2.18, 2.15, 2.6, 2.7, 3.17, 3.19, 3.20, 3.24, 3.13, 3.14, 3.2, 3.4, 3.5	4.16, 4.24, 5.15

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67.	Bennett ⁶¹	2015	To collate existing data relating to trainees and training programmes at three stages of training and to examine the career plans of junior trainees.	Quantitative	Ireland	1.16, 2.22, 2.1, 2.3, 3.1, 3.2	6.1
68.	Bidwell ¹¹⁶	2012	To explore the extent of increased dependence on international medical migration which has both national and international policy implications (2000-2010)	Quantitative	Ireland	1.2, 2.18	4.9, 4.26, 5.14
69.	Bruce-Brand ⁶²	2012	To establish levels of satisfaction, sources of dissatisfaction and the major reasons for junior doctors seeking work abroad	Quantitative	Ireland	1.1, 1.13, 1.15, 1.16, 1.5, 2.18, 2.22, 2.1, 2.6, 2.8, 3.1, 3.2	4.1, 4.26, 5.5
70.	Brugha ⁶³	2016	To measure and analyse the factors associated with the migratory intentions of foreign doctors in Ireland.	Quantitative	Ireland	1.16, 1.5, 1.28, 1.34, 2.18, 2.1, 3.17, 3.14, 3.4	
71.	Cronin ⁶⁶	2019	To identify factors associated with recently graduated doctors' intention to migrate, focusing on their work experiences during the mandatory post-graduation year, their wellbeing, and their perceptions of postgraduate training in Ireland	Quantitative	Ireland	1.16, 2.12, 2.1, 2.9, 3.16	
72.	Humphries ⁴⁰	2013	To provide insight into the experiences of non-EU migrant doctors in the Irish health workforce	Qualitative	Ireland	1.12, 1.16, 2.1, 2.6	
73.	Humphries ⁷²	2015	To apply a new typology of health worker migrants to the experiences of non-EU migrant doctors in Ireland and tests its utility for understanding health worker migration internationally.	Mixed-methods	Ireland	1.28, 2.1, 3.17, 3.2,	4.9
74.	Humphries ⁷¹	2015	To investigate the experiences of doctors, nurses and midwives who have recently emigrated from Ireland	Mixed methods	Ireland	1.16, 1.6, 2.18, 2.17, 3.17	
75.	Humphries ⁷⁰	2017	To reappraise the professional culture of migration and its impact on the Irish health system.	Mixed methods	Ireland	1.16, 1.40, 2.10	
76.	Humphries ⁹⁸	2018	To explore the generational component of Ireland's failure to retain doctors and makes recommendations for retention policy and practice	Qualitative	Ireland	1.16, 2.18, 2.17, 3.15, 3.16	

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77.	Humphries ⁷³	2019	To explore how the deterioration of job quality and the normalisation of extreme working is driving doctor emigration from Ireland and deterring return	Qualitative	Ireland	1.13, 1.16, 1.5,	
78.	Humphries ⁶⁹	2019	To illustrate the impact an external shock (e.g. recession) can have on the medical workforce and to how cross-national data sharing can assist the source country to better understand doctor emigration trends	Quantitative	Ireland	1.21, 1.13, 1.15, 1.16, 1.6, 1.40,	
79.	Pericin ¹¹⁹	2018	To report on trends of the current status and future work intentions of recent GP graduates in Ireland	Quantitative	Ireland	3.17, 3.1, 3.4	6.1
80.	Wójcicka ³⁰	2009	To provide a national profile of migration of health professionals in Ireland	Qualitative	Ireland	1.20, 1.21, 1.10, 1.11, 1.14, 1.16, 1.18, 1.3, 1.4, 1.5, 1.32, 1.40, 1.45, 2.1, 2.3, 2.7, 3.17, 3.21, 3.1	4.11, 4.9
81.	Brugha ⁶⁴	2018	To examine the scale and causes of outward migration of non-consultant hospital doctors (NCHDs1) from Ireland	Mixed Methods	Ireland	1.14, 1.16, 1.17, 1.3, 1.5, 1.6, 2.18, 2.23, 2.13, 2.16, 2.1, 2.9, 3.17, 3.20, 3.1, 3.10, 3.14, 3.15, 3.16, 3.3, 3.4, 3.8	
82.	Mpofu ⁹¹	2013	To understand the experiences of mainly medical doctors and selected immigrant health professionals, who attempt to enter practice in New Zealand.	Qualitative	New Zealand	1.6, 1.30, 1.45	
83.	Botezat ⁹⁹	2020	To examine the channels through which OECD countries attract foreign physicians from abroad.	Quantitative	OECD	1.19, 1.10, 1.3, 1.4, 1.36, 1.45, 3.17, 3.24, 3.5	
84.	Clarke ²⁷	2017	To measure and explore the predictors of trainee doctor emigration from Ireland.	Quantitative	OECD	1.13, 1.14, 1.16, 1.6, 2.1, 2.3, 2.6, 2.9, 3.17, 3.1, 3.14, 3.16, 3.4	5.4
85.	de Vries ⁸³	2016	To examine the patterns, drivers and experiences of health worker migration	Quantitative	OECD	1.6, 3.17, 3.1	

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86.	Dohlman ⁸⁵	2019	To examine the motivational factors leading to physician migration in the context of Maslow's hierarchy of human needs	Literature Review	OECD	1.24, 1.13, 1.15, 1.3, 1.5, 1.6, 1.26, 1.28, 1.38, 1.42, 2.18, 2.20, 2.10, 2.11, 2.12, 2.1, 2.3, 2.4, 2.5, 2.7, 2.9, 3.17, 3.1, 3.4, 3.9	
87.	WHO ⁹⁵	2010	To provide new insights on recent migration trends for doctors and nurses up to 2008, and discusses the main causes and consequences for destination and origin countries	Quantitative	OECD	1.19, 1.13, 1.5, 3.4	4.3, 4.5, 4.23, 5.11
88.	Merçay ¹⁴³	2016	To examine recent trends in the migration of foreign-trained doctors and nurses in OECD countries and some of the policies that have affected these migration patterns.	Quantitative	OECD	1.33, 1.41, 3.24	4.12, 4.3, 4.4, 4.23, 6.16, 5.1
89.	Begum ⁴⁴	2019	To examine how many senior scientists and clinicians were from other countries, particularly from Europe, in two time periods.	Quantitative	UK	1.8, 1.30	4.20, 4.21,
90.	Blacklock ⁴³	2012	To investigate the effect of UK policy on medical migration	Quantitative	UK	1.1, 1.30,	4.23
91.	Bornat ²⁹	2011	To examine the push/pull factors and oral histories of overseas trained doctors from South Asia who have entered the UK workforce in geriatric medicine.	Qualitative	UK	1.5, 2.3	
92.	Davda ⁹	2018	To examine the migration motives, the barriers to and facilitators of integration of international dental graduates, compared with nurses and doctors in the United Kingdom.	Literature review	UK	1.21, 1.22, 1.24, 1.25, 1.1, 1.11, 1.12, 1.13, 1.15, 1.16, 1.5, 1.7, 1.29, 1.30, 1.45, 2.19, 2.22, 2.10, 2.1, 2.7, 3.1, 3.18, 3.1, 3.2, 3.3, 3.5	
93.	Gauld ⁸	2015	To examine why these doctors go to New Zealand and do not stay for long	Quantitative	UK	1.5, 1.6, 2.14, 2.1, 3.17, 3.1	6.1
94.	George ⁴²	2017	To examine the salaries of selected HRH in India and four popular destination countries (United States of America, United Kingdom, Canada and the United Arab Emirates), whilst accounting for the in-country cost of living.	Quantitative	UK	3.17	
95.	Herfs ¹¹	2014	To present data relating to the changes in IMG migration in the UK since the extension of the European Union in May 2004. In addition, data are presented on IMG migration in the Netherlands. These migration flows	Quantitative	UK	1.18, 1.5, 1.40, 2.1, 2.4, 3.17, 3.24	

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			show that migration patterns differ strongly within these two EU-countries				
96.	Hosni ⁴¹	2017	To find out if doctors leaving the UK at the end of the 2 year "International Doctors Training Programme of Obstetrics and Gynaecology" feel that they achieved what they expected to achieve, what went well and what did not go well.	Quantitative	UK	2.19, 2.10, 2.1, 3.2	
97.	Iacobucci ⁵⁸	2017	To explore if EU doctors are considering leaving UK	Quantitative	UK	1.30, 1.35, 1.42,	
98.	Lambert ¹⁶	2017	To report the changes to UK medicine which doctors who have emigrated tell us would increase their likelihood of returning to a career in UK medicine	Quantitative	UK	1.14, 1.15, 1.16, 1.18, 2.20, 2.25, 2.17, 3.17, 3.1, 3.15, 3.4, 3.6	4.21, 5.14
99.	Legido-Quigley ¹²	2015	To describe the experiences of doctors who decide to move to the UK from other EU member states, exploring their motivations for moving and their experiences of registering and working in the UK.	Qualitative	UK	1.13, 1.5, 2.1, 2.4, 3.17, 3.24, 3.12, 3.9	4.1, 4.12, 4.26, 6.22, 5.16
100.	Quantin ⁵	2012	To analyse the migration of doctors between the UK and France, in an attempt to identify the reasons for these migrations	Quantitative	UK	1.16, 1.6, 1.7, 2.18, 2.1, 3.17, 3.2, 3.4, 3.6	
101.	Sharma ¹⁴	2012	To investigate factors which influenced UK-trained doctors to emigrate to New Zealand and factors which might encourage them to return.	Quantitative	UK	1.14, 1.5, 2.12, 2.14, 3.23, 3.1, 3.2, 3.4	4.3,
102.	Smith ⁵²	2012	To conduct an exploratory study to learn about the experiences of GPs who have undertaken international work.	Quantitative	UK		6.9, 6.15, 6.17, 6.1, 6.19, 5.14, 5.8
103.	Smith ⁴⁵	2018	To explore the reasons that doctors choose to leave UK medicine after their foundation year two posts.	Quantitative	UK	1.19, 1.13, 1.16, 1.6, 1.26, 1.30, 1.32, 2.19, 2.11, 2.13, 2.16, 2.17, 2.1, 2.6, 2.9, 3.1, 3.14,	4.29,
104.	Torjesen ⁵⁷	2017	To examine the affect of Brexit on EEA doctors intent to continue working in the UK	Quantitative	UK	1.35, 2.17, 3.15	
105.	Van der Pol ⁵⁴	2019	To examine the association between risk attitudes and the migration of UK GPs to Australia.	Quantitative	UK	1.5, 2.14	
106.	Khan ³⁹	2015	To review and inform the relevant authorities about the barriers faced by IMGs in training and career progression in the UK health service	Literature Review	UK	1.28, 2.19, 2.20, 2.10, 2.1, 2.4, 3.17, 3.1	4.1, 4.26, 6.8, 6.6, 6.19

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107.	Lambert ¹⁶	2017	To report the reasons why doctors are considering leaving medicine or the UK.	Quantitative	UK	1.16, 1.5, 1.6, 2.10, 2.14, 2.1, 3.17, 3.1, 3.11, 3.14, 3.4	
108.	BMA ⁵⁶	2010	To provide information on the careers of doctors, and particularly to: — identify doctors who leave medicine as a career, or who choose to work in another country and to assess the factors which influence it	Mixed Methods	UK	1.6, 2.19, 2.10, 2.14, 3.1, 3.13, 3.2	
109.	Young ¹⁶⁶	2010	To scope the main issues and identify gaps in knowledge around two key aspects of health professional mobility/migration – within- UK mobility (i.e. movement between England, Scotland, Wales and Northern Ireland) and mobility to and from the different UK countries and Europe	Mixed Methods	UK	1.23, 1.11, 1.12, 1.15, 1.16, 1.26, 1.32, 1.40, 1.45, 2.18, 2.19, 2.20, 2.21, 2.10, 2.1, 2.2, 2.3, 2.7, 2.8, 3.18, 3.24, 3.1, 3.12, 3.2, 3.3, 3.4, 3.7	6.8, 6.22
110.	Akl ⁸²	2012	To understand the perceptions of Lebanese policymakers of this emigration, and elicit their proposals for future policies and strategies to deal with this emigration.	Qualitative	USA	1.14, 1.6, 1.9, 1.28, 2.18, 2.8, 3.17, 3.14	4.18, 4.15, 4.6, 6.1
111.	Duvivier ⁶⁸	2017	To quantify where African migrant physicians come from, where they were educated, and how these trends have changed over time.	Quantitative	USA	1.19, 1.6, 1.26, 1.28, 2.1, 3.17, 3.1	
112.	Duvivier ⁸⁷	2019	To quantify where Chinese migrant physicians to the U.S. were educated, where they went to practice, and how these trends have changed over time.	Quantitative	USA	1.19, 1.16, 2.24, 2.25, 2.1, 2.3,	4.1, 4.20, 4.21, 4.31, 6.9, 6.22, 5.9
113.	Fremman ¹³⁹	2016	To examine Canadian physician migration to the US	Quantitative	USA	1.21, 1.14, 1.27,	4.1, 4.3, 4.22, 5.5
114.	Heist ⁸⁹	2018	The aim of this study was to develop an understanding of the Japanese IMG experience.	Qualitative	USA	1.6, 1.43, 1.45, 2.18, 2.19, 2.20, 2.25, 2.13, 2.1, 3.1, 3.3, 3.4	

Appendix C: Coding framework for systematic review

Level of analysis	Themes and descriptions	Codes	Label
1. Macro-Level			
Drivers	Health system factors	1.1	Active recruitment
		1.2	Passive recruitment
		1.3	Good healthcare infrastructure
		1.4	Workforce demand
		1.5	Employment opportunities
		1.6	Attractive working conditions
		1.7	Safety and security of NHS
		1.8	Support offered for relocation_induction
		1.9	Overproduction of nurses and doctors
		1.10	Low unemployment
		1.11	Unemployment
		1.12	Underemployment
		1.13	Poor healthcare infrastructure
		1.14	Poor job opportunities
		1.15	Poor salaries
		1.16	Poor working conditions
		1.17	Lack of support
		1.18	Ease of assessment_registration_revalidation process
	Economic factors	1.19	Macroeconomic factors
		1.20	Economic and political stability
		1.21	Recession/economic instability
		1.22	Devaluation of money
		1.23	Remittance to home country
		1.24	Changes to remuneration

		1.25	Corruption in everyday life
	Political factors	1.26	Political situation
		1.27	Policy issues
		1.28	Safety for family_self, fleeing violence
		1.29	Bilateral agreements
		1.30	Immigration policies
		1.31	Ease of obtaining right to remain
		1.32	Ease of movement to the UK from EU
		1.33	Ease of movement within the EU
		1.34	Citizenship status
		1.35	UK referendum vote to leave EU
		1.36	Colonial connections
		1.37	Compulsory service in the public sector
	Social factors	1.38	Social conditions
		1.39	Promotes multiculturalism
		1.40	History_culture of medical migration
		1.41	Historical ties
		1.42	xenophobia_discrimination
		1.43	Gender equity
		1.44	Unequal opportunities
		1.45	Established networks
2. Meso-Level Drivers	Training opportunities	2.1	Better training and development opportunities
		2.2	Desire to learn the state of the art in the profession
		2.3	Status of gaining qualifications and training from specific country
		2.4	Opportunity to advance knowledge and education of self
		2.5	Opportunity to advance knowledge, skills of sector_country
		2.6	Lack of professional development opportunities

		2.7	Shortage of postgraduate training opportunities
		2.8	Shortage of posts in a particular specialty_profession
		2.9	Poor standard of training
	Employment opportunities	2.10	Desire to experience working in a different environment
		2.11	Better working relationships
		2.12	Job satisfaction_experience
		2.13	Poor working relationships
		2.14	Pushed_desire to leave the NHS
		2.15	Poor intellectual stimulation
		2.16	Healthcare professionals are valued
		2.17	Undervalued professionally
	Career progression opportunities	2.18	Career progression
			Opportunities to gain clinical experience through short-term
		2.19	employment
		2.20	Opportunity for research
		2.21	Opportunity for networking
		2.22	Lack of promotion
		2.23	Limited career opportunities
		2.24	Negative research environment
		2.25	Healthcare structure, management issues
3. Micro-Level Drivers	Personal fulfilment		
		3.1	Better quality of life
		3.2	Desire for life change
		3.3	Adventure
		3.4	Family reasons
		3.5	Better education for children
		3.6	Better climate_environment
		3.7	Future hopes and goals
		3.8	Better morale and wellbeing

Level of analysis	Themes and descriptions	Codes	Label
			<ul style="list-style-type: none"> 3.9 Personal growth 3.10 To be competitive_enhance CV 3.11 To provide better patient care 3.12 Improve languages 3.13 Humanitarian work 3.14 Poor work-life balance_quality of life 3.15 Lack of morale 3.16 Burnout_stress
	Financial factors		<ul style="list-style-type: none"> 3.17 Financial gain for self 3.18 Financial gain for family 3.19 Scholarship 3.20 Financial hardship
	Location factors		<ul style="list-style-type: none"> 3.21 Proximity_Location of destination country 3.22 Stepping stone to another destination 3.23 Prior experience in destination country 3.24 Common Language 3.25 Language problems
4. Macro-Level Barriers	Health system factors		<ul style="list-style-type: none"> 4.1 Healthcare system difficult to enter 4.2 Institutional change 4.3 Improvements to healthcare system in home country 4.4 Increased salary 4.5 Investment in working and living conditions 4.6 Creating job opportunities 4.7 Workforce demand 4.8 Healthcare workers are valued in home country 4.9 Poor salaries

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		4.10	Poor working conditions
		4.11	Limited employment opportunities
		4.12	Decrease in workforce demand
		4.13	Underemployment_skills loss
		4.14	Limitations on recruitment
		4.15	Limiting the number of students seeking medical education training
		4.16	Bureaucratic process
	Economic factors	4.17	Economic crisis
		4.18	Financial loss for country
		4.19	Financial support
	Political factors	4.20	Political situation
		4.21	Stricter immigration policies
		4.22	Policy changes
		4.23	Bilateral agreement
		4.24	Lack of citizenship
		4.25	Obtaining residence permit
		4.26	Process of gaining registration
		4.27	Bonded to work in home country
		4.28	Long emigration process
		4.29	UK decision to leave the EU
	Social factors	4.30	Xenophobia_discrimination
		4.31	Cultural factors
		4.32	Gender
		4.33	Religious factors
5. Meso-Level Barriers	Training factors	5.1	More domestic training opportunities
		5.2	Investment in language training
		5.3	Limited training opportunities

		5.4	Restructure of training process
		5.5	Difficult to get a specialist training post
		5.6	Expensive examinations
		5.7	Qualifications undervalued
		5.8	Training deanery
		5.9	Cost of training_relocation
	Employment factors	5.10	Improving career opportunities
		5.11	Provision of professional development opportunities
		5.12	Positive working relationships
		5.13	Measures to prevent burnout
		5.14	Negative job security_contract
		5.15	Lack of recognition of qualifications or experience
		5.16	Negative induction scheme
6. Micro-Level Barriers			
	Personal factors	6.1	Family ties
		6.2	Better quality of life in home country
		6.3	Concerns about starting a new life experience
		6.4	Loyalty to profession in home country
		6.5	Homesickness
		6.6	Stress and_or isolation
		6.7	Long-term settlement plan
	Employment factors	6.8	Concerns about a new working environment
		6.9	Concerns regarding appraisal_revalidation_certification
		6.10	Good job in home country
		6.11	Higher workplace satisfaction
		6.12	Lack of work experience
		6.13	Negative experiences
		6.14	Lack of references from destination country

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Financial factors	6.15 Financial loss for self_family
	6.16 Government scholarship
	6.17 Potential loss of employment benefits
Social factors	6.18 Social status
	6.19 Lack of support
	6.20 Lack of overseas network
Location factors	6.21 Limited knowledge of destination country
	6.22 Language difficulties

Appendix D: List of organisations interviewed

	Country	Type of Organisation	No of interviewees
1.	UK	NHS	1
2.	UK	Med Ed/training	1
3.	UK	Med Ed/training	1
4.	UK	Professional	1
5.	UK	Professional	1
6.	Australia	Regulator	1
7.	Canada	Professional	1
8.	New Zealand	Higher Education	1
9.	USA	Regulator	1
10.	Ireland	Regulator	2
11.	UK	Locum Agency	1
12.	UK	Locum Agency	1
13.	UK	Research Group	2
14.	UK	Recruitment Agency	2
15.	UK	Trade Union	Written response
Totals	10 UK 1 Ireland 1 Australia	15 organisations	17 interviewees 1 written response

	1 New Zealand 1 Canada 1 USA		
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Appendix E: Interview schedules

Interview - schedule of questions for UK participants

Interviewers Introduction

Thank you for agreeing to take part.

The aim of the research is to use available evidence to a) understand the flow of doctors to and from the UK; and b) describe the migration push and pull factors. The research will explore the complex range of factors driving international migration of doctors, comparing the situation in the UK with other high-income countries.

Section 1: Background and broad understanding of the migration of doctors

1. Can you tell me a little bit about your background and your current role?
2. From your experience, how important is inward migration to UK healthcare provision?
34.5% of licensed doctors received their primary medical qualification (PMQ) abroad
3. From your experience, what impact does outward migration have on UK healthcare provision?

Section 2: Patterns, drivers and barriers of migration of doctors into and out of the UK

4. From your experience, what are the patterns of inward migration of doctors into the UK? How have these patterns changed over time?

Question prompts:

- a. Are doctors migrating to the UK from a particular country/region and are UK doctors migrating to specific countries/regions?
- b. Does migration occur at particular career-points/from particular specialties?
- c. Are there any gender-specific or other demographic patterns?
- d. Is the migration short-term or long-term.

5. From your experience, what are the patterns of outward migration of doctors from the UK? How have these patterns changed over time?

Question prompts:

- a. Are doctors migrating to the UK from a particular country/region and are UK doctors migrating to specific countries/regions?
- b. Does migration occur at particular career-points/from particular specialties?
- c. Are there any gender-specific or other demographic patterns?
- d. Is the migration short-term or long-term

6. What are the drivers that encourage overseas doctors to decide to move to the UK?

Prompts: e.g. career development, salary, working-life balance, family or personal motivations, opportunities to study, for mentorship, to learn English, other life factors such as climate, culture, personal or family

Question prompts:

- a. Is migration a permanent or temporary move?
- b. Do doctors tend to stay in one location or move around within the UK?
- c. Are there any gender-specific or other demographic factors that influence decisions to migrate?

7. In your opinion, what discourages overseas doctors from moving to the UK?
Prompts: e.g. immigration restrictions, bureaucracy/registration with GMC, cost of relocation, worse off financial/career, retention strategies in home country
8. In your view, why do overseas doctors already working in the UK decide to leave? And are the reasons for leaving different depending on if the doctors are from inside or outside the EEA?
9. What are the drivers that encourage UK-trained doctors to emigrate overseas?
10. In your opinion, what discourages UK-trained doctors from emigrating overseas?

Section 3: Recruitment and retention strategies

11. To what extent do you feel that the active recruitment of doctors from overseas contributes to inward doctor migration?
Prompts: Can you provide any examples?
12. Do overseas doctors have clinical jobs arranged before arriving in the UK, or do they try to secure jobs on arrival?
13. Do you see any specific changes to the workforce supply, which may affect overseas recruitment? (such as the opening of new medical schools)
14. In your opinion, do you believe the migration experiences of overseas doctors to the UK tends to meet with their expectations once they have migrated? Why/not?
 - a. What influences their decision to return?
 - b. Our research suggests that non-UK PMQs are much less likely to join the specialist register. Why is that? Do you feel their career-progression expectations are not met?

Section 4: Socio-political influences

15. How do you envisage that Brexit or COVID19 might impact on patterns of doctor immigration to the UK?

- a. To what extent is Brexit impacting upon doctors' decisions to leave the UK?
- b. Is the impact different for those migrating to the UK from inside or outside the EEA?

16. Specific questions related to WP1 and WP2

17. Are there any further issues that you feel are important to the topic and would like to raise?

Thank you for taking part.

Interview - schedule of questions for non-UK participants (destination country participants)

Thank you for agreeing to take part.

The aim of the research is to use available evidence to a) understand the flow of doctors to and from the UK; and b) describe the migration push and pull factors. The research will explore the complex range of factors driving international migration of doctors, comparing the situation in the UK with other high-income countries.

Section 1: Background and broad understanding of the migration of doctors

1. Can you tell me a little bit about your background and your current position?
2. From your experience, how important is the migration of doctors to healthcare provision within [*your country*]?

Section 2: Patterns, drivers and barriers of the migration of UK doctors overseas

7. In your view, what attracts UK-trained doctors to migrate to [*your country*]?

Prompts: e.g. career development, salary, work-life balance, family or personal motivations, opportunities to study, for mentorship, adventure or a better lifestyle

8. Thinking about the immigration of UK-trained doctors to [*your country*], can you identify any patterns? And have these changed over time? (such as age, gender, stage of career, or specialty training)
 - a. Do UK-trained doctors tend to migrate to specific regions? and if so, why?
 - b. Do UK-trained doctors stay in one location or move about within [*your country*]?
 - c. Is this a permanent or transient move?
9. In your opinion, what discourages UK-trained doctors from migrating to [*your country*]
Prompts: e.g. Immigration policies, the registration process, financial impact, family ties
10. From your experience, how does the migration of other overseas doctors to [*your country*] compare with doctors from the UK?
 - a. Are they attracted or discouraged by different factors?
 - b. Are they migrating at a different career-stage/specialty?
 - c. Are there any notable demographic differences such as age or gender?

Section 3: Recruitment and retention strategies

11. To what extent do you feel that the active recruitment of doctors from overseas contributes to inward doctor migration?
12. In your opinion, do the migration experiences of UK-trained doctors to [*your country*] tend to meet with their expectations? Why/why not?
 - a. What influences their decision to return to the UK?
 - b. Does this differ with the expectations and experiences of other overseas doctors to [*your country*]?

Section 4: Socio-political influences

13. To what extent do you perceive Brexit to impact upon doctors' decisions to emigrate from the UK?

14. What impact do you think COVID-19 will have on inward and outward migration of UK trained doctors?

15. Specific questions related to WP1 and WP2

16. Are there any further issues that you feel are important to the topic and would like to raise?

Thank you for taking part.

Appendix F: Classification of countries by income

Classification of countries according to World Bank income groups²⁸

High income countries according to World Bank income groups²⁸ (\$12,536 or more)

1.	HIC	High income	Aruba	44.	HIC	High income	Kuwait
2.	HIC	High income	Andorra	45.	HIC	High income	Liechtenstein
3.	HIC	High income	United Arab Emirates	46.	HIC	High income	Lithuania
4.	HIC	High income	Antigua and Barbuda	47.	HIC	High income	Luxembourg
5.	HIC	High income	Australia	48.	HIC	High income	Latvia
6.	HIC	High income	Austria	49.	HIC	High income	Macao SAR, China
7.	HIC	High income	Belgium	50.	HIC	High income	St. Martin (French part)
8.	HIC	High income	Bahrain	51.	HIC	High income	Monaco
9.	HIC	High income	Bahamas, The	52.	HIC	High income	Malta
10.	HIC	High income	Bermuda	53.	HIC	High income	Northern Mariana Islands
11.	HIC	High income	Barbados	54.	HIC	High income	Mauritius
12.	HIC	High income	Brunei Darussalam	55.	HIC	High income	New Caledonia
13.	HIC	High income	Canada	56.	HIC	High income	Netherlands
14.	HIC	High income	Switzerland	57.	HIC	High income	Norway
15.	HIC	High income	Channel Islands	58.	HIC	High income	Nauru
16.	HIC	High income	Chile	59.	HIC	High income	New Zealand
17.	HIC	High income	Curacao	60.	HIC	High income	Oman
18.	HIC	High income	Cayman Islands	61.	HIC	High income	Panama
19.	HIC	High income	Cyprus	62.	HIC	High income	Palau
20.	HIC	High income	Czech Republic	63.	HIC	High income	Poland
21.	HIC	High income	Germany	64.	HIC	High income	Puerto Rico

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22.	HIC	High income	Denmark	65.	HIC	High income	Portugal
23.	HIC	High income	Spain	66.	HIC	High income	French Polynesia
24.	HIC	High income	Estonia	67.	HIC	High income	Qatar
25.	HIC	High income	Finland	68.	HIC	High income	Romania
26.	HIC	High income	France	69.	HIC	High income	Saudi Arabia
27.	HIC	High income	Faroe Islands	70.	HIC	High income	Singapore
28.	HIC	High income	United Kingdom	71.	HIC	High income	San Marino
29.	HIC	High income	Gibraltar	72.	HIC	High income	Slovak Republic
30.	HIC	High income	Greece	73.	HIC	High income	Slovenia
31.	HIC	High income	Greenland	74.	HIC	High income	Sweden
32.	HIC	High income	Guam	75.	HIC	High income	Saint Maarten (Dutch part)
33.	HIC	High income	Hong Kong SAR, China	76.	HIC	High income	Seychelles
34.	HIC	High income	Croatia	77.	HIC	High income	Turks and Caicos Islands
35.	HIC	High income	Hungary	78.	HIC	High income	Trinidad and Tobago
36.	HIC	High income	Isle of Man	79.	HIC	High income	Taiwan, China
37.	HIC	High income	Ireland	80.	HIC	High income	Uruguay
38.	HIC	High income	Iceland	81.	HIC	High income	United States
39.	HIC	High income	Israel	82.	HIC	High income	British Virgin Islands
40.	HIC	High income	Italy	83.	HIC	High income	Virgin Islands (U.S.)
41.	HIC	High income	Japan				
42.	HIC	High income	St. Kitts and Nevis				
43.	HIC	High income	Korea, Rep.				

Middle income countries according to World Bank income Groups²⁸ \$1,036 to \$12,535)

1.	MIC	Middle income	Angola	54.	MIC	Middle income	Lebanon
2.	MIC	Middle income	Albania	55.	MIC	Middle income	Libya
3.	MIC	Middle income	Argentina	56.	MIC	Middle income	St. Lucia
4.	MIC	Middle income	Armenia	57.	MIC	Middle income	Sri Lanka
5.	MIC	Middle income	American Samoa	58.	MIC	Middle income	Lesotho
6.	MIC	Middle income	Azerbaijan	59.	MIC	Middle income	Morocco

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7.	MIC	Middle income	Benin	60.	MIC	Middle income	Moldova
8.	MIC	Middle income	Bangladesh	61.	MIC	Middle income	Maldives
9.	MIC	Middle income	Bulgaria	62.	MIC	Middle income	Mexico
10.	MIC	Middle income	Bosnia and Herzegovina	63.	MIC	Middle income	Marshall Islands
11.	MIC	Middle income	Belarus	64.	MIC	Middle income	North Macedonia
12.	MIC	Middle income	Belize	65.	MIC	Middle income	Myanmar
13.	MIC	Middle income	Bolivia	66.	MIC	Middle income	Montenegro
14.	MIC	Middle income	Brazil	67.	MIC	Middle income	Mongolia
15.	MIC	Middle income	Bhutan	68.	MIC	Middle income	Mauritania
16.	MIC	Middle income	Botswana	69.	MIC	Middle income	Malaysia
17.	MIC	Middle income	China	70.	MIC	Middle income	Namibia
18.	MIC	Middle income	Cote d'Ivoire	71.	MIC	Middle income	Nigeria
19.	MIC	Middle income	Cameroon	72.	MIC	Middle income	Nicaragua
20.	MIC	Middle income	Congo, Rep.	73.	MIC	Middle income	Nepal
21.	MIC	Middle income	Colombia	74.	MIC	Middle income	Pakistan
22.	MIC	Middle income	Comoros	75.	MIC	Middle income	Peru
23.	MIC	Middle income	Cabo Verde	76.	MIC	Middle income	Philippines
24.	MIC	Middle income	Costa Rica	77.	MIC	Middle income	Papua New Guinea
25.	MIC	Middle income	Cuba	78.	MIC	Middle income	Paraguay
26.	MIC	Middle income	Djibouti	79.	MIC	Middle income	West Bank and Gaza
27.	MIC	Middle income	Dominica	80.	MIC	Middle income	Russian Federation
28.	MIC	Middle income	Dominican Republic	81.	MIC	Middle income	Senegal
29.	MIC	Middle income	Algeria	82.	MIC	Middle income	Solomon Islands
30.	MIC	Middle income	Ecuador	83.	MIC	Middle income	El Salvador
31.	MIC	Middle income	Egypt, Arab Rep.	84.	MIC	Middle income	Serbia
32.	MIC	Middle income	Fiji	85.	MIC	Middle income	Sao Tome and Principe
33.	MIC	Middle income	Micronesia, Fed. Sts.	86.	MIC	Middle income	Suriname
34.	MIC	Middle income	Gabon	87.	MIC	Middle income	Eswatini
35.	MIC	Middle income	Georgia	88.	MIC	Middle income	Thailand
36.	MIC	Middle income	Ghana	89.	MIC	Middle income	Turkmenistan
37.	MIC	Middle income	Equatorial Guinea	90.	MIC	Middle income	Timor-Leste
38.	MIC	Middle income	Grenada	91.	MIC	Middle income	Tonga
39.	MIC	Middle income	Guatemala	92.	MIC	Middle income	Tunisia
40.	MIC	Middle income	Guyana	93.	MIC	Middle income	Turkey

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41.	MIC	Middle income	Honduras	94.	MIC	Middle income	Tuvalu
42.	MIC	Middle income	Indonesia	95.	MIC	Middle income	Tanzania
43.	MIC	Middle income	India	96.	MIC	Middle income	Ukraine
44.	MIC	Middle income	Iran, Islamic Rep.	97.	MIC	Middle income	Uzbekistan
45.	MIC	Middle income	Iraq	98.	MIC	Middle income	St. Vincent and the Grenadines
46.	MIC	Middle income	Jamaica	99.	MIC	Middle income	Venezuela, RB
47.	MIC	Middle income	Jordan	100.	MIC	Middle income	Vietnam
48.	MIC	Middle income	Kazakhstan	101.	MIC	Middle income	Vanuatu
49.	MIC	Middle income	Kenya	102.	MIC	Middle income	Samoa
50.	MIC	Middle income	Kyrgyz Republic	103.	MIC	Middle income	Kosovo
51.	MIC	Middle income	Cambodia	104.	MIC	Middle income	South Africa
52.	MIC	Middle income	Kiribati	105.	MIC	Middle income	Zambia
53.	MIC	Middle income	Lao PDR	106.	MIC	Middle income	Zimbabwe

Low income countries according to World Bank income groups²⁸ (\$1,035 or less)

1.	LIC	Low income	Afghanistan
2.	LIC	Low income	Burundi
3.	LIC	Low income	Burkina Faso
4.	LIC	Low income	Central African Republic
5.	LIC	Low income	Congo, Dem. Rep.
6.	LIC	Low income	Eritrea
7.	LIC	Low income	Ethiopia
8.	LIC	Low income	Guinea
9.	LIC	Low income	Gambia, The
10.	LIC	Low income	Guinea-Bissau
11.	LIC	Low income	Haiti
12.	LIC	Low income	Liberia
13.	LIC	Low income	Madagascar
14.	LIC	Low income	Mali
15.	LIC	Low income	Mozambique

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16.	LIC	Low income	Malawi
17.	LIC	Low income	Niger
18.	LIC	Low income	Korea, Dem. People's Rep.
19.	LIC	Low income	Rwanda
20.	LIC	Low income	Sudan
21.	LIC	Low income	Sierra Leone
22.	LIC	Low income	Somalia
23.	LIC	Low income	South Sudan
24.	LIC	Low income	Syrian Arab Republic
25.	LIC	Low income	Chad
26.	LIC	Low income	Togo
27.	LIC	Low income	Tajikistan
28.	LIC	Low income	Uganda
29.	LIC	Low income	Yemen, Rep.

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Common wealth countries

Africa	Caribbean and Americas	Pacific	Asia	Europe
Botswana Cameroon Gambia, The Ghana Kenya Kingdom of eSwatini Lesotho Malawi Mauritius Mozambique Namibia Nigeria Rwanda Seychelles Sierra Leone South Africa Uganda United Republic of Tanzania	Antigua and Barbuda Bahamas, The Barbados Belize Canada Dominica Grenada Guyana Jamaica Saint Lucia St Kitts and Nevis St Vincent and The Grenadines Trinidad and Tobago	Australia Fiji Kiribati Nauru New Zealand Papua New Guinea Samoa Solomon Islands Tonga Tuvalu Vanuatu	Bangladesh Brunei Darussalam India Malaysia Maldives Pakistan Singapore Sri Lanka	Cyprus Malta United Kingdom

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Zambia				
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Appendix G: Supplementary tables for secondary data analysis

Total number of non-UK PMQ registrations by specialty group 2009-2019

	2009		2010		2011		2012		2013		2014		2015		2016		2017		2018		2019	
Specialty*	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Non specialist	4,392	90.0%	5,786	89.7%	5,577	87.3%	5,217	88.4%	5,063	87.0%	5,445	87.4%	4,644	84.6%	4,938	91.8%	5,408	92.9%	6,840	95.6%	9,001	96.2%
Anaesthetics	52	1.1%	95	1.5%	99	1.6%	73	1.2%	77	1.3%	56	0.9%	72	1.3%	27	0.5%	39	0.7%	25	0.3%	24	0.3%
Emergency medicine	4	0.1%	5	0.1%	18	0.3%	5	0.1%	4	0.1%	14	0.2%	4	0.1%	2	0.0%	3	0.1%	2	0.0%	2	0.0%
General Practice	74	1.5%	79	1.2%	103	1.6%	88	1.5%	95	1.6%	83	1.3%	105	1.9%	57	1.1%	63	1.1%	37	0.5%	50	0.5%
Obstetrics and gynaecology	27	0.6%	37	0.6%	61	1.0%	46	0.8%	41	0.7%	45	0.7%	51	0.9%	29	0.5%	23	0.4%	14	0.2%	18	0.2%
Occupational medicine	0	0.0%	0	0.0%	5	0.1%	0	0.0%	4	0.1%	4	0.1%	3	0.1%	0	0.0%	1	0.0%	0	0.0%	1	0.0%
Ophthalmology	25	0.5%	30	0.5%	32	0.5%	39	0.7%	38	0.7%	33	0.5%	52	0.9%	17	0.3%	17	0.3%	14	0.2%	27	0.3%
Other	1	0.0%	0	0.0%	0	0.0%	0	0.0%	1	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Paediatrics	27	0.6%	45	0.7%	54	0.8%	46	0.8%	50	0.9%	49	0.8%	39	0.7%	39	0.7%	22	0.4%	27	0.4%	26	0.3%
Pathology	9	0.2%	15	0.2%	12	0.2%	12	0.2%	16	0.3%	22	0.4%	23	0.4%	8	0.1%	9	0.2%	14	0.2%	16	0.2%
Physician	89	1.8%	116	1.8%	128	2.0%	136	2.3%	151	2.6%	184	3.0%	185	3.4%	92	1.7%	85	1.5%	80	1.1%	85	0.9%
Psychiatry	29	0.6%	32	0.5%	28	0.4%	25	0.4%	38	0.7%	25	0.4%	21	0.4%	11	0.2%	10	0.2%	16	0.2%	17	0.2%
Public health medicine	0	0.0%	2	0.0%	2	0.0%	2	0.0%	4	0.1%	1	0.0%	2	0.0%	2	0.0%	2	0.0%	2	0.0%	3	0.0%
Radiology	33	0.7%	38	0.6%	31	0.5%	31	0.5%	39	0.7%	57	0.9%	83	1.5%	45	0.8%	41	0.7%	29	0.4%	35	0.4%
Surgery	118	2.4%	173	2.7%	236	3.7%	179	3.0%	200	3.4%	215	3.4%	208	3.8%	110	2.0%	96	1.6%	56	0.8%	48	0.5%

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Total	4,880	100.0%	6,453	100.0%	6,386	100%	5,899	100.0%	5,821	100.0%	6,233	100.0%	5,492	100.0%	5,377	100.0%	5,819	100.0%	7,156	100.0%	9,353	100.0%
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Source: GMC Data - Doctor Details and Derived Doctor Location datasets

* The results have been aggregated to the Royal College of each specialty group.

Appendix H: Migration of doctors to and from the UK 2010-2019 infographic

