

Interactive reports to investigate factors that affect progression of doctors in training

Using data to investigate outcomes for doctors in training

The General Medical Council (GMC) is publishing two interactive reports which are part of a wider programme of work investigating how doctors progress through training.

These reports are based on two new data sets:

- Recruitment data showing doctors applying for specialty and General practice (GP) training programmes after completing foundation training (F2)
- Examinations data showing pass rates for doctors in specialty and GP training.

The recruitment data cover the first round of national recruitment in each year from 2012 to 2014 into specialty and GP training.

The exam reports show pass rates from a single academic year, August 2013 to July 2014, across all specialty exams. This covers more than 100 different exams.

These reports are the result of collaboration with the medical royal colleges and faculties, Health Education England, NHS Education Scotland, North Ireland Medical and Dental Training Agency and the Wales Deanery.

You can view the reports on our website at

<http://www.gmc-uk.org/education/25495.asp>

Who are these reports for?

These reports will be useful to all those responsible for managing and delivering medical education and training in the UK including medical schools, postgraduate deaneries and local education and training boards (LETBs). The reports may also be of interest to health workforce planners.

Medical schools can use the reports to see how their graduates fare after leaving undergraduate training including which specialties they apply to.

Those responsible for postgraduate education will be able to compare the outcomes of their doctors with others at a national level. They may also be able to identify groups of doctor who are less likely to progress in their training, and use this information to build support mechanisms.

The information should also be of interest to those who are in training or who hope to enter training.

What the reports show

Exam pass rates and recruitment outcomes vary between graduating medical schools and between postgraduate training programmes. There are also patterns related to doctors' gender, ethnicity and age.

The reports illustrate that some groups of doctors in training are less likely to progress than others. We currently do not know why this is, however, using the data and working with those involved in managing and delivering medical education we can begin to investigate the underlying causes for these patterns.

The data may also help to identify examples of good practice, where effective support has been given to doctors in training who hitherto have found it more difficult to pass exams or progress into specialty or GP training.

Trends in applications into specialty and GP training programmes

Looking at the cohort of 7,423 foundation year 2 (F2) doctors who completed foundation training in 2012, the first cohort we began collecting data on, the reports show that:

- 65.8% of these doctors **took up** a specialty or GP training place immediately after completing foundation training
- a further 16.6% **took up** a training place the following year
- 92.5% were in further medical training or working as doctors in the UK within two and a half years of completing F2

Broad trends in recruitment data indicate that:

- across specialties, medical schools and postgraduate training, women are more likely to be offered a place on a training programme
- doctors with an undergraduate medical degree from outside the UK were less likely to be offered a specialty or GP training place than those who attended a UK medical school

- Black and minority ethnic (BME) doctors are less likely to be offered a place on a training programme than white applicants.
- BME doctors who went to medical school in the UK were more likely to be offered a place than white doctors who did not attend a UK medical school.

Trends in postgraduate exam pass rates

Broad trends in exam pass rates indicate that:

- doctors who were in a UK training programme when taking the exam were more likely to pass than those who were not
- women were more likely to pass than men
- BME doctors from a UK medical school were less likely to pass than white doctors from a UK medical school. Pass rates were 63.5% and 76% respectively.
- BME doctors from a UK medical school were more likely to pass than white doctors from a non-UK medical school.

What do the reports tell us about applications to specialty or GP training following foundation training?

Doctors who are in the final year of foundation training programme can apply to enter specialty training through a competitive process.

Those who are not offered a place can reapply in future recruitment rounds. The level of competition for places varies depending on the specialty and the location of the training programmes. The BMJ Careers website notes that during 2014, an average of 2.2 applications was made for each available core medical training place, while an average of 1.3 applications were made for each core psychiatry training place.¹ These include all applicants, not just F2 doctors.

Specialties that do not manage to fill their training places in the first round can hold further recruitment rounds in the same year.

When do doctors apply for specialty or GP training?

In the first round of national recruitment across 2012, 2013 and 2014, 74.4% of doctors applied to start a specialty or GP training programme immediately after completing their F2 training. 52.4% successfully entered a specialty or GP training programme.

¹ See <http://careers.bmj.com/careers/advice/view-article.html?id=20019822>.

Further analysis of the 2012 cohort, using the National Training Survey census from March 2013, shows that 65.8% of these doctors had now entered specialty or GP training.

By March 2014 a further 16.6% had entered further training, making a total of 82.4%.

Our most recent data as at February 2015 shows a further 7.5% had entered specialty or GP training and another 2.6% were working in the UK as a doctor but not in training. In total this accounts for 92.5% of the cohort of doctors completing F2 in 2012.

Shortage of applications for GP training

The recruitment data may be helpful in understanding the extent to which schools are contributing to the GP workforce. Health Education England's mandate includes a target of 50% of doctors completing foundation training enter GP training programmes by 2016¹.

On average over 2012, 2013, 2014 cohorts, nationally, 35% of F2 doctors applied in the first round of recruitment for GP training. 62% of these applicants received an offer. This compares with 74% of all applicants to specialty and GP training being offered a place.

Graduates from some medical schools were more likely to apply for GP training than others. Similarly, F2 doctors training within some foundation schools were more likely to apply for GP training.

Applications vary by graduating medical school and foundation school

Across 2012, 2013 and 2014 graduates of UK and EEA medical schools were less likely to apply for GP training than graduates from other international medical schools.

F2 doctors from the Leicestershire, Northamptonshire and Rutland Foundation School were more likely to apply for GP training than F2 doctors from other foundation schools.

F2 doctors from Northern Ireland Foundation School were less likely to accept an offer of a post in core medical training (CMT), with only 65% accepting their offer. This can be compared with doctors in North Central Thames who accepted 87% of offered CMT posts.

Applications vary by personal characteristics

Across applications to all programmes, less than 40% of F2 doctors with an international (non-EU) primary medical qualification were offered a post.

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https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/310170/DH_HEE_Mandate.pdf

The application data also show that in the first recruitment round 77% of women received an offer compared with 70% of men. Of F2 doctors with a UK primary medical qualification, 72% of BME applicants received an offer compared with 81% of white applicants.

Further investigation is needed to understand the reasons for this variation.

What do the reports tell us about performance in postgraduate exams?

The reports cover only one year of exam outcomes and should be treated with caution.

The data include candidates taking the exams for the first time and those re-sitting, perhaps after a number of previous failed attempts. It is also worth noting that different types of exam, with different assessment mechanisms, are being reported and that colleges report exam outcomes in different ways, some aggregating all parts of an exam while others look at pass rates for each individual part.

With these caveats in mind, the reports do show some variation in the performance of graduates from different medical schools and according to the postgraduate deanery or LETB the individual was training in.

How do pass rates vary?

Across all exams, candidates from Severn Deanery and Defence Postgraduate Deanery have the highest pass rates with 80.2% and 79.2% respectively

Doctors not in a UK training programme (but with a UK license to practise) were less likely to pass postgraduate exams with an overall pass rate of 44.2%.

Pass rates in different deaneries may vary depending on the exam specialty; for example doctors from Severn Deanery, Northern Deanery, North Western Deanery and London training programmes were more likely to pass Royal College of Obstetricians and Gynaecologists exams than doctors from other deaneries. Whereas doctors from the South East Scotland Deanery and Severn Deanery were more likely than doctors from other deaneries to pass exams set by the Royal College of Radiologists.

Graduates from five medical schools, including Newcastle University and University of Birmingham, go on to achieve pass rates above the national average in the exams set by the Royal College of Anaesthetists.

What do the reports tell us about the influence of personal characteristics on how individuals progress?

Over the years, a number of research papers on medical exams have identified differences in the pass rates between:

- Graduates who completed their undergraduate medical training overseas
- Men and women
- Individuals who identify themselves as white and those who identify themselves as being from BME communities.

Who performs better in UK specialty and GP exams and recruitment applications?

This is the first time there has been data on progression outcomes by the personal characteristics of doctors in training – gender, age, ethnicity and nationality – across different specialty and GP exams and recruitment.

The results across all exams and recruitment are broadly consistent with the patterns that have been identified in medical education exam research to date¹²³; in general, UK graduates outperform non-UK graduates, and women outperform men.

Looking across all exams, on average 71.4% of candidates from a UK medical school were successful compared with 42.7% of attempts by those with a non-European international primary medical qualification.

Within the candidates from a UK medical school, white candidates have a 75% pass rate compared with 62.7% for BME candidates.

These are general trends and in individual cases there may be exceptions to this rule.

¹ S. P. Tyrer, W.-C. Leung, J. Smalls, C. Katona, (2002) The relationship between medical school of training, age, gender and success in the MRCPsych examinations. *The Psychiatrist* (2002) 26: 257-263

² Rushd S, Landau AB, Khan JA, et al. An analysis of the performance of UK medical graduates in the MRCOG Part 1 and Part 2 written examinations. *Postgrad Med J* 2012;88(1039):249-54

³ McManus, IC; Wakeford, R; (2014) PLAB and UK graduates' performance on MRCP(UK) and MRCPGP examinations: data linkage study. *BMJ* , 348 g2621

The limitations of the reports

Limited data on which to report

The data we have are limited, at present representing only one year of exam outcomes and three years of round one recruitment data. Currently the exam reports show pass rates for all attempts within a single year and may include doctors taking the exams for the first time and those resitting, perhaps after several failed attempts.

Recruitment for specialty and GP programmes is mainly co-ordinated nationally for the first round, subsequent recruitment rounds may be run locally. These reports compare the outcomes of applications into specialty and GP training programmes from only this first round of recruitment. The reports do not breakdown the numbers of doctors who applied, were offered or accepted a training place across all recruitment rounds.

In some specialty training programmes, doctors in training must first apply for a place on a core training programme – for example, core psychiatry or core surgery – and then apply again for a place on a higher specialty training programme, such as child and adolescent psychiatry or paediatric surgery. We don't yet have a full data set for applications to higher specialty training. These data are expected to become available later this year.

The reports do not reflect certain complexities within postgraduate examinations

Exams set by medical royal colleges and faculties can be made up of multiple components, each assessing a different skill set or area of knowledge. In addition different colleges report exam results in different ways; some report by individual component and others aggregate all parts of an exam.

No indication of causality or the interplay of different factors

Progression through training may be influenced by many factors. Doctors train for many years after medical school and will be placed in a wide variety of different training locations, with different supervisors and tutors. Their personal circumstances may also change significantly during this time and all of this may have an effect on their progression through training.

In addition, our reporting tool predominately focuses on individual factors whereas it is likely that there are multiple factors that influence progression of an individual.

As an illustration of the complex interplay of the different factors that may affect progression:

If doctors from one particular medical school have a higher exam pass rate than doctors from other medical schools, we can't be certain if this is because they have received better

exam preparation or training or a result of other factors. For example, it might be that doctors aged between 30–35 years old have a higher pass rate than other age groups and that this medical school has a greater proportion of doctors taking their postgraduate exams within this age range.

Our reports show the outcomes of exam attempts and applications into specialty and GP training, but they do not indicate the reason for the outcomes or show the results by multiple factors.

Factors that affect progression through medical training are complex. The release of these data is the first step toward understanding what the outcomes mean.

Next steps

We will continue to collect and publish data on the progression of doctors in training. Our interactive reports will be updated annually and, as we collect data over more years, the reports will become increasingly detailed and useful. With more data we will be able to answer additional questions, for example, which doctors in training are more likely to pass their exams on their first attempt.

We hope that this greater understanding will help us identify how we can best work with others to maintain standards and make sure that training pathways are fair for all doctors in UK training programmes.

New analysis and research to improve the data

We have commissioned further analysis and research to help us understand why some doctors in training are more likely to progress than others. In particular looking at why men, international medical graduates and BME doctors in training are less likely to progress.

Research into the GP assessment will look at correlations between the scores a doctor gets from their programme selection assessment centre and their performance in exams taken later in training.

A literature review covering the UK and other countries including USA, Canada and New Zealand over the last decade will help us to understand what is currently known about why some groups of doctors are more likely to fail to progress, what interventions have been shown to be effective and possible methods for further study so that we can continue to explore the issues in a more in-depth way during the second half of 2015.

Reviewing our progress

We will take stock of our progress at our corporate conference in March 2015, where we will discuss the headlines from these reports and the initial findings from the literature review.

We are keen to work with others to explore how these initial findings might help further our work to identify effective mechanisms to support graduates through training pathways.

Appendix

Our role in medical education

We set the educational standards for all UK doctors through undergraduate and postgraduate education and training.

Our responsibility for postgraduate medical education and training includes approving training posts, programmes and the way assessments including examinations are carried out. Rigorous reviews and regular monitoring activities help us to deal quickly with any concerns and to make sure that doctors are receiving the training they need to treat patients safely and well.

For undergraduate education we decide which universities are entitled to issue medical degrees. We set the requirements we expect new medical graduates to reach and the standards that schools must meet in teaching and assessing medical students.

Progression through medical education and training

Doctors train over many years and often in a wide variety of locations and specialties before they can become a GP or senior doctor in a specialty.

Following four-to-six years completing their undergraduate medical degree, individuals undertake a two-year foundation programme. During the second year of their foundation programme, they can then apply to GP or specialty training but must successfully complete the programme before taking up any training post they have accepted.

Education and training should be competence based, but we approve indicative training times as presented by the medical royal colleges and faculties. For example, GP training takes three years to complete, while training in cardiothoracic surgery takes eight years.

During specialty training, the progress of a doctor in training will be assessed in a variety of ways. At different stages of their training this will include testing through formal examinations.

Exams to test skills, competencies and knowledge

During GP or specialty training, doctors in training take exams to test knowledge and performance in a clinical setting.

Medical royal colleges and faculties design the assessments, including exams that doctors must pass in order to progress through specialty and GP training in order to enter the specialist or GP register. We approve these assessment systems.

Postgraduate deaneries and LETBs design training programmes to make sure that doctors in training have the opportunity to acquire the skills, knowledge and competencies that they must demonstrate during exams and other assessments.

Our reports show the outcome of attempts at more than a hundred different exams, covering the whole range of medical specialties, including general practice and taken at different stages of postgraduate training.

Customising exams for the specialty

Each exam is tailored to suit the needs of the specialty and the point in training at which a doctor in training is being assessed. Some exams can be taken by doctors in training while they are still in foundation training, while others can only be taken by doctors in training are in a specialty training programme.

Exams may have multiple parts and can be very different in structure. Some will be machine-marked, multiple choice questions and others will be structured clinical exams, which observe a candidate's performance in a clinical setting with patients.

The GP assessment, for example, is made up of three components that test different competencies and cover the knowledge, skills, behaviours and attitudes defined by the GP specialty training curricula. The three components are:

- Clinical Skills Assessment
- Applied Knowledge Test
- Workplace Based Assessments.

Successful completion of all components is a pre-requisite of the completion of training and entry to the GP register.

Doctors training to become a gastroenterologist, for example, must pass two exams during specialty training. The first, the Membership of the Royal College of Physicians of the United Kingdom exam, MRCP (UK), is made up of three parts, designed to test the breadth of the core medical training curricula and completion of which is a prerequisite to entering higher specialty training.

During their Gastroenterology higher specialty training programme, doctors must take a specialty certificate exam in gastroenterology. This can be taken anytime from their fourth year of specialty training (two years into higher specialty training) but candidates normally take it in their penultimate year. The exam is a prerequisite for attainment of a certificate of completion of training and entry onto the specialist register.

What happens if someone fails an exam?

The training programmes and assessments we approve set high standards, which doctors in training must pass in order to progress. Our policy is that doctors in training can have up to six attempts to pass each part of an exam and all parts must be passed within seven years. Individual medical royal colleges and faculties can choose to allow fewer than six attempts or a shorter period of time.

Exams are a gateway to the next stage of training and failing an exam does not necessarily mean that the doctor in training has failed to meet the minimum requirements for their current scope of practice.

Some exams can be taken by candidates who are not covered by our reports for example they may be a doctor practicing outside of the UK. Some exams may be taken by candidates without a primary medical qualification.

The data in our reports cover only exams taken by doctors who are registered to practise in the UK. This may include those who aren't in a UK training programme but they are registered and licensed to practise in the UK.

Doctors may take exams outside of a training programme for a number of different reasons: they may have completed their UK training programme but have yet to pass a final exam, some may be hoping to enter training in the future or others may have completed training overseas and now practice in the UK and have decided to take further examinations.