

General
Medical
Council

Be prepared:
are new doctors safe to practise?

Working with doctors Working for patients

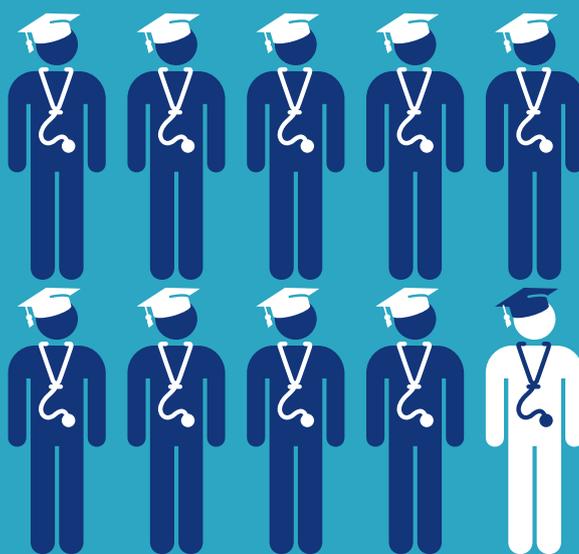
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What we found

The good news is that very few graduates from UK medical schools are very poor at medical practice. But there are low-level concerns about a sizeable

number of new doctors and around one in ten feels poorly prepared for beginning their medical career. In some respects, the problem is wider than this.



One in ten
new UK medical graduates
feels **poorly** prepared.

More graduates are prepared for beginning their medical careers

Positively, there are some indications that preparedness is improving. This follows major changes in medical education – some of them linked to our 2009 publication *Tomorrow's Doctors*, which sets out what is expected of new graduates and the standards of teaching, learning and assessment in UK medical schools.

Preparedness varies between medical schools and aspects of practice

There are major differences between medical schools in the preparedness and subsequent progression of their graduates. Variation isn't necessarily a bad thing, as long as it doesn't compromise the care patients receive, but substandard pockets of medical education must be improved.

Preparedness is often poor in certain aspects of practice. We need to improve the competence of new doctors in prescribing; the early management of emergency patients (especially when on call); some practical procedures; and, loosely, resilience, professionalism and employability. Graduates sometimes acquire specific skills in the abstract, but can't put them into practice while under the pressures of the day-to-day clinical environment.

The root causes are various. The level of preparedness is affected by the characteristics of the students that medical schools select, by undergraduate curricula including the opportunities for gaining clinical experience, by the supervision and support given to new graduates and by the clinical environments in which they find themselves.

How we'll tackle the issue

We will work with medical schools, postgraduate training bodies, employers and individual doctors, both new and well established, to address the shortcomings and make sure that patients get the doctors they need.

Why we've written this report

We regulate medical education and set the outcomes and competencies that new graduates need to show.

We also quality assure medical education to see how our requirements are being met – we do this by collecting information from doctors in training and from the organisations involved, and by visiting the sites where education is delivered.

In 2009 we published the latest version of *Tomorrow's Doctors*, which includes the outcomes for graduates and the standards that medical schools need to achieve. This followed a major review, which included research we commissioned¹ and full consultation with medical schools, employers and others.

Assessing the impact of *Tomorrow's Doctors*

We have now reviewed the impact of *Tomorrow's Doctors* to see what we can learn. The review gives us a base of evidence for future work to make sure that our regulation is effective and focused. It gives us a starting point for reviewing the outcomes for graduates.

It also helps us to consider the case for fundamental changes to regulation, which includes a proposal to abolish the year of provisional registration after graduation. Also, should we introduce a licensing examination for doctors wishing to practise in the UK?

In reality, it is hard to reach firm conclusions about the impact of *Tomorrow's Doctors*. It didn't come into force until the academic year 2011–12, so new graduates received much of their medical education under the previous version. Also, other major changes have been introduced, so it isn't possible to single out the influence of *Tomorrow's Doctors* confidently.

Therefore, this report focuses on how well prepared medical graduates are to become safe doctors in training. We consider how preparedness has changed, how it varies between medical schools and in what respects graduates have appeared particularly well or poorly prepared.

We also make some suggestions about factors that may influence preparedness, including the impact of *Tomorrow's Doctors*.

Our new standards for medical education

Separately, we have been reviewing our standards for the delivery of education and training, covering both undergraduate and postgraduate stages. Information has been shared between the two complementary reviews. *Tomorrow's Doctors* will be replaced by a new set of standards for the delivery of education and training, alongside a stand-alone set of curricular outcomes to be achieved by graduates.

What is preparedness and how can it be measured?

We take a wide view on what makes a new graduate prepared for medical practice. In this report, we use preparedness to cover all the attributes that we should expect of new graduates which include:

- professionalism
- employability
- competence
- readiness
- fitness for purpose
- fitness to practise.

There are tensions to bear in mind.

- On one hand, it is important to be reasonably precise about the skills we expect new graduates to demonstrate; on the other hand, we must not overlook their overall capability.
- On one hand, new graduates need to be able to contribute to patient care from day one; on the other hand, they need to be instilled with the values and habits to sustain a career over decades.

- On one hand, they still have much to learn and are entering a new stage of training in which they should be properly supervised and supported; on the other hand, they are now employees and their patients are waiting and need safe treatment.

Unsurprisingly, it is particularly difficult to define a precise boundary between being prepared and not. Employers may say substantial numbers of new graduates have not been properly prepared for their responsibilities.

A smaller proportion of graduates may agree that they do not have all the skills they need to cope with the demands upon them – this may be natural and reasonable, or reflect poor support and supervision.

Much smaller numbers will be identified formally as doctors in difficulty and will be carefully monitored through the Foundation Programme. Even smaller numbers will be referred to us, and could have their registration erased or compromised as a result.

These different thresholds reflect the range of expectations that face graduates, but don't stop us identifying areas of concern that need to be addressed.

Various mechanisms cast light on graduate preparedness

- **Surveys of new doctors and their trainers**
These can be large-scale and methodologically sound, but can be influenced by factors such as respondents' age, sex and working environments. Where there are differences between the perceptions of the new doctors and their trainers, the new doctors tend to have a more positive view of their own preparedness.
- **Feedback from employers and other organisations**
This gives an important perspective, but may not be scientifically robust.
- **Examinations**
Exam results should be reliable and valid, but focus on limited competencies at a specific point.

- **Other assessments and monitoring**
These should be robust, but in some cases are restricted to small numbers of graduates.
- **Direct evidence on the safety or quality of patient care delivered by new doctors**
This is very valuable, but can be very limited.

By combining sources and types of evidence, we can build up a picture of graduate preparedness.

How well prepared are medical graduates?

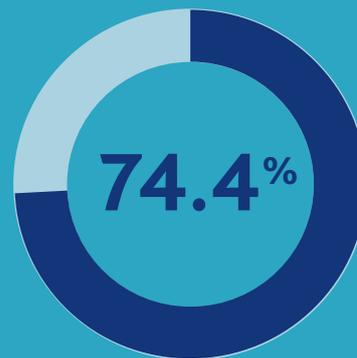
A long-running study into preparedness by Goldacre and colleagues found that 53% of 2008 graduates and 49% of 2009 graduates agreed that their medical school had prepared them well.²

Several indicators are available from more recent surveys of trainers and doctors in their first year of foundation training (F1 doctors or F1s).

What do F1 doctors think?



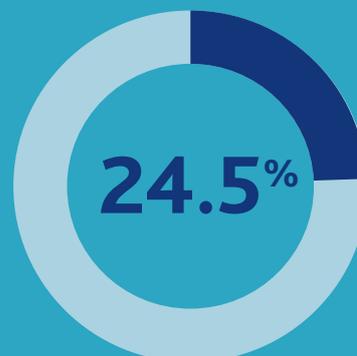
agree or strongly agree that they are 'adequately prepared for my first foundation post'.
9.2% disagree or strongly disagree.



agree or strongly agree the 'skills I learned at medical school set me up well for working as a foundation doctor'.
8.5% disagree or strongly disagree.



'feel forced to cope with clinical problems beyond your competence or experience' on a daily or weekly basis.



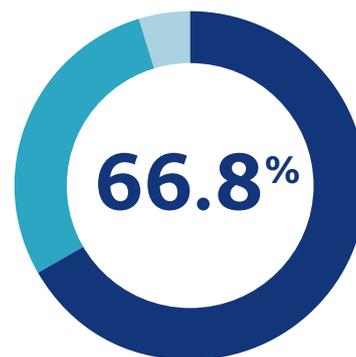
say they sometimes or definitely get 'very frightened or panic feelings for apparently no reason at all'.

What do trainers think?

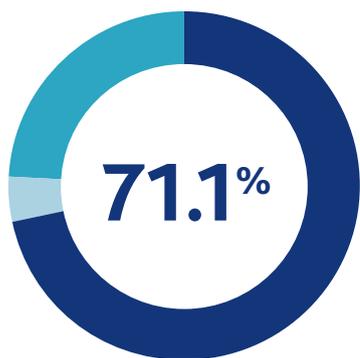
Clare van Hamel has surveyed trainers to find out what they think about the preparedness of the F1 doctors they train. They think...



of F1s understand what is expected of them. **7.8%** do not.



of F1s never seem overly anxious; **28.6%** sometimes seem overly anxious; **4.6%** definitely seem overly anxious.



of F1s never fail to cope with the transition from medical school; **23.9%** sometimes fail; **4.4%** definitely fail.

Preparedness and employment

A 2009 survey of employers found that:

*'interviewees were keen to say that some junior doctors are excellent and some respondents thought that standards were generally improving. The message from many respondents was, however, that junior doctors are generally not meeting the needs and expectations of the current NHS.'*³

A similar picture was reported more recently in the independent Shape of Training review.

*'We heard from some employers that they were concerned that many doctors when leaving medical school are not fit to take up their Foundation Programme posts.'*⁴

As stressed by the new qualitative research by Monrouxe and colleagues, which we commissioned, difficulties in perceived preparedness often relate to aspects of the working environment, including:

'the challenges of a high-volume time pressured workload, often with inadequate levels of staff. Trainees may feel prepared for situations when all goes to plan, but unprepared when exposed to high volumes of work which demand prioritization and multi-tasking; or uncertain thresholds (not knowing when to refer to seniors); inadequate team-working; or when seniors are not easily accessible.'

How many graduates formally cause concern?

The numbers of graduates who are formally recognised as causing particular concern are much smaller than you might expect from the reports of employer opinion.

- We refuse provisional registration to very few UK graduates:
 - four in 2010
 - two in 2011
 - four in 2012
 - two in 2013.

Some applied again and were then awarded provisional registration.

There were 14975 doctors in the Foundation Programme in 2012/13



- 531 Foundation Programme doctors did not complete their year of training in 2013 – 235 F1 doctors (3.2%) and 296 doctors in the second year of training (F2 doctors or F2s) (3.0%). Among the F1 doctors, 0.7% were in less than full-time training, 0.8% had more than four weeks' absence, 0.9% went into extended or remedial training, 0.1% were dismissed, 0.6% resigned and 0.2% did not complete for some other reason.⁵
- There were 378 Foundation Programme doctors in difficulty in 2013 – 193 F1 doctors (2.6%) and 185 F2 doctors (2.4%). Of the 378, 135 were signed off as fit to continue training in the normal way, but 187 were forced to repeat at least some of their Foundation Programme training, 36 resigned or were released, and there were 20 others.⁶

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- 18 F1 doctors and 13 F2 doctors were referred to us that year.
 - 2.5% of UK graduates from 2012 were still provisionally registered in March 2014 (97.5% had secured full registration). Graduates can retain provisional registration longer than the normal year for a range of reasons.
 - 1.1% of F1 doctors and 1.0% of F2 doctors received an unsatisfactory outcome in their Annual Review of Competence Progression (ARCP) in 2013.
 - The rate of unsatisfactory ARCP outcomes increases in later stages of training, where the impact of undergraduate education will be less – up to 25.1% in core training and 14.0% in higher training.



of doctors who graduated in 2012 were fully registered by March 2014

How does preparedness affect patient safety?

It is difficult to assess the impact of graduate preparedness on patient care. However, one study identified a 6% increase in deaths among patients admitted at the point when new graduates enter the NHS and most other doctors in training change posts. Surveys by two medical royal colleges found that more than four in five respondents believed that patient care suffers during this changeover period.⁷

The risks to patient safety in the changeover period relate to the mass movement of doctors in training into new roles, not only the introduction of new graduates. However, according to the report of the new qualitative research by Monrouxe and colleagues:

'F1 doctors felt unprepared for the step change in responsibility, the workload, the degree of multitasking, deciding who and when to ask for help, understanding how the hospital works (which varied by hospital) and dealing with underperformance of other team members.'

Deaths increase when no consultants are present

There is no doubt that patients are more at risk when consultants are scarce or absent. Many reviews have found that patients suffer when there is a delay in involving consultants and the increased death rate for hospital patients at weekends has been attributed to lower consultant involvement.⁸

While this evidence demonstrates the benefits of consultant-delivered care, it also indicates the dangers that result from relying upon doctors in training who are not appropriately prepared for the practice they need to deliver.

Preparedness needs to be improved

The overall picture indicates that there is room for progress. Employers have concerns about the preparedness of new graduates and a small minority of new graduates appear to regard themselves as generally poorly prepared. Their trainers share a similar view.

All but a tiny number of UK graduates obtain GMC registration, and around 3% have formally recognised difficulties while they are in the Foundation Programme, or do not make progress at the usual rate. But the picture looks more worrying when we look at particular aspects of preparedness and variations between medical schools.

How has preparedness changed?

Past research

The research by Goldacre and colleagues shows that new doctors reported a general trend of improving preparedness before the 2009 version of *Tomorrow's Doctors*. The percentage of graduates who agreed that they had been well prepared increased from 36% for 1999/2000 to 50% for 2002 and 58% for 2005, before falling back to 49% for 2009. Those who disagreed fell in each of those cohorts from 41% to 31%, 21% and 16% respectively.⁹

A 2012 literature review by Tallentire and colleagues reported a less clear-cut picture. They found that since 1993, graduates' perception of their own preparedness:

- improved for practical procedures and team working
- showed little change for acute care, communication and ethics
- declined for prescribing.

Other professionals saw little change in preparedness in communication, ethics, prescribing and practical procedures, but a decline in preparedness for acute care.¹⁰

Research we commissioned

The rapid review by Monrouxe and colleagues didn't find strong evidence of change following the publication of *Tomorrow's Doctors* in 2009. However, more recent cohorts of graduates were better prepared than previous cohorts.

The new qualitative research indicates areas of possible improvement. Some interviewees, including other healthcare professionals and patient representatives, noted an improvement in the communication skills of F1s. Interviewees also felt that recent graduates were more oriented towards multi-professional team working.

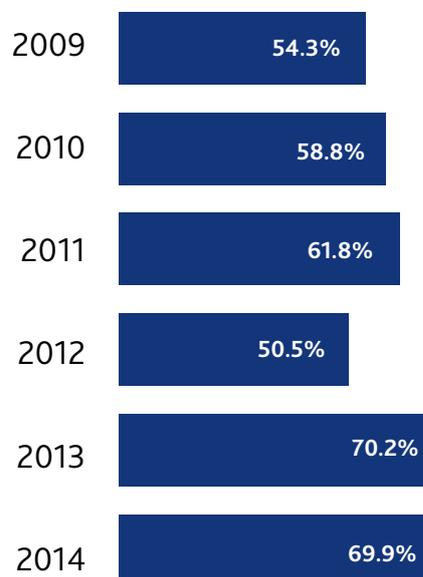
Results from annual surveys of doctors in training

Recent quantitative surveys of new doctors suggest a continuation of the improvement reported by Goldacre and colleagues.

In our 2009 national training survey, new doctors were asked: 'Do you feel that you were adequately prepared for your first F1 post?' 54.3% of UK F1 doctors said they were, but 33.0% disagreed.

In 2012, F1 doctors were asked to respond to the statement: 'Before commencing my first foundation post I felt prepared for the role'. For 2013 and 2014, the statement was tweaked to: 'I was adequately prepared for my first foundation post'. In 2014, 69.9% agreed and 9.2% disagreed. Possibly the much lower percentage in 2012 relates to our not using the qualified phrase 'adequately prepared' that year and asking how the graduates felt 'before' their first post.

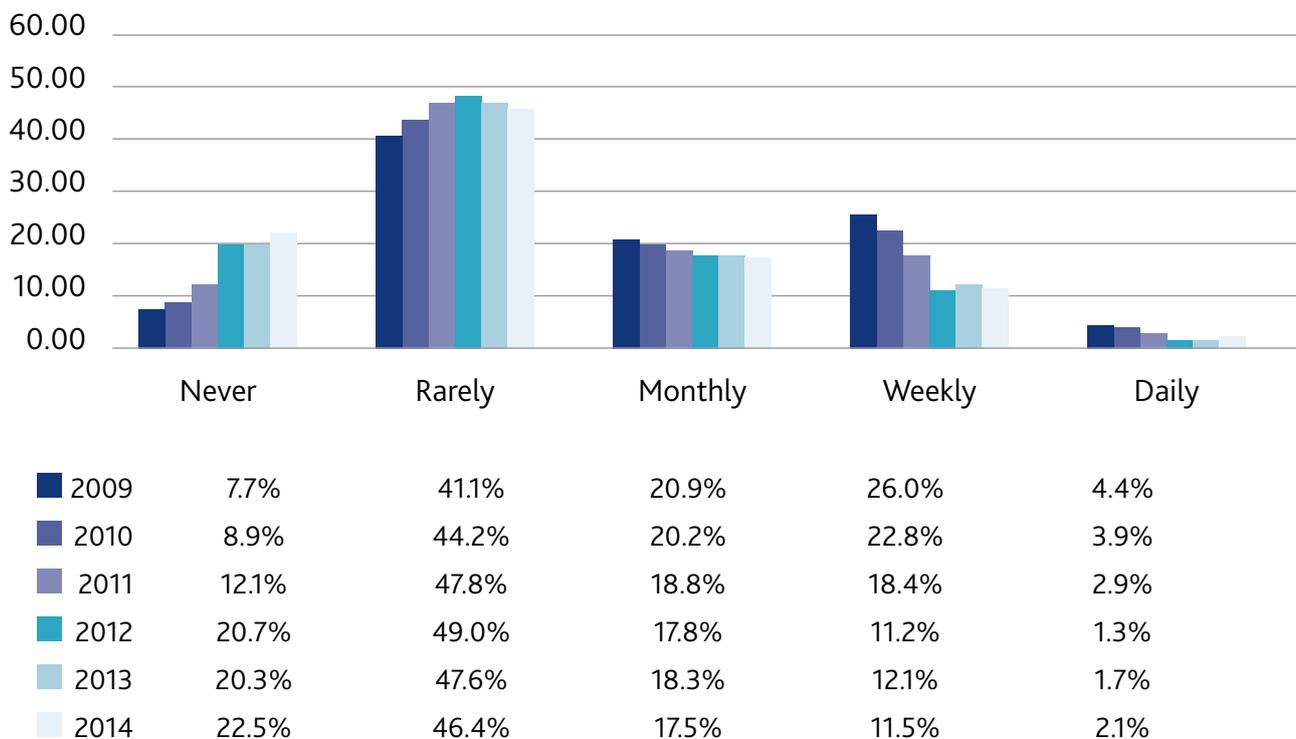
UK graduates who say they felt prepared for their first F1 posts



New doctors were also asked: 'In this post how often did you feel forced to cope with clinical problems beyond your competence or experience?' The same question has been used each year from 2009 and shows a consistent pattern of major improvement up to 2012 and a less clear picture since then.

A further survey of F1 doctors by Clare van Hamel indicates improvement in their overall preparedness between 2012 and 2013. However, significant changes were not found in the proportion of F1 doctors with serious anxiety or in relation to prescribing ability.

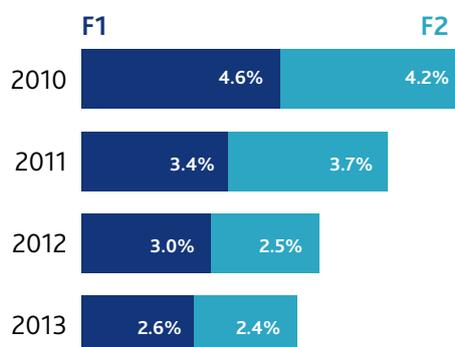
How often have F1 doctors felt forced to cope with clinical problems beyond their competence or experience?



Fewer doctors in difficulty

Also, the proportion of formally recognised doctors in difficulty in the Foundation Programme has declined – from 4.6% in 2010 to 2.6% in 2013 for F1 doctors. And from 4.2% in 2010 to 2.4% in 2013 for F2 doctors.¹¹

Proportion of doctors in training formally recognised as doctors in difficulty



Indications of an overall improvement in preparedness

There has been improvement in the views new doctors hold of their own preparedness, both before and since the 2009 publication of *Tomorrow's Doctors*. This is probably due to a range of factors, which could include changes in undergraduate education, in the Foundation Programme or in the support available from employers.

Also, fewer new graduates are formally recognised as having difficulty, which suggests better preparedness at the weaker end of the spectrum (assuming there has been a reasonable consistency in the threshold for being recognised as in difficulty).

However, Tallentire and colleagues suggest declining preparedness from 1993. In any case, the evidence is partial and we don't have consistent data over time on the views of trainers and employers, let alone more objective evidence on changes in preparedness.

Does preparedness vary between medical schools?

Variation between medical schools in the interests, abilities and career progression of their graduates is inevitable and not in itself a cause for concern. However, understanding the extent of variation in some aspects of preparedness can highlight problematic issues across medical education and determine whether they are tied to particular locations – perhaps with causes that can be identified and addressed.

Evidence from surveys

The rapid review by Monrouxe and colleagues found six studies suggesting differences between schools and two suggesting no differences. In particular, the reports from Goldacre and colleagues have documented a range across schools in the perception new doctors have of their preparedness. The rapid review concludes: 'there is compelling evidence to suggest that medical school does make a difference in terms of self-reported preparedness'.

More recent survey evidence supports this conclusion, such as responses to our 2014 national training survey.

- There was a wide variation between medical schools in the new doctors who confirmed: 'I was adequately prepared for my first foundation post'. This agreement ranged from 60.7% to 85.0% (those disagreeing ranged from 2.4% to 12.5%). There were five universities or medical schools where more than 80% of graduates said they were adequately prepared; seven with 70–79% of graduates prepared; and the other 17 with 60–69% of graduates prepared.

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- We can also look at responses to the question: 'In this post how often have you felt forced to cope with clinical problems beyond your competence or experience?' At one institution, 30.7% of graduates answered 'never'. At the other extreme, there was one school where that response was given by only 17.9% of graduates.
 - On feeling they have obtained the skills to set them up for practice, the percentage agreeing or strongly agreeing varied across schools from 61.8% to 96.6%.

Statistical analysis of the van Hamel survey of new doctors in 2013 found no significant differences between medical schools in either the mean anxiety score or the percentage with serious anxiety. But for an overall preparation question and for nearly all the specific preparation domains, there were highly significant differences between the medical schools. Also, there were significant differences between the schools for all the measures of prescribing ability.

How have perceptions of preparedness changed over time?

Using responses to our 2014 national training survey, we can also consider the variation between schools in how their graduates' perceived preparedness has changed over time.

- At one school, the number of graduates regarding themselves as prepared increased by 134.7% between 2009 and 2014 (from 31.4% to 73.8%). There was also a school with a 75.2% increase. At the other extreme were two schools with decreases in graduates' declared preparedness, of 4.3% and 10.8% (although changes in the question asked may have contributed to these trends).
- We can also look at the change in the graduates coping beyond their competence between 2009 and 2014. If we look at those answering 'daily' or 'weekly', all medical schools seem to have improved. The best improvement was one medical school with a fall of 79.6% (from 39.7% of graduates to 8.1% saying they have to cope beyond their competence daily or weekly). At the other extreme was a school with a fall of 30.8% over that period.

ARCP outcomes

The ARCP outcomes data also reveal variations between medical schools.

- In the first year of the Foundation Programme (F1), unsatisfactory outcomes ranged from 0.0% among graduates from some schools to 3.6% for graduates from one school. The overall UK figure was 1.1%.
- In the second year of the Foundation Programme (F2), the range was from 0.0% for some schools to 2.5% for one school. The overall UK figure was 1.0%.
- For core training, with an overall UK figure of 25.1%, the range was from one school where 5.4% of graduates in the programme achieved unsatisfactory outcomes, to another where 36.7% received unsatisfactory outcomes.
- For higher training, with a UK figure of 14.0%, the range was from 5.8% (leaving aside some schools with very small numbers of graduates covered by our data) to 19.2%.

In interpreting these figures, it's important to bear in mind:

- the impact of the education provided by the medical school is likely to be highest on Foundation Programme outcomes and lowest on higher specialty training
- training programmes vary hugely in their rate of unsatisfactory outcomes, so an apparently good result for a medical school may be largely due to its graduates entering training programmes where it is relatively rare to receive an unsatisfactory outcome. For example, some programmes tie ARCP outcomes to passes in examinations.

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- medical schools vary in the time that their graduates spent in training programmes during 2009–13, the period covered by this data, and the longer they were in programmes, the more opportunities they had to receive an unsatisfactory outcome.

It is possible to adjust the figures to take account of the differences between the schools in the national training programmes their graduates went into during the period of our data. Taking this approach, one school has 8.4% fewer unsatisfactory outcomes than you would expect given the spread of their graduates across the various training programmes. At the other extreme are three schools with 3.1% more unsatisfactory outcomes than you would expect.

Foundation Programme data

We can also consider the spread of medical schools in relation to the selection of their graduates into the Foundation Programme in 2014.

92.2% of applicants were allocated one of their top five choices. The range across the medical schools was from 81.8% at one school up to four schools all at more than 99%.¹²

Looking at the results from the situational judgement test, which is scored out of 50, the averages for the various UK schools ranged from 37.3 to 41.0. The average for EEA graduates was 33.3 and for other international graduates 31.3. So the average results for the UK medical schools in the situational judgement test vary by less than 8%. Nevertheless, variations in individuals' performance are seen as substantial enough to justify their being used as a major component in ranking for entry to the Foundation Programme.¹³

We can also look at the numbers of Foundation Programme doctors in difficulty. At one extreme is one medical school with more than 4% of its graduates in difficulty. There are also schools with fewer than 1% of their graduates in that position. Again, this suggests only a limited variation between schools, given the small numbers of graduates officially in difficulty from any one school. The range is narrower still if you only consider the doctors in difficulty who are not signed off as fit to continue training in the normal way.

There's some variation in graduates who remain provisionally registered

There is also variation in the numbers of graduates from each school who take longer than usual to obtain full registration.

Looking at the 2012 graduates who were still provisionally registered in March 2014, there were five medical schools with fewer than 1% provisionally registered, including two with none at all.

There were six schools with more than 4% of their graduates still provisionally registered, including one with 8%. This can be for a range of reasons, not all linked to the doctors' preparedness.

Choice of specialty varies between medical schools

Medical schools also vary substantially in the specialties that their graduates apply to.

For example, looking at first round applications in 2012 and 2013, on average 24.3% of doctors in the Foundation Programme made an application to Core Medical Training.

However, the UK medical schools ranged from one where 16.1% of graduates in the Foundation Programme applied to Core Medical Training to another where 53.0% did so.

On average, 37.0% of doctors on the Foundation Programme applied for GP training, varying from 17.4% of graduates from one school to 48.0% at the high end.

We can also look at our data on specialist and GP registration. It takes several years to complete training as a GP or a specialist and the period of training varies substantially. So we need to go back a few years to obtain figures that give a true comparison in relation to the final destinations of graduates.

We have chosen to look here at the destinations of graduates from the five years 1995–99. For example:

- The percentage of medical graduates becoming GPs ranged from 17.1% at one university to 46.8% at another.
- The range for anaesthesia was from 3.7% of graduates from one university up to 9.9% at another.
- For the physicians, the universities ranged from 9.0% of medical graduates up to 29.2%.
- And for the surgeons, the range was from 5.1% up to 13.8%.

Clearly, this is taking us some way from preparedness at the point of graduation. But we can see the substantial variations between medical schools in relation to specialisation of their graduates, whether or not this is desirable.

On the one hand, the pattern can be seen as resulting from competition for places in specialty training and as reflecting the relevant and relative strengths of the graduates applying and progressing. On the other hand, the medical schools producing large numbers of GPs are helping to address a key area of concern in medical staffing. The specialties most valued by students or doctors in training may not be the most valuable to the NHS.

Are some medical schools better than others?

There are major differences between medical schools in the preparedness and subsequent careers of their graduates.

Clearly, events later in a doctor's career will tend to be less closely attributable to their undergraduate education. In any case, this information is not sufficient to demonstrate that some schools are better than others. That depends on the criteria you use, and not least whether it is relevant to consider the value added by the medical school taking into account the potential of the students they enrol.

Also, there is room to debate whether the variation between schools in graduate preparedness is a problem and, if so, how it could be tackled. For example, a national licensing examination might reduce variation in preparedness by preventing some very poor graduates from practising and possibly by encouraging more uniformity in undergraduate curricula.

In what ways are new doctors poorly prepared?

The research we commissioned

Monrouxe and colleagues' rapid review of the academic literature since 2009 found:

- research suggesting that new doctors are reasonably well prepared for history-taking and performing full physical examinations, but less so for prescribing, clinical reasoning and diagnosis, and the early management of emergency patients
- variation reported on competence in practical procedures
- mixed findings on team-working and communication with colleagues and patients
- some evidence that new doctors are poorly prepared for dealing with error and safety incidents and that they lack understanding of the clinical environment
- mixed evidence on professionalism.

Monrouxe and colleagues also carried out new, original research. In this, data from interviews with new doctors and others, and from diaries kept by new doctors, were mapped against the outcomes of graduates set out in *Tomorrow's Doctors*.

The researchers found that some new doctors find translating scientific knowledge into clinical practice challenging, but understanding human structure, function and pathological mechanisms provides confidence for decision making. Others thought that they are generally poorly prepared to look beyond the biomedical aspects of a patient's condition.

The research also shows that graduates are confident in speaking with patients for history taking, to summarise patients' histories, to explain examination findings, and to communicate these to senior staff. But they are less prepared for the high number of patients to examine.

New doctors feel well prepared for simple diagnosis and treatment planning but less well prepared for complex cases. They rarely talk about involving the patients' family or carers. Other groups raised doubts about how far new doctors treat patients holistically, accept complexity and consider the financial aspects of treatment options.

The research also found that:

- graduates are not always well prepared for communicating with patients and colleagues
- graduates are not well prepared for providing immediate care in medical emergencies
- new doctors are poorly prepared for prescribing drugs in the view of other healthcare professionals
- new doctors think they are relatively well prepared to carry out everyday practical procedures
- new doctors are relatively unprepared in relation to behaving according to ethical and legal principles
- graduates seemed relatively well prepared to work effectively in multi-professional teams
- overall, graduates are unprepared to protect patients and improve care.

What other evidence is there about areas of concern?

For a useful overview, Goldacre and colleagues reported on five themes.

Interpersonal skills

Overall, 2.7% of graduates from 2008 and 2009 felt unprepared on interpersonal skills, ranging from none at all at one medical school to 8.8% at the other extreme.

Clinical knowledge

17.5% said they were unprepared in clinical knowledge, ranging from 2.4% to 28.9%.

Clinical procedures

21.3% were unprepared on clinical procedures, ranging from 4.1% to 41.2%.

Physical / emotional / mental demands

26.4% were unprepared for the physical, emotional and mental demands, ranging from 0.0% to 45.3%.

Administrative tasks

31.8% were unprepared for the administrative tasks, ranging from 5.2% to 54.7%.¹⁴

Percentages of doctors indicating, one year after graduation, that they felt unprepared in the following areas of work



In van Hamel's 2013 survey, F1 doctors were asked to identify up to three areas where they felt well prepared. Common themes covered clerking patients, clinical skills, history taking, practical procedures and ward rounds. They were also asked to identify up to three areas where they felt their preparation was inadequate. Common themes were being on-call, the ePortfolio, prescribing, and computer systems.

The trainers were particularly concerned about the competence of F1 doctors in prescribing and pharmacology and also about their use of the ePortfolio. Other themes coming up included time management and prioritisation, practical procedures, communication with patients and colleagues, team working, and presenting cases.

In relation to the F1 doctors' competence in practical procedures, the trainers particularly mentioned concerns about cannulation, the Arterial Blood Gas (ABC) blood test, catheterisation and venepuncture.

We can compare the information from van Hamel's initial survey of F1 doctors, the follow-up survey and the survey of trainers, all in 2013. This looks at the percentages of F1 doctors disagreeing or disagreeing strongly that they were prepared, confident or competent, and the trainers' views of the F1 doctors they supervised. However, the response rate for the F1 doctors' induction survey was 30.0% and for the follow-up survey it was 7.1%.

Percentages disagreeing that F1 doctors were prepared

| | Induction survey | Follow-up survey | Trainers survey |
|-------------------------------------|------------------|------------------|-----------------|
| Recognising critically ill patients | 6.5% | 2.2% | 5.0% |
| Prepared in practical procedures | 6.7% | 1.2% | 14.8% |
| Knowing what is expected | 10.0% | 2.6% | 7.8% |
| Handover | 12.0% | 4.0% | 4.7% |

So, for three of the areas, the trainer view is between the F1 doctors' view at induction and in the follow-up survey. However, in relation to preparedness in practical procedures, the trainers appear particularly unimpressed. We can note the specific statement that the trainers were asked to respond to: 'The F1 was adequately prepared in practical procedures'.

This may have focused the trainers' responses on their view of the preparedness of new doctors at the start of the Foundation Programme, rather than how well they were performing at the time of the survey.

The concerns of employers, deans, medical schools and royal colleges

Back in 2009, employers were found to be concerned about the graduates' 'confidence and competence in clinical-decision making, clinical procedures and prescribing in practical situations, lack of understanding of the NHS and how it works, and standards of professionalism which are below those generally expected of NHS employees'.¹⁵

More recently, postgraduate deans report some concerns about the resilience of new doctors, their preparedness to work in busy areas, anxiety about engaging in the care of the acutely ill, prescribing skills, practical procedures, professionalism and knowledge of NHS structures, among other areas.

Most medical schools report that they are not aware of concerns about the preparedness of their graduates. While this may be encouraging, it may also be due to restricted interpretations of what counts as a concern about preparedness. However, areas of concern mentioned repeatedly included communication or language skills, prescribing, prioritisation and resilience or coping with stress.

Medical royal colleges and faculties have concerns about variable or generally inadequate undergraduate education in relation to their specialties. The concerns relate not only to scientific grounding and knowledge, but also to clinical experience and practical skills. While the colleges and faculties covering hospital specialties are concerned about their representation in undergraduate curricula, the Royal College of General Practitioners suggests that specialist role models may receive too much focus.

Foundation Programme concerns

The data on Foundation Programme doctors in difficulty in 2012–13 show that nearly half are grouped under the 'Knowledge, skills and performance' heading of *Good medical practice*. Other major factors were 'Safety and quality' and 'Communication, partnership and teamwork'. 'Maintaining trust' trailed the other categories.¹⁶

Areas of concern for doctors in difficulty on the Foundation Programme 2012–13



Of the 31 Foundation Programme doctors referred to us, 13 were for misconduct issues, 12 for performance issues and six for health issues.

Five aspects of preparedness

We can look briefly at a few particular competencies or aspects of preparedness:

- prescribing
- practical procedures
- communication and teamwork
- emergencies and acutely ill patients
- professionalism.

Prescribing is a worry

Prescribing does remain an area of concern, despite the emphasis on this competency in *Tomorrow's Doctors*. The rapid review from Monrouxe and colleagues found 24 studies suggesting graduates are poorly prepared and five suggesting they are well prepared for providing safe and legal prescriptions.

The EQUIP study published in 2009 found F1 doctors had a prescribing error rate of 8.4% and F2 doctors had an error rate of 10.3%. The overall error rate was 8.9% and all grades of doctor made errors. Almost all errors were intercepted by pharmacists before they could affect patients.¹⁷

The new qualitative research found that some groups feel that graduates lack an understanding of basic pharmacology and don't know how to prescribe economically.

Other healthcare professionals – such as pharmacists – feel that graduates know how to access support for prescribing but lack knowledge and can't write a legally controlled drug prescription or take a patient's drug history with sufficient detail and care. They feel that graduates see prescribing as absolute, rather than requiring clinical judgement, and suggest they need a greater diagnostic understanding of the patient. Prescribing errors are common and there is a perception that graduates are not aware of common error sources and safety checks.

Percentages of F1s not prepared for prescribing: the views of F1s and trainers

| | Induction survey | Follow-up survey | Trainers' survey |
|--------------------------|------------------|------------------|------------------|
| Simple analgesics | 1.6% | 0.2% | 7.8% |
| Bronchodilators | 5.5% | 3.8% | 4.1% |
| Antimicrobial therapy | 9.1% | 2.8% | 7.6% |
| Intravenous fluids | 10.2% | 4.4% | 6.2% |
| Inhaled steroids | 12.3% | 9.9% | 7.0% |
| Anticoagulants | 23.2% | 9.1% | 10.8% |
| Narcotic analgesics | 24.5% | 10.7% | 19.6% |
| Oral anti-diabetic drugs | 24.7% | 18.4% | 12.6% |
| Insulin | 40.1% | 26.8% | 12.8% |
| Average | 16.8% | 9.6% | 9.8% |

From Clare van Hamel's 2013 surveys in the Foundation Programme we can look at the percentage of F1s disagreeing or disagreeing strongly that they felt confident in prescribing various drugs and the percentage of trainers disagreeing or disagreeing strongly that their F1s had been appropriately trained. There appeared to be improvement between the induction survey of the F1 doctors (with a 30.0% response rate) and the follow-up survey (with a 7.1% response rate).

In van Hamel's follow-up survey of F1 doctors in 2013, one third said they had been involved in drug prescription errors.

A Prescribing Safety Assessment is now used across medical schools, which should help to identify poor prescribers before they graduate. Data on pass rates have not been published yet.

New doctors are pretty good at the practical procedures

There is generally a more encouraging story on specific practical procedures, including the 32 listed in *Tomorrow's Doctors*.

The rapid review of literature found contradictory evidence of preparedness. Some studies suggested that new graduates were largely well prepared for practical procedures, while others concluded that graduates were unprepared in some respects. They were found well prepared for venepuncture and less so for suturing, central line insertion and chest drain insertion.

A separate review of literature across ten countries or regions found that England has the lowest average deficit on clinical skills; better than countries such as New Zealand, Ireland and the USA. 'The lower deficit rate in England provides some support for the UK General Medical Council's clear, detailed induction curriculum, which has been heralded by other countries as good practice.'¹⁸

The new qualitative research found that F1 doctors are confident in areas such as taking, managing and checking bloods, cannulation, catheterisation, electrocardiograms and respiratory function tests.

There is also recent statistical evidence from the survey of applicants to the Foundation Programme on how they perceive their competence in practical procedures. UK-wide, at least 99% of applicants said they are competent or expect to become competent in 23 of the 32 procedures listed in *Tomorrow's Doctors*. The lowest scores were in nutritional assessment (95.1%), administration of insulin (94.9%) and blood transfusion (91.5%).

There are mixed messages on communication and teamwork

The position on communication and teamwork appears complex.

The rapid review of literature found some studies that suggest graduates are well prepared for team working and communicating with colleagues and patients. But other research suggests shortcomings in communication within the multidisciplinary team.

In the new qualitative research, areas of under-preparedness include difficult situations when F1 doctors were:

- dealing with angry or upset patients and relatives, and managing complaints
- communicating with patients whose first language was not English

- communicating with vulnerable patients (including those with mental health issues)
- breaking bad news
- dealing with more informed patients.

Many F1 doctors are well prepared to communicate with colleagues, but challenges include:

- clinical disagreements with senior medics or nursing staff
- challenges in gaining support from seniors
- communicating interprofessionally
- not providing or receiving sufficient information during handovers.

The research also found that F1 doctors sometimes talk about the pressure they feel when other healthcare professionals expect them to make decisions for which they feel unprepared.

F1 doctors reported their uncertainty about whether to report an inappropriate behaviour they had witnessed. The research also found evidence of some 'them and us' thinking – for example, when F1 doctors talk about having non-medics as their seniors and differences in the work ethic of colleagues.

New doctors are not well prepared for emergencies

F1 doctors don't seem prepared for emergency situations and looking after patients who are acutely ill.

The rapid review of literature found ten studies that gave evidence of poor preparedness on diagnosing and managing acute medical emergencies, and only two self-report studies suggesting preparedness.

This was supported by the new research that found difficulties largely related to on-call duties during evenings and weekends, suggesting that this is when F1 doctors are most likely to take the lead in providing immediate care, and when support is less available.

F1 doctors feel well prepared for some aspects (eg CPR) but are unprepared for others (eg their own emotional response, changing a consultant's management plan, what to do if the patient was not improving). In emergency situations, they often struggle to gather the relevant information and to prioritise activities.

In Clare van Hamel's 2013 follow-up survey of F1 doctors, 15% said they had been involved in near misses or critical incidents involving the recognition of critically ill patients.

New doctors could be more professional

There is also room for progress in competencies or attributes associated with professionalism.

The rapid review of literature found some evidence that new doctors are prepared to identify their limitations, but are poor in time management. There is contradictory evidence on new doctors identifying their own learning needs, on reflective practice and on ethical and legal aspects of practice.

Research conducted by Monrouxe and Rees into medical students on placements has identified shortcomings in relation to patient consent, dignity and occasionally safety – often where they were asked to do something unprofessional by their seniors. The students did not always take obvious or direct action when they witnessed unsatisfactory care and could be worried about the consequences for them if they did so.¹⁹

The new research found that F1 doctors talk about being prepared for certain activities, such as:

- filling out death certificates
- gaining patient consent for procedures.

But they feel less well prepared for other activities, such as:

- completing do not attempt resuscitation (DNAR) forms
- acting when the DNAR situation was unclear
- deciding when a coroner or the police should be involved
- confidentiality for patients brought into hospital by the police or prison service
- self-discharge from hospital.

F1 doctors were often unclear about their responsibilities and felt constrained by hierarchical structures in some medical teams.

The research also found that F1 doctors generally talk negatively about coping with uncertainty and change – for example, uncertainty around diagnoses, seniors changing their minds, and ethical issues. F1 doctors are generally unaware of or unconcerned with the financial implications of their practice. This was noted by others interviewed too. Other doctors in training thought cost efficiency was for 'later on' in their careers.

So, what do we know?

The research we've explored throughout this report confirms there is a complicated picture on areas of preparedness. The rapid review and Goldacre's five themes are a helpful starting point, but the evidence they use is becoming increasingly dated.

It appears that prescribing remains a significant area of concern. There's more encouraging evidence on practical procedures generally, but concerns about some areas. However, not all the procedures mentioned are listed in *Tomorrow's Doctors*, pointing to the scope for moving towards a common understanding of what new graduates should be able to do. Also, it is worth repeating that many of the Foundation Programme doctors in difficulty are struggling in relation to their knowledge, skills and performance.

More generally, it appears that there is a widespread sense of a leap into a new world of responsibility, emergencies and seriously ill patients, complex cases and comorbidity, pressures and priorities, NHS systems and expectations, hierarchies, established practices and accepted standards of care, and routine activity. To some extent, the real world is bound to be a shock to new graduates, particularly in medicine. But perhaps more could be done to prepare students, to take a view on their resilience and to make sure they are effectively supervised and supported when they begin as an F1 doctor.

Finally, there are many calls for changes in undergraduate curricula and in the outcomes for graduates that we set. These arise largely in relation to alleged shortcomings in UK medical practice, although the evidence to support these shortcomings varies. These perceived shortcomings raise important issues, although in this context we must note that the doctors concerned may have received their undergraduate education many years ago and sometimes in other countries.

But there is, in particular, little doubt about the need to:

- make sure new graduates demonstrate professional behaviour, including taking effective action to tackle failings in patient safety, in light of the findings of the Francis and Berwick reviews and the 2013 edition of *Good medical practice*
- address healthcare needs and demands, including the conclusions of the Shape of Training review, reflecting demographic change and scientific advances, and their potential impact on the timing of full registration and the focus of postgraduate training.

What makes a new doctor prepared?

We have briefly considered evidence on the preparedness of new graduates, looking at how preparedness has changed over time, how it varies from one medical school to another and how it covers a range of attributes.

We can also review what we know about the determinants of preparedness. This covers the characteristics of the students selected into medical school as well as the type of undergraduate education they receive, not least their opportunities to gain experience of clinical practice.

An underlying factor will be how medical schools are regulated and the requirements that we set. But we should also mention the impact of the postgraduate environment on the preparedness of new doctors.

Selection and population

We haven't attempted to regulate closely how medical schools select their students and a variety of approaches have been adopted by the schools.²⁰ Future research could consider whether selection methods have any impact on the preparedness of the graduates five or six years later.

It is clear that the student population varies across schools and has changed over time, possibly with an impact on preparedness. Research and data highlight a number of factors that could affect a graduate's perception of preparedness.

Ethnicity

The rapid review suggests that ethnicity is related to perceptions of preparedness. Meanwhile, Goldacre and colleagues found a difference in self-declared preparedness according to the ethnicity of the graduates.²¹ Our analysis of data from the national training survey indicates that ethnicity does affect F1 doctors' answers to the question on feeling prepared, but not on feeling forced to cope with clinical problems beyond their competence or experience. McManus and colleagues found that non-white candidates generally underperform in undergraduate and postgraduate assessments, but are equally likely to be on the Specialist Register.²²

Gender

The rapid review found that gender did not typically predict perceptions of preparedness. However, Goldacre and colleagues found that women are slightly less likely than men to agree that they feel well prepared.²³ Our analysis indicates that gender affects F1 doctors' answers to the questions both on feeling prepared and on feeling forced to cope with problems beyond their competence or experience. McManus and colleagues found that women perform better in assessments but are less likely to be on the Specialist Register.²⁴

Age

Our analysis indicates that age does affect F1 doctors' answers to the questions both on feeling prepared and on feeling forced to cope with problems beyond their competence or experience. F1 doctors in their early thirties are less likely than those in their twenties to perceive themselves as prepared.

Personal attributes

Personality traits that have been linked to preparedness include agreeableness, conscientiousness, extraversion, willingness to seek learning opportunities, personal interests and maturity.

Qualifications

Research into performance in MRCP(UK) (Membership of the Royal Colleges of Physicians of the United Kingdom) examinations found that about 60% of medical school variance can be explained by differences in candidates' qualifications before their admission to medical school.²⁵ An analysis using data from five longitudinal studies found that attainment at secondary school predicted performance in undergraduate and postgraduate medical assessments.²⁶

A comparison

Goldacre and colleagues reported that the sex and ethnic differences they found were 'small in comparison with the large differences between medical schools'.²⁷

Type of medical school can affect preparedness

Can we draw any associations between preparedness and types of medical school?

Monrouxe and colleagues report from their rapid review of literature: 'graduates from more recent cohorts, graduate-entry students, students on problem-based learning courses, UK (versus non-UK trained) trainees and those with an intercalated degree feel better prepared'. But Goldacre and colleagues found no association of preparedness with graduate entry or intercalated degrees.²⁸

Separately, Goldacre and colleagues have reported: 'Three of the new medical schools are in the top six, in respect of percentages of graduates feeling well prepared for work, and only one is below the national average percentage'.²⁹ In our 2014 national training survey, two of the wholly new schools performed very strongly on graduates' declared preparedness and the other two were close to the national average.

There is also the moot point about how students are assessed. There is some evidence that assessment methods and standards for passing exams vary across medical schools. We have conducted an assessment audit, and the Medical Schools Council Assessment Alliance is currently investigating.

Finally, our research indicates that the performance of medical schools in the National Student Survey may be associated with their graduates' apparent preparedness in some respects. This may be due to subjective factors rather than real differences between medical schools or in the performance of their graduates.

Practice makes perfect?

One aspect of undergraduate education may particularly influence preparedness. That is, the extent and quality of the opportunities to gain experience – to practise practising medicine – through placements generally and in particular through arrangements for student assistantships, shadowing and induction.

The rapid review found:

- authors consider student assistantships to be valuable, but there is no evidence yet about their effectiveness
- shadowing is typically effective, with variable findings about the best approach
- induction can be effective but programmes vary.

The new qualitative research also addresses student placements and assistantships. Assistantships are perceived to smooth the transition to F1 by helping students find out how things work on the ward, practise practical skills, feel part of the team and follow patients' journeys.

However, the degree to which participants could engage with opportunities, take on responsibility or feel part of the team is variable and affected by multiple factors, including:

- personal characteristics of the student (eg confidence)
- interpersonal factors (eg team leadership)
- cultural or systemic factors (eg knowing protocols).

Opinions are divided on the effectiveness of shadowing. The consensus is that shadowing alone does not guarantee graduates' preparedness. Medical students need to be highly proactive to maximise the benefit, and the timing and the location of the shadowing are important.

The quality of the experience

The importance of high-quality practical experience is underlined by recent surveys of new doctors.

In our 2013 national training survey, F1 doctors were asked: 'What, if anything, would improve the shadowing period to make you feel more prepared for your first F1 post?' There was a high level of support for shadowing, which clearly many F1 doctors had found helpful in building up their confidence or preparedness. That widespread support applies both to the national four-day arrangement and to longer shadowing periods arranged by medical schools.

There were some significant areas of concern or where respondents suggested improvements. In particular, respondents said they would have welcomed more time in clinical observation or, preferably, hands-on involvement rather than in induction activities, and some had insufficient support from outgoing F1 doctors. Comments also indicated a worrying lack of competence in specific tasks among some graduates.

F1 doctors were also asked: 'What, if anything, in addition to shadowing, would have made you feel more prepared for your first foundation post?' In the largest grouping of answers, the new doctors suggested that they would have felt more prepared if they had received more training that directly related to the job that they would be taking on.

Many of the responses showed that the graduates thought medical school was not matched to the reality and responsibilities of the working life that they went into. There were favourable comments about long shadowing periods and student assistantships that left graduates aware of, and ready for, what was expected of them.

Responses to the van Hamel survey demonstrate that anxiety is linked to time spent in an apprenticeship role. There is a consistent but reasonably small downwards trend in anxiety as apprenticeship time increases. However, there is no evidence suggesting any effect of induction length upon serious anxiety.

Our statistical analysis of data about medical schools found some correlations to support the suggestion that clinical experience can contribute to preparedness – at least as perceived by the new doctors. We didn't find any clear association between preparedness and whether graduates receive their undergraduate education and postgraduate training in the same locality.

***Tomorrow's Doctors* has created changes and challenges**

The 2009 version of *Tomorrow's Doctors* was substantially different from its predecessor. The competencies required of graduates were set out more clearly, including emphasis on the importance of prescribing and professionalism. There were more specific requirements relating to assessment, for example. It also introduced student assistantships.

Compliance reported by medical schools

Medical schools have told us about their understanding of their compliance with the requirements in *Tomorrow's Doctors*.

For the three sets of outcomes for graduates, cases of non-compliance fell rapidly from 651 in 2009, spread evenly across the three areas, to just 21 in 2012. In relation to the nine domains of standards for delivery of education by medical schools, non-compliance fell from 398 cases in 2009, to 47 in 2012.

Initially, the greatest non-compliance was for domain 2 on quality assurance, review and evaluation, followed by domain 5 on design and delivery of the curriculum, including assessment. By 2012, the outstanding non-compliance related largely to difficulties in obtaining feedback from patients and employers and information about graduates' progression.

Findings from visits to medical schools

From 2009–12, our teams visiting medical schools set out 192 requirements or recommendations for medical schools. Domain 5 on curricula dominated, including issues related to blueprinting for assessment.

Considering the visits in 2011–12 in particular, the most common domains posing challenges to schools were:

- domain 5 on curricula and assessment (17 requirements and recommendations)
- domain 2 on quality assurance, review and evaluation (nine requirements and recommendations)
- domain 6 on supporting students and teachers and trainers (nine requirements and recommendations).

The leading issues related to:

- quality management, control and monitoring (27 items)
- assessment (23 items)
- communication with students (14 items)
- curriculum (11 items)
- supervision and support for students (11 items).

What curricular changes were needed?

In 2013, we asked the medical schools what curricular changes had been required to comply with *Tomorrow's Doctors* since its publication. Medical schools set out 170 changes.

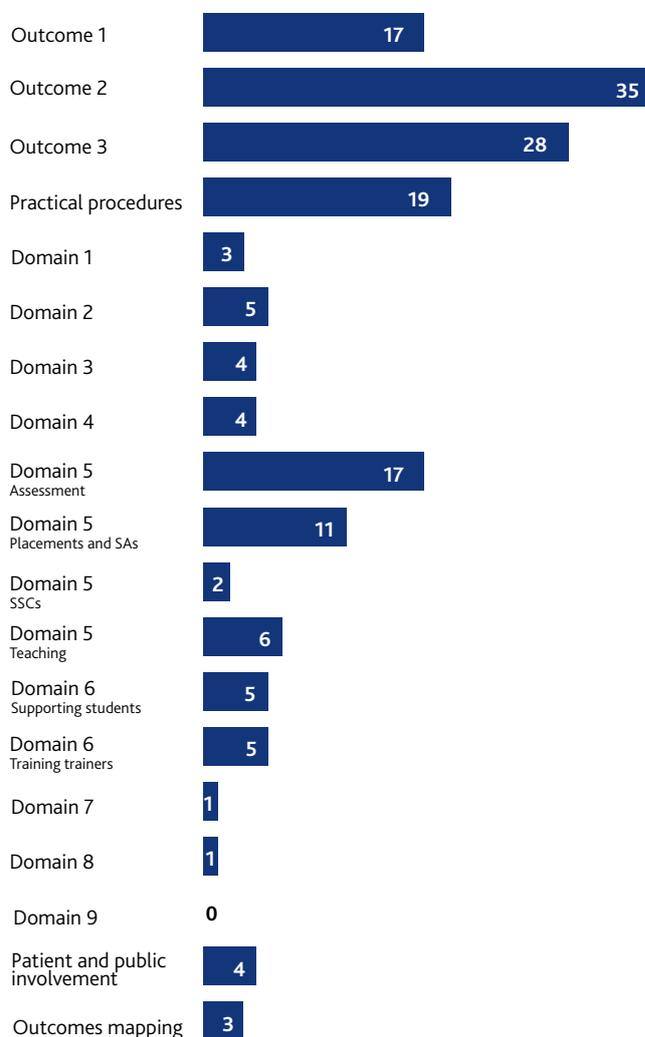
Among the three sets of outcomes for graduates, the area most affected was outcome 2 – the doctor as a practitioner – with 35 curricular changes. Outcomes mentioned repeatedly included providing immediate care, prescribing, communication, consultation and diagnosis.

Another 19 changes related to the list of practical procedures in *Tomorrow's Doctors*.

28 curricular changes were reported in relation to outcome 3 – the doctor as a professional. Repeated themes related to reflection and keeping an ePortfolio, patient safety and human factors, and mentoring colleagues.

Curricular changes were also reported relating to the standards for the delivery of teaching, learning and assessment. 17 of the changes related to innovations in assessment and 11 to the introduction of student assistantships and other improvements to clinical placements.

Number of curricular changes made by medical schools to comply with *Tomorrow's Doctors*



In addition, medical schools were asked what curricular changes had been made since 2009 to address issues raised by postgraduate bodies or employers. Medical schools reported 52 curricular changes made to address issues raised not only by postgraduate bodies and employers but also by national bodies and from other sources.

15 of these changes concerned outcome 2 – the doctor as a practitioner – largely about prescribing. Another three changes related to the list of practical procedures in which graduates need to be competent. Nine changes were reported relating to outcome 3 – the doctor as a professional. These tended to be about patient safety and raising concerns, or about management, leadership and team working. Another four changes related to developments to help graduates in the transition to practice.

In relation to the standards for education delivery in *Tomorrow's Doctors*, seven changes were made in response to issues raised about clinical placements including student assistantships. Five changes concerned assessment and three concerned supporting students.

Has *Tomorrow's Doctors* posed challenges?

The medical schools were also asked about risks or challenges relating to the implementation of *Tomorrow's Doctors*. Areas that have caused particular difficulty or concern include:

- the collection of data for monitoring of equality and diversity among the student population
- clinical placements particularly in the context of resource constraints
- supporting students and developing (including formally recognising) trainers
- ensuring patient and public involvement.

In short, *Tomorrow's Doctors* has driven change and posed challenges for medical schools. Key areas relating to preparedness include the outcomes for prescribing, practical skills and professionalism, assessing the outcomes through blueprinting, and deepening students' experience through student assistantships and clinical placements generally.

In addition, we have stressed the need to involve patients and employers and to monitor the progression of graduates – all intended to improve the fit between undergraduate curricula and the expectations placed on new doctors.

Postgraduate training and employment

We are concerned in this report with the preparedness of new graduates.

But, prepared for what? Perceptions of preparedness depend on the expectations placed on graduates by trainers, and employers, as well as graduates' own expectations of themselves. In general, where there is a mismatch between the attributes of new graduates and the expectations on them, we need to consider how to address this – recognising that the expectations may need to change as well as the attributes.

In particular, new doctors must have effective induction and introduction to medical practice, and continuing support, supervision and training. But we know this doesn't always happen.

Are there also differences between foundation schools?

More specifically, while we have considered differences between medical schools in the perceived preparedness of graduates, there are also differences between foundation schools in the preparedness of their F1 doctors.

This is not a separate phenomenon, since medical schools' graduates are not equally spread across the foundation schools. But differences in graduate preparedness are linked to, and may be caused by, both the medical school and the foundation school that they attend. The same is likely to apply to differences in preparedness between employers, although the thin spread of graduates across many sites makes this difficult to establish statistically.

The factors that determine preparedness

The characteristics of the students selected into medical schools will influence their preparedness on graduating. This is relevant when considering the value added by particular schools. But there is no reason to believe that variations between schools, over time and between aspects of preparedness can be reduced to demography, although academic performance leading up to A-levels is undoubtedly strongly linked to future career progress.

The evidence is thin and the analysis is contested in relation to the impact on preparedness of medical schools' approaches to selection, curricular design and delivery, and assessment. But these things do matter and need to be understood better.

Effective experience of clinical practice appears key in preparing students. Much progress has been made in recent years.

Tomorrow's Doctors has made a difference to undergraduate education, for example by focusing on assessment, clinical placements, and feedback, data and monitoring. But there remain concerns about graduate preparedness in relation to some of the outcomes for graduates, such as prescribing.

The difficulties are not solely attributable to undergraduate education and its regulation. Employers and postgraduate bodies need to work with medical schools and the GMC to reach a mutual understanding of preparedness and how it can be improved.

What could happen next?

This report finds room for progress in the preparedness of medical graduates, arguably building on recent improvement.

While very few new doctors are very poor at medical practice, a significant minority see themselves, and are seen by their professional colleagues, as poorly prepared. Medical schools vary widely in the preparedness of their graduates on some measures, and not always in a good way. And we are particularly concerned about some aspects of practice such as prescribing, coping in emergency situations, resilience, professionalism and employability. The shortcomings in preparedness have various causes and are largely amenable to change, so there is no need for despondency.

Tackling the shortcomings will involve addressing the realities of clinical environments and the expectations of employers and trainers alongside considering the design, delivery, assessment and regulation of undergraduate education.

What should the GMC do?

- We need to consider the outcomes for graduates in light of the evidence and concerns on preparedness and in the context of *Good medical practice* and the development of generic professional capabilities for specialty and GP training, while making sure that the outcomes don't unfairly obstruct disabled people seeking a career in medicine.
- We need to give additional data, advice and support to medical schools as well as focused quality assurance.
- We need to work with medical schools, employers and postgraduate bodies to align their expectations of graduates and make sure that they are properly supervised and supported and that the clinical environments support good medical practice and training.
- We need to make sure that assessment and evaluation of students is robust to improve safety and confidence, and to ensure that their preparedness fits in with the needs of employers and patients.
- We must continue to improve our collection and analysis of data, and provide a thorough evidence base for regulatory intervention and support, for example through annual consideration of the preparedness of new graduates.

Evidence used for this report

To contribute to the evidence available on preparedness, we commissioned a rapid review of the existing literature and original qualitative research from a team led by Dr Lynn Monrouxe at Cardiff University.

Criteria for considering studies in the literature review included:

- manuscripts published from 2009 onwards (but often reporting research conducted before 2009)
- studies written in the English language
- all types of studies
- involving a range of participants (medical students, doctors in training, clinical teachers, patients, NHS employers)
- any outcome measures.

Numerous databases were used to conduct literature searches and 81 papers were reviewed. Data were extracted from these papers and the findings have been analysed in relation to the outcomes for graduates and the practical procedures listed in *Tomorrow's Doctors*.

For the original research, the team conducted interviews at four sites with a range of individuals with an informed view on the preparedness of F1 doctors. These included:

- 34 F1 doctors
- 33 other doctors in training
- 32 clinical educators
- 30 deans and Foundation Programme directors
- 13 other healthcare professionals
- 7 employers
- 11 policy and government representatives
- 25 patient and public representatives.

The interviews collected information about specific incidents rather than relying on generalised subjective perceptions. In addition, a subsample of the F1 interviewees kept an audio diary of their experiences. Overall, 1,729 narratives were identified.

- 23.7% (409) were classified as prepared
- 32.0% (553) were classified as unprepared
- 44.4% (767) were classified as unspecified.

Alongside the commissioned research, we have considered information that we collect either to register doctors or to assist in quality assuring medical education (which we do partly through our growing use of data). This includes information collected through our annual national training survey as well as data from the ARCP faced by doctors in training.

In addition, we have drawn on external data and we're grateful for access to findings from Dr Clare van Hamel's annual surveys of F1 doctors and their trainers, information from the UK Foundation Programme Office, and other contributions from various organisations and researchers.

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Published October 2014

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