



Double or quits: calculating how many more medical students we need



Background

Despite loud calls from the profession for years, the realisation that the NHS is understaffed is only now dawning on those at the helm. The secretary of state for health and social care, Health Education England and NHS England have all accepted the need for more doctors.

Increasing the number of 'home-grown' doctors is a long process: any expansion of medical student numbers will only impact on consultant and GP numbers in 2030. Assuming we take this approach, how many more students do we need?

While workforce planning is at best an inexact science – and at worst an oxymoron – it is possible to make an informed estimate. The key is accurately understanding the three pillars of supply, demand and loss.

Current supply

These calculations are based on full-time equivalents (FTE) and headcount. Each medical student is a head to be counted, but not everyone works full time.

Physicians make up around a third of all consultants in the UK: just over 15,700 of 47,800. Of these, 36% are women and 64% are men. 42% of the women and 10% of the men work less-than-full-time (LTFT). Those that work LTFT are contracted to work an average of 7.4 programmed activities (PA) compared to 11.4 for full-timers. That means a headcount of 15,700 equates to 14,510 FTE.

We also need to correct for the current shortage. Based on vacancy data, we are short 2,330 consultants. Physicians make up a third of this, which means 760 heads or 630 FTE. This seems a reasonable estimate as there were 679 unfilled consultant physician posts advertised in 2017. Correcting for this shortfall, if our current workforce was replete we would have 15,140 FTE.

Future demand

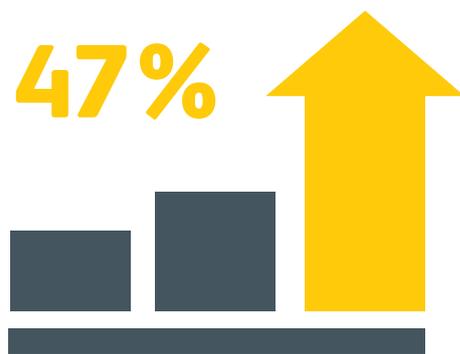
Demand is, perhaps, the hardest of the three pillars of workforce planning to estimate. It seems likely that an ageing population with associated multi-morbidity will be the main driver of need in 2030. Other factors – such as increasing obesity, the explosion in genomics and new technology – will also fuel demand.

Furthermore, the model of care will determine what types of staff will be needed. Many hope that the future model will rely less on doctors and provide care closer to home. But a healthcare professional who is comfortable with multi-morbidity, understands the limitations of genomics and is able to interpret complex data will need to be highly trained (and sounds like a doctor to me).

That said, the demand for medical services has increased steadily over the past two decades. Hospital activity – both emergency and elective – has increased by 3.6% per year over 12 years.

Assuming that continues, this will lead to an increase in demand of 47% between now and 2030. If we assume that consultant productivity will remain the same, we will need 7,120 more FTE consultant physicians in 2030.

We need to increase numbers quickly, but increasing student numbers to create 7,120 FTE in one year is unrealistic. If we look to spread the increase over five years, the number FTE per year needed just for increased service demand is around 1,420.



There will be an increase in patient demand by **47%** between now and 2030

Losses

Losses occur either during training – which I will consider when looking at future supply – or from the consultant pool. Retirement losses are relatively easy to predict, but there are two factors that are often forgotten or missed.

The first of these is that current retirement rates (around 220 consultant physicians per year) do not reflect the number who will reach retirement in 2030. This is due to the historic increase in the number of consultants per cohort of training. As there are currently 3,400 consultant physicians aged 45-49, and assuming a retirement age of 62, there will be 680 retirements per year by 2030 – 460 more than currently.

Secondly, those retiring now work differently from new consultants, due to the change in demographic. In 2030, 35% of retiring consultants will be women, compared to 21% of current retirees. That means we need to use FTE to estimate the need as headcount will overestimate: 460 heads will be equivalent to 370 FTE in 2030.

Other losses from the consultant pool are harder to estimate. Ordinarily, over the course of a consultant career, fewer than 5% leave medicine. However, we live in extraordinary times and there could be large losses due to Brexit; 9% of the consultant physician workforce is from the European Economic Area. Furthermore, low morale, high workload and concerns about the litigation culture post-Bawa-Garba may lead to losses. If we conservatively assume a further 10% loss on top of retirement, this is an additional 60 FTE.

Putting demand and losses together we need an additional 1,850 FTE coming out of training in 2030. The good thing is we don't need to worry about FTE adjustments through the course of training as 55% of medical students are women, identical to the proportion of medical registrars. Therefore, at this stage we can convert FTE to back to headcount, which is 2,270.

How many medical students we need

Losses through training can be estimated at different stages: during medical school, between graduation and entering core training, and during core and higher specialty training. It is surprising how many losses there are.

The drop-out rate from UK medical schools is around 5%. Some medical schools have higher rates, so it is imperative that we monitor attrition from degree courses.

It is unclear how many UK doctors graduating from medical school leave medicine at that point, but we think it is very small. Around 3% of graduates fail in their application to Foundation school, and the disparity between medical school and Foundation school places suggests that others don't even try. A total loss at this point can be reasonably estimated at 5%.

Losses after Foundation training is a topic of much debate. The oft quoted statistic is that 50% of doctors leaving Foundation school do not enter core training and many go abroad. This statistic does not bear scrutiny: many trainees remain in the UK in non-training posts as locally employed doctors. Around 1% of doctors do leave medicine for good at this stage, 13% take a 'career break' and a further 13% go abroad to do medicine. It is unclear how many of these will return, particularly when we remember that many medical schools have international students who will want to return to their home country.



We need to **double the number** of medical school places from **7,500** to **15,000** to meet the needs of tomorrow's patients.

An ageing population



Increasing obesity



Will all mean **increased** demand for **doctors**



New technology



Genomic medicine

Putting this all together, we can approximate that the total loss from medical school to appointment as a consultant is 25%. We will therefore need an additional 2,840 medical students per year for the next five years to create 2,270 additional consultant physicians in 2030.

While this seems a very large number, I have been conservative in some of my estimates. It becomes even more frightening when we remember that physicians are just one-third of the workforce: general practice, psychiatry and emergency medicine are all equally under pressure and have a similar shortfall. I have not done the maths for each of those but it seems a reasonable estimate to say that an additional 7,500 medical students per year will be needed at the very least.

In other words, we need to double our numbers because quitting on the workforce issue is not an option.

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June 2018

It is reasonable to assume a loss of at least 10% at this stage, although unpublished data from the GMC and HEE suggest it may be as high as 20%. Losses from specialist training are also unclear, but are likely to be small. The BMA cohort study of 2006 medical school leavers suggests 1–2%.