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# Unequal Treatment?

## Access to medicine for socio-economically disadvantaged students

## About the Sutton Trust

The Sutton Trust is the UK's leading social mobility charity. Our programmes empower young people to access life-changing opportunities, and our research influences national change to deliver a fairer future.



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# Key findings

## Medical schools over time

- Between 2012 and 2022, the number of young people applying to study medicine in England grew by 64%, from under 7,500 to over 12,000.[1] At the same time, the number of students entering medical school grew by only 44%. Between 2019 and 2022 in particular, the demand for medical school places grew considerably faster than the number of students entering medical school.

- Students with the highest prior educational attainment and the highest Universities Clinical Aptitude Test (UCAT) scores, were the most likely to receive an offer to study medicine. UCAT score was found to be the strongest of these predictors, with every standard deviation increase in UCAT score associated with over three times the odds of receiving an offer.

- Admissions processes currently vary considerably between medical schools, including the use and types of multiple mini-interviews (or MMIs, tests that aim to assess wider life skills such as communication and social skills), whether and how UCAT scores are considered, the use of personal statements and requirements for prior attainment. This complex system can be challenging for applicants to navigate, particularly those from less advantaged backgrounds, who may lack wider support.

[1] The figures here refer to the dataset used for this report which was comprised of individuals within the UKMED database domiciled in England who applied to study medicine in the UK via UCAS from 2012 to 2022, were aged 19 or under at the time of application and were applying to medical school for the first time. For more details on the full criteria and methods used see the Methods section in Part 1 below.

# Access to medical school

## By school type

- From 2012 to 2021, the proportion of applicants, offer-holders and entrants from non-selective state schools grew, and the proportion from independent schools dropped. This is a result of the absolute number of applicants from independent schools staying relatively stable, while numbers from non-selective state schools grew.

- Between 2012 and 2021, the proportion of medicine entrants from independent schools decreased, from 31% to 22% (compared to around 7% of students attending independent schools overall). Independent school applicants dropped from 25% to 16%. Over the same period, the proportion of non-selective state school entrants increased from 50% to 56% while the proportion of applicants grew from 53% to just under 59%.

- Applicants from independent schools were more likely to receive an offer, having around one and a half the odds of receiving an offer compared to those from non-selective state schools. Even after adjusting statistically for their exam grades, socio-economic status and other demographic factors, independent school applicants had higher odds of receiving an offer.

- Between 2012 and 2022, the majority (80%) of schools or colleges had very few students applying to medicine, at five or fewer per year. However, a very small number sent large numbers of applicants: 58 schools or colleges (2% of all institutions) had on average 20 or more applicants per year and, strikingly, one had more than 850 applicants over the 10- year period: an average of 85 applicants per year. 11 schools/colleges (<1%) averaged 20 or more entrants to medical school each year.

## By parental occupation

- In 2021, individuals from higher socio-economic backgrounds (based on their parent's occupation) made up 75% of entrants to medical schools, while just 5% were from the lowest socio-economic group. While still very low, the proportion of those from lower socio-economic backgrounds has doubled since 2012.

- Applicants from lower and intermediate socio-economic backgrounds were less likely to get an offer than their better-off peers. A major factor in this was prior educational attainment, as these students had, on average, lower GCSEs, lower predicted A-levels, and lower results on the UCAT medical admissions test.

- The UCAT test may be a barrier for those from worse-off homes. Applicants from lower socio-economic backgrounds with the highest predicted A-level points achieved significantly lower UCAT scores than those from medium or higher socio-economic backgrounds. On average the difference between the lowest and highest socio-economic groups was half a standard deviation, equivalent to approximately 5% of the total test score.

- Looking at the interaction between socio-economic group and ethnicity, among students from the lowest socio-economic backgrounds almost two thirds (61%) were Asian and 15% were White. Conversely, in the highest socio-economic group, 31% were Asian and 52% were White.

## By neighbourhood (IMD)

- While the proportion of medical students from lower socio-economic backgrounds (as measured by parental occupation) remains low, the proportion of applicants living in IMD1 areas (Index of Multiple Deprivation quintile 1, the 20% most deprived neighbourhoods) grew considerably from 2012. By 2022, 20% of applicants lived in IMD1 and 25% of applicants lived in IMD5 (the least deprived or wealthiest quintile).

- Applicants from IMD1 were less likely than those from other areas to get an offer to study medicine, which was largely accounted for by their relatively lower prior educational attainment. However, applicants from IMD1 were *more* likely to get an offer compared to applicants from less deprived neighbourhoods who had similar grades and were otherwise demographically similar.

- Offer-holders from IMD1 were also *more* likely to enter medical school compared to applicants living in less deprived neighbourhoods with similar grades and demographic backgrounds.

- Improvements in access by neighbourhood, alongside less progress by individual socio-economic background, potentially point to the limitations of place-based rather than individual-based widening access efforts. It raises the possibility that applicants from better off families within more deprived neighbourhoods may have benefitted most from these widening access efforts.

### By region

- Looking at entrants to medical school by region, between 2012 and 2021, London supplied the largest number of entrants to medical schools, at 7,585, followed by the South East (6,215), and then the North West (4,815). The region supplying the least medical students in this time period was the North-East, at 1,430. Looking at successful entrants per school or college in each region, this figure was the highest in the North West (20), whereas in the West Midlands, East Midlands and the South West the average was 10 successful entrants per school or college (note – all figures are rounded to the nearest 5).

## Widening participation efforts

### New medical schools

- Between 2018 and 2021, six new medical schools admitted students for the first time – established in areas with relatively fewer doctors per person, with the specific remit to recruit both locally and from typically under-represented groups.

- New medical schools had more balanced state/independent school intakes than established institutions, with only around 1 in 10 (11%) entrants independently educated, compared to around 1 in 4 (24%) at established centres.

- However, newer medical schools still have considerable gaps between entrants from higher and lower socio-economic backgrounds, with only 7% of entrants to new medical schools from the lowest socio-economic group and two thirds (66%) from the highest.

- Students at new medical schools tended to originally live closer to their institution than those at established medical schools. However, on average (with the exception of Edge Hill and Aston) the majority still lived over 100km away. Entrants to new medical schools originally lived an average 119km away (75 miles), 55km (or 34 miles) closer than entrants to established medical schools.

## Gateway courses

- Gateway medical degree courses include an additional foundation year, with lower grade requirements for entry. These courses are designed to attract and admit applicants from under-represented backgrounds.

- Just 4% of those entering a gateway course attended an independent school, compared to 28% of those entering a standard entry course.

- Despite this, only 11% of all entrants to gateway courses were from the lowest socio-economic group, with 46% from the highest. While this is better than standard entry courses (where the figures were 4% and 73% respectively), gateway courses may need to do more to further access to those from lower socio-economic backgrounds.

## Admissions processes

- Despite some recent positive changes to admissions processes, for example the increased use of contextual admissions, approaches vary considerably between medical schools. This can make it difficult for applicants to understand which medical schools they would best apply to, particularly when combined with changing processes and procedures and some lack of transparency about criteria and processes on medical school websites.

- The Sutton Trust's Pathways to Medicine, Summer School and online programmes support a cohort of disadvantaged pupils to explore and apply for medical school. Former participants in our programmes surveyed for this report identified multiple barriers to medical careers, including a lack of available support from their networks on the application process (for example their family or school), difficulty finding information on medical school admissions processes, and difficulty finding relevant work experience.

# Sutton Trust Recommendations

## For government

### A focus on widening participation

As the Government looks to expand the number of medical school places and medics trained in the UK, there is a major opportunity to improve socio-economic access to the profession.

To do so successfully:

- **Government should prioritise medical schools with a successful record on widening participation, both in initial access and in student outcomes, in any expansion of spaces.** As outlined in this report, medical schools vary considerably in how they perform on access. Those with a proven track record of success, with a focus on individual level measures (for example free school meal eligibility) should be prioritised for any new medical training places, with strong widening participation expectations for any additional new medical schools.

- **There should be a fair access review across the higher education sector, including access to medical schools.** The Sutton Trust has previously highlighted a lack of progress on widening participation across the higher education sector. A review of fair access should be launched to explore a sector-wide approach, with a focus on socio-economic disadvantage. Such a review should look at implementing stronger regulatory expectations and encouraging a clear and consistent approach to contextual offers.

- **Clearer information and support should be available for aspiring medics looking to navigate the application process.** The identification of an agreed clearly advertised and accessible 'one-stop shop' for all medical school applicants would help simplify the information gathering process, ideally hosted by UCAS. Information should also be easily available to GCSE students and their schools, to help inform subject choice decisions at A level, and should include links to existing freely available support, for example for UCAT test preparation.

- **Medical apprenticeships, if continued, have the potential to open-up access to the medical profession by diversifying routes to entry, but to do so, they must be properly monitored and evaluated.** It should not be assumed that medical degree apprentices will be from a wider range of socio-economic backgrounds than those on standard medical degrees, as higher and degree level apprenticeships are often highly socially selective. The socio-economic background of medical apprentices should be monitored, with access efforts implemented alongside their introduction.

## Improving attainment in schools

Additionally, government should also look at ways to improve the attainment of young people from lower income backgrounds in schools – to widen the pool of potential future medics. This should include:

- **An expansion of the teacher Levelling Up Premium in schools in disadvantaged areas.** While already available for chemistry, mathematics and physics teachers (some of the core subjects at A level for medicine), the premium is not currently available for biology teachers. The premium should be expanded to a wider range of subjects, including biology, and should also be increased by £2,500 - £3,000 for the most disadvantaged schools, to ensure they are able to attract high quality teachers.

- **The pupil premium should be extended to 16-19 year olds, and the funding rate for pupil premium in primaries and secondaries should be restored in real terms.** Disadvantage does not stop at 16, so key funding for this group should not do so either. Pupil premium at primary and secondary school has also fallen considerably in real terms since 2014/15 - the rate should be restored by the end of this parliament.

## Financial support while studying

The financial support available to those studying medicine should be enough to cover their living costs, including:

- **Across higher education, the maintenance loan should be increased to meet the cost of living, with parental income thresholds uprated with inflation, and maintenance grants re-introduced for lower income students**. For students both inside and outside medical schools, student support should reflect the actual costs of studying.

- **Student support in later years of medical degrees should be reformed, with a focus on adequately supporting students from lower-income families.** In later years of their course, the National Health Service (NHS) bursary currently provides all medical students with less up-front maintenance support than they would have received under the general student loan system, with students from lower income families the least able to make up the shortfall. Reform is needed to ensure these students have adequate funding to cover their living costs while studying.

## For medical schools

- **Medical schools should work together to simplify their admissions processes, to create greater consistency across the sector.** Complex and varying application processes can be difficult for aspiring medical students to navigate, particularly those from lower socio-economic backgrounds who are less likely to have access to information from their school or family to guide them through the process.

- **Wherever possible, medical schools should look to reduce additional costs for their students.** Medical school placements in particular can put considerable cost pressure on students from lower income homes. Medical schools should, where possible, provide support, for example with travel costs, for these placements. And government should ensure medical schools are adequately resourced to meet these additional costs.

- **Medical schools should make more ambitious use of contextual offers (including reduced grade offers).** Disadvantaged young people with high potential often do not achieve results that reflect their ability in the English school system, which medical schools should take into account when determining which candidates to interview (for example, giving automatic interviews to applicants from lower socio-economic backgrounds) and when making offers. This should also be accompanied, where necessary, with additional support for these students during their time at medical school.

- **There should be improved recognition of participation in widening participation programmes across medical schools.** Too often, medical schools will only recognise participation in their own widening participation initiatives, for example when looking at criteria for contextual interviews or offers.

- **Medical schools should prioritise use of the most accurate measures for contextualised interviews and offers**. Individual level measures such as free school meal eligibility should be prioritised. Where free school meals eligibility is not available, priority should be given to ACORN, the best area-level measure, followed by the Index of Multiple Deprivation (IMD). If a basket of measures is used, these most robust measures should be weighted most strongly. POLAR and TUNDRA should not be used in isolation to make decisions on individual students.

- **Across the sector, there should be a recognition of the skills gained in work experience in non-medical environments.** While some medical schools now recognise this wider experience, some still expect medical specific work experience – which can be difficult for young people from lower socio-economic backgrounds to access. Medical schools should also be clear with potential applicants about the type of experience needed.

- **The use of UCAT in medical school admissions should be reviewed.** While the test was designed, in part, to widen access to medicine, it may be acting as a barrier for applicants from lower socio-economic backgrounds, who perform less well at UCAT when compared to their A level results. Medical schools should review the use of the test in their admissions process, including contextualising UCAT score boundaries for disadvantaged students– to reflect their lower performance in comparison to their A level results.

# Introduction

Medicine has long been recognised as one of the most difficult and competitive professions to access. It has also now been recognised for some time that the medical profession lacks diversity, with doctors who are not representative of the broader population – particularly by socio-economic background.[2] As the Government looks to train more doctors through the *NHS Long Term Workforce Plan,* launched in 2023,[3] it is important to ask how we can ensure that the thousands of extra medical school places envisaged will be accessible to students across the socio-economic spectrum.

Ten years ago, two separate initiatives set out to tackle this challenge. In 2014 the Medical Schools Council (MSC) launched *Selecting for Excellence*, a comprehensive report identifying and highlighting the key issues limiting socio-economic diversity in the profession with a host of recommendations for different stakeholders to address the problem.[4] The same year also saw the launch of the Sutton Trust's Pathways to Medicine programme, which has supported 1,572 potential future medics from low- and middle-income backgrounds with academic taster sessions, work placements, mentoring, networking, a summer school and skills workshops. Ten years on, widening participation in medical schools and universities more generally has developed considerably. Some medical schools have their own access programmes and summer schools, while widening access is more generally accepted as a key priority for the sector. There has been some progress in implementation of the recommendations made by the MSC, fundamentally changing the widening participation landscape.

**"In 2021 individuals from the highest socio-economic group made up 75% of entrants to medical school, while those from the lowest socio-economic group made up just 5%."**

This report looks at access by socio-economic background[5] today, from raising aspirations among future medics in schools, through access to medical school, and onto challenges doctors experience once they enter

[2] Steven, K., Dowell, J., Jackson, C., & Guthrie, B. (2016). Fair access to medicine? Retrospective analysis of UK medical schools application data 2009-2012 using three measures of socioeconomic status. *BMC Medical Education*, *16*(1), 11. https://doi.org/10.1186/s12909-016-0536-1

[3] NHS England. (2023). *NHS Long Term Workforce Plan*. NHS England. https://www.england.nhs.uk/publication/nhs-long-term-workforce-plan/

[4] Medical Schools Council. (2014). *Selecting for Excellence: Final Report*. Medical Schools Council. https://www.medschools.ac.uk/media/1203/selecting-for-excellence-final-report.pdf

[5] This analysis uses the 3 category version of the National Statistics Socio-economic Classifcation NS-SEC). See the Methods section in Part 1 below.

the workplace.[6] It also looks back over the last decade at efforts medical schools have made to promote widening participation and outreach, as well as looking at current medical school intakes, and where and how progress has been made. The report examines some of the challenges that still remain, as well as opportunities to promote inclusion alongside filling ongoing skills shortages.

The report is divided into two parts:

### Part 1: Access to medical schools for students from disadvantaged backgrounds

The first part of the report, written by Professor Katherine Woolf, Dr Asta Medisauskaite and Dr Shaun Boustani, all from University College London Medical School, is a detailed original analysis of national administrative data on medical school admissions from the UK Medical Education Database (UKMED). The work examines where and how improvements in widening participation have been achieved since 2012, what the new landscape of undergraduate medical school recruitment looks like since the expansion that started in 2018, and points to lessons that can be learned from some of the changes to medical school selection that have been implemented over the last decade.

### Part 2: Barriers to a career in medicine for young people from lower socio-economic backgrounds - from school to the workplace

The second section of the report, written by the Sutton Trust's Dr Kevin Latham, looks back on the last decade of widening participation in medicine, from barriers in schools through to the workplace - including a survey of past participants in the Sutton Trust's Pathways to Medicine and UK Summer Schools programmes - who have or who looked to enter the medical profession. It also looks forward, at the opportunities to improve access coming up through the implementation of the 2023 *NHS Long Term Workforce Plan*.

[6] There are several routes into medicine, notably undergraduate 'standard' programmes as well as 'gateway' programmes (introduced to address issues of widening participation) and graduate entry. This report focuses on undergraduate standard and gateway programmes. For more information on the different ways into medicine see Studying Healthcare. (n.d.). *Entry Requirements*. Retrieved 15 November 2024, from https://studyinghealthcare.ac.uk/why-medicine/entry-requirements-medicine/

Professor Katherine Woolf, Dr Asta Medisauskaite and Dr Shaun Boustani

# Part 1: Access to medical schools for students from disadvantaged backgrounds

# Background on medical school admissions

Medical school admissions processes are a key determinant of the shape of the medical workforce. The 2023 National Health Service (NHS) Long Term Workforce Plan put the expansion of medical school recruitment and reforms to medical education and training at the heart of efforts to ensure the sustainability of the medical workforce over the next 10-15 years.[7]

## Medical school education and training in the UK

In the UK, universities provide undergraduate medical education and training. Standard entry medical degree programmes[8] are five years long (or six for courses that include an additional year of a bachelor's degree in a relevant subject), after which graduates are eligible to enter two years of Foundation Training and become registered as doctors with the General Medical Council. Dropout from medical training is still relatively rare, so nearly all entrants to medical school become doctors working in the NHS, who can then go on to undertake several years of further specialist postgraduate training before qualifying as a consultant or general practitioner (GP).

## Applying to medical school in the UK

Medicine is among the most competitive university courses to apply to. In 2023, only 21.5% of applications to UK universities to study medicine resulted in an offer, compared to an offer rate of 77% for all courses.[9] Applying to study medicine is also more complex than applying to many other subjects.[10] The UCAS deadline for applications is three months

[7] NHS England. (2023). *NHS Long Term Workforce Plan*. NHS England. https://www.england.nhs.uk/publication/nhs-long-term-workforce-plan/

[8] Standard Entry medical degree programmes do not require applicants to have any specific demographic or social eligibility criteria.

[9] Universities and Colleges Admissions Service (UCAS). (2023). *UCAS Undergraduate end of cycle data resources 2023* [Dataset]. https://www.ucas.com/data-and-analysis/undergraduate-statistics-and-reports/ucas-undergraduate-end-cycle-data-resources-2023. Comparison of applications to subject group (CAH01-01-02) medicine (non-specific) with applications to subject group "All". Data restricted to English-domiciled applicants aged 18 years old in 2023.

[10] For information about the medical application process in the UK, and the entry requirements and selection processes of different UK medical schools, see the Studying Healthcare website managed by Medical Schools Council. *Studying Healthcare*. (n.d.). Retrieved 17 February 2025, from https://studyinghealthcare.ac.uk/

earlier than for most other courses, and applicants can only use four of their five UCAS choices for medicine. Most medical degree courses require applicants to sit an admissions test, usually the University Clinical Aptitude Test (UCAT[11]) as well as gaining relevant work experience. Before making offers, most medical schools assess applicants in an interview process, which increasingly takes the form of a multiple mini-interview.[12]

## The under-representation of medical students from disadvantaged backgrounds

Historically, UK medical schools have had an under-representation of applicants from disadvantaged backgrounds. For example, an analysis of data on UK-domiciled applicants to medicine from 2009-2011 by Steven et al.[13] found:

- Only 3% of applicants had parents in the lowest socio-economic group (semi-routine and routine occupations), compared to three quarters (74%) who had parents in the highest socio-economic group (higher managerial/admin and professional occupations);[14]

- 13% of applicants who were domiciled in England lived in the most deprived 20% of neighbourhoods, whereas 33.5% lived in the least deprived (wealthiest) 20% of neighbourhoods;

- Over a quarter (26%) of applicants came from independent schools, 20% came from grammars, and 52% came from state comprehensive schools.

A 2014 report[15] by the University of Nottingham commissioned by Medical Schools Council (MSC, the representative body for UK medical schools)

[11] UCAT Consortium. (n.d.). *About the University Clinical Aptitude Test (UCAT).* Retrieved 15 November 2024, from https://www.ucat.ac.uk/

[12] Eva, K. W., Rosenfeld, J., Reiter, H. I., & Norman, G. R. (2004). An admissions OSCE: The multiple mini-interview. *Medical Education*, *38*(3), 314–326. https://doi.org/10.1046/j.1365-2923.2004.01776.x

[13] Steven, K., Dowell, J., Jackson, C., & Guthrie, B. (2016). Fair access to medicine? Retrospective analysis of UK medical schools application data 2009-2012 using three measures of socioeconomic status. *BMC Medical Education*, *16*(1), 11. https://doi.org/10.1186/s12909-016-0536-1

[14] This analysis used the 3-category version of the National Statistics Socio-economic Classification (NS-SEC).

[15] Garrud, P. (2014). *Help and hindrance in widening participation: Commissioned research report* (Selecting for Excellence). Medical Schools Council. https://www.medschools.ac.uk/media/2446/selecting-for-excellence-research-dr-paul-garrud.pdf

also using data from 2009-2011, found that 80% of UK applications to medical school were from 20% of UK secondary schools, and half of schools had not sent any applicants to medical school.

When students from disadvantaged backgrounds have applied to medical school, they have historically been less likely to receive an offer. Steven et al's[16] analysis of 2009-2011 UCAS data found that applicants from independent schools, those from less deprived (wealthier) neighbourhoods, and those with a parent in the highest socio-economic group were more likely to get an offer that they accepted. Similarly, Kumwenda et al[17] analysed data from 2006-2014 on applicants to those medical schools that used the UK Clinical Aptitude Test (UKCAT, now UCAT) in admissions. They found that, among non-graduate applicants to medical school (i.e. who didn't already have a university degree), more medical school entrants were from fee-paying schools, from the least deprived (wealthiest) neighbourhoods, and from the highest socio-economic groups.

# Changes to medical schools to widen access

## Contextual admissions

It is well recognised that high grade requirements represent a significant barrier to applicants from under-represented groups being admitted to university.[18] In efforts to tackle these inequalities, the majority of medical schools now implement contextual admissions, by which they take into account the educational and socio-economic background of applicants in the admissions process. Contextual admissions have been recommended in the UK since at least 2009 to increase access to professional careers, including medicine.[19]

[16] Steven, K., Dowell, J., Jackson, C., Guthrie, B. (2016) Fair access to medicine? Retrospective analysis of UK medical schools application data 2009-2012 using three measures of socio-economic status. *BMC Medical Education* 13;16:11. doi: 10.1186/s12909-016-0536-1

[17] Kumwenda, B., Cleland, J., Greatrix, R., MacKenzie, R. K., & Prescott, G. (2018). Are efforts to attract graduate applicants to UK medical schools effective in increasing the participation of under-represented socioeconomic groups? A national cohort study. *BMJ Open*, *8*(2), e018946. https://doi.org/10.1136/bmjopen-2017-018946

[18] Chowdry, H., Crawford, C., Dearden, L., Goodman, A., & Vignoles, A. (2013). Widening Participation in Higher Education: Analysis Using Linked Administrative Data. *Journal of the Royal Statistical Society Series A: Statistics in Society*, *176*(2), 431–457. https://doi.org/10.1111/j.1467-985X.2012.01043.x

[19] Cabinet Office. (2011). *Unleashing Aspiration: The Final Report on the Panel of Fair Access to the Professions*. Cabinet Office. https://webarchive.nationalarchives.gov.uk/ukgwa/+/http:/www.cabinetoffice.gov.uk/media/227102/fair-access.pdf

Each medical school sets its own admissions process, and medical schools vary in how they implement contextual admissions. In 2012 a review of best practice in medical school admissions conducted for the General Medical Council[20] reported that "*the use of contextual data in the admissions process is variable and medical schools wish for guidance on this matter*". This variability remains in the types of contextual data used and the ways in which that data is used. MSC information for applicants to medicine in 2025 states that:

"Medical schools often use different contextual factors together. The contextual information is then used in different ways, it can be used to:

- Consider if an applicant should be invited to interview
- Consider the test or interview scores within the applicant's educational or social context
- Provide an offer for an access route or alternative pathway to medicine
- Give further consideration to the application if the student just misses the grades they were predicted."[21]

## Gateway courses

An increasing number of medical schools have introduced alternative entry routes into medicine for applicants with contextual factors. Seventeen medical schools[22] now have gateway courses. These courses have lower grade requirements for eligible applicants and an additional Foundation year[23] after which students join Year 1 of the standard entry medical degree course. We are unaware of any national studies that have examined the impact of gateway courses by comparing entry rates for applicants

[20] Cleland, J., Dowell, J., McLachlan, J., Nicholson, S., & Patterson, F. (2012). *Identifying best practice in the selection of medical students (literature review and interview survey)*. General Medical Council. https://www.gmc-uk.org/-/media/gmc-site/about/identifyingbestpracticeintheselectionofmedicalstudentspdf51119804.pdf

[21] Studying Healthcare. (n.d.). *Entry Requirements*. Retrieved 15 November 2024, from https://studyinghealthcare.ac.uk/why-medicine/entry-requirements-medicine/

[22] Medical Schools Council. (2024). *Entry requirements | Medical Schools Council*. https://www.medschools.ac.uk/studying-medicine/how-to-apply-to-medical-school-in-the-uk/entry-requirements

[23] Medical Schools Council. (n.d.). *Course types | Medical Schools Council*. Retrieved 13 November 2024, from https://www.medschools.ac.uk/studying-medicine/how-to-apply-to-medical-school-in-the-uk/course-types

from under-represented groups who apply to at least one gateway course rather than to standard entry courses only.

In one of the largest studies of gateway courses to date, Curtis and Smith[24] analysed outcomes for students admitted between 2007 and 2021 to the University of Southampton, King's College London and the University of East Anglia (Norwich Medical School), which have the UK's three longest-running gateway courses. They compared students on the gateway course with students on the standard entry course, finding that gateway students were more likely to be from a state school, from a deprived neighbourhood, and from the lowest socio-economic group. They also had considerably lower UCAT scores and A-level points compared to those on standard entry courses.

Curtis and Smith[25] then followed up the gateway and standard entry students throughout their time at medical school, finding that gateway students had significantly lower performance than those on the standard entry course. Only 83% of gateway students had progressed to graduation without delay or dropout, compared to 96% of standard entry students. A National Audit Office evaluation of NHS England (NHSE) modelling for its Long Term Workforce Plan[26] noted that the modelling for the expansion of medical school training did not consider differential attrition for medical students admitted with lower grades.

A further follow-up study by Elmansouri et al[27] looked at the postgraduate performance of the same gateway and standard entry students. They found that only 39% of gateway graduates passed a postgraduate examination at their first attempt, compared to 63% of standard entry graduates who passed first time. Over half of gateway graduates (56%) applied to be a general practitioner (GP) compared to 39% of standard entry graduates.

[24] Curtis, S., Smith, D. (2020) A comparison of undergraduate outcomes for students from gateway courses and standard entry medicine courses. *BMC Medical Education*, 20(4) https://doi.org/10.1186/s12909-019-1918-y

[25] Curtis, S., Smith, D. (2020) A comparison of undergraduate outcomes for students from gateway courses and standard entry medicine courses. *BMC Medical Education* 20(4). https://doi.org/10.1186/s12909-019-1918-y

[26] National Audit Office. (2024). *NHS England's modelling for the Long Term Workforce Plan*. National Audit Office. https://www.nao.org.uk/wp-content/uploads/2024/03/NHS-Englands-modelling-for-the-Long-Term-Workforce-Plan.pdf

[27] Elmansouri, A., Curtis, S., Nursaw, C., & Smith, D. (2023). How do the post-graduation outcomes of students from gateway courses compare to those from standard entry medicine courses at the same medical schools? *BMC Medical Education*, *23*(1), 298. https://doi.org/10.1186/s12909-023-04179-3

## New medical schools

Another aspect of inequity in access to medicine is the relative lack of medical schools in parts of the country with fewer doctors. There is evidence[28] that doctors often return to practice medicine in areas reasonably close to where they lived at application to medical school, and this is more common among doctors who attended state schools, from lower socio-economic groups, and with other measures of disadvantage.

To increase the number of UK-trained doctors, in 2018 the Government agreed to increase the number of medical school places by 25%, focusing on shortage areas and increasing access to under-represented groups. As part of this increase in places, new medical schools were announced in areas with relatively few doctors (either in general, or in particular shortage specialities) at universities with a track record in widening participation.[29] These new medical schools were at Anglia Ruskin University, Edge Hill University, Kent and Medway Medical School, University of Lincoln and the University of Sunderland. In addition, Aston University opened in 2016 and started training its first medical students in 2018.[30]

In 2023 the NHS Long Term Workforce Plan[31] pledged to increase the number of medical school places further, to up to 15,000 per year by 2031/32. In 2024 the Government[32] reported that it was providing another 205 medical school places that year, with 350 more places due to be delivered in 2025. These places were allocated to existing medical schools, (including those announced in 2018) as well as to additional new medical schools around the country.[33]

[28] Kumwenda, B., Cleland, J. A., Prescott, G. J., Walker, K. A., & Johnston, P. W. (2018). Geographical mobility of UK trainee doctors, from family home to first job: A national cohort study. *BMC Medical Education*, *18*(1), 314. https://doi.org/10.1186/s12909-018-1414-9

[29] Rimmer, A. (2018). Five medical schools are created in England in bid to increase home grown doctors. *BMJ*, k1328. https://doi.org/10.1136/bmj.k1328

[30] General Medical Council. (2018). *Visit Report on Aston Medical School*. https://www.gmc-uk.org/-/media/documents/gmc-visit-report-aston-medical-school-may-2018_pdf-76227254.pdf

[31] NHS England. (2023). *NHS Long Term Workforce Plan.* NHS England. https://www.england.nhs.uk/publication/nhs-long-term-workforce-plan/

[32] Department of Health and Social Care. (2024, May 13). *350 extra medical school places allocated in NHS training boost*. https://www.gov.uk/government/news/350-extra-medical-school-places-allocated-in-nhs-training-boost

[33] Department of Health and Social Care. (2024, May 13). *350 extra medical school places allocated in NHS training boost*. https://www.gov.uk/government/news/350-extra-medical-school-places-allocated-in-nhs-training-boost

Although new medical schools have been established with a widening participation remit, a recent qualitative study[34] conducted with leaders of new medical schools found that the enactment of widening participation practices at those medical schools was highly context-specific, posed practical challenges (such as those relating to the different regulatory and funding frameworks surrounding medical degree courses compared to other university courses), and also presented difficulties due to competing incentives around meeting widening participation targets while maintaining student retention and performance levels. The authors suggested that a potential unintended consequence of establishing new medical schools in England could be "*a differentiated medical education system where degrees from the new medical schools are seen as less prestigious than those from traditional, well-established medical schools", and this could* lead to new medical schools reducing their widening participation activities to try to increase prestige.[35] To date we are unaware of any large-scale quantitative research analysing the educational and social backgrounds of applicants to new medical schools compared to established medical schools.

# Aim and research questions

Our overall aim was to investigate access to medical schools from 2012 to 2022 for applicants from disadvantaged backgrounds.

To do this, we explored the socio-economic, demographic, and educational characteristics of applicants, offer-holders, and entrants to medicine nationally, as well as to different medical schools and course types.

We also examined how applicants' likelihood of gaining an offer and entering different types of medical schools and courses varied by applicant characteristics.

[34] Cleland, J., Buxton, J., Hughes, E., & Patterson, F. (2024). Translating government policy into practice: How new UK medical schools enact widening participation. *Medical Education*, *58*(10), 1247–1256. https://doi.org/10.1111/medu.15403

[35] Cleland, J., Buxton, J., Hughes, E., & Patterson, F. (2024). Translating government policy into practice: How new UK medical schools enact widening participation. *Medical Education*, *58*(10), 1247–1256. https://doi.org/10.1111/medu.15403

We present findings in the following five sections:

- Section 1: Characteristics of applicants, offer-holders and entrants from 2012 to 2022;
- Section 2: The predictors of achieving an offer and entering medical school;
- Section 3: Success rates among deprived applicants to new medical schools and gateway courses;
- Section 4: UCAT and A-level performance among those from lower socio-economic groups;
- Section 5: The number and characteristics of schools and colleges producing medical school applicants and entrants.

Further information regarding the aims and research questions is provided in the Supplementary aims and research questions in the Appendix.

# Methods

## Data source: the UK Medical Education Database (UKMED)

The UK Medical Education Database (UKMED) is a research database administered by the UK medical regulator, the General Medical Council (GMC). UKMED is a collaboration between the GMC, MSC and several other medical education and training administrative bodies. It collects and links administrative data relating to the medical education, training and career progression of all applicants to UK medical schools. UKMED prepares data extracts and makes them available via a secure Trusted Research Environment, to approved researchers for approved research

projects, in accordance with strict data access rules. The current report was approved by UKMED as project UKMED P197.[36]

For more information about UKMED and its creation, see Dowell et al.[37] For more information about UKMED, including the data dictionary and the application and approvals process, see the UKMED website.[38]


## Acknowledgement

Source - UK Medical Education Database ("UKMED") P197 extract generated on 14/08/2024. Approved for publication on 18/12/2024. We are grateful to UKMED for the use of these data. However, UKMED bears no responsibility for their analysis or interpretation. The data includes information derived from that collected by the Higher Education Statistics Agency Limited ("HESA") and provided to the GMC ("HESA Data"). Source: HESA Student Record 2012/2013 and 2021/2022 Copyright Higher Education Statistics Agency Limited. The Higher Education Statistics Agency Limited makes no warranty as to the accuracy of the HESA Data, cannot accept responsibility for any inferences or conclusions derived by third parties from data or other information supplied by it.


# Sample

We analysed data from a sample comprising individuals within the UKMED database who applied to study medicine in the UK via UCAS from 2012 to 2022. The sample we received from UKMED was restricted to medical applicants who met all of the following inclusion criteria:

- Domiciled in England;
- Applied to medical school for the first time (only one application year recorded in the data);

[36] Details of the approved project (UKMED P197) and all other research applications approved by UKMED can be found on the UKMED website UKMED. (n.d.). *Applications*. Retrieved 13 November 2024, from https://www.ukmed.ac.uk/accepted_applications/

[37] Dowell, J., Cleland, J., Fitzpatrick, S., McManus, C., Nicholson, S., Oppé, T., Petty-Saphon, K., King, O. S., Smith, D., Thornton, S., & White, K. (2018). The UK medical education database (UKMED) what is it? Why and how might you use it? *BMC Medical Education*, *18*(1), 6. https://doi.org/10.1186/s12909-017-1115-9

[38] *UK Medical Education Database (UKMED)*. (n.d.). [Dataset]. Retrieved 13 November 2024, from http://www.ukmed.ac.uk/

- Aged 19 or younger at the time of application.

We further restricted the sample to only those with evidence of having predicted A-level grades.[39]

The sample was restricted in this way to reduce confounding due to the different admissions criteria used for international students, postgraduate applicants, and reapplicants; and to allow for homogeneous measures of academic attainment (a key predictor of success) to be included. For example, Scotland has different school examinations from the rest of the UK and also has a different student funding scheme that strongly incentivises students resident in Scotland to apply only to Scottish medical schools.[40]

Further information about the sample can be found in the Supplementary Methods in the Appendix.

## Variables

Information about each variable used in the analysis can be found within the Supplementary Methods in the Appendix.

## Statistical analyses

Information about the statistical analyses we conducted can be found in the Supplementary Methods in the Appendix.

We report all findings according to HESA disclosure controls, which are in place to protect the anonymity of participants within the data. This includes rounding counts of people to the nearest 5, and suppressing averages calculated from group numbers of 7 or fewer, and percentages calculated from groups of 22.5 people or fewer.[41]

[39] See Supplementary Methods for further information about how the sample was created.

[40] Student Information Scotland. (n.d.). *Funding Your Studies*. Retrieved 15 November 2024, from https://www.studentinformation.gov.scot/students/higher-education/funding-your-studies

[41] Higher Education Statistics Agency (HESA). (n.d.). *Rounding and suppression to anonymise statistics*. Retrieved 13 November 2024, from https://www.hesa.ac.uk/about/regulation/data-protection/rounding-and-suppression-anonymise-statistics

# Results

## Section 1: Characteristics of applicants, offer-holders and entrants from 2012 to 2022

This section explores the national landscape of medical school applications, offering insights into the characteristics of applicants, offer-holders, and entrants. It provides an overview of the most significant trends and patterns observed over the decade from 2012 to 2022.

**64%**

The growth in medical applicants from 2012 to 2022.

### Growth in numbers of medical applicants, offer-holders and entrants

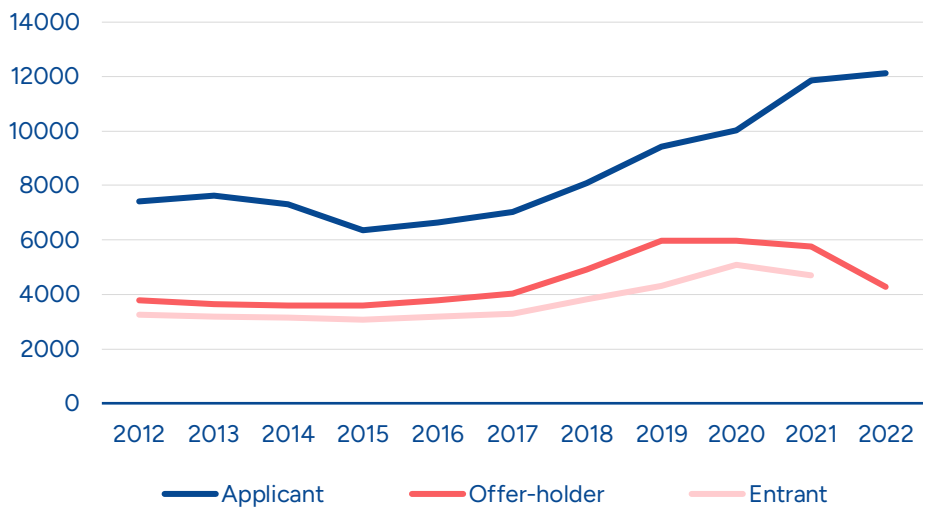
The number of medical applicants in our sample grew by 64%, from 7,400 in 2012 to 12,125 in 2022.[42] From 2019 to 2021, the demand for medical school places grew faster than the number of places at medical school (Figure 1). Up to the pandemic the number of offer-holders grew by 58% (3,770 in 2012 to 5,970 in 2020), which was similar to the growth in applicants; however, in 2021 and 2022 the number of offer holders dropped to the lowest since 2017.[43] The number of medical school entrants therefore grew only by 44%, from 3,260 in 2012 to 4,690 in 2021.[44]

[42] Numbers rounded to the nearest five.

[43] This was largely due to the cancellation of A-level examinations in 2020, which resulted in more applicants than expected meeting their offers and therefore being encouraged to defer entry until subsequent years. See Reed, M., Atherton, J., & Petty-Saphon, K. (2020, August 28). Additional funds for medical school places must continue beyond 2020. *The BMJ*. https://blogs.bmj.com/bmj/2020/08/28/additional-funds-for-medical-school-places-must-continue-beyond-2020/. For further information about medical school numbers and the impact of the pandemic on medical school applications, please see Kaminskaite, V., and Harvey, A. (2022) Impact of the covid-19 pandemic on medical school applicants,: BMJ;378:o1398 and Lewis, J. (2023) The cap on medical and dental student numbers in the UK, House of Commons Library Briefing number CBP-9735, UK Parliament, London.

[44] The latest data available from UKMED on applicants and offer-holders was from 2022. However, the latest data on entrants was from 2021. This is also reflected in graphs and tables below.

**Figure 1 : Total number of applicants, offer-holders and entrants to medical school from 2012 to 2022**




The sample comprises applicants domiciled in England, aged 19 or younger, applying to medical school for the first time via UCAS, who had predicted A-level grades.

Source: UKMED P197

**44%**

The growth in medical school entrants from 2012 to 2021.

Because of this growth in medical school applicants and entrants over time, the relative proportions of different groups over time did not necessarily reflect absolute differences in the numbers within those groups. For example, in Figure 6 it is clear that, while the absolute number of applicants from independent schools remained broadly stable over the period, the *proportion* dropped as more applicants came from other school/college types.

## Applications and entry to gateway courses and new medical schools

Approximately 1 in 7 (15%) of all medical school applicants between 2012 and 2022 had applied to at least one gateway course; the remaining 86% had applied only to standard entry courses.[45] Of all those who entered medical school from 2012 to 2021, 4% entered a gateway course.

**18%**

of all medical applicants applied to at least one new medical school.

[45] The odds of applicants from the most deprived backgrounds (NS-SEC 4 or 5 and IMD 1 or 2) receiving an offer from a Gateway course compared to a Standard Entry course, and of receiving an offer from a new medical school compared to an established medical school, are shown in Section 3, below.

Approximately 1 in 6 (18%) of all applicants between 2018 and 2022 had applied to at least one new medical school. Of all those entering medical school during that period 4% entered a new medical school.[46]

## Socio-economic background

### Changes over time

From 2012 to 2021[47] the proportion of applicants, offer-holders and entrants from the highest socio-economic group dropped while the proportion from the medium and lowest groups increased (see Table 1).

**Table 1: Number and percentage of applicants by socio-economic group in 2012 and 2021**

| Year | Socio-economic group | Count | Total | Percentage (95% CI) |
|---|---|---|---|---|
| 2012 | High | 5480 | 7400 | 74 (73-75) |
| | Medium | 900 | 7400 | 12 (911-13) |
| | Low | 240 | 7400 | 3 (3-4) |
| | Unknown | 780 | 7400 | 11 (10-11) |
| 2021 | High | 8120 | 11850 | 69 (68-69) |
| | Medium | 1345 | 11850 | 11 (11-12) |
| | Low | 680 | 11850 | 6 (5-6) |
| | Unknown | 1700 | 11850 | 14 (14-15) |

Counts are rounded to the nearest 5.

**6%**

of medical applicants, 5% of medical offer-holders and 5% of entrants in 2021 were from the lowest socio-economic group.

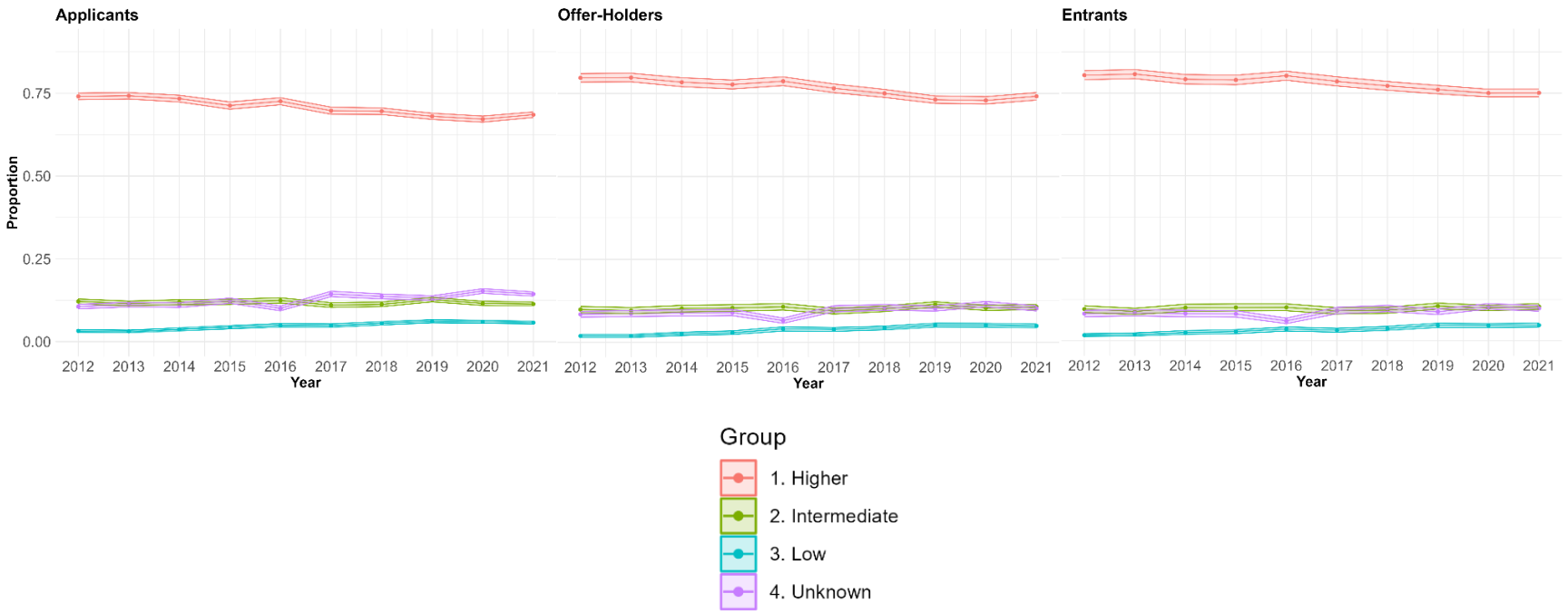
In 2021 individuals from the highest socio-economic group made up 69% of applicants, 74% of offer-holders and 75% entrants, while those from the lowest socio-economic group made up 6% of all applicants, 5% of offer-holders and 5% of entrants.

[46] The proportions applying to and entering Gateway courses and new medical schools are not mutually exclusive because it is possible to enter a Gateway course at a new medical school, for example at the University of Lincoln.

[47] In 2022 the proportion of applicants whose NS-SEC category was "unknown" grew to 36%, making it difficult to interpret trends in this year.

Figure 2 shows this relative stability over time in the proportion of applicants, offer-holders and entrants from different socio-economic groups.

## Figure 2: The proportions of applicants, offer-holders and entrants from the highest, medium and lowest socio-economic groups from 2012-2021




Source: UKMED P197

### Differences by medical school and course type

The heatmaps in Figure 3 show the proportion of applicants and entrants to each medical school[48] from the lowest socio-economic group over time. It can be seen from these heatmaps that there were more applicants than entrants from the lowest socio-economic group across the sector. It is also clear that some medical schools attracted and/or admitted more applicants from the lowest socio-economic group than others. New medical schools had relatively more applicants and entrants from the lowest socio-economic group compared to established medical schools:

- Nearly a quarter (23%) of all applicants (2018-2022) from the lowest socio-economic group had applied to at least one new medical school, compared to 16% of those in the highest socio-economic group.

- Only 7% of entrants to new medical schools were from the lowest socio-economic group, with 13% from the medium group and two thirds (66%) from the highest socio-economic group.[49] By contrast, 76% of those in established medical schools were from the highest socio-economic group, with 10% from the medium group and 4% from the lowest socio-economic group.[50]

The social differences between gateway courses and standard entry courses were even more pronounced than between new and established medical schools:

- A third (33%) of all applicants from the lowest socio-economic group had applied to at least one gateway course, compared to 23% of those in the medium group and 8% of those in the highest socio-economic group.

- Despite this, only 11% of all entrants to gateway courses were from the lowest socio-economic group, with 46% from the highest socio-economic group. Among entrants to standard entry courses however, 4% were from the lowest socio-economic group and

**33%**

of all medical applicants from the lowest socio-economic group applied to at least one Gateway course.

[48] Non-English medical schools were excluded from heatmaps because relatively few English domiciled applicants apply to Scottish universities. Entrants to the University of Buckingham were excluded because they did not necessarily come through the central clearing house UCAS.

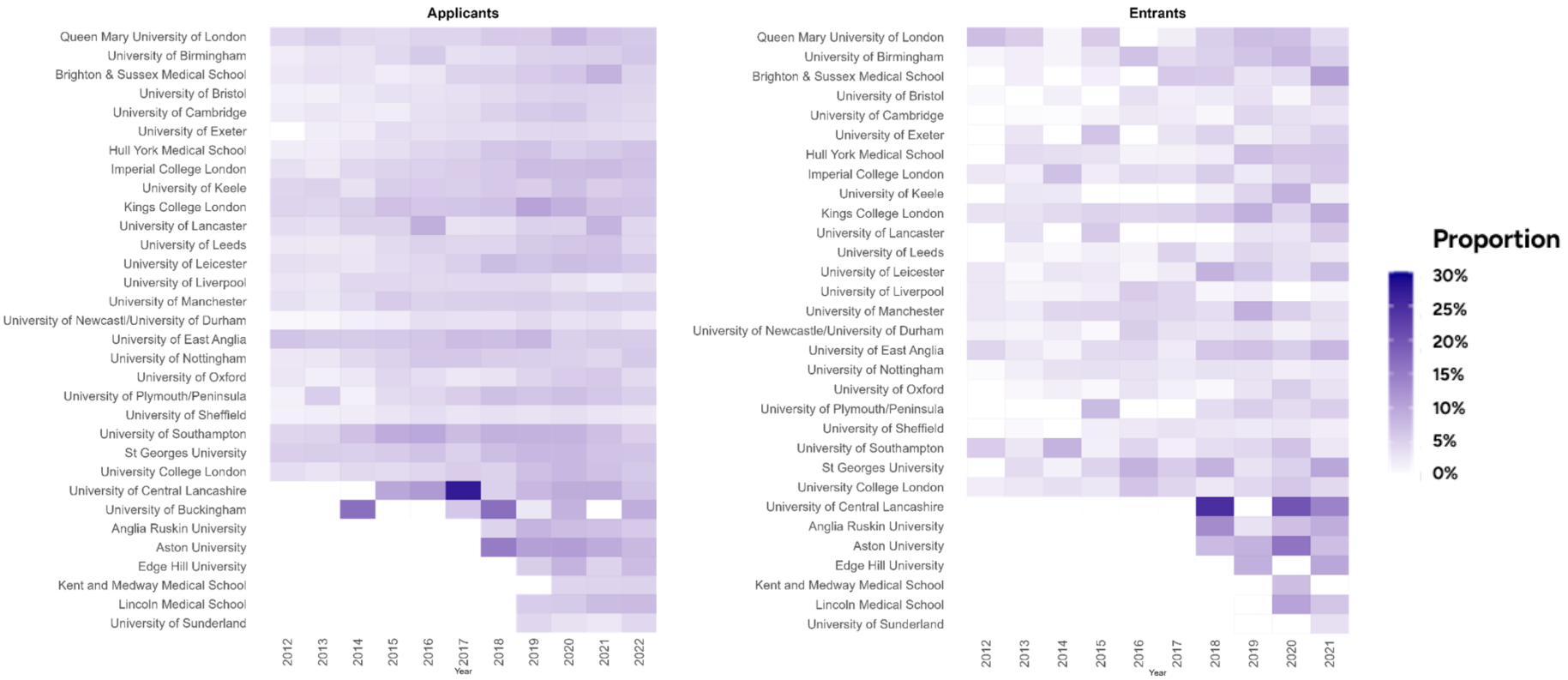
[49] 14% of entrants to new medical schools were missing socioeconomic data, however even if all were from the lowest socio-economic group, the total from that group would still be less than half that from the highest socio-economic group.

[50] 10% of entrants to established medical schools were missing socio-economic data.

nearly three quarters (73%) were from the highest socio-economic group.[51]

[51] 19% of entrants were missing data on their socio-economic group, however even if all of those missing data were from the lowest socio-economic group, the proportion would still be smaller than that from the highest socio-economic group.

## Figure 3: Heatmap showing the proportions of applicants and entrants from the lowest socio-economic group by medical school annually




English medical schools only. Darker purple represents higher proportions and lighter mauve represents lower proportions. Different colours do not represent statistically significant differences and some cells may have small numbers. White indicates missing data.

Source: UKMED P197

## Neighbourhood-level deprivation

### Changes over time

While changes over time by socio-economic group were relatively small, the proportion of applicants, offer-holders and entrants living in the most deprived neighbourhood quintile (IMD1) grew significantly during the period and the proportion living in the least deprived neighbourhood quintile (IMD5) dropped (see Figure 4). For example:

- In 2012, 11% of applicants lived in the most deprived neighbourhood quintile compared to 35% who lived in the least deprived quintile.

- By 2022, 20% of applicants lived in the most deprived neighbourhood quintile and 25% lived in the least deprived quintile.

Among entrants, changes over time were also marked. For example:

- In 2012, 7% of all entrants lived in the most deprived neighbourhood quintile compared to 39% in the least deprived quintile.

- By 2021, 16% of entrants lived in the most deprived neighbourhood quintile compared to 31% who lived in the least deprived quintile.

**20%**

of medical applicants in 2022 lived in the most deprived neighbourhood quintile in England.

## Figure 4: The proportions of applicants, offer-holders and entrants from the five neighbourhood deprivation quintiles annually from 2012-2021


Source: UKMED P197

### Differences by medical school and course type

The variability between medical schools in the proportion of applicants they admitted from the most deprived neighbourhood quintile (IMD1) from 2012 to 2021 is shown in the heatmap in Figure 5.

New medical schools attracted relatively more applicants from the most deprived neighbourhoods:

- Between 2018 and 2022, a quarter (25%) of all applicants from the most deprived neighbourhood quintile (IMD1) had applied to at least one new medical school.

- 13% of applicants from the least deprived neighbourhood quintile (IMD5) had applied to at least one new medical school.

Entrants to new medical schools were fairly evenly distributed across the IMD quintiles, albeit with a slight over-representation (26%) in IMD1 (most deprived), and slight under-representation (16%) in IMD3 and IMD4. Entrants to established medical schools, however, were skewed towards the wealthiest neighbourhoods, with a third (33%) in IMD5 (wealthiest) and 13% in IMD 1 (most deprived).

Gateway courses tended to attract more applicants from the most deprived neighbourhoods. For example, between 2012 and 2022:

- Nearly a third (31%) of all applicants from the 20% most deprived neighbourhoods in England applied to at least one gateway course, whereas only 3% of all applicants from the least deprived (wealthiest) neighbourhood quintiles had applied to at least one gateway course.

As a result, gateway courses had markedly higher proportions of students from the most deprived neighbourhoods than did standard entry courses:

- 60% of entrants to gateway courses were from the 40% most deprived neighbourhoods in England.

- Only 20% of entrants to standard entry courses were from the 40% most deprived neighbourhoods.

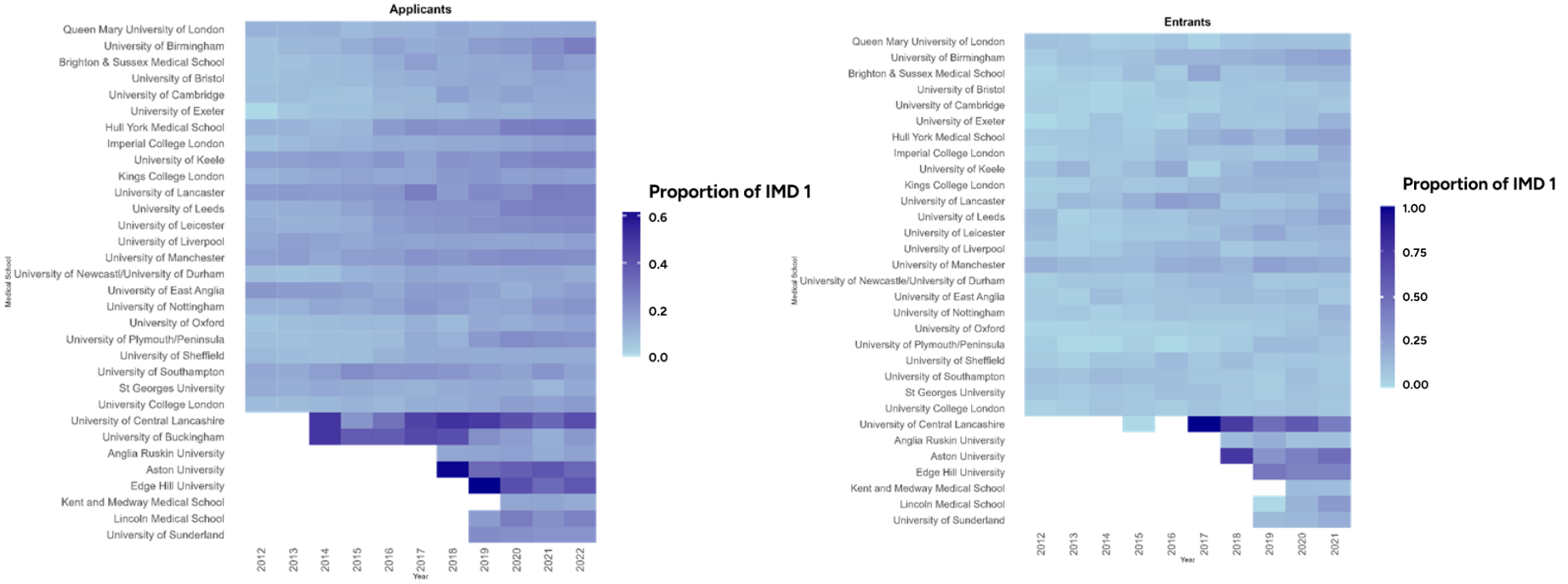
**60%**

of those entering Gateway medical degree courses were from the two most deprived neighbourhood quintiles in England.

**20%**

of those entering Standard Entry medical degree courses were from the two most deprived neighbourhood quintiles in England.

## Figure 5: Heat map showing the proportion of medical school applicants and entrants from the most deprived neighbourhood quintile 2012 to 2022




English medical schools only. Darker purple represents higher proportions and lighter blue represents lower proportions. Different colours do not represent statistically significant differences and some cells may have small numbers. White indicates missing data. Source: UKMED P197.

## School/college type

### Changes over time

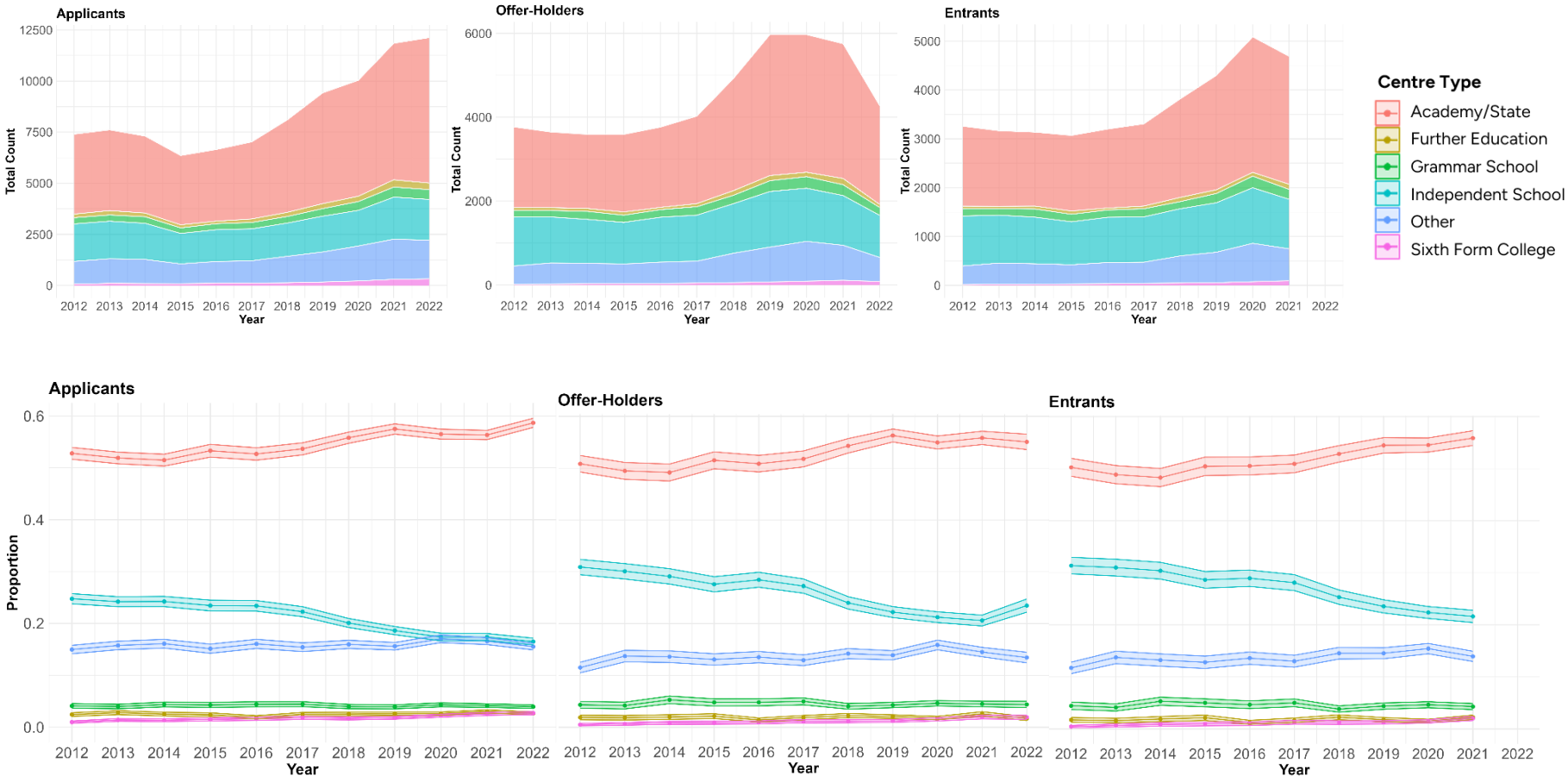
From 2012 to 2022, the proportion of applicants, offer-holders and entrants from academy/state schools (non-selective state schools)[52] grew, and the proportion from independent schools dropped. This is a result of the absolute number of applicants from independent schools staying relatively stable, while numbers grew from the rest of the sector, particularly academy/state schools, FE colleges and sixth form colleges:

- By 2022 independent school applicants made up fewer than one in six applicants (16%), down from one in four (25%) in 2012;
- By 2022 non-selective state school (academy/state) applicants made up 59% of applicants, up six percentage points from 53% in 2012;
- The proportion from grammar schools remained stable over the period, at around 4%.

Figure 6 shows the changes in proportions and numbers of applicants, offer-holders and entrants by school/college type over time.

[52] Grammar schools are counted separately in this analysis therefore the category academy/state schools refers to non-selective state schools that do not base admissions on an entrance exam like the 11+. It should be remembered that many sixth forms are selective in having minimum GCSE grade requirements in their admissions policies.

**Figure 6: Top panel: numbers of applicants, offer-holders and entrants by school/college (centre) type over time. Bottom panel: proportions of applicants, offer-holders and entrants by school/college type over time.**




Source: UKMED P197

### Differences by medical school and course type

Increases in the proportions of applicants from academy/state schools since 2012 were not always uniform across medical schools, as shown in the heatmap in Figure 7.

**4%**

of gateway course entrants were from independent schools.

New medical schools were less popular among applicants from independent schools compared to applicants from other school/college types:

- One in ten applicants from independent schools had applied to a new medical school, compared to around one in five (20%) of applicants from grammar schools (19%), non-selective state (academy/state) schools (19%) or sixth form colleges (19%), and one in six (17%) FE college applicants.

- Only around one in ten (11%) of all entrants to new medical schools were from independent schools, compared to around one in four (24%) of all entrants to established medical schools.

New medical schools had more entrants from sixth form colleges compared to established medical schools (21% vs 14%). New medical schools also had a slightly higher proportion of entrants from academy/state schools (59% vs 54%). Gateway courses were also less popular with applicants from independent and grammar schools, and relatively more popular with applicants from FE and sixth form colleges, which reflects the eligibility criteria for gateway courses.

**28%**

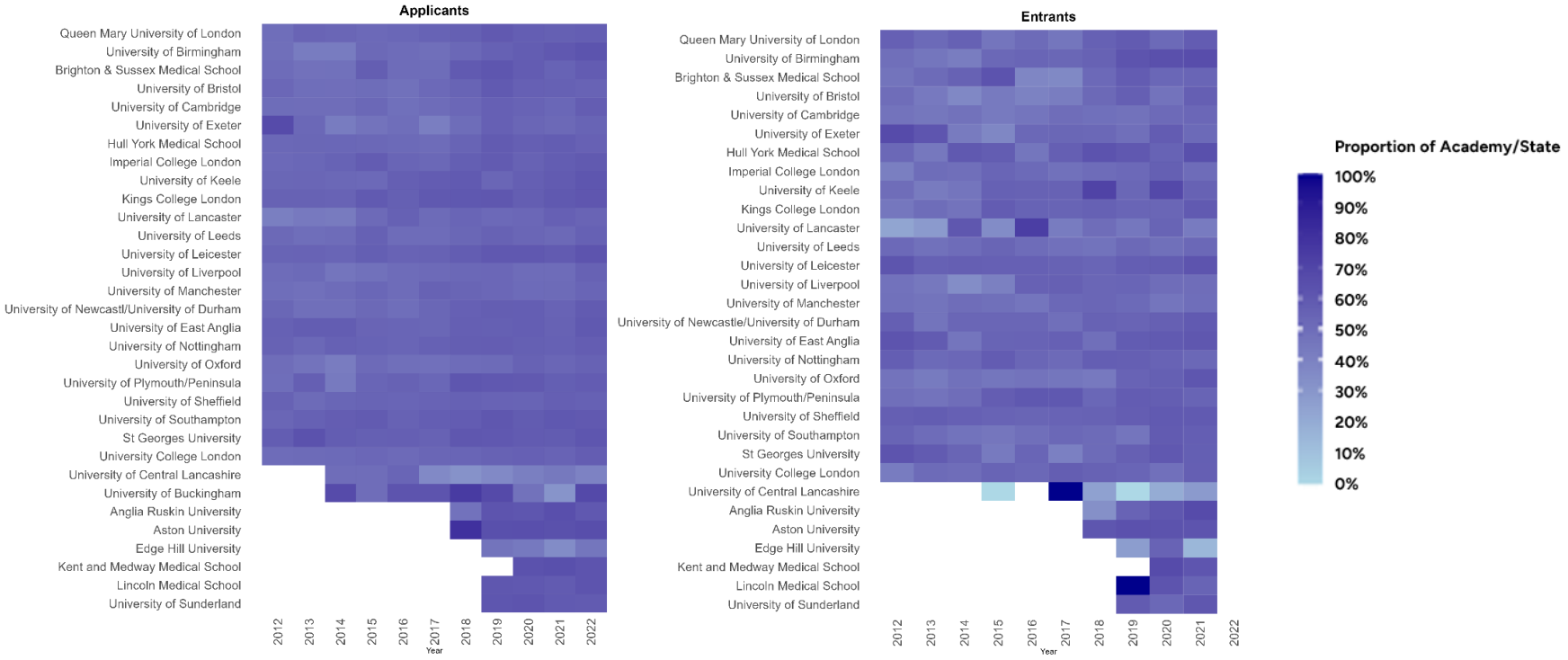
of standard entry course entrants were from independent schools.

- Only 2% (1 in 50) of applicants from independent schools and 6% of grammar school applicants had applied to at least one gateway course.

- By comparison, 16% of all applicants from academy/state schools, 20% (1 in 5) of all applicants from sixth form colleges and 20% of all applicants from FE colleges had applied to a gateway course.

- Only 4% of all those entering a gateway course were from independent schools, whereas over a quarter (28%) of those entering a standard entry course were from independent schools.

## Figure 7: Heatmap showing the proportions of applicants and entrants from academy/state (non-selective state) schools by medical school over time




English medical schools only. Darker purple represents higher proportions and lighter blue represents lower proportions. Different colours do not represent statistically significant differences and some cells may have small numbers. White indicates missing data.

Source: UKMED P197.

## Gender and ethnic profile of applicants, offer-holders and entrants

### Changes over time

The proportion of female applicants, offer-holders and entrants to medical school rose from over half to around two thirds over the period, which also saw large increases among the proportion of Asian and Black ethnic groups and a relative decrease among the White ethnic group.[53]

As shown in the mosaic plots in Figure 8, changes in the demographics of medical school entrants were not always consistent across socio-economic group or gender:

- Within the highest socio-economic group, the number of male entrants was fairly similar in 2012 and 2021, however the number of White men dropped and the number of Black and Asian men increased.

- The lowest socio-economic group saw a small increase in the proportion of male entrants, the majority of whom were of Asian ethnicity.

Combining data across all years from 2012 to 2021 showed stark differences by ethnicity and socio-economic group. Over half (52%) of entrants from the highest socio-economic group were White, 8% were Black and 31% were Asian; whereas among entrants from the lowest socio-economic group, 15% were White, 16% were Black and 61% were Asian.

The differences were similar among male and female entrants to medical school:

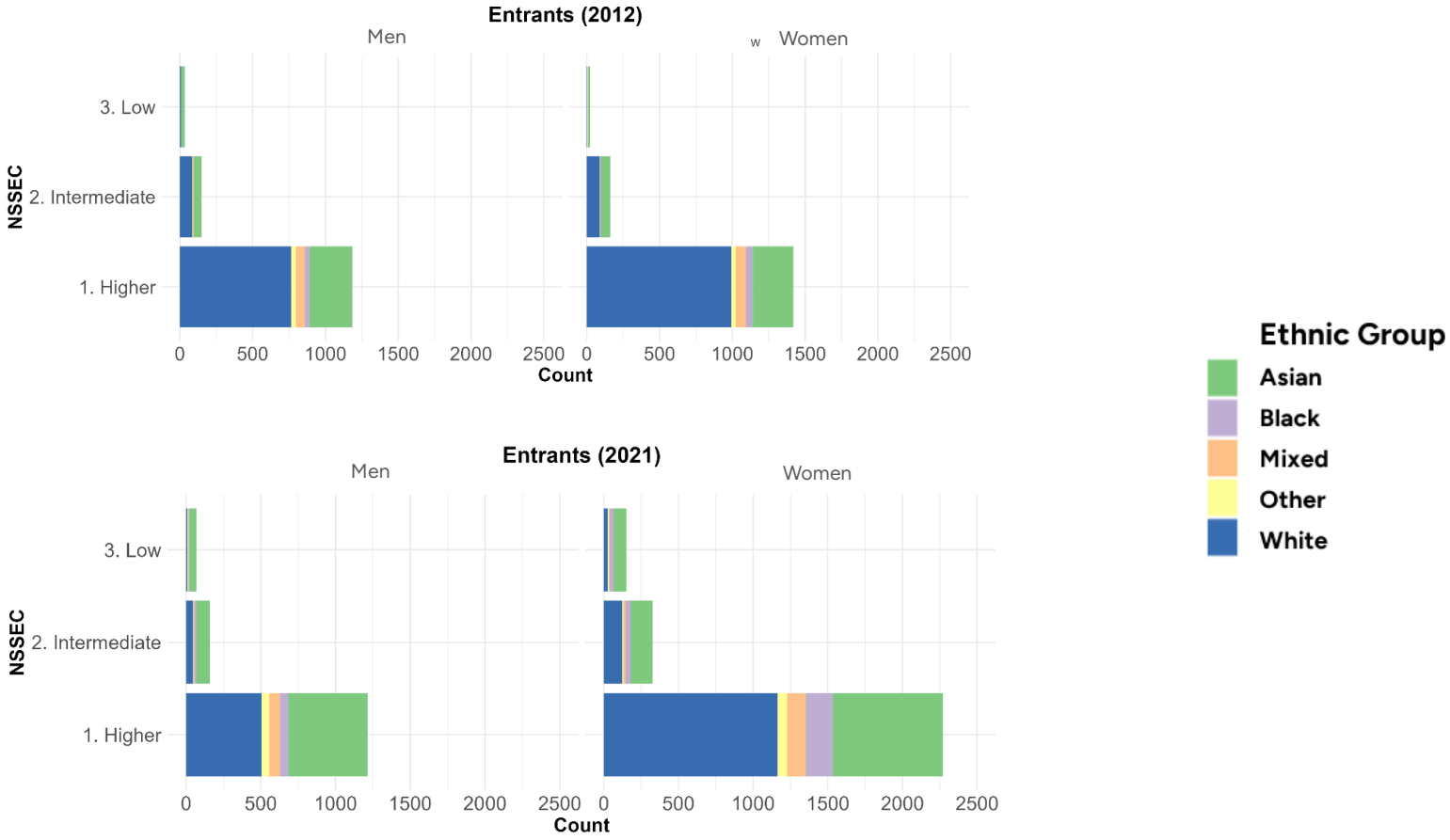
- In the highest socio-economic group over a third (35%) of male and 29% of female entrants were Asian, 6% of male and 9% of female entrants were Black, and 50% of male and 53% of female entrants were White.

- In the lowest socio-economic group two thirds (66%) of male and 57% of female entrants were Asian, 13% of male and 18% of female

[53] See Supplementary Section 1 for further details

- entrants were Black, and 13% of male and 16% of female entrants were White.

## Figure 8: Mosaic plot showing the number of medical entrants by gender, socio-economic group and ethnicity in 2012 and 2021




Source: UKMED P197

## Parental education of entrants

### Changes over time

The proportion of medical school entrants[54] with a degree-level educated parent showed fairly little change: in 2012, 77% of entrants had a degree-educated parent compared to 74% in 2021.[55]

### Differences by medical schools and courses

There was considerable variability in entrants' parental education by course type:

- Around one in ten (11%) medical school entrants without a degree-educated parent entered a gateway course. Among all medical school entrants with a degree-educated parent, only one in 50 (2%) entered a gateway course.

- 59% of those entering a gateway course did not have a degree-educated parent compared to 21% of those entering a standard entry course.

New medical schools had more students without a degree-educated parent compared to established medical schools:

- A third (33%) of entrants to new medical schools did not have a degree-educated parent, compared to just under a quarter (24%) of those entering established medical schools.

## Academic factors

Applicants tended to have very high predicted A-levels, averaging between 31 to 32 points for their 3 best predicted A-levels, which is equivalent to two A grades and one A* grade. The predicted A-level grades of offer-holders and entrants were even higher, averaging at 33 points, which is equivalent to one A grade and one or two A* grades.

Applicants' achieved A-level points averaged 28 points for their best 3 A-level grades, equivalent to two As and a B, which was considerably lower

[54] Parental education data was only available for entrants.

[55] These percentages exclude the 16% of entrants in 2012 and 8% of entrants in 2021 with missing data for parental education.

than their predicted A-levels, on average. Offer-holders averaged 31 A-level points for their three best A-levels, and entrants averaged 32 A-level points for their best 3 A-level grades, which is equivalent to two As and one A*.[56]

Those who applied to and entered a new medical school and/or a gateway course had, on average, significantly lower predicted and achieved A-level grades than those applying to or entering an established medical school or a standard entry course. They also had significantly lower GCSE and UCAT scores.[57]

## Region of England and distance from home to medical school

### Changes over time

**40%**

of medical school applicants lived in London or the South East.

The proportions of applicants from the different regions in England remained fairly stable between 2012 and 2022 (see Figure 9):

- A quarter (25%) of applicants lived in London;
- Another 15% lived in the South East;
- The North East had the lowest percentage of applicants (4%).

Aspiring doctors were willing to travel relatively far to go to medical school, and this varied little over the period:

- Applicants originally lived on average 194km from the medical schools they had applied to.
- Entrants lived on average 174km from the medical school they entered.

From 2012 to 2022, the maximum distance between applicants' homes and the furthest of all medical schools they applied to was 320km on average. This distance increased slightly from 307km in 2012 to 325km in 2022. Consequently, the introduction of new medical schools does not appear to

[56] Further information about predicted and achieved A-level points over time can be found in Supplementary Section 1.

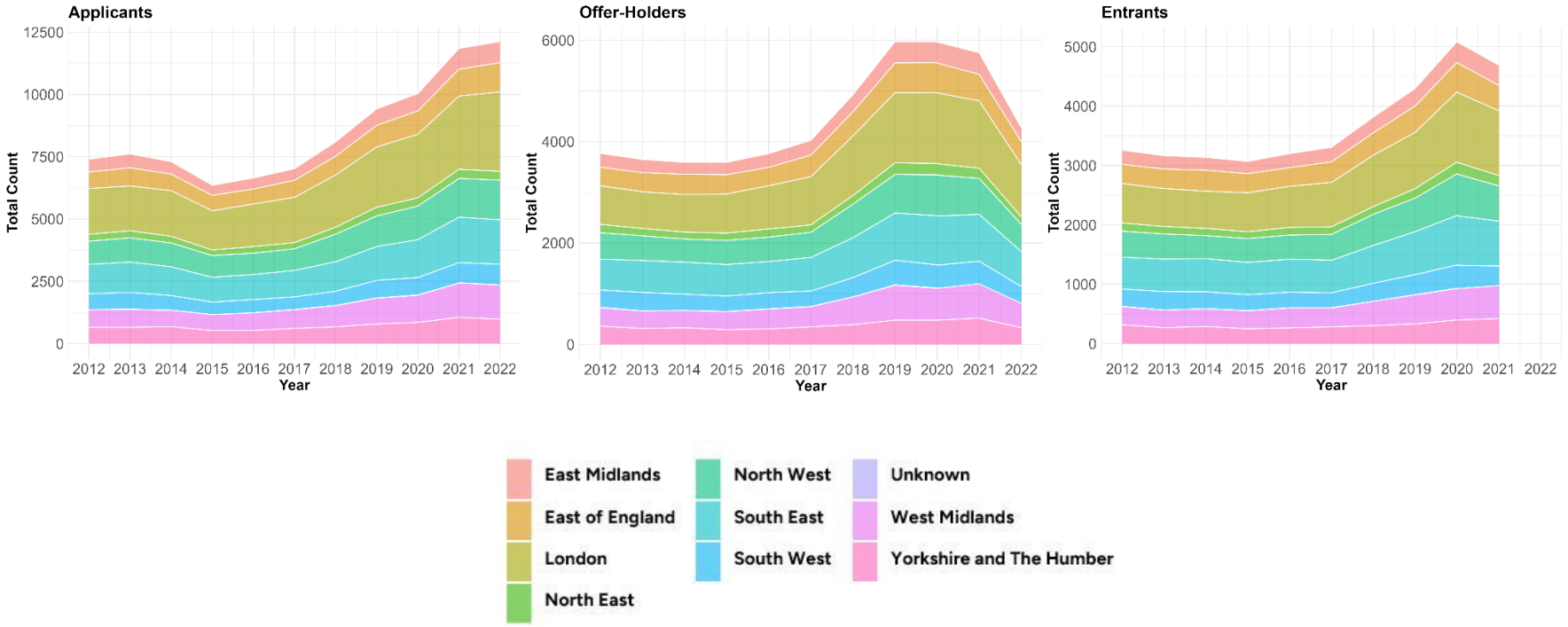
[57] See Supplementary Section 1 for detailed results.

have reduced the furthest distance the average applicant was willing to travel.

### Differences by medical schools and courses

Our sample consisted of data from applicants domiciled in England. During the period of this research (2012-2022), 40% of applicants lived in London and the South East (41% in 2022). As such, the longest average distances among both applicants and entrants were to medical schools in Scotland, Northern Ireland, North East England and South West England.

## Figure 9: Changes over time in the numbers of applicants, offer-holders and entrants from each English region




Entrant data is to 2021 only

Source: UKMED P197

Applicants and entrants to new medical schools tended to live closer than applicants and entrants to established medical schools:

- Applicants to one or more new medical schools (2018-2022) lived on average 177km from the medical schools they had applied to, which was 22km closer than those who only applied to established medical schools.

- Among entrants to new medical schools, their home at the time of application was on average 119km from their medical school. This was 55km closer than the average distance entrants to established medical schools lived from their medical school at the time they applied to study medicine.

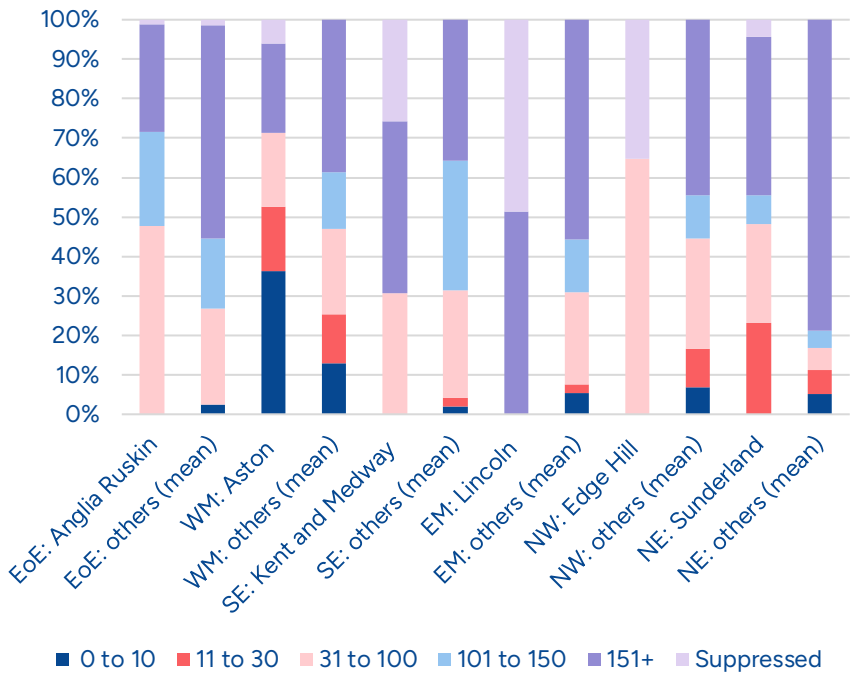
**119 km**

The average distance between home and medical school for those entering new medical schools between 2018 and 2021.

Figure 10 shows the distances from home of entrants to new medical schools (2018 to 2021) compared to entrants to more established medical schools in the same region. This visualisation suggests that most new medical schools admitted students who lived nearer, on average, than other medical schools within the same region.

The proportion (and number) of entrants to new medical schools whose home at the time of application was within 30km of their medical school was still fairly low, with the exception of Aston University in the West Midlands. This perhaps in part reflects population densities. With the exception of Edge Hill University and Aston University, more than half of entrants to new medical schools lived further than 100km away from their medical school at the time they applied.

**Figure 10: Average distance in km from home of entrants to new medical schools, in comparison to the average of distance from home of entrants to all other medical schools within the same region**




Data combined for 2018-2021. Distances categorised into bins of 0-10km (dark blue), 11-30km (red), 31-100km (pink), 101-150km (light blue), 151+km (dark purple), with proportions in each bin shown. Proportions suppressed in categories with fewer than 22.5 people (shown as light purple). EoE=East of England, NE=North East, NW=North West, SE=South East, WM=West Midlands. In this context "home" refers to the postcode of their home address at the time they applied to study medicine via UCAS.

Source: UKMED P197

Applicants and entrants to gateway courses tended to live closer to the medical schools they had applied to compared to applicants and entrants to standard entry courses only:

- Those who applied to one or more gateway courses (2012-2022) lived, on average, 175km from the medical schools they had applied to, which was 23km closer that applicants who only applied to standard entry courses.

- The average distance from home among gateway course entrants was 135km. This was 36km closer than the average distance from home among entrants to standard entry courses.

# Section 2: The predictors of achieving an offer and entering medical school

In this section we examine in more detail the differences by social background in receiving at least one offer to study medicine. Among those receiving at least one offer, we also calculated the odds of entering medical school.[58]

## Receiving at least one offer to study medicine

In 2012 and in 2021, applicants from more deprived backgrounds tended to have lower odds of receiving an offer:

- Applicants from the lowest and medium socio-economic groups had lower odds of receiving an offer compared to those in the highest socio-economic group.

- Applicants from more deprived neighbourhood quintiles had lower odds of receiving an offer compared to those in the least deprived (wealthiest) quintile (IMD5). However, over the period the relative disadvantage of applicants in IMD1 decreased, from a third of the odds to more than half (0.55) of the odds compared to those in IMD5.

These findings were confirmed in step 1 of a hierarchical logistical regression (Model 1), which calculated applicants' odds of receiving an offer, mutually adjusting for socio-economic group and IMD (neighbourhood deprivation), and combining data from across the period and controlling for year of application.

The addition of gender, ethnicity and region in Model 2 did little to alter the effects of socio-economic group or deprivation on applicants' odds of receiving an offer. The further addition of school/college type in Model 3 also did little to alter the effects of socio-economic group or deprivation on the odds of receiving at least one offer. Model 3 did show that, compared to applicants from non-selective state (academy/state) schools, those from independent schools and grammar schools had higher odds of

[58] See Supplementary Section 1 for detailed results.

getting an offer, while those from sixth form and FE colleges had lower odds.

The inclusion of achieved and predicted academic attainment in Model 4 significantly changed the relationship between socio-economic background and the odds of getting one or more offers (Figure 11). After adjusting for GCSE, UCAT and predicted A-level points:

- There were no longer significant differences by socio-economic group in the odds of getting an offer.

- Those in the most deprived neighbourhoods (IMD1) had *higher* odds of receiving an offer than those in the least deprived (wealthiest) neighbourhood (IMD5). Those from IMD3 and IMD4 had slightly lower odds than those in IMD5 of receiving an offer.

Other significant predictors of receiving one or more offers in the fully-adjusted Model 4, were as follows:

- UCAT score was a very strong predictor of receiving an offer: every standard deviation increase in UCAT score was associated with over three times the odds of receiving an offer. Higher predicted A-level points and, to a lesser extent, GCSE points, increased applicants' odds of receiving an offer.

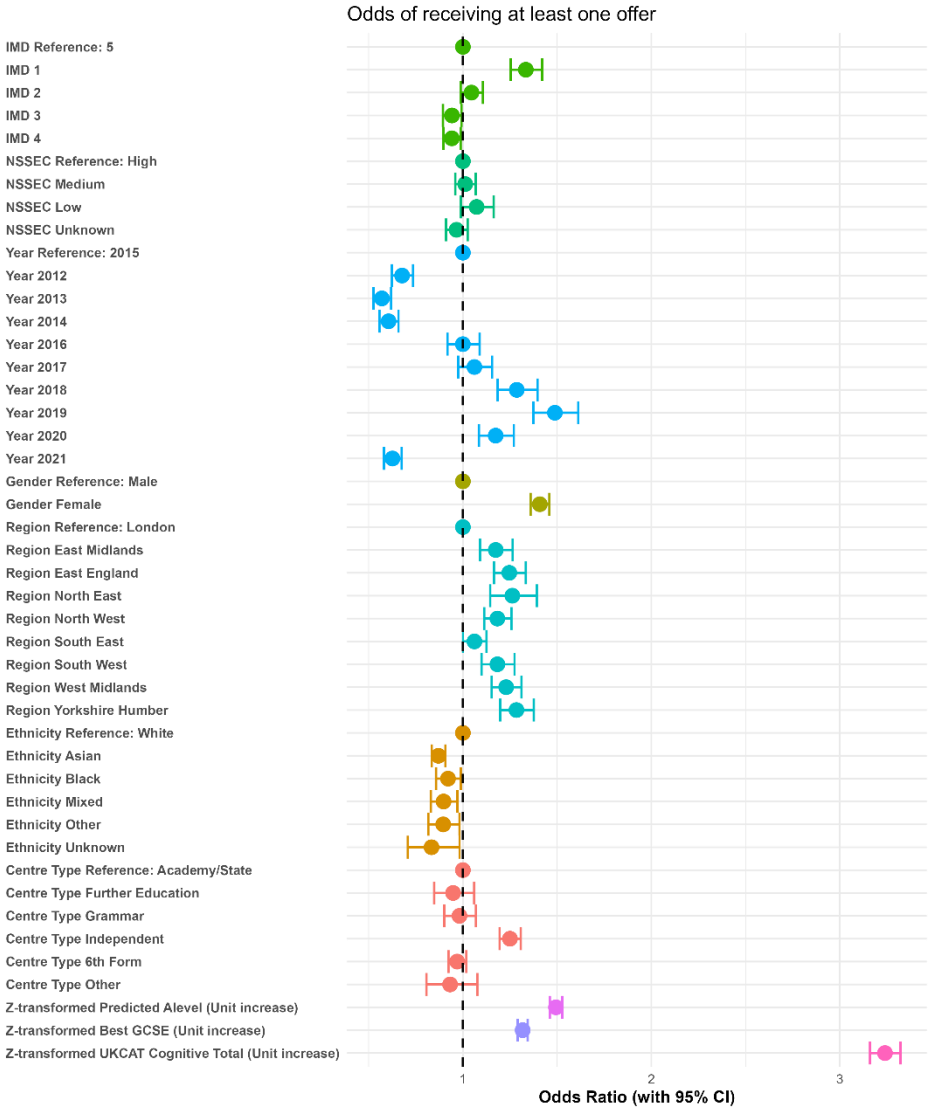
- Independent school applicants had one and a half times the odds of receiving an offer compared to non-selective state (academy/state) school applicants.

- Female applicants had higher odds than male applicants of receiving an offer.

- Applicants from Asian, Black, or Mixed ethnic groups had slightly lower odds of receiving an offer than those from White groups.

- Applicants from all regions of England had higher odds of receiving an offer compared to applicants from London.

## Figure 11: Results of the fully-adjusted logistic regression of demographic and educational factors on the odds of receiving at least one offer (vs none)




The dashed vertical line is the line of no effect and represents a lack of an association between the variables and the outcome of receiving an offer. Each dot represents the statistical relationship between a variable and receiving an offer, expressed as an odds ratio, with the whiskers showing the 95% confidence interval. Dots to the right of the line are associated with higher odds of an offer; dots to the left of the line are associated with lower odds of an offer. Dots with whiskers that cross the line indicate the variable is not statistically associated with receiving an offer. Each variable is shown in a different colour and for categorical variables, the reference group is shown on the line of no effect.

Source: UKMED P197

## Entering medical school

Comparing 2012 with 2021 showed some small differences by offer-holder background in the odds of their entering medical school:[59]

- In 2012 (but not in 2021), offer-holders from the medium socio-economic group had slightly lower odds of entering medical school compared to those from the highest socio-economic group.

- In 2021 (but not in 2012), offer-holders in the second *most* deprived (IMD2) and the second *least* deprived (IMD4) neighbourhood quintiles had slightly lower odds of entering medical school compared to those in the least deprived quintile (IMD5).

In both 2012 and 2021, offer-holders from the most deprived neighbourhood quintile (IMD1) had lower odds than those in the least deprived neighbourhood quintile (IMD5) of entering medical school.

Combining data across years in a logistic regression, controlling for year of application and mutually adjusting for socio-economic group and deprivation, confirmed that offer-holders from the medium and lower socio-economic groups had lower odds of entering medical school than those in the highest socio-economic group; and offer-holders in all quintiles of neighbourhood deprivation had lower odds than those in the least deprived (wealthiest) neighbourhood quintile (IMD5) of entering medical school.[60]

The addition of gender, ethnicity and region in Model 2[61] and of school type in Model 3[62] did little to change the effects of socio-economic group or IMD on the odds of entering medical school.

The addition of academic attainment in Model 4[63] however reduced the effects of low socio-economic status on entering medical school: offer-holders in the medium socio-economic group, and in IMD1 and IMD2, had

[59] See Supplementary Section 1for details

[60] See Supplementary Section 1 for details

[61] See Supplementary Section 1 for details

[62] See Supplementary Section 1 for details

[63] See Supplementary Section 1 for details

slightly increased odds of entering medical school given their demographics, school/college type and grades. This may reflect that those groups had predicted A-level grades that were closer to their actual A-level grades and/or it may be that they tended to receive lower offers from medical schools (which they were then more likely to meet).

These effects persisted in the fully-adjusted Model 5[64] (Figure 12), which additionally adjusted for the number of offers received. Other significant predictors of entering medical school in the fully-adjusted Model 5 were as follows:

- A-level grades were by far the strongest predictor of whether or not an offer-holder entered medical school.

- The number of offers was also a strong predictor of entering medical school: applicants with two or more offers had twice the odds of entering compared to those with just one. This is unsurprising because applicants with more than two offers have to select one as their firm choice and another as their insurance choice, and applicants will often choose an insurance choice that requires lower A-level grades.

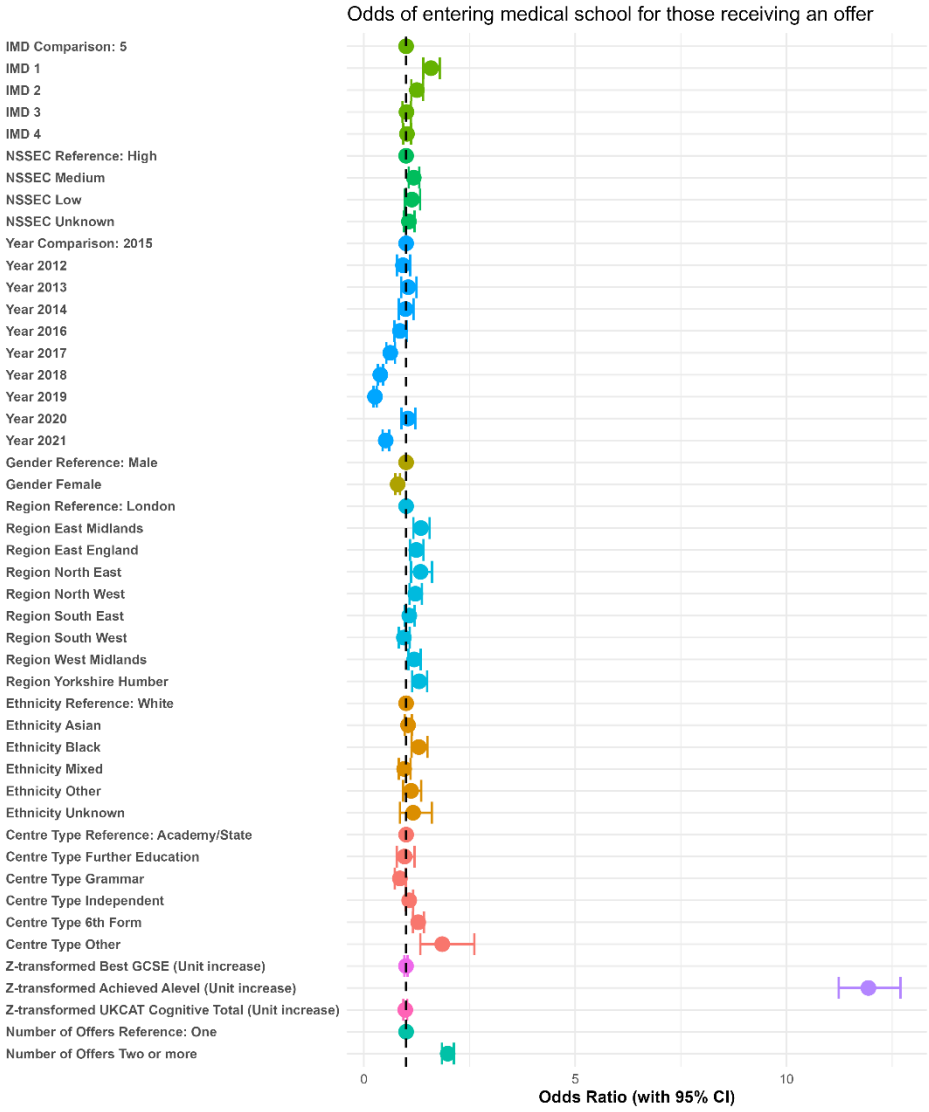
- Offer-holders who applied from a school/college classified by UCAS as "Other" had slightly higher odds of entering compared to those applying from non-selective state (academy/state) schools.

- Offer-holders of Black ethnicity and male offer-holders had slightly higher odds than White and female offer-holders, respectively, of entering medical school.

There were also differences by year and by region, with offer-holders in the East Midlands, East of England, North East, North West, West Midlands and Yorkshire and Humber all having higher odds of entering medical school compared to offer-holders from London.

[64] See Supplementary Section 2 for details

## Figure 12: Results of the fully-adjusted logistic regression of demographic and educational factors on the odds of entering medical school (vs not) among offer-holders only




The dashed vertical line is the line of no effect and represents a lack of an association between the variables and the outcome of entering medical school. Each dot represents the statistical relationship between a variable and entering medical school, expressed as an odds ratio, with the whiskers showing the 95% confidence interval. Dots to the right of the line are associated with higher odds of entering; dots to the left of the line are associated with lower odds of entering. Dots with whiskers that cross the line indicate the variable is not statistically associated with entering medical school. Each variable is shown in a different colour and for categorical variables, the reference (comparison) group is shown on the line of no effect.

Source: UKMED P197

# Section 3: Success rates among deprived applicants to new medical schools and gateway courses

In this section we explore the impact that applying to new medical schools and gateway courses had on the likelihood that applicants from the most deprived backgrounds would get an offer. We defined applicants as being in the "most deprived" group if they were from one of the two lowest socio-economic groups (NS-SEC 4 or 5) or if they lived in the two most deprived neighbourhood quintiles (IMD 1 or 2).

## New medical schools

In every year from 2018 to 2021, applicants from the most deprived backgrounds who applied to at least one new medical school, had similar offer rates on average compared to those from the same backgrounds who applied only to established medical schools. The exception was in 2019 when applicants to at least one new medical school had higher offer rates compared to applicants to established schools only (see Table 2).

After taking grades into account, applicants from the most deprived backgrounds in every year who applied to at least one new medical school were more likely to get an offer than applicants from similar backgrounds *with equivalent grades* who applied only to established medical schools. In other words, applicants from the most deprived backgrounds had higher odds of success if they applied to one or more new medical schools, given their grades (see Table 3).

## Table 2: Offer rates and mean grades for applicants from the most deprived backgrounds who applied to at least one new medical school compared to established medical schools only

| Year | Medical School types applied to | N applicants | N offer-holders | Offer rate (95% CIs) | Mean GCSE points | Mean Predicted A-Level points | Mean UCAT points |
|---|---|---|---|---|---|---|---|
| 2018 | 1+ new | 80 | 50 | 59 (48-69) | 44.6 | 31.0 | 2464.0 |
| | All established | 2635 | 1400 | 53 (51-55) | 45.8 | 30.9 | 2541.0 |
| 2019 | 1+ new | 685 | 435 | 63 (60-67) | 43.6 | 29.6 | 2428.8 |
| | All established | 2665 | 1440 | 54 (52-56) | 45.9 | 31.0 | 2483.0 |
| 2020 | 1+ new | 1060 | 545 | 52 (49-55) | 44.4 | 29.6 | 2431.9 |
| | All established | 2660 | 1420 | 53 (51-55) | 46.4 | 31.0 | 2486.3 |
| 2021 | 1+ new | 1090 | 505 | 46 (43-49) | 44.1 | 29.6 | 2458.5 |
| | All established | 3330 | 1445 | 43 (42-45) | 44.9 | 30.7 | 2507.1 |

Note: Offer rates and mean grades (GCSE, predicted A-level and UCAT) for applicants from the most deprived backgrounds (NS-SEC 4 or 5 or living in IMD 1 or 2 neighbourhoods). Applicant numbers rounded

**Table 3: Odds of receiving at least one offer, among applicants from the most deprived backgrounds who applied to one or more new medical schools, compared to those who applied to established medical schools only**

| | 2018 | | 2019 | | 2020 | | 2021 | |
|---|---|---|---|---|---|---|---|---|
| | uOR (95% CI) | aOR (95% CI) | uOR (95% CI) | aOR (95% CI) | uOR (95% CI) | aOR (95% CI) | uOR (95% CI) | aOR (95% CI) |
| **1+ new (vs all established)** | 1.25 (0.80-1.97) | 1.89 (1.15-3.15) | 1.48 (1.25-1.76 | 2.59 (2.12-3.17) | 0.93 (0.81-1.07) | 1.40 (1.19-1.65) | 1.13 (0.98-1.29) | 1.53 (1.31-1.78) |
| **GCSE points z-score** | | 1.26 (1.14-1.39) | | 1.33 (1.22-1.46) | | 1.30 (1.20-1.42) | | 1.21 (1.11-1.32) |
| **Predicted A-levels z-score** | | 1.42 (1.28-1.57) | | 1.48 (1.34-1.63) | | 1.45 (1.32-1.59) | | 1.26 (1.16-1.37) |
| **UCAT cognitive z-score** | | 2.89 (2.56-3.27) | | 2.61 (2.34-2.93) | | 2.58 (2.33-2.87) | | 2.68 (2.44-2.95) |

Deprived backgrounds by NS-SEC groups 4/5 or living in IMD 1/2 neighbourhood areas. Odds ratios are unadjusted (uOR) or adjusted (aOR) for GCSE points, predicted A-level points, and UCAT cognitive score. All grades z-standardised within the whole cohort of applicants per year. Separate models for each year from 2018 to 2021.

## Gateway courses

Applicants from the most deprived backgrounds who applied to at least one gateway course had significantly *lower* offer rates than those from the same backgrounds who applied only to standard entry courses (see Table 4).

After taking their lower grades into account, applicants from the most deprived backgrounds who applied to at least one gateway course had *higher* odds of getting an offer than applicants from similar backgrounds *with equivalent grades* who applied only to standard entry courses (see Table 5).

In other words, applicants from the most deprived backgrounds had higher odds of success if they applied to a gateway course, given their grades. This was the case in every year from 2018 to 2021. For example, in 2018 those applying to gateway courses had over three times the odds of receiving an offer than those applying only to standard entry courses. In 2021 the odds were 1.55.

### Table 4: Offer rates and mean grades for applicants from the most deprived backgrounds who applied to at least one gateway course or standard entry courses only

| Year | Course types applied to | N applicants | N offer-holders | Offer rate (95% CIs) | Mean GCSE points | Mean Predicted A-Level points | Mean UCAT points |
|---|---|---|---|---|---|---|---|
| 2018 | 1+ Gateway courses | 720 | 160 | 22 (19-25) | 41.9 | 27.6 | 2394.1 |
| | Standard Entry only | 2000 | 840 | 42 (40-44) | 47.1 | 32.0 | 2590.9 |
| 2019 | 1+ Gateway courses | 920 | 235 | 25 (23-28) | 41.5 | 27.7 | 2340.5 |
| | Standard Entry only | 2430 | 985 | 41 (39-42) | 46.9 | 31.9 | 2521.6 |
| 2020 | 1+ Gateway courses | 1015 | 310 | 30 (28-33) | 41.5 | 27.3 | 2341.5 |
| | Standard Entry only | 2710 | 1280 | 47 (45-49) | 47.5 | 31.8 | 2519.2 |
| 2021 | 1+ Gateway courses | 1290 | 300 | 23 (21-26) | 40.8 | 26.9 | 2351.3 |
| | Standard Entry only | 3130 | 1250 | 40 (38-42) | 46.3 | 31.9 | 2554.3 |

Mean grades for GCSE, predicted A-level and UCAT; deprived backgrounds by NS-SEC 4or 5 or living in IMD 1 or 2 neighbourhoods. Applicant numbers rounded

**Table 5: Odds of receiving at least one offer among applicants from the most deprived backgrounds. Those who applied to one or more gateway courses are compared to those who applied to standard entry courses only**

| | 2018 | | 2019 | | 2020 | | 2021 | |
|---|---|---|---|---|---|---|---|---|
| | **uOR (95% CI)** | **aOR (95% CI)** | **uOR (95% CI)** | **aOR (95% CI)** | **uOR (95% CI)** | **aOR (95% CI)** | **uOR (95% CI)** | **aOR (95% CI)w** |
| **1+ Gateway course (vs all Standard entry)** | 0.64 (0.54-0.76) | 3.78 (2.95-4.87) | 0.59 (0.50-0.68) | 2.18 (1.77-2.68) | 0.59 (0.51-0.68) | 2.39 (1.97-2.93) | 0.51 (0.44-0.58) | 1.53 (1.28-1.83) |
| **GCSE** | - | 1.35 (1.22-1.50) | - | 1.34 (1.22-1.46) | - | 1.33 (1.22-1.46) | | 1.23 (1.13-1.34) |
| **Predicted A-levels** | - | 1.81 (1.61-2.05) | - | 1.60 (1.44-1.77) | - | 1.68 (1.51-1.86) | | 1.34 (1.22-1.47) |
| **UCAT** | - | 3.39 (2.97-3.88) | - | 2.76 (2.47-3.10) | - | 2.79 (2.51-3.12) | | 2.75 (2.50-3.03) |

Deprived backgrounds by NS-SEC groups 4 and 5 or living in IMD 1 and 2 neighbourhood areas. Odds ratios are unadjusted (uOR) or adjusted (aOR) for GCSE points, predicted A-level points, and UCAT cognitive score (all z-standardised within the whole cohort of applicants per year). Separate models were created for each year from 2018 to 2021.

# Section 4: UCAT and A-level performance among those from lower socio-economic groups

The correlation between applicants' UCAT scores and predicted A-levels was similar in each of the three socio-economic groups at 0.3.[65]

To explore whether the relationship between UCAT and predicted A-level grades varied by socio-economic group after controlling for other factors related to UCAT scores (gender, ethnicity and school type), we conducted a multiple regression that included an interaction between predicted A-level points and socio-economic group.

The results of the regression[66] showed a strong positive association between predicted A-levels and UCAT scores. However, among applicants from low and medium socio-economic groups, the association between predicted A-levels and UCAT scores was slightly weaker than in the higher socio-economic group, even after accounting for the significant effects of gender, ethnicity and school/college type on UCAT score.

To explore this finding further, we compared mean UCAT scores by socio-economic group among only those applicants with the highest predicted A-level points (equivalent to 3 A* grades). We found small but significant differences in UCAT scores by socio-economic group: the highest socio-economic group achieved a higher average UCAT score than the average score of applicants in the lowest socio-economic group (see Table 6). The difference between the scores was equivalent to approximately half a standard deviation. In 2022, the mean cognitive total UCAT score in our sample was 2585, with a standard deviation 249, meaning that half a standard deviation was equivalent to 125 points or 5% of the total score.

These findings suggest that applicants from lower socio-economic groups who had the highest predicted A-level points, may have faced challenges in achieving the highest UCAT scores, even after considering their gender, ethnicity, and school type.

[65] Kendall rank correlations between UCAT cognitive score and sum best three predicted A-level grades = 0.30 (high socio-economic group), 0.31 (medium socio-economic group), 0.31 (low socio-economic group)

[66] See Supplementary Table 5 in Supplementary Section 2.

**Table 6: Mean UCAT scores by socio-economic group among applicants with the highest points from their predicted A-level grades, equivalent to 3 A* grades**

| Socio-economic group | N | Mean UCAT z-score (95% CIs) |
|---|---|---|
| High | 15425 | 0.795 (0.781-0.809) |
| Medium | 1600 | 0.474 (0.431-0.517) |
| Low | 660 | 0.305 (0.238-0.372) |

Counts rounded to the nearest 5. UCAT scores z-transformed to allow averaging over years from 2012-2021.

# Section 5: The number and characteristics of schools and colleges producing medical school applicants and entrants

## Number of schools/colleges producing medical school applicants and entrants

Over the 10-year period from 2012 to 2022, there were 2,719 unique schools/colleges in the dataset, meaning that during this period 2,719 schools/colleges provided at least one medical applicant who met our criteria for inclusion in the sample.[67]

Not all of those schools/colleges provided an applicant every year: per year, an average of 1,683 schools/colleges provided at least one

[67] An approximation of the proportion of all schools/colleges in England that this represents is provided in the Supplementary Section 5, along with a comparison by school/college type.

applicant.[68] An average of 1,102 schools/colleges provided at least one medical school entrant per year.[69]

In 2022, 1,899 schools/colleges provided at least one applicant. This was an increase of just under 300 schools compared to 2012, when 1,590 schools/colleges provided at least one applicant. The number of schools/colleges providing at least one entrant also grew by a similar number from 1,032 in 2012 to 1,297 in 2021.

The most common number of applicants per year from a school/college was one and over the 10-year period, 80% schools/colleges (1,962/2,443[70]) sent five applicants or fewer per year.

A very small proportion of schools/colleges sent large numbers of applicants: 58 centres (2%) sent 20 or more applicants per year on average and 11 schools/colleges (<1%) achieved 20 or more entrants per year to medical school. A single school/college provided 855[71] applicants over the 10-year period: an average of 85 applicants per year (see Table 7).

More than half (54%) of all schools/colleges had fewer than 10 of their applicants enter medical school during the 10-year period, averaging fewer than one entrant per year on average. Another 39% of schools/centres had between 1 and 5 entrants per year on average (see Table 7).

**54%**

of the schools/colleges that provided any medical applicants achieved fewer than one medical school entrant per year between 2012 and 2021.

[68] Excluded from this number are 276 schools/colleges that appeared only once in the data during the period, i.e. they only once provided one or more applicants.

[69] As above, excluded are the 276 schools/colleges that appeared only once. Not all schools/colleges appeared 10 times (once per year) between 2012 and 2022. This may be because they sent no applicants in some years; however it may also be because during the period some schools/colleges closed, opened or merged.

[70] This excludes the 276 schools/colleges that provided applicant(s) only once during the period.

[71] Figure rounded to the nearest 5

### Table 7: Proportion of schools/colleges by average numbers of applicants (2012-2022) and entrants (2012-2021) per year

| Average number of applicants per school/college | Number of schools/colleges | Proportion of schools/colleges |
|---|---|---|
| 1 to <5 | 1,962 | 80% |
| 5 to <10 | 298 | 12% |
| 10 to <20 | 125 | 5% |
| 20+ | 58 | 2% |
| **Average number of entrants per school/college** | **Number of schools/colleges** | **Proportion of schools/colleges** |
| 0 to <1 | 1,308 | 54% |
| 1 to <5 | 952 | 39% |
| 5 to <10 | 124 | 5% |
| 10 to <20 | 48 | 2 |
| 20+ | 11 | <1% |

## Number of entrants per applicant by school/college

Unsurprisingly, schools/colleges that provided more applicants tended to produce more entrants: on average, every two applicants a school/college provided resulted in one extra entrant.[72]

As mentioned above some schools/colleges produced a very high number of applicants and entrants, while most produced very few. The Lorenz

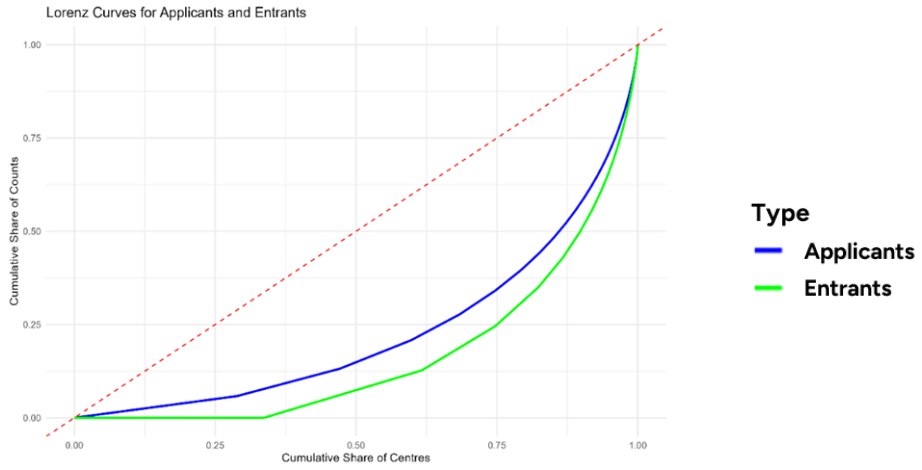
**2:1**

For every two applicants provided by a school or college, they achieved one more medical entrant, on average.

[72] A linear regression of the number of entrants on the number of applicants per school/college was highly statistically significant ($F(1, 16612) = 7.40$, $p < .0001$). The $r^2$ was .82, meaning that over 80% of the variance in entrant numbers explained by applicant numbers. The regression slope for applicant count was 0.50, indicating that every two additional applicants a school/college produced resulted in one additional entrant.

curves in Figure 13 show visually the large inequality between schools/colleges in the numbers of applicants and entrants they produced. The Gini co-efficient for entrants (0.67) was greater than that for applicants (0.54), suggesting that certain schools/colleges produced greater numbers of applicants and also had higher success rates in supporting their applicants to secure medical school places.

**Figure 13: Lorenz curves demonstrating the inequality between schools/colleges in the number of applicants and entrants they produced**




The cumulative percentage of applicants (dark blue) and entrants (bright green) per centre is plotted against the cumulative percentage of centres in the dataset. If all centres produced the same number of applicants/entrants, the graph would show a perfect correlation ("the line of equality": red dashed line). The further the curve from the line of equality, the greater the inequality between schools/colleges in the number of applicants (blue) or entrants (green) they produced.

Source: UKMED P197

## Type of schools/colleges sending medical applicants and entrants

Among schools/colleges with at least one applicant in the dataset, the proportion of non-selective state (academy/state) schools increased from 64% in 2012 to 68% in 2021, and the proportion of independent schools decreased from 23% to 19%. The proportion of academy/state schools producing entrants also grew from 60% in 2012 to 66% in 2021, while the proportion of independent schools producing entrants dropped from 27% to 22% (see Table 8).

This is in line with the increase in non-selective state (academy/state) school applicants and entrants relative to the proportion of independent school applicants and entrants described in Section 1 above.

### Table 8: Number (proportions) of school/college types providing at least one applicant or entrant to medicine per year

| | Number (%) of schools/colleges with at least one applicant per year | | | |
|---|---|---|---|---|
| | Average 2012-2021 | 2012 | 2019 | 2021 |
| Academy/State | 1,127 (67) | 1,020 (64) | 1,235 (69) | 1,296 (68) |
| Independent | 348 (21) | 367 (23) | 350 (20) | 370 (19) |
| Sixth Form College | 119 (7) | 119 (8) | 116 (7) | 126 (7) |
| FE College | 47 (3) | 42 (3) | 50 (3) | 61 (3) |
| Grammar School | 36 (2) | 35 (2) | 35 (2) | 38 (2) |
| Other | 6 (<1) | 7 (<1) | 5 (<1) | 8 (<1) |
| Total | 1,683 (100) | 1,590 (100) | 1,791 (100) | 1,899 (100) |
| | Number (%) of schools/colleges with at least one entrant per year | | | |
| | Average 2012-2021 | 2012 | 2019 | 2021 |
| Academy/State | 692 (63) | 621 (60) | 774 (65) | 850 (66) |
| Independent | 271 (25) | 279 (27) | 270 (23) | 280 (22) |
| Sixth Form College | 87 (8) | 85 (8) | 90 (8) | 98 (8) |
| FE College | 20 (2) | 19 (2) | 23 (2) | 31 (2) |
| Grammar School | 30 (3) | 26 (3) | 29 (2) | 34 (3) |
| Other | 2 (<1) | 2 (<1) | 1 (<1) | 4 (<1) |
| Total | 1,102 (100) | 1,032 (100) | 1,187 (100) | 1,297 (100) |

The average over the period from 2012-2021 is shown, as are the numbers (proportions) for the years 2012, 2019 and 2021.

Using the DfE number for each UCAS centre (school/college), we were able to calculate the number of applicants and entrants per school/college in each region of England and Wales (see Table 9 below).[73] London and the North West had the highest number of applicants per school/college. However, London had a lower number of entrants per school/college. The South West was the English region with the lowest number of applicants per school/college.

[73] Although all applicants in the sample were domiciled in England, they could have applied to medicine from a UCAS centre (school/college) outside of England.

### Table 9: Applicant and entrant numbers per centre (school/college) in each region (2012 to 2022)

| Region | Number applicants | Number entrants | Number centres | Applicants/ centre | Entrants/ centre |
|---|---|---|---|---|---|
| North West | 12,030 | 4,815 | 263 | 45 | 20 |
| London | 22,130 | 7,585 | 517 | 45 | 15 |
| Yorkshire and The Humber | 8,840 | 3,535 | 259 | 35 | 15 |
| South East | 14,370 | 6,215 | 463 | 30 | 15 |
| East of England | 9,140 | 3,970 | 312 | 30 | 15 |
| North East | 3,240 | 1,430 | 106 | 30 | 15 |
| West Midlands | 9,745 | 3,805 | 309 | 30 | 10 |
| East Midlands | 5,260 | 2,100 | 188 | 30 | 10 |
| South West | 7,125 | 3,085 | 276 | 25 | 10 |
| Wales | 65 | 30 | 17 | 5 | 0 |
| Islands | 5 | 0 | 3 | 0 | 0 |
| Unknown/not applicable | 15 | 5 | 6 | 5 | 0 |

Counts of individuals rounded to the nearest 5. Figures are for applicants domiciled in England according to their UCAS application

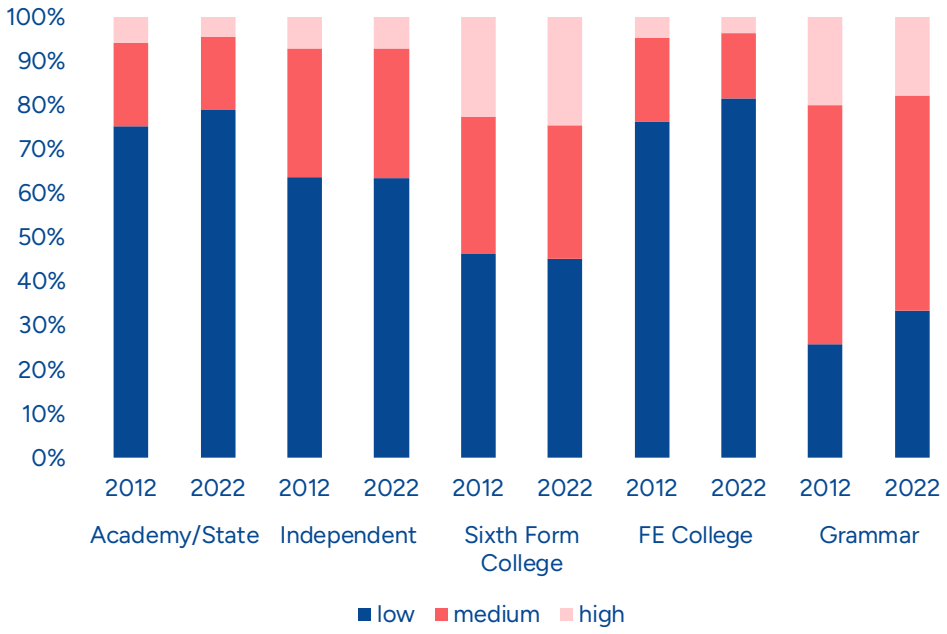
## Types of school or college providing small, medium and large numbers of applicants and entrants

To explore the characteristics of schools/colleges providing different numbers of applicants, we split schools/colleges into tertiles based on the total number of applicants they provided during the period: 70% of schools/colleges provided a low number (47 or fewer applicants), 23%

provided a medium number (between 48 to 139 applicants) and 7% produced a high number (140 or more applicants ).[74]

Sixth form colleges and grammar schools tended to provide high and medium numbers of applicants; independent schools tended to provide medium numbers of applicants; whereas academy/state schools and FE colleges tended to provide low numbers (see Figure 14), which also shows that the proportions of school/college types providing low, medium and high numbers of applicants changed relatively little over the period from 2012 to 2022.

**Figure 14: The proportion of each type of school/college providing low, medium and high numbers of applicants to medical school in 2012 and in 2022**




The school/college type "Other" was excluded due to small numbers.

Source: UKMED P197

[74] It is important to note that annual data on the total number of students on the roll at each school/college was unavailable within UKMED, so we could not assess the proportion of its students each school/college provided.

## Types of school/college providing entrants

As seen above, some types of school/college were relatively successful at providing entrants while others were less so. In Table 8 it can be seen that:

- Of the 36 grammar schools that provided one or more applicants over the period, 30 (83%) provided at least one entrant, as did 78% of independent schools and 73% of sixth form colleges;

- 61% of academy/state schools that provided one or more applicants produced at least one entrant during the period and only 43% of FE colleges provided at least one entrant during the period.

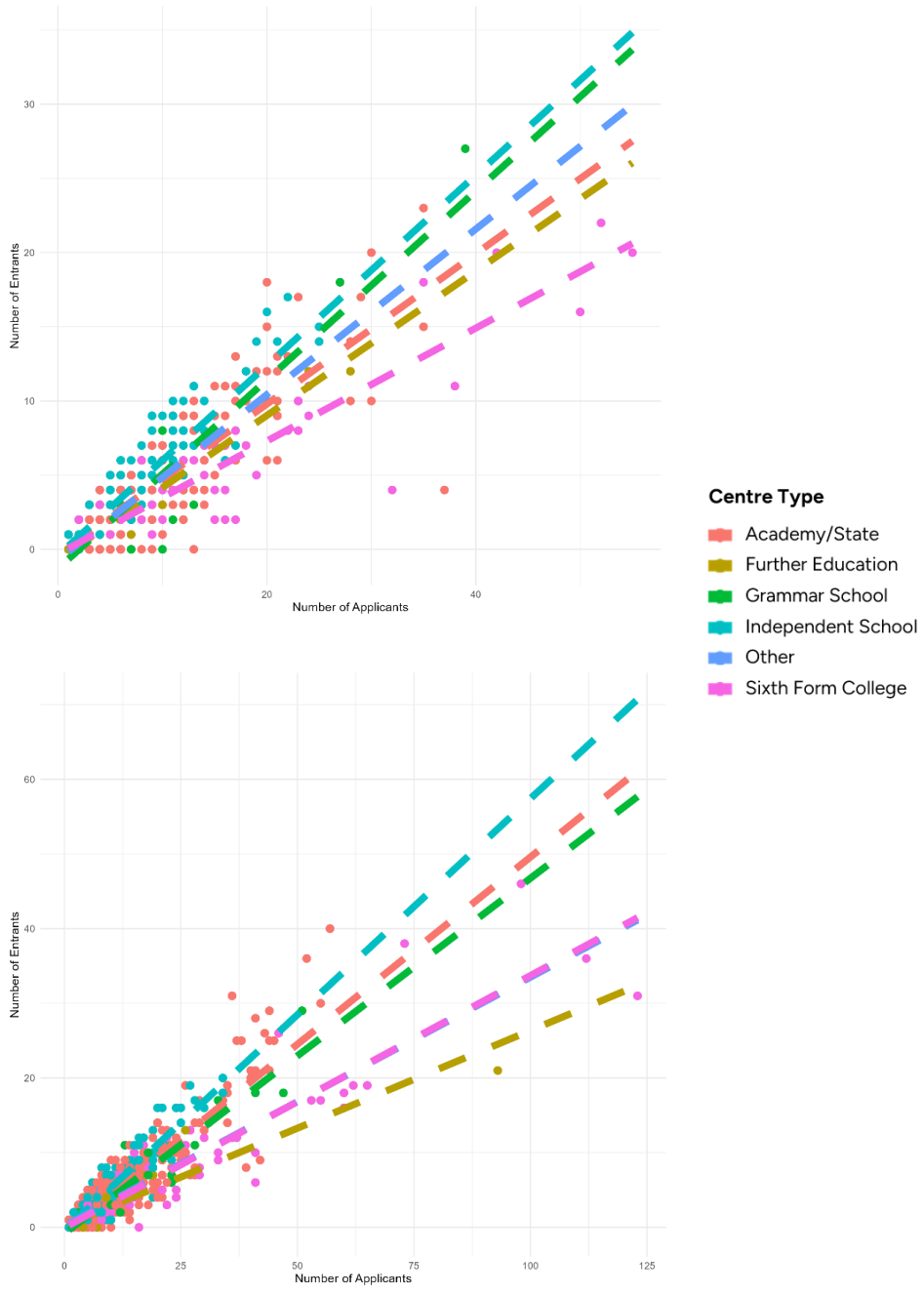
**73%**

grammar schools with one or more applicants provided at least one entrant.

Figure 15 plots the number of entrants against the number of applicants per school/centre type in 2012 and in 2021. The independent schools that provided at least one applicant maintained a higher success rate than most other school/centre types, achieving more entrants per applicant. However, the gap between independent schools and academy/state schools narrowed in 2021 compared to 2012.

This reflects the results in Section 1 and 2 above, which found that applicants from independent schools tended to get more offers than those from academy/state schools, and among offer-holders those from independent schools were more likely to enter medical school than those from academy/state schools.

## Figure 15: Scatterplots showing the number of entrants per applicant by school/college type in 2012 (top) and 2021 (bottom)




The dots represent UCAS centres (schools/colleges). The dashed lines represent the rate of entrants per applicant for each school/college type in that year: schools/college types with steeper lines achieved more entrants per applicant.

Source: UKMED P197

Dr Kevin Latham

# Part 2: Barriers to a career in medicine for young people from lower socio-economic backgrounds

## From school to the workplace

# Introduction

The UK stands at a pivotal moment for the future of the medical workforce. The country faces a shortage of doctors, with the poorest parts of the country seeing the heaviest impacts – for example, access to GPs has declined the most in poor areas.[75] There is also a recognition across the political spectrum that to meet these ongoing skills shortages, we will need to train larger numbers of doctors in the UK. Given those challenges, it is vital we enable talented young people who want to go into medicine to have the opportunity to do so. But, as outlined in Part 1, access to medical school is currently highly segregated by socio-economic background.

**"Young people from lower socio-economic backgrounds face considerable barriers to accessing a career in medicine."**

Overcoming the disparities in medical school recruitment is often motivated by two key questions -

1) Given that being a doctor is a prestigious role which can lead to high salaries, is it fair that the profession should disproportionately exclude those from lower socio-economic backgrounds?

2) If doctors are drawn from a narrow section of society that represents poorly the communities they serve, are they as a profession well placed to provide the best care for those communities? [76]

[75] RCGP. (2024, October 3). *GPs in deprived areas responsible for almost 2,500 patients per head*. https://www.rcgp.org.uk/News/research-statement-conference-2024 See also *The places with the worst GP shortages in England revealed*. (2024, October 1). BBC News. https://www.bbc.com/news/articles/cjd51y9vn9do

[76] Fielding, S., Tiffin, P. A., Greatrix, R., Lee, A. J., Patterson, F., Nicholson, S., & Cleland, J. (2018). Do changing medical admissions practices in the UK impact on who is admitted? An interrupted time series analysis. *BMJ Open*, *8*(10), e023274. https://doi.org/10.1136/bmjopen-2018-023274

The answer to both of these questions, from doctors themselves[77], patients[78], those who run the health service[79] and medical schools and their representatives[80], has generally been 'no'.

As there has been limited socio-economic diversity in the medical profession in the past, there is only limited evidence on the difference this diversity could make to service delivery. However, research has found that patients are often dissatisfied with levels of diversity-sensitive care, emphasising the importance of linguistic, ethnic, cultural and gender concordance in delivering good quality care.[81] Culturally-appropriate care is also something valued and promoted by the regulator, the Care Quality Commission.[82] In relation to doctor shortages, in some communities, research suggests, doctors from lower socio-economic backgrounds could be part of the solution. For instance, research has found that GPs who came from routine or semi-routine occupational backgrounds had 4.3 times the odds of working in a practice in a deprived area compared to those from managerial and professional occupations, showing that socio-economic background is associated with the population GPs subsequently serve.[83]

We risk wasting the potential of many aspiring medics from the poorest homes, with young people from these backgrounds facing considerable barriers to accessing a career in medicine. From a lack of careers advice

[77] Tomkin, T. (2024, August 16). *Fair for all* [The doctor]. https://thedoctor.bma.org.uk/articles/health-society/fair-for-all/

[78] Lauwers, E. D. L., Vandecasteele, R., McMahon, M., De Maesschalck, S., & Willems, S. (2024). The patient perspective on diversity-sensitive care: A systematic review. *International Journal for Equity in Health*, *23*(1), 117. https://doi.org/10.1186/s12939-024-02189-1

[79] NHS England. (2023). *NHS Long Term Workforce Plan*. NHS England. https://www.england.nhs.uk/publication/nhs-long-term-workforce-plan/

[80] Medical Schools Council. (2014). *Selecting for Excellence: Final Report*. Medical Schools Council. https://www.medschools.ac.uk/media/1203/selecting-for-excellence-final-report.pdf

[81] Lauwers, E. D. L., Vandecasteele, R., McMahon, M., De Maesschalck, S., & Willems, S. (2024). The patient perspective on diversity-sensitive care: A systematic review. *International Journal for Equity in Health*, *23*(1), 117. https://doi.org/10.1186/s12939-024-02189-1

[82] *Culturally appropriate care—Care Quality Commission*. (n.d.). Retrieved 4 February 2025, from https://www.cqc.org.uk/guidance-providers/adult-social-care/culturally-appropriate-care

[83] Dowell, J., Norbury, M., Steven, K., & Guthrie, B. (2015). Widening access to medicine may improve general practitioner recruitment in deprived and rural communities: Survey of GP origins and current place of work. *BMC Medical Education*, *15*, 165. https://doi.org/10.1186/s12909-015-0445-8

and support in school, to challenges in the application process, through to barriers during their medical studies and onto their time in the workplace.

However, we are also at a point of huge opportunity when it comes to tackling the existing access issues in the profession, with the ongoing implementation of the *NHS Long Term Workforce Plan,* and the Government committed to substantially increasing the number of medical school places. By prioritising widening participation throughout the expansion, the Government can deliver more UK-trained medics drawn from communities right across the country.

This report looks at the barriers that will need to be faced, and what government and medical schools can do to open-up access, drawing on the experiences of the young aspiring and qualified medics the Sutton Trust has supported, which are included throughout this report.

# Methodology

Throughout this report, issues are brought to life through the experiences of previous Sutton Trust programme participants of our Pathways to Medicine programme and our UK university summer schools, who have or who looked to enter the medical profession. These programmes are only available to state-educated pupils and are aimed at young people from lower socio-economic backgrounds.[84]

These experiences were collected through an online survey. Email invitations to complete the online survey were sent to 3,608 former Sutton Trust programme participants including both Pathways to Medicine and UK Summer Schools participants (on medicine programmes). We received 209 responses by the cut-off date at the end of October 2023, of which 15 were incomplete. Only complete responses are included here. Respondents were offered the chance to enter a draw for £100 of online shopping vouchers in return for their participation. Given the self-selecting nature of the sample, findings should be interpreted cautiously. However, as most of the respondents (119) were either current or previous medical students, many (37) now qualified doctors, the survey is nonetheless useful as an indicative insight into the experiences and perceptions of students from disadvantaged backgrounds at various stages of their studies and medical career

Respondents were asked a range of multiple-choice questions on their experiences, as well as given the chance to share their own reflections on various aspects of the pathway to become a doctor.

For this report, the Sutton Trust also conducted a detailed review of all UK medical school admissions criteria and processes. This involved detailed comparison of the websites of all 39 medical schools included in the analysis presented in Part 1, as well as application support materials on the Medical Schools Council (MSC) website, freely available information on commercial medical application support websites (such as MedicMind, The Medic Portal) and some interviews with medical school widening participation staff at five medical schools in different parts of the country. Where information was not clear from these sources, medical schools were contacted directly, either via a call or by email.

[84] For more information on these Sutton Trust programmes see 'The Sutton Trust access to medicine programmes' sub-section below.

# Barriers by life stage

## 1. Pre-application

It is impossible to give students a place at medical school if they do not apply. And while the data in Part 1 of this report suggest that at least some progress is being made to improve the number of applications to medical school from disadvantaged groups, considerable gaps remain. Indeed, most schools provide no or only very few medical applicants,[85] and there is a striking contrast between the proportion of applicants from the highest and the lowest socio-economic backgrounds. Here we consider some of the barriers school-aged pupils face in the stages before making an application.

### Support available to school aged pupils

As we have seen, many schools and colleges have no or very small numbers of applicants to medical school - 80% averaged fewer than five applicants, and 93% fewer than five entrants per year over the period covered by this research.[86] These schools are less able to benefit from accumulated experience from supporting multiple students through the application process, or linking up successful past students with aspiring medics in their student body.

At the other end of the spectrum, a small proportion of schools produce very high numbers of applicants, who also have, on average, higher success rates for their applicants.[87] This clearly suggests that the experience and enhanced support provided by schools and colleges that produce large numbers of applicants are likely to impact success rates.

[85] Woolf, K., Medisauskaite, A., & Boustani, S. (2025). *Access to medical schools for students from disadvantaged backgrounds.* UCL and The Sutton Trust. See Table 7 and Supplementary Table 11. See also Fletcher, E., Garrud, P., Krstic, C., & Owen, C. (2024). *Fostering Potential: 10 years on from Selecting for Excellence*. Medical Schools Council. https://www.medschools.ac.uk/media/3219/fostering-potential-10-years-on-from-selecting-for-excellence.pdf

[86] Woolf, K., Medisauskaite, A., & Boustani, S. (2025). *Access to medical schools for students from disadvantaged backgrounds.* UCL and The Sutton Trust.

[87] Woolf, K., Medisauskaite, A., & Boustani, S. (2025). *Access to medical schools for students from disadvantaged backgrounds.* UCL and The Sutton Trust.

Private schools have on average the highest number of entrants per applicant,[88] likely, at least in part, due to the level of support these schools are able to provide. Previous Sutton Trust research has highlighted the disparities in career advice and support available in independent schools compared to their state school counterparts.[89]

Some schools offer considerable specialist support for aspiring medical students – support which is far from universal. For example, the website of one independent sixth form college in North London, which boasts hundreds of entrants to medicine, dentistry and medicine-related university programmes, details a specialist medical programme that includes work experience placement support and UCAT preparation workshops. It also includes a weekly medical forum heavily focused on improving knowledge and skills for the medical school application process such as MMI training, role play, communication skills, a dedicated careers adviser and expert knowledge of university entry requirements.[90] Some state schools and sixth form colleges do offer specialist support (see Box 1 below). However, such programmes are by far the exception as opposed to the rule throughout the country. With generally few applicants, most state schools do not have the resources to put into tailored support for medical school applications (see Box 2 below).

**"My sixth form/school had never had anyone wanting to do medicine related subjects. They had no idea what to do or what support to give." - Sutton Trust programme participant**

[88] Woolf, K., Medisauskaite, A., & Boustani, S. (2025). *Access to medical schools for students from disadvantaged backgrounds.* UCL and The Sutton Trust.

[89] Holt-White, E., Montacute, R., & Tibbs, L. (2022). *Paving the Way: Careers guidance in secondary schools.* The Sutton Trust. https://www.suttontrust.com/our-research/paving-the-way/

[90] *Medical Programme | Sixth Forms in North London | Brampton College*. (n.d.). Retrieved 19 February 2025, from https://www.bramptoncollege.com/courses/medical-programme/

### Box 1: The Medical, Health and Social Care Academy – St. Mary's College, Hull.

The Medical, Health and Social Care Academy (MHSCA) is a parallel 2-year training, development and enrichment programme for Year 12 and 13 pupils in St. Mary's College sixth form. Working in partnership with local NHS providers of health and social care, as well as higher education providers Hull University and Hull and York Medical School, the programme is now entering its tenth year. Since its inception it has worked with over 858 pupils, including nine successful medical school pupils in 2023-2024. More than 50% of the programme's first group of pupils have gone on to work in local NHS organisations and third sector health and social care providers.

The MHSCA offers first-hand exposure to NHS and social care workplaces, careers advice and support, NHS accredited training courses and mentoring by NHS professionals, as well as virtual work experience and application writing support. Supporting entry to a wide range of health care jobs, the MHSCA also has a dedicated form group each year for medical school applicants, offering specialist support for the medical school application process.

Cicely Alsbury, the Academy's Partnership Director, said: "When the Academy was set up, this was the first partnership of its kind between the NHS and a higher education institution and as we approach our 10-year anniversary, we continue to go from strength-to-strength. The number of our former students going on to further education at our local university and then into a career in health and care in our local workforce speaks volumes about the Academy and our results."

Jayne Adamson, Executive Director of People at NHS Humber and North Yorkshire Integrated Care Board (ICB) added: "We know many children and young people have an emerging passion for health and care – the Academy sets that passion alight and is an exceptional stepping-stone for teenagers wanting to pursue a career in the NHS and care sector.

"The Academy can be immensely proud of the contribution it is making in the area, with hundreds of former students now working in a wide range of roles right across the local NHS and care sector.

"We hope the Academy, together with other higher and further education providers in Humber and North Yorkshire, can continue to contribute to our workforce for many years to come."

### Box 2: Case study: challenges facing a state school careers adviser

"I am the only full-time careers adviser for a school with around 2,000 students and more than 300 in the sixth form. I get some help from the sixth form staff but I am responsible for all careers support from Year 7 to Year 13 across all subjects.

"We have had two applicants for medical school in recent years, including one from a disadvantaged background but prior to that had not had any applicants for several years.

"I am really keen to support more pupils into medicine if possible. I know what the problems are in the NHS since my husband is a doctor. Consequently, I probably also know more about the application process than many others in my position would. It is a complex and challenging process that pupils need support to navigate successfully.

"However, many schools just don't have the resources to provide bespoke or specialist support and training for medicine applicants, particularly with small numbers like ours. I can support them in sixth form because of my specialist knowledge. However, what is really needed is to start inspiring pupils to think about medicine much earlier in the school, even as early as Year 7, but we just don't have the capacity to do that. Science teachers could help but they are also overworked and trying to deliver a packed curriculum so they often don't have time either."

**- Careers Manager, state comprehensive school in Kent.**

A particular challenge for schools in providing advice is that it is needed earlier for medicine than for most other subjects. The UCAT test needs to be taken between July and September in Year 12 (for pupils applying in their Year 13 UCAS round) and UCAS applications for medicine have an earlier deadline (in October, 3 months earlier than most other applications). Furthermore, the applications window for many widening participation medicine programmes, like that of the Sutton Trust - or others offered by medical schools themselves, is also generally early in Year 12.

Medicine also requires a particular choice of A level subjects (usually Chemistry and/or Biology with some combination of another science

and/or maths).[91] This means that pupils only deciding in Year 12 to apply for medicine may miss crucial opportunities and find themselves less well prepared than their peers, including potentially studying the wrong subjects.

Research has found that poorer access to relevant knowledge, including through school support, among widening participation pupils can impact their chances of admission to medical school.[92] Consequently, schools should be resourced to include at least some medicine-focused careers advice much earlier in pupils' school careers, well before A level choices need to be made (see Box 3 below for an example of a state school with this type of provision). Ideally schools would try to break down cultural or class assumptions about certain career choices – with medicine being seen as a middle class job for instance – at a young age which can also be strongly shaped by pupils' social and cultural environments .[93] This would help pupils who may not have considered medicine as something for 'people like them'[94] to think about the possibilities and plan accordingly.

[91] The precise subjects and combinations of subjects varies between medical schools – something which adds another layer of complexity to preparing for applying for medicine.

[92] Sartania, N., Alldridge, L., & Ray, C. (2021). Barriers to access, transition and progression of Widening Participation students in UK Medical Schools: The students' perspective. *MedEdPublish*, *10*(1). https://doi.org/10.15694/mep.2021.000132.1

[93] Greenhalgh, T., Seyan, K., & Boynton, P. (2004). "Not a university type": Focus group study of social class, ethnic, and sex differences in school pupils' perceptions about medical school. *BMJ*, *328*(7455), 1541. https://doi.org/10.1136/bmj.328.7455.1541

[94] BMA. (n.d.). *'People like us don't become doctors'*. Retrieved 4 February 2025, from https://www.bma.org.uk/features/peoplelikeus/ See also BMA. (2015). *The Right Mix | British Medical Association*. https://questionnaires.bma.org.uk/news/therightmix/index.html

### Box 3: The Future Medics Programme – Penrice Academy, St Austell, Cornwall

The Future Medics programme was launched in 2024 and aims to increases awareness of what it takes to study medicine and other healthcare subjects through regular classes, visits and talks organised by the school in partnership with local NHS providers, Peninsula Medical School (University of Plymouth) and Brighton and Sussex Medical School. The school, which does not have its own sixth form, say the programme is motivated by an awareness that pupils need to be better informed about medical careers at an early age. The programme includes webinars and practical exercises which aim to offer fun, inspiring and interactive teaching focused on medicine, health and science.

"It's incredibly important for students to explore what it means to pursue a career in medicine early on. The process is highly competitive and challenging, so it's crucial that students take time to fully understand and prepare for it. As a parent who has supported my own child through this journey, I've seen firsthand how essential it is to be well-prepared before starting A-levels. Once they begin, students will face the pressure of managing some of the most difficult science subjects, while also navigating the UCAT, EPQ, and the medical school application process, all while preparing nearly a year in advance for a potential future.

"For disadvantaged students looking to apply for medical school pathways, it's even more crucial to be prepared from the start. While we don't have our own sixth form, we firmly believe it's vital for pupils to be inspired by healthcare careers and start preparing early. Our program aims to explore the vast array of careers within healthcare, inspiring students to explore all available options before making a choice. Additionally, it helps them understand the importance of multi-disciplinary teamwork and how everyone contributes to the healthcare system."

**- April Stevenson, Careers Curriculum Lead, Penrice Academy.**

Access to medicine programmes, like the Sutton Trust's Summer Schools, Pathways and online programmes,[95] or those run by medical schools themselves, work with schools and individual students from lower and middle income families to understand and prepare for applying to medical schools. These include varying degrees of outreach work in schools. Some medical schools work with local schools in their area, for instance offering hospital visits or talks from widening participation staff and current medical students.

Voluntary organisations like In2MedSchool, a leading charity promoting widening participation in the medical profession, also works with medical student volunteers from disadvantaged backgrounds themselves. These volunteers go into schools to give talks to pupils from age 12 to 18 about studying medicine, how to navigate the application process and seeking to inspire young people who might not think of medicine as a career for people from lower socio-economic backgrounds like theirs. The charity also offers other support such as mentoring, online events and work experience opportunities. These kinds of visits can take some of the pressure off school careers advisers, but there are far too few such opportunities to support all schools throughout the country. However, even if such initiatives can help to encourage students to consider medicine, they inevitably lack the depth and intensive support students need to navigate the complexities of the existing system.

## Science teaching in schools

Addressing the attainment gap – that is the difference in attainment between pupils from more and less disadvantaged families – for medical school applicants is also a priority. This must include addressing STEM subject teacher shortages. In 2024, initial teacher training recruitment in chemistry was only 65% of the target, in maths just 63% and in physics only 17%.[96] The best of the natural sciences, biology at 93% of target, still underrecruited. We also know that schools with the largest numbers of disadvantaged pupils are the least likely to have teachers with relevant science qualifications.[97] Schools serving disadvantaged communities also

[95] See the section on Sutton Trust access to medicine programmes below for more detail.

[96] McLean, D., Worth, J., & Smith, A. (2024, March 18). *Teacher Labour Market in England Annual Report 2024*. NFER. https://www.nfer.ac.uk/publications/teacher-labour-market-in-england-annual-report-2024/

[97] *Science Shortfall*. (n.d.). The Sutton Trust. Retrieved 6 February 2025, from https://www.suttontrust.com/our-research/science-shortfall/

experience greater recruitment difficulties, particularly in secondary schools and for science subjects. In 2019 Sutton Trust research found that a third of maths and science departments within schools serving the most disadvantaged communities reported not being currently well-staffed.[98]

It is therefore vital that the Government addresses the ongoing teacher recruitment and retention crisis, including making it a top priority to recruit the best qualified STEM subject teachers, especially for in schools in deprived areas. This should include expanding the teacher Levelling Up Premium, an incentive payment available to eligible teachers to encourage graduates to take up teaching and to stay in teaching once qualified. Currently teachers of biology, a commonly required subject for medical school, are not eligible for the payment. The premium should be expanded to a wider range of subjects, including biology, and should also be increased by £2,500 - £3,000 for the most disadvantaged schools, to ensure they are able to attract high quality teachers.

## Differences in educational attainment between socio-economic groups

The data in Part 1 showed that A level grades were by far the strongest predictor of whether an offer holder entered medical school, including after adjusting for school type, socio-economic status, IMD and number of offers received. UCAT scores, predicted A level grades and GCSE scores were among the strongest predictors of applicants receiving an offer, again adjusted for other factors.[99]

Children from lower socio-economic backgrounds who are high attainers in primary school often achieve lower grades than their wealthier peers later on in their time in education. For example, previous Sutton Trust research has found disadvantaged high attainers (based on their grades at KS2) have GCSE grades on average more than three quarters of a grade lower per subject than the grades of other high attainers. This is a full grade lower than those from the same high attaining group at KS2 from

[98] Allen, B., & McInverney, L. (2019). *The Recruitment Gap: Attracting teachers to schools serving disadvantaged communities.* (p. 41). The Sutton Trust. https://www.suttontrust.com/our-research/teacher-recruitment-gap/

[99] Woolf, K., Medisauskaite, A., & Boustani, S. (2025). *Access to medical schools for students from disadvantaged backgrounds.* UCL and The Sutton Trust.

the most affluent backgrounds.[100] The grades students from lower socio-economic backgrounds achieve at GCSE and A level likely do not represent their full potential.

The Sutton Trust has previously outlined a range of measures to tackle this educational attainment gap, including reversing the erosion of pupil premium funding in real terms and extending pupil premium funding to post-16 education. A full outline of the Sutton Trust's proposals to close the attainment gap can be found in the recent policy briefing, Closing the Attainment Gap.[101] Together, the measures outlined there have the potential to support more disadvantaged pupils to gain the level of attainment needed to pursue a career in medicine.

## Support from family and wider networks

The support provided by a student's family and their wider social and cultural capital is also likely to impact both whether they consider a career in medicine, and their subsequent chance of success. This points to the importance of support networks and structures outside of school as well as those within the school.

'Cultural capital' refers to the way in which the cultural backgrounds of children's parents, families and home contexts shape their understanding and knowledge of the world around them. In this case, it refers to the way higher socio-economic background families are more likely to promote, support and encourage their children to apply for higher status jobs such as medicine. Indeed, wealthier families are more likely to have relatives and friends in the medical profession giving their children greater social as well as cultural capital.[102]

Research shows that family background, through economic, social and cultural capital, shapes students perceived and actual barriers to entering

[100] Holt-White, E., & Cullinane, C. (2023). *Social Mobility: The Next Generation Lost potential at age 16.* The Sutton Trust. https://www.suttontrust.com/wp-content/uploads/2023/06/Social-Mobility-The-Next-Generation-Lost-Potential-Age-16.pdf

[101] Sutton Trust. (2024). *General Election Policy Briefing: Closing the Attainment Gap*. The Sutton Trust. https://www.suttontrust.com/wp-content/uploads/2024/02/Closing-the-attainment-gap.pdf

[102] Nicholson, S., & Cleland, J. A. (2017). 'It's making contacts': Notions of social capital and implications for widening access to medical education. *Advances in Health Sciences Education: Theory and Practice*, *22*(2), 477–490. https://doi.org/10.1007/s10459-016-9735-0

and progressing through medical school.[103] A major survey in 2018 found that among pupils seriously considering applying to medical school, respondents who attended a private school or a grammar school and who had at least one parent in the highest socio-economic group, were more likely to have had a pre-medical school experience in general practice. Furthermore, two thirds of those with an experience in general practice also had one in hospital, suggesting that these were people getting multiple pre-application experiences.[104]

More affluent families are more likely to be able to pay for tutoring, private schools, commercial preparation courses and university visits. Social capital is crucial in giving access to 'privileged knowledge' of the system. Family networks – friends in the medical profession or universities, for instance – can be vital for getting access to work experience in medical contexts or understanding how medical schools approach admissions.[105] Cultural capital can be particularly beneficial in interview contexts and subsequently 'fitting in' at medical school.[106]

## Experiences of previous Sutton Trust programme participants pre-application

Looking at the experiences of former participants in Sutton Trust access programmes, issues related to school and family contexts and support came up frequently.

The most common barriers cited by this group of respondents ahead of the application process were finding and arranging work experience placements (cited by about 70% of respondents), and a lack of appropriate knowledge, experience or ability to offer support from family or carers

[103] Sartania, N., Alldridge, L., & Ray, C. (2021). Barriers to access, transition and progression of Widening Participation students in UK Medical Schools: The students' perspective. *MedEdPublish*, *10*(1). https://doi.org/10.15694/mep.2021.000132.1

[104] Agravat, P., Ahmed, T., Goudie, E., Islam, S., McKechnie, D. G., Abdirahman, H. M., Ahmed, M., Al-Balah, A., Alam, A., Amin, F., Beqiri, S., Chakka, S., Chisenga, K., Goodka, R., Hafiz, N., Kotamarthi, A., Olatunji, A. E., Fyfe, M. V., Dutta, N., … Woolf, K. (2021). Medical applicant general practice experience and career aspirations: A questionnaire study. *BJGP Open*, *5*(3). https://doi.org/10.3399/BJGPO.2021.0023

[105] Sartania, N., Alldridge, L., & Ray, C. (2021). Barriers to access, transition and progression of Widening Participation students in UK Medical Schools: The students' perspective. *MedEdPublish*, *10*(1). https://doi.org/10.15694/mep.2021.000132.1 See also comments from the Sutton Trust survey below.

[106] Sartania, N., Alldridge, L., & Ray, C. (2021). Barriers to access, transition and progression of Widening Participation students in UK Medical Schools: The students' perspective. *MedEdPublish*, *10*(1). https://doi.org/10.15694/mep.2021.000132.1

(about 60%). Other common issues (cited by about 40-50%) were a lack of support or advice from school, unfamiliarity with the medical school admissions process, and a lack of support from teachers.

The experiences of survey participants are explained in their own words below.

"Many of my now colleagues and peers at school who did gain work experience had connections, whether that was family or friends."
**- Medical school student**

"Obtaining work experience opportunities was notoriously difficult. Even now as an SHO [Senior House Officer – a junior doctor in training], you notice students that get work experience opportunities have family within the profession and very few who don't."
**- Year 2 foundation doctor**

"I found it very difficult as my school had a programme that supported students applying to medicine, but it was a select few people who got accepted. Unfortunately, I didn't get accepted and so I didn't get access to the same resources as them. They were provided free Medify [a commercial online support platform] and UCAT tutoring, MMI simulations and clinical related article reading sessions. Due to this all of my preparation for the UCAT and interview was done through my own research mainly on YouTube. I found it very overwhelming because it was my first time applying to medicine and I had no advice from anyone who knew how the process went - so I didn't know if what I was doing would pay off or not."
**- Medical school student**

"My school was generally unsupportive and the information they had on medical schools was typically outdated. No one in my family had even gone to university to help."
**- Medical school student**

"There was no advice or resources available to me when applying to medicine, because no one really discussed careers such as medicine due to lack of opportunities around my area."
**- Medical school student**

"My school rarely had people apply to medicine. My teachers/career guidance teacher had no clue that medicine applications were earlier. They

didn't know about the UKCAT. They didn't pass on any work experience opportunities."
**- Qualified doctor**

"My secondary school had about 500 students to one careers advisor and although she was lovely she was just stretched too thin."
**- Medical student**

"I tried going to the careers advisor in my sixth form, but even though he tried his best, his advice was vague and he didn't know much about medicine, only the basics – what every applicant already had details of. I asked him medicine specific questions. For example, how to apply strategically, and questions concerning intercalated degrees alongside medicine, but he didn't know and told me to search it up instead. Even when writing my personal statement, advice given by my teachers was very general."
**- Medical student**

## 2. The application process

Applying to medical school is more complex than most other university courses. Applications generally involve an early UCAS application, taking the UCAT exam, attending in person or online interviews or MMIs (Multiple Mini Interviews) and preparation of a personal statement. In addition, applicants need to gain relevant work experience and carefully select the right medical schools to apply to matching a their individual circumstances (i.e. their particular grades, postcode, chances of getting work experience or other required application criteria.)

**"It was extremely difficult to find medicine-related work experience. However, many of my now colleagues and peers at school who did gain work experience had connections, whether that was family or friends." - Sutton Trust programme participant, medical student**

In 2014, the Medical Schools Council (MSC) released its *Selecting for Excellence* final report, the culmination of a systematic review of the medical school admissions process with a particular focus on widening participation.[107] The report made a comprehensive range of recommendations for various stakeholders, from the MSC itself through to government and the NHS. In relation to the admissions process, there

[107] Medical Schools Council. (2014). *Selecting for Excellence: Final Report.* Medical Schools Council. https://www.medschools.ac.uk/media/1203/selecting-for-excellence-final-report.pdf

were strong recommendations for how medical schools should review and potentially change the way they recruited students.[108]

The recommendations from that report have been widely implemented by medical schools, but implementation has varied considerably between them, leaving applicants potentially reading through countless webpages to understand the varying selection criteria and processes for more than 40 different medical schools.

## Practices at UK medical schools

For this report, the Sutton Trust conducted a detailed review of all UK medical school admissions criteria and processes.[109] The information from these sources was complex and inconsistent, particularly when support websites (of different organisations) were not kept updated on changes in medical school procedures. Some of the detail about selection processes and how criteria were applied were also not publicly available, and we were only able to understand these processes by interviewing admissions staff.

However, even once the information was gathered, there were additional layers of complexity to be navigated. For instance, just considering the use of UCAT scores, there were numerous different ways that the results would be used by medical schools:

- Some used UCAT scores in combination with predicted grades while others used UCAT scores alone to allocate interviews (once other basic criteria such as minimum academic requirements, a satisfactory personal statement and reference, were met).

- Some used their own formulae to produce a combined academic and UCAT score to rank candidates for interview, with different medical schools using different formulae.

[108] For more details on these recommendations see the 'Impact of *Selecting for Excellence*' section below.

[109] See Methodology section for more detail on this process.

- Some medical schools took the UCAT situational judgement test into account while others did not.[110]

- Some only used UCAT scores to decide borderline cases.

- Some medical schools had a UCAT cut-off threshold for applications which could vary from year to year and from one medical school to another.[111]

This complexity is just in relation to one element of the application process and one selection criterion, the UCAT test, but similar complexity is replicated across other parts of the process. This gives some idea of how challenging information gathering for the application process could be.

Another example relates to interviews. Although most, though not all, medical schools use MMIs for selection, the nature and content of the MMIs varies enormously. Among those explaining their MMIs in more detail – something that not all medical schools do – MMIs could range from as few as three 'stations' of five minutes each to as many as 15.[112] Some stations were as long as 10 minutes each. Some were conducted entirely online while others were in person. And while some simply involved the MMIs themselves, others were accompanied by role playing or other group activities. Some involved ice-breaker activities while others did not.

Most medical schools are looking for some kind of relevant work experience in a care setting. However, historically, the ambiguity about what is required as well as the difficulty of securing placements has been found to be a deterrent to applicants from lower socio-economic backgrounds.[113] This has been addressed by some medical schools by

[110] The UCAT Situational Judgement Test is the last part of the UCAT test intended to assess a range of personal skills considered important for a medical career such as integrity, perspective, resilience and adaptability. See *Test Format | UCAT Consortium*. (n.d.). Retrieved 18 February 2025, from https://www.ucat.ac.uk/about-ucat/test-format/

[111] Among those publicising their UCAT threshold levels, in 2023 this ranged from 2,210 points to 2850 points (a difference of nearly 30%).

[112] MMIs involve a series of short tests or assessments known as 'stations' designed to test a range of different skills and aptitudes. They usually involve either an interviewer asking a question, some short, observed task or role play.

[113] Nicholls, G., Wilkinson, D., Danks, N., & Stroud, L. (2014). *Work experience: A deterrent to applicants to medicine from a widening participation background?* (Selecting for Excellence Research). Leeds Medical School. https://www.medschools.ac.uk/media/2445/selecting-for-excellence-research-dr-gail-nicholls-et-al.pdf

clarifying information on their websites, but there is considerable variation among them regarding the requirement and nature of work experience sought, as well as how and when it should be communicated (in personal statements or during MMIs for instance). There should be recognition across the sector of the skills gained in work experience in non-medical environments. While some medical schools now recognise this wider experience, some still expect medical-specific work experience - which can be difficult for young people from lower socio-economic backgrounds to access. In any case, medical schools should clearly communicate to potential applicants the type of experience needed.

Similarly, there was considerable variation in whether, and if so how, personal statements were considered, at what stage of the selection process and for what purposes. How academic criteria were measured and applied in the process also varied widely. What students need, therefore, is clarity and easy access to up-to-date information, as well as support materials to guide them through the application process and make it as straightforward as possible.

### Improving the information available to applicants

There are already several efforts to improve the information available to aspiring medics. In 2020, the Medical Schools Council launched its *Studying Healthcare* website, to provide impartial, non-commercial advice and information on all the different aspects of the application process. Where the MSC does not provide materials itself, for example on UCAT, there are links to external websites. The site also includes a link to the MSC's separate entry requirements comparison tool.

However, there is a need to build upon existing support to make it more effective, particularly for disadvantaged young people. While the MSC's website is a useful resource, many potential applicants will not be aware of the organisation or its work. Making this information readily available through the Universities and Colleges Admissions Service (UCAS), either hosted within UCAS's website or as a prominent link, would ensure the information is readily available to all potential applicants. Failing that, sector-wide recognition of the MSC's service could see prominent links to the portal[114] with all stakeholders pointing applicants, teachers and careers advisers to one place.

[114] For example, a large banner on all medical school application landing pages, as well as on the UCAS website

In relation to complexity and clarity, there is some need for the competing diverse offers, criteria and processes of the different medical schools to be made more easily comparable. This may require some agreement between medical schools on, for example, how UCAT test scores are used in applications and widening participation, even if leaving some flexibility for different medical schools to decide their own specific entry criteria. Medical schools could also be required to provide clear, concise information in an easily comparable standard format for the MSC to include in its comparison tool. This should particularly apply to widening participation criteria and contextual offers, which are most important to the least empowered applicants.

### Contextual interviews and offers

Moving the dial on access will also require greater ambition from medical schools in their use of contextual offers, both in terms of how they use and apply them, as well as in better collaboration with other institutions. This should include bolder use of, for example, automatic offers to interview, and more flexibility on UCAT thresholds for applicants from lower socio-economic backgrounds, to take into account their lower performance in UCAT compared to their A level grades (see the section on UCAT below).

On the minimum grades required for entry (and therefore on how far a medical school can reduce its entry requirements when making contextual offers), it is vital decisions on entry grades are made solely on the basis of the level of attainment necessary to succeed on a medical degree, rather than on the grades a medical school can demand given the competitiveness of their course. This will also depend, in part, on the level of support medical schools are able to give to students coming in on lower entry grades, to ensure they are able to succeed once admitted. Medical schools should also do more to share this learning across the sector.

## Levels of prior educational attainment required for applicants

As outlined in the section on barriers for potential applicants above, young people from lower socio-economic backgrounds often have lower levels of prior attainment than their better-off peers, which is a major barrier for their access to medical schools looking for students able to meet the academic demands of their courses. Indeed, prior attainment (that is actual

and predicted level 3 qualifications, generally A levels) is a key criterion in selection for medical schools.[115]

In the review of medical school admissions carried out for this research, standard entry A level requirements ranged from AAA to A*A*A in all medical schools bar one – with one of the new medical schools asking for AAB. Most medical schools give some kind of contextual offer for widening participation applicants. The lowest contextual offers at a very small number of medical schools (at least of information publicly available) was BBB for participants in their own access to medicine programmes. The majority lowered standard offers by one or sometimes two grades, most commonly to AAB or higher.[116] However, the precise mechanisms for eligibility for contextual offers and how they were calculated varied widely between medical schools.

However, as discussed further below, entry to medical school is not the end of the problem. Research using the UKMED databases has found that although gateway courses increase the diversity of backgrounds in the student population, there were still differences in their later attainment outcomes.[117] Gateway students had similar outcomes to standard entry students in their annual reviews of competency progression (ARCP)[118], but they were less likely to pass at their first attempt in membership exams for royal colleges[119] and were less likely to be offered training positions on their

[115] Patterson, F., Knight, A., Dowell, J., Nicholson, S., Cousans, F., & Cleland, J. (2016). How effective are selection methods in medical education? A systematic review. *Medical Education*, *50*(1), 36–60. https://doi.org/10.1111/medu.12817

[116] It is also important to note that medical schools can lower their requirements but still only take students with higher grades. Lower grade requirements do not guarantee an applicant with those grades a place.

[117] Gateway courses offer an additional foundation year prior to the standard medical school programme, specifically targeting WP students with slightly lower academic attainment.

[118] ARCP is the means by which doctors in postgraduate training are reviewed each year to ensure they are offering safe, quality patient care and progressing against established standards. See *Annual review of competency progression*. (2017, November 21). NHS England | Workforce, Training and Education. https://www.hee.nhs.uk/our-work/annual-review-competency-progression

[119] Ellis, R., Brennan, P. A., Lee, A. J., Scrimgeour, D. S., & Cleland, J. (2022). Differential attainment at MRCS according to gender, ethnicity, age and socioeconomic factors: A retrospective cohort study. *Journal of the Royal Society of Medicine*, *115*(7), 257–272. https://doi.org/10.1177/01410768221079018; Elmansouri, A., Curtis, S., Nursaw, C., & Smith, D. (2023). How do the post-graduation outcomes of students from gateway courses compare to those from standard entry medicine courses at the same medical schools? *BMC Medical Education*, *23*(1), 298. https://doi.org/10.1186/s12909-023-04179-3

first application.[120] Other research on the same students has found that gateway students also have lower average attainment at the end of medical school compared to standard entry students, even if there is evidence that they close the gap from entry to medical school.[121] Consequently it is imperative that medical schools have adequate provision in place to support these students through their studies and ensure that they graduate and enjoy similar career prospects to their wealthier peers.

## UCAT

The UCAT (previously UKCAT)[122] aptitude test was partly intended to address disparities in prior attainment between applicants. Introduced in 2006, the test was intended to supplement assessment of educational attainment (measured by A levels in England) with a readily comparable measure of the aptitude of applicants for pursuing a medical career. The test was also intended to be less sensitive to the sociodemographic background, such as socio-economic status, gender or ethnicity, of applicants, and therefore help medical schools in the UK with widening participation.[123]

However, previous research has shown that male pupils from independent and grammar schools and from higher socio-economic backgrounds generally perform better in the test.[124] Analysis in Part 1 of this report confirms previous research in finding that higher socio-economic group and higher predicted A levels were both predictors of higher UCAT score,

[120] Elmansouri, A., Curtis, S., Nursaw, C., & Smith, D. (2023). How do the post-graduation outcomes of students from gateway courses compare to those from standard entry medicine courses at the same medical schools? *BMC Medical Education*, *23*(1), 298. https://doi.org/10.1186/s12909-023-04179-3

[121] Curtis, S., & Smith, D. (2020). A comparison of undergraduate outcomes for students from gateway courses and standard entry medicine courses. *BMC Medical Education*, *20*(1), 4. https://doi.org/10.1186/s12909-019-1918-y

[122] Until 2023 Oxford, Cambridge and UCL medical schools preferred to use the alternative BMAT (BioMedical Admissions Test)

[123] Tiffin, P. A., McLachlan, J. C., Webster, L., & Nicholson, S. (2014). Comparison of the sensitivity of the UKCAT and A Levels to sociodemographic characteristics: A national study. *BMC Medical Education*, *14*, 7. https://doi.org/10.1186/1472-6920-14-7

[124] Kulkarni, S., Parry, J., & Sitch, A. (2022). An assessment of the impact of formal preparation activities on performance in the University Clinical Aptitude Test (UCAT): A national study. *BMC Medical Education*, *22*(1), 747. https://doi.org/10.1186/s12909-022-03811-y

as well as being male, of White ethnicity and attending a grammar or independent school.[125]

Part 1 also found that UCAT score was a very strong predictor of receiving an offer for medical school, with every standard deviation increase in UCAT score associated with over three times the odds of receiving an offer. However, even among those with the highest (3A*) predicted A level grades, pupils from the most socio-economically disadvantaged backgrounds generally achieved nearly 5% lower mean UCAT scores compared to the least disadvantaged.[126] This suggests that UCAT is not only not fulfilling its original intended purpose of helping widening participation, but may even be an additional barrier preventing it.

In fact, researchers have found that preparation activities including use of free and commercially available materials, attendance at school-based courses and time spent in preparation, which are less likely to be accessible to poorer students, are significantly associated with higher UCAT scores.[127]

If UCAT scores are closely correlated with academic attainment, are coachable and subject to different levels of school preparation, while also contributing an additional layer of complexity to the application process, the question needs to be asked as to whether UCAT is really either necessary or fit for purpose. However, what are the alternatives, particularly if dropping the test would potentially leave selection even more strongly focused on prior attainment and predicted grades?

One solution might be to try to formulate an aptitude test less susceptible to coaching, although it could be argued that all tests will be subject to both unintended biases and degrees of preparation and coaching. Another alternative would be the greater use of 'fast-track-to-interview' criteria for disadvantaged pupils – for example guaranteed interviews for care leavers or free school meals (FSM) eligible pupils meeting the minimum academic

[125] Woolf, K., Medisauskaite, A., & Boustani, S. (2025). *Access to medical schools for students from disadvantaged backgrounds.* UCL and The Sutton Trust. See Supplementary Section 4 and Supplementary Table 10.

[126] Woolf, K., Medisauskaite, A., & Boustani, S. (2025). *Access to medical schools for students from disadvantaged backgrounds.* UCL and The Sutton Trust. See Table 6.

[127] Kulkarni, S., Parry, J., & Sitch, A. (2022). An assessment of the impact of formal preparation activities on performance in the University Clinical Aptitude Test (UCAT): A national study. *BMC Medical Education*, *22*(1), 747. https://doi.org/10.1186/s12909-022-03811-y

requirements. If medical schools are unable to move away from UCAT, then more standardised approaches to how the scores are used in selection could make the process more transparent and understandable for applicants, and contextualised UCAT score offers for widening participation applicants could also be routinely applied, to take into account this groups' lower scores when compared to their A level results.

## The impact of *Selecting for Excellence*

In 2014, the Medical Schools Council's *Selecting for Excellence* final report made a range of recommendations for medical schools aimed at improving and monitoring widening participation as well as supporting disadvantaged students through medical school. In relation to the admissions process, these recommendations included:

- Strengthening outreach work following Selecting for Excellence guidance such as engaging younger children as well as adults, involving trained and motivated doctors in the work, having effective evaluation and appropriate institutional culture.[128]

- Widening participation criteria to be clearly and easily accessible on medical school websites.

- Implement Selecting for Excellence guidance on work experience with clear signposting on websites. The guidance included calling for caring experience through either volunteering or paid work and increasing access to work experience in healthcare settings for those from a lower socio-economic background.

- Evaluating the impact of past and current widening participation activities and considering the value of introducing a gateway or foundation programme.

[128] Medical Schools Council. (n.d.). *A Journey to Medicine: Outreach guidance.* Retrieved 4 February 2025, from https://www.medschools.ac.uk/media/1913/a-journey-to-medicine-outreach-guidance.pdf

- Utilising the MSC common statement[129] on the core values, skills and attributes needed to study medicine in designing and developing their selection processes and involving evidence-based assessment of core values.

- Evaluating whether selection processes should include elements of academic attainment, aptitude tests and multiple mini-interviews (MMIs).

Some medical schools were already targeting widening participation students years before *Selecting for Excellence*. For example, Kings College London, University of Southampton and Norwich Medical School all already ran gateway programmes with some success in reaching under-represented groups.[130] However, over the last decade all medical schools have implemented at least some of these measures following the *Selecting for Excellence* recommendations.

For instance, the dependence upon personal statements has been reduced, the vast majority of medical schools use MMIs instead of traditional interviews (although the nature of the MMIs varies considerably between institutions - see above), most make some kind of specified contextual offer and those that do not, nonetheless say that broader contextual information will be taken into account when making offers. Most medical schools specify two or more forms of contextual data that they consider (e.g. POLAR quintile, first in family to university, free school meal eligibility etc). All medical schools now use the UCAT test – originally intended to be a fairer measure of suitability for medicine than A levels

[129] Medical Schools Council. (2018). *Statement on the core values and attributes needed to study medicine, 2018 update*. https://www.medschools.ac.uk/media/2542/statement-on-core-values-to-study-medicine.pdf. The values and attributes identified were: motivation to study medicine and genuine interest in the medical profession; insight into your own strengths and weaknesses; the ability to reflect on your own work; personal organisation; academic ability; problem solving; dealing with uncertainty; managing risk and deal effectively with problems; ability to take responsibility for your own actions; conscientiousness; insight into your own health; effective communication, including reading, writing, listening and speaking; teamwork; ability to treat people with respect; resilience and the ability to deal with difficult situations; empathy and the ability to care for others; honesty.

[130] Curtis, S., & Smith, D. (2020). A comparison of undergraduate outcomes for students from gateway courses and standard entry medicine courses. *BMC Medical Education*, *20*(1), 4. https://doi.org/10.1186/s12909-019-1918-y

which benefited those in selective and independent schools[131] – in some form in their selection process (though again not all in the same way). Of the 44 medical schools in the UK, 18 now offer gateway programmes (routes with an extra year of study like a foundation year often open only to widening participation applicants).

In this regard, the medical schools' widening participation landscape has been transformed over the last ten years. However, there is still a lot of inconsistency across the sector in terms of how selection processes are handled and how widening participation criteria are measured and applied.

As Part 1, shows, there is considerable variation in the proportions of entrants from more disadvantaged backgrounds across medical schools and also in the degree of change that the introduction of these measures has seen over the last decade.[132] Most medical schools now take a larger proportion of lower socio-economic background students than they did ten years ago. Nonetheless, progress remains patchy and there is a lot of variation across medical schools in the extent to which they take in a larger or smaller proportion of low SE background students and how far they have improved over time.[133]

However, this transformed landscape in itself constitutes a complex obstacle course to navigate not only for applicants in general, but even more so for WP candidates. The fact that WP measures are constantly evolving and in different ways, at different speeds and sometimes in different directions across different institutions, means that understanding which may be the best medical school to apply to given one's personal circumstances may require considerable effort. A first in family applicant living in a high POLAR quintile area may meet widening participation criteria in one medical school, but not be eligible in another. With 44 medical schools to consider and no uniformity in organisation, content or

**"There is a lot of insider knowledge and strategy that goes into applying to medical school. Without the proper resources and guidance, it can be difficult to decide where to apply as every medical school requires something different (which I completely disagree with, I believe the admissions standards should be universal across all medical schools)." - First year medical school student and previous Sutton Trust programme participant**

[131] McManus, I. C., Dewberry, C., Nicholson, S., & Dowell, J. S. (2013). The UKCAT-12 study: Educational attainment, aptitude test performance, demographic and socio-economic contextual factors as predictors of first year outcome in a cross-sectional collaborative study of 12 UK medical schools. *BMC Medicine*, *11*(1), 244. https://doi.org/10.1186/1741-7015-11-244

[132] Woolf, K., Medisauskaite, A., & Boustani, S. (2025). *Access to medical schools for students from disadvantaged backgrounds.* UCL and The Sutton Trust. See Figure 3.

[133] Woolf, K., Medisauskaite, A., & Boustani, S. (2025). *Access to medical schools for students from disadvantaged backgrounds.* UCL and The Sutton Trust. See Figure 3.

structure of websites, finding the correct up-to-date information can be a daunting task for applicants.

### Box 4: Contextual admissions and widening participation at Hull-York Medical School 2015-2024

The development over time of widening participation (WP) at Hull York Medical School (HYMS) offers a good example of both some of the possibilities available to medical schools, but also an indication of the difficulty of keeping abreast of constantly developing processes. Data in *Access to medical schools* suggest HYMS has admitted larger proportions of lower socio-economic background students in recent years.

HYMS reviewed its selection criteria and first introduced contextual admissions for the 2015 application cycle, starting with additional points on applicants' selection-for-interview scores if their GCSE schools had low progression rates. based on the progression measures of their GCSE schools. Other WP flags included POLAR data, eligibility for the UKCAT (UCAT) bursary and being first in family to attend university. UCAT bursaries are available to lower income students to cover the cost of the test.

From 2016 selection incorporated alternative offers in line with the University of York and the widening access programmes they delivered. Fast track to interview was introduced in 2017: students meeting the UCAT threshold alongside WP criteria were invited directly for interview. In 2021 HYMS joined UKWPMED (see below) for mutual recognition of other medical access programmes with similar features and outcomes.

From 2017 HYMS participated in the Sutton Trust's Pathways to Medicine programme, which saw 74 students out of 140 applicants from the programme study medicine at HYMS (2017-2024 entry) while others went on to study medicine elsewhere.

In 2019, HYMS was awarded additional home undergraduate places (220 up from 130) and also launched its Medicine with a Gateway Year, specifically for applicants meeting contextual criteria or coming from a widening access programme, with the lowest grade entry set at BBC. The first cohort on this programme will graduate in 2025.

From 2020 additional points were awarded at interview for students meeting WP criteria to boost their overall score and over half the MBBS cohort was made up of students with contextual data flags on their application for the first time. In 2022, to better reflect the diversity of WP applicants, POLAR was given less weight while UCAT bursary eligibility was increased and refugee status added. In 2025 the entry criteria have gone further to include groups like Roma, Gypsy and Traveller (RGT) communities, the largest ethnic minority group in York.

## Gateway courses, summer schools and access to medicine programmes

Two of the most notable developments over the last decade have been the proliferation of specific courses or programmes aiming to widen access, including gateway courses, summer schools and other access to medicine programmes.

Gateway courses offer an additional foundation year prior to the standard medical school programme, specifically targeting WP students with slightly lower academic attainment. Although still fewer than half of medical schools offer gateway pathways, they have nonetheless fundamentally transformed the medical school landscape.

As outlined in Part 1 of this report, *Access to medical schools*, in general, gateway courses were successful at admitting applicants from the most deprived backgrounds who had relatively high grades. Taking grades into account, applicants from the most deprived backgrounds had higher odds of success if they applied to a gateway course.[134] For example, in 2018 those applying to gateway courses had over three times the odds of receiving an offer than those applying only to standard entry courses.

However, despite having relatively lower grade requirements for eligible applicants, gateway courses do not entirely remove the academic barriers that applicants from the most deprived backgrounds are more likely to experience. Gateway courses help lower socio-economic background applicants with relatively high grades, but are less effective at controlling for the socio-economic attainment gap that disadvantages many poorer students. It is also important to remember that the majority of students entering gateway courses are still not from disadvantaged backgrounds – 11% of all entrants to gateway courses were from the lowest socio-economic group compared to 46% from the highest socio-economic group.[135]

We can see that gateway programmes have, indeed, opened the doors to medical school for some disadvantaged students, particularly those achieving higher grades. However, they do not come without costs –

[134] Woolf, K., Medisauskaite, A., & Boustani, S. (2025). *Access to medical schools for students from disadvantaged backgrounds.* UCL and The Sutton Trust. See Section 3, Tables 4 and 5 in particular.

[135] Woolf, K., Medisauskaite, A., & Boustani, S. (2025). *Access to medical schools for students from disadvantaged backgrounds.* UCL and The Sutton Trust, 26.

financial and social – that should be weighed up carefully by medical schools who might consider alternative ways of widening access and supporting disadvantaged students.[136] Setting up and running gateway programmes, often for relatively few students, is costly for the medical schools. It is also costly for the students who accumulate an extra year of student debt and will later face two years, as opposed to the usual one, for standard entry students, surviving on the notoriously low NHS bursary when working their placements.[137] And those gateway students who are from disadvantaged backgrounds are often the least well-placed to deal with these additional financial pressures (see below). What is more, although rarely explicitly stated, the logic of gateway courses has been criticised as being driven by deficit models and, potentially exacerbating the stigma of those who are already a minority in medicine,[138] gateway courses can also be seen to set up a two-tier system. This is an issue we return to below.

The other prominent WP activities that have expanded over the last ten years are access programmes and summer schools. Some of these have been run by individual medical schools themselves, some in collaboration with the MSC, particularly summer schools, and others in collaboration with charities such as The Sutton Trust.

**"The Sutton Trust programme has quite literally invested in me. Taking a chance on me when I was just a girl with huge ideas and plans but lacking the right support system at times to bring things into fruition." - Medical student and former Sutton Trust programme participant**

The MSC has collaborated with around a dozen medical schools to run medicine summer schools funded by Health Education England and subsequently the NHS England Workforce Training and Education Directorate (NHSE WT&E).[139] These summer schools targeted

[136] Dueñas, A. N., Tiffin, P. A., & Finn, G. M. (2021). Understanding gateway to medicine programmes. *The Clinical Teacher*, *18*(5), 558–564. https://doi.org/10.1111/tct.13368

[137] Suji, T., Vernon, M., Lawson-Smith, E., Sucharitkul, P. P. J., Garrett, E., & Sigston, A. (2022). Next generation of doctors unable to complete training due to a lack of funding at medical school. *BMJ*, *377*, o1384. https://doi.org/10.1136/bmj.o1384

[138] Dueñas, A. N., Tiffin, P. A., & Finn, G. M. (2021). Understanding gateway to medicine programmes. *The Clinical Teacher*, *18*(5), 561. https://doi.org/10.1111/tct.13368.

[139] These have not been the same medical schools each year. In 2019 four summer school programmes were established at Imperial College, Exeter, Keele and Manchester, targeting so-called 'cold spots' where secondary schools were not regularly accessing outreach activities from medical schools. That year a further 350 places were funded at already existing medical school summer programmes at Hull-York, Southampton, Leeds, Birmingham, Sunderland, Bristol and Brighton & Sussex. Medical Schools Council. (2019). *Selection Alliance 2019 Report: An update on the Medical Schools Council's work in selection and widening participation.* Medical Schools Council. https://www.medschools.ac.uk/media/2608/selection-alliance-2019-report.pdf. Since 2019 MSC

disadvantaged young people attending schools that did not have a relationship with a UK medical school, aiming to help them 'explore whether medicine is the right choice for them, and to give them the information, skills and, above all, the confidence they need to submit a strong application to medicine.'[140]

The MSC has conducted outcome surveys of participants in their summer schools which have indicated student satisfaction with their courses. However, in collaboration with medical schools, more robust evaluation procedures of MSC summer school programmes are required and planned for the future, including collaboration with the Higher Education Access Tracker (HEAT).[141]

Although the increasing number of summer schools and widening participation programmes is certainly to be welcomed, across the sector, there is often a lack of mutual recognition of these programmes from one medical school to another. Contextual offers may be made by a medical school to applicants who have participated in their own widening access programme, but a similar offer would not be made to a similar candidate who had completed a very similar programme at a rival medical school. This can be limiting for applicants, as they may only be able to attend an access programme at a university near their home, potentially limiting their choice of medical school in future to their local area.

There should be improved recognition of participation in widening participation programmes across medical schools. The UKWPMED scheme

partner medical schools have included Exeter, Imperial, Brighton and Sussex/Kent & Medway, Bristol, Lancaster, Leicester, London medical schools (consortium including Kings, St. George's, UCL, Queen Mary), Anglia Ruskin and Hull-York Medical Schools Council, Medical Schools Council. (2023). *MSC Selection Alliance Annual Report 2023: An update on Medical Schools Council's work in selection and widening participation.* Medical Schools Council. https://www.medschools.ac.uk/media/3125/selection-alliance-update-2023.pdf.

[140] Medical Schools Council. (2019). *Selection Alliance 2019 Report: An update on the Medical Schools Council's work in selection and widening participation.* Medical Schools Council. https://www.medschools.ac.uk/media/2608/selection-alliance-2019-report.pdf

[141] Fletcher, E., Garrud, P., Krstic, C., & Owen, C. (2024). *Fostering Potential: 10 years on from Selecting for Excellence*. Medical Schools Council. https://www.medschools.ac.uk/media/3219/fostering-potential-10-years-on-from-selecting-for-excellence.pdf. The MSC is also working with a team from Imperial College London to develop longitudinal evaluation of its summer schools. Medical Schools Council. (2023). *MSC Selection Alliance Annual Report 2023: An update on Medical Schools Council's work in selection and widening participation.* Medical Schools Council. https://www.medschools.ac.uk/media/3125/selection-alliance-update-2023.pdf

already tries to do this.[142] However, very few medical schools are signed up to the scheme. Such mutual recognition, across all medical schools, could remove some of the jeopardy involved for widening participation applicants in trying to pick the right summer school or access programme to apply for. Importantly, participation in such programmes should not become a new *de facto* criteria for contextual offer eligibility. The aim should be to open up access, not to narrow it down. Some applicants independent of participation in any programme will be eligible for contextual offers and may not have the chance to take part in any such programmes.

### The Sutton Trust access to medicine programmes

The Sutton Trust supports over 2,500 aspiring medics from lower socio-economic backgrounds annually. Programmes are run in partnership with leading UK institutions and range from multi-year in-person programmes and intensive residentials to personalised online support. All programmes aim to support students to make informed decisions about their future careers and facilitate their progression to highly competitive universities and courses.

Having celebrated over ten years of delivery, Pathways to Medicine supports students over an 18-month period to develop the knowledge, skills and confidence they need to pursue medicine. Pathways to Medicine provides academic taster sessions, work placements, mentoring (by undergraduate students and practitioners), a summer school and a range of admissions related support.

Sutton Trust summer schools are residential experiences run by leading universities, and which incorporate medicine as one of the key subject strands.[143] These programmes offer young people the chance to experience what university life is like through a range of activities including taster lectures and hands-on workshops, targeted applications support

[142] UKWPMED is a scheme in which currently seven UK medical schools collaborate. Participating medical schools recognise the WP programmes at each other's institutions as part of their own admissions process. Any applicant who has attended a WP medicine programme at one of the participating institutions will receive recognition of this from the other participating institutions as if they had attended one of their own programmes. See e.g. *UKWPMED*. (n.d.). Retrieved 18 February 2025, from https://www.hyms.ac.uk/medicine/applying/ukwpmed.aspx

[143] Partner universities for medicine include: Universities of Cambridge, Nottingham, Bristol, Glasgow, Edinburgh, St. Andrews, Cardiff University, Imperial College London and the Royal Veterinary College.

and social activities. Post summer school continued support is provided through Sutton Trust Online (STO) for all stages of the application process.

Sutton Trust Online (STO) is also provided as a standalone programme to meet the demand for the hundreds of students who we are unable to support through our in-person programmes. STO provides webinars and learning modules on preparing for the UCAT and medical school interviews and AI-powered interview support where students can record answers and receive real-time feedback. University partners also provide digital based insights into their medical schools and medicine-related courses.

To be eligible for a Sutton Trust medicine programme, applicants must be in Year 12 when the programme starts, be attending and have always attended a state school, meet minimum GCSE requirements and for Pathways to Medicine, live within a reasonable commuting distance from the university delivering the programme.

We then apply five needs-based eligibility criteria such as whether students are eligible for Free School Meals, are the first generation in their family to attend university, live in a disadvantaged neighbourhood or have been looked after or in care. The more of these a young person meets, the more likely they are to receive a place on the more intensive programmes.

To assess programme impact, The Sutton Trust tracks the long-term outcomes of its students. According to Higher Education Access Tracker (HEAT) analysis in 2023, two thirds (67%) of Pathways to Medicine participants from 2017 to 2020 were studying medicine, dentistry, or subjects allied to medicine, with particularly high proportions of 2019 and 2020 participants studying medicine (59% and 45% respectively, compared with the average of 33% over the whole period).

Analysis of data for unsuccessful applicants to the programme, which offers some benchmark for assessing outcomes, has been done from 2017 onwards, and unsuccessful applicants were less likely than Pathways to Medicine participants to study medicine and dentistry, but slightly more likely to study subjects allied to medicine.

## How socio-economic disadvantage is measured by medical schools

Which measures most accurately reflect disadvantage has long been a challenge for those working to improve social mobility. In relation to

medical school widening participation, one of the most widely used measures has been POLAR, which has in the past been used as an imprecise proxy measure of disadvantage. POLAR is also the measure that the MSC's Selection Alliance used in setting its widening participation targets.[144] However, POLAR is an area-based measure of university participation rates, and as such is not a direct measure for poverty, income level or socio-economic deprivation. Previous Sutton Trust research has highlighted how poorly POLAR correlates to low family income, with similar findings for the newer measure TUNDRA.[145]

In its recent review of ten years of the Selection Alliance, the MSC recognised the limitations of POLAR, and has committed to using the Index of Multiple Deprivation (IMD) measure instead in its future work.[146] IMD, which is also used by many universities to target their widening access work, is a measure of relative deprivation based on a range of measures including income, employment, health, education, crime and environment. It offers a much clearer indication of relative deprivation in different areas of the UK. Previous Sutton Trust research has found that while IMD is more closely related to low income than POLAR, it is still only moderately correlated.[147]

Additionally, Part 1 of this report, *Access to medical schools,* shows a striking contrast between applicant and entrant rates measured using IMD and those using socio-economic status (measured by parental profession). Over the period of the research, access improved for those from the most deprived neighbourhoods, but the same level of progress was not seen by socio-economic background,[148] suggesting that it has potentially been

[144] See above on widening participation and medical schools for a more detailed explanation of the Selection Alliance's work.

[145] Jerrim, J. (2021). *Measuring disadvantage*. https://www.suttontrust.com/wp-content/uploads/2021/05/Measuring-Disadvantage.pdf

[146] Fletcher, E., Garrud, P., Krstic, C., & Owen, C. (2024). *Fostering Potential: 10 years on from Selecting for Excellence*. Medical Schools Council. https://www.medschools.ac.uk/media/3219/fostering-potential-10-years-on-from-selecting-for-excellence.pdf

[147] Jerrim, J. (2021). *Measuring disadvantage*. https://www.suttontrust.com/wp-content/uploads/2021/05/Measuring-Disadvantage.pdf

[148] Woolf, K., Medisauskaite, A., & Boustani, S. (2025). *Access to medical schools for students from disadvantaged backgrounds.* UCL and The Sutton Trust. See Figures 1, 2, 4 and 6. Sutton Trust research has also shown how income-based measures of disadvantage like FSM are a better, if far from perfrect, indicator of deprivation than area-based measures. See Jerrim, J. (2021). *Measuring disadvantage*. https://www.suttontrust.com/wp-content/uploads/2021/05/Measuring-Disadvantage.pdf.

those from better off families in more deprived areas who have benefited from existing access efforts, highlighting the importance of individual level widening participation measures.

Consequently, medical schools should prioritise use of the most accurate measures for contextualised interviews and offers, with a focus on individual level measures such as free school meal eligibility. Should these not be available, priority should be given to ACORN[149], the area-level measure most closely related to individual income level, followed by the Index of Multiple Deprivation (IMD). If a combination of different indicators of deprivation is used, these more robust measures should be weighted most strongly. POLAR and TUNDRA should not be used in isolation to make decisions on individual students.

## Experiences of previous Sutton Trust programme participants of the application process

The majority (around 80%) of respondents to our survey of previous programme participants did not agree that the medicine admissions process is fair for all students. Again, the experiences of survey participants are explained in their own words below.

"The medicine admissions process is inherently elitist. Those from more privileged backgrounds can better afford preparatory materials for the UCAT and interviews. Alongside this they are more likely to have schools and families knowledgeable in the medicine and general university admissions process."
**- Medical school student**

"It is much easier for students from well off and supportive backgrounds to access help in the admissions process. Private schools have more support and there are a lot of courses that you can pay for that help you apply and with the UCAT process that are inaccessible to a lot of people."
**- Psychology student**

"It all comes down to what the application process requires the applicant to know and do. I highly doubt that students wanting to apply for medicine from low performing schools have all the aid and information necessary to make a strong and informed application. However, it is also true that there are a lot of free resources out there on the internet and it is possible for

[149] *How Acorn Works*. (n.d.). Acorn. Retrieved 11 February 2025, from https://acorn.caci.co.uk/how-acorn-works/

one to find and use all of these to their advantage. But this requires a lot of dedication and time which not everyone can offer."
**- Medical school student**

"There is a lot of insider knowledge and strategy that goes into applying to medical school. Without the proper resources and guidance, it can be difficult to decide where to apply as every medical school requires something different."
**- Medical school student**

"I cannot say the admissions process is fair at all. I feel that contextual offers are there so that the disadvantaged individuals don't feel so disadvantaged but really they still are if you look at the stats of admissions and which type of people get a place to study medicine taking into account their grades, their UCAT score, the school they went to, where they are from. What you don't see though is the support that is significantly less for students in comprehensive schools and with lower economic backgrounds than other students but this increases the gap of opportunities and fairness in the admissions process significantly**."**
**- Optometry student (unsuccessfully applied for medical school)**

# 3. At medical school and beyond

Although the focus of this report is on the application process and entry to medical school, it is also important to recognise that getting into medical school does not represent the end of the challenges faced by students from lower income backgrounds. Here we consider some of them.

## Covering the cost of living while studying

Previous Sutton Trust research has found that students from lower socio-economic backgrounds are disproportionately affected by inadequate student finance. They have less money to spend on additional course costs, they spend higher proportions of their essential spending on rent, they are more likely to study while living at their parents homed due to costs and they also leave university with higher rates of debt, on average, than those from wealthier families.[150]

[150] Sutton Trust. (2024). *General Election Policy Briefing: Reforming student maintenance*. The Sutton Trust. https://www.suttontrust.com/wp-content/uploads/2024/02/Closing-the-attainment-gap.pdf and *Student Maintenance Analysis 2023*. (n.d.). The Sutton Trust. Retrieved 18 February 2025, from https://www.suttontrust.com/our-research/student-maintenance-analysis-2023/

All of this applies to medical students as much as others. Indeed, medical students study for longer, in many cases accumulating additional debt and facing considerable financial hardship, disproportionately affecting students from low income backgrounds.[151] A recent poll for the doctors' professional body, the British Medical Association (BMA), found that more than 40% of medical students have considered pausing or dropping out of their courses because of financial pressures, and three quarters have turned to a parent or family for money, something poorer students are often not able to do.[152]

**"Whilst at university, many placements were further afield, up to 50 miles away. Whilst accommodation was provided, travel was not. Luckily I had a friend with a car most of the time, but had I not I would have really struggled. I did have to miss some placement sessions due to travel (i.e requiring getting up at 4am and 3 buses to get to a remote community placement, which was neither safe nor fair)."**
**- Qualified doctor and previous Sutton Trust programme participant**

However, there are also additional costs for medical students, such as travel and additional accommodation costs for placements, some equipment and clothing. The placement costs can be particularly demanding when students are on the reduced income of the NHS bursary in the final year or two years of their studies – more than £3,200 pounds less than that provided on a student maintenance loan.[153] Student financial difficulties have been exacerbated in recent years with the cost of living crisis and the levels of maintenance loan and parental income thresholds failing to rise in line with higher levels of inflation.[154] What is more, many medical schools limit, or even ban, part-time jobs for students to boost their income, a restriction that comes with additional stress for low income students, who may have little choice but to break the rule and will also have less time for study. Sutton Trust research has found that students from working class backgrounds were more likely than their wealthier peers to have worked alongside periods of study, including in their final year, during term time and during exam periods.[155]

Another common problem is getting to their placements. Students from lower socio-economic backgrounds in our survey commented on their

[151] Lynn, É. (2023). Widening participation is for life, not just for admissions. *BMJ*, *383*, p2659. https://doi.org/10.1136/bmj.p2659

[152] *Four in 10 medical students 'consider pausing or leaving course over money'*. (2025, February 4). The Independent. https://www.independent.co.uk/news/uk/nhs-england-british-medical-association-bma-government-b2691592.html

[153] Suji, T., Vernon, M., Lawson-Smith, E., Sucharitkul, P. P. J., Garrett, E., & Sigston, A. (2022). Next generation of doctors unable to complete training due to a lack of funding at medical school. *BMJ*, *377*, o1384. https://doi.org/10.1136/bmj.o1384

[154] Sutton Trust. (2024). *General Election Policy Briefing: Reforming student maintenance*. The Sutton Trust. https://www.suttontrust.com/wp-content/uploads/2024/02/Closing-the-attainment-gap.pdf

[155] Montacute, R., Holt-White, E., & Gent, A. (2021). *The University of Life*. The Sutton Trust. https://www.suttontrust.com/our-research/the-university-of-life-skills-employability-students/

inability to afford a car during their placement years, often in contrast with their wealthier peers.[156]

The financial support available for students from lower income backgrounds while studying is currently inadequate. For all undergraduate students, the Sutton Trust has previously called for the student maintenance loan to be increased to meet the cost of living, with parental income thresholds uprated with inflation, and maintenance grants re-introduced for lower income students.[157]

For students both inside and outside medical schools, student support should reflect the actual costs of studying, but in relation to medicine it also needs to take into account the additional financial burdens facing lower income medical students in particular. To help with this, student support in later years of medical degrees should be reformed, with a focus on adequately supporting students from lower income families. In later years of their course, the NHS bursary currently provides all medical students with less up-front maintenance support than they would have received under the general student loan system, with students from lower income families the least able to make up the shortfall. Reform is needed to ensure these students have adequate funding to cover their living costs while studying.[158]

In addition, medical schools could be doing more to support financially struggling students. Wherever possible, medical schools should look to reduce additional costs. As we have seen, medical school placements can put considerable cost pressure on students from lower income homes. Medical schools should, where possible, provide support, for example with travel costs, equipment or clothing for these placements. At the same time, government should ensure that medical schools are adequately resourced to meet these additional costs.

[156] See also British Medical Association. (2009). *Equality and diversity in UK medical schools*. BMA. https://www.nuffieldtrust.org.uk/sites/default/files/2019-11/1575040339_bmastudentreport2009.pdf; Lynn, É. (2023). Widening participation is for life, not just for admissions. *BMJ*, *383*, p2659. https://doi.org/10.1136/bmj.p2659

[157] Sutton Trust. (2024). *General Election Policy Briefing: Reforming student maintenance*. The Sutton Trust. https://www.suttontrust.com/wp-content/uploads/2024/02/Closing-the-attainment-gap.pdf

[158] Lynn, É. (2023). Widening participation is for life, not just for admissions. *BMJ*, *383*, p2659. https://doi.org/10.1136/bmj.p2659

## Inclusion and sense of belonging

Educational challenges are not confined to financial difficulties. As the Medical Schools Council recognises, widening participation is not just about the application process and admissions, but also both about encouraging inclusion once students are at medical school and ensuring there are appropriate support structures in place to help disadvantaged students.[159] These students may not have had the same levels of preparation as their wealthier peers earlier in their education and as we have seen, they may lack the social networks and external support that other students may rely on to help them through their studies.

As some of our survey responses show below, inclusion at medical school is also about workplace culture[160], with some students experiencing prejudice because of their accents,[161] some being assumed to be wealthy just because they are studying medicine, and others pointing to a lack of understanding of their background among colleagues.

## Experiences of previous Sutton Trust programme participants in medical school and the workforce

Our survey of former participants of Sutton Trust programmes offers additional insights into some of the issues faced by this group during their degree, and into their time in the workplace. Issues raised by participants include questions of inclusion and workplace culture as well as financial challenges and stress. Survey participants were asked to identify obstacles in the workplace which limited or slowed their progression. Their responses are revealing:

"Classism and lack of understanding regarding part-time jobs."
**- Qualified doctor**

[159] Fletcher, E., Garrud, P., Krstic, C., & Owen, C. (2024). *Fostering Potential: 10 years on from Selecting for Excellence*. Medical Schools Council. https://www.medschools.ac.uk/media/3219/fostering-potential-10-years-on-from-selecting-for-excellence.pdf

[160] Workplace culture issues can relate to class, ethnicity or even disability See also British Medical Association. (2009). *Equality and diversity in UK medical schools*. BMA. https://www.nuffieldtrust.org.uk/sites/default/files/2019-11/1575040339_bmastudentreport2009.pdf.

[161] Sutton Trust research has previously found that discrimination in the workplace against colleagues can often be mobilised through comments on their accents. See Levon, E., Sharma, D., & Ilbury, C. (2022). *Speaking Up*. The Sutton Trust. https://www.suttontrust.com/our-research/speaking-up-accents-social-mobility/

"Dealing with micro-aggressions from colleagues who would make comments about how I spoke and imply I was lower class than them."
**- Qualified doctor**

"As a doctor there are a range of conferences/courses/extra exams/degrees which give you points and make you a more attractive candidate for a job - I am currently still finding this difficult competing with those who have the funds to do the above"
**- Qualified doctor**

"I've been unable to present internationally unique research, accepted by organisers at conferences owing to an inability to afford the cost of travelling."
**- Qualified doctor**

"First month of F1 was extremely financially difficult as it meant leaving uni with minimal money left over, having to move away from home to where my F1 job was and pay for the first months' rent and deposit, without having earned any money yet"
**- Qualified doctor**

**"**I've been teased by nurses that I'm a doctor because of my "rich daddy" which obviously is not true having come out of the care system."
**- Qualified doctor**

"I always ensured that I attended placement (whether this was using public transport initially, then going on to having a car). However, this was at a detriment to my own health. After funding residencies (and all the problems associated with student housing: boiler exploding and paying £800 for damages), equipment for university and transport, there were times (particularly in my second year) where I would live on £1.20 per week. This was enough to buy a loaf of bread, jam and squash. I went down to 6 stone and was very lethargic. However, at the time, I felt this was the only way I could fund my studies. I went on to fail an exam that same year (and passed the re-take), but had I had money to fund the issues with my student housing and look after myself (eat properly), I probably would have passed first time."
**- Qualified doctor**

## Seizing opportunities in the *NHS Long Term Workforce Plan*

The NHS is struggling with doctor shortages, which has led to some areas having too few doctors and an over-reliance on international recruitment, which some have criticised as being unethical.[162] However, the 2023 *NHS Long Term Workforce Plan* offers an opportunity to address these issues, while also widening participation for potential medics from lower socio-economic groups.

In recent years, the expansion of medical school places has been linked to the dual objectives of widening access to the medical profession and targeting underserved communities. The 2023 NHS workforce plan carries these objectives forward. Consequently, understanding how these objectives are currently being supported by the allocation of additional places and the rollout of gateway courses and new medical schools will provide useful insights for the next steps. Gateway courses and new medical schools are still relatively young and analysis of their outcomes is still limited. The UKMED analysis in Part 1 on gateway courses and new medical schools focussed on admission to medicine rather than on progression through medical school and into the medical workforce. This analysis, however, furnishes important understandings in relation to the development and implementation of the 2023 *NHS Long Term Workforce Plan*.

As we have seen, medical schools vary considerably in how they perform on access. Those with a proven track record of success both in access and outcomes, with a focus on individual level measures (for example free school meal eligibility) should be prioritised for any new medical training places, with strong widening participation expectations for any additional new medical schools.

However, the National Audit Office has voiced important words of caution about the NHS plans, pointing out that the modelling behind them has not taken into account potential changes in student drop-out rates and how these could be affected particularly by recruiting more students with lower

[162] Thomas, J. M. (2022). Poaching doctors from abroad is unethical. *The Lancet*, *399*(10334), 1466–1467. https://doi.org/10.1016/S0140-6736(22)00233-1

attainment.[163] We know from Sutton Trust research that lower attainment is not necessarily an indication of ability when it comes to students from poorer families – it may just as well be a reflection of background and life circumstances.[164] Consequently, although the NHS expansion should be seen as a good opportunity to widen participation, it absolutely must be accompanied by provision of appropriate levels of support (financial, pastoral and practical) particularly for disadvantaged students, throughout their studies.

## What's in the plan?

The Government launched the *NHS Long Term Workforce Plan* in June 2023, outlining a vision of an expanding and reforming NHS that would retain skilled staff, take advantage of new technology and see 'the biggest recruitment drive in health service history.'[165]

According to the plan, the NHS will double the number of medical school training places from 7,500 in 2022 to 15,000 by 2031/32, with an interim target of increasing places by a third to 10,000 per year by 2028/29 with the first new places available in September 2025. While in opposition, the then Shadow Health Secretary, and now Health Secretary, Wes Streeting supported an even greater expansion of medical school places, promising as many as 45,000 additional doctors by 2040 at a cost of about £1.2 billion over five years. [166] Since coming into power there has been no indication of whether this additional expansion is still anticipated.

### A focus on widening participation

Importantly, the plan also focuses strongly on using this recruitment drive to address imbalances between the socio-economic backgrounds of doctors and the communities they serve as well as geographical inequities in health care provision. A higher proportion of the new medical school

[163] National Audit Office. (2024). *NHS England's modelling for the Long Term Workforce Plan*. National Audit Office. https://www.nao.org.uk/wp-content/uploads/2024/03/NHS-Englands-modelling-for-the-Long-Term-Workforce-Plan.pdf

[164] Holt-White, E., & Cullinane, C. (2023). *Social Mobility: The Next Generation Lost potential at age 16.* The Sutton Trust. https://www.suttontrust.com/wp-content/uploads/2023/06/Social-Mobility-The-Next-Generation-Lost-Potential-Age-16.pdf

[165] NHS England. (2023). *NHS Long Term Workforce Plan*. NHS England. https://www.england.nhs.uk/publication/nhs-long-term-workforce-plan/

[166] *Labour set to back plan to double UK medical school places*. (2022, December 16). Times Higher Education (THE). https://www.timeshighereducation.com/news/labour-set-back-plan-double-uk-medical-school-places

places will be in areas with the greatest shortages of doctors, with some already announced.[167] The plan also targets specific speciality shortfalls, most notably among GPs, though also including elective recovery, urgent and acute care, maternity services and public health medicine. The plan is to expand postgraduate (foundation) training and specialty training places proportionately in order to address these shortfalls. This will include increasing GP training places by 50% from 4,000 in 2022 up to 6,000 per year by 2031/32, again with an interim target of reaching 5,000 per year by 2027/28, starting with 500 new places in September 2025.

Widening participation is an explicit aim of the plan, pointing medical educators to the MSC's guidance on 'active inclusion and challenging exclusions' which deliberately incorporates socio-economic exclusion in addition to the protected characteristics such as sex, age, ethnicity and sexual orientation in the Equality Act 2010.[168] The plan states that the NHS *"will work to widen participation in education and training, so the NHS workforce is representative of the communities we serve, and students gain the skills, knowledge and experience they need to deliver high quality care to a hugely diverse population. Implementation of this Plan will help tackle health inequalities by increasing the supply of staff in underserved areas and targeting investment to achieve equitable access to education, drawing on programmes such as the Core20PLUS5".*[169]

### Location of new medical school places

The aims of encouraging wider participation and targeting underserved areas and specialisms was not new to the 2023 plan. In 2016 the Government announced plans to expand the number of medical places from the following year, running a competitive bidding process among medical schools for some of the additional places as well as approving the launch of five new medical schools at the University of Sunderland, Anglia Ruskin University (Chelmsford), Kent and Medway Medical School (Canterbury), University of Lincoln and Edge Hill University (Ormskirk).

[167] Students, O. for. (2024). *Medical and dental maximum fundable limits—Office for Students* (Worldwide). Office for Students. https://www.officeforstudents.org.uk/

[168] Medical Schools Council. (2021). *Active inclusion: Challenging exclusions in medical education*. Medical Schools Council. https://www.medschools.ac.uk/media/2918/active-inclusion-challenging-exclusions-in-medical-education.pdf

[169] NHS England. (2024). *Core20PLUS5 (adults) – an approach to reducing healthcare inequalities.* https://www.england.nhs.uk/about/equality/equality-hub/national-healthcare-inequalities-improvement-programme/core20plus5/

These schools were located in areas where NHS Trusts have traditionally struggled to recruit doctors.[170]

The Government announced 1,500 new medical school places at the time, with 500 going to established medical schools and the other 1,000 allocated by a competitive bidding process whose top priority criteria were:

- Widening participation and improving access to make the medical workforce more representative of the population it serves.
- Aligning expansion to local NHS workforce need with an emphasis on priority geographical areas, including rural and coastal areas.
- Supporting general practice and other shortage specialties so that the NHS can deliver services required to meet patient need.
- Ensuring sufficient provision of high quality training and clinical placements.
- Encouraging innovation and market liberalisation[171]

Similarly, the application process for established medical schools to get some of the extra places also emphasised widening participation and priority geographical areas.[172] The application of these criteria was evident in the choice of where the extra places were allocated: Aston, Brighton and Sussex, East Anglia, Exeter, Hull and York, Keele, Lancaster, Leicester,

[170] Matthews-King, A. (2018, March 20). *Jeremy Hunt to announce five new medical schools as part of bid to train 1,500 extra doctors*. The Independent. https://www.independent.co.uk/news/health/jeremy-hunt-doctor-training-medical-school-nhs-staff-shortages-a8264101.html

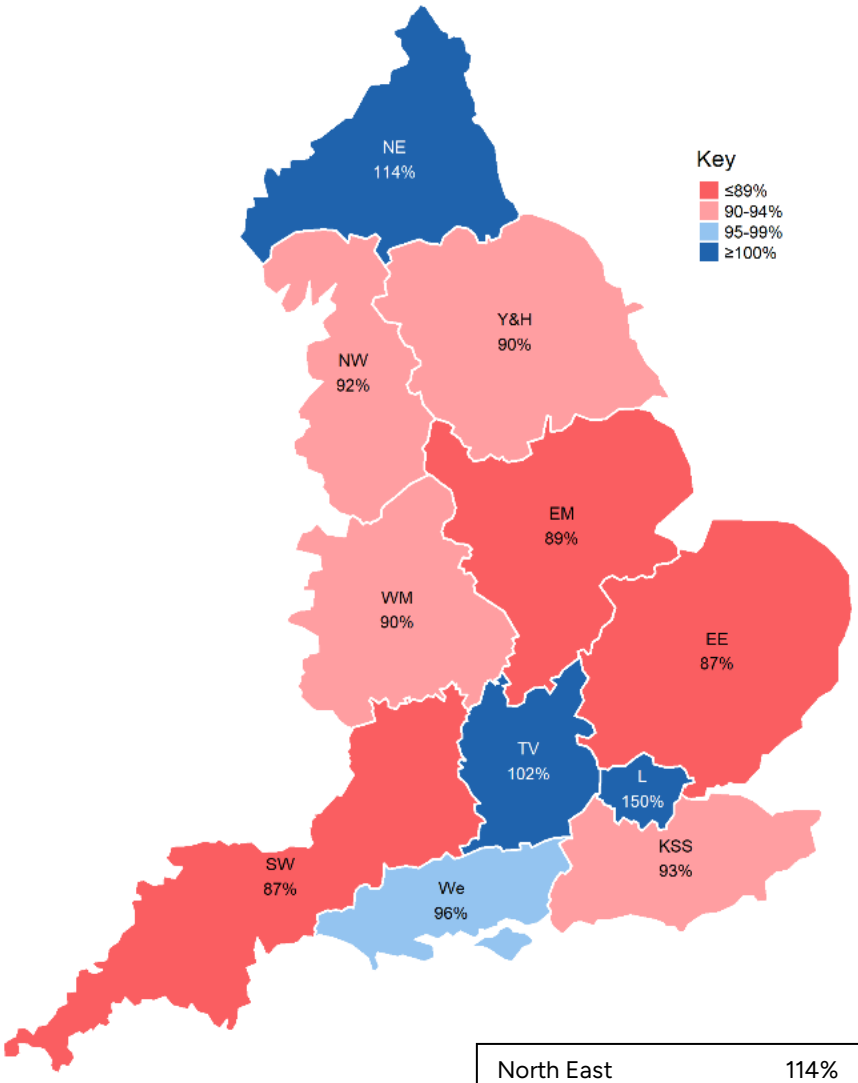
[171] Department of Health. (2017). *Expansion of Undergraduate Medical Education: Government Response to Consultation*. Department of Health. https://assets.publishing.service.gov.uk/media/5a81c15b40f0b62302698fcf/Expansion_undergraduate_medical_education_consulation-response__2_.pdf

[172] For example, the bid guidance indicated that HEFCE/HEE would be looking, among other things, for 'evidence that [bidding institutions] are committed to providing the doctors required to meet the health needs of the local population. This might for example include engagement with local communities on addressing population health issues, comparison of the local population health needs with the medical school specialist output, support for rural placements, or consideration of medical specialty shortages specific to the local area'. HEFCE. (2017). *Expansion of undergraduate medical education places: Invitation to make submissions*.

Nottingham/Lincoln, Plymouth, Queen Mary London, Sheffield and Sunderland. Subsequently, further medical school places have been awarded to Brunel University, University of Chester, Edge Hill University, Kent and Medway and Worcester. These places are predominantly targeting disadvantaged and underserved communities in the South West, North West, Yorkshire and the Humber, East of England and Midlands as well as coastal and rural areas (see Figure 1).[173]

[173] Recruitment in 2020 and 2021 was complicated by the Covid-19 pandemic. Many medical schools ended up with extra students in 2020 when there were no A level exams. Recruitment numbers have since returned to pre-pandemic levels.

**Figure 1: Share of doctors indexed to share of needs weighted population in 2017. Source: HEFCE.[174]**




| | |
|---|---|
| North East | 114% |
| North West | 92% |
| Yorks and Humber | 90% |
| West Midlands | 90% |
| East Midlands | 89% |
| East of England | 87% |
| London | 150% |
| Kent, Surrey and Sussex | 93% |
| Thames Valley | 102% |
| Wessex | 96% |
| South West | 87% |

One of the assumptions in the plan is that additional medical school places need to be situated near to the areas of need in order for future graduates to serve those communities. There has been only limited research on the distance medical students and future doctors travel during their training and subsequent careers. However, research among Scottish GPs in 2015 found that family doctors from semi-routine or routine family backgrounds were 4.3 times more likely to work in a deprived practice than students from managerial and professional backgrounds.[175] More recent research using UKMED data also found that 'the main factors associated with students' movement distances and student counts from family home to medical school… were socio-economic status, deprivation score and ethnicity.' The study concluded that increased deprivation was associated with both fewer doctors moving and shorter distances moved.[176] Consequently, with a view to the challenges laid out in the *NHS Long Term Workforce Plan* there is some logic to the strategy of locating new medical schools and allocating additional medical school places to underserved areas with relatively high levels of deprivation.

However, as we have seen in Part 1 of this report, *Access to medical schools,* even if students at new medical schools and on gateway courses travel less, on average, to medical school than those at established medical schools or on standard entry courses, they still travel considerable distances (119km for new medical schools). Those who applied to one or more gateway courses (2012-2022) lived, on average, only 23km closer than applicants who only applied to standard entry courses, with entrants to gateway courses still living, on average, 135km from their medical school.

This means that many of these students are not coming from the immediate local area.[177] We have also seen in *Part 1,* that even if the

[175] Dowell, J., Norbury, M., Steven, K., & Guthrie, B. (2015). Widening access to medicine may improve general practitioner recruitment in deprived and rural communities: Survey of GP origins and current place of work. *BMC Medical Education*, *15*, 165. https://doi.org/10.1186/s12909-015-0445-8

[176] Hitchings, L., Fleet, B., Smith, D. T., Read, J. M., Melville, C., & Sedda, L. (2024). Determining the distance patterns in the movements of future doctors in UK between 2002 and 2015: A retrospective cohort study. *BMJ Open*, *14*(3), e077635. https://doi.org/10.1136/bmjopen-2023-077635. See also Kumwenda, B., Cleland, J. A., Prescott, G. J., Walker, K. A., & Johnston, P. W. (2018). Geographical mobility of UK trainee doctors, from family home to first job: A national cohort study. *BMC Medical Education*, *18*(1), 314. https://doi.org/10.1186/s12909-018-1414-9

[177] The exception is Aston University Medical School, more than 50% of whose entrants between 2018 and 2021 originally came from less than 30km from the medical school. See Woolf, K., Medisauskaite, A., & Boustani, S. (2025). *Access to medical schools for students from disadvantaged backgrounds.* UCL and The Sutton Trust.

entrants to new medical schools include higher proportions of lower socio-economic background students than established medical schools, nonetheless still only 7% of entrants (2018-2021) to new medical schools were from the lowest socio-economic group and two thirds (66%) from the highest socio-economic group as opposed to 4% and 76% respectively in established medical schools. Consequently, locating medical schools in disadvantaged areas cannot solve these issues alone, and indeed, the recruitment strategies adopted by the individual medical schools are also vital.

### Medical degree apprenticeships

Another change included in the NHS workforce plan is the introduction of medical degree apprenticeships, allowing a route into medicine whereby apprentices can work alongside their training, with no tuition fees. These apprenticeships are explicitly linked to widening participation in the NHS workforce plan.[178]

The Sutton Trust has long highlighted the potential of high-quality apprenticeships to support social mobility, allowing apprentices to earn while they learn and develop skills valued by employers. However, Sutton Trust research has also found young people have not been the main beneficiaries of the increased availability of higher and degree apprenticeships, with some employers using apprenticeship levy funds to pay for already well-qualified senior employers to undertake training courses they would previously have paid for (for example, MBAs). Previous work by the Sutton Trust has suggested ways to tackle this issue, for example by instituting a maximum salary ceiling for levy funded apprentices,[179] and ringfencing at least 50% of employers' levy spending for under-25s.[180] Apprentices are also often incorrectly assumed to always be accessible for young people from lower socio-economic backgrounds. However, just 5% of higher and degree level apprentices are eligible for

[178] Anglia Ruskin University. (2024). *Medical Doctor degree apprenticeship—MBChB - ARU*. https://www.aru.ac.uk/study/degree-apprenticeships/apprentice/our-courses/medical-doctor

[179] Cavaglia, C., McNally, S., & Ventura, G. (2022). *The Recent Evolution of Apprenticeships*. The Sutton Trust. https://www.suttontrust.com/our-research/the-recent-evolution-of-apprenticeships/

[180] The Sutton Trust, F. (2024). *Fair opportunity for all*. The Sutton Trust. https://www.suttontrust.com/wp-content/uploads/2024/05/Fair-opportunity-for-all-1.pdf

free school meals, a figure actually lower than the proportion attending university, at 6.7%.[181]

Last year saw the rollout of some limited pilot apprenticeship programmes, particularly in East Suffolk and North Essex NHS Foundation Trust working together with Anglia Ruskin University. The original expectation in the NHS plan was for 2,000 medical students to train via this route by 2031/32, with an interim target of 850 students by 2028/29. However, there is now doubt about the future of medical apprenticeships, as pilot schemes have been put on hold, with universities on the pilot scheme told to pause recruitment ahead of a decision on the scheme going forward.[182] The Government has expressed concerns that Level 7 apprenticeships, including medical degree apprenticeships, have often been used by 'older or already well qualified employees'.[183]

As an additional route into medicine, medical degree apprenticeships have the potential to widen access to the profession – both in initial entry into a medical career, and as a route for "second chance" social mobility, whereby older, already qualified physiotherapists, radiographers or nurses, for example, might have the option to re-train as doctors.[184] As such, their development should be continued, but any roll out should be carefully evaluated and monitored. Data should be collected and released looking at the socio-economic background of degree apprentice medics, with access efforts implemented alongside their introduction.

[181] Cavaglia, C., McNally, S., & Ventura, G. (2022). *The Recent Evolution of Apprenticeships*. The Sutton Trust. https://www.suttontrust.com/our-research/the-recent-evolution-of-apprenticeships/

[182] Dean, E. (2024). Future of England's medical apprenticeships is in doubt as pilot schemes are put on hold. *BMJ*, *387*, q2887. https://doi.org/10.1136/bmj.q2887

[183] Dean, E. (2024). Future of England's medical apprenticeships is in doubt as pilot schemes are put on hold. *BMJ*, *387*, q2887. https://doi.org/10.1136/bmj.q2887

[184] Snee, H., & Goswami, H. (2021). Who Cares? Social Mobility and the 'Class Ceiling' in Nursing. *Sociological Research Online*, *26*(3), 562–580. The socio-economic background of nurses and other healthcare professionals is roughly proportional with levels in the general population. See Dearden, L., Britton, J., & Waltmann, B. (2021). *The returns to undergraduate degrees by socio-economic group and ethnicity*. The IFS. https://doi.org/10.1920/re.ifs.2021.0186; Friedman, S., Laurison, D., & Macmillan, L. (n.d.). *Social Mobility, the Class Pay Gap and Intergenerational Worklessness: New Insights from The Labour Force Survey*.

## What does medical student expansion mean for widening participation in medical schools?

The *NHS Long Term Workforce Plan* should offer a good opportunity to expand widening participation in the medical profession. Diversifying the workforce to better reflect the communities doctors serve is built into the plan to expand places, and many of the underserved areas that are being given priority for extra places are areas of relative deprivation, including rural and coastal areas.

The analysis of UKMED data in Part 1 of this report, *Access to medical schools,* seems to provisionally confirm that new medical schools previously allocated additional medical school places have made progress towards addressing inequalities in access to the medical profession, even if there is still work to do. Part 1 has found that applicants from the most deprived backgrounds had higher odds of getting an offer for medical school if they applied to one or more new medical schools.[185] Gateway courses are also starting to diversify the socio-economic background of medical school students, something that could particularly support NHS plans to, for example, increase numbers of general practitioners (GPs) while also making them more representative of the communities they serve. Previous research has found that gateway course graduates are significantly more likely than standard entry graduates (56% compared to 39%) to apply to GP training programmes.[186]

Part 1 shows clear contrasts in levels of entrants from lower socio-economic backgrounds and deprived areas between the new medical schools and established medical schools.[187] New schools are generally seeing more diverse intakes across these categories. We can also see that some of the medical schools, such as HYMS, which were awarded additional places in 2019 in part on the basis of promises for widening participation, have also seen more diverse intakes in recent years.

[185] Woolf, K., Medisauskaite, A., & Boustani, S. (2025). *Access to medical schools for students from disadvantaged backgrounds.* UCL and The Sutton Trust. See **Error! Reference source not found.**.

[186] Elmansouri, A., Curtis, S., Nursaw, C., & Smith, D. (2023). How do the post-graduation outcomes of students from gateway courses compare to those from standard entry medicine courses at the same medical schools? *BMC Medical Education*, *23*(1), 298. https://doi.org/10.1186/s12909-023-04179-3

[187] Woolf, K., Medisauskaite, A., & Boustani, S. (2025). *Access to medical schools for students from disadvantaged backgrounds.* UCL and The Sutton Trust. See Figures 3 and 5.

The *NHS Long Term Workforce Plan* also makes it clear to medical schools that the path to increasing student numbers is one of widening participation. The Government, the NHS and the MSC have all clearly laid down their expectations for what the medical profession should look like in the future. That said, although the plan points to a more socio-economically diverse future, it does not specify in detail how medical schools and the profession more generally should get there.

There are concerns, with such a large scale of expansion, that there may not be enough suitable high calibre candidates in the market, particularly with Chemistry and Biology A levels, to fill all those places at the levels currently expected.[188] If that is the case, more medical schools may start to offer gateway year entry courses for widening participation candidates, alongside expanding intakes for current gateway courses. These programmes have proven an effective way to get more widening participation students with lower prior attainment into medical school (see above), but for the reasons discussed earlier, they are unlikely to be a silver bullet for widening participation.

The expansion of medical places linked to widening participation is likely to see a stronger focus on local recruitment in the medical schools targeting underserved areas in particular. Disadvantaged students are more likely to remain living at their family home so the availability of local medical school places will be helpful in meeting some of these challenges. However, as discussed above, applicants and entrants to both gateway courses and new medical schools still originally live, on average, a considerable distance from the medical schools they go on to attend, so the location of medical schools alone is unlikely to solve the widening participation problem.

## What are the challenges?

The *NHS Long Term Workforce Plan* constitutes a clear statement on behalf of the NHS, working in collaboration with the Office for Students, Department for Education and higher education institutions, that widening participation is a priority and this expansion of medical school places should be seen as an opportunity to address some longstanding inequalities in accessing the medical profession. This should most certainly

[188] Fletcher, E., Garrud, P., Krstic, C., & Owen, C. (2024). *Fostering Potential: 10 years on from Selecting for Excellence*. Medical Schools Council. https://www.medschools.ac.uk/media/3219/fostering-potential-10-years-on-from-selecting-for-excellence.pdf

be welcomed. However, the plans are not without their challenges and the expansion throws up important and fundamental questions for the Government, NHS and medical schools alike.

Prominent among these is whether the expansion of medical school places with an emphasis on widening participation might reinforce the already existing hierarchical inequalities between medical schools. For example, if the divide seen in Part 1 of this report continues,[189] whereby established medical schools take, on average, more advantaged students, and more deprived students are more likely to attend newer medical schools, there is a risk that a two tier system is created. Newer medical schools may be seen as less prestigious, with impacts later on in a medic's career when applying for competitive roles against candidates from the established medical schools. There is also a risk the newer medical schools face larger demands on resources when looking to support a more diverse cohort of students.

Part 1 also shows that gateway courses and new medical schools are going some way to addressing the barrier of prior attainment for disadvantaged students. Those who applied to and entered new medical schools or gateway courses had, on average, significantly lower predicted and achieved A-level grades than those applying to or entering established medical schools or standard entry courses respectively. Understandably, given their lower entry requirements, the difference was much larger (twice) between gateway and standard entry courses as that between new and established medical schools.[190]

The overall situation is, of course, more complex than simple dichotomies between old and new medical schools or standard-entry and gateway courses would suggest, but it may be possible to think of a polarised spectrum of medical schools each situated nearer one or other end of the widening access range depending on its approach to admissions and its own unique history and circumstances. This suggests there are important questions that need to be asked of the whole sector regarding the expansion of medical school places and whether or not it is allowed to

[189] Woolf, K., Medisauskaite, A., & Boustani, S. (2025). *Access to medical schools for students from disadvantaged backgrounds.* UCL and The Sutton Trust . See Section on parental education and Supplementary Tables 2 and 5.

[190] Woolf, K., Medisauskaite, A., & Boustani, S. (2025). *Access to medical schools for students from disadvantaged backgrounds.* UCL and The Sutton Trust . See Section on parental education and Supplementary Tables 2 and 5.

exacerbate hierarchical differences between schools. In any case it is clear that there should be greater expectations on established medical schools to make greater progress on widening access.

To start with, there is the question of capacity and resources. Some medical schools, particularly those with historically lower home student quotas but which have relatively substantial numbers of international students, will feel more confident in taking on more students. The University of Central Lancashire, for instance, has taken international students since 2014 with an intake of around 200 per year. However, the medical school only received a small home student quota (15) from 2019 onwards, increasing in 2023 to 50. With a strong focus on local recruitment which, being based in Preston, should guarantee a certain proportion of less advantaged applicants, the medical school has successfully admitted relatively diverse home student intakes. Accustomed to larger overall cohorts with its international students, there is potential capacity for further home student expansion.

However, this is not the case at all medical schools. At some, further expansion of students would require further investment in resources or may need to come at the expense of international student numbers. For many, this would not be a popular option given that overseas student fees are considerably higher than for home students and are also capped. For some universities, medical schools play a crucial role in subsidising overall operational costs. Some medical schools, by contrast, have fewer international students in the first place with implications for resources.

NHS Trusts will also be challenged by this expansion in medical school places. The additional doctors will undoubtedly be welcome in an overstretched sector. However, hospital placements put a demand on resources. Already overworked doctors will need to find additional time to supervise students on placements, something some hospitals are already struggling to cover. The implementation of the workforce plan therefore also needs to be carefully thought through in terms of the resources available to properly support placement students through their training.

There is also some doubt about where the extra students will come from. Although there are clearly many more applicants for medical school than there are places, given the high standards required in terms of academic attainment and personal skills and characteristics to enter medical school,

some in the sector would question whether there is a sufficient pool of qualified candidates to fill the extra places.[191]

Widening participation candidates have the potential to be a key part of the solution, but to give them the best possible chance to succeed, they will need the right level of support throughout their time at medical school. The Government should prioritise medical schools with a successful record on widening participation, both in initial access and on student outcomes, in any expansion of spaces. This may mean expanding gateway year capacity, to support students who need extra preparation before starting a 5-year medical degree. Additionally, medical schools should look at the wider support this group of students may need, for example ensuring adequate financial support, in the form of bursaries, is available to enable students to successfully complete their course.

[191] There are clear indications that at least some highly qualified would-be doctors are not currently finding places in the system. See Foster, P. (2025, February 19). UK medical students flock to Bulgaria amid scarcity of college places back home. *Financial Times*.

# Conclusion

This report shows that some progress has been made over the last decade in widening access to the medical profession. With a strong lead from the Medical Schools Council, medical schools around the country have invested in widening participation teams, have changed their admissions processes and criteria and in some cases introduced contextual offers or gateway programmes. This all has to be acknowledged and celebrated. However, Part 1 of this report, *Access to medical schools,* has also shown that there is still work to be done and there are many lessons to be learnt for the future, not least with a view to the envisaged expansion of medical school places in the *NHS Long Term Workforce Plan*.

In particular, while widening participation activities appear to have had a strong impact on the proportion of applicants and entrants to medical school from areas of higher deprivation, there is still a very low proportion of medical school students from the lowest socio-economic backgrounds. This highlights the potential shortcomings of relying on area-based measures, rather than more direct indicators of individual circumstances such as free school meals or UCAT bursary eligibility.

Some of the key barriers facing aspiring doctors from disadvantaged backgrounds include:

- The extent to which prior educational attainment is a key predictor of entry to medical school in a system characterised by long running attainment gaps.
- Lower attainment in the UCAT test among disadvantaged high attainers compared to wealthier peers, which may be related to different levels of formal support in preparation for the test.
- The inequalities in support, preparation and resources between different schools and different types of school.
- The complexity of the application process and the diversity of approaches to admissions and widening participation among medical schools, which makes it difficult for disadvantaged pupils in particular to navigate.

- Often limited financial, practical and pastoral support for widening participation students once they start their training.

All of these barriers diminish the opportunity for medical schools, the NHS and society more generally to draw upon and benefit from the pool of talented, capable young people from disadvantaged backgrounds who currently remain locked out of the profession due to one or more of these factors. Removing these barriers would enable more of these young people to fulfil their currently unrealised potential.

One of the most notable developments in this sector over the last ten years has been the emergence of gateway courses and new medical schools. The evidence in Part 1 suggests that these schools and programmes are opening up the sector and having some success in addressing the widening participation problem. However, the contrasting progress in widening participation between medical schools, particularly in relation to socio-economic background, suggests that more consistent efforts at widening access are needed across the sector.

Indeed, there is a risk of a two-tier landscape emerging with gateway programmes, new medical schools and those that have taken widening participation most seriously taking a much larger proportion of disadvantaged students while others continue with relatively little change. There are some indications in this report that this is already happening, and if left unaddressed it could end up enhancing the elitism of some institutions compared to others, particularly if the majority of widening participation students are concentrated in a limited number of medical schools.

The *NHS Long Term Workforce Plan* offers a vital opportunity to further improve widening access in the medical profession. It is clear that talented young people from disadvantaged backgrounds are currently missing out on medical careers, in large part because the selection process prioritises the highest possible attainment in a school system we know favours pupils from wealthier and middle class backgrounds. We have seen here that disadvantaged students also on average perform less well in the UCAT test, an addition to the process originally intended to address this discrepancy. Most disadvantaged pupils also enjoy less formal and informal support in the application process which is still weighted heavily in favour of those with higher social, cultural and economic capital.

The expansion of medical school places therefore offers a great opportunity, but also demands that we tackle these issues more robustly. Drawing upon this pool of under-recognised talent should be front and centre in building an expanded medical profession more representative of the communities it serves.

Expanding doctor numbers does not come without its challenges, as we have discussed above, and these challenges will need to be addressed including appropriate resourcing of the NHS and medical schools to fully support talented students through to qualification. However, the reward for such investment can be more doctors who come from similar communities to those they serve, including GPs, more cultural (whether socio-economic, ethnic or otherwise) understanding of how to relate to patients among doctors, a fairer and more diverse health care system and higher levels of ambition among young people from all socio-economic backgrounds.

# Appendix to Part 1

## Supplementary methods

### Variables

UKMED provided us with a data extract containing data that was provided to UKMED by the Universities and Colleges Admission Service (UCAS) and the University Clinical Aptitude Test (UCAT) for applicants to medicine between 2012 and 2022. This included data on demographics, education and schooling, and medical school application data. The data extract also included data on medical school entrants from 2012 to 2021, provided to UKMED by the Higher Education Statistics Agency (HESA). HESA additionally provided parental education which was therefore not available for applicants or offer-holders.

We used the two main outcome measures:

#### Receiving at least one offer to study medicine

For each applicant, we created a binary variable to indicate whether they received one or more offers to study medicine (coded 1) or not (coded 0) within an application cycle.[192]

#### Entering medical school[193]

For all offer-holders (defined as applicants holding at least one offer for medicine within an application cycle), we created a binary variable to indicate whether they had entered medical school (coded as 1) or not (coded as 0). We considered entrants to be offer-holders who had started a medical degree course within the same application cycle in which they received their offer, or in the following cycle when there was no evidence of a second application (i.e. they had deferred entry).

We used two secondary outcome measures:

[192] For the analyses in Section 2, we also created a binary variable indicating whether an offer-holder had received 1 or 2+ offers.

[193] As described above under Sample we had data on entrants between 2012 and 2021 only (no data for 2022 was provided).

### Applied to at least one gateway course; entered a gateway course

We created a binary variable to indicate whether an applicant had applied to at least one gateway or preliminary course (called 'gateway course' hereafter) (coded 1) compared to only standard entry courses (coded 0). For entrants, we created a binary variable indicating whether they entered a gateway course (coded 1) or a standard entry course (coded 0).

### Applied to at least one new medical school; entered a new medical school

We created a binary variable to indicate whether an applicant had applied to at least one new medical school (coded 1) compared to only established medical schools (coded 0). For entrants, we created a binary variable indicating whether they entered a new medical school (coded 1) or an established medical school (coded 0). We counted the following as new medical schools: Anglia Ruskin, Aston, Edge Hill, Kent and Medway, Lincoln and Sunderland.

The main demographic and educational characteristics were:

### Socio-economic status

Socio-economic status was derived from the five-level National Statistics Socio-economic Classification (NS-SEC) groupings of parental occupation (NS-SEC 1 managerial and professional occupations; NS-SEC 2 intermediate occupations; NS-SEC 3 small employers and own account workers; NS-SEC 4 lower supervisory and technical occupations; NS-SEC 5 semi-routine and routine occupations). We re-categorised the five-level variable into a three-level variable (high=NS-SEC 1; medium=NS-SEC 2, 3 or 4; low=NS-SEC 5).

### Index of multiple deprivation (IMD) quintile

The IMD is the official measure of relative deprivation in England. It is calculated at a neighbourhood level (Lower-layer Super Output, LSO) using over 30 measures of income, employment, health, education, crime, housing and living environment. All neighbourhoods in England are ranked

by IMD and then divided into five equal-sized groups or quintiles, from quintile 1 (the most deprived) to 5 (the least deprived).[194]

### School/college (UCAS centre)

School or college type was based on the Centre Type variable provided to UKMED by UCAS. Our variable had six levels: academy/state school, independent school, grammar school, further education (FE) college, sixth form college, other. In our analysis of the schools/colleges that sent applicants to medical school (Section 5), we also used each UCAS centre's Department for Education (DfE) number.[195]

The secondary demographic characteristics were:

### Gender

Gender coded as 'male' or 'female'.

### Ethnicity

Ethnicity categorised into five high-level groupings of 'Asian', 'Black', 'Mixed', 'Other', 'White' or 15 low-level groupings of: 'White', 'Black – Caribbean', 'Black – African', 'Black - Other Black background', 'Asian – Indian', 'Asian – Pakistani', 'Asian – Bangladeshi', 'Asian – Chinese', 'Asian - Other Asian background', 'Mixed – White and Black Caribbean', 'Mixed – White and Black African', 'Mixed – White and Asian', 'Mixed – Other mixed background', 'Other', 'Unknown'.

### Parental education

Parental education showing whether any of a student's parents had a higher education qualification ('yes', 'no', 'unknown', 'do not know'). Information available only for entrants.

The geographic characteristics were:

[194] For further information on IMD calculations, please see Ministry of Housing, Communities & Local Government. (2019). *The English Indices of Deprivation 2019*. Ministry of Housing, Communities & Local Government. https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/835115/IoD2019_Statistical_Release.pdf.

[195] The DfE number is also known as LEADFES (local authority number and establishment number)

### Region of England

UK geographic region of applicant home postcode, using the UCAS categories of East Midlands, East of England, London, North East, North West, South East, South West, West Midlands, and Yorkshire and Humber.

### Distance from home postcode to medical schools applied to or entered

Distance in kilometres (km) from applicants' home postcodes to the postcode of each medical school applied to. Distances were obtained by UKMED from Google. From this distance measure, we calculated for each applicant the mean and maximum distance from their home postcode to each of the medical schools they applied to. For entrants, the distance was from their home postcode to the medical school they entered. We grouped distances into bins for visualisation.[196]

The attainment variables were:

### Predicted and Achieved Advanced Level (A-level) grades

Sum of the best three predicted A-level grades and sum of the best three achieved A-level grades, both calculated by UKMED. UKMED assigned point scores to A-Level grades in 2-point increments (A*=12, A=10, B=8. C=6, D=4, E=2, else=0), and calculated the sum of the three highest-scoring A-level grades [see McManus et al[197] for more details of the methodology]. We additionally z-transformed the scores within year (giving z-scores with a mean of 0 and a standard deviation of 1) to enable us to compare scores across years.

### General Certificate of Secondary Education (GCSE) grades

Sum of the best 9 GCSE grades. Point scores were assigned to each GCSE grade (A*=6, A=5, B=4, C=3, D=2, E=1, else =0). Double Science and other double GCSEs were scored as A*A*=12, A* A=11 and so on (see McManus

[196] Distance from home to medical school bins (in km): 0-10, 11-30, 31-100, 101-150, 151+

[197] McManus, I. C., Dewberry, C., Nicholson, S., & Dowell, J. S. (2013). The UKCAT-12 study: Educational attainment, aptitude test performance, demographic and socio-economic contextual factors as predictors of first year outcome in a cross-sectional collaborative study of 12 UK medical schools. *BMC Medicine*, *11*(1), 244. https://doi.org/10.1186/1741-7015-11-244.

et al 2013)[198] . We z-transformed scores within year to enable us to combine point scores across years.

### University Clinical Aptitude Test (UCAT) Cognitive Total

The format of the UCAT test changed several times between 2012 and 2022. From 2012 to 2014 the UCAT comprised four cognitive sub-tests: Verbal Reasoning (VR), Quantitative Reasoning (QR), Abstract Reasoning (AR), and Decision Analysis (DA). In 2015 a separate Situational Judgement Test (SJT) was added to the cognitive sub-tests. In 2016 the DA was dropped, so the exam contained one SJT subtest and three cognitive subtests: VR, QR and AR. Since 2017 when the Decision Making (DM) cognitive subtest was added, UCAT Cognitive Total has comprised one SJT subtest and four scored cognitive subtests: VR, QR AR, and DM. Raw subtest scores are scaled. Universities receive scaled subtest scores plus a combined cognitive subtest score, and a scaled SJT quartile score.[199]

We used the total score on the cognitive sub-tests of the UCAT test for the year preceding an application. Because of changes to UCAT over the period, we z-transformed scores within year.

# Supplementary Section 1

## Unadjusted odds of receiving at least one offer to medicine 2012 and 2021

Results of four logistic regression analyses, calculating the raw (unadjusted) odds of applicants receiving at least one offer to study medicine by socio-economic group and by neighbourhood deprivation quintile, in 2012 and in 2021 are shown in Supplementary Table 1.

In both years, applicants from lower socio-economic groups and more deprived areas had higher odds of receiving an offer. In 2021 compared to 2012, applicants from lower socio-economic groups had increased odds of receiving an offer, however they still only had two thirds the odds of those in the highest socio-economic group. In 2021 compared to 2012,

[198] McManus, I. C., Dewberry, C., Nicholson, S., & Dowell, J. S. (2013). The UKCAT-12 study: Educational attainment, aptitude test performance, demographic and socio-economic contextual factors as predictors of first year outcome in a cross-sectional collaborative study of 12 UK medical schools. *BMC Medicine*, *11*(1), 244. https://doi.org/10.1186/1741-7015-11-244.

[199] See the UCAT technical reports on the UCAT website for details: UCAT Consortium. (n.d.). *Technical Reports*. Retrieved 14 November 2024, from https://www.ucat.ac.uk/about-us/technical-reports/

applicants from IMD1 had increased odds of receiving an offer, however their odds were still only just over half those of applicants from IMD5.

**Supplementary Table 1: Unadjusted (raw) odds of receiving an offer for medicine by socio-economic group and index of multiple deprivation quintile, separately, in 2012 and in 2021**

| Socio-economic group | 2012 | 2021 |
|---|---|---|
| High (ref) | 1.00 | 1.00 |
| Medium | 0.59 (0.51-0.68) | 0.75 (0.67-0.85) |
| Low | 0.36 (0.27-0.47) | 0.65 (0.55-0.76) |
| Unknown | 0.57 (0.49-0.67) | 0.48 (0.43-0.53) |
| **IMD quintile** | **2012** | **2021** |
| IMD 5 (reference) | 1.00 | 1.00 |
| IMD 1 | 0.33 (0.28-0.39) | 0.55 (0.50-0.62) |
| IMD 2 | 0.47 (0.41-0.55) | 0.59 (0.53-0.66) |
| IMD 3 | 0.68 (0.59-0.78) | 0.69 (0.62-0.77) |
| IMD 4 | 0.84 (0.74-0.95) | 0.84 (0.76-0.94) |

## Adjusted odds of receiving at least one offer (all years)

Results of a hierarchical logistic regression of applicants receiving at least one offer are shown in Supplementary Table 2.

The base model (Model 1) included socio-economic status and IMD quintile controlling for year of application. The addition of academic attainment variables in Model 4 attenuated the effect of socio-economic status on the outcome and changed the direction of the effect of IMD1, so applicants from the most deprived quintile were more likely to receive an offer given their grades.

## Supplementary Table 2: Adjusted odds of applicants receiving one or more offers to medical school

| | | Model 1 | Model 2 | Model 3 | Model 4 |
|---|---|---|---|---|---|
| | | aOR (95%CI) | aOR (95%CI) | aOR (95%CI) | aOR (95%CI) |
| IMD quintile | 1 | **0.49 (0.47-0.52)** | **0.61 (0.58-0.64)** | **0.67 (0.64-0.71)** | **1.33 (1.25-1.42)** |
| | 2 | **0.53 (0.51-0.56)** | **0.63 (0.60-0.66)** | **0.68 (0.65-0.71)** | 1.05 (0.99-1.11) |
| | 3 | **0.70 (0.67-0.73)** | **0.74 (0.71-0.78)** | **0.77 (0.74-0.81)** | **0.94 (0.89-0.99)** |
| | 4 | **0.82 (0.79-0.85)** | **0.84 (0.81-0.88)** | **0.86 (0.82-0.89)** | **0.94 (0.90-0.99)** |
| | 5 (ref) | 1.00 | 1.00 | 1.00 | 1.00 |
| Socio-economic group | High (ref) | 1.00 | 1.00 | 1.00 | 1.00 |
| | Medium | **0.73 (0.70-0.77)** | **0.74 (0.70-0.77** | **0.77 (0.74-0.81)** | 1.01 (0.96-1.07) |
| | Low | **0.67 (0.62-0.71)** | **0.72 (0.67-0.77)** | **0.77 (0.72-0.82)** | 1.07 (0.99-1.16) |

| | | | | | |
|---|---|---|---|---|---|
| | Unknown | **0.61 (0.59-0.65)** | **0.66 (0.63-0.70)** | **0.68 (0.65-0.72)** | **0.97 (0.91-1.03)** |
| Year of application | 2012 | **0.74 (0.69-0.80)** | **0.73 (0.68-0.78)** | **0.72 (0.67-0.78)** | **0.68 (0.62-0.74)** |
| | 2013 | **0.66 (0.62-0.71)** | **0.65 (0.60-0.69)** | **0.64 (0.60-0.69)** | **0.57 (0.53-0.62)** |
| | 2014 | **0.70 (0.65-0.75)** | **0.69 (0.64-0.74)** | **0.69 (0.64-0.74)** | **0.61 (0.56-0.66)** |
| | 2015 (ref) | 1.00 | 1.00 | 1.00 | 1.00 |
| | 2016 | 1.00 (0.93-1.08) | 1.01 (0.94-1.09) | 1.01 (0.93-1.08) | 1.00 (0.92-1.09) |
| | 2017 | 1.07 (0.99-1.15) | **1.08 (1.01-1.16)** | **1.08 (1.01-1.17)** | 1.06 (0.98-1.15) |
| | 2018 | **1.25 (1.17-1.34)** | **1.26 (1.18-1.35)** | **1.28 (1.19-1.37)** | **1.29 (1.18-1.40)** |
| | 2019 | **1.44 (1.34-1.54)** | **1.46 (1.37-1.57)** | **1.49 (1.39-1.59)** | **1.49 (1.37-1.61)** |
| | 2020 | **1.21 (1.13-1.30)** | **1.24 (1.16-1.33)** | **1.27 (1.19-1.36)** | **1.17 (1.08-1.27)** |
| | 2021 | **0.76 (0.71-0.81)** | **0.78 (0.73-0.83)** | **0.80 (0.75-0.85)** | **0.63 (0.58-0.68)** |

| | | | | |
|---|---|---|---|---|
| Gender | Male (ref) | 1.00 | 1.00 | 1.00 |
| | Female | **1.14 (1.11-1.18)** | **1.16 (1.12-1.19)** | **1.41 (1.36-1.46)** |
| Region | London (ref) | 1.00 | 1.00 | 1.00 |
| | East Midlands | 0.98 (0.92-1.05) | 1.01 (0.94-1.07) | **1.17 (1.09-1.26)** |
| | East England | **1.07 (1.01-1.14)** | **1.13 (1.07-1.20)** | **1.25 (1.16-1.33)** |
| | North East | 1.07 (0.99-1.17) | **1.11 (1.02-1.21)** | **1.26 (1.14-1.39)** |
| | North West | 1.02 (0.97-1.07) | **1.12 (1.06-1.18)** | **1.18 (1.11-1.26)** |
| | South East | 1.00 (0.95-1.05) | 1.04 (0.98-1.09) | **1.06 (1.00-1.13)** |
| | South West | 1.02 (0.96-1.09) | **1.09 (1.02-1.16)** | **1.18 (1.10-1.27)** |
| | West Midlands | **1.12 (1.06-1.18)** | **1.16 (1.10-1.23)** | **1.23 (1.15-1.31)** |
| | Yorkshire Humber | 0.99 (0.93-1.05) | 1.03 (0.97-1.09) | **1.28 (1.20-1.38)** |

| | | | | |
|---|---|---|---|---|
| Ethnicity | White (ref) | 1.00 | 1.00 | 1.00 |
| | Asian | **0.72 (0.70-0.75)** | **0.72 (0.69-0.74)** | **0.87 (0.83-0.91)** |
| | Black | **0.44 (0.42-0.47)** | **0.45 (0.42-0.48)** | **0.92 (0.86-0.99)** |
| | Mixed | **0.86 (0.80-0.92)** | **0.84 (0.79-0.90)** | **0.90 (0.83-0.97)** |
| | Other | **0.59 (0.55-0.64)** | **0.60 (0.56-0.65)** | **0.90 (0.82-0.98)** |
| | Unknown | **0.82 (0.72-0.94)** | **0.79 (0.69-0.91)** | **0.83 (0.71-0.98)** |
| School/College | Academy/State School (ref) | | 1.00 | 1.00 |
| | FE College | | 1.00 | 0.95 (0.85-1.06) |
| | Grammar School | | **1.36 (1.26-1.46)** | 0.98 (0.90-1.07) |
| | Independent School | | **1.48 (1.42-1.54)** | **1.25 (1.20-1.31)** |
| | 6th Form College | | **0.83 (0.79-0.86)** | 0.97 (0.92-1.02) |

| | | | |
|---|---|---|---|
| | Other | **0.68 (0.60-0.76)** | 0.93 (0.81-1.08) |
| Academic attainment/predicted attainment | Predicted A-level z-score | | **1.49 (1.46-1.53)** |
| | GCSE z-score | | **1.32 (1.29-1.34)** |
| | UCAT cognitive z-score | | **3.24 (3.16-3.32)** |

Model 1 is the base model containing socio-economic status and IMD controlled for year of application. Models 2-4 add other demographic and academic factors incrementally. Adjusted odd ratios (aOR) <1 in red; >1 in Black, those in bold have 95% confidence intervals that do not cross 1.

## Unadjusted odds of entering medical school 2012 and 2021

Supplementary Table 3 shows the results of four logistic regression analyses, calculating the raw (unadjusted) odds of offer-holders entering medical school by socio-economic group and by neighbourhood deprivation quintile, in 2012 and in 2021.

Differences by socio-economic group were not statistically significant, with the exception of 2012 when offer-holders from the lowest socio-economic group had lower odds of entering medical school compared to those in the highest socio-economic group. However, the confidence interval is very wide due to small numbers. In both years, offer-holders from IMD1 were less likely to enter medical school compared to those in IMD5.

### Supplementary Table 3: Unadjusted (raw) odds of offer-holders entering medical school by socio-economic group and index of multiple deprivation, separately, in 2012 and 2021

| Socio-economic group | 2012 | 2021 |
|---|---|---|
| High (ref) | 1.00 | 1.00 |
| Medium | 0.77 (0.57-1.03) | 0.82 (0.66-1.01) |
| Low | 0.51 (0.29-0.90) | 0.75 (0.56-1.00) |
| Unknown | 0.79 (0.57-1.09) | 0.76 (0.62-0.94) |
| **IMD quintile** | **2012** | **2021** |
| IMD 5 (reference) | 1.00 | 1.00 |
| IMD 1 | 0.66 (0.47-0.93) | 0.74 (0.60-0.90) |
| IMD 2 | 0.75 (0.56-1.01) | 0.76 (0.62-0.93) |
| IMD 3 | 0.94 (0.71-1.23) | 0.87 (0.71-1.07) |
| IMD 4 | 1.13 (0.88-1.45) | 0.78 (0.64-0.94) |

## Adjusted odds of entering medical school (all years)

Supplementary Table 4 shows the results of a hierarchical logistic regression of offer-holders entering medical school. The base model (Model 1) includes socio-economic status and IMD controlling for year of application.

### Supplementary Table 4: Odds of offer-holders entering medical school

| | | Model 1 | Model 2 | Model 3 | Model 4 | Model 5 |
|---|---|---|---|---|---|---|
| | | aOR (95% CI) | aOR (95% CI) | aOR (95% CI) | aOR (95% CI) | aOR (95% CI) |
| Socio-economic group | High (ref) | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| | Medium | **0.77 (0.71-0.84)** | **0.77 (0.72-0.84)** | **0.79 (0.73-0.85)** | **1.17 (1.05 -1.30)** | **1.18 (1.06 -1.31)** |
| | Low | **0.70 (0.62-0.78)** | **0.72 (0.64-0.80)** | **0.73( 0.65-0.82)** | 1.13 (0.97 -1.32) | 1.14 (0.97 -1.33) |
| | Unknown | **0.71 (0.66-0.78)** | **0.72 (0.66-0.79)** | **0.72 (0.66-0.79)** | 1.08 (0.96 -1.21) | 1.07 (0.95 -1.20) |

| | | | | | | |
|---|---|---|---|---|---|---|
| IMD quintile | IMD1 | **0.59 (0.54-0.64)** | **0.63 (0.58-0.69)** | **0.65 (0.60-0.72)** | **1.62 (1.43 -1.83)** | **1.59 (1.41 -1.80)** |
| | IMD2 | **0.70 (0.64-0.75)** | **0.74 (0.68-0.80)** | **0.76 (0.70-0.82)** | **1.25 (1.12 -1.40)** | **1.25 (1.12 -1.40)** |
| | IMD3 | **0.80 (0.74-0.86)** | **0.83 (0.77-0.89)** | **0.84 (0.78-0.91)** | 1.00 (0.91 -1.10) | 1.01 (0.92 -1.11) |
| | IMD4 | **0.90 (0.84-0.97)** | **0.91 (0.85-0.98)** | **0.91 (0.85-0.98)** | 1.03 (0.94 -1.12) | 1.02 (0.93 -1.12) |
| | IMD5 (ref) | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Year of application | 2012 | 1.02 (0.89-1.17) | 1.01 (0.88-1.15) | 1.00 (0.88-1.15) | 0.90 (0.76 -1.07) | 0.92 (0.78 -1.09) |
| | 2013 | 1.06 (0.93-1.22) | 1.06 (0.92-1.21) | 1.05 (0.92-1.21) | 1.00 (0.84 -1.19) | 1.05 (0.88 -1.25) |
| | 2014 | 1.14 (0.99-1.31) | 1.14 (0.99-1.31) | 1.14 (0.99-1.31) | 0.96 (0.81 -1.14) | 0.99 (0.83 -1.17) |
| | 2015 (ref) | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

| | | | | | | |
|---|---|---|---|---|---|---|
| | 2016 | 0.97 (0.84-1.10) | 0.98 (0.85-1.12) | 0.97 (0.85-1.11) | 0.87 (0.74 -1.03) | 0.85 (0.72 -1.01) |
| | 2017 | **0.79 (0.70-0.90)** | **0.81 (0.71-0.92)** | **0.81 (0.71-0.92)** | **0.67 (0.57 -0.79)** | **0.62 (0.53 -0.74)** |
| | 2018 | **0.59 (0.52-0.66)** | **0.60 (0.53-0.68)** | **0.60 (0.53-0.68)** | **0.43 (0.37 -0.50)** | **0.39 (0.33 -0.45)** |
| | 2019 | **0.45 (0.40-0.50)** | **0.46 (0.41-0.51)** | **0.46 (0.41-0.52)** | **0.29 (0.25 -0.34)** | **0.26 (0.23 -0.30)** |
| | 2020 | 1.03 (0.91-1.17) | 1.07 (0.94-1.21) | 1.07 (0.95-1.21) | 1.13 (0.97 -1.32) | 1.04 (0.89 -1.22) |
| | 2021 | **0.77 (0.68-0.87)** | **0.80 (0.71-0.90)** | **0.81 (0.71-0.91)** | **0.52 (0.45 -0.60)** | **0.52 (0.44 -0.60)** |
| Gender | Male (ref) | | 1.00 | 1.00 | 1.00 | 1.00 |
| | Female | | **0.79 (0.75-0.83)** | **0.79 (0.75-0.83)** | **0.84 (0.78 -0.90)** | **0.80 (0.75 -0.86)** |

| | | | | | |
|---|---|---|---|---|---|
| Ethnicity | White | 1.00 | 1.00 | 1.00 | 1.00 |
| | Asian | **0.89 (0.83-0.94)** | **0.89 (0.83-0.94)** | 1.04 (0.96 -1.13) | 1.05 (0.97 -1.13) |
| | Black | **0.72 (0.64-0.80)** | **0.72 (0.65-0.81)** | **1.28 (1.11 -1.48)** | **1.30 (1.13 -1.50)** |
| | Mixed | **0.88 (0.78-0.98)** | **0.87 (0.77-0.97)** | 0.95 (0.82 -1.10) | 0.95 (0.82 -1.10) |
| | Other | 0.89 (0.77-1.03) | 0.89 (0.77-1.03) | 1.11 (0.92 -1.34) | 1.12 (0.93 -1.36) |
| | Unknown / Withheld | 0.96 (0.76-1.23) | 0.94 (0.74-1.21) | 1.15 (0.85 -1.59) | 1.17 (0.86 -1.61) |
| Region of applicant home postcode | London (ref) | 1.00 | 1.00 | 1.00 | 1.00 |
| | East Midlands | 0.99 (0.89-1.11) | 1.00 (0.90-1.12) | **1.38 (1.20 -1.59)** | **1.35 (1.17 -1.56)** |

| | | | | | |
|---|---|---|---|---|---|
| | East of England | 1.02 (0.93-1.13) | 1.03 (0.94-1.14) | **1.26 (1.11 -1.43)** | **1.24 (1.09 -1.41)** |
| | North East | 0.96 (0.84-1.11) | 0.98 (0.85-1.12) | **1.37 (1.14 -1.64)** | **1.34 (1.12 -1.61)** |
| | North West | **1.12 (1.02-1.23)** | **1.14 (1.04-1.25)** | **1.24 (1.10 -1.40)** | **1.22 (1.08 -1.37)** |
| | South East | 1.05 (0.96-1.15) | 1.06 (0.97-1.16) | 1.09 (0.97 -1.21) | 1.08 (0.96 -1.20) |
| | South West | **0.86 (0.78-0.96)** | 0.90 (0.81-1.00) | 0.96 (0.84 -1.09) | 0.95 (0.83 -1.09) |
| | West Midlands | 1.02 (0.93-1.12) | 1.04 (0.95-1.14) | **1.22 (1.09 -1.38)** | **1.19 (1.05 -1.34)** |
| | Yorkshire and The Humber | 1.01 (0.91-1.12) | 1.01 (0.92-1.13) | **1.34 (1.18 -1.54)** | **1.31 (1.14 -1.50)** |
| School/college type | Academy/State School (ref) | | 1.00 | 1.00 | 1.00 |
| | Further Education College | | **0.74 (0.63-0.87)** | 0.94 (0.76 -1.17) | 0.96 (0.78 -1.20) |

| | | | | |
|---|---|---|---|---|
| | Grammar School | 1.05 (0.93-1.19) | 0.86 (0.74 -1.00) | 0.85 (0.73 -1.00) |
| | Independent School | **1.26 (1.18-1.35)** | **1.11 (1.02 -1.20)** | 1.07 (0.99 -1.17) |
| | Sixth Form College | **1.13 (1.04-1.22)** | **1.27 (1.15 -1.40)** | **1.29 (1.16 -1.42)** |
| | Other | **1.43 (1.11-1.85)** | **1.74 (1.26 -2.45)** | **1.85 (1.34 -2.61)** |
| Academic attainment | A-level points (z score) | | **12.20 (11.48 - 12.96)** | **11.94 (11.24 - 12.69)** |
| | GCSE points (z score) | | 1.02 (0.98 -1.06) | 1.00 (0.96 -1.04) |
| | UCAT cognitive points (z score) | | **1.10 (1.05 -1.15)** | 0.98 (0.94 -1.03) |
| UCAS offers for medicine | One offer (ref) | | | 1.00 |
| | Two or more offers | | | **1.98 (1.85 -2.13**) |

Model 1 is the base model containing socio-economic status and IMD controlled for year of application. Models 2-5 add other demographic, academic and application factors incrementally. Adjusted odd ratios (aOR) <1 in red; >1 in Black, those in bold have 95% confidence intervals that do not cross 1.

# Supplementary Section 2

From Supplementary Table 5 it can be seen that higher socio-economic group and higher predicted A-levels were both predictors of higher UCAT score, as were male gender, White ethnicity, applying to medicine from a grammar or independent school. The interaction between predicted A-levels and socio-economic group is also significant, indicating that the relationship between predicted A-levels and UCAT was significantly different in the socio-economic groups.

**Supplementary Table 5: Linear regression of UCAT cognitive score (z-transformed) onto predicted A-level points (z-transformed), adjusted for socio-economic group and the interaction between predicted A-levels and socio-economic group, controlling for gender, ethnicity and school/college type.**

| | | Beta | SE | P value |
|---|---|---|---|---|
| Intercept | | 0.42 | 0.01 | <0.0001 |
| Predicted A-levels (z-score) | | 0.42 | 0.00 | <0.0001 |
| Socio-economic group | High (ref) | - | - | - |
| | Medium | -0.22 | 0.01 | <0.0001 |
| | Low | -0.29 | 0.01 | <0.0001 |
| Gender | Male (ref) | - | - | - |
| | Female | -0.15 | 0.01 | <0.0001 |
| Ethnicity | White (ref) | - | - | - |
| | Asian | -0.20 | 0.01 | <0.0001 |
| | Black | -0.56 | 0.01 | <0.0001 |
| | Mixed | -0.06 | 0.01 | <0.0001 |
| | Other | -0.40 | 0.02 | <0.0001 |
| | Unknown | -0.15 | 0.03 | <0.0001 |

| | | | | |
|---|---|---|---|---|
| School/College type | Academy/State (ref) | - | - | - |
| | FE College | -0.23 | 0.02 | <0.0001 |
| | Grammar | 0.23 | 0.02 | <0.0001 |
| | Independent | 0.19 | 0.01 | <0.0001 |
| | Sixth Form College | -0.16 | 0.01 | <0.0001 |
| | Other | 0.03 | 0.03 | 0.2463 |
| Interaction between predicted A-levels and socio-economic group | Pred A-level * High SEG (ref) | - | - | - |
| | Pred A-level * Medium SEG | -0.03 | 0.01 | 0.0005 |
| | Pred A-level * Low SEG | -0.04 | 0.01 | 0.0022 |

Data from 2012-2021 combined.

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