

MSC Assessment Advisory Board 10 January 2020

HESA Assessment data – developing the interim collection for 2020/21

Background

- 1** The GMC and HESA have been exploring proposals for the collection of assessment data into UKMED.
- 2** At the MSC Council meeting in May 2019 we submitted a paper outlining our preliminary proposals. In addition to receiving MSC Council members' feedback, we discussed our draft assessment data proposals in a series of workshops with medical schools during May and June.
- 3** In August 2019 we carried out a more detailed consultation on the following:
 - the details of schools' assessment data, including where it is held
 - schools' preferences for returning assessment data in 2020/21 outside of the HESA Student Record
 - schools' views on returning via the HESA Student Record in later years
- 4** At the MSC Council on 4 October 2019, we reported back a summary of the feedback we received during the workshops and consultation and presented a modified proposal. Deans expressed a wide range of views on this, and cautiously accepted the plan to proceed. We agreed to provide a more detailed response to consultation responses and continue to regularly engage with school representatives throughout 2020 as plans develop. We were also asked to provide more detailed examples of how the data might be used by UKMED.
- 5** Feedback from schools suggested that a two-phased approach to collecting undergraduate assessment data from medical schools would be most appropriate:
 - Phase one: an interim spreadsheet return for two years (2020/21 and 2021/22)

- Phase two: automated collection via HESA's Student Record (likely to be from 2022/23 onwards)
- 6** Furthermore, the feedback suggested that the collection of overall scores from summative assessments that determine students' progression (as opposed to item-level data) would be sufficient to support UKMED, evaluation of the MLA and the differential attainment work – on that basis we scaled back the proposal.
- 7** We were keen to accommodate schools' preferences for returning these data and allow use of a template or existing spreadsheets. We also noted the need to finalise the specification before the start of the first year for which the data will be returned.

Contents of this paper

- 8** This paper provides further detail on how we propose to work with schools to achieve this:
 - a** Proposed Governance arrangements for developing the 2020/21 return
 - b** Options for reporting using assessment data
 - c** FAQs – responses to queries when this project was discussed at October MSC
 - d** Annexe A: Review of the main data items against consultation responses and sample exam board spreadsheets
 - e** Annexe B: Timelines for the 2020/21 interim spreadsheet return
 - f** Annexe C: Example use of the Assessment data from UKMED

Decisions required

- 9** We would be grateful if the Assessment Alliance Board could:
 - a** Indicate their preferences with regard to involvement in the governance of this work.
 - b** Comment on the feasibility of the proposed timelines.

Proposed governance arrangements for the 2020/21 return

- 10** The GMC and HESA will work with schools and allow two methods for this return as per the consultation responses:
- a** GMC's spreadsheet template
 - b** Schools' existing spreadsheets – these are likely to be the spreadsheets the schools' exam boards already use or other appropriate spreadsheets already in existence whichever schools prefer.
- 11** The GMC is increasing the resource available for data collection to ensure we are able to assist schools with this work and reduce burden on school resources where possible – for example transferring data from exam board spreadsheets to a standard template.
- 12** To ensure we develop a methodology that minimises the burden on schools, we would be grateful if the Assessment leads could provide some oversight of this project. Consultees previously noted that the work would benefit from assessment expertise, so we suggest that we report on progress and seek the views of the Assessment leads for the duration of this project, culminating in an evaluation of the 1st year of the spreadsheet return.

Options for reporting using assessment data

- 13** Collating the assessment data centrally may provide us with an opportunity to work with schools to produce standardised interactive reports – and this is something we were asked about during the workshops and consultation. Any potential reports could sit with our other reports to provide a more complete view of doctors' progression.¹
- 14** As the assessments vary by school, we will not be able to present charts showing differences across schools. However, converting assessment scores into a common metric such as Z-scores within school and year of the difference between the score achieved and the pass mark would allow us to display charts looking at differences by demographic variables. This could support sector wide work, such as reviewing differential attainment.
- 15** We would work with nominated stakeholder representatives, such as the MSC Selection Alliance data monitoring group to design these reports. As with all progression reports, we would make the reports available to nominated stakeholder representatives for review and comment. Once the review period is closed, we would seek stakeholders' views on whether the reports would be suitable for being made publicly available so that registrants would be able to view the reports.

FAQs

What will the GMC use HESA Assessment Data for?

- 16** The GMC will make the HESA Assessment Data available in UKMED for approved research projects as part of an anonymised research extract.
- 17** The GMC's MLA team will use HESA Assessment data to explore the relationships between school assessments and the AKT. The MLA team will be concerned with the nomological network of assessment measures. For example, looking at concurrent validity by comparing other performance measures against the AKT outcome as a measure of AKT dependability: whether the AKT produces the same rank order of candidates as other within-school assessments.
- 18** The GMC will use the Assessment data for reporting on matters of relevance to the GMC and to medical schools, for example reports showing performance on assessments by demographic variables including sex, ethnicity and socio-demographic status.
- 19** HESA data cannot be used to compare across schools as the assessments are not consistent across schools. However, the data could be used to compare across course types, for example comparing those on Standard Entry Medicine programmes with those on Gateway and Graduate programmes. The GMC's postgraduate progression reports allow reporting by course type.
- 20** The GMC will never use HESA Assessment Data to make a decision that would affect an individual doctor. Our data sharing agreement with HESA only allows us to use these data for research purposes. We will not use them operationally and they will be held separately from operational GMC data. They will be held in a separate research database that we use for reporting and research including UKMED.

Is there any difference between the use of HESA assessment data to support the MLA and HESA assessment data used for UKMED research with regard to information governance?

- 21** The GMC is the data controller for UKMED and MLA processing purposes. The GMC will process HESA Assessment Data for both UKMED purposes and to support the MLA on the basis that it is necessary for use to carry out our duties under the Medical Act. This means that we do not need the students' consent to process these data; instead we rely on the lawful basis provided by the Medical Act:
 - a** Under section 5 of the Medical Act 1983 to promote high standards of medical education and co-ordinate all stages of medical education
 - b** Under section 34H of the Medical Act 1983 to establish and maintain standards of postgraduate medical education, and to develop and promote postgraduate medical education and training in the United Kingdom
- 22** GMC staff will be able to use HESA Assessment Data to run analyses without the requirement to have a research proposal approved by the UKMED Advisory Board. However, for research which will require UKMED specific data such as UCAT scores as a measure of ability on entry

to medical school, they will need to make an application to UKMED. Medical schools can also make applications to UKMED, which will contain the AKT data.

What are your plans for consulting with system suppliers?

- 23** HESA hold regular sessions with software suppliers throughout the Data Futures development. The Assessment data will be considered and discussed at these sessions once there is something more concrete to communicate, such as a suggested data model or spreadsheet format. Once this becomes a part of HESA's collections, software suppliers engage with them when they need to – they are included in any communication about changes to the record and are able to come to Training events when needed. HESA also have catch ups with them face-to-face when they can.

Annexe A: Review of the main data items for Student Assessment against consultation responses and sample exam board spreadsheets

24 There is one table per field from the proposed Student Assessment table we consulted on² these contain:

- a** a summary of the points raised in the summer consultation
- b** the GMC response to each point
- c** whether the field was present in the sample of exam board spread sheets received from Brighton and Sussex, Keele, Newcastle, Southampton and UCL
- d** suggested next steps for the GMC and for schools

STUDENTASSESSMENTID

Field Description	Consultation comments	GMC responses	Exam board spread sheet review	Actions for schools	Actions for GMC and HESA
Id for this student on this assessment.	Not applicable	Not applicable	Not present	Notify HESA if such an ID is held on their systems and if not whether it would be acceptable for HESA to generate the id.	Establish if GMC/HESA can generate this on load using HUSID and ASSESSID.

ASSESSID

Field Description	Consultation comments	GMC responses	Exam board spread sheet review	Actions for schools	Actions for GMC and HESA
Assessment identifier	Schools listed the same Assessment name as being applicable to more than one year. We did not explicitly ask about assessment identifier, but any identifier would need to code both the name and year of programme in which the assessment was used.	N/A	Not present	Complete assessment return in reference period 1 2020/21.	<p>Develop a <i>Collection Details Return</i> for release in Reference period 1 2020/21 for schools to list assessments that will be included in the 2020/21 interim assessment. This will capture the data required for the Assessment table which contains details of each assessment taken. This will ensure we know what data to expect when we collect students' assessment results.</p> <p>This will include a request for any internal assessment ids held by school.</p> <p>If schools do not hold IDs the GMC will agree a means of coding them. This is likely to be a concatenation of medical school identifier, assessment name</p>

Field Description	Consultation comments	GMC responses	Exam board spread sheet review	Actions for schools	Actions for GMC and HESA
					abbreviated in some way and year of programme.
	<p>In response to the question: "We will need to make sure any new assessment and changes to assessment are captured as part of the Student record. - What do you think is the best way for HESA to do this?"</p> <p>Schools noted that this information would require annual review – probably in the first reference period.</p> <p>Clear rules would be needed for determining how much change to an assessment could be permitted without the</p>	<p>The Assessments to be collected against each Student would need to be agreed in Reference period 1 of the year in which the assessment would be sat. Either the GMC or HESA would need to confirm the assessments and record any changes: assessments add or dropped. The Assessment results would likely be collected in Reference period 1 in the following academic year to ensure results closed and no appeals likely.</p>			

Field Description	Consultation comments	GMC responses	Exam board spread sheet review	Actions for schools	Actions for GMC and HESA
	<p>requirement to assign a new assessment id.</p> <p>IDs would need to be unique and not reused.</p> <p>One school note: "The challenge is not so much individual medical schools reporting changes to HESA, as HESA being able to make changes to the HESA record in an appropriate way. This requires assessment expertise, not clerical expertise."</p>				

HUSID

Field Description	Consultation comments	GMC responses	Exam board spread sheet review	Actions for schools	Actions for GMC and HESA
<p>This is the standard student identifier used by HESA and UKMED – see https://www.hesa.ac.uk/collection/c16051/e/husid</p>	<p>A couple of school stated that they would prefer to return anonymous data.</p>	<p>Unfortunately, this would not allow the Assessment data to be linked to other data in UKMED. However, the data only provided to UKMED researchers in an anonymous format.</p>	<p>These contained: Exam Board Number SN (presumably student number) Banner ID Names (but no date birth and linking on names, even within one year of a school may not be 100% reliable.</p>	<p>Confirm that the student numbers in the Assessment spreadsheets are the same as OWNSTU</p>	<p>Some schools have requested that HESA and the GMC provide a more details privacy notice detailing which data are sent to the GMC and how they are used. We will circulate a draft by March 2020.</p>
	<p>The HUSIDs are only stored in the student record and including them in an Assessment data spreadsheet would require consultation and collaboration between the Statutory Returns team and the Assessment Team</p>	<p>It may be that GMC staff can link to HUSID using other identifiers in your spreadsheets. The OWNSTU field (https://www.hesa.ac.uk/collection/c17071/a/ownstu) is included in the GMC's HESA dataset.</p> <p>Linking the assessment data to HUSIDs may provide schools with some benefits as their systems would become linked.</p>			

STUDENTSCORE

Field Description	Consultation comments	GMC responses	Exam board spread sheet review	Actions for schools	Actions for GMC and HESA
<p>Student's overall raw score on assessment or total score for all stations on a clinical exam or university alphanumeric grade.</p>	<p>General comments with regard to what type of summative outcome(s): Raw score</p> <ul style="list-style-type: none"> We have assumed that "raw score" refers to the "percentage raw score" as the total varies from assessment to assessment "Raw Score" has a technical meaning we do not think is readily compatible with this question. In the MBBS programme, 'raw scores' on numerical assessments are converted to the University Numerical Equivalent Grading Bands (Assessment Handbook 2.1.8.1) before reporting to Grade Book. These Grading Bands are Numerical in format but are not real numbers. We can report the 'raw score' before conversion, 	<p>We will need to ensure the final table dataset contains something that is consistent across schools, whilst minimising the burden. Calculating the difference between the student STUDENTSCORE and EXAMPASSMARK and then converting this difference to a z-score within year would allow all score differences to be used in the same analysis if required.</p>	<p>Some contain marks as %</p>	<p>Respond to <i>Collection Details Return</i></p>	<p>The <i>Collection Details Return</i> for release in Reference period 1 2020/21 (see ASSESSID table above), will also ask schools how the student score is recorded in the Exam board spreadsheet, it maybe we have to convert to a common metric if some schools use marks and others use percentages.</p>

Field Description	Consultation comments	GMC responses	Exam board spread sheet review	Actions for schools	Actions for GMC and HESA
	but this is not useful for HESA/UKMED purposes, since its meaning depends on the pass mark				
	It will depend on whether we will be allowed to upload data manually from a standardised template (best case scenario, for us). An automated upload from SITS will complicate things, since we only upload re-scaled marks (not raw scores nor raw pass-scores) into SITS.				

RESULTCATEGORY

Field Description	Consultation comments	GMC responses	Exam board spread sheet review	Actions for schools	Actions for GMC and HESA
<p>Type of result category: Borderline, Distinction etc.</p>	<p>Schools reported that the pass mark for each assessment differs for every exam sitting due to standard setting processes.</p> <p>Generally, the pass mark is held in a spreadsheet/local system (e.g. VLE) within the Medical School.</p> <p>The University system is unable to capture assessments with changing pass marks.</p> <p>The pass mark is not returned to central record systems.</p> <p>Sometime the student score is rescaled/calibrated so that the set pass mark/cut score can be applied to allow import to the central system and/or conversion to</p>	<p>The GMC will need to collect the pass mark for each assessment each year, so that the student score can be converted to a difference to pass mark to allow scores from multiple years to be used in the same analysis.</p> <p>As there is some variability across schools as to where this is recorded, we will need to agree with each school the easiest method of them to return this data item.</p> <p>It will only be possible to collect the pass marks after standard setting work has taken place.</p>	<p>School 1 contained this – “Exam board confirmed -Result - Medal Viva/DistClinPrac/Merit/P ass/Fail”</p> <p>School 2 contained pass/fail – but these may not be exam board spreadsheets – rather exports from school system for individual exams.</p> <p>School 3 – no pass mark in exam board sample but a Satisfactory/Unsatisfactory outcome recorded for each case.</p> <p>School 4 – no pass marks but outcomes recorded.</p>	<p>Respond to <i>Collection Details Return</i></p>	<p>The <i>Collection Details Return</i> for release in Reference period 1 2020/21 (see ASSESSID table above), we will also ask schools their preferences for returning EXAMPASSMARK and RESULTCATEGORY if these data items are NOT contained within the Exam Board spreadsheet.</p>

Field Description	Consultation comments	GMC responses	Exam board spread sheet review	Actions for schools	Actions for GMC and HESA
	<p>standard university grades.</p> <p>Sometimes the central system only receives category of outcome (pass/fail/merit)</p> <p>Unusually, one school reports having its own marking scheme is in the central system.</p>				

ADJUSTMENT

Field Description	Consultation comments	GMC responses	Exam board spread sheet review	Actions for schools	Actions for GMC and HESA
<p>Details of any adjustment the student had whilst sitting the exam, for example the amount of extra time.</p>	<p>Many schools reported recording this against the disabilities section of the central student record.</p> <p>Some schools noted that this is not logged against assessments on the University system.</p> <p>Some schools reported holding these data in a separate spreadsheet.</p> <p>For special circumstances affecting a particular period of study then there is a note against the result in the central record (S).</p>	<p>GMC's HESA extract already included the field DISABILITY, but this does not include information on whether the student received extra time in their exam.</p> <p>We will need to explore this further to determine the best approach. The information is rightly regarded as sensitive and providers have additional access controls. We will discuss this further with pilot sites. As the information will also be relevant to AKT candidates we will coordinate with the MLA team</p>	<p>Not present.</p>	<p>Respond to <i>Collection Details Return</i></p>	<p>To cover in detail in pilot visits.</p> <p>The <i>Collection Details Return</i> for release in Reference period 1 2020/21 (see ASSESSID table above), we will also ask schools more about how we can capture this.</p>

ATTEMPTNUMBER

Field Description	Consultation comments	GMC responses	Exam board spread sheet review	Actions for schools	Actions for GMC and HESA
<p>Whether this was the student's 1st, 2nd etc attempts at the exam. Attempt number may be reset following an appeal/mitigating circumstances. ATTEMPTNUMBER will indicate whether the attempt was a resit.</p>	<p>The majority of schools (22/37) did not think the GMC could derive this information, so if we require we will need to collect it.</p> <p>Schools highlighted a number of complexities here:</p> <p>The number of attempts may be held at modular level but not at individual assessment level.</p> <p>The attempts number may be difficult to determine if a student takes leave of absence and so become out of synch.</p> <p>Null sits will undo the first sit due to special circumstances on the system at present. This will also not capture interruption of studies (back dated) and repeat</p>	<p>This is a complex area and we will need to discuss further with schools the necessity of holding this information if the collection burden is too great.</p>	<p>Not contained.</p>	<p>Respond to <i>Collection Details Return</i></p>	<p>To cover in detail in pilot visits.</p> <p>The <i>Collection Details Return</i> for release in Reference period 1 2020/21 (see ASSESSID table above), we will also ask schools more about how we can capture this.</p>

	<p>years in an easily identifiable way. Possibly not for Year 4-6 of the clinical course and Years 2-4 of the Graduate-entry course, as separate attempts at assessment units within these Examinations are not always passed to the Central Records team. Central records team record results at the highest level and so will not know which individual element(s) was(were) failed.</p> <p>There are legitimate circumstances, such as mitigation, where an attempt may be discarded and therefore there would be no record of this attempt having taken place.</p> <p>A successful mitigating circumstances application or appeal outcome may mean they are able to take more than 2 attempts, and some may be delayed pending outcome of investigations. It would not be possible to calculate the number of true attempts, since in</p>				
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	<p>some cases, assessment attempt outcomes are overridden on the student record.</p> <p>Understanding a student's profile of examination attempts is a relatively complex process that we undertake manually as part of the Educational Performance Measure ranking exercise.</p>				
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NSTATPASS

Field Description	Consultation comments	GMC responses	Exam board spread sheet review	Actions for schools	Actions for GMC and HESA
<p>Total number of stations passed, if applicable. (OSCE only)</p>	<p>For an OSCE, we equate the grades to number of stations passed. Again, no record of this is stored centrally, only the grade.</p> <p>Please note that in the Clinical Exams described in the questions above students are required to pass a minimum threshold of stations in specific sub-topics for example Communication Skills, in order to pass that element of the exam. Therefore, there are a number of passing criteria, and a student may, for example, pass 50% of stations overall, but still fail an assessment because they did not meet the threshold for each sub-section of the exam.</p>	<p>For schools where criteria in addition to the difference between overall score and the passing score are used to determine progression we will need to ensure we capture these data.</p> <p>In many schools NSTATPASS is not passed to the central team as there is no means of recording this on the central system.</p>	<p>Four schools' spreadsheets contained information on the number of stations passed.</p> <p>One school's spreadsheet only contains OSCE % MARK in the spreadsheet we received.</p>	<p>Respond to <i>Collection Details Return</i></p>	<p>To cover in detail in pilot visits.</p> <p>The <i>Collection Details Return</i> for release in Reference period 1 2020/21 (see ASSESSID table above), we will also ask schools more about how we can capture the required data items.</p>

STUDENTRESULT

Field Description	Consultation comments	GMC responses	Exam board spreadsheet review	Actions for schools	Actions for GMC and HESA
<p>For clinical exams a pass may be based on the STUDENTSCORE greater than or equal to the EXAMPASSMARK AND NSTATPASS (the number of stations passed) being greater than STATIONREQ.</p>	<p>Pass/fail or University grade is generally recorded on the central system, but in some cases, this may not be against an individual assessment but instead for a module or at some providers for the entire year e.g. "End-of-year progression outcomes only (progress / repeat year / fail)"</p>	<p>We will require an outcome for each individual assessment a student needs to pass in order to progress to the following year of study.</p>	<p>Four schools' spreadsheets contained STUDENTRESULT for each assessment</p> <p>One school's spreadsheet only contained STUDENTRESULT based on the combined results of TOTAL PAPER MARK % and OSCE % MARK</p>	<p>Respond to <i>Collection Details Return</i></p>	<p>To cover in detail in pilot visits.</p> <p>The <i>Collection Details Return</i> for release in Reference period 1 2020/21 (see ASSESSID table above), we will also ask schools more about how granular the entity against which STUDENTRESULT is recorded.</p>

Annexe B: Timelines for the 2020/21 interim spreadsheet return

Timings	Workstream			
	Enhanced privacy notice for data subject	GMC's spreadsheet template	Schools' existing spreadsheets	Collection Details Return
February 2020	Draft circulated to MSC and HESA for review	Recruit 2 -4 pilot sites	Recruit 2 -4 pilot sites	
February 2020			Pilot sites submit existing spreadsheets with real data for Academic year 2018/19	
March – April 2020		Send V1 of template to schools. Visit schools to run through completion. Visit team to include GMC/MS/HESA. Visit will be one day in duration.	Visit schools to run through Assessment data team's attempt to transfer from the school's existing spreadsheet to the template. Visit schools to run through completion. Visit	

Timings	Workstream			
	Enhanced privacy notice for data subject	GMC's spreadsheet template	Schools' existing spreadsheets	Collection Details Return
			team to include GMC/MSA/HESA. Visit will be one day in duration.	
March 2020				Draft <i>Collection Details Return</i> to Assessment Leads for review
April 2020 - June 2020				Pilot a <i>Collection Details Return</i> V1 where schools confirm the assessments they will include in the 2020/21 return. We will pre-populate this form with the assessments declared to us by schools in the 2019 consultation.

Timings	Workstream			
	Enhanced privacy notice for data subject	GMC's spreadsheet template	Schools' existing spreadsheets	Collection Details Return
				We will use this to further refine the scope of the collection.
May 2020		Report on visits to Assessment leads	Report on visits to Assessment leads	
June 2020		V2 of template distributed for comment.		V2 of <i>Collection Details Return</i> distributed for comment
August 2020		Final version of template to Assessment leads for sign-off.		Final version of <i>Collection Details Return</i> to Assessment leads for sign-off.
September 2020		V3 - Final template published for the 2020/21 return. Template locked no further changes permitted.		

Timings	Workstream			
	Enhanced privacy notice for data subject	GMC's spreadsheet template	Schools' existing spreadsheets	Collection Details Return
September 2020				<i>Collection Details Return year 2020/21 sent to schools for completion at end of Reference period 1. This return will describe which Assessments are included in the return and which approach to completing the return for 2020/21 the school wishes to use.</i>
September 2021				<i>Collection Details Return year 2021/22 sent to schools for completion at end of Reference period 1. This return will describe which Assessments are included in the return and which approach to completing the return for</i>

Timings	Workstream			
	Enhanced privacy notice for data subject	GMC's spreadsheet template	Schools' existing spreadsheets	Collection Details Return
				2020/21 the school wishes to use.
October 2021		Schools return completed template spreadsheet to HESA	Schools return their existing spreadsheets to HESA	
December 2021		<p>Post implementation Evaluation forms sent to schools.</p> <p>When HESA either conducts a major review, or a substantial change is made to the record/system, a Post-Implementation consultation is run with the sector. This gives providers and software suppliers the opportunity to tell us what they found went well with the change and what they found very difficult. From this HESA take a look at the existing implementation to see if anything can be improved for the following year.</p>		

Timings	Workstream			
	Enhanced privacy notice for data subject	GMC's spreadsheet template	Schools' existing spreadsheets	Collection Details Return
January 2022		Report on evaluation of the 2021/22 return to Assessments leads.		

Annexe C: Example use of the Assessment data from UKMED

Title: The UK Medical Applicant Cohort Study: The impact of medical school choice on achievement

Summary

- 25** The proposed research is part of the UK Medical Applicant Cohort study - a National Institute for Health Research funded study of medical applicant choices and outcomes. UKMACS aims to examine the impact of applicant's medical school choices on their chances of being made an offer, of meeting the offer, and of being successful at their chosen medical school.
- 26** Follow-up of applicants is necessary to understand how the medical school choices of applicants from different social backgrounds predicts achievement, controlling for other factors which have previously been shown to predict achievement in higher education and medical school, including prior achievement [1,2], personality and self-efficacy [3,4].
- 27** As part of UKMACS we have collected questionnaire data from almost 6,500 potential applicants of whom approximately half are likely to enter medical school in autumn 2020. These data are being linked into UKMED currently. Questionnaire variables include the medical schools they are considering applying to, their priorities in selecting medical schools (such as distance from home and course type), prior academic achievement (GCSE grades), career aspirations (specialty and location), personality and self-efficacy.
- 28** In this study we propose to analyse first year medical school assessment outcomes for applicants to medical school in academic year 2019/20, who entered medical school in academic year 2020/2021.
- 29** We will test the hypothesis that students who academically undermatch (have higher prior academic achievement than the average prior achievement of their medical school peers) do worse at medical school compared to those who are matched or overmatched (have similar or lower prior academic achievement compared to their peers), controlling for other predictors of achievement.
- 30** The literature shows that academic undermatch is more likely among university applicants from the lowest socioeconomic groups, among female applicants, and among applicants from some minority ethnic groups, and has been shown to predict increased drop out, lower university achievement and poorer post-university outcomes, even among those within the highest 20% of A level performers [5].

- 31** We are currently undertaking a study (UKMEDP89) looking at the extent to which undermatch by socio-demographic background exists among the courses chosen by medical applicants. The current proposed study will look at which demographic and questionnaire factors predict undermatch, and what the impact of undermatch may be on entrants' first year academic achievement.
- 32** Without first year grades we will have to wait five to six years for Educational Performance Measure outcomes to become available, and if under matched students are more likely to drop-out due to academic failure early on in the course, their EPM data will be disproportionately missing.

References

- a** McManus IC, Dewberry C, Nicholson S, Dowell JS 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* 2013; 11: 244
- b** McManus IC, Woolf K, Dacre J, Paice E, Dewberry C. The Academic Backbone: longitudinal continuities in educational achievement from secondary school and medical school to MRCP(UK) and the specialist register in UK medical students and doctors. *BMC Medicine*. 2013; 11: 242.
- c** Schneider M, Preckel F. Variables Associated With Achievement in Higher Education: A Systematic Review of Meta-Analyses. *Psychological Bulletin*. 2017; 143(6), 565–600.
- d** Chemers M M, Hu L, Garcia B F. Academic Self-Efficacy and First-Year College Student Performance and Adjustment. *Journal of Educational Psychology*. 2001; 93 (1): 55-64
- e** Campbell S, Macmillan L, Murphy R, Wyness G. Inequalities in Student to Course Match: Evidence from Linked Administrative Data. CEP Discussion Papers dp1647, Centre for Economic Performance, LSE, 2019.
<http://cep.lse.ac.uk/pubs/download/dp1647.pdf>

Research questions

The main research questions are:

RQ1: Which applicant socio-demographic and psychological factors predict academic match?

RQ2: Does academic match predict performance in Year 1 of medical school, taking into account socio-demographic and psychological factors?

Data required

For applicants:

- Socioeconomic factors (parental SES, POLAR, IMD, WP index if available).
- Demographics (ethnicity, sex, DOB).
- Big 5 personality (UKMACS)
- Self-efficacy. (UKMACS)
- GCSE grades (UKMACS)
- Predicted A level/equivalent grades and subjects (UCAS).
- UCAT scores (UCAT)
- BMAT scores (BMAT)
- UCAS tariff points (HESA).
- Medical schools applied to, received offers from, firm and insurance replies (UCAS).
- A level grades and subjects (UCAS)
- Medical school entered (HESA).
- First year medical school grades (HESA).

For medical schools:

- Number of places (HESA).
- Admissions test used (UCAT, BMAT, GAMSAT).
- A level (or equivalent) and other academic achievement requirements.
- First year assessment scores.

Methodology

33 Design: Longitudinal cohort study.

34 Population: Applicants to UK medical school(s) in 2019/2020 (RQ1). Within this group, we will also look specifically at applicants who entered medical school in 2020/21 (RQ2), and participants in the UK Medical Applicant Cohort Study (RQ2).

Analysis proposed

35 To determine match, we will adapt the procedures used by Campbell et al [5]:

- 36** identify the position of each student in a standardised distribution of pre-medical school academic achievement scores (achievement distribution).
- 37** identify the position of each medical school in a standardised distribution of course achievement, based on the median pre-medical school academic achievement of students entering the course (course achievement distribution).
- 38** subtract the student's position on the achievement distribution from the position of their course on the course achievement distribution.
- 39** This will provide a continuous measure of match for each student, representing the distance of each student's chosen course from their ideally matched course (that which would be attended by others in the same position of the ability distribution). For example, a student who is exactly average in their pre-medical school performance is matched if they choose a medical school which is exactly average in the course achievement distribution. If the student is one standard deviation above the average in their pre-medical school academic achievement, and they choose a medical school that is exactly average in the course achievement distribution, then they are under matched by one standard deviation, and so on. This approach allows us to evaluate the extent of undermatch on outcomes, rather than relying on an arbitrary cut-off dividing matched from under-matched students.
- 40** Undermatch is forcibly more common in the higher-achieving students since there are fewer courses in which the mean achievement is higher than their achievement, however Campbell et al found that even in the highest performers undermatch was more common among those from lower socioeconomic groups. Furthermore, compared to other university courses, A level scores for medical entrants are restricted in range. As such, we will also look at match in relation to UCAT/BMAT performance and GCSE (equivalent) performance.
- 41** RQ1: To examine match in medical school applications, we will create an average match across all four schools applied to (i.e. using the mean course achievement across all four schools). We will also calculate match for the medical school applied to with the highest and lowest course achievements, respectively. We will also measure match for the course accepted (firm) by a candidate, and the course entered by the candidate.
- 42** We will conduct a series of hierarchical linear regressions of each measure of match on demographics, socioeconomic background, and psychological variables.
- 43** RQ2: We will calculate a standardised year 1 achievement score within medical school by firstly making an average score of all assessments within a medical school, and then z-transforming it. This will give us a measure of a students' Year 1 achievement compared to that of their peers.

- 44 We will then conduct a series of hierarchical regressions of standardised Year 1 achievement on course match, prior academic achievement and socio-demographics.
- 45 For UKMACS participants, we will additionally include personality, and self-efficacy, using multiple imputation for missing data.

Proposal for dissemination

- 46 Publication in peer-reviewed high-impact journals and national and international medical education conference presentation(s) which are attended by academics but also medical education policy-makers.

References

- ¹ <https://www.gmc-uk.org/education/reports-and-reviews/progression-reports>
- ² https://www.hesa.ac.uk/files/GMC_assessment_data_proposal.pdf