The UK Medical Education Database (UKMED) – what is it and how can it be utilised?

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Session outline

Overview of data currently held and future data plans

Ex 1 projects of interest.

Designing a study to address a question

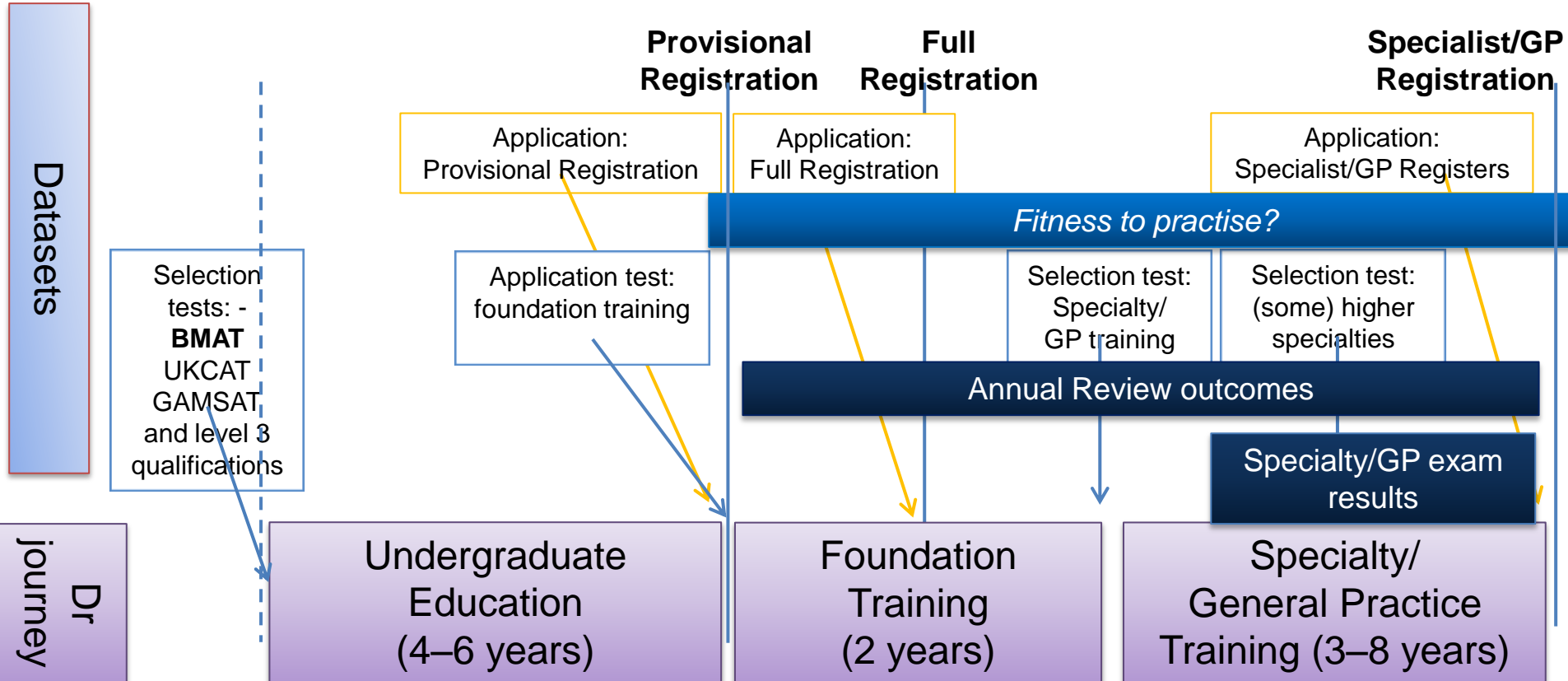Ex 2 completing an application

Criteria for assessing a project

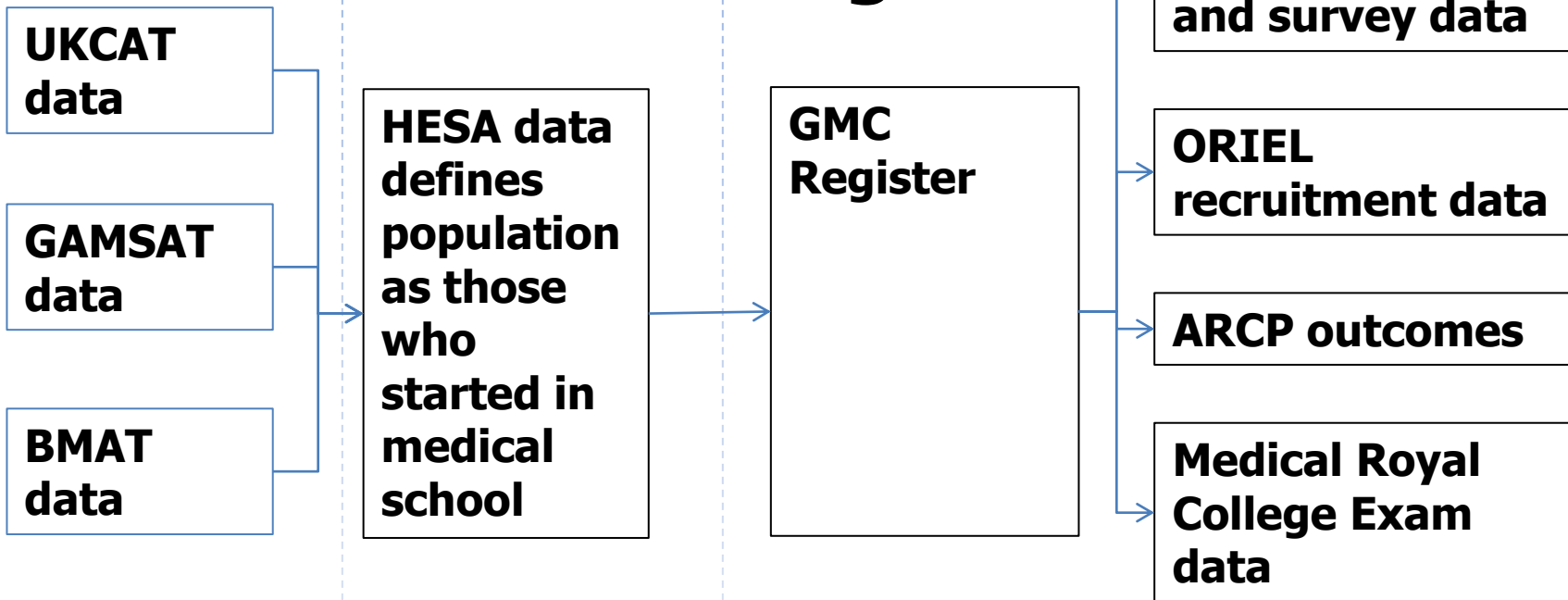Ex 3 assessing a sample application

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UKMED – Currently data for those starting at a UK medical school from 2007 to 2014 N > 63,000

Datasets

Dr journey

Provisional Registration

Full Registration

Specialist/GP Registration

Application: Provisional Registration

Application: Full Registration

Application: Specialist/GP Registers

Fitness to practise?

Selection tests: - **BMAT** UKCAT GAMSAT and level 3 qualifications

Application test: foundation training

Selection test: Specialty/ GP training

Selection test: (some) higher specialties

Annual Review outcomes

Specialty/GP exam results

Undergraduate Education (4–6 years)

Foundation Training (2 years)

Specialty/ General Practice Training (3–8 years)

UKMED Linking

UKCAT data

GAMSAT data

BMAT data

HESA data defines population as those who started in medical school

GMC Register

GMC NTS census and survey data

ORIEL recruitment data

ARCP outcomes

Medical Royal College Exam data

UCAS person or App ID

OWNSTU link

GMC number gives link to all postgraduate outcomes collected annually by GMC

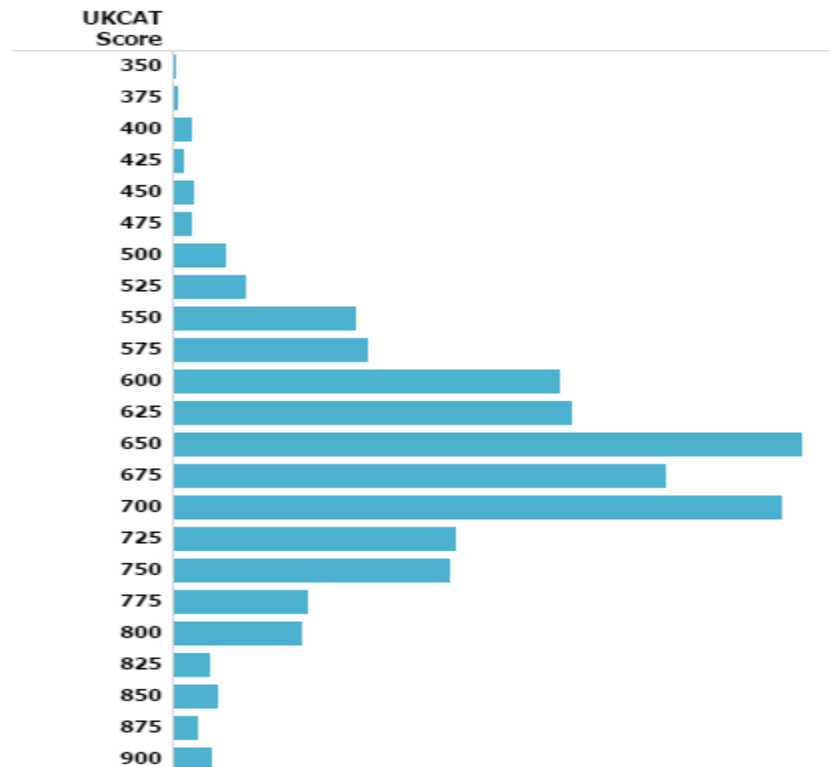## Select year (s) of entry to medical school to display

(All)

First Medical School	N in UKCAT	Percent in UKCAT	N In UKMED population
Aberdeen	1,380	91%	1,512
Barts	2,530	97%	2,595
Birmingham	2,996	93%	3,222
Brighton and Sussex	1,078	96%	1,121
Bristol	1,830	93%	1,974
Cambridge	2,096	90%	2,339
Cardiff	2,364	98%	2,409
Dundee	1,199	89%	1,344
Edinburgh	1,789	94%	1,904
Exeter	234	95%	247
Glasgow	1,871	88%	2,124
Hull York	1,115	98%	1,141
Imperial	2,463	92%	2,663
Keele	1,039	97%	1,073
King's	3,071	96%	3,194
Lancaster	367	93%	395
Leeds	1,755	91%	1,939
Leicester	1,939	96%	2,024
Liverpool	2,291	90%	2,547
Manchester	2,933	94%	3,132
Newcastle	2,449	97%	2,528
Norwich	1,307	98%	1,334
Nottingham	2,353	85%	2,783
Oxford	1,340	93%	1,441
Peninsula	1,308	94%	1,389
Queen's	2,003	93%	2,146
Sheffield	1,841	96%	1,918
Southampton	1,886	90%	2,087
St Andrews	1,185	88%	1,339
St George's	1,846	80%	2,302
Swansea	427	75%	573
The University of Bradford	778	80%	967

Selection the section to see score statistics

Quantitative Reasoning

UKCAT Section	Mean UKCAT score	SD UKCAT score	N UKCAT test attempts
Quantitative Reasoning	681.91	79.83	72,143

UKCAT Score: 350, 375, 400, 425, 450, 475, 500, 525, 550, 575, 600, 625, 650, 675, 700, 725, 750, 775, 800, 825, 850, 875, 900

Available data

- Number of cases with a given data point - <u>Coverage tool</u>

- The <u>data dictionary</u> describes the available fields

- Remember that we can include NTS items and indicators. For details of these please see the <u>NTS documentation</u> . In particular the Generic and demographic final questionnaire for the relevant years. If you need specialty specific items please ask.

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Future plans

- https://www.ukmed.ac.uk/potential_new_datasets

  - Medical school progression data (starting with Theory and Skill score from UKCAT) and then HESA module data
  - Individual medical school selection data – Multiple Mini Interviews (MMIs) etc.
  - E-portfolio data – if possible
  - Clinical outcomes for individual consultants/GPs - – if possible
  - Full placement history
  - Revalidation
  - UCAS data – if possible

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Exercise 1

1. Are there current research areas in your school/deanery that UKMED could assist with?

2. Are there data not currently included in UKMED that would need to be included for your research area?

Remember it's longitudinal…..

- Different groups of doctors will reach a given data point in different years
- PMQs vary in length from 4 to 6 years (longer if there is a PhD)
- Exams can be sat at different points. E.g. MRCP part 1 any time from foundation; whereas for GP AKT the Dr must be in GP training.
- Some Drs have "gap years" . Depending on the year between 50 to 70% of F2 trainees apply directly to specialty training.
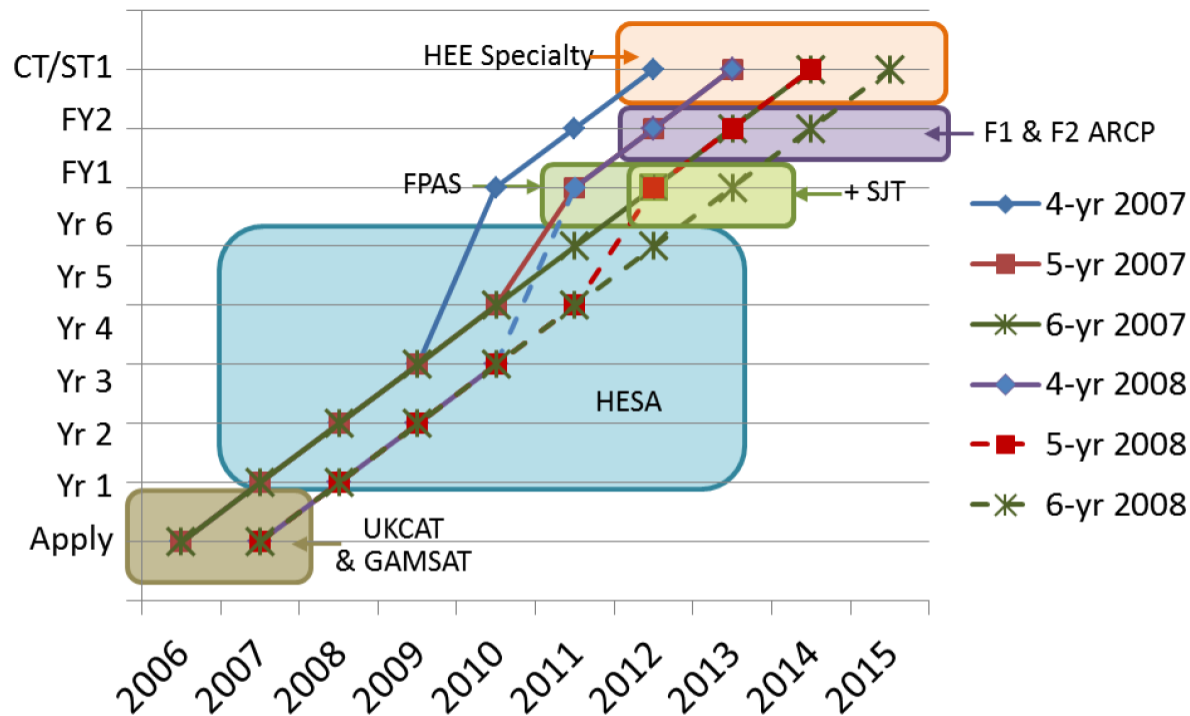- So depending on how your study cohort is defined some data points may be censured.

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FIGURE 1: Data present in UKMED Phase 1

Coloured rectangles denote the source of UKMED data; plotted points

Remember it's longitudinal…..

- Some collections change over time, for example some NTS items were introduced in a particular year.

- Depending on the research question you may want 1st or final measure from an assessment: most recent sitting - the one on which their selection was based versus first sitting the best predictor of future performance and thus the most accurate measure of ability.

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College exam data

- Projects using college exam data are also reviewed by the college. To assist in your understanding and for easy access to relevant contextual information (e.g. changes to the exam during the period of interest) early engagement with the relevant college is advised.

- Data available depends on what the college can provide. Some can only provide pass/fail; some can provide scores. This will affect the types of analyses that are possible.

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Linking non-person level data…

- There may be data you would like to include e.g.
  - ONS measures that can be linked on postcode see National Statistics Postcode Lookup User Guide
  - Attributes of a medical school such as percentage of the clinical curriculum delivered in general practice and total number of teaching sessions delivered to students in general practices
- Due to the de-identification process (e.g. full postcodes never provided) and the safe haven which prevent import/export this has to be done via GMC administration.

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Data required – appropriate measures

- Make sure the outcome variables are suitable.
  - Some don't allow comparison across medical school. E.g. EPM Deciles.
  - Some have insufficient variation e.g. ARCP in foundation
- Include relevant control variables – for example UKCAT scores are one means of adjusting for ability on entry to medical school
- UKMED will contain data on those not admitted to your school/programme, as the student/Dr may have been successful elsewhere.
- Data from each source are updated annually – check when data for your cohort of interest are available for sufficient cases.

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No measure available?

- If the measure you need is NOT there and you have the time we can proposed new UKMED items on the NTS. These are subject to approval by the NTS Board.
- You can also bring your own data in subject to
  - Suitable identifiers
  - Appropriate privacy statement

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Common derivations…

- There is a shared area in the safe haven to share scripts that are of common interest when deriving new variables.

- We will try to ensure a common approach for example for scoring level 3 attainment (Scottish Highers and A-levels) we can follow the approach of the UKCAT-12 study.

- For scoring ARCP outcomes for specialty trainees we use the Tiffin ordinal scale

- Be prepared to share useful derivations with other researchers (in return for a citation)

- We are currently considering creating a table of imputed missing values.

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Exercise 2

- Please complete the application form:
  - Data required,
  - Methodology
  - Proposed analysis

- To address the following questions
  - Doctors with a medical parent pursue different specialty careers to their colleagues who do not have a medical parent?
  - Doctors with a medical parent perform differently to their colleagues in their assessments?

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UKMED annual cycle

- UKMED is integrated into GMC business processes with an annual cycle:
  - Two data loads a year, including the annual extracts from HESA, ARCP, Royal College Exam data and so on
  - Two meeting to discuss submitted proposals and outputs
  - Two rounds of extracts produced

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Process for undertaking UKMED research

- Approved applications will receive access to data in November (or after whichever meeting they apply):
  - Data are issued under contract
  - De-identified (so anything that needs including need linking in advance – for example data that links via postcode)
  - Data are accessed in the safe haven – not possible to get data in/out unless via GMC administrator.

- Please see for more details - https://www.ukmed.ac.uk/documents/UKMED_research_process.pdf

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Process for undertaking UKMED research

- If the project is just using UKMED data we have blanket ethics exemption as we meet the criteria.
- This won't apply if you are bringing in additional data.

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Application process – Reference section

- When conducting your literature search, it may help to check the following in addition to your searches:

- UKFPO annual reports –
  - http://www.foundationprogramme.nhs.uk/pages/resource-bank/archive
- UKCAT published research –
  - http://www.ukcat.ac.uk/our-research/published-research/
- McManus medical education research (include cohort studies) –
  - http://www.ucl.ac.uk/medical-education/publications/medical-education-publications
- UK Medical Careers Research Group (UKMCRG)
  - http://www.uhce.ox.ac.uk/ukmcrg/publications.php

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Advice for applicants

- The research subgroup is not controlled by the GMC they make a recommendation to the Advisory Board who in turn recommend to the GMC as data controller which projects to provide extracts to
- UKMED doesn't fund projects, but does provide data extracts for free in the safe haven
- Not all proposals have been approved. Generally approved projects had:
  - Evidence of funding or institutional support
  - Statistical expertise on the team
  - Multi-centre (not one medical school)
  - Demonstrated a good understanding of the available data – we suggested getting in touch to discuss in advance of applying

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Criteria for assessing applications

Domain	Acceptable 2
Research Question	Question if answered has significant implications for policy or practice in medical education. The research question is original and is not answered in the existing literature.
Data fields requested	The data requested is contained within the UKMED and is well linked to the research question
Proposed Methodology	Methodology takes into account the nature of and type of data available and is suitable to address the research question.
Analysis	Analysis takes into account the nature of and type of data available and is suitable to address the research question.
Evidence of planned output/use	There is a clear statement on the intended outputs which may include publication in a peer-reviewed journal, publication on an organisation's website, reports that are evaluations of a service rather than research, or publication as a Ph.D. thesis

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Exercise 3

Look at the proposal *Predicting Fitness to Practise issues from admission profiles in UK medical school entrants* and score it on the criteria

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* Email

Job title

Organisation

Areas of interest

Questions?