How to get published and how to get involved in research

Adnan Sharif
Consultant Nephrologist
Queen Elizabeth Hospital Birmingham

Outline

- What is research?
- Why get involved in research?
- Types of research
- How to choose a research project
- How to choose a research supervisor
- How to write a research paper
- Final tips and guidance

What is research?

- Research is any gathering of data, information or facts for the advancement of knowledge
- Research is scientific work but it is also an *art* (that can be learnt) guided by skills of *inquiry*, *experimental design*, *analysis, interpretation* and *presentation*
- Research should be distinguished from the following:
  - Clinical audit
    - A quality improvement process that seeks to improve patient care and outcomes through systematic review of care against explicit criteria
  - Service evaluation
    - A set of procedures to judge a service's merit by providing a systematic assessment of its aims, objectives, activities, outputs, outcomes, and costs

Clinical audit ⟷ Research ⟷ Service evaluation

Research is not just for academics

Research is important for all doctors

Which doctors should be doing research?

- The GMC states that *"Research involving people directly or indirectly is vital in improving care and reducing uncertainty for patients now and in the future".*[2]

[2]http://www.gmc-uk.org/guidance/ethical_guidance/24135.asp

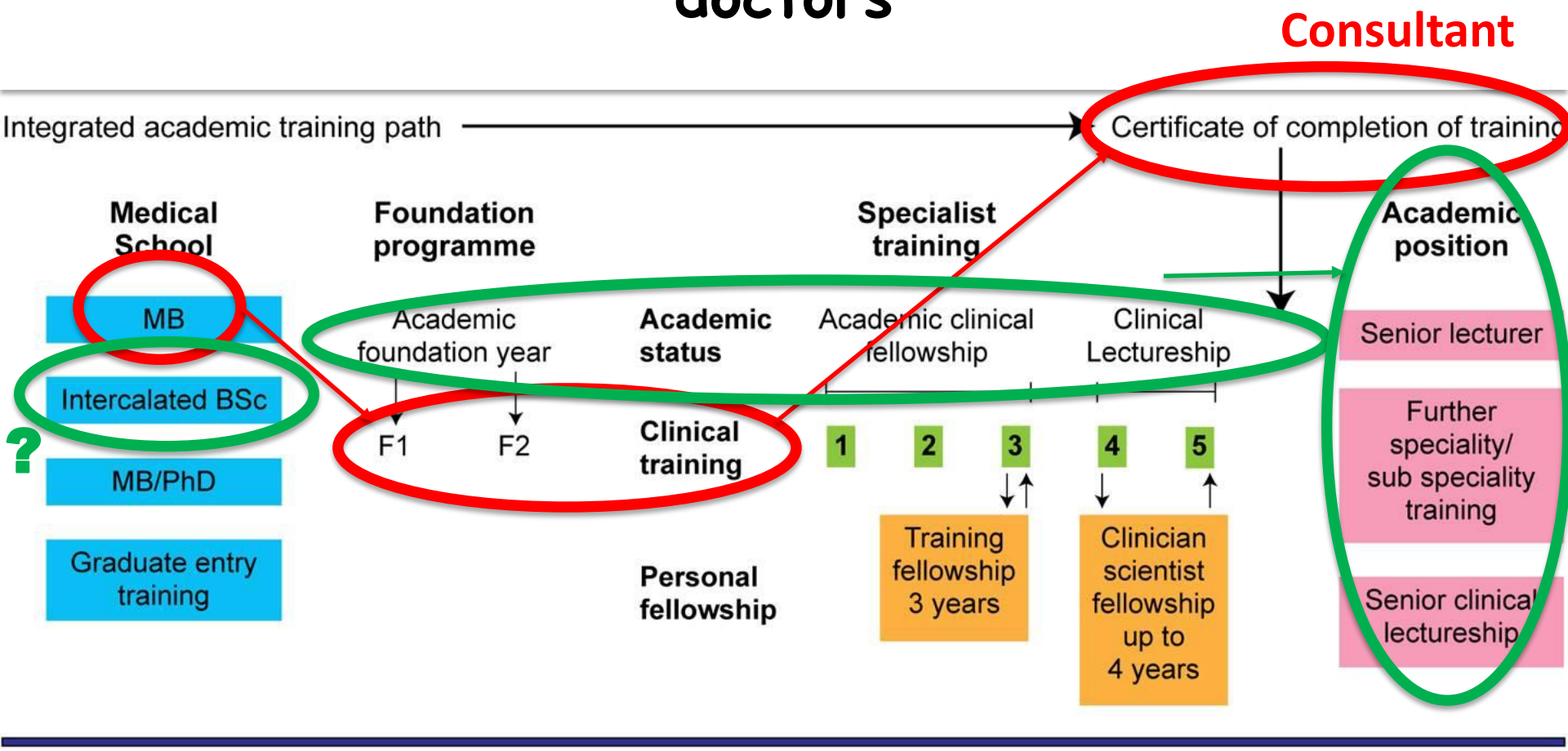
Which doctors should be doing research?

Every doctor a scientist and a scholar

Scientists can be described as people who have expert knowledge of, or are studying, one or more branches of the natural, social or physical sciences. This definition suggests that all doctors should regard themselves as scientists investigating the social and biological aspects of health and illnesses, and applying scientific theories and appropriate methods accordingly.

http://bma.org.uk/-/media/files/pdfs/developingyourcareer/

Career trajectories are different for all doctors



Note: the timings of personal fellowships are indicative. There should be flexibility according to individual career progression

To BSc or not to BSc . . .

Research suggests intercalated degrees have added value for one's career, but other factors must be taken into account

McManus C. Student BMJ 2011

Reasons for not doing BSc (293/343 surveys from 4th/5th year medical students not intercalating)

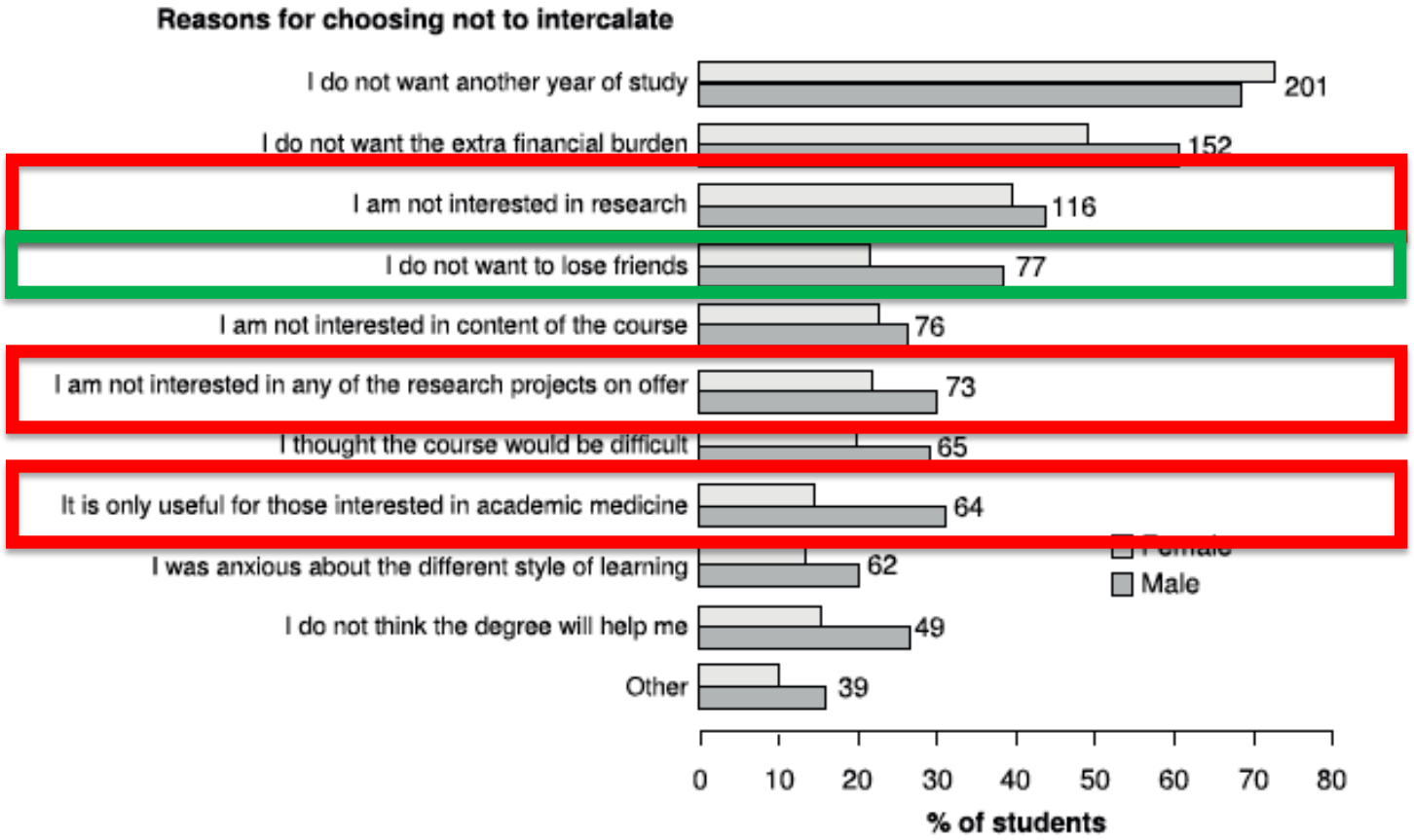


Figure 1 Males and female student choosing each reason for deciding they did not wish to undertake an intercalated degree.

Nicholson et al. BMC Medical Education 2010

Reasons for not doing BSc (293/343 surveys from 4th/5th year medical students not intercalating)

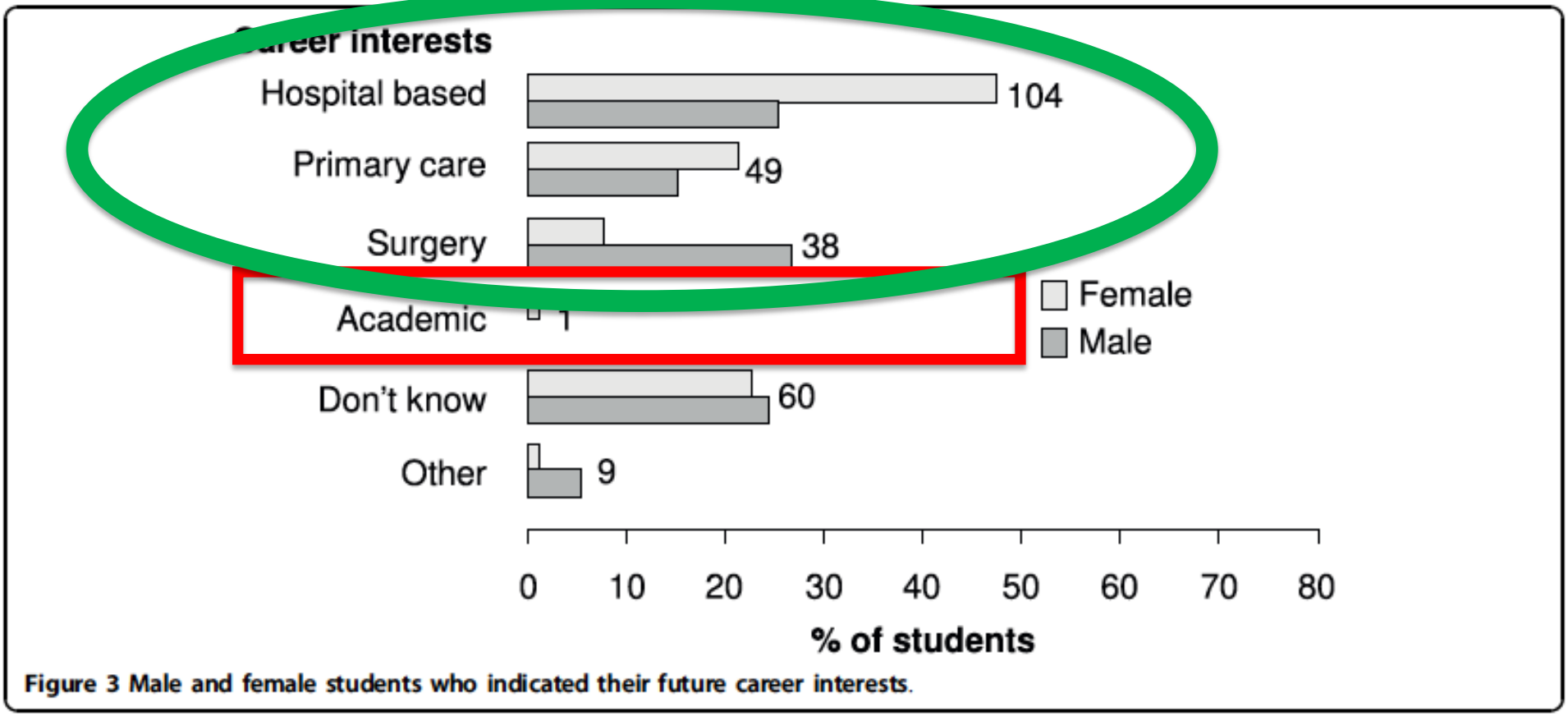


Figure 3 Male and female students who indicated their future career interests.

Nicholson et al. BMC Medical Education 2010

Why should you get involved with research?

Clinical development

- Research is the means by which our understanding of disease, and ultimately the quality of care that we give to our patients, can be improved
- Being involved in research as a doctor can be a fulfilling and stimulating experience
- It can add variety to daily clinical workloads and satisfy intellectual curiosity
- It will teach you important non-clinical skills such as time/people management, communication skills, critical appraisal, analytical skills…

Why should you get involved with research?

Career progression

- Applications for medical/surgical jobs at all grades give recognition to publications in peer reviewed journals and presentation of scientific work
  - Remember certain jobs in certain specialties are very competitive and abstract presentations at national or international meetings and publications will be very advantageous
- For doctors in senior posts contribution to research is an important measure of performance, prestige, appraised annually and can lead to salary increments through clinical excellence awards

The obstacles to doing research in non-academic clinical training jobs

- Most trainees have never taken part in undergraduate research, have no allocated time or funding to consider such opportunities as a postgraduate, and have no designated research supervision

- Trainees have lots of competing interests and commitments

- Most trainees don't know how to get involved with research or who to ask about research opportunities

Research opportunities can sometimes fall into your lap – being in the right place at the right time…

Seize the opportunity yourselves!

Types of research

- Case report or case series
- Narrative review
- Original article
  - Randomised clinical trials
  - Studies of diagnostic accuracy
  - Observational studies (cohort, case-control, or cross-sectional designs)
  - Genetic association studies
  - Systematic reviews and meta-analyses
- Letter to the editor
- Medical image

What makes a good research project?

- A question that matters:
  - Does anybody care about this and is there any point asking it in the first place?
- A question that is important:
  - Will people gain from this question being answered?
- A question that is relevant:
  - Not just a fishing expedition or data dredging
- A question that doesn't have a clear answer
  - Has the question already been answered?
  - Is the answer still valid?
  - Is there confusion with existing answers?
- A question that **can** be answered

Example: Are South Asians who receive a kidney transplant at higher risk for post-transplant diabetes?

- *Why does it matter?*
  - Locally: A third of our end-stage kidney disease population
  - Nationally: The largest minority ethnic group
  - Internationally: A quarter of global population
- *Why is it important?*
  - *Post-transplant diabetes is common and associated with poor outcomes*
- *Why is it relevant?*
  - *South Asians have higher risk for type 2 diabetes – is it the same for post-transplant diabetes?*
- *Is there a clear answer already?*
  - *Dooldeniya and colleagues (AJT 2006) suggests South Asians are at higher risk*
  - *Prasad and colleagues (CJASN 2009) suggests South Asians not at higher risk*
- *Can it be answered?*

Transplant International

ORIGINAL ARTICLE

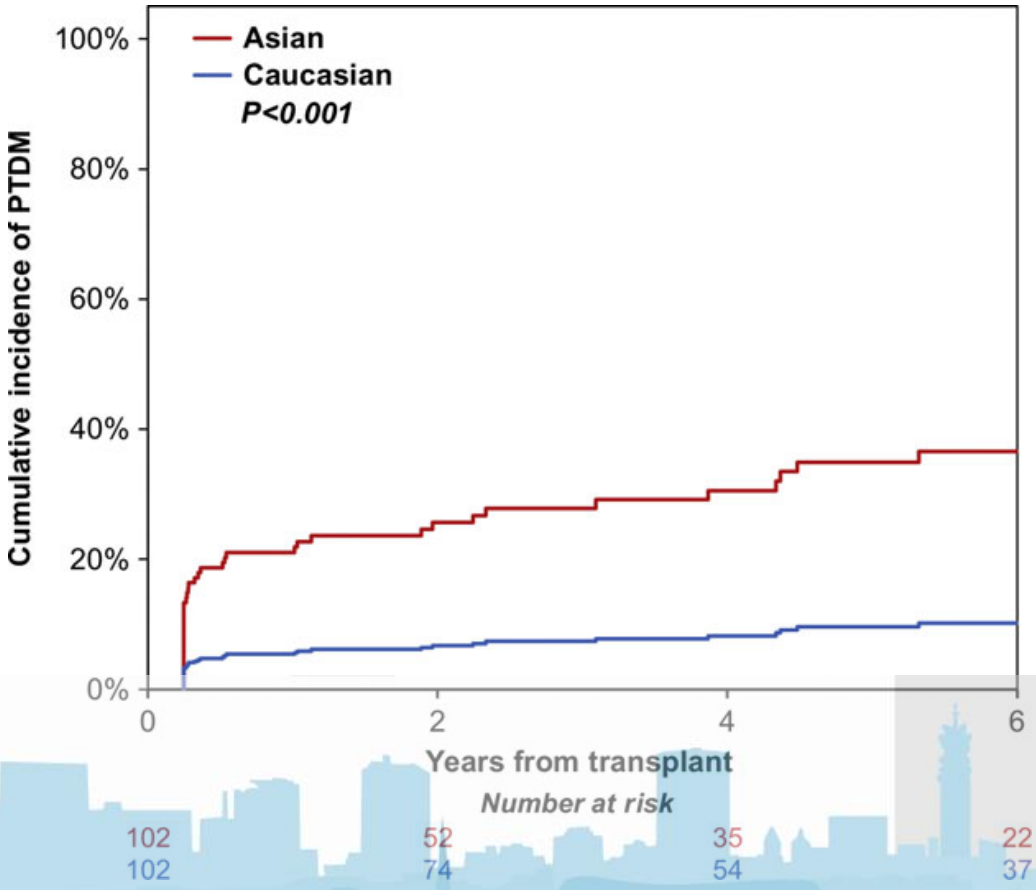
Risk of post-transplantation diabetes mellitus is greater in South Asian versus Caucasian kidney allograft recipients

Javeria Peracha[1], Jay Nath[1,2], Andrew Ready[1], Sanna Tahir[2], Krishan Parekh[2], James Hodson[3], Charles J. Ferro[1], Richard Borrows[1] & Adnan Sharif

CT1 trainee

ST trainee

Medical students



Peracha et al. Transplant Int 2016

Getting published

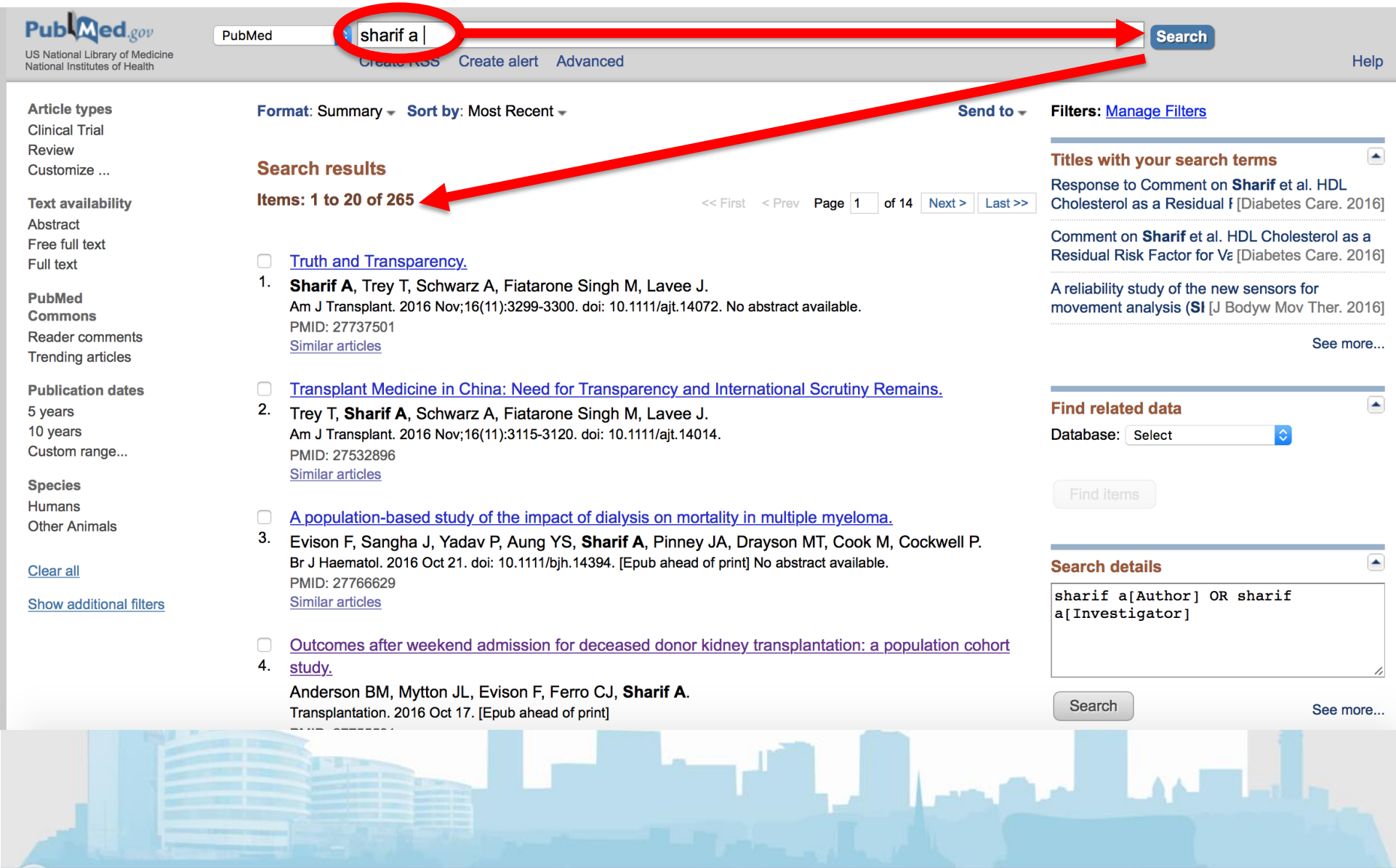
Select your project carefully

- When choosing a project make sure it is:
  - Something you are actually interested in
  - Will be fun and enjoyable
  - With a supervisor you will get on well with and who has the right credentials
    - This will help improve your educational experience and maximize your chances of completing your project

Have I got the right supervisor?

- Track record
  - What is their research experience, and what and where have they published?
  - Are they currently supervising other students or postdoctoral researchers?
  - Have previous students completed their projects and successfully obtained presentations or publications?
- Availability
  - Do they have time to adequately supervise the student? (this may be difficult for full time clinicians or research scientists who have a number of other commitments and projects)
- Working relationship
  - Can you work together?
- What are the supervisor's thoughts about ownership and authorship of any published work?

Always check credentials on Pubmed



Getting published

Think ahead

- Remember that any piece of academic work takes time (lots of it) and the period from doing the work, to writing up, submitting and having an article accepted can be very drawn out.
- That shouldn't put you off, quite the contrary, but you do have to be realistic!
- A short reflective piece that you can write yourself may take less time from inspiration to acceptance but there is still likely to be a lag period before actual publication date, so don't delay.

Getting published

Simplicity is crucial

- Some of the highest impact papers have started with a simple research question that can be easily answered
- A good publication starts with a clear research hypothesis, a statement (not a question!) that you then examine using a clear methodology.
- You are telling a story when you write a paper
- The simpler your thoughts, the easier it is to write.

Getting published

Increase your chances of success

- Write in an appropriate academic style - have someone more experienced check your writing.
- Make comparisons to other articles in the literature on the topic
- Make sure you have a message that readers would find interesting and of relevance:
  - Think about your audience
  - Make it generalizable and clinically translatable
  - Is there a wider lesson readers can take away and apply?
- Comply with the "advice to authors" on the journal websites to the letter of the law - e.g. word counts, structure, format etc.
- Do not have spelling/grammatical errors
- Get it checked, checked and checked again.

Getting published

Simplicity is crucial

- The "Introduction" sets the scene and alerts the reader to the gap in current knowledge. It should finish with a one sentence clearly stating the aim.

- The methodology (usually "Materials and Methods") describes and justifies all aspects of the study you did and why

- The "Results" must be a clear and concise description of your relevant findings using text, figures and tables. All tables and figures should be explained (but not duplicated) in the text and labelled correctly

- The "Discussion" is answering whether you achieved your aim (or not) with reference to the literature, conduct and limitations of the study. Often, discussions have what further work is needed and end with a conclusion

Writing the paper

The introduction

- Tailor the background to the audience
  - 3-4 paragraphs only
  - What's known, and what's not, about your research question
  - Don't bore readers, editors, reviewers
  - Don't boast about how much you have read
- Introduce the research question
  - State it clearly in the last paragraph of the introduction
  - Say why it matters

Writing the paper

The methods

- The most important section for informed readers
- Clearly describe:
  - Inclusion/exclusion criteria
  - Outcomes you are measuring
  - What the intervention or exposure of interest is
- Gives references for standard methods
- Follow reporting guidelines:
  - www.equator-network.org/
- Explain ethical approvals sought
- Explain your statistical methods

Writing the paper

The results

- Include basic descriptive data
- Text for story, tables for evidence, figures for highlights
- Include all confidence intervals
- Include essential summary statistics
- Leave out non-essential tables and figures
- Don't start discussion here

Writing the paper

The discussion

- Don't simply repeat the introduction

- A rough format should include the following:
  - Statement of principal findings
  - Strengths and weaknesses of the study
  - Strengths and weaknesses in relation to other studies (especially systematic reviews), and key differences
  - Meaning of the study: possible mechanisms and implications for clinicians or policymakers
  - Unanswered questions and future research
  - Final concluding paragraph

- Don't ramble on – keep it succinct to 5-6 paragraphs

Tips and guidance

- Show eagerness to do research in your jobs
- Look for any opportunity to undertake research
  - Ask your clinical or educational supervisor for any research opportunities they can offer
  - Ask other research-minded consultants within the department about any research opportunities
  - Think about whether you can maximize your clinical audit and consider writing up for publication
- Brace yourself for frustration when your abstracts/manuscripts get rejected

Perseverance is key

Any questions?

adnan.sharif@uhb.nhs.uk