Plant a Seed Series

INSPIRE | EDUCATE | MOTIVATE

Annie Baldwin; Lior Saad; Nadin Hawwash

Plant a Seed Conference Talk 1

- *INSPIRE* –

Lior Saad, Annie Baldwin & Nadin Hawwash

Plant a Seed Series
INSPIRE | EDUCATE | MOTIVATE

History of Heart Surgery

- Heart Surgery started in the early 1900s as surgeons became more confident with operating
- It was one of the **last organs** to be operated on as it had to beat to **keep the patient alive**
- Advances in keeping the patient alive during operations allowed the heart to be operated on
- **WW2** lead to **huge improvements** in surgical technique

- ***Viven Thomas*** was one of the **founding fathers** of cardiac surgery without ever operating on a human!
- He faced **racism** and **discrimination** throughout his career
- One of the most common operations now done is a ***heart transplant***

What is a Heart Transplant?

- ☐ Removing the heart
- ☐ Replacing the heart with a new heart from a different person
- ☐ Mending an issue with the heart
- ☐ Giving the patient medication to treat the heart

ANSWER: Replacing the heart with a new heart from a different person

Vaccines

- Most patients after heart surgery (and any other surgery) need **vaccines** to **prevent developing harmful diseases** as their body is weakened by the surgery
- **Edward Jenner** was an English doctor and scientist to discovered how to vaccinate people
- He realised that milk maids didn't seem to be affected by **small pox**, an extremely deadly disease, as they had been infected by another very similar disease – **cow pox**.
- This lead him to develop vaccines as he realised that being infected by something meant your immune system **remembered that disease** for the future

What is a vaccine?

- ☐ A medication to get rid of a disease
- ☐ A procedure to treat a patient
- ☐ A medication to prepare the body for a future infection
- ☐ A medication to make the patient feel better

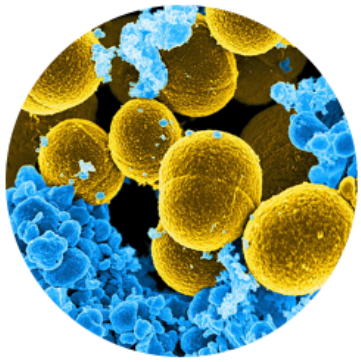
ANSWER: A medication to prepare the body for a future infection

Small Pox

- One of the **most deadly diseases** in human history
- Affect famous people like **Queen Elizabeth I**
- Edward Jenner was able to **stop people getting it** by infecting them with a very weak condition called **cow pox** that was similar to small pox
- This allowed the body to be **prepared** and **fight off any future infections** of small pox
- After a **worldwide effort**, small pox was **completely eradicated** in the entire world in the **1980's** after the last case at the University of Birmingham
- It is the **only disease** every to be eliminated by humans!

Antibiotics

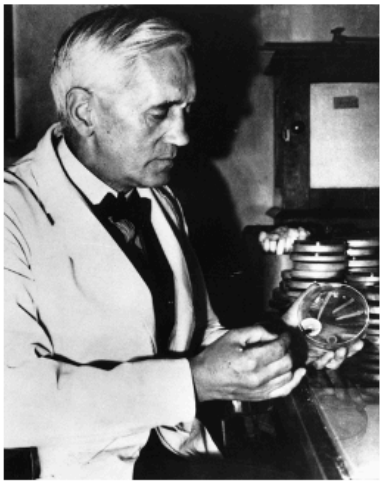
- One of the **main problems** after surgery is **infections** especially caused by **bacteria**
- Bacteria are **small organisms** that are able to infect the body and operations make it easy for the bacteria to enter and cause issues.
- To treat these infections we give **antibiotics**



How was the FIRST antibiotic discovered

- ☐ In a Lab
- ☐ On some bread
- ☐ In a deep cave
- ☐ In the soil

ANSWER: On some bread



Discovery of antibiotics

- **Alexander Flemming** discovered penicillin, the first antibiotic, on a bit of bread!
- Antibiotics have completely **revolutionised** modern medicine…. But issues remain…….
- Bacteria are able to **develop resistance** to antibiotics and now we are facing problems with some diseases **not being able to be treated** anymore as effectively
- So scientists are looking at **unexpected places** for **new antibiotics** where they haven't looked before such as in the **soil**, in **deep caves** and in **labs**!

Plant a Seed Series

INSPIRE | EDUCATE | MOTIVATE

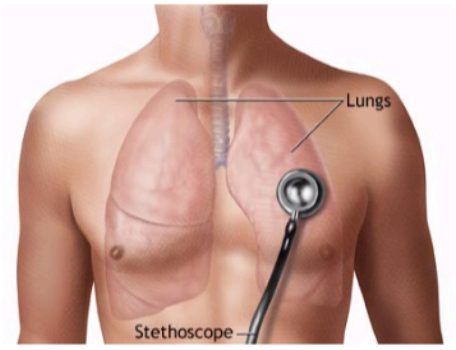
Educate – what are we going to learn today?

- Medicine is an achievable and realistic career option
- Diagnosing patients is an interesting and exciting way of thinking
- Through learning some basic science, we can understand how diseases and treatments work

Firstly, we are going to work through a medical case:

- An 11 year old male has come to see his GP
- He has just started high school and plays for his local youth football team in his spare time
- He has noticed that when the weather is cold and after he plays sport his chest can feel tight and he feels wheezy

What are your initial thoughts?

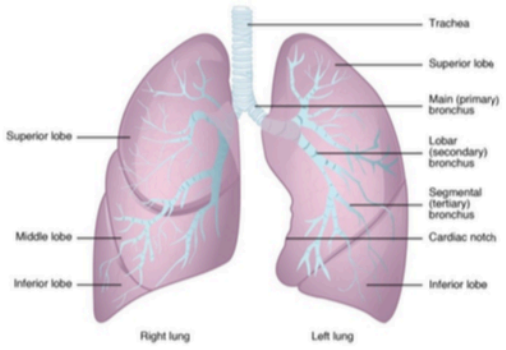


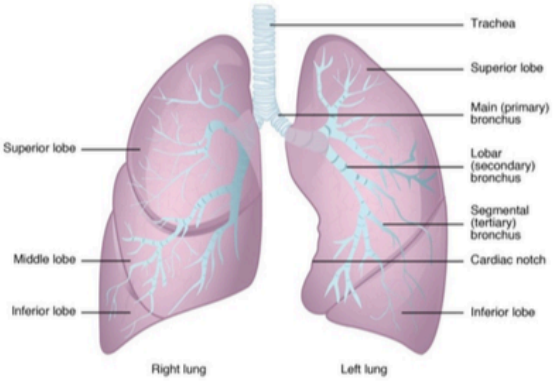
What do we want to do next?

- We need to listen to the patient's chest using a stethoscope
- When the GP listens to the boy's chest, they hear a wheeze
- If you have access to YouTube, try and search for 'Wheeze' and listen to what the GP will be hearing

What do we know about how the lungs work?

- Our lungs allow us to breath air in and out
- They are made up of lots of tubes, which get progressively smaller
- These tubes carry the air from our windpipe all through the lung tissue and eventually oxygen is passed into the blood, which we need to survive



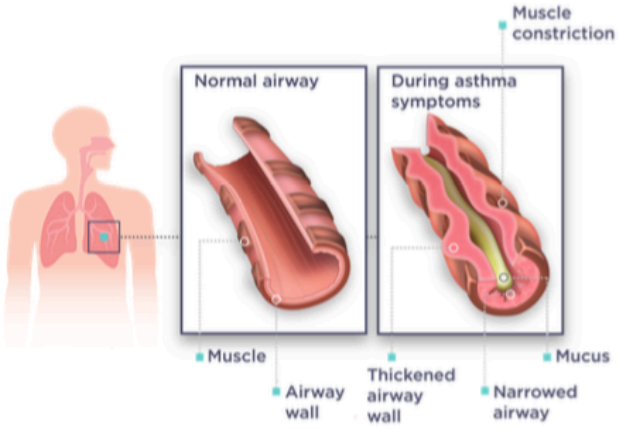


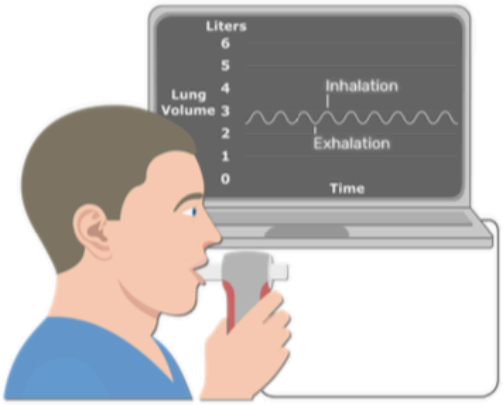
Our patient has suspected asthma…

- Given what we have just learnt about the structure and function of the lungs, what do you think might be happening in the lungs of a patient with asthma?
- Clue…consider the function of the tubes…

What is asthma?

- In asthma, the small tubes (or airways) that allow us to breath in and out get smaller
- They can become thicker, narrower and can be full of mucus
- This can make it difficult to breathe



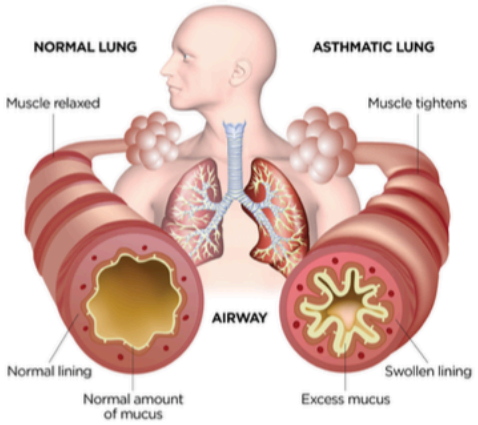


How can we diagnose asthma?

- As well as taking a good history, we want to see how well our patient can breathe in and out
- Someone with asthma cannot blow air out as quickly as someone without asthma
- We can test this using spirometry, which detects how quickly a person exhales and how much air they blow out
- Imagine you had two tubes and you passed water through them – if one tube was narrower than the other, air would pass more slowly through the narrower tube

What treatment?

- What do we use to treat asthma?
- We know the airways in asthma are too narrow – what are we trying to achieve with treatment?



Asthma treatment:

- The mainstay of asthma treatment is inhalers
- The blue inhaler helps to make the tubes/airway less narrow
- The brown inhaler contains a steroid that helps to reduce inflammation
- As you can see the treatments try to counteract what the asthma is doing to the lungs – i.e., the airways are narrowed in asthma, therefore the treatments try to make them larger

Conclusion:

- Most of medicine follows simple rules, which are demonstrated in this case
- Diagnosing and treating patients is like solving a case – you have to find out as much information as possible from the patient's history, from examining the patient and from doing tests
- By understanding how the body works, we can understand how diseases work and then treat them

PLANT A SEED SERIES

MOTIVATE

Presenter: Nadin Hawwash

Plant a Seed Series
INSPIRE | EDUCATE | MOTIVATE

Day in the life video: https://youtu.be/34vpeqNao0E

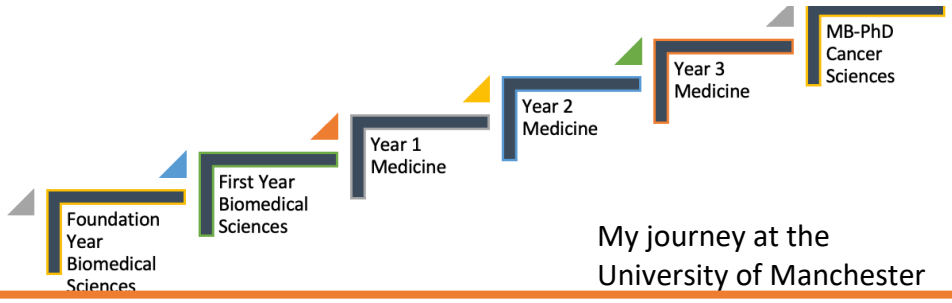
Activity: Writing to your future self

- Write down 5 things you aspire to do or become in the future and fold this up and place in your envelope.

My journey through higher education

My A-levels:

- Biology
- Chemistry
- Physics
- Arabic
- EPQ – Thalassemia



My journey at the University of Manchester

ABOUT ME

-Since the age of 9, I have been a keen fundraiser to support Cancer Charities such as Cancer Research UK.
- I completed foundation and first year Biomedical Sciences
- I transferred to Medicine and completed years 1-3.
- I am taking 3 years out of medicine to complete a postgraduate degree (MB-PhD) in Cancer Sciences funded by Cancer Research UK: Clinical Academic Training Programme

Who do I want to become in the future: A surgeon and clinician scientist.

DOCTOR RESEARCHER SURGEON

What you learn in Medicine?

- How to communicate with patients.
- How the human body works.
- Anatomy of the human body.
- Different illness and how to treat them.
- How to examine patients.
- How to prescribe medication.

Reflection activity: What skills do you have?

Reflect on your own skills and write these down if you find this would be useful to you.

What skills does a good doctor have?

Think about the skills a good doctor would have and write these down.
Do you think you have similar skills?

Top tips for studying and motivation

- Make a list of tasks to do at the start of each week
- Create a study timetable
- Make summary notes
- Quiz yourself
- Teach others
- Take regular breaks from studying
- Balance studying with spending time on your hobbies

Reflection Activity: reflect on the Day in the life stories and ask yourself if you are interested in studying medicine?

The pathway to Medicine *will incorporate the following:*

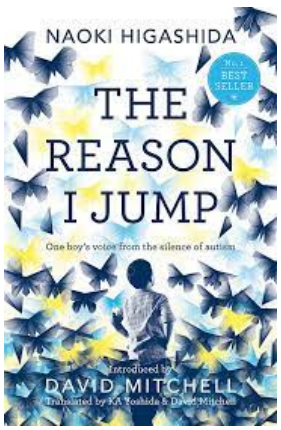
- Work experience in a hospital/GP/pharmacy/care home
- Volunteering regularly– care home/ charity shops
- Fundraising
- Speaking to medical students
- Speak to clinicians and healthcare staff.
- Keep a diary
- Review the options at medical schools - www.ucas.com

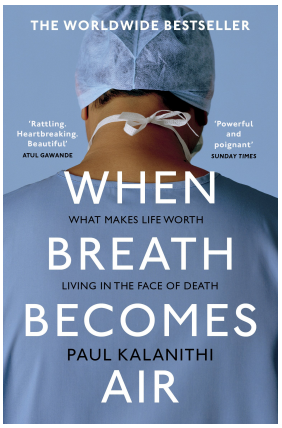
Road to Becoming A Doctor

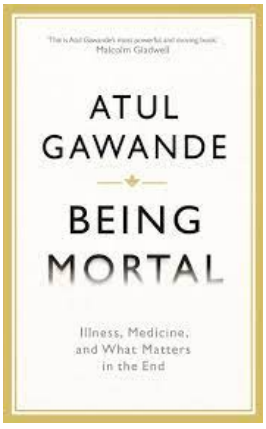
HIGH SCHOOL → COLLEGE → MEDICAL SCHOOL → FOUNDATION YEAR DOCTOR → SPECIALTY TRAINING

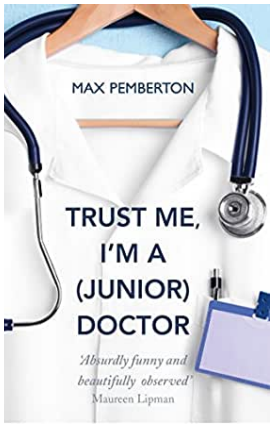
Books you can read if interested in Medicine

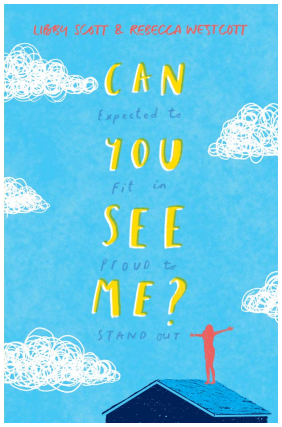
- The reason I jump
- Can you see me?
- Trust me I'm a (junior) doctor
- When breath becomes air
- Being mortal











University of Manchester Medical School Entry requirements 2020

- GCSE subjects
  - 7 subjects at Grade A/A* (7/8 in new grading)
  - English Language, Maths and at least two science subjects at minimum grade B (6)
- 3 A-levels and evidence of a commitment towards achieving a broad and balanced education (eg 4 A-levels, studying an additional AS subject of BTEC in addition to 3 main subjects)
- A-level: Chemistry or Biology plus one other science (chemistry, maths, physics, psychology or biology) & one other academic subject at A level at grade AAA.

What does a good applicant have?

- Motivation
- Hands-on caring work experience
- Strong academic background
- Have you got the right temperament?
- Interests/hobbies

UCAT

- University Clinical Aptitude Test: https://www.ucat.ac.uk/
- Only valid for one year
- The test does not contain any curriculum nor any science content.
- Bursaries available.
- Tests your ability to solve problems, learn new skills, analyze data, apply information, and think critically.
- https://www.bmh.manchester.ac.uk/study/medicine/apply/ucat/

If you have any questions on the Medical School's admission process or on academic requirements please see the Medical School's website
https://www.bmh.manchester.ac.uk/medicine/
or contact ug.medicine@manchester.ac.uk Tel: 0161 306 0211

Widening Participation programmes

- Manchester Access Programme (aged 16 or over): http://www.manchester.ac.uk/study/undergraduate/aspiring-students/map/
- For inspiration: watch the #IMADEIT– But I'm not a typical medical student series https://www.youtube.com/watch?v=w0eKdPuXn4E

Day in the life series video 2

Plant a Seed Series
INSPIRE | EDUCATE | MOTIVATE