

ACADEMIC YEAR 2016/17

MEDSAINT

THE THERAPEUTIC
POWER OF MUSIC

SO YOU THINK YOU CAN
TAKE THE USMLE?

ZIKA - WHY YOU
SHOULD CARE

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PARKIN'S SHOPPING LIST

A CONVERSATION WITH PROF PARKIN

**"Always laugh when you can.
It is cheap medicine"...**

Lord Byron

A WORD FROM THE PRESIDENT:

Medics (and anyone else who happens upon this journal),

You have entered the very first page of the very first issue of MedSaint... Thank you for getting this far!

MedSaint has been the work of a very special group of people (photo op available on the back page to see their beautiful faces) and your own contributions. So the first order of business is to thank them for their hard work during a very busy semester. To create this very small booklet took a large amount of work, and I am forever thankful for their dedication.

If you continue further, you'll find an assortment of research articles, interviews and some top tips for surviving (and enjoying) your careers, which begin right here in St. Andrews. There's so much medicine has to offer, and we want to help you find it (with some general banter along the way).

It's our first go, and we're looking forward to getting better and better, so feel free to let me know how we got on, and how to improve next semester.

Thank you, and much love,
Katherine x

P.S. you can find us at medsaint.com



...AND FROM EDITOR IN CHIEF

Thank you for picking up our first MedSaint publication of the year! We writers truly hope that you enjoy your experience and find the articles both humorous and helpful. As Editor, I could not be prouder of the writers and publishers for being able to create such wonderful content and for being so dedicated.

Of course, we could not have completed anything were it not for the rest of our organization, so thank you to everyone who had a part to play in the creation of our student journal. And special thanks to our fierce president, Katherine Donald, for just being so amazing and supportive.

Please check out our official website, MedSaint.com, as some of the articles do have further online content and links that may be of use, and please remember that absolutely anyone can contribute to our journal. Email your articles and suggestions to medsaint1@gmail.com! I look forward to reading them

Thank you again!

~ Meena xo





A Day in the Life of the BMS President

By Tom Liney



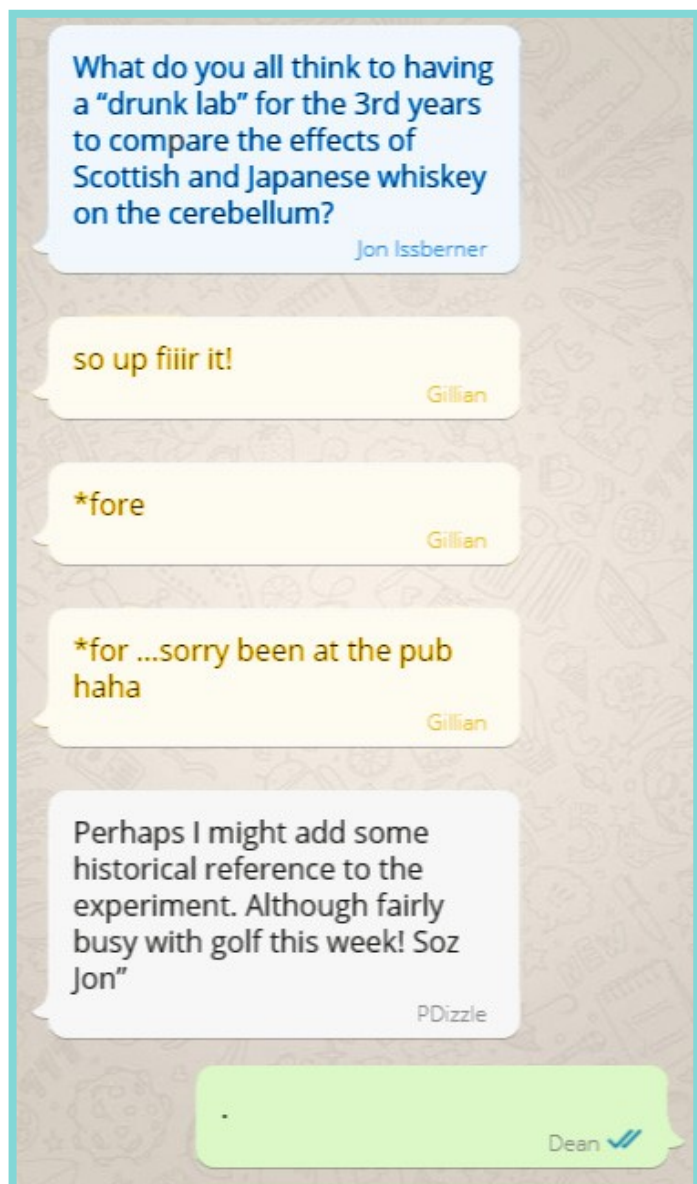
Alexander Hamilton. My name is Alexander Hamilton rings through the 7am alarm. After plucking the cat hairs from my pillow, I cozy up in my pink fluffy dressing gown to read through my morning harassment of messages – today’s list has my “group chat” with Jon (Dr Issberner to you), my best friend and confidante AKA the Dean (ha.), Prof Pdizzle (the old bloke who’s a bit like Attenborough) and of course the one sherry Gillian (goddess of dissection).

Late to the 9am again because of crawling through a bush trying to coax Princess Tripod into a cuddle - cats are my thing, if you weren’t aware. I’m a very busy person so I spend a lot of the lecture turning different anatomical diagrams into animals on snapchat – who knew brains were so akin to sleeping cats? The Dean keeps on replying to my cheese and wine invitations with BMJ articles on alcoholism, so I end the latest email with a sassy Game of Thrones gif- gotta keep up with the times. I waltz into the BMS room aka my oval office and take centre stage, ready to deliver orders to my army of Buties and get caught up with the latest gossip - which first year has Ben Fox slept with this week? Who was caught stealing feet from the dissection room? I snap at the new first year reps for not rehearsing their massage skills; I need to feel good for my page 3 photo-shoot for MedSaint this evening!

My afternoon consists of making sure all the messages on the Bute Facebook account have been responded to - one keen fresher has messaged at 2am to say “Hey, everything’s ok xx”. Of course I reply with “So glad- here anytime xx” - I pride myself in being approachable.

Now time for my 4pm triple shot espresso and a good chat with Jane and Denise - aka the coffee counsellors; dealing with medical student sighs and moans since 2010. Message from Jon to say the cerebellum practical is under ethical review - great news. The final part of my day consists of soulmate stalking - I’ve heard about a mysterious fresher who owns a doughnut backpack, and I have a feeling Fisher & Donaldson will give us a great deal on a couple of fudge doughnuts.

Got to go - Princess Tripod has been spotted by the pier on “Overheard in St Andrews.”



I send a gif of a panda rolling around farting and leave the house.

*None of the above is accurate nor written by Ellena Cotton



So you think you can take the USMLE?

By Meena Nayagam



If you are considering sitting the United States Medical Licensing Examination (USMLE), it can be difficult to know where to start. There is a lot of conflicting information out there, and we medical students do not make this Herculean task any easier for ourselves, with all of our stressing and frantic Googling. But fear not, for MedSaint is here to help! Here are the basic steps you need to take in order to ace the USMLE:

1. Figure out whether you really want to go to America.

The USMLE (all three steps!) is a very heavy exam, and it should not be taken lightly. Before even deciding whether to take the exam, it is important to understand the US medical field within the context of American health policy. The most glaring difference is that doctors in the US are paid by insurance companies, and therefore, many hospitals have policies where they are not allowed to treat or maintain care for patients who may very well need long term or sustained care. That being said, there are a growing number of so-called "charity hospitals" that do not require patients to present with insurance - however many of these institutions are supported by a specific theology, such as the Catholic Church, and thus do not allow the provision of certain treatments (i.e. abortions, contraception, etc.) even when medically relevant and potentially life saving.

Keeping that in mind, the good news is that many hospitals in the US have amazing facilities, and doctors are usually paid much more than they would be in the UK. You will certainly

be able to afford that extravagant Italy vacation you've been dreaming about since forever <3

America is also a vast country, full of rich and diverse populations - it is important to have an idea of where in the US you would like to go and to research what specialties are available in this area. For example, the more rural parts of the country, such as small towns in Idaho, have a number of placements for potential residents without having a high-cost of living. On the other hand, the cities offer better prospects for those of us who would like to specialize in emergency medicine or would prefer a busier atmosphere.

So in short - figure out if American culture is right for you and where you'd like to settle.

2. Understand what the USMLE actually entails.

Here is the brief overview: You spend about a solid month (at least) excusing yourself from life to just stare at medical info and clinical cases only to move onto staring at a computer screen for eight hours when taking Step 1 of the exam. Eventually you move onto Step 2, which actually has two parts - CK and CS. The first tests clinical knowledge and is a nine hour, multiple choice exam. The second is for clinical skills and involves twelve 15-min patient encounters, so basically an OSCE on steroids. After these three exams, you then take Step 3 - the final step!! This portion is actually spread out over the course of two days but both test

your ability to diagnose and treat patients with both basic and complicated histories. The exam itself is a mix of multiple choice questions and case situations - so think Sanjay with his meningitis but much, much harder.

The more in-depth look: would be too lengthy to fit here see the links provided on the online version of this article

There are some key pointers you need to keep in mind for successfully planning and completing each of the steps. Most residency programs in America will require you to have taken (and passed, duh) Step 1 of the exam, but be very careful because you will be ranked by your Step 1 score and will not be able to retake the exam for another seven years if you have passed. Therefore, it is technically better to actually fail rather than just barely scrape a passing mark.

Most medical students do not take Step 2 CK or CS until they have begun or even finished their residency so do not panic - you have years until you will be comfortable handling the type of diagnostic knowledge this section requires.

Lastly, you must pass Step 1, Step 2 CK and Step 2 CS before attempting Step 3, which the vast majority of doctors complete after finishing their two years of residency.

So... piece of cake, right? I kid - I'm petrified as well.



3. Make a calendar.

As someone who compulsively details every aspect of their life, I understand the value of a good, thought-out plan. Most people recommend anywhere from one to three months of solid, dedicated studying but feel free to increase or decrease this as you see fit.

Also, if you're like me and never seem to have four weeks to focus wholly on one thing, it may be best to stretch out that study calendar to something like six months or even a full year - that way, you can squeeze in a few hours each day in the midst of the rest of your life.

Lastly, I would suggest covering each subject area twice, just to make sure you've covered all the necessary subsections.

4. Get to it.

After forming the full calendar, there is nothing left to do but to get studying. Form your playlists, gather your study snacks and surround yourself with whatever else you need to stay focused and sane. What I also like to do when prepping for a big exam is to set "checkpoints" for myself every week where I quiz myself on the things that I should know by then.

A major part of getting ready to take the USMLE is choosing your study tools - there are a wide range of books and online courses available, but the sad truth is that most also are quite expensive. One book that I would highly recommend is "First Aid for the USMLE Step 1".



5 Don't be afraid to ask for help.

The USMLE is tough, and it's okay and completely normal to feel utterly overwhelmed at times - just take a deep breath, remind yourself of all of the reasons why you wanted to take the exam in the first place, and begin again.

In addition to trying to maintain your sanity, feel free to talk to your fellow students and ask for help. I know that medicine is a highly competitive field and it feels like by studying together we're somehow sharing trade secrets or hindering our own success, but group study sessions have been proven to be more effective at helping you retain information.

The best way to do this is to assign each group member a specific topic and have them teach it to the rest of you. It's more interactive than just reviewing old lecture notes, and you feel less alone.

6. Housekeeping Info

As international medical students, we need an ECFMG Certification, which basically says that we are enrolled at an accredited institution and are thus eligible for taking the USMLE. You must do this before registering for the exam (link also online).

After this, register for the exam well in advance and keep in mind that you will have to pay to sit it. You can apply to take the USMLE up to six months before the test date.

With that in mind, give yourself enough time to properly prepare - remember you really only have one shot at this. If you do decide that you are not ready to take the exam but have already registered, you are allowed to postpone once but at a slight monetary cost to you.

Finally, don't panic - I know this is a lot, but you can do this. Just remember, if thousands before us have taken the USMLE and succeeded, why not us?

I hope this article has been of use to you, and best of luck with this monstrosity of an exam!

Important Links

ECFMG Certification:

<http://www.ecfm.org/2017ib/application-ecfm-certification.html>

Fees for the USMLE:

<http://www.ecfm.org/fees/index.html>

USMLE site:

<http://www.usmle.org>

Step 1:

<http://www.usmle.org/step-1/>

Step 2 CK:

<http://www.usmle.org/step-2-ck/>

Step 2 CS:

<http://www.usmle.org/step-2-cs/#format>

Step 3:

<http://www.usmle.org/step-3/>



Solving Mathematical Problems: Nature or Nurture?

By Lucie O'Donnell



We are shaped by new experiences every day of our lives, like getting near the end of pub crawl and discovering that, although a good idea at first, tequila is not your friend. However how do experiences shape the way we process information? By looking at how processing visual information shapes the way we solve mathematical problems, researchers Kanjila, Lane and Bedny from the Johns Hopkins University in Baltimore, MD aimed to answer this question.

When we solve mathematical problems, we use the frontoparietal lobe of our brain. A key part of this system is the intraparietal sulcus (IPS). The IPS is used to estimate quantity, such as how many biscuits are in a tin. The parietal lobe has several roles in visuospatial processing - for example, in directing hand to eye movements - and enables us to visualise objects or numbers in our mind when solving problems. However, the IPS is also shown to function when estimating numbers without using sight, like knowing the number of rings coming through on a mobile phone. Since the IPS is linked to solving problems with or without the input of visual information, the researchers aimed to understand whether the same regions of the brain are used to solve mathematical problems in blind and non-blind people and whether this process is shaped by nature or nurture.

The researchers asked non-blind and congenitally blind participants to solve a simple maths problem such as $27-12 = X$, along with a language control. The areas of the participants' brains that were functioning while being questioned were shown using function magnetic resonance imaging (fMRI).

The researchers found blind participants still used the IPS for solving maths problems, demonstrating that this part of the brain is used regardless of whether conscious processing of visual information is simultaneously occurring. This indicates that the role of the IPS in solving problems does not rely on visual information. However, the study showed blind participants used regions of the visual cortex, such as the middle occipital gyri (MOG). In non-blind people, these areas

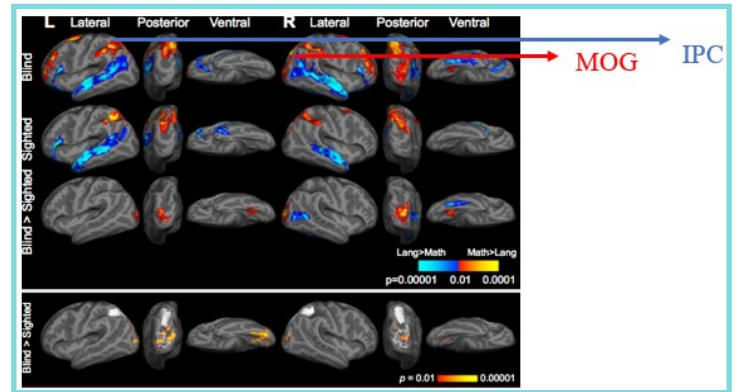


Figure 1: Summary of the fMRI data obtained

are used to perceive movement. The fMRI not only showed that these areas were active in blind participants but that their activity increased with increasing difficulty of the mathematical problems.

This shows the regions of the brain active for maths and the language control and the areas of the brain which were more in blind participants than sighted participants. Areas of the brain which were functioning during the language control are shown in blue, whereas areas of the brain active during the maths questions are shown in red. The figure shows different areas of the brain are used to process maths and language.

This research shows that even though the IPS is a conserved part of how solve maths problems experience can change the way our brain works. Future implications for this research possibly lie in whether visual cortices are used in people who have only been blind for a certain amount of time i.e. whether the brain adapts to use these regions or whether they are only used when the participant has no experience of sight.

Reference

Kanjila S., Lane C., Bedny., 2016. Absence of visual experience modifies the neural basis of numerical thinking, *Proceedings of the National Academy of Sciences of the United States of America*, 113(40), pp.1172-1177



Zika - Why you should care

By Sian Venables



Once thought to be a relatively mild mannered virus, Zika's role in the development of severe foetal abnormalities has put it firmly on the public's radar. With an epicentre in Brazil it has spread to over 40 countries, upsetting the Olympic games in Rio and causing a national outcry in the US when it required funding to be siphoned from the Affordable Care Act. Hurdles to its eradication arise because of its subtle symptoms and ease of transmission. Whether through targeting mosquitos or developing vaccines, there will be no single solution to quashing the Zika epidemic.

The WHO recently classed the outbreak as a "public-health emergency of international concern.". Identified in Uganda in 1947, there had been only 14 documented cases of the virus until 2007, when the first epidemic swept through the Pacific Islands. It cropped up again in 2013 in French Polynesia before the latest outbreak in Brazil was postulated to have links to an infected traveller to the World Cup in Rio, 2014.

The virus itself manifests predominantly in *Aedes* mosquitos. Though bites from the infected insects are believed to be the commonest route of transmission, spread can also occur through sex, blood transfusions and, to devastating effect, from mother to child. Because the virus can be so harmless, asymptomatic carriers are hard to identify, making upsetting transmission a daunting task. In the French Polynesian out-break, blood banks were thrown into a frenzy; with testing for Zika not previously standard, the CDC reported that '2.8% of blood donors tested positive'.

Zika's spectrum of effects is seen in its most extreme form in pregnant women. Infections acquired in the first trimester are associated with the worst outcomes for developing children, so the challenge lies in rapidly

identifying these cases. Generally presenting with only a rash, fever, joint pain and conjunctivitis, expectant mothers and hurried health care workers often attribute symptoms of the viral infection to pregnancy hormones.

'Mounting evidence from many studies' links maternal Zika infection to the development of severe foetal microcephaly, states the CDC. The virus was identified both in the brains of miscarried micro-cephalic children and in the amniotic fluid of infected mothers (Calvet et al. 2016) It is thought to cause the disorder by proliferating in, and therefore damaging, cortical neural progenitor cells (which go on to form cortex) so is especially damaging to vulnerable, developing brains (Tang et al. 2016).

Though the effects of Zika have mainly been publicised as harmful to developing foetuses, more evidence is building to highlight negative outcomes of infection in children and mature adults. Presence of the virus is now described as a causal factor in the development of the autoimmune disorder Guillain-Barré (Cao-Lormeau et al. 2016). The condition is usually temporary, characterised by the body attacking its own nerves it presents with peripheral muscle wasting and paralysis. Occasionally it affects muscles that control breathing, a consequence that can prove fatal.

Cases of acute inflammation of the brain and spinal cord are also being examined as having a possible link to Zika infection. The development of these conditions means that neurologists will be key players in the fight against the virus, though they are in short supply in some of the worst affected areas.

The virus' spread has given rise to discussion of a taboo ethical dilemma in many of the worst hit countries where abortions are illegal. A case example is Brazil, where



abortion is outlawed except in circumstances of rape, health emergencies or anencephaly. Activists are campaigning for laws to be loosened where Zika is a concern, after an 108% spike in online orders of pregnancy terminating pills in affected areas (Aiken et al. 2016).

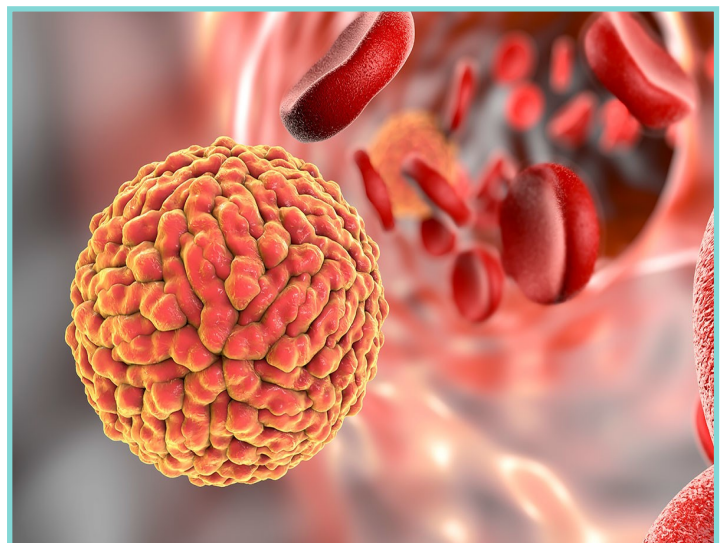
This surge in demand for abortions is suspected to be underestimated, as some women in helpless situations resort to unsafe, underground terminations. The task of caring for a severely disabled child is realised as emotionally and often economically unfeasible for many living in already deprived circumstances. The epidemic is not set to die down any time soon, so providing access to safe abortions is an issue that needs to be addressed with an open mind by governments and religious leaders alike, if we are to protect affected women from the social and often fatal consequences of illegal abortions.

With a tried and tested vaccine years from completion, swift reactions to tackling Zika are predominantly focussing on thwarting transmission. Compliance with public health advice about abstinence in pregnancy and avoiding unprotected sex, as well as covering up to avoid mosquito bites at dusk and dawn, are key to keeping infection rates low. A pioneering \$18 million project is currently on the go, with intent to release “mutant mosquitos” infected with Wolbachia bacteria into the worst affected areas of Brazil. The bacteria has been reported to transform *Aedes aegypti* mosquitoes, making them ‘highly resistant’ to two forms of Zika virus, to the extent that they no longer harbour the virus in their saliva (Dutra et al. 2016).

The spread of Zika is likely to be exacerbated by a rise in global temperatures and the unstoppable force of globalisation. With ever more interconnected societies comes a shared responsibility to address the ethical dilemmas and financial burdens of treating infectious diseases. How we handle this outbreak will set a precedent for the inevitable onslaught of epidemics that will come from rising anti-biotic resistance. Zika’s devastating effects can and will be thwarted, but how much pressure is put on governments to treat it as a priority will determine how quickly the battle is won.

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The Therapeutic Power of Music

By Sarah Alexis Gritis



Music is everywhere and anyone who has played *Deep Purple* during a party can attest to the song's transformative powers. Whether its rock, classical, or jazz, it's no surprise that we spend an estimated 13 years over the course of our lives listening to our favourite tunes - after all, the mental and physiological benefits of music are quite amazing.

So what happens to us biologically when we listen to music? When you listen to a song the whole brain is activated, especially the prefrontal cortex areas that deal with attention, motivation, interpretation, and memory. Once our auditory system processes the sound, a cascade of signals reach a deep part of the brain called the limbic system, which is a complex network of nerves concerned with instinct, mood, and emotional response. A hormone called dopamine is released in the striatum that improves mood, but there is also a decrease in the production of cortisol, a stress hormone (Archana and Mukilan, 2016). The result is a greater sense of serenity and well-being as the musical rhythms help to regulate breathing and heart-rate variability (Zatorre and Salimpoor, 2013).

Because most of us grew up listening to our favorite tunes, music also has strong ties to our autobiographical memories. Listening to a song from a person's early adult years can invoke a strong emotional response. As the sound is processed it also primes the motor areas of the brain, which explains why a favorite song has the ability to makes us want to dance to the music. Remarkably when others also move in-sync to the music the benefits are compounded even further, creating a sense of safety, relaxation, and social belonging that helps to reduce anxiety (Trainor, 2016). On the heels of a Cleveland Clinic study that determined that music helps to lower depression rates, and a 2012 Tokyo study that concluded that music improves patient outcomes, it's no wonder that music therapy is being more widely used after surgery to help patients feel better and to improve recovery times (Konnikova, 2013).

The rhythm and synchronization provided by music also help with many disorders. For example, the rhythmic synchronization of music helps people with dyslexia to process the rhythmic patterns of syllables as they unfold. In addition, music is also being increasingly used with older patients suffering from Alzheimer's, Dementia, and Parkinson's to stimulate neuron connections, cognition, and memory (Konnikova, 2013).

In closing, the medical world has come a long way in using the therapeutic power of music. The effects on patients is astounding, and the future looks bright as the use of this rich neuroplasticity tool continues to grow in medical environments. So, whether you enjoy classical or hard rock, keep on listening - your brain and body will thank you for it.

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Summer Trip to Malawi

By Camelia Yousefpour



I am Camelia Yousefpour and a 3rd year medical student at the University of St Andrews. I am very fortunate in having had the opportunity to discover the amazing, heart-warming place that is Malawi for 5 weeks this summer. I wanted to go to Malawi for many reasons but my main goals were to discover healthcare in a third world country, what I could do for some people there and a rich, different culture. Without a doubt I can safely say Malawi ticked all of these boxes. It was definitely worth the weeks and months of planning, organising paperwork, cutting most of my hair off to fundraise money and of course, being awarded a Dorothy Miller Bursary.

After having a brief stay to get my bearings in Lilongwe, the capital city, and meeting up with a fellow St Andrews student, I moved on to my main rural base. My first four weeks were based near a roadside village not too far from Monkey Bay called Mtakataka with a local NGO called 'Malawi Volunteer Organisation'. I was warmly welcomed by volunteers and staff from the local area and gently introduced to life in Malawi.

During my stay near Mtakataka I was able to try an array of different activities. The average working day was 7.30am – 4.30pm, due to the different hours of sunlight, and its contents

varied throughout the weeks depending on number of present volunteers. I gave many different health talks to elders – all translated by a local member of staff - in different villages in the region, with topics spanning from Bilharzia to first aid demonstrations to signs of meningitis in children. It was great to see how much the locals appreciated these sessions as they asked pertinent questions and seemed very engaged when we were talking. In many of these rural areas, witchcraft and superstitions are still rife so it was important to provide some education so that locals knew when to go to hospital.

On average of three mornings a week, I went to help out at the nearest primary health centre, where I was shocked to see there was one midwife assigned to work and supervise three wards, a consultation room, an antenatal clinic and to deliver any women who turned up in labour. My fellow volunteers and I were glad to find ourselves useful and offered our services by manning the antenatal clinic after a few run throughs with the nurse who kindly translated for us. We also found that our medical knowledge was useful here as we came across several pregnant patients whose elevated blood pressure had been overlooked and promptly referred them to hospital. In this case we

offered to pay as these women were living in poverty (as, I might add, 55% of the population does) and could not afford a trip to the hospital, which cost 50p. This was obviously not sustainable but whilst I was in Malawi two German volunteers completely fixed and refurbished an old ambulance with donations they gathered from all of us at the volunteer house and by the time we left there was a viable way for these women to access the hospital without relying on volunteers paying their trips.

I was also lucky enough to partake in a new initiative lead by a fellow volunteer, which was to set up 're-usable sanitary pad' workshops in the local villages. I then became the lead when she left in my second week. Again, there was overwhelming positive feedback to these workshops as local women had been relying on rags and loose pieces of newspaper when they menstruated and many did not leave their houses. During my time in Mtakataka I also took part in wound clinics twice a week in the schools and



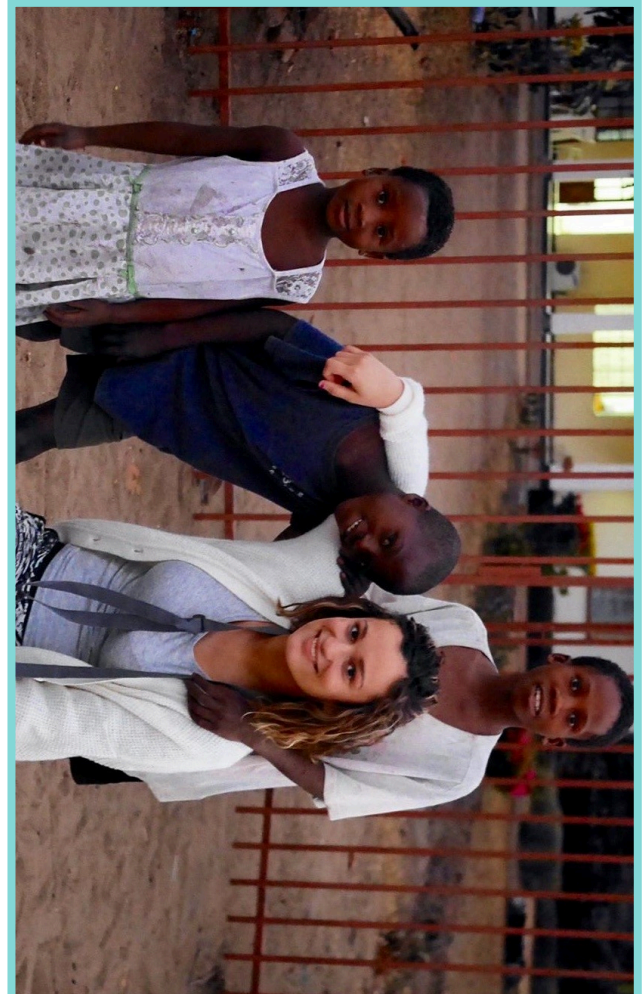


helped out in the orphanages with teaching and food distribution (provided by MVO) when there was no medical volunteering planned.

Due to the nature of the Malawian working week, there was little for us to do at weekends volunteering-wise and so we had time to visit some places in the region. Cape Maclear – a lakeside beachside village- was a strong favourite as was Liwonde National Safari Park. I also took the opportunity to get to know the children from the local village who convinced me to scramble up what I would call a mountain - they called it walking up a hill - and let me visit their local church where I took part in an animated and joyful Sunday Mass full of dancing and singing.

My last week was also very rewarding. I liased with Professor Stones, a lecturer at St Andrews who is based in Malawi most of the year, to spend a week in a town called Mangochi where myself and a friend collated data on pre-eclampsia. This was data from a PhD project Professor Stones is currently working on with the District Environmental Health Officer (DEHO) for Mangochi, looking at the link between women attending antenatal clinics in the first trimester and their subsequent likelihood of developing eclampsia. After uploading data from 102 questionnaires to the Census and Survey Processing System (CSPPro) we were able to get an idea of trends and what was going and right and wrong in the format of the study. We were also able to assist Clinical Officers in Mangochi District Hospital on the different wards, by providing them with our stethoscopes, checking vital signs, taking quick histories in Outpatients Department and reporting back information to senior Clinical Officers on ward rounds.

I cannot emphasise how glad I am that I took up this once in a lifetime experience, and I really hope I managed to give something back to the people I met whilst I was there. I would also like to thank the Dorothy Miller family once again as I would not have been able to fund the full 5 weeks volunteering without the bursary. I believe giving the opportunity to future students to go to Malawi is a venture worth sustaining for the future as it provides invaluable insight into third world healthcare and provides a welcoming and heart-warming setting to do so.





New Zealand's Medical Opportunities

By Fortis Gaba



Home to Hobbiton, bungee jumping, and, most importantly, the mighty All Blacks; New Zealand is rapidly gaining popularity - especially within the medical industry. Being one of the last major landmasses to be settled by humans, much of New Zealand's land is untouched. Its recent establishment is reflected in its low population density of 16 people/km² in comparison to England's whopping 413 people/km². Although the population is steadily increasing, its origin as a sparse country has instilled a nature-loving, easy-going culture. With a landscape that varies from lush forests, to vacant beaches, to towering mountain all within a short driving, New Zealanders thoroughly enjoy the beauty their small country offers. As a whole, New Zealand has so much to offer: good weather, glorious scenery, a reasonable cost of living and best of all plentiful job opportunities. This is why, in recent years, New Zealand has become one of the most popular destination for UK doctors.

In the past, many medical jobs in New Zealand were obtained with a phone call and a 10-minute interview. However, as a consequence of an increase in New Zealanders graduating from medical school, and an increasing number of international student graduates looking to remain in the country, competition has risen exponentially. This increase has resulted in a more structured application process, which this article will look at in detail, so you too can enjoy all New Zealand has to offer.

Who can apply?

You are eligible to apply to New Zealand jobs if you are a UK citizen and have a UK medical graduate. The positions available in the post include working as a House Surgeon or a Registrar. House Surgeons are roughly equivalent to FY2's, whereas Registrars are equivalent to CT1/ST1 and upwards.

When do I apply

Applications for House Surgeon or Registrars are in June, with interviews in July and offers given in August. House Surgeons start at the end of November while Registrars start early December.

How do I apply?

As with most things in life, preparation is crucial. New Zealand health service is divided into 20 district health boards. Therefore, job applications are not centralized but instead, individual applications must be made to each board. Since the hospital administrators receive dozens of emails a day from curious applicants, a

personal phone call may prove more effective and time-efficient.

Most District Board Applications require:

- A CV – ensure your CV is up to date and it is important to show you are competent, organized and disciplined.
- A cover letter.
- Certified copies of your degree and passport.
- Advanced life support certificates.

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Parkin's Shopping List

By Sammir Bushara



In a *MedSaint* exclusive, everyone's favourite anatomy guru shares an assorted collection of his top tips.

Prof. Parkin on...

Spaces: "...Almost all in the body are potential, just like the space reserved for you in the lecture theatre."

Nasal cavities: Always remember that the floor of the nasal cavity is horizontal. This is particularly important when inserting nasogastric tubes (inserted to feed a patient via the nasal cavity to the stomach).

Where to stab a needle: "The brachial artery and median nerve lie posterior to the median cubital vein, while the femoral artery and nerve lie lateral to the femoral vein. Is anywhere safe?"

And where not to be kicked... "The gonads and the midgut (halfway along the 2nd part of the duodenum to two-thirds of the way along the transverse colon, including the appendix) refer pain to the peri-umbilical region"

Chilli and dinner parties: "Treat incredibly strong chilli sauces with respect – they may stimulate the oesophageal plexus so much that the consequent vagal activity slows

the heart rate, drops the blood pressure and causes fainting to ruin a dinner party."

Back pain: A common complaint. However, if it's found in association with bowel and bladder dysfunction, it may be cauda equina syndrome, which describes a potentially debilitating swelling of the nerves at the end of the spinal cord. This is an emergency "which demands immediate referral for surgical assessment."

Planes and sections: "Although the cadaver is your teacher, you will study sagittal, coronal and transverse sections as a doctor."

Fascia: friends... "[They] are wonderful things. They give muscle origin, allow movement and facilitate venous return"

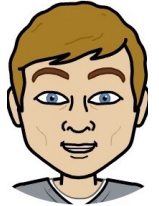
or foes? "but they may cause compartment syndromes, hide blood loss and facilitate the spread of infection."

Thank you, Prof Parkin, for all of your help and advice! We don't what we'd do without you and your soothing tones... probably would have to reach for that cold compress.



Volunteering with the Red Cross

By Lee Parker



The Red Cross is an international humanitarian organisation with around 13.1 million volunteers across the globe. They are a non-governmental organisation that responds to those in need during a crisis in a variety of circumstances. The British Red Cross primarily acts as an aid to the emergency services and offers first aid 'cover' at local events, small and large, up and down the country. In the UK there are a number of ways to become involved with the organisation from volunteering in charity shops, FES (Fire emergency support) and EFA (event first aid). FES volunteers play a hugely important role and are called upon by the fire service to care for and assist victims of a fire by providing food, shelter and a source of support and information. For the purpose of this article however, we will focus on the EFA role and its potential relevance to us as medical students. At the end of the article I include a link to the Red Cross Website where you will be able to find out more information on any of the roles mentioned and indeed what work the International Red Cross does abroad.

Many medical students will relate to the pressure placed on prospective students to display relevant and useful work experience and volunteering on application to medical school. While I do not doubt that some of my colleagues had some truly incredible experiences in this regard, I can say with confidence that EFA with the British Red Cross ranks among the best in terms of course relevance, practical/clinical experience and patient exposure. It offers regular clinical exposure and an opportunity to work with members of the public in this capacity.

While this kind of clinical experience is not required before medical school, looking back I realise the experiences I had as a member of the organisation formed a strong part of my application. One of the most appealing aspects of the EFA role is the opportunity to continue to progress and take on greater responsibility by taking enhanced modules

such as: Medical, Resus and Resus Support, Entonox, Trauma, Extreme locations, Body works and more. If you so wish, this progression can culminate with a formal IHCD assessment – allowing you to work as ambulance crew on the Red Cross vehicles. Such workshops and assessments are good practise for potential medical students as it instils at the most initial stage the need for constant skill re-evaluation and the need to self-manage your own training to maintain continued competency.



Such clinical exposure outside of medical school is extremely useful as it gives you experience in procedures such as administering oxygen through nasal cannulas, venturi masks and bag and mask apparatus for example. Having said this, by far the most valuable skills acquired are those required for patient conversation and communication – it gives you the opportunity to experience taking a patient history and from this isolate the relevant clinical signs. As well as this, a stand out feature of the Red Cross in comparison to other first aid providers in the UK is the volume and quality of the equipment that is made available for our use as volunteers. This has a threefold advantage: it offers experience operating a range of clinical equipment, ensures that as an organisation we are best placed to cover large scale events, and above all allow volunteers to maximise patient care.

The Red Cross covers a range of events here in the UK and overseas and offers a flexible means of participation. The only requirement is that you are on duty for a minimum of 50 hours per year, which is actually easily achievable and is often significantly exceeded! The beauty of the 'opt in system' the organisation uses, meaning you apply only for



the events that you would like to go to, means that you are able to combine your role with some fantastic extracurricular activities such as: The Great North Run, 'Tough Mudder' (simply a must as an EFA volunteer), festivals and carnivals, and sporting events such as F1 at Silverstone to name but a few. There are opportunities out there for all volunteers no matter what your interests are. As already mentioned the opportunity to attend and provide cover at significantly larger events ('out of area events') offers a unique set of challenges even for more experienced volunteers. These types of events rank among the most useful for me as a medical student as they provide exposure to the coordination and infrastructure required to provide medical care on such a large scale ranging from radio communication to ambulance support and distribution of volunteers and equipment. Another interesting learning technique that is taught to Red Cross Volunteers is the protocol for triaging casualties in the event of an 'extreme scenario' such as a terrorist attack or a train derailing in which multiple casualties are likely to occur. This is extremely important as in such events, when the emergency services start to become overwhelmed with the sheer volume or logistics of demand, the Red Cross can be deployed in an assistance role – either here in the UK or overseas.

I will take Silverstone as an example. The weekend event saw over 500 EFA and ambulance crew members camping on a site a few miles out from the race track; working, eating and sleeping in such a huge 'Encampment' was certainly an experience for a new volunteer like myself! The days started early, around 07:00 in order to prepare breakfast and all the equipment for the day. Following this we would be transported to the racetrack by bus or on the Red Cross ambulances, and on arrival we would be deployed to our first aid post for the day – strategically placed around the Silverstone park in order to maximise first aid coverage for the spectators. Teams were split into walking units, cycle units and ambulance crew in accordance with proficiency and specific skill set. Teams would be placed on shift for 12 hours each day interchanging between comms, first aid post management and patrols. Patrols are always carried out in teams of two or three, and between team members a 'medium' sized first aid kit is carried, including a defibrillator and rhesus support kit where possible. As already mentioned, such events test your ability to work efficiently and

communicate both with colleagues and casualties. The sheer volume of casualties over the weekend meant that there was a huge amount of clinical experience on offer, presenting a range of testing scenarios. The resources/equipment available means that an appropriately trained volunteer has the opportunity and capacity to provide a very high level of first aid care in serious clinical situations. As well as developing patient care this also means that an individual can gain an understanding of how to take vital signs of a patient and what the implications of abnormal results mean.

Now speaking as a medical student, the most useful aspect of Event First Aid going forward is the exposure to an environment in which there is an opportunity to take a large number of patient histories and recording of clinical signs during a patient interaction. In these cases, in which competence comes with repetition and experience, the Red Cross offers a fantastic way to augment this self-development process.

Meeting and working with members of the public in such a capacity is both instructive and extremely rewarding. For me personally, there is something very profound in being able to put clinical skills into practise to make a tangible difference to the health and wellbeing of an individual. Each event that I covered reaffirmed my ambition to study medicine and amplified my desire to become a competent and knowledgeable doctor. I can safely say that volunteering with the Red Cross has been a truly enriching experience and one that I will continue throughout my time at medical school. Thus I would like to finish this article with the two salient points that have been highlighted to me in writing this article. Firstly, there is a great need for continued development of clinical and soft skills whenever possible in day-to-day life and extracurricular activities in order for us to achieve competency as medical students and junior doctors. But perhaps more importantly, it is so valuable to understand just how beneficial it is to take part in some form of activity outside of the medical school, be it volunteering or some other form of work or clinical care, as this reminds us why we chose to study medicine. This provides context to our studies and a driving force to help us through those difficult lectures and just what that slide from Dr Parkin's lecture meant. Volunteering gives us a glimpse of what a future in the medical profession may hold.



Interview with Dr V.A. Smith

By Lucie O'Donnell



1. What is your area of research?

Computational biology. I use computer simulations and mathematics to understand biological systems to develop and tests hypotheses - all of this is done in collaboration with biologists who have the original data.

2. Why does this area interest you?

It's fun! I like the computational approach because I love problem solving. Doing the analysis is like doing mind-benders when I was young and I guess you see patterns from looking at systems from a computational perspective that you might not otherwise see.

3. How did you get to where you are?

I did an undergraduate in biology and maths. I like both maths and biology, but I had to pick one so I choose biology - I thought it would be less sitting in an office.

I then did a postgrad in animal behaviour, but soon incorporated maths into my PhD when I realised I needed computational analysis to analyse data. So I plunged into research and developed a new interest in this and post doc in bioinformatics to learn more.

I then audited undergrad courses in computer science and stats. This set up having enough background

knowledge to do my own research, but I am still learning things today. I started learning about new

biological systems in yeast when I came to St Andrews.

This was a good system in which to test my models, and I also get to collaborate with colleagues and learn from them.

4. What do you enjoy about St Andrews?

It's a beautiful place to live. The community at the university is very friendly and supportive, and there are lots of nice people.

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Observership Woes

By Ajay Shah



This summer, I spent more than 400 hours in Toronto hospitals. No, not as a patient, but as an unpaid, underappreciated “Medical Observer”. The official role of an observer is limited to simply observing their preceptor, but my responsibilities were vastly different. I would wake up at 5:30 AM and commute an hour to the hospital. If I arrived early enough, I would do morning rounds on my preceptor’s overnight patients. Then, I would rush to the Ortho wing for 6:45 AM morning handover, as the sleep-deprived residents scrolled through X-rays and MRIs, describing new and unfamiliar procedures and fractures. We’d march single file down to the Teaching Room, for 7:00 AM teaching rounds. There, a senior surgeon would speak for an hour about an incredibly specific orthopaedic condition; avascular necrosis of the talar head, anyone? In a valiant effort to stave off sleep, I’d infrequently jot down notes in my notebook, trying to appear engaged. Lest anyone arrive late to these sessions; senior surgeons are ruthless and unforgiving in their admonishments.

Once the morning festivities subsided, the residents rushed off to their respective stations. Pagers were handed over, ER consults were delegated, and patient rounds were polished off. It amazed me how freely people would disrespect colleagues and superiors behind their back; medicine is truly as cutthroat and drama-filled as *Grey’s Anatomy* would have you believe.

Around 8:00 AM I’d follow my resident into the Surgery wing or Orthopaedic clinic. In surgery, we’d greet the pre-operative patients, shave and mark them for surgery, then prepare the operating room. Doctors are so specific about each table, tool and tube; even a slight anomaly can induce profanity-laced tirades. Clean room, patient in, drape & sterilize patient, scrub in, operate, suture, scrub out, undrape, splint, patient out, fill orders, post-op report, clean room, rinse, repeat. Around 3 PM the surgeon would

look at the clock, shocked at the slow pace of the day, and blame nurses, porters, residents and students for the slow pace. Finally, around 4:30 PM, the final patient would be bandaged up, sent to post-op wards, and the surgeon would go home. The residents and students were none too lucky. We would be operating in the Trauma or On call rooms until at least 8:00 PM, seeing post-op patients in between each operation. After a long day operating, we would change out of our scrubs, drive home, and spend the night reading published articles or Orthopaedic textbooks.

Clinic was a different story, although no less stressful. Around 8:00 AM, the triple-booked patients would begin their impatient wait. While we quickly scrolled through X-rays and reports, we could feel the anxiety and resentment from the waiting patients continue to build. Each patient was consulted, examined, and, for the vast majority, told to go home. It is very frustrating to tell a patient, on their third round of referral, that we cannot do anything to help their pain. Even worse is telling a patient that they are not a surgical candidate; their chronic daily pain isn’t severe enough to warrant an operation. Every patient somehow feels marginalized by the system, feels that the doctor is giving them the short end of the stick. Thick accents, learning disabilities, degenerative disorders, and general hatred make some patients difficult to deal with, evoking little of the compassion or empathy we are taught to show in medical school.

So why, one might ask, would anyone want to be a surgical resident. 100+ hour weeks, 48 hour shifts, relentless work, a steady stream of thankless ungrateful patients. Perhaps the emotionally numbing experience is a rite of passage for becoming a senior consultant. Perhaps the long hours build character and motivation, both of which are needed to the utmost when performing operations.



Or perhaps the long hours we spend on rotations, internships and residencies serve to grind us down, to make us bitter and angry. Perhaps experiencing such hard work gives senior surgeons a sense of entitlement, and a licence to treat their junior colleagues poorly. Perhaps this poor treatment propagates a vicious cycle of unfriendliness, burnout, and resentment. Maybe the general malice is a quality necessary in brilliant surgeons; their meticulousness and attention to detail may irk some people, but it certainly gives good outcomes.



I learned a lot this summer about medicine. But I learned more about people. I saw amazing residents, and I saw incompetent residents. I saw funny, friendly surgeons, and I observed arrogant, crusty old surgeons. These articles usually end with a parting piece of advice, so mine will be this:



Don't be afraid to kiss ass, laugh at unfunny jokes, or go the extra mile. Show up early, don't make mistakes, and be the last to leave. Those who work the hardest now will reap the most reward when the time comes. Take time to educate and mentor those younger than you, and be friendly to everyone you meet. Wisdom is hidden behind clichés.

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How can technology redefine the role of a doctor?

By Sammir Bushara



We, as medical students in the first three years of our training, are entering a landscape that rests on constantly shifting sands. Simply observing the rate of current trends, namely the continuous headlines on scientific advancements and the political debate surrounding the NHS, evokes uncertainty on what the delivery of healthcare will look like when we reach the peaks of our careers.

One area of rapid advancement that has caught my interest is the growing field of medical technology. It is intriguing to imagine the scope that current developments can have in aiding the future delivery of healthcare. Furthermore, it is perhaps even a bit unsettling to imagine the transformative effect it could have on our future roles as doctors. The role of medical practitioners in providing healthcare is, in itself, complex and

multifaceted by nature. Doctors diagnose. Doctors treat. Doctors, in their most human capacity, counsel and empathise with patients. For each of these roles, there is great variation in the potential for someone's skills to be aided, or entirely replaced, by automated technology. Take, for example, the doctor's role as a diagnostician. There has already been significant application of technology in the areas of testing and scanning. The



development, principally over the last century, of increasingly detailed non-invasive radiological procedures and tests, such as ECGs, has allowed for earlier, safer and more precise detection of both chronic conditions and acute emergencies. However, converting this data to a diagnosis still requires a human practitioner to interpret, analyse and contextualise it with information from other sources, such as the patient's history and physical examination. To some extent, technology has shown potential to replace parts of this process.

The world wide web, for example, makes a detailed bank of evidence-based medical information – once practically a monopoly of doctors – available to the masses. The ability for patients to independently gather information about their own complaints is therefore growing with the increasing availability of 'self-test' appliances for measurable factors, such as blood pressure. While this empowers patients to make more informed decisions about when to consult a physician and also catalyses a drift away from a paternalistic patient-doctor relationship, the responsibility to make decisions regarding prescriptions and procedures still lies with doctors.

This process, however, also has the potential to be augmented by recent developments in artificial intelligence. Watson, the IBM supercomputer known for defeating human champions in the televised game *Jeopardy*, has been programmed to suggest diagnoses and treatment plans for cancer patients, based on both inputted patient information and a

database of medical evidence. Watson has already been implemented in a few trial cases, and in about 60% of them, returned a diagnosis for the patient in addition to that of the human clinicians.

Another area where technological research is intensive is in programming robots to perform some of the manual procedures undertaken by doctors. Currently, the best-known application of robotics to surgery is perhaps the da Vinci System, introduced in 2000, which is designed to mimic the movements of a surgeon using robotic arms. The surgeon's role is to remotely operate the system's manoeuvres while viewing a video monitor displaying a live-stream from a laparoscope. The system is designed to allow minimally invasive surgery to be performed with advantages such as a greater range of movement and degree of fine control, as well as improved 3D visualisation for the surgeon. Its scope has increased over the years to serve functions ranging from the resection of tumours to gastric bypass surgery. While technology of this type is an adaptation of the existing role of a surgeon, it cannot operate autonomously. There have been recent developments, however, which have the capability to do just that – potentially taking over some of the control from surgeons.

The Smart Tissue Autonomous Robot (STAR) has undertaken the task of suturing a pig's intestines using a camera and robotic arms, overseen by artificial intelligence software. Its performance at this task exceeded that of human surgeons doing the same procedure. This

demonstrates that surgical tasks such as suturing (which involve basic, but not complex, control) can be automated with a degree of competence rivalling a human. However, this technology operates on a rigid set of human-written code, inputting limited parameters and having limited control options. Hence, as it is, they could only be programmed to undergo rigid individual tasks in a surgery, and would always require expert human supervision in case of a malfunction or a change in the state of the patient. Whether we would ever develop truly autonomic healthcare robots depends on whether technology could evolve to accommodate the more complex reasoning and judgement present in a 'supervising surgeon' to coordinate the many manual tasks in a surgical procedure and to respond to adverse changes.

If, hypothetically, the above roles ever do become completely automated, we are led to ask where we as human practitioners are left in the healthcare process. It can be argued that a human presence is necessary to guide a patient through treatment, empathising with and counselling patients as they make decisions and face the outcomes of their automated care. Would this, however, change the role of a doctor to that of a therapist or counsellor, dealing with the psychological element of their care while a machine deals with the flesh of the treatment?

Perhaps there is not so much of a fine line between the psychological and physical aspects of a patient's care. In the field of psychiatry, for example, a profound understanding of the patient's



psychological state is often required to decide the course of treatment, including any medications. Furthermore, much of the psychiatric treatment itself is actually a sophisticated form of counselling between the clinician and the patient, an elevated form of therapy that requires human contact. Taking a medical history, as well, requires rapport and understanding between the patient and the clinician to not only elicit all relevant medical information, but its social and psychological context.

These functions of a doctor are examples which require both clinical knowledge and reasoning, as well as the ‘uniquely human’ qualities such as empathy and the subjective feelings of rapport and reassurance a patient may only derive from a human. It is

unlikely the latter could be simulated by machines without radical advances in artificial intelligence (whether they are theoretically possible is yet unanswered) and a change in society which allows us to place our trust in technology for something so sensitive as our own health.

Therefore, I am not of the opinion that our medical training will ever be made redundant by machines, at least not within our careers and lifetimes. It is certainly premature to feel threatened by these developments; perhaps at this stage, while it is prudent to be wary that we may need to adapt our skills and training in the future, we may still remain excited by their potential to enhance patient care.

Prosopagnosia – Lost in a sea of faces?

By Jackie Liu 

What is prosopagnosia?

Prosopagnosia, or ‘Face Blindness’, is defined as having an inability to, or difficulty with, recognising faces: a cognitive disorder of facial perception. Some cannot perceive faces, and others cannot relate the face to an identity. This, for most people, is a simple and at least a partially unconscious process developed soon after birth, but in some this cognitive process is impaired or missing. The German psychologist Joachim Bodamer first used the term prosopagnosia in 1947 in his paper titled ‘Die Prosop-Agnosie’. It was a derivation from the classical Greek “πρόσωπον” (prósōpon), meaning ‘face’, and “ἀγνοσία” (agnōsia) ‘non-knowledge’ (Bodamer, 1947).



How does facial recognition work?

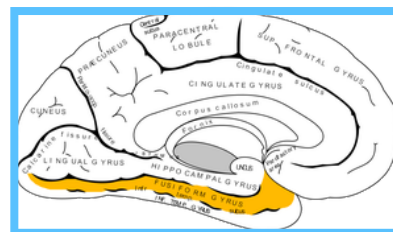
To understand prosopagnosia, it is necessary to understand the development of facial recognition. The process is complicated, and seems to begin in babies soon after birth. Newborn infants have

been observed to show interest in, and track, basic sketched faces. This innate interest declines after the first month. This development is crucial to facial recognition as researched by Grand et al. (2001). The study examined patients deprived of normal vision with bilateral congenital cataracts, which were surgically corrected 118 days post-birth on average. This delay, however, caused an insufficient development of the facial processing ability. These patients were compared to a control group who had had no previous visual-impairment and the results indicated that deprivation of facial visual input at birth led to permanent deficits in configural facial processing – the spacing of facial features. Yet the visually deprived patients had normal featural processing – the shaping of features. So while these patients can process and recognise the shapes of features like eyes or nose, their deprivation of visual input at birth may have led to a permanent difficulty in recognising differences in the spacing of features, and hence the inability to connect identity with a specific set of facial features (Grand et al., 2001).

Prosopagnosia is a defect specifically with the holistic or configural processing of faces (Busigny et al., 2010). Hence, prosopagnosia may lead to the dissociation of two functional processes: the recognition of a face through its’ features, and spacing. Spacing is a function

that is separate from featural processing, but assists in the identification of the owner of the face, which has been discussed as a secondary process by Schiltz (2005). This paper suggests that there are indeed two levels of processing: face detection, followed by individual identification, and that these levels can be dissociated (Schiltz, 2005). In a person without prosopagnosia, these processes integrate, working largely unconsciously to enable facial recognition.

Anatomically, there is debate (Halgren et al., 2000) with regards to the location of facial recognition processes, but the general consensus is that it functionally localises to the occipitotemporal or fusiform gyrus.



Occipitotemporal or Fusiform Gyrus

Within the gyrus is an area called the ‘Fusiform Face Area’, which is suspected to function in facial recognition (Kanwisher & Yovel, 2006). Functional MRI (fMRI) reveals an increase in blood flow in the Fusiform Face Area when the patient looks at faces. The evidence shows that the Area demonstrates functional specificity in



relation to faces rather than objects, and also area specificity suggested by the differences in response profiles from other face-selective regions (Kanwisher & Yovel, 2006). However, some argue (Goldstein, 2009) that the area cannot be the sole anatomical basis for facial recognition, as it is not fully developed until adolescence, and babies can differentiate faces as early as 3 months old. It also argued that cognitive functions, like facial recognition, are not limited to being domain-specific mechanisms (Kanwisher & Yovel, 2006).

Is there a difference between the two hemispheres of the brain?

Studies have suggested that the facial recognition process is expressed from the right hemisphere (Meadows, 1974). Patients with acquired prosopagnosia develop the condition after traumatic brain injury or damage. Meadows (1974) describes prosopagnosia patients as almost always having a right occipitotemporal lesion (Meadows, 1974). A study by Schiltz (2006) also provides supporting evidence for this theory, indicating a correlation between lesions in the fusiform gyrus on the right hemisphere with difficulties identifying faces (Schiltz, 2006).

What are the different types of prosopagnosia?

Prosopagnosia is not a unitary disorder: there are different types and levels of impairment. The condition can be categorised into two main groups: acquired and developmental. Acquired has two sub-groups:

- Apperceptive prosopagnosia is impairment to the earliest processes in facial recognition, usually caused by damage to the right occipitotemporal region. These patients may be unable to recognise faces at all, whether familiar or not. These patients are then dependent on other factors, like voice and clothing, for recognition (Gainotti & Marra, 2011).
- Associative prosopagnosia is impairment to other early face recognition processes and also their links with memory, usually caused by damage to the right anterior temporal regions. These patients can determine faces and what the face may show about the person (age and sex), but cannot associate the face with anyone they know; there is no identification (Gainotti & Marra, 2011).

Developmental is defined as being present from birth, and manifests in early childhood

(Jones & Tranel, 2001). Inheritance is possible: there are families with multiple members affected by prosopagnosia. It is still unknown what actually causes this condition, but it is likely to be of genetic origin.

So how can this affect people?

Acquired prosopagnosia is rare because of the location of the damage impairing facial recognition. Developmental prosopagnosia however, is relatively common. The estimated figures are between 2% to 2.9% in a general population (Duchaine & Nakayama, 2006; Kenneknecht et al., 2006; Bowles et al., 2009). This congenital form of prosopagnosia can severely affect children in many ways.

'Alone and alienated, with a reputation for 'weirdness', he suffered from depression, and became suicidal.'

There are safety issues notably created by a parent's inability to recognise their own children or family. The condition can also create anxiety for children, especially in busy and crowded areas. Social issues are also created. A rich and adequate social life is a key part of childhood development, and prosopagnosia makes this much more difficult to maintain. Children are able to meet new people and make friends but, subsequently, fail to recognise them. This alienates prosopagnosics; they are falsely perceived as being superficial or antisocial. These children also then have difficulty in team-based activities or sports.



The condition can also create anxiety, especially in busy and crowded areas. A case study describes these problems in more detail (Diaz, 2008). The paper describes the lives of a 13-year old boy and his mother, both living with hereditary prosopagnosia. Their condition limits their social interactions and circles. This was exacerbated when the boy entered middle school, where he struggled to adapt to the increased number of people. Alone and alienated, with a reputation for 'weirdness', he suffered from depression, and became suicidal. The school nurse then developed an individualised healthcare plan, raising awareness and understanding of

prosopagnosia amongst staff, enabling them to provide educated assistance. The boy underwent psychological counselling and took medication. His mental wellbeing improved, but despite this assistance, he remained isolated, and concentrated on his studies. This case study indicates that developmental prosopagnosia can lead both to difficulty maintaining a patient's safety, and deterioration of their mental wellbeing (Diaz, 2008). The difficulties prosopagnosia presents can affect every aspect of an individual's life, resulting from the loss of a basic cognitive function that most people have. In an attempt to counter this, coping strategies are adopted by the patient: they rely on other characteristics for recognition, such as an individual's gait, voice, or hairstyle. This coping strategy can achieve improvements socially, but ultimately, may be undermined by a simple haircut or even a sore throat.

Prosopagnosia is a relatively unknown condition that affects a surprising number of people. If, allowing for the 2% prevalence, then the United Kingdom alone has about 1.5million prosopagnosics. There are no known cures or standardised treatments as of yet. Patients are dependent on their own individual management and coping strategies. Even the diagnostic tests, the Cambridge Face Memory Test and Cambridge Face Perception Test – whilst being fairly reliable as clinically strong indicators – are limited by factors such as one's age and ethnicity (there is discrimination against faces not of your own race) (Bowles et al., 2009). The inability to recognise faces reaches beyond social issues, and impacts one's quality of life. This article aims to raise better awareness and understanding of the condition.

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- Please visit www.medsaint.com for the full bibliography as well as other articles not published in this issue



Book Reviews

Manual of Childhood Infections:

This is the fourth edition of the “Manual of Childhood Infections (The Blue Book)”, updating the noteworthy series of Oxford Specialist Handbooks, and is produced by Oxford University Press, the Royal College of Paediatrics and Child Health and ESPID. It brings together the collective experience and knowledge of almost two hundred authors to provide 120 chapters on paediatric infections.

The layout of this manual is typical of this series; each chapter begins with an introduction to the subject matter and classically progresses through the aetiology, pathophysiology, incidence and prevalence of relevant organisms, along with their clinical presentations and management.

The aim is to “improve the evidence-based management to a child’s infection” for training and practicing paediatricians in the community and in hospital, and at other medical and nursing staff caring for children. With regards to the needs of medical students, the manual may be more complex than their traditional reading material; however, it remains a good choice for any who have an interest in either paediatrics or microbiology.

Highlights of this manual include colour pictures of the various infectious presentations and appendices containing information on morbidity and mortality from infection, guidance on infection control and other childcare settings, variation in immunisation schedules in Europe and an antimicrobial dosing guide. A noteworthy inclusion in the “Manual of Childhood Infections” are the “Future Research” and “Further Reading” sections at the end of each chapter; these are excellent for any student or clinician to determine research projects or dissertations they could undertake.

In summary, the pocket-sized manual is an easy-to-use handbook with a friendly and clear tone of writing. Its target audience consists of paediatricians and medical/nursing staff involved in paediatrics and, of course, any student with a particular interest in paediatric microbiology.

Quick Review

Rating: 3.5/5

Highlights:

- Pocket-Sized
- Simple Layout
- Easy to Use
- Colour pictures of various infectious presentations
- Friendly tone

Drawbacks:

Aimed more at training and practicing paediatricians, and all those dealing with paediatric infectious disease

Relevant Specialties:

Paediatrics
Microbiology

Relevance for Medical Students:

“Future Research” and “Further Reading” sections in each chapter are useful for choosing a dissertation topic





BOOK REVIEW: DO NO HARM

I have been reading an autobiographical account of what it is really like to be a neurosurgeon. The author, Henry Marsh, shares with unprecedented detail and indeed admirable honesty his experiences in the profession throughout his career. Having recently retired from the field, his retrospective account is unique and most instructive for a hopeful medical student such as myself. Having considered neurosurgery as a potential speciality in my own career, it was certainly interesting to read the account of such a distinguished surgeon. The reality of the job described was somewhat surprising. The book has impressed upon me the difficulty of the profession and was certainly emotive in its portrayal of the mistakes that can so easily be made during surgery. Marsh's personal reactions to each catastrophe was particularly poignant as I found myself considering my own reaction in his position. The book has illustrated to me the extent of mental strength required in such a career. In terms of content and subject matter, I have no doubt that I would find such a profession extremely rewarding and interesting.

Yet in reading this book, I feel that I am so much more prepared for such a job through this self-exposure to the difficult times faced. Too often medical students have grandiose ideas about saving everyone and then become disillusioned - be it at medical school or during their subsequent career.

Admittedly, I am not sure whether neurosurgery is the career path for me. In some respects, it has discouraged me from my dream job. Yet I put it to you that this is indeed the beauty of the book. I have gained a new perspective on the career and a serious understanding of the more challenging areas. While reading Marsh's journey, I was deeply moved by the people that he helped and yet conversely struck dumb by the cyclical and almost futile nature that is conveyed. While I have nothing but admiration for the work that he does, over the course of the book I came to understand the pressures surgeons such as himself face on a daily basis and indeed the toll that this takes over time. The book also impressed upon me how aware we must be as doctors not only in our actions, but our bearing, tone of voice and body language. Being in such a position of trust and responsibility, we must be aware of our own influence on the patients' decisions. This is especially illustrated when March writes:

"I told her that what the family wanted would be entirely determined by what she said to them. If she said 'we can operate and remove the damaged brain and he may just survive,' they were bound to say that we should operate."

And yet Marsh goes on to say:

"In cases like this, we often end up operating because it is easier than being honest and it means that we can avoid a painful conversation. You might think the operation has been a success

because the patient leaves the hospital alive but if you saw them years later - as I often do - you would realise that the result of the operation was a human disaster."

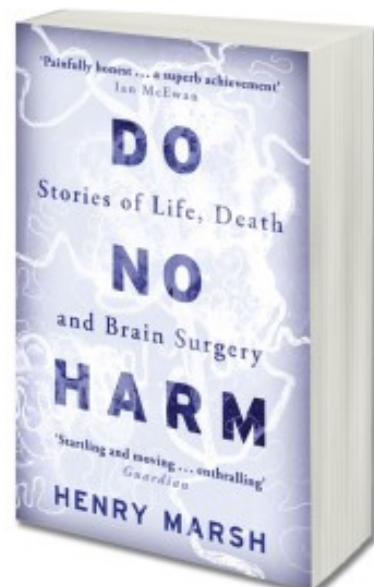
In doing so he drives home just how complicated the decision to operate is and how surgeons must balance a professional clinical detachment with both empathy and compassion.

The title of each paragraph was usually the name of the subject disorder that he addresses in that particular chapter. This was especially useful from a research point of view as it provided me with a vast array of terminology from which to extend my readings. Of note was the reading I did as a result of the chapter entitled, "Trigeminal neuralgia." Simply put, this disorder consists of spikes of searing pain felt in one or more branches of the trigeminal nerve in the face, and the treatment to fix it is extremely risky and carries the risk of permanent damage to the facial nerves and subsequent lifelong disfigurement.

March's book not only provides an insightful look at the world of surgery but also offers an more meaningful understanding of the inner workings of the National Health Services (NHS) as a health provider. It truly is a well-rounded and fascinating memoir, and I'd like to leave you with a quote that I feel best exemplifies the joys of this profession:

"I feel like a conquering general after a great battle. There have been too many disasters and unexpected tragedies over the years, and I have made too many mistakes for me to experience such feeling now, but I still felt pleased with the way the operation had gone. I had avoided disaster and the patient was well. It was a deep and profound feeling which I suspect few people other than surgeons ever get to experience."

For me, this is the appeal of surgery - try to save the lives of as many as you can and most importantly, do no harm.



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