The Pulse
2016 Edition 4

# Medicine in the 21st Century: Technology, Social Media & the Future

Greetings all and welcome to the final edition of The Pulse for 2016!

This has been a great year for MeDUSA publications, with many of our thought-provoking articles from previous editions being republished in other magazines, including AMSA's Panacea. I would like to thank everyone who has contributed and been involved in The Pulse this year; your time, effort and words have made this year very easy and rewarding for myself.

This edition deals with the future and what it may hold for the field of medicine. There are articles on the topics of social media, novel treatments, study apps and assignment collaboration. Special thanks goes to Pooja Krishnaswamy (3rd Year) for the front cover design.

It has been an absolute honour and privilege to have been the Publications Chair this year, and I wish everyone a happy and productive end to the year, and hope you all enjoy this final edition for 2016.

**Benjamin Paul**
**Editor (3rd Year)**

MeDUSA

# The Future of Medicine I Hope to See

## By Allison Moore (1st Year)

When I was young I would read fantasy books. My favourite character in all these books was always the healer. They were always a noble person who could never bring themselves to withhold treatment from anyone. Their heart was always big and their courage would lead them into battles to help those who needed it. The healer brought compassion, hope, comfort, peace and healing even to dire situations. That is the type of doctor I want to be.

Fast forward 15 years and here I am studying to be a doctor. The world we face as future doctors is much different to the world of a healer in fantasy stories. Our world is filled with healthcare institutions, rapidly advancing technologies, professional and legal implications and consumer and capitalistic societies. I do not presume to say that all these are bad things, I believe the progress of mankind to be a good thing. But I believe our world is not often conducive to compassion, hope, comfort, peace and healing. My hope is to live in a world where these things are the norm not the exception.

Some people say hope is a dangerous thing. Medical professionalism would teach giving hope where the evidence suggests otherwise is foolish. A humanistic approach would say as one of my favourite authors CS Lewis wrote, "Hope is the only thing to save you from despair." I want to be a doctor who encourages hope not one who cuts it down for fear of disappointment. False hope is dangerous, real hope is essential.

I believe attending to more than just a patient's physical needs is the only way to bring hope as well as compassion, comfort, peace and healing to a person. These virtues are what I aim to bring to the future of medicine.

I am a first year medical student and as such I'm sure my future medical career will be filled with experiences that threaten to break my resolve to do this. My hope for this future however is the first step that will get me there so I hold fast to it. Maybe you didn't sign up to be a doctor because you thought healers were pretty cool. Maybe it was because you were fascinated by the human body, or you wanted to know what it feels like to perform surgery, whatever it was that's ok. But if you do find yourself studying or practicing medicine I ask you to consider the effect you could have on your hundreds of future patients if you did decide to bring compassion, hope, comfort, peace and healing to the table. Maybe it would change their lives and yours for the better. And maybe the future of medicine would be a little more whole.

"I want to be a doctor who encourages hope, not one who cuts it down for fear of disappointment"

# Meet the Makers: Revolutionising Group Work with CollabHero

**Interview with Shahed Kamal (2nd Year) by the Deakin Marketing Team**

Whether you are a student, academic or otherwise busy person, you probably sometimes wonder why there isn't a better way to collaborate, share and work with your peers. After all, finding a time and place for people to meet and work on a task is no easy feat, especially considering our busy lifestyles.

CollabHero's purpose and intent is to make this process a lot more convenient. The brainchild of Deakin medicine student Shahed Kamal, this innovative, online platform assists educational institutes in effective collaboration and powerful analytics.

It was brought to life through Spark@Deakin's most recent Accelerator program pitch, which Shahed; considering his passion for education and healthcare, hunger for entrepreneurialism and knack for neuroscience and computing; saw as an opportunity to get his ideas heard.

He said that it was in 2015 when he finally decided to collaborate with Deakin lecturer and PhD student Matt Harrison, to refine his initial concepts and make them a reality.

'Once Collabhero was born, we almost immediately realised that the platform was unique because of its user-friendliness and dynamic features and tools.

'It made us so excited to start building CollabHero into a real business, ensuring happy customers and making a real impact in the space we are in.'

However, Shahed adds that in today's growing and competitive world the beginning of any entrepreneurial venture can be challenging.

'Embarking on an entrepreneurial venture is not an easy task. One has to be prepared for rejection and to hear a 'no' from various stakeholders.

'It's important to embrace this challenge, believing that it wasn't your idea that was rejected but the skepticism of the world when it comes to change.

'This journey eventually teaches you to keep trying until you find a stakeholder who believes in your innovation and your idea,' he says.

For CollabHero, SPARK@Deakin's Accelerator was a massive win and the program gave the team immense validation to develop their innovation to the next level. The $10 000 price money, mentorship, networking opportunities, resources and support, propelled CollabHero to success a lot faster than they had expected.

The CollabHero team's 3 most important tips for budding entrepreneurs:

1. Read, watch and keep yourself up-to-date with stories and news of successful entrepreneurs in your industry. One can learn a lot from their mistakes, failures, successes and their journey as a whole

2. Keep hustling through all hurdles and even though sometimes it seems pointless, eventually if you keep working hard good things will come

3. Be eager to learn about your customers, products and industry.

If you want to get your idea heard, head over to Spark@Deakin's The Pitch and apply before 28 October 2016.

# Are Novel Therapies Raising More Questions Than They Answer?

**By Tess Langmaid (4th Year)**

With genetic technologies improving in leaps and bounds, as well as a number of highly efficacious novel therapies on the horizon, we now have the answer to some of the most common questions we face as doctors; "What disease do they have?" and "What can we do for them?". However, we are now left with no understanding about how the disease will progress (the modified natural history). The questions "How long will they live?", "How will they function?" and "What will be their quality of life?" are met with only silence and speculation. I experienced two examples of this first-hand during my selective placement with the Victorian Clinical Genetics Service (VCGS).

My first patient was a child who had come in for a review. My supervisor explained that the parents were confused about why they had been discharged from palliative care. This child had hypophosphatasia, a rare genetic condition that causes reduced skeletal mineralisation. In its severe form, hypophosphatasia is lethal in the perinatal or infantile period, as a result of respiratory failure due to an abnormal thoracic cage (1). It was for this reason that the child was referred to palliative care a number of years ago. Fortunately, with recent clinical trials, what was once a devastating diagnosis has now been turned on its head. The discovery and development of asfotase alpha, a bone targeted fusion protein, had proven to be a disease-modifying and life-changing treatment, as evidenced by the fit and healthy child sitting in front of me. What I found interesting, though, were the clinical implications – namely that the doctors had no idea what to expect going forward. The paediatric orthopaedic surgeon had never seen bones like theirs before, and the clinical geneticist was not sure what the family could expect in terms of symptoms and function in the future. These issues regarding a modified phenotype and natural history had never previously crossed my mind.

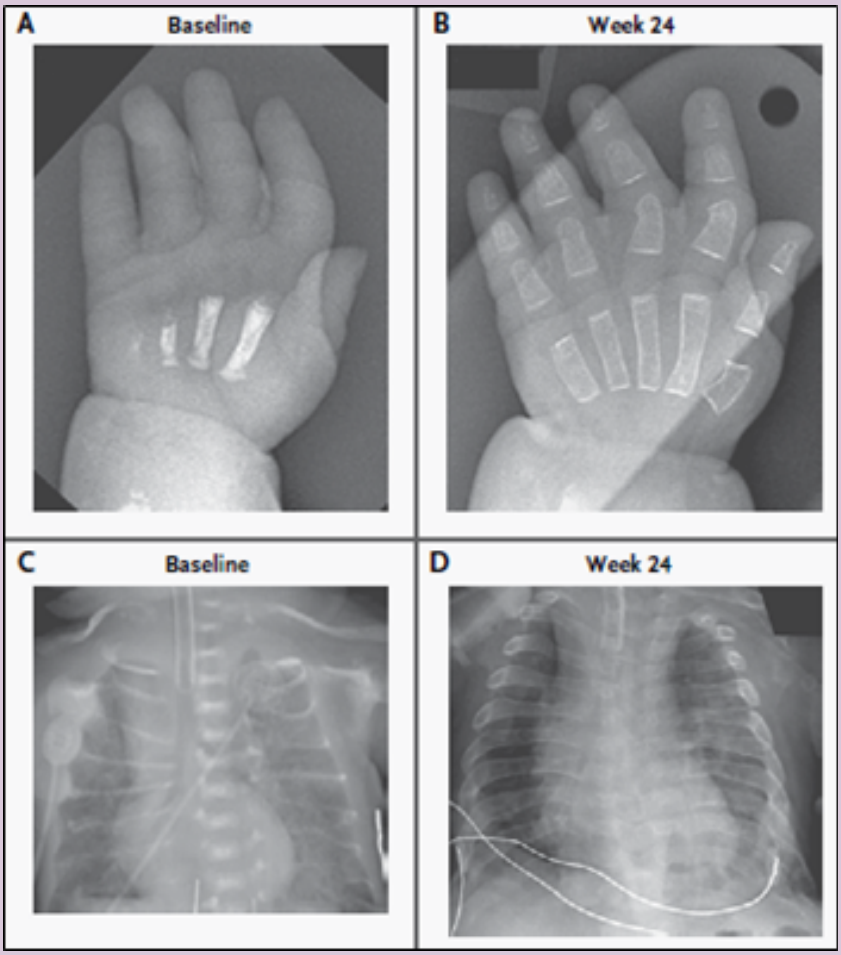



***Figure 1.*** *Radiographic findings at baseline and at Week 24 in a different patient treated with asfotase alpha (1)*

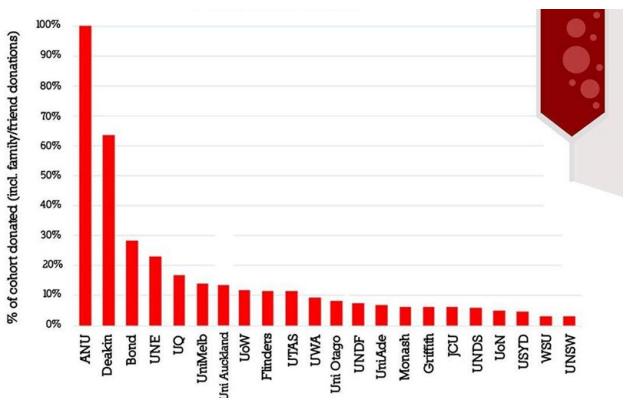
I had a similar thought-provoking encounter with another patient that I saw in the bone dysplasia clinic. In this case, the child had Achondroplasia, the most common form of short stature or 'dwarfism'. The parents were very excited by a clinical trial currently being run through the department at the Murdoch Children's Research Institute. This was a phase two trial of Vosoritide, a modified C-type Natriuretic Peptide (CNP) analogue that had been shown to increase children's growth velocity, bringing it in to line with that of unaffected children (2). The hope is that it will also lead to improved medical outcomes and quality of life in the long term. Again, this new treatment leaves many unanswered questions about altered prognosis and symptoms, and it also raises complex questions of identity and support. Dwarfism is defined as adult height of 4 feet 10 inches or less, so if these children with Achondroplasia have increased growth it is possible that they will no longer be considered dwarfs. This has implications for their self-identity, as well as their relationships with family members who have untreated Achondroplasia.

It also means that the various patient support networks may no longer be able to meet their needs. With such a small number of patients and families undergoing experimental treatment, the stories and advice from other families becomes less relevant, which can make them feel progressively isolated in their difficult journey. This is where appropriate health services, like genetic counselling and social work, become increasingly important.

These new technologies are fantastic examples of the achievements of modern medicine, with next generation diagnostics and novel precision therapies changing the lives of patients. These have provided us the answer for many of our common questions, as well as hope for future medical outcomes. However, they raise a number of their own complex issues for patient care. As we move through our medical careers, it will be important for us to work closely with our fellow health professionals to address these, and to discuss with our patients the risks and benefits of emerging treatments, but also any uncertainties that they may bring.

# VAMPIRE CUP

Thank you to everyone who donated this year!! Together we donated 50% more blood than we ever have (350 donations) but sadly ANU took the win. We won the highest donation frequency with the average Deakiner giving 1.45x over the 8 weeks! Bloody Legends! Watch out next year for some new incentives to keep on bleeding.



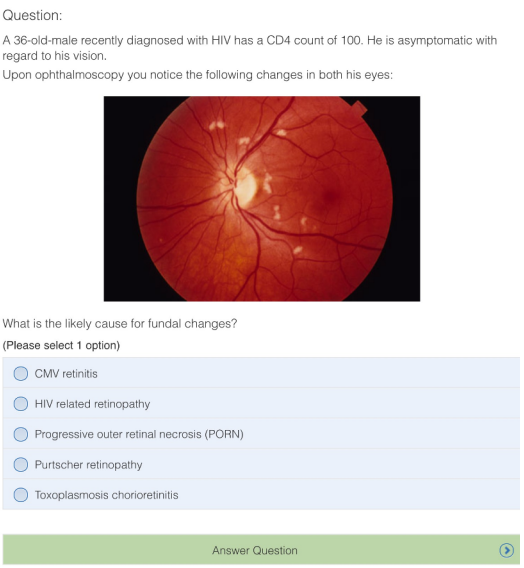
# Library Resources: Premium Content on Your Mobile Device

**By Blair Kelly, Medical Librarian**

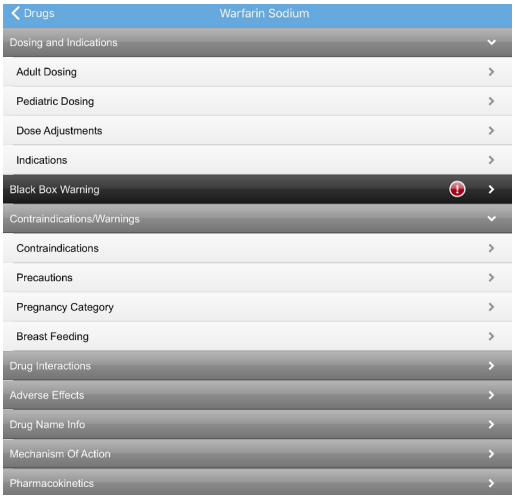
While there are a variety of free resources you can study with, the cold reality remains: premium content commands a premium price. Luckily for you, the Deakin University Library subscribes to a number of premium content resources and makes them available as part of your enrollment. This piece highlights a selection, focusing on those that offer more flexible learning by functioning on mobile devices using a dedicated app. This facilitates a "learn anywhere, anytime" approach, which means you can better fit study opportunities into your hectic schedule.

## Exam Revision

Let's start with a big one: BMJ OnExamination. So yes, you may have heard of it before but did you know you can also access it as an app? BMJ OnExamination is a great resource for exam revision and consistently popular among medical students. Because it keeps track of what you revise and how you perform on mock tests, BMJ OnExamination offers the ability to focus your revision efforts on your areas of weakness through its Work Smart feature.

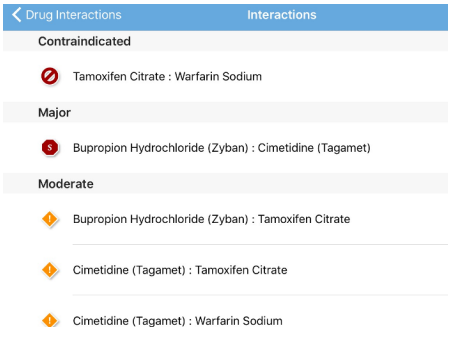



Once you've created a profile with OnExamination via the Library website, you can login to the BMJ OnExamination app, allowing you to revise offline on up to two devices. The BMJ OnExamination app is available via iTunes and Google Play, but make sure you've registered via the Library first!



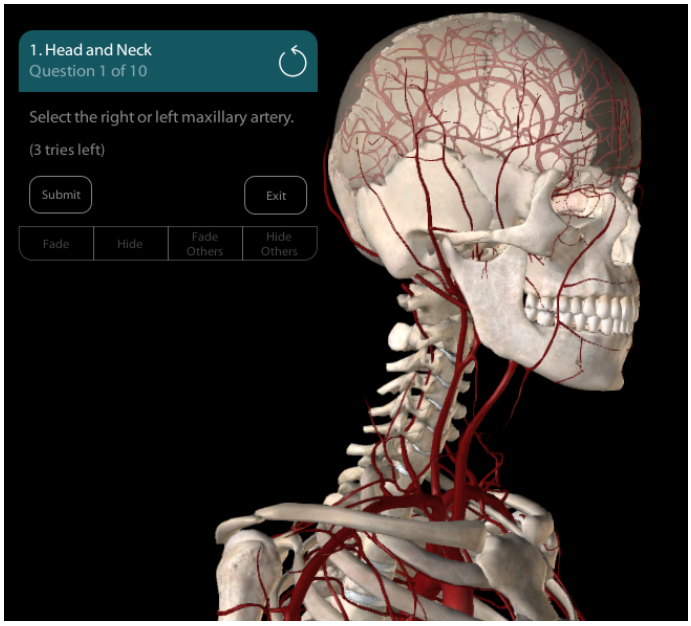

## Medicines Information

Next, let's talk drugs. When you're reviewing medicines information, you want to be sure that what you're looking at is up to date and complete. You also want it to be easily accessible so you can quickly grab what you need. Micromedex is a leading source of medicines information used by educators and clinicians alike. It contains essential information on dosing, safety, toxicology, mechanism of action and more, based on product information and independent analysis.



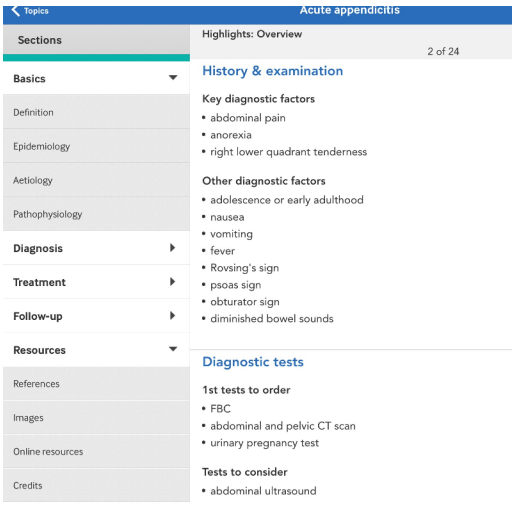

Deakin Library's subscription to Micromedex provides you with access to two apps – a drug reference app and a drug interactions app – for both Apple and Android devices. These easy to use apps offer a fast solution when you need to find out more and they can be used without a network connection. Follow the instructions in Micromedex to add them to your collection of go-to resources.

## Anatomy




No matter your pre-existing level of anatomical knowledge, getting your head around the workings of the human body is a challenge for all medical students. There are a number of Library resources to help you with anatomy, including Anatomy.TV and Acland's Anatomy, but I'd like to focus on Visible Body.

This resource offers a 3D rendering of the human body with many options for manipulation and display. It covers systemic and regional anatomy, and also offers quizzes, animations and disease information. While it is available through a web browser, Visible Body does have an app which allows you use it on your mobile device without a network connection. App access to Visible Body comes as part of the Library's subscription, and is available for Apple and Android devices. Get in touch with the Library to find out more about the Visible Body app.



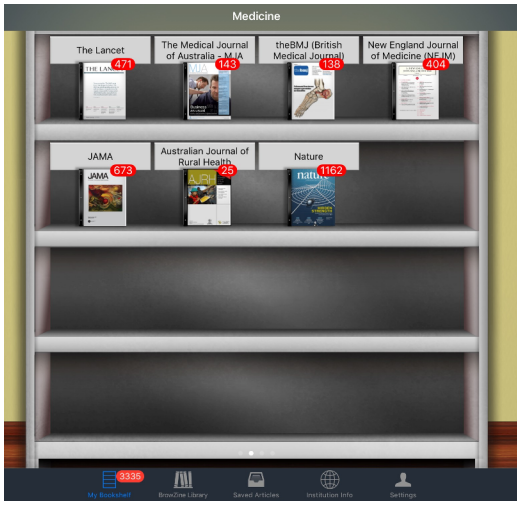

## Point of Care Tools

You'll remember from your PHM classes that summaries of evidence are near the top of the evidence hierarchy, just below systems. Point of care tools represent a form of summary evidence, in that they integrate evidence-based information about clinical issues with advice for actions. They're also constantly maintained and updated when evidence shifts. BMJ Best Practice is one such point of care tool which offers key information about diseases, including aetiology, pathophysiology, diagnosis, treatment and follow-up recommendations.

The BMJ Best Practice app allows you to use this significant information resource offline on your Apple or Android mobile device. To use the app, first create a BMJ profile on BMJ Best Practice then use these login details with the app.

## Journals and eBooks

To finish off, I want to briefly mention some Library tools that fit with the notion of access anywhere, anytime (on any device). Firstly, BrowZine is an app that allows you to create bookshelves of your favourite journals and browse the latest issues for articles of interest, which you can then read in the app. It allows you to focus on and seamlessly access what's important to you, and to receive notification when new articles are available. You can also save articles for reading offline. Try out BrowZine and see what you think – it may be a significant change from the way you're used to interacting with journals.



Finally, the Library has an e-preferred policy for access to resources which means we aim to purchase access to eBooks over print books in most instances. For some eBooks, you'll need to install an app to read them on your mobile device. You can find out more about this on the Library eBook help page.

The above has been an example of how the Library and its resources provide you with access to premium content in a way that suits flexible learning. If you have comments or need any help, please get in touch. We're constantly looking for ways to improve things in this area, so keep an eye out for more innovative Library developments as you move through your degree. And best of luck!

# Likes, Snaps and Tweets: Whatsapp-ening with Medicine and the Rise of Social Media

## Editorial

The 21st century has seen the rise of the internet, and with it, an explosion of social media apps and websites which allow for greater connection and interaction than ever before. This is both true for the general public and for medical professionals and students, with recent studies indicating that up to 90% of doctors use some form of social media, with an even greater number of medical students also doing so. While this has a vast number of upsides, it also has harrowing pitfalls.


On the brightside, social media allows health professionals to quickly and efficiently share information and health advice to both colleagues and patients, as well as help develop and strengthen professional networks. This is particularly valuable for those working in regional and rural areas, where historically the facilities and opportunities for professional development were previously lacking. Furthermore, harnessing the immense wealth of information that is available online can provide invaluable data for research, helping shape and influence public health policies and service changes, as well as contributing to the ever expansive evidence base of medicine.

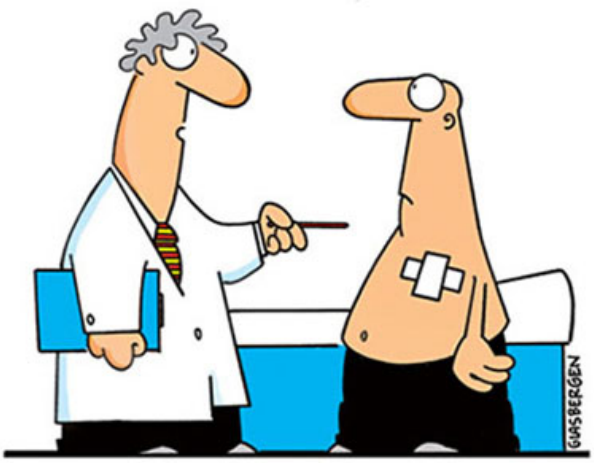
With the clear advantages of increased openness and sharing ability comes the

potential to breach confidentiality and privacy, and destroy the pillars of the doctor-patient relationship. Doing so would erode trust in the healthcare system, leading to the worsening of societal health. There are a multitude of news articles that can be found about 'exposing' these breaches, condemning those involved for sharing private details or for expressing criticisms of patients, hospitals or other health care professionals. Whilst it is vitally important that when using social media doctors are careful in de-identifying sensitive information and only sharing it to those who are privileged to that information, the fact that the social media sites are owned by private companies who routinely retain user data means it is near impossible to completely keep patient's information from being shared if one is to use their services.

"This is a sensible approach to the inevitable continual integration of social media into medical practice"

The AMA and AMSA have both released policies and guidelines on how to appropriately use social media in the medical profession, with a myriad of other respected medical bodies who have done the same. One of the key messages these guidelines attempt to convey is the importance of changing privacy settings to control who sees what, which allows doctors to separate their professional and private lives. This is a sensible approach to the inevitable continual integration of social media into medical practice.

It can be seen that with advances in technology and societal change there is a need for the medical profession and its employers to adapt in order to maintain the core values and ethics that underpin medicine. With the development and ubiquitous expansion of social media comes great potential for both good and bad. Only time will tell as to how the medical profession will adjust to fit social media and technological advances into its mould.




"It's a pacemaker for your heart. Plus, you can download apps for your liver, kidneys, lungs, and pancreas!"



# Thanks For Reading! Look Forward To More Awesome Editions In 2017

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**Page 6-7:** 1. Whyte MP, Greenberg CR, Salman NJ, Bober MB, McAlister WH, Wenkert D, et al. Enzyme-Replacement Therapy in Life-Threatening Hypophosphatasia. New England Journal of Medicine. 2012;366(10):904-13.
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