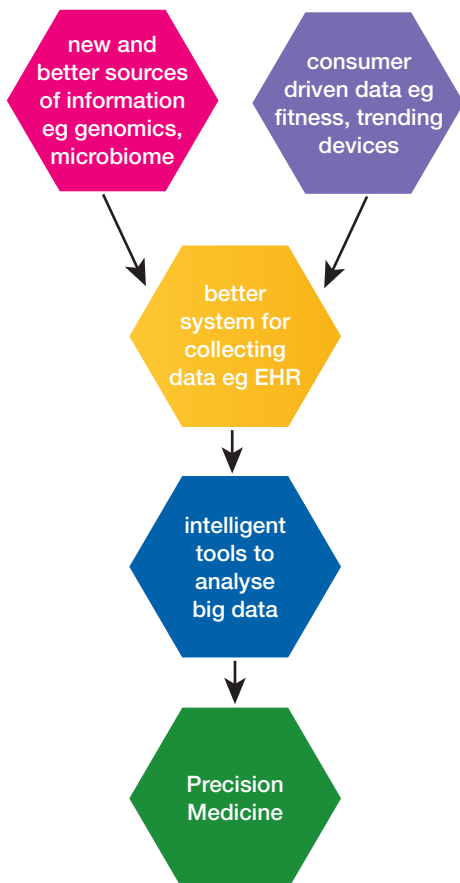


# MIMS matters

## Precision Medicine – why you should be paying attention



Anyone that has spent any time working in health quickly becomes conditioned to the tsunami of innovations in health – daily we hear of all manner of new devices, software, treatments and diagnostic technologies. Change is constant – but despite all the noise, change is very slow to arrive at the coalface of health service delivery. As such, it is easy to let pronouncements about new innovations wash over with little attention or thought to its actual application in the clinical setting. However, looking into the not too distant future it seems that we are about to confront a tipping point where the intersection of many of these innovations will start to have positive impact and we will find a way to mine their value. And the overarching structure which will pull them all together and drive forward positive change is the field of precision medicine.

Over the last couple of years, precision medicine has been getting more prominence in the professional media. At the end of 2015 an alliance of three clinical software providers in NZ announced they were developing an EHR for all New Zealanders founded on the principles of precision medicine. In Australia, precision medicine has quietly been at work for years – though most projects are in the field of cancer medicines – where there is a huge volume of research and where the complexity of our understanding of this group of conditions is growing exponentially.

Precision medicine is alive and well – though there is still a poor understanding of what it actually is and how it differs from personalised medicine, which it is not. Personalised medicine refers to a concept where each individual would get their own uniquely tailored treatment. The approach is from the individual and the cost and scalability of this approach is enormous and limited.

Precision medicine, on the other hand, still looks to deliver a far more precise approach to an individual's health management, but the

focus is still at a population level – identifying populations with similar characteristics and then delivering a much more tailored and effective intervention. To an extent we already do this – a melanoma patient is not treated like all other melanoma patients – their disease is characterised, subcategorised, staged and possibly genotyped. However, precision medicine takes this to a new level, harnessing a number of innovations and technological advances to be far more powerful and precise.

It could be argued that only recently we have been able to understand the power of precision medicine due to the adoption of technology and the movement of specialised information from the laboratory to the clinical setting. There are a number of key enablers of precision medicine that provide the opportunity for precision medicine to be a key field in the future management of health.

### New and Better Source of Information

The recent revolution in genome sequencing opens an enormous opportunity to understand disease and its causes far better. The human genome was first sequenced in 2003, and over the next 13 years has moved from being so complex, time consuming and expensive to now being far more accessible, cost effective and fast (at least for specific applications). Genomic testing has moved into the mainstream, accessible by consumers and healthcare professionals alike. Whilst there is a quagmire of ethical considerations, the thrust is that the information is now much more freely available and able to be plugged into systems that can make sense of it.

Likewise, research into the microbiome has been going on for years with the resultant understanding of the link between gut bacteria and health and disease. In recent years this has moved from the peripheries of medicine far more into the mainstream. Projects such

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## Precision Medicine – why you should be paying attention (continued)

as the American Gut Project and its affiliated program the British Gut Project, are advancing work into how this information can be applied to both the management and prevention of disease. At the consumer level, there is increasing insight about the impact of diet on the microbiome and the potential impact on health.

Genome sequencing and the microbiome are examples of the types of information that previously were difficult to access or their relevance poorly understood. Through precision medicine, an analysis of this information, aggregated with other data sources, can be used to identify far more accurately specific patient populations with the intent of delivering much more tailored interventions.

### Better Systems for Collecting Data

However, information is nothing without the systems to be able to aggregate that data and then to analyse it to turn information into knowledge. This is the second enabler of precision medicine. EHRs (electronic health records) and EMRs (electronic medical records) are spoken of daily. Across the world, governments have had variable success in implementing these systems, but the change is coming and it is accelerating. Partly this is driven by the systems themselves, whilst many have been around for decades, the choice now is considerable. From proven, established systems, to fast to implement, highly specialised cloud based systems, the success stories now seems to outweigh examples of where they have failed. In Australia, hospitals and state health systems are all taking slightly different approaches, but there is no state that does not have this on their agenda.

For EHRs and EMRs to function the data must be digitised to some degree. Standards around terminologies, for example the AMT and NZMT for medicines and Snomed CT for diseases, facilitate interoperability. This will inevitably lead to enormous clinical data repositories being available for analysis and growing understanding. The technology is in place, the limitation is the ability for governments to navigate concerns over privacy and how the data is used. However, inevitably this must be resolved and this will lead to the increasing ability to identify subpopulations of patients and better insights into how to manage them.

### Better Analytical Tools

The next big enabler of precision medicines is the technology to turn data repositories into actionable knowledge. In Australia we have examples of highly specialised companies that have highly sophisticated data analytic tools that are working with hospitals to improve workflows. Internationally, Watson from IBM is provoking much discussion over its applications. Artificial intelligence is offering the ability to turn, what would previously

have been uninterpretable data sinkholes, into knowledge. The ability to manipulate and interpret enormous volumes of data is no longer out of reach – advances in technologies to manage “big data” will also open up opportunities to implement precision medicine approaches.

### Consumer Empowerment

Finally, data from clinical interactions, even when combined with genomic and microbiome data, still only present part of the picture. Missing is a more holistic understanding of how a person’s day to day life can impact their health or their disease. The drive towards consumer empowerment fills the gap in understanding at a very important level. The widespread availability of health monitoring devices means that consumers can track certain data points continuously. Most of these devices now allow a seamless upload into a cloud based data repository. Whilst the majority of data that is currently collected in fairly basic (heart rate, activity levels, sleep quality) the potential to expand this is exponential. The systems are in place to allow consumers to contribute information that reflects their day to day lives. At the moment, much of this data has to be entered but as the systems improve and this can be automated, the information allows a full picture to be built on a person and the impact of all this information on their health or illness.

As well as contributing to the data repositories, the other aspect of consumer empowerment is that it allows groups of consumers to be far more involved in decisions about their health. This two way dialogue will enrich understanding of health and will further assist in identifying responsiveness of certain groups to interventions.

The term precision medicine may conjure up an image out of a science fiction movie, however, many of the keystones that underpin it are currently being used. With ongoing innovations in these areas, the pace of change can only increase. Undoubtedly using better sources of information with more powerful analytical tools to derive insights that can be practically applied, the result must be better patient outcomes and a health care dollar that can travel further. It has all the hallmarks of a discipline that has a long and healthy future.

To paraphrase Bill Gates, most people overestimate what they can achieve in 1 year but underestimate what they can achieve in 10 years.

It will be interesting to see where we are at the end of the next decade.

## Decision Support – How much is too much?



Electronic Medication Management (EMM) systems are now rapidly being established in Australian hospitals across both the public and private health sector. The majority of the projects now in deployment include strategies to simplify the clinical workflow covering the ordering, dispensing and supply, administration and reconciliation of drugs within a closed-loop electronic medication environment. The advantages of establishing such systems include the hope that there will be a reduction of medication errors and risk to patient as well as providing significant reduction of repetition of entries to clinical notes and data entry.

Key to achieving these aspirational goals and advantages is the clinician acceptance and their use of the new electronic medication systems.

A common problem that has been observed in the first-wave of EMM systems installed in hospitals is an effect known as Alert-fatigue. Alert-fatigue is the tendency of clinicians to ignore prompts given to them by clinical decision support systems in electronic health systems because of the excessive number or limited clinical significance of these alerts. Too many irrelevant or limited value alerts typically lead to low clinician acceptance to the value of a deployed EMM system.

Dr. Melissa Baysari of The Australasian Institute of Health Innovation at Sydney's Macquarie University has been researching clinical decision support in EMM systems to explore alert effectiveness, and what lessons can be learned from one pioneering EMM system deployed in Australia.

Presenting at HIC2015 (Health Informatics Society of Australia Conference) Dr. Baysari described a consequence of too many alerts being presented to clinicians is a significant problem for hospitals because it results in user frustration and annoyance. Too many alerts also lead to clinicians learning to ignore all alerts, even those that present useful and sometimes critical information that would alert the clinician to the likelihood of a medication error occurring.

It's now well established in other international research, that a high level of Alert-fatigue, the state in which the clinicians become totally overwhelmed and unresponsive to alerts in general, is a very significant threat to patient safety.

The Baysari study evaluated alerts in an EMM system in an Australian hospital. In the scope of the study were alerts for allergy and intolerance; therapeutic duplication; dose range suitability and pregnancy. The study included actual ward-round observations where all interactions with the EMM system were noted along with the alerts generated, the clinician responses to alerts, any changes

made to medication orders following the alerts and medication chart reviews. This observation was supplemented by interviews with nearly fifty doctors that discussed the usefulness of alerts, impact of alerts on prescribing and any improvements that the doctors felt were needed.

Based on the research the study team learnt some key things...

### Lesson 1: The fewer the alerts the better

27.2% (660 of 2209) of the studied orders had one or more computerised alert. The 934 alerts in total mean that on average there were 1.6 alerts per alerted order.

Some of the prescriber views expressed in the interviews relating to the alerts included:

REGISTRAR: "It pops up so often [an alert] which can be a very bad thing because you're dismissing it so often that you develop this sort of mechanism so it can be bad in a sense that sometimes you might miss some important things".

REGISTRAR: "I at least scan them [the alerts] and work out what it is that they're trying to tell me. Often it's saying you've just prescribed, do you want to prescribe it again, and I'm like well yes, I do".

RESIDENT: "I don't have a problem with all the alerts because I know what they say now before they even come up".

REGISTRAR: "It's certainly helpful in, like I say, avoiding errors and mistakes but I don't think it really helps in deciding say what antibiotic or what antihypertensive or whatever because that's a clinical decision".

REGISTRAR: "The decision to prescribe something is based on your clinical knowledge... by the time you type it in and prescribe it you've already made that decision".

### Lesson 2: Context of use matters

When observing ward-rounds it was found that senior doctors were making the prescribing decisions. The senior doctors told junior doctors what medications to order; called medications out to junior doctors who stood at the computers (running the EMM application) in the hallway and then left the junior doctors to enter medication orders into the system while the rest of the team moved onto the next patient case.

Senior doctors rarely used the system.

During these observed ward-rounds, no prescriptions were changed following an alert; no junior doctor mentioned an alert to his/her team and no junior doctor questioned a senior doctor's decision to prescribe a medication following an alert.

## Decision Support – How much is too much?

(continued)



On the ward-round observations, 17% of the alerts were read by the EMM system user, but no orders were changed following an alert.

When prescribing was observed after-hours, 78% of the alerts were read by the EMM system user, and 5% of the orders were changed following an alert.

### Lesson 3: User feedback is invaluable

Suggestions from the interviewed doctors to improve the effectiveness of the alerts included the shortening of the alert text; making different types of alerts more distinguishable from one another and indicate a level of risk associated with each warning.

A total of 81% of the prescribers rated Allergy and intolerance alerts as the most useful alert type. No participant in the study believed that this alert type should be removed from the system and all participants rated this alert type as 'often' or 'sometimes' useful.

However 76.2% of the prescribers indicated that Pregnancy alerts were 'never' or 'rarely' useful.

### Overall conclusions

Dr. Baysari presented that getting the right balance of alerts right within an EMM system is a challenge. The best approach found was to include only a small number of alerts and provide alternative forms of decision support such as pre-written orders.

Based on the research, pregnancy alerts were removed from the system at the studied hospital and many local messages were replaced with pre-written orders.

At the moment there is no current literature available to describe what are acceptable or dangerous rates of alert display and presentation, however studies are in progress including lab-based work in the area of alert fatigue. Dr. Baysari suggests that it is clear that ongoing evaluation (quantitative and qualitative) is vital to ensure EMM system alerts remain relevant and effective.

## Tasmania is Reducing Medication Errors, Improving Efficiencies and Saving on the Cost of Medications in Public Health



With our aging population the Australian state public health systems are focusing on methods to improve the quality of outcomes for patients as well as achieve operational efficiencies to ensure that the health system is affordable and sustainable for the country.

Recently individual state health systems have articulated their strategies to drive reforms that have the goal of improving the quality of patient care and reducing the spending of health funding on inefficient processes that often deliver no real benefits to patients.

One of the most significant financial costs to the Australian Public Health system is the supply of medications. Each state health system acknowledges that effective management of medications through purchasing, prescribing, dispensing, administration and reconciliation processes will reduce the overall cost of the provision of needed medications to patients. Australian and global studies have also shown that the strategies to reduce medication process inefficiencies may also significantly reduce the risk of medication errors for patients.

The Department of Health and Human Services Tasmania together with Hobart based company, Healthcare Software and MIMS have established an electronic medicines formulary used by clinical staff and administrators across Tasmania's four main hospitals and 17 rural and regional hospitals.

The Tasmanian State Medication Formulary system for the first time provides clinicians with a non-ambiguous, medicines management system to support the clinical applications

that prescribe, administer and dispense medications. The system is one of the earliest examples of applying the real-world use of Australian Medicines Terminology (AMT) the national coding and description of medicines along with national subsidised cost (PBS) information, and the medications approved and stocked for state supply. The introduction of the Formulary has improved efficiencies in the hospital pharmacy department, many of the rules around drugs were not written down and the prescription in the dispensary for the drug written by a doctor for a patient didn't always meet the eligibility criteria and restrictions. It would mean doctors would prescribe without having any background on cost.

The Formulary has also enabled meaningful medication information to be shared to and from the national Patient Controlled Electronic Health Record (PCEHR) with the aim of more effectively managing the transition of medication as the patient transfers between hospital and community based care.

The key outcomes for the formulary are: Quality, safety and efficacy, access and optimal use.

In the first six months the Formulary was in place Tasmania's department of health saved over \$500,000 on medication costs. The price tag of establishing the system was minimal, so for all involved the system has proven itself to deliver immediate clinical and economic benefits.

## Updating Australian medicine ingredient names



The global standard for naming medicine ingredients is the International Nonproprietary Names (INNs) system, which is maintained by the World Health Organization (WHO). It was created to facilitate unique identification of medicinal substances, which is important for the “clear identification, safe prescription and dispensing of medicines to patients, and for communication and exchange of information among health professionals and scientists worldwide”.

In Australia, it is a requirement that marketed medicines use the approved ingredient name on their label, referred to in law as the Australian Approved Name (AAN). The AAN is maintained by the Therapeutic Goods Administration (TGA), and is also used in the Australian Register of Therapeutic Goods (ARTG) and supporting documentation, such as Product Information and Consumer Medicine Information documents. Since 2002, the TGA adopted the INN system as a reference for creating AANs for new medicines – in many cases, the AAN is the same as the INN. Where no INN has been created for a substance, other references are used to create the AAN, such as the British Pharmacopoeia.

However, as many healthcare professionals and consumers would know, there is inconsistent use of the INN to express the medicine ingredient name. This is because medicines that were listed prior to 2002 may not be consistent with international naming practices. INNs themselves undergo review, and new INNs can be created for long-existing substances. In addition, there have been instances where an INN is included in the list without removing the old name (generally minor spelling variations).

This can cause confusion in many different situations – customs officers assessing whether a shipment is subject to import restrictions, consumers accessing medicine information over the internet, travellers seeking additional supplies of their medicines, and healthcare professionals trying to keep up-to-date with international literature regarding medicine safety. This also imposes a barrier for supplying a medicine in Australia due to the additional time spent and costs required, e.g. customised marketing material, regulatory documentation.

In light of this, the TGA has announced they will harmonise medicine ingredient names more closely with the INN. These changes affect active ingredients (prescription and non-prescription) and excipients that are required to be included on a label or in information provided to a consumer.

### Types of changes

The following includes some of the rules applied for harmonisation:

- Changing a non-pharmacopoeia reference to a pharmacopoeia reference or INN
- Using one name to refer to one substance and avoiding names that are in ‘common’ use
- Minor spelling changes, e.g. using ‘e’ instead of ‘ae’ or ‘oe’
- Avoiding the use of isolated numbers, letters or hyphens (unless required for chemical structure)
- Inclusion of hydration state where appropriate with a separate entry for each hydration state – this level of detail will appear on medicine labels because it is required for the ARTG and other systems used by the TGA, but might only be included in medication software systems when clinically important
- Correct word order for salts and other derivatives
- Use of ‘macrogol’ terminology for synthetic polymers (rather than ‘PEG’)

The table below gives some examples of changes – a complete list of affected names is available on the TGA website.

Old name	New name
Amoxycillin	amoxicillin
Calcium chloride	calcium chloride dihydrate
Hydroxypropylcellulose	hyplose
Maldison	malathion
Paraffin – soft white	white soft paraffin
Phenobarbitone	phenobarbital (phenobarbitone)

### Dual labelling

Some changes are of high clinical significance. For most of these products, medicine labels must use both the old and new ingredient name during the transition period and for an additional three years afterwards. For example, medicines containing lignocaine will need to be dual labelled as ‘lidocaine (lignocaine)’.

The exceptions to this rule are adrenaline and noradrenaline. In these cases, there is no intent to move over to just using epinephrine and norepinephrine as the sole name – adrenaline and noradrenaline will remain as the AANs, and dual labelling will continue indefinitely.

### Implementation

There will be a four year transition period starting in April 2016. Manufacturers may start using the new name on labels and documentation at any point during this time. However, as new labels can take up to a year for approval, and some medicines are supplied infrequently, it is expected that there will be a mix of old and new labels on shelves during this transition period. Products required to display dual labelling will continue to do so until 2023.

Furthermore, some prescribing and dispensing software systems may require reconfiguration, e.g. to allow for the use of synonyms. These types of changes could take up to 2 years development time and may rely on the user to enable this additional functionality.

Links to further information

<http://www.tga.gov.au/updates/medicine-ingredient-names>

<http://www.tga.gov.au/updates/medicine-ingredient-names-list-affected-ingredients>

<http://www.tga.gov.au/publication/regulation-impact-statement-international-harmonisation-ingredient-names>

## Important information for eMIMSDesktop users

After much consideration and feedback from users, we have taken the decision to retire eMIMSDesktop. By far the majority of eMIMS users have switched to eMIMSCloud and are enjoying a similar interface with the advantages a Cloud based program can offer. Not only can eMIMSCloud be accessed with a simple log in from any internet enabled device, making it more accessible for users on the move, patient counselling and mobile practice staff, you will find additional content such as drug allergy interactions not found in the desktop versions. The team have put a great deal of work into eMIMSCloud over the last two years adding new functionality and content generally from ideas we have been given by the users and we thank them for being so open about the things they love and don't like about eMIMSCloud.

Currency of information is a given with eMIMSCloud with no updating by the user. Log in on the 1<sup>st</sup> of the month and you can see it has updated overnight.

MIMS also plans to add the SHPA Don't Rush to Crush information as an optional additional module in 2016.

We do recognise that some customers simply do not have reliable access to the internet and so this option will not be helpful or add value to them. Because of this we have decided to maintain the original eMIMS, now known as eMIMS Classic. eMIMS Classic is DVD based, is provided in April, August and December, and should be updated each month from our website to ensure currency of information.

Both these versions of eMIMS have the additional IMGateway drug, herb, food and supplement module available for you to add on to your subscription.

To find out more, update or renew your subscription please call our Customer Service Team on our toll free phone number 1800 800 629 or for more information visit our website [mims.com.au](http://mims.com.au)

*Some of the words our customers used to describe eMIMSCloud\**

**Easy to Navigate - Fast and Easy - Reliable - Quick and Easy  
- Regularly Updated - Convenient - Accurate - Abbreviated PI  
- User Friendly - Simple - Comprehensive - Quality**

\*eMIMS User Survey, November 2015

## Medicines Management 2015, the 41st SHPA National Conference



MIMS recently exhibited at the 41<sup>st</sup> Society of Hospital Pharmacists of Australia (SHPA) National Conference held at the Melbourne Convention & Exhibition Centre.

The conference was attended by over 1000 delegates from around Australia and even a few from overseas. All attendees were treated to an inspiring and stimulating program, including over 90 abstracts and scientific papers, over 300 posters, and a series of entertaining and thought-provoking speakers.

With a constant crowd of delegates at the MIMS stand, many had the opportunity to experience the soon-to-be available "Don't Rush to Crush" version 2. The updated content provides information to enable healthcare professionals to administer medicines safely to people unable to

swallow solid oral dosage forms. Having this resource at hand will help to ensure that patients receive their medicines in a manner that is safe and maintains efficacy. There is also advice on the optimal preparation methods for medicines, as well as making healthcare professionals aware of any extra precautions that may be required.

Overall the conference was a success and MIMS was able to engage with this key group on the issues of patient safety and enhancing patient experience, mitigating risk and exploring sustainability in the context of rising costs and increased demand.

It was also a great time to catch up with pharmaceutical company representatives, innovators and technology partners who specialise in hospital pharmacy.

## Staff feature Aileen dela Pena



### What is your role at MIMS?

My title is Clinical Lead, Product Design and I am part of the Innovation Team. One of my key responsibilities is working with our software partners to deliver solutions in electronic medications management. The role is very much client-facing and involves understanding their requirements, providing support when necessary, and reviewing clinical applications with their end user in mind.

In addition, I provide clinical support to the IT development team for our range of digital reference products (such as eMIMSCloud and MIMS Online).

### What do you enjoy most about your role?

It is incredibly rewarding to see our data in action. As a team, we have been collaborating with our partners to deliver increased value to our traditional datasets, while ensuring that the integration of the data is safe, accurate and fit for purpose. I have had the opportunity to meet with lots of people and am looking forward to attending APP2016.

Gaining new skills and learning more about the domain keeps things interesting, and I recently gained the Certified Health Informatician Australia (CHIA) credential to formalise my knowledge in e-Health. It is great to be working with colleagues who are engaged, motivated and highly professional.

### What is your background?

A few years after completing my PhD in medical research, I decided to pursue a career in scientific and medical communications. I worked in the pharmaceutical industry before joining the MIMS Editorial team 5 years ago. I was fortunate to be able to move into my current role when the team was formed in early 2015.

### What do you see as the challenges for MIMS?

MIMS has been delivering medicines knowledge for over 50 years, and one of our challenges is to stay relevant as the healthcare environment continues to change. With the adoption of standards and more emphasis on true interoperability, we need to ensure that what we deliver continues to provide value to the healthcare professional. We also need a fresh and innovative look at clinical decision support.

### What do you enjoy outside the office?

I love yoga classes, attending dance events, and am also a bit of a foodie – I happily spend my spare time baking. Another hobby I've picked up lately is creating photo books, which is a great way of printing pictures for my mum who still prefers to have an album to show off her travels to family and friends.

## Congratulations to Nicholas Ikonomos on winning the PSA SA - MIMS Intern Pharmacist of the Year (IPOTY) Award



The first of the year for the PSA MIMS Intern Pharmacist of the Year Awards was in Adelaide at the PSA offices on Thursday, 11th February 2016. During his intern year Nicholas proved himself to be a leader in the pharmacy and his preceptor described him as involved, an asset, an excellent communicator and innovative; surely the skills and abilities needed at a time when community pharmacy faces great change.

Nicholas who is heavily involved in the PSA and the Early Career Pharmacy, has showed great leadership while being the intern at National Pharmacies Norwood. Recently with the ECP, he organised a program to promote medication overuse during Headache and Migraine Awareness Week. He ran numerous health promotions in-store and took pharmacy out to the people when he contacted staff at Westfield Marion regarding the placement of the stand in the centre. Using social media to get traction by using the #headacheaware tag Nicholas and the team he worked with spoke to over 200 people about headaches and the importance of self-care.

During his intern year at National Pharmacies Norwood Nicholas was involved in dispensing of medication, counselling of pharmacy, pharmacist only and prescription medications,

talking to customers about primary health care, and working together with local GPs and other healthcare professionals to ensure patient care. He has also been involved in dose administration aid packing, stock ordering and helping out with pharmacy administration. He has attended intern workshops through National Pharmacies and applied the knowledge to the workplace.

Nicholas is just the young pharmacist this award from MIMS is designed to recognise. The whole team here at MIMS are pleased to be able to support excellence in patient care and medication management.

Nicholas, we can't wait to see you at PSA16 in Sydney when the National winner will be announced. NSW and then ACT are coming up in February and March so good luck to all the interns who have been recommended for their State award.

## MIMS Staff Profile



Kumar Singh  
Editor

### What is your role at MIMS?

As a MIMS Medical Editor, I am involved in preparing and updating the MIMS database content to ensure it is accurate and current. The editors all work closely together in a team to review and proof the most current information from the manufacturers and TGA in Australia. We ensure any updates or changes to product information are made and are available for our clients and vendors to use.

### What is your background?

I have a Bachelor of Pharmacy (Hons) from the University of Auckland (NZ). During my degree I was also a lab supervisor for first year students and involved in orientation week for new students. Since finishing my studies, I have worked in multiple community pharmacies. Prior to joining MIMS, I was managing a community pharmacy specialising in aged care facilities (Nursing homes and Hostels).

### What do you enjoy most about your role?

As this is my first 'non-community pharmacy' based role, I am enjoying the whole experience. I am part of a good team of editors here and we work together to achieve our deadlines. I am also able to keep up to date with the latest medicine information as part of my work which is helpful.

### What do you enjoy outside of the office?

Currently all my time outside of work is spent with my two beautiful kids (a three and half and a one year old), generally at some kind of kid-friendly activity. We also like to travel as a family when we can.

## Upcoming Conferences

### APP 2016 Conference:

17th to 20th March 2016

Gold Coast Convention  
& Exhibition Centre

<http://appconference.com>

MIMS stand number is 369

### Conpharm 2016 Conference:

17th to 19th June 2016

Hilton Adelaide

<https://www.aacp.com.au/about/conpharm>

**MIMS**  
100% pure knowledge

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