Are you listening? Giving mental health patients a voice

A novel tool for elicitng information from mental health patients about side effects of psychotropic medications has proven so successful that it is to be made into an app.

The My Medicines and Me Questionnaire (M3Q) has also been taken up by various clinics, is the basis of a research project by Monash University and Alfred Health in Victoria, and is being used in Turkey, having been translated into Turkish.

The tool was developed by Assistant Professor Deena Ashoorian of Pharmacy Practice in the School of Medicine and Pharmacology as part of her recently completed PhD under the supervision of Director of Pharmacy, Professor Rhonda Clifford, Dr Rowan Davidson, former State Chief Psychiatrist, and Adjunct Professor Danny Rock, of the School of Psychiatry and Clinical Neurosciences. The next phase of research will be trialling in Perth pharmacies under the direction of the Centre for Optimisation of Medicines.

Assistant Professor Ashoorian said medications were often first line therapy for mental health patients, including those with depression, severe anxiety, schizophrenia and bipolar disorder.

Game changer for social work

“If you meet the criteria – a Bachelor’s degree and having a good reason to join us - we’d love to have you.”

Applying principles used in good business, the new Head of Social Work and Social Policy has powered the discipline from increasing slowly to racing ahead.

When Associate Professor Judy Esmond took on the role just over a year ago, student numbers for the Master of Social Work were low and its future was not assured.

This year, overall intake almost doubled, rising to 110 students and rivaling that of the WA institution that has traditionally had the biggest intake.

The number of international students has also risen and the future of Social Work is now secure.

“Over that year, we have been able to make the largest increase ever in Social Work,” Associate Professor Esmond said. The discipline is based in the School of Population Health, which has been very supportive.

Early on, the new Head set to and made some immediate changes, including taking over responsibility for admissions and broadening the focus.

“The thing I focused on was that we were willing to look at students who had done any Bachelor’s degree, not traditionally just social sciences or psychology,” she said.

Continued on page 7
Punching above their weight

Individuals who go the extra mile to impart knowledge or contribute to student learning in other ways have been recognised in the Faculty’s 2016 Excellence in Teaching Awards.

The awards are a way of "recognising and rewarding outstanding teaching, research supervision, programs and service delivery and support within the Faculty".

Nominations are made by Faculty staff and students enrolled in units taught within the Faculty.

The awards were presented at a ceremony on May 27.

2016 EXCELLENCE IN TEACHING AWARDS

Individual Teaching Award (UWA Staff)
Winner: Winthrop Professor Paul Abbott, School of Dentistry
Nominees: Winthrop Professor Paul Abbott * Dr Laura Dalton-Ecker, School of Dentistry * Associate Professor Charlene Kahler, School of Pathology and Laboratory Medicine (PaLM) * Associate Professor Thelma Koppi, PaLM * Mr Shakeel Mowlaboccus, PaLM * Associate Professor Kimberley Roehrig, PaLM *

Small Group Teaching (UWA Staff)
Winner: Associate Professor Robert Whitehead, RCS (Port Hedland), School of Primary, Aboriginal and Rural Health Care (SPARHC)
Nominees: Associate Professor Robert Whitehead * Assistant Professor Karen Upton-Davis, Social Work and Social Policy, School of Population Health (SPH) * Associate Professor Thelma Koppi, PaLM * Mr Shakeel Mowlaboccus, PaLM * Associate Professor Kimberley Roehrig, PaLM *

Individual Teaching Award (Non-UWA Staff)
Winner: Ms Amanda Bryce, sessional lecturer (Pharmacy), School of Medicine and Pharmacology (SMP)
Nominees: Ms Amanda Bryce * Dr Katrina Calvert, clinical tutor, Obstetrics and Gynaecology, School of Women’s and Infants’ Health * Mrs Elizabeth Byrnes, unit coordinator (Clinical Biochemistry), PaLM * Dr Sarah McEwan, clinical tutor, Rural Clinical School (RCS) (Port Hedland) *

Small Group Teaching (Non-UWA Staff)
Winner: Ms Amanda Bryce, sessional lecturer (Pharmacy), School of Medicine and Pharmacology (SMP)
Nominees: Ms Amanda Bryce * Dr Katrina Calvert * Mrs Elizabeth Byrnes, unit coordinator (Clinical Biochemistry), PaLM * Dr Sarah McEwan, clinical tutor, Rural Clinical School (RCS) (Port Hedland) *

Postgraduate Coursework Teaching Award (Academic Staff)
Winner: Ms Carleen Ellis, School of Surgery
Nominees: Ms Carleen Ellis * Ms Sarah Guiton, IT Unit * Ms Sarah Power, PaLM * Ms Susan Prettl, Pharmacy and Anaesthesiology Unit, SMP * Ms Vanessa Tysoe, Education Centre *

Postgraduate Coursework Teaching Award (Professional Staff)
Winner: Professor Jiake Xu, PaLM
Nominees: Professor Jiake Xu * Associate Professor Zarrin Siddiqui, Centre for Musculoskeletal Studies, School of Surgery *

Research Supervision
Winner: Dr Ian Li, SPH
Nominees: Dr Ian Li * Professor Rhonda Clifford, Pharmacy and Anaesthesiology Unit, SMP * Professor Lee Yong Lim, Pharmacy and Anaesthesiology Unit, SMP * Dr Matthew Linden, PaLM * Professor Barbara Singer, Centre for Musculoskeletal Studies, School of Surgery *

Service Award for Outstanding Contribution to Student Learning (Professional Staff)
Winner: Ms Carleen Ellis, School of Surgery
Nominees: Ms Carleen Ellis * Ms Sarah Guiton, IT Unit * Ms Sarah Power, PaLM * Ms Susan Prettl, Pharmacy and Anaesthesiology Unit, SMP * Ms Vanessa Tysoe, Education Centre *

Outstanding Contribution to Student Learning Category (Academic Staff)
Winner: Associate Professor Denese Playford, SPARHC
Nominees: Associate Professor Denese Playford * Dr Ian Li * Associate Professor Zarrin Siddiqui, Education Centre *
The Dean’s Diary

By Professor Wendy Erber, Dean.

Vision for the Faculty

The Faculty has a vision to be one of the top medical, dental and health science centres in education and medical research in the country. Our 2016 Faculty Strategic Plan outlined how we would begin to address the gaps between where we are currently and what we aspire to achieve.

Attracting the top students to our educational programs is a priority. We have developed “pathways” of study to guide students through the university’s programs en route to becoming a health professional. We have increased the number of advanced offer places into medicine and dentistry. These are now called “Direct Pathway” places and will be offered to the highest achieving school leavers from diverse backgrounds, guaranteeing a place in the MD or DMD after satisfactory completion of an undergraduate degree. We are introducing a new course in “Medical Sciences”. This three-year undergraduate major will give students a broad introduction to normal body structure and function, mechanisms of disease and drugs, health and society. We believe that this will be very popular and a launching pad into health and biomedical research or postgraduate professional degrees. It is not “pre-med” and not a prerequisite for medicine or dentistry. However, students who take this course, and then progress into the MD or DMD (and potentially other health programs), will be able to claim credits and reduce the length of study for the postgraduate course. We believe these three changes will be very attractive to students and put us on the path to achieve our strategic goals in health and biomedical education.

A major focus of our academics is to be outstanding in health research and innovation. Funding for research is increasingly competitive and academics nationwide are finding times challenging. We wait to learn about the approach to be used in delivering funds through the new Medical Research Future Fund. We have many scientists and clinicians who, by working together, are already being more innovative. We encourage greater collaboration within the Faculty and university, and beyond. Together we are more likely to make discoveries and translate outcomes to improve patient care than if working alone. Many of our academics are engaged with the WA Health Translation Network, a consortium of hospitals and universities in WA. We are also encouraging our highest calibre students to embrace research from early in their studies.

Renewal

Over recent months we have been heavily involved in the UWA “Renewal Project”. This major task for the entire university is taking place over 2016 and entails rationalising the UWA structures, moving from eight to four larger Faculties. The makeup of each is currently being debated. Whatever these end up being, I have no doubt that “medicine, dentistry and health sciences” will continue under some name. Staff, both academic and professional, still face uncertainty as the university looks to reduce its manpower and increase efficiencies through this process. Compounding this are the financial difficulties facing WA Health and the effects these are having on our clinical academic staff.

As you can imagine, this is an extremely stressful time for all in the Faculty. I am pleased to report that, despite these difficulties, our students have not been affected as our teaching and research are proceeding unchanged.

Over the past six months I have met many Faculty staff and external stakeholders. These meetings have given me an opportunity to learn a great deal about the complexities of the Faculty and its involvement in the health system, as well as to make personal links. The range of discussions has been broad and I continue to learn about opportunities, desires and potential directions we could take. There is much work to be done. However, we continue as a vibrant community of scholars and students, contributing to the university and the State. As I wish to bring us all together, I am launching the Dean’s Distinguished Lecture series. This series, which will commence in July, will be an opportunity for students, academics and alumni to hear from our most distinguished academics. I look forward to seeing you there.

I thank you for your continuing support in achieving our vision of “advancing health through education and innovation”.

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The WA Pregnancy Cohort (Raine) Study is a unique longitudinal study of more than 2,000 individuals followed over the last 26 years with comprehensive assessments starting before they were born and continuing throughout childhood, adolescence and into early adulthood. Now their parents are in the hot seat. And the babies of the original participants are also being recruited to a separate study, making a triple generation study.

After almost 30 years of being stalwart supporters as their children took part in the famous Raine Study (Generation 2), hundreds of parents have now stepped onto the field to make possible the Raine Study of Parents, or Generation 1.

Already more than 400 parents aged between 45 and 70 years have undergone a battery of tests and completed numerous questionnaires in a bid to help answer questions about the prevalence and genetic basis of various medical conditions, including sleep disorders.

They have been wired up for overnight polysomnography (sleep study) - with some having snored, sleep talked and had restless legs syndrome. They have had blood samples taken for DNA and other analyses, been weighed, tape measured, monitored for blood pressure, photographed with a 3D camera for craniofacial anatomical data, undergone five eye tests, a body composition scan, lung function testing, pressure and cold perception, and sun damage assessment. They have completed questionnaires on cognitive function, sleep quality, daytime sleepiness and its impact on everyday living, medical, psychiatric and sleep disorders history, family history, medication use, menopause, use of addictive substances (smoking, alcohol, caffeine and illegitimate drug use), food frequency, and much more!

During the overnight sleep study and for a week afterwards, they have worn activity monitors on their wrist and hip to measure rest-activity patterns.

All the same measurements were taken in their children, 1,200 of whom participated at 22 years of age in a follow-up of the original study. Ms Jenny Mountain, Program Manager of the Raine Study which is based in the School of Population Health, said they hoped to recruit more than 1,000 biological parents. One of the study’s principal investigators, Professor Eric Moses, who is Director of the Centre for Genetic Origins of Health and Disease in the Faculty, said, “We are hoping to identify genes associated with sleep problems.”

Professor Peter Eastwood, Raine Study Scientific Director and a principal study investigator, said, “An estimated 1.5 million Australians, or about 9% of the population, have one of the common sleep disorders, which are associated with significant morbidity and mortality. However, most of these go undiagnosed. The study aims to provide information on the prevalence, characteristics and genetic basis of sleep disorders, particularly the three most common variants - obstructive sleep apnoea, insomnia, and restless legs syndrome/periodic leg movement syndrome.”

Determining disease prevalence will help understand the scale of the health and economic impact of sleep disorders, including work absenteeism and presenteeism. Characterising the disease types will help determine the genetic basis of any family predispositions.

Raine Study Co-ordinator Ms Diane Wood said they kept the participants busy with tests and activities. Everyone was given summaries of results from their various tests.

Ms Mountain said that the Raine Study was organising the next follow up of the Raine cohort participants at age 27, with an emphasis on understanding the relationship between internal fat stores and cardiovascular function.

She said the Raine Study was always very grateful for any funding received, including philanthropic donations. She can be contacted at: jenny.mountain@uwa.edu.au.

- By Cathy Saunders
Ms Jenny Mountain, Raine Study Program Manager

**Baby Raine**

Planning for offspring of the original Raine cohort to be participants in the Raine Study of Babies, or Generation 3, is underway.

The research study will assess the babies, now aged 2 to 10 years, for the next two years. They will be assessed for weight, height, and cognitive and physical developmental milestones, such as talking, object recognition and so on. Some biological samples - blood, urine, stool and hair - will also be collected.

Program Manager Ms Jenny Mountain said the aim was not only to bring the babies into the Raine Study but also to provide a control group for the Australian Autism Biobank run by the Autism CRC (Cooperative Research Centre for Living with Autism). A key researcher is Professor Andrew Whitehouse, head of the Autism and Related Disorders research team at the Telethon Kids Institute.

“They will be able to establish a phenotypic and genetic resource to compare the children with and without autism to try and identify genes associated with autism,” Ms Mountain said. “They are collecting stool samples to examine the microbiome, which affects many areas of health and is a developing area of research.”

She said the study group was in contact with about 250 Raine Study participants who were currently pregnant or had babies and children who ranged in age from a few months to 10 years. “Over the next two years we hope to recruit up to 300 children for a short, enjoyable assessment with the Raine Study,” she said.

**Student opportunities with Super Clinic**

Medical, allied health and nursing students will have access to a wider range of health scenarios in the Pilbara region, thanks to the opening of a new Super Clinic with an innovative hub.

Formally known as the Karratha Central Healthcare GP Super Clinic, it cements the WA Centre for Rural Health (WACRH) partnership agreement with the Pilbara Health Network (PHN) as its research and training partner. It features a Social and Wellbeing Learning Hub, which is a WACRH initiative.

Officially opened in April, the Super Clinic will serve as a central agency for general practitioners, allied health, mental health and ancillary health services for the Karratha region and provide educational programs and clinical training in regional health.

It features four areas - clinical, allied health, social and emotional wellbeing and corporate, plus specific areas for Aboriginal health and chronic disease.

The Karratha node of the Rural Clinical School of WA will be co-located there.

WACRH Director Professor Sandra Thompson said the partnership with PHN presented many opportunities for education, community partnerships and research in the Pilbara.

The first students would arrive in Karratha in mid-June to start placements. “We know they will have great learning opportunities and hope that they add value both within and outside the clinic,” she said.

“As we build our infrastructure as well as academic and clinical placement support, WACRH aims to extend from our Karratha base into other parts of the Pilbara region.”

Student placements will include nursing, dietetics, podiatry, social work, public health and pharmacy. WACRH eventually hopes to support speech pathology, occupational therapy and physiotherapy students undertaking placements.

Particular research interests of WACRH staff are health services research, improving chronic disease management, health promotion, population health, Aboriginal health, health workforce and exploring innovations in technology. All of these areas are deemed important for reducing health disparities.

The hub was created with funds from the Federal Government’s Innovative Clinical Teaching and Training grants.
Dental research day proves a drawcard

Wide-ranging research being undertaken by the School of Dentistry was showcased at its Annual Research Day in April and it packed the McCusker auditorium at the Harry Perkins Institute to the rafters.

The occasion was a fitting way to mark the start of the School’s 70th anniversary.

Hailing from the University of Chieti-Pescara in Italy, Professor Adriano Piattelli was the invited guest speaker and spoke about biomaterials in oral grafting.

Reflecting the importance placed by Head of School and Director of the Oral Health Centre of WA (OHCWA), Professor Camile Farah, on publishing good research, Faculty Research Development and Training Coordinator, Dr Susan Yates, gave what she described as the “marathon” presentation because of the extended time allotted to it. She outlined the why and the how of publishing and peer review and gave the audience helpful tips.

Professor Linda Slack-Smith, School Research Coordinator, told the audience that research would become more important in the future, that the School offered a supportive environment and that all year 3 and 4 Doctor of Dental Medicine (DMD) students were undertaking projects. Dr Kate Shearston, Research Laboratory Manager, gave an update on the impressive new laboratory facilities.

The School’s program leads all gave presentations. Professor Farah, lead in oral oncology, spoke about the focus on clinical and translational oral oncology, including novel approaches to the early detection, diagnosis and management of oral cancers and pre-cancerous lesions.

Professor Paul Ichim, lead in biomaterials and biomechanics, said the aims of his group were to develop new dental materials and technologies for oral healthcare. The future of biomaterials included emulating nature for new materials with unique functions, reflecting the concepts of mimicry.

Associate Professor Robert Anthonappa, lead in paediatric oral health, said their research was aimed at providing accessible, affordable and appropriate solutions to clinical problems they saw in the clinic. These included dental caries, oral health-related quality of life changes, and developmental defects of dental hard tissues.

Professor Linda Slack-Smith, lead in oral health inequalities, said their work was driven by social justice and the goal was to provide qualitative and quantitative evidence to reduce inequalities in oral health. Their streams of work included analysing data and using research evidence to change policy and practice.

Dr Estabelle Ang spoke on behalf of Associate Professor Mithran Goonewardene, lead in craniofacial biology, explaining the overall goal of the group was to understand the cellular and molecular mechanisms of oral biology in order to aid oral tissue regeneration and bone healing.

Professor Farah told MeDeFacts the day had been a resounding success with 216 attendees. He thanked all involved in making the arrangements, particularly Research Support Officer Mrs Khui Hung Lee and Dr Shearston, and also the dental and research industry partners who joined the School for the important event, particularly the major sponsor Henry Schein.

"It is encouraging for me to see a major shift in the School’s focus on research come to fruition over the last 15 months since joining the School," he said. “Our new strategic plan, re-alignment of research priorities, new staff profile, and local support and infrastructure should position the School as a leader in dental, oral and craniofacial research."
Questions, allowing the patients to included open as well as closed action, such as changing a medication or the dose or its timing, Assistant Professor Ashoorian said. “It is really meant to get the conversation going so that health care professionals can identify the red flags or identify a patient who may be likely to become non-adherent.”

The tool was novel because it asked patients to identify their three most bothersome side effects, which could be different from what health care professionals (HCPs) might think.

For example, HCPs might consider profuse sweating a minor issue but one patient did not report their side effects, which was why the tool was important.

“It will basically give a voice to the patients,” Assistant Professor Ashoorian said. “It is really meant to get the conversation going so that health care professionals can identify the red flags or identify a patient who may be likely to become non-adherent.”

But most patients did not report their side effects, which was why the tool was important.

“The tool was tested with 205 patients, aged 43 years on average, from five Perth public mental health clinics and one hospital. It took about 15 minutes to complete the questionnaire.

The most commonly reported side effect in the study was sedation (77%) and weight gain was ranked as the most bothersome (23%).

WA Health had agreed to co-badge the tool and distribute it to clinics, Assistant Professor Ashoorian said. It is already being used in research and will be assessed in specific populations, such as pregnant women and diverse cultural groups.

A local team will develop an app which can be completed electronically and the results sent directly to the treating clinician ahead of the next patient visit.

The tool can be used by psychiatrists, GPs, hospital clinicians and pharmacists.

- By Cathy Saunders
Getting on with the job of medicine

Professor Gerald F Watts has never submitted his profile to a journal. He simply prefers to “get on with the job”.

He fits in a tremendous workload as a clinical academic, juggling his hours as clinician, researcher, teacher, author, editor, and expert advisor to healthcare sectors, international societies and industry groups, not to mention supporting a large family and travelling globally to present lectures and research papers in his discipline.

He is a senior consultant physician at Royal Perth Hospital (RPH), having been Head of Internal Medicine for six years, and is Winthrop Professor in cardiometabolic medicine in the School of Medicine and Pharmacology at The University of WA (UWA).

“I’ve tried as much as possible throughout the years to translate my research into clinical practice and conversely gaps in clinical care into researchable questions,” he says.

He came to Perth in 1994 from St Thomas’s Hospital (King’s College London) to take up an appointment at RPH and UWA. “I brought over a number of new technologies that allowed new clinical investigations concerning arterial function and lipid metabolism,” he says.

His research has included examining the role of obesity, diabetes and disturbed lipid metabolism in heart disease and the application of stable isotope tracers to investigating the mechanisms of action of new therapies for lipid disorders.

“We studied and confirmed the beneficial effects on lipid metabolism and vascular health of new treatments that are now employed in the clinic,” he says. “These include nutritional supplements, such as fish oils and co-enzyme Q, the statin and fibrate group of drugs, and monoclonal antibodies against a protein called PCSK9 that controls blood cholesterol levels.”

But he is perhaps best known more recently for his tireless work in familial disorders of lipid metabolism, particularly familial hypercholesterolaemia (FH), an inherited condition that elevates blood cholesterol and causes early heart disease in families. “These disorders have been overlooked but we now have greater precision in making a diagnosis through genetic testing and can apply newer treatments that can very effectively lower high cholesterol levels with significant reduction in coronary risk,” Professor Watts says.

Thanks to his efforts supported by his colleagues, there is a model of care for FH, which received a distinguished award for excellence from the WA Health Department, has been adopted throughout Australia, has informed international guidelines and serves as a template for other high-risk forms of inherited heart disease. “The template of this model of care encapsulates services for screening, diagnosis, risk assessment and therapy that are multi-disciplinary based and integrated between specialist and primary care,” he explains.

He has initiated the development of an Australian FH web-based registry which can be used for health service research and clinical trials. “It is now applicable worldwide and we are just about to initiate the registry in the Asia-Pacific region.”

FH affects about one in every 250 Australians, yet about 60% of cases remain undiagnosed and therefore their family members have not been screened for this high-risk condition.

The professor has developed telehealth and outreach services, an FH family support group and international collaborations. He has more than 500 published works to his credit.

His work at UWA encompasses teaching medical students and the supervision of research students and he established the first Master in Clinical Research.

Professor Watts graduated in medicine and biochemistry (Honours) from the University of London, has doctorates in medicine and philosophy, and was particularly honoured by being awarded a Doctor of Science from the University of London (Imperial College) in 2003.
Pinpointing cancer

Finding the “GPS” for cancer is the highlight of the stellar career of a medical graduate of the Faculty who has risen to the top of his field internationally and won numerous accolades on the way.

Dr Richard Pestell is a renowned oncologist and endocrinologist who is currently the number one cited expert in the world by Google Scholar in the areas of prostate cancer and the cell cycle. He is Director Emeritus and Professor at the Sidney Kimmel Cancer Centre at the Thomas Jefferson University Hospital in Philadelphia, Pennsylvania, where he served as the Centre’s Director from 2005 until January last year.

His most recent of a host of awards and accolades is the Eric Susman Prize for 2015, awarded by The Royal Australasian College of Physicians to a Fellow for the best contribution to knowledge of any branch of internal medicine. His work has contributed to the understanding of the molecular mechanisms governing hormone responsive cancer.

He says his most important finding has been the identification of a target for cancer metastasis (CCR5) that functions much like the GPS for cancer. “We then identified drugs that are non toxic in humans which block metastasis. Because the receptor is expressed on many different types of cancer, this finding provides a potential to improve the quality of life for patient with diverse types of cancer.

“Secondly, we identified a molecular test to help with patient care. Prostate cancer is quite common in men as they age. But prostate cancer with a bad outcome or good outcome looks the same under the microscope. We identified a molecular genetic test that distinguishes bad and good outcome prostate cancer to help both patients and clinicians.” Clinical trials are being conducted.

Dr Pestell has also conducted studies which suggest a way to reduce the toxic side effects of most chemotherapy and which would potentially improve the quality of life for most patients.

He was attracted to the fields of oncology and endocrinology because both of his parents and several close friends had died of cancer. “I was struck by the disproportionate systemic features of their disease compared with the small size of the tumour,” he says. “It seemed likely therefore that these two fields together would provide insights into a deeper understanding and thereby better care for patients with cancer.”

Dr Richard Pestell graduated with an MBBS from UWA in 1981 and completed his MD in 1991 and PhD in 1997 from the University of Melbourne, having been a Postdoctoral Research Fellow at two US medical institutions from 1991 to 1993.

“Of particular importance to my career in the USA was the opportunity to complete a PhD at the Howard Florey Institute and Melbourne University under the direction of Drs John Coghlan and Richard Larkins,” he says. He headed to the US on the advice of these mentors.

His career trajectory took him via various roles - including working at the Albert Einstein Medical College in New York in the department of Professor E. Richard Stanley, son of Professor Neville Stanley who was the UWA Foundation Professor of Microbiology - eventually to the Sidney Kimmel Cancer Centre.

His most important accomplishment as Director, he says, was creating an organisation in which honesty, respect and trust were built, enabling everyone to focus on the importance and meaning of what they were involved with each day and thereby improving the experience of patients.

Dr Pestell is grateful to UWA for its exceptional medical education. “The UWA and other Australian universities are the cornerstones of Australia and its future prosperity,” he adds.

- By Cathy Saunders
Now some of our best students have come from a range of degrees - accounting, law and business. It is a very big step to change your career path and we should encourage that, not make it difficult.

Associate Professor Esmond introduced another big, overall change. “We really personalised and customised the recruitment process. The truth is that you apply to a number of universities and often it’s who gets back to you the quickest.”

Previously, the lag between applying for acceptance into The University of WA course and being informed of the outcome could be several weeks. To make the offering more competitive, Associate Professor Esmond personally read all the applications and emailed the applicants within 24-48 hours.

Apart from a Bachelor’s degree, the other main criterion for entry is a written explanation of good reasons for wanting to study social work. She had applied the rules of customer service - learnt from a decade of running her own Australian research and consulting company - to dealing with applicants. “The sooner we can get back to a potential customer, the better,” she said. She believes a quick turn-around for approvals could be applied across many other Schools in the university with staff who really understand the course.

To deal with teaching bigger student numbers, assessments now are tighter and not excessive and classes are larger without loss of teaching quality. She has also introduced new types of field placements.

As many students are post-graduates, working and with families, other rules of customer service are being initiated. Some units of the two-year course will be available online, whereas before there was none and, in a big departure from the norm, the plan is to organise the timetables so that first year students can do all their units on Mondays and Tuesdays, and second years on Thursdays and Fridays, leaving the rest of the week available for part-time work.

Continued from page 1

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She took no holidays over the long summer break in order to be able to assess all the applications in her self-imposed short time frame.

- By Cathy Saunders

Distinguished lecturers

A new forum for taking some of the brilliant research being undertaken in the Faculty to a wide audience has been introduced by the Dean, Professor Wendy Erber.

The Dean’s Distinguished Lecture Series will feature University of WA professors who are outstanding in their field of medicine, dentistry or health sciences and who will present the evolution of their research and how it has changed the face of patient care.

It is “an initiative designed to take a broad audience of students, academics, researchers, clinicians, professionals and UWA Alumni on a journey from a medical problem through research to application to clinical care”.

Starting in the second semester, there will be a monthly one-hour lecture held on the third Tuesday of each month during semester from 12.30 pm in the McCusker Lecture Theatre at the Harry Perkins Institute, North Building, Queen Elizabeth II Medical Centre.

The inaugural Dean’s Distinguished Lecture will be held on July 19 and will be launched officially by UWA’s Senior Deputy Vice-Chancellor Professor Dawn Freshwater. She will present Professor Erber, a haematologist, who will talk about translating discoveries to improved diagnosis and hence better management for patients with malignant disease. The topic is “Cancer is no longer a death sentence.”

Each lecture will be advertised before the event and email invitations will be sent to staff, students and alumni. Everyone is welcome and RSVPs are not required.


2016 program:

• Tuesday July 19 - Professor Wendy Erber, haematology. “Cancer is no longer a death sentence.”
• Tuesday August 16 - Professor Osvaldo Almeida, Professor of Geriatric Psychiatry and Director of Research, WA Centre for Health and Ageing. “What causes depression and how can we prevent it?”
• Tuesday September 20 - Professor John Newnham, Obstetrician (maternal-fetal medicine specialist). “How to stop babies being born too early.”
• Tuesday October 18 - Professor Martyn French, Clinical immunologist and HIV researcher. “Winning the battle against HIV infection.”
• Please note food and drinks are not permitted in the McCusker Lecture Theatre.

Professor Judy Esmond

Game changer for social work

Continued from page 1

By Cathy Saunders

2106 program:

• Tuesday July 19 - Professor Wendy Erber, haematology. “Cancer is no longer a death sentence.”
• Tuesday August 16 - Professor Osvaldo Almeida, Professor of Geriatric Psychiatry and Director of Research, WA Centre for Health and Ageing. “What causes depression and how can we prevent it?”
• Tuesday September 20 - Professor John Newnham, Obstetrician (maternal-fetal medicine specialist). “How to stop babies being born too early.”
• Tuesday October 18 - Professor Martyn French, Clinical immunologist and HIV researcher. “Winning the battle against HIV infection.”
• Please note food and drinks are not permitted in the McCusker Lecture Theatre.
A new advocate for undergraduate majors

The development of a new Medical Science major has been the key focus of recently-appointed Sub-Dean (Undergraduate Majors), Dr Daniela Ulgiati, who took up the role in February.

She has been involved in the establishment of a working party for the new major, curriculum development and the co-ordination of appropriate discipline leads.

It was her experience in teaching and research since 2007 and her great interest in teaching undergraduate students that prompted her to apply for the Sub-Dean position. “I thought it would be really interesting to advocate for undergraduate majors within the Faculty,” she said. “The undergraduate majors are an important aspect of teaching and learning within the Faculty and so I think we need to make sure that training students in the health sciences sphere is something that we excel at.”

She wants the students to feel well supported and that they have a sense of belonging within the Faculty.

Undergraduate students who complete majors through the Faculty emerge with a Bachelor of Science - which enables them to apply for the post-graduate degrees such as medicine, dentistry, pharmacy, social work as well as other postgraduate pathways or research. The majors include Aboriginal health and wellbeing, biomedical sciences, genetics, microbiology and immunology, pathology and laboratory medicine, pharmacology, and population health.

“There are about 1100 students in undergraduate majors within the Faculty so it is a huge array of students,” Dr Ulgiati said. “This number represents students who have specified one of those areas as their first major so there might actually be more if you count those who have one of those disciplines as a second major as well.”

Dr Daniela Ulgiati

Dr Ulgiati has a BSc in pharmacology and physiology and a PhD in immunology and biochemistry from UWA and undertook a four-year Fellowship in Denver, Colorado to further her research.

“I am still actively involved in research,” she said. “We are interested in understanding the genetics of autoimmunity, in particular Lupus.” She also teaches second and third year science students within the genetics and pathology majors.

Professor Jane Heyworth has stepped down after several years as the inaugural appointee as Sub-Dean (Undergraduate Majors) and a long-standing prior role as Sub-Dean (Health Science) dating back to 2005.

Faculty Dean Professor Wendy Erber thanked Professor Heyworth for her significant contributions and commitment. “Professor Heyworth provided student support and advice across multiple majors and greatly assisted the Faculty during the transition to New Courses through her role coordinating the many groups associated with the different majors and liaison with the Faculty of Science,” she said. “Over the time... the number of students has increased significantly, thereby showing the importance of this role.”

Professor Heyworth has returned to her School-based teaching and research position.

WITS ABOUT YOU

Our medical quiz is kindly supplied by Emeritus Professor Bernard Catchpole, the second Professor of Surgery appointed to the Faculty.

1. The stainless steel and chrome-plated apparatus of hospitals may slowly change to the dull gleam of copper objects. Why?
2. Why is the lithotomy position so-called?
3. Baron Dupuytren gave his name to the contraction of the palmar fascia. What else carries his name?
4. What is a baculum? Does man have one?
5. Why is 4. so named?
(Answers page 15)
Wanted: middle-aged men who are carrying a tad too much weight and would like to be fitter and healthier.

They can apply to join a new trial looking at whether testosterone, with or without exercise, can improve the health of their arteries. The testosterone is given as a cream applied to the torso.

The trial is being headed by Dr Bu Yeap, of the School of Medicine and Pharmacology and the Harry Perkins Institute of Medical Research. It was prompted by his team’s recent findings of a link between testosterone and telomere length in men. The shortening of telomeres - structures at the end of chromosomes that protect the chromosomes - is a marker for biological ageing.

The team’s study of 980 men aged 54 years on average from the WA Busselton Health Survey found that higher levels of the bioactive metabolites of testosterone, dihydrotestosterone and estradiol, are independently associated with longer leucocyte telomere length in men. They showed that genetic polymorphisms which reduce estradiol levels are predictive of shorter telomere length, suggesting a causal link.

“So we postulate that maybe exposure to a higher circulating level of estradiol actually slows biological ageing in men,” Dr Yeap said. His team found three polymorphisms and they were relatively common, being present in half to two-thirds of the population. The findings were published in the March issue of the Journal of Clinical Endocrinology and Metabolism.

“The telomere finding is very important,” Dr Yeap said. It opens up the question - if they manipulate hormone levels, could they slow biological ageing.

“Ageing is a powerful driver for diabetes, cardiovascular disease, dementia, frailty,” he said. “If you can slow biological ageing, you are going to prevent a heap of disease.”

His team is now conducting a randomised controlled trial to see whether testosterone, either alone or in combination with exercise training, will improve the health of arteries in middle-aged older men with a waist circumference of 95cm (37.4 inches) or more. They are hoping to recruit up to 80 men aged 50-70 years who would like to be fitter and healthier. They can apply directly to be part of the trial or be referred by their GP.

The participants’ fitness and arterial health will be measured before and after the trial. They will be randomised to testosterone or placebo. Those randomised also to exercise will receive three months of a personalised training program, involving one hour of exercise three times a week. Those randomised to their usual activities will be given an individualised exercise prescription at the end of the trial so they don’t leave empty-handed.

The trial has received a $75,000 grant-in-aid from the Heart Foundation but most of the trial researchers are donating their time and expertise for free. Dr Yeap said the trial will answer the question of whether testosterone is a beneficial treatment. “At the moment, we only treat men who are clearly androgen deficient, who have a pituitary problem or a testicular problem and can’t make testosterone,” he said.

His previous research has shown that men in the 25th percentile of the testosterone range have worse health outcomes, including a greater risk of cardiovascular disease, diabetes, and hospitalisation or death from stroke. “But at the moment, we don’t treat those men,” Dr Yeap said. “We need to do some proper scientific studies to find out whether treating those men with a low-normal level can improve their health or not.”

Men aged 50-70 years interested in entering the trial, and doctors who would like to refer patients, can contact research nurse Ms Helen Daniels at helen.daniels@uwa.edu.au or on (08) 6151 1138.

Above: (from left) Exercise physiologists Ms Lauren McKeown and Dr Louise Naylor, and study researchers Dr Bu Yeap and Dr Yi Xian Chan, try out some of the equipment in the gym used in the study.
Recognising brilliance – and hard work

Dozens of students who have excelled in their disciplines were awarded an array of prizes at the Faculty’s Prize Ceremony for 2015, held at the University Club on May 11. The winners are listed below. Dr Margaret Donaldson was the winner of the Australian Medical Association (WA) gold medal for scoring the highest aggregate mark for all core units over the six years of the MBBS course.

Alan Charters Elective Prize 1st prize - Dr Binu Jayawardena
Alan Charters Elective Prize: runner up - Dr Kieran Robinson
Alan Charters Elective Prize: runner up - Dr Benjamin Roestenburg
Alan Charters Elective Prize: runner up - Dr Devaki Wallowoppilai
Alfred Nailer Jacobs Memorial Prize - Dr Margaret Donaldson
Anne Thomsett Memorial Prize in Social Work - Mrs Maja Medenis
ANZCA/ASA Gilbert Troup Prize - Dr Ciselle Meier
Arch Ellis Memorial Prize in Psychiatry - Dr Sharanaya Shanmugakumar
Australian Medical Association Prize - Dr Margaret Donaldson
Australian Medical Association Prize (Level 2) - Ms Emma Roffey
Australian Medical Association Prize (Level 5) - Mr. James Nolan
Australian Society for Microbiology (WA Branch) Prize - Ms Lauren Savage
C. B. Kidd Memorial Prize in Psychiatry - Dr Georgia Walker
C. D. J. Holman Prize for Excellence in Public Health - Ms Sharanae Zanotti
Campbell and Annie Murdoch Prize in Rural and Remote Medicine - Mr Reece Jefferies
Central City Medical Centre Prize in General Practice - Mr Brent Evans
Central City Medical Centre Prize in General Practice - Mr James Nolan
Convocation of UWA Graduates Prize in Medicine (Level 5) - Ms Melanie Ann Still
Coral Haughie Memorial Prize - Ms Emma Roffey
D. P. Clement Prize - Ms Lauren Lloyd
Dean’s Prize in Podiatric Medicine - Ms Heidi Schlesniak
Elsie Louise Simpson Prize in Biochemistry - Ms Lauren Lloyd
Emele Bradshaw Vance Prize in the Doctor of Medicine - Miss Catherine Nguyen
Faith Stewart Book Prize - Joint Winner Mr James Nolan
Faith Stewart Book Prize - Joint Winner Ms Shi Rui Tan
Faith Stewart Book Prize in Health Sciences - Ms Chelsea Leo
Florence Alexander Dumble and John and Louisa Cowcher Memorial Prize in Anatomy - Mr Julius Varano della Vergiliana
Fred Johnston Memorial Prize - Joint Winner Dr Sharrya Shanjumugakumar
Fred Johnston Memorial Prize - Joint Winner Dr Georgia Walker
Geoffrey Ashburton Thompson Memorial Prize - Miss Mengchen Suo
Gwendoline Hewitt Prize in Paediatrics - Joint Winner Mr Benjamin Devey
Gwendoline Hewitt Prize in Paediatrics - Joint Winner Ms Danielle Malatzky
Hamish Macmillan Prize in Dermatology - Dr Brittany Lewin
Helen Jane Lamard Prize in Medicine - Dr Mistral Watson
Helen Jane Lamard Prize in Surgery - Dr Catherine Miles
Hing Hang Leung Prize in Palliative Care - Dr Josué Rohan du Heaume
Hlavacek Prize - Miss Catherine Nguyen
Jack Bercov Memorial Prize - Mr. James Nolan
James W. Paterson Medal - Ms Clare Bradley
Jan Watt Memorial Prize for Excellence in Public Health Field Research - Mr Craig Cumming
Jean Teasdale Prize in Social Work - Miss Olivia Kendell
Jeanette Pedlow Memorial Prize in Psychiatry - Mr Drew McCarthy
Konrad Jamrozik Prize for Excellence in the Master of Public Health by Coursework or Coursework and Dissertation - Dr Gabriela Willis
Margaret Stockbridge Memorial Prize in Social Work - Miss Olivia Kendell
Marion Margaret Bergin Memorial, Harry D. Fitch Memorial and Eileen Haberfeld Memorial Prize in Pathology - Miss Catherine Nguyen
Mary Fauriel Lockett Prize in Pharmacology - Mr Saiuj Bhat
Max Kamien Prize in General Practice - Ms Emma Roffey
Navaretnam Memorial Prize in Medical Microbiology - Ms Elly Harris
Peter Anderton Memorial Prize in General Practice - Dr Margaret Donaldson
Podiatrists Registration Board of WA Prize - Joint Winner Mr Chun Lian Julian Boo
Podiatrists Registration Board of WA Prize - Joint Winner Ms Heidi Schlesniak
Podiatry WA Prize - Joint Winner Mr Jason Chung Ern Lim
Podiatry WA Prize - Joint Winner Mr Tsepo Marcus Llewellyn
Podiatry WA Prize - Joint Winner Mr David Majewski
Podiatry WA Prize - Joint Winner Ms Heidi Schlesniak
Prize in Paediatric Ophthalmology - Miss April Stock
Queen Elizabeth II Coronation Gift Fund Trust Prize in Obstetrics - Miss Sarah Cooper
Royal Australian and New Zealand College of Obstetricians and Gynaecologists Women’s Health Prize - Mr Albert Yi He
Royal Australian and New Zealand College of Ophthalmologists (WA Branch) Prize - Mr Chi Seong Andrew Yip
Royal Perth Hospital Clinical Association Prize in Medicine - Ms Katherine Leiter
Royal Perth Hospital Clinical Association Prize in Surgery - Ms Samantha White
Rural Doctors’ Association of WA Prize – Mr Reece Jefferies
SCGH Excellence in Nursing Practice Prize - Ms Kirsten Bird
School of Population Health Prize for Excellence in the Master of Nursing Science Course - Ms Kirsten Bird
School of Population Health Prize for Excellence in Public Health - Ms Bethany Fielder
School of Population Health Prize for Excellence in Public Health - Ms Amy Kidner
WA Department of Health Prize for Honours Dissertation in Public Health - Ms Jade Newton
Walter Tauss Memorial Prize in Indigenous Issues - Miss Yi Ling Lau
Walter Tauss Memorial Prize in Social Work Practice - Ms Shan Sai
WA Faculty of the Australasian College for Emergency Medicine Prize - Dr Amali Samarasinghe
William T. Woodhead Prize in Podiatric Biomechanics - Mr Christopher Si
What’s going on in the Faculty

Research
A “medical research game changer” that involves a deeper understanding of how type 1 diabetes disrupts the body’s immune system has been unearthed by a team at the Centre for Diabetes Research at the Harry Perkins Institute of Medical Research. Head of the Centre, Professor Grant Morahan, said their finding revealed that, unlike many other genetic diseases, the genes that caused type 1 diabetes did so by regulating the expression levels of other genes, rather than by making changes in proteins. “Our finding suggests the cure for this condition will most likely lie in treatments that regulate the whole of the immune response, not just particular parts of it,” he said. “This is a medical research game changer in that it alters our understanding not only of how type 1 diabetes impacts the body but likely also other complex genetic diseases such as cancer, type 2 diabetes and heart disease.”

Researcher Professor Ruth Ganss and her team at the Harry Perkins Institute of Medical Research have developed a drug that could enable anti-cancer drugs to reach the core of tumours more effectively by repairing blood vessel defects in the tumours. They found that smooth muscle cells that line blood vessels often break down in tumours, making the blood vessels leaky, reducing blood flow and preventing chemotherapy and immunotherapy from entering the tumour. The new drug works by repairing the smooth muscle cells and returning normal blood flow to the vessels, allowing other anti-cancer drugs to reach the tumour’s core.

A new treatment for osteoporosis may be a step closer with the findings of an international study led by Professor Jiake Xu, of the School of Pathology and Laboratory Medicine. The study found a new way that cells involved in bone structure were able to talk to each other. Professor Xu said researchers focused on two types of cells, bone-resorbing osteoclasts which break down bone and bone-forming osteoblasts that regularly cross-talk within the body. “Bone remodelling is regulated by these two types of cells,” he said. The research found that osteoclasts could produce small, sac-like structures containing microRNAs, or information, that could communicate with other cells. “We’ve discovered the osteoclasts can send a message to osteoblasts about inhibiting bone growth, so if we could find a way to manipulate this to instead promote bone growth it could lead to new treatments for osteoporosis,” he said.

A high intake of both sugar and fat increases the risk of child obesity, probably through what has been dubbed “hedonic synergy”, or sensory pleasure from eating certain foods, according to a study by researchers including Associate Professor Gina Ambrosini, of the School of Population Health. She said it was not sugar alone that was important in obesity in children and teenagers. Sugar and fat made foods such as cakes, doughnuts and chocolate hard to resist, undermining an individual’s ability to control their cravings and their overall energy intake. The study examined the food diaries of 6722 children in the UK.

Awards
Watching Aboriginal children kicking a tin around an oval inspired a Faculty graduate to found a charitable organisation which, in turn, has led to awards. Dr John van Bockxmeer founded “Fair Game”, a not-for-profit innovative health promotion and community development charity with the vision of allowing all Australians access to the benefits of fitness, health and wellness in underserviced and often remote communities, through the donation of recycled sports equipment. To date, 20,000 items have been donated. In this year’s 40under40 Awards, Dr van Bockxmeer received an ‘Inspiring Possibilities’ award for his work in developing the organisation that delivers training, mentoring and youth leadership to reinforce healthy communities. And this month he was named winner of the Western Australian of the Year Community Award. He graduated from UWA in 2009 and went to Port Hedland as a remote emergency doctor, which inspired him to establish Fair Game in 2010.
The highest accolade that can be awarded to an individual pharmacist in the state has gone to Professor Rhonda Clifford, Director of Pharmacy in the School of Medicine and Pharmacology. She received the Eric Kirk Memorial Award for excellence in education and outstanding contribution to pharmacy. Professor Clifford dedicates numerous hours to teaching, mentoring, supervision of Master of Pharmacy research students and PhD students, and curriculum development.

One of Professor Clifford’s former Master of Pharmacy research students, Ms Teresa Di Franco, recently was named WA Young Pharmacist of the Year by the Pharmaceutical Society of Australia (WA branch). She “combined her pharmacy experience, particularly in medication management and patient care, with her experience as a credentialed diabetes educator to become a passionate advocate for patient care and leader for her profession,” the PSA said. Professor Clifford said Ms Di Franco was involved at UWA as a lecturer and a researcher in diabetes as well as a mentor to current students.

And a PhD student of Professor Clifford, Ms Julie Adams, was highly commended joint winner in The Australian Women’s Weekly/CPA Australia 2016 Women in Business Awards for her chemo@home business, which administers chemotherapy and other infusions to patients in their own homes. Ms Adams is enrolled in the Doctor of Philosophy program at UWA where she is undertaking research into the clinical and health economic outcomes of cancer patients taking oral chemotherapy medications.

Grants
Tackling the vexed question of when to prescribe antibiotics is the goal of medical microbiologist Professor Tim Inglis, who has been awarded US$100,000 (A$138,160) by the Bill & Melinda Gates Foundation to develop a screening test that will detect antibiotic resistance and ensure the right antibiotics can be prescribed. Professor Inglis, of the School of Pathology and Laboratory Medicine, said resistant bacteria were chipping away at the 20 years that antibiotics added to our life expectancy. “Faster methods of detecting resistance are urgently needed so that we can reserve antibiotics for infections where they have proven benefit.”

A collaborative School of Medicine and Pharmacology project to improve the lives of people with dementia has attracted a grant of almost $50,000 from the Dementia Collaborative Research Centres (DCRCs). The project of chief investigator and PhD student Mrs Amy Page, Professor Rhonda Clifford, Associate Professor Christopher Etherton-Beer and Dr Kathleen Potter, together with three other researchers, is “Supporting better medicines use among people living with dementia using national consensus Support - MEDe Support.” The DCRCs said they were very impressed with the standard and novelty of applications.

Dr Juliana Hamzah (far right) with her team.

“Softening up” tumours with a novel drug to make them more vulnerable to immune cells and other anti-cancer treatments is the goal of Research Fellow Dr Juliana Hamzah and her team at the Harry Perkins Institute of Medical Research. They have received UWA Pathfinder funding, which is proof-of-concept funding for developing technologies created at UWA and will support the team as it aims to demonstrate the effectiveness of the drug in pre-clinical cancer models. Dr Hamzah said solid tumours were known to be firm and rigid, which could present a significant barrier for drug delivery. “In the case of breast cancer, for example, diseased tissue can be 10 times stiffer than normal breast, this makes it difficult to give an effective dose precisely where it is needed,” she said.

Associate Professor Kevin Pfleger, also of the Perkins Institute, has been honoured by the British Pharmacological Society with a prestigious award, the Novartis Prize, in recognition of his published work which focuses on receptors throughout the body that are the target of many commonly used medicines.

Answers to the quiz on page 11
1. 60% copper alloys are rapidly bacteriolytic while stainless steel is not.
2. Patients were held in this position for lithotomists to remove bladder stones through a perineal incision.
3. A classification of burns.
4. A bone in the penis found in many mammals but not in man.
5. The word baculum is Latin for staff or stick.
Bush background inspires career

By Kazia Reid

My rural background is one of many things that inspired me to study Pharmacy. Living all my life in Kalgoorlie has shown me just how disadvantaged some are when it comes to healthcare, particularly in terms of resources and education.

Last year, after I was accepted into the Master of Pharmacy at The University of Western Australia, the staff told me about a Pharmacy Guild Rural Scholarship. I applied and this year found out I was a recipient.

This exciting news took a lot of financial stress away. The scholarship will provide me with incredible once-in-a-lifetime opportunities during my studies.

Living more than 600 kms away from home means I need to pay for accommodation as well as transport so I can go home and spend time with my family. I get very homesick so living on campus at Trinity, one of the five residential colleges at university, is the best option for me, despite costing more than it would to live off-campus. This is my fifth year living at Trinity and one of my favourite things is being a part of such an incredible and diverse community of like-minded people who are also from rural backgrounds. There is an excellent support network and a healthy balance between studies and social life.

I will also use some of the scholarship money towards completing a rural placement over summer, as well as doing research as a part of my studies overseas in Europe in 2018.

I know my scholarship will help me achieve a lot more. I believe I will have more to give back to the community and as a result can make a bigger difference within healthcare.

There is a link to the Guild webpage via the Master of Pharmacy website.

The governmental side of pharmacy

By Patrick Nay

Having worked in community pharmacy for several years, I was given the opportunity to experience the governmental side of pharmacy at the Pharmaceutical Services Branch (PSB) of the WA Department of Health.

This placement for my Master of Pharmacy degree exposed me to law and legislation for scheduled poisons, the community program for opioid pharmacotherapy, the stimulant regulatory scheme, the drugs of dependence unit, and pharmacy auditing.

During my placement, my first project was mapping new regulations to complement recently revised legislation, a task very different to anything you would experience in a community pharmacy setting. It challenged my ability to research and collate ethico-legal information into a comprehensible format. The second project allowed me to apply legislative and regulatory frameworks to a real-world issue, aimed at improving the process by which compounded dexamphetamine is documented and reported by compounding pharmacies. I was delighted to receive positive and constructive feedback from the PSB team.

PSB offered amazing experiences such as attending multi-disciplinary meetings to discuss rescheduling of medicines, audits of community pharmacies, meetings with pharmacy wholesalers and discussion of the evolving world of pharmacy with experienced experts in the pharmacy world.

The experience was truly enlightening. I would now consider a career in governmental pharmacy and the new skills and networks that I have developed in my time at PSB will greatly influence my future career path.