



Pharmacy Department Research Report 2017

Overview

Despite having limited dedicated research human resource, we have had a highly successful year, publishing 26 publications in a broad range of topic areas, building upon areas of established track record. Our collaborations have included many departments throughout our organisation as well as several universities and external organisations. We congratulate all of our interns for completing a high quality range of projects and presenting these at the Monash University Intern Foundation Program presentation night in November 2017. Special congratulations must go to Jennie Nguyen for being awarded the Best Intern Foundation Program Presentation award for her work developing and evaluating an electronic patient education module for our liver and renal transplant patients.

This past year saw the development of a Pharmacy Department Research Special Interest Group/Committee. This step was taken in-part to facilitate sharing of expertise and collaboration across the department, particularly with the increasing interest and need for many staff to undertake research projects of varying complexity as part of post-graduate study and to facilitate career advancement.

In this coming year we look forward to seeing the continued progress of our Master of Clinical Pharmacy and Master of Pharmaceutical Science research projects, as well as our Doctor of Philosophy candidates. We also plan to develop strategies to better promote the research output of the department, both to those within the department and more broadly.

Simone Taylor

Senior Pharmacist – Emergency Medicine and Research

March 2018

Publications

1. Quality Use of Medicines

i. *Aged Care*

Meyer C, Renehan E, Batchelor F, Said C, Haines T, [Elliott RA](#), Goeman D. 'Falls not a priority': insights on discharging older people, admitted to hospital for a fall, back to the community. Australian Journal of Primary Health 2017; Nov 14. doi: 10.1071/PY17052. [Epub ahead of print]

Cross AJ, George J, Woodward MC, Ames D, Brodaty H, [Elliott RA](#). Potentially inappropriate medication, anticholinergic burden, and mortality in people attending memory clinics. Journal of Alzheimer's disease 2017; 60: 349-58

Cross AJ, George J, Woodward MC, Ames D, Brodaty H, [Elliott RA](#). Dietary supplement use in older people attending memory clinics in Australia. Journal of Nutrition, Health and Aging 2017; 21: 46-50

ii. *Emergency Medicine*

Donaldson SR, [Harding AM](#), [Taylor SE](#), Vally H and Greene SL. Evaluation of a targeted prescriber education intervention on emergency department discharge oxycodone prescribing. Emergency Medicine Australasia 2017; 29(4): 400–406

Taylor DMcD, Yap CYL, Knott JC, [Taylor SE](#), Phillips GA, Karro J, Chan EW, Kong DCM, Castle DJ. Midazolam-droperidol, droperidol or olanzapine for acute agitation: A randomised clinical trial. Annals Emerg Med 2017; 69: 318-326

Taylor DMcD, Yap CYL, Knott JC, [Taylor SE](#), Phillips GA, Karro J, Chan EW, Kong DCM, Castle DJ. In reply to Wang LTE 2016-1954. Annals Emerg Med 2017; 69: 521-523 doi: [org/10.1016/j.annemergmed.2016.11.044](https://doi.org/10.1016/j.annemergmed.2016.11.044)

Yap CYL, Taylor DMcD, Knott JC, [Taylor SE](#), Phillips GA, Karro J, Chan EW, Kong DCM, Castle DJ. Intravenous midazolam-droperidol (combination), droperidol or olanzapine monotherapy for methamphetamine-related acute agitation in the emergency department. Addiction 2017; 112: 1262-1269. doi: 10.1111/add.13780

iii. *Infectious Diseases*

Fang WC, Adler NR, Graudins LV, [Goldblatt C](#), Goh MSY, Roberts SK, Trubiano JA, Aung AK. Drug-induced Liver Injury is Frequently Associated with Severe Cutaneous Adverse Drug Reactions: Experience from Two Australian Tertiary Hospitals, Internal Medicine Journal 2018;48: (in-press)

[Urbancic KE](#), Ierino F, Phillips E, Mount PF, Mahony A, Trubiano JA. Taking the challenge: A protocolized approach to optimize Pneumocystis pneumonia prophylaxis in renal transplant recipients. Am J Transplant. 2017;00:1-5 (in-press). doi: 10.1111/ajt.14498

Trubiano JA, Stone CA, Lindsay Grayson M, Urbancic K, Slavin MA, Thursky KA, et al. The 3 Cs of Antibiotic Allergy-Classification, Cross-Reactivity, and Collaboration. J Allergy Clin Immunol Pract. 2017 (in-press). doi:10.1016/j.jaip.2017.06.017

Goldblatt C, Khumra S, Booth J, Urbancic K, Grayson ML, Trubiano JA. Poor reporting and documentation in drug-associated Stevens-Johnson Syndrome and Toxic Epidermal Necrolysis – lessons for medication safety. Br J Clin Pharmacol 2017;82(2):224-226

Trubiano JA, Thursky KA, Stewardson AJ, Urbancic K, Worth LJ, Jackson C, et al. Impact of an Integrated Antibiotic Allergy Testing Program on Antimicrobial Stewardship: A Multicenter Evaluation. Clin Infect Dis. 2017;65(1):166-74

Khumra S, Chan J, Urbancic K, Worland T, Angus P, Jones R, et al. Antibiotic Allergy Labels in a Liver Transplant Recipient Study. Antimicrobial Agents and Chemotherapy. 2017;61(5)

Urbancic K, Grayson ML. Kanamycin. In: Kucers' The Use of Antibiotics: A Clinical Review of Antibacterial, Antifungal, Antiparasitic and Antiviral Drugs, 7th edition, CRC Press, 2017 [book chapter]

iv. *Oncology*

Siderov J, Kelly A, Cancer Therapy Medication Safety Working Group. How is dosage of cancer therapy calculated for adults? In: Cancer Therapy Medication Safety Working Group. COSA guidelines for the safe prescribing, dispensing and administration of systemic cancer therapy. Cancer Council Australia. Available from: http://wiki.cancer.org.au/australia/COSA:Cancer_chemotherapy_medication_safety_guidelines Accessed November 2017

Siderov J, Stevenson B, Cancer Therapy Medication Safety Working Group. What safety processes should be followed for preparation and delivery of cancer therapy? In: Cancer Therapy Medication Safety Working Group. COSA guidelines for the safe prescribing, dispensing and administration of systemic cancer therapy. Cancer Council Australia. Available from: http://wiki.cancer.org.au/australia/COSA:Cancer_chemotherapy_medication_safety_guidelines Accessed November 2017

Brown-West L, Siderov J, Cancer Therapy Medication Safety Working Group. What occupational health and safety precautions should be followed when providing cancer therapy? In: Cancer Therapy Medication Safety Working Group. COSA guidelines for the safe prescribing, dispensing and administration of systemic cancer therapy. Cancer Council Australia. Available from: http://wiki.cancer.org.au/australia/COSA:Cancer_chemotherapy_medication_safety_guidelines Accessed November 2017

Siderov J. Cleaning up the facts? [Letter] J Oncol Pharm Pract 2017; 23:557-8

Parente P, Alexander M, Love N, Dooley M, Griffiths T, Joshi S, Siderov J. Timely initiation of chemotherapy: a systematic literature review of six priority cancers – results and recommendations for clinical practice. *Int Med J* 2017; 47:16-34

2. Medication Safety and Pharmacovigilance

Liew D, Keith C, Booth J, Perera D. Fatal Azathioprine Toxicity. *Australian Prescriber*. 2017; 40:109
<https://www.nps.org.au/australian-prescriber/articles/fatal-azathioprine-toxicity>

Keith C. Gene testing for drug metabolizer status as an azathioprine safety tool. *Uppsala Reports, WHO Newsletter* (Issue 75, 2017):

https://www.whoumc.org/media/3108/uppsalareports75web_new.pdf#page=10

Liew D, Joules E, Booth J, Garrett K, Frauman A. Report: Evidence to inform the inclusion of Schedule 4 prescription medications on a real-time prescription monitoring system. July 2017 Available at:
<https://www2.health.vic.gov.au/public-health/drugs-and-poisons/safescript>

3. Pharmacy Service Design and Delivery (Health Services Research)

Elliott RA, Lee CY, Beanland C, et al. Development of a clinical pharmacy model within an Australian home nursing service using co-creation and participatory action research: the Visiting Pharmacist (ViP) study. *BMJ Open* 2017; 7:e018722. doi:10.1136/bmjopen-2017-018722

Ooi C, Rofe O, Vienet M, Elliott RA. Improving communication of medication changes using a pharmacist-prepared discharge medication management summary. *International Journal of Clinical Pharmacy* 2017; 39: 394-402

Tran T, Hardidge A, Heland M, Taylor SE, Garrett K, Mitri E, Elliott RA. Slick scripts: impact on patient flow targets of pharmacists preparing discharge prescriptions in a hospital with an electronic prescribing system. *Journal of Evaluation in Clinical Practice* 2017; 23: 333-9

Tran T, Taylor SE, Hardidge A, Findakly D, Aminian P, Elliott RA. Impact of pharmacists assisting with prescribing and undertaking medication review on oxycodone prescribing and supply for patients discharged from surgical wards *Journal of Clinical Pharmacy & Therapeutics* 2017; 42: 567-72

Conference/Seminar Oral Presentations

Aged Care

Lee C, Elliott R, Beanland C, et al. Reducing medication issues in community nursing clients through a new model of interdisciplinary medication management: a retrospective observational study. *4th Australian Deprescribing Network (ADeN) Annual Meeting*, Brisbane 2019 (December 4)

Elliott RA, Lee CY, Beanland, et al. A clinical pharmacy model within a home nursing service: the Visiting Pharmacist (ViP) project. *The Society of Hospital Pharmacists of Australia 43rd National Conference*, Sydney 2017 (November 16-19)

Meyer C, Renehan E, Batchelor F, Said CM, Haines TP, Elliott RA, Goeman DP. 'Not a priority': post hospitalisation falls intervention. *50th Australasian Association of Gerontology (AAG) Conference*, Perth 2017 (November 8-10)

Lee CL, Elliott RA, Beanland C, et al Reducing medication issues in community nursing clients through a new model of interdisciplinary medication management: a retrospective observational study. GP17: *The Royal Australian College of General Practice (RACGP) Conference 2017* (October 26-28)

Lee CL, Elliott RA, Beanland C, et al. A new model to enhance interdisciplinary medication management and medication safety for community nursing clients: older adults', carers' and health professionals' perspectives. GP17: *The Royal Australian College of General Practice (RACGP) Conference 2017* (October 26-28)

Cross A, George J, Elliott R. Potentially inappropriate medication and mortality in people attending memory clinics. *21st International Association of Geriatrics & Gerontology (IAGG) Conference*, San Francisco 2017 (23-27 July)

Elliott R. Limitations and risks associated with electronic medication management systems in aged care. *Aged Care Summit, Australian Healthcare Week*, Sydney 2017 (March 8-10).

Emergency Medicine

Taylor S, Manias E, Harding A, Mitri E, Taylor D, Weeks A, Abbott L, Lambros P, Lawrence D, Strumpman D, Senturk-Raif R, Louey S, Crisp H. Prevalence and nature of medication-related problems presenting to and associated with E.D. care. Annual Scientific Meeting of the Australasian College for Emergency Medicine 2017 (ACEM ASM 2017), 19-23 November 2017, Sydney

Taylor S, Anderson B, Harding A, Meaklim A, O'Keefe C. Thunderstorm Asthma management during a Code Brown in a hospital with broad implementation of electronic prescribing and clinical documentation. Annual Scientific Meeting of the Australasian College for Emergency Medicine 2017 (ACEM ASM 2017), 19-23 November 2017, Sydney

Yap C, Taylor DMcD, Knott J, Kong D, Taylor SE, Graudins A, Keijzers G, Thom O, Furyk J, Finucci D. Sedation for acute agitation in emergency department patients: targeting adverse events (SIESTA). Annual Scientific Meeting of the Australasian College for Emergency Medicine 2017 (ACEM ASM 2017), 19-23 November 2017, Sydney

Infectious Diseases

Urbancic K, Ierino F, Phillips EJ, Mount P, Mahony AA, Trubiano J. Taking the Bactrim (Re) Challenge: A Systemic Approach to Evaluating Trimethoprim/Sulfamethoxazole adverse Drug Reactions in Renal Transplant Recipients to Optimise *Pneumocystis Jiroveci* Pneumonia Prophylaxis. Antimicrobials 2017, Adelaide. #PP2.5

Urbancic K. CRE-REDUCE and NCAS. Invited speaker (*AMS in Specialist Settings – Antifungal Stewardship Workshop*) Australian Antimicrobial Resistance Forum, November 2017

Oncology

Siderov J. Safe handling of hazardous drugs: Utility of closed system transfer devices to protect healthcare workers and decrease waste. International Pharmaceutical Federation Webinar December 2017. Available at: www.fip.org

Loh Z, Siderov J, Yeo B. A decade of G-CSF prescribing during curative chemotherapy for early breast cancer: What trends are changing? Proc COSA – Asia-Pac J Clin Oncol 2017; 13(Suppl 4): 128 [abstract 180]

Siderov J. Can the centralised preparation of monoclonal antibodies save money? Proc COSA – Asia-Pac J Clin Oncol 2017; 13(Suppl 4): 182 [abstract 311]

Siderov J. New Cancer Immunotherapies. Purple Pen Podcast June 2017. Available at: <https://www.purplepenpodcast.com/home/2017/6/2/ppp023-new-immunotherapy-agents-for-cancer-with-jim-siderov>

Pharmacovigilance

Djukiadmodjo F, Booth J, Keith C, O’Callaghan C, Frauman A. Using International Classification of Diseases (ICD-10) discharge codes to improve identification of Adverse Drug Reactions – one tertiary institution’s systematic approach. ASCEPT conference, May 2017

Poster presentations

Infectious Diseases

Urbancic K, Grigg AP, Stewardson AJ, Garrett K, Grayson ML. Utility of diarrhoea as a predictor of low posaconazole exposure with the oral tablet formulation. ECCMID, Vienna 2017. #P1695

Trubiano J, Stewardson A, Slavin M, Thursky K, Urbancic K, Sutherland M, Worth L, Grayson ML, Phillips E. The impact of antibiotic allergy testing on antibiotic utilization in immunocompromised hosts – a multicentre antimicrobial stewardship intervention. ECCMID, Vienna 2017. #EP0692

Emergency Medicine

Hendarto A, Harding A, Hunter M, Taylor DMcD. Misappropriation of medications in the emergency department: how much and of what ‘goes missing’?

- 34th ASM of the ACEM, Sydney, NSW. November 2017
- University of Melbourne Medical Student Convention. June 2017
- The Northern Hospital Research Week, October 2017
- Austin Health Research Fest, October 2017

Taylor SE, Manias E, Mitri E, Harding A, Taylor DMcD, Weeks A, Abbott L, Lambros P, Lawrence D, Strumpman D, Senturk-Raif R, Louey S, Crisp H. ‘Who should we see? Identifying patients at risk for medication-related problems associated with ED care?’ Austin Health Research Fest, October 2017

Taylor SE, Anderson B, Harding A, Meaklim A, O’Keefe C. Thunderstorm Asthma management during a Code Brown in a hospital with broad implementation of electronic prescribing and clinical documentation. Austin Health Research Fest, October 2017

Taylor SE, Hansen K, Anderson B, Taylor S. Medication-related adverse events from the Emergency Medicine Events Register (EMER.org.au). 34th Annual Scientific Meeting of the Australasian College for Emergency Medicine 2017 (ACEM ASM 2017), 19-23 November 2017, Sydney

Pharmacovigilance

Djukiadmodjo F, Booth J, Keith C, O’Callaghan C, Frauman A . Discharge summaries: an untapped resource for optimising Adverse Drug Reaction identification.

- APA-ASCEPT Joint Scientific Meeting Dec 2017
- Austin Health Research Week 2017

Keith C, Booth J. Pharmaco-vigilantes: the transformation of an Adverse Drug Reaction Surveillance Program. SHPA Medicines Management conference in Sydney, November 2017 [Lightning talk]

Jane Booth. The Purple Pen Podcast: A new Australian clinical pharmacy podcast – our early experiences. SHPA Medicines Management conference in Sydney, November 2017 [Lightning talk]

Booth J, Keith C. Electronic discharge summaries - an untapped resource for optimising ADR identification. Austin Health research week, Oct 2017.

Booth J, Keith C. Non-cytotoxic hazardous medicines: an evidence-based, practical approach to handling. Austin Health research week, Oct 2017.

Grants and awards

Aged Care

Elliott R, George J, Woodward M, Cross A. Deprescribing potentially inappropriate medicines in patient attending memory clinics (DePIMM). *VicTAG* 2017 (\$10,000)

Lee CY, Elliott R, Browning C. TEAMM-Pharmacist (Timely Enhanced Access to Medication Management): enhancing interdisciplinary medication management and medication safety for older people referred to a community nursing service. *East Melbourne Primary Health Network* 2017 (\$187,483)

Infectious Diseases

Urbancic K. Defining targets for antifungal stewardship in immunocompromised patients: optimising care and safety. NHMRC post-graduate scholarship 2017-2019. (\$AUD 110,426.78)

Oncology

Siderov J. Efficient utilisation of cytotoxic chemotherapy and monoclonal antibody vials using a closed system drug transfer device. Becton Dickinson 2017 (\$20,000 unrestricted education grant)

Pharmacovigilance

Booth J, Keith C, Tanner F, Siderov J, Aminian P. Management of hazardous non-cytotoxic medicines in the inpatient setting. Victorian Therapeutic Advisory Group (VicTAG) Research Grant. (\$10,000)

Intern Foundation Program

Nguyen J, Tran T, Taylor SE. Development and evaluation of an electronic-learning module for patients post organ transplant. Best Intern Poster Presentation awarded to Jennie Nguyen, Intern Foundation Program, Monash University. November 2017.

Current and recently completed projects

Aged care

Elliott R, George J, Woodward M, Cross A. Deprescribing potentially inappropriate medicines in patient attending memory clinics (DePIMM).

Elliott R, Taylor S, Fodera M. Validation of the accuracy of medication regimen information available in MedView and its potential to reduce the time to document a best possible medication history.

Lee CY, Elliott R. TEAMM-Pharmacist (Timely Enhanced Access to Medication Management): enhancing interdisciplinary medication management and medication safety for older people referred to a community nursing service.

Lee CY, Elliott R. A comparison of medicines use in centenarians, near centenarians and young elderly in a community nursing clientele.

Cross A, Elliott R, George J. Cochrane systematic review: Interventions for improving medication-taking ability and adherence in older adults prescribed multiple medications.

Tan Y, Elliott R, Dorevitch M (with RMIT students). An evaluation of the impact of pharmacists contributing to subacute inpatients' medical discharge summaries on the accuracy of medication information sent to GPs.

Kalogianis M, Elliott R. Development of patient information leaflets for medications used in the management of behavioural and psychological symptoms of dementia and delirium.

Meyer C, Renehan E, Elliott R, Batchelor F, Said C, Haines T, Goeman D. Preventing falls post discharge after hospitalisation for a fall: an exploratory study.

Emergency Medicine

Chen H, Taylor SE, Harding A, Taylor DMcD. Accuracy of medication information sources compared to the best possible medication history for patients presenting to the emergency department.

Joules E, Verde A, Taylor SE. Management of Patient's Own Medications brought in to the Emergency Department and Short Stay Unit.

Verde A, Joules E, Harding A. Emergency Department warfarin discharge plan audit.

Yap C, Taylor DM, Knott J, Kong D, Taylor SE, et al. Sedation for Acute Agitation in Emergency Department Patients: Targeting Adverse Events (SIESTA)

Taylor SE, Manias E, Mitri E, Harding A, Taylor DM, et al. Development and validation of screening tools for medicine-related problems at patient presentation and after discharge from the emergency department.

Schwartz G, Donaldson S, Harding A, Greene S. What happens to the medications we prescribe? A survey of patients' behaviour when discharged from an emergency department with an opioid prescription.

Richardson B, Taylor S, Harding A, Kirkpatrick C, Tran T. Prevalence and nature of medication errors in surgical and medical patients admitted through the emergency department.

Hodgson S, Harding A, Taylor DM, Greene S. A prospective, randomised, double-blind trial of intravenous chlorpromazine versus intravenous prochlorperazine for the treatment of acute migraine in adults

Pharmacy Service Design and Delivery (Health Services Research)

Tran T, Castello J, Taylor S, Hardidge A, Cannizzaro S, George J, Elliott R. Opioid use following total knee and hip arthroplasty – an Australian perspective.

Tran T, Pisasale D, Batrouney A, Taylor S, George J, Ngo J, Elliott R. Communication of opioid initiation in surgical patients upon hospital discharge.

Tran T, Taylor S, Hardidge A, Mitri E, Aminian P, George J, Elliott R. Pharmacist-assisted electronic prescribing at the time of admission to an inpatient orthopaedic unit and its impact on medication errors: a pre- and post-intervention study.

Tran T, Johnson D, Balassone J, Tanner F, Garrett K, Chan V. The impact of an integrated clinical pharmacy service with the general medical units on patient flow and medical staff satisfaction: a pre- and post-intervention study.

Research degree involvement

PhD candidates

Phung To. Medication management during periods of restricted oral intake, University of Melbourne, NHMRC Scholarship (part-time) (2015 -)

Karen Urbancic. Antifungal stewardship in immunocompromised patients including solid organ transplant and haematology patients, University of Melbourne, National Centre for Antimicrobial Stewardship, NHMRC Scholarship (part-time, 2016 -)

Samata Lalic. Harms associated with prescription opioid analgesics: prevalence and factors. Monash University. Australian Government Research Training Program Scholarship (full-time, 2016 -)

Tim Tran. Expanding pharmacists' roles in medication management for surgical inpatients. PhD (part-time, 2014 -)

Master of Pharmacy candidates

Sharmila Melvani. Enhancing pharmacists' roles in antimicrobial stewardship. Monash University. *MPharm* (part-time, 2016 -)

Master of Clinical Pharmacy candidates

Stephen Walker. Evaluation of nurse initiated antimicrobials in febrile neutropenia, Monash University (part-time, 2017-2018)

Belinda Richardson. Prevalence and nature of medication errors in surgical and medical patients admitted through the emergency department, Monash University (part-time, 2017-2018)

Misha Devchand. Evaluation of a pharmacist led antimicrobial allergy de-labelling service, Monash University (part-time, 2017-2018)

Supervision

Rohan Elliott

Sharmila Melvani. Enhancing pharmacists' roles in antimicrobial stewardship. *MPharm* (part-time) (2016 -)

Tim Tran. Expanding pharmacists' roles in medication management for surgical inpatients. *PhD* (part-time, 2014 -)

Amanda Cross. Optimising medication use and medication management in older people with cognitive impairment, PhD (full-time, 2015 -)

Samanta Lalic. Harms associated with prescription opioid analgesics: prevalence and factors. (PhD panel member 2016 -)

Natalie Jokanovic. Polypharmacy in residential aged care facilities. (PhD panel member)

Simone Taylor

Tim Tran. Expanding pharmacists' roles in medication management for surgical inpatients. *PhD* (part-time) (2014 -)

Belinda Richardson. Prevalence and nature of medication errors in surgical and medical patients admitted through the emergency department, *M Clin Pharm*, Monash University (part-time, 2017-2018)

Stephen Louey (Monash Health). Impact of ED pharmacists assisting general practitioners to maintain updated medication regimen records for their patients. *M Clin Pharm* research project panel member, 2017-2018.

Gail Edwards (Alfred Health) Evaluation of pharmacological management of patients presenting to ED with behaviours of concern. *M Clin Pharm* research project panel member, 2017-2018.

Major Research Collaboration Partners

Austin Health departments

- Aged Care
- Clinical Pharmacology
- Emergency
- General Medicine
- Infectious Diseases
- Liver Transplant Unit
- Oncology
- Orthopaedics
- Victorian Poisons Information Centre

Universities

- Deakin University
- La Trobe University
- Monash University
- RMIT University
- University of Melbourne

Australian Hospitals

- Barwon Health
- Western Health
- The Northern Hospital
- Monash Medical Centre - Clayton
- Dandenong Hospital
- Casey Hospital
- Prince of Wales Hospital (NSW)
- Manly/Mona Vale hospital (NSW)
- The Townsville Hospital (QLD)
- Princess Alexandra Hospital (QLD)
- Prince Charles Hospital (QLD)

Other Organisations

- Bolton Clarke (formerly Royal District Nursing Service)
- Eastern Melbourne Primary Health Network