Pharmacy Board of Australia: Public discussion paper on pharmacist prescribing

Responses to discussion paper questions about pharmacist prescribing

Your feedback is sought on the questions outlined in the Pharmacy Board of Australia 'Public discussion paper on pharmacist prescribing' published on 4 March 2019.

Please provide your feedback as a Word document (or equivalent)[1] by close of business on Monday 15 April 2019.

Some of these questions request details of evidence to support your views or views of your organisation. This discussion paper and other reports about prescribing published by the Board reference published information and evidence about pharmacist prescribing locally and overseas.

The Board is seeking further details about additional evidence (published or unpublished) that you may be aware of or believe should be considered. Evidence could include information about new initiatives in practice currently being developed or in progress; or relevant information about prescribing by other non-medical health professions that may provide further information or evidence to inform pharmacist prescribing. For example, evidence may include data demonstrating cost effective health outcomes or qualitative data demonstrating patient satisfaction with pharmacist prescribing.

Stakeholder Details

If you wish to include background information about your organisation please provide this as a separate word document (not PDF).

Organisation details
Organisation name: Alfred Health **Contact name: Professor Michael Dooley** **E-mail address:** [redacted]

[1] You are welcome to supply a PDF file of your feedback in addition to the word (or equivalent) file, however we request that you do supply a text or word file. As part of an effort to meet international website accessibility guidelines, AHPRA and National Boards are striving to publish documents in accessible formats (such as word), in addition to PDFs. More information about this is available at www.ahpra.gov.au/About-AHPRA/Accessibility.aspx.

		Prescribing under a structured prescribing arrangement	Prescribing under supervision	Autonomous prescribing
	PUBLIC NEED			
1	How would these models of prescribing by pharmacists fulfil a public need?	The six domains of quality in health care state that care should be safe, patient-centered, timely, effective, efficient and equitable. Medication related harm is a substantial issue in our community at present. There are 250,000 hospital admissions annually in Australia as a result of medication related harm, and approximately half of it is preventable.[1] Within 30 days of discharge from hospital, 17 – 51% of older adults experience medication related harm.[2] There is a clear public need to improve prescribing within hospitals and in the community. Our work has shown that 4 out of 5 medication administration charts for hospital inpatients had at least one medication error.[3] 3 out of 5 hospital discharge summaries written by doctors have at least one medication error.[4] When pharmacists undertook these same responsibilities, the error rate was significantly reduced to less than 1 in 20.[3,5] When pharmacists are making autonomous decisions, there is evidence that pharmacists and doctors are similar in their choices on which medicines. A recent systematic review of non-medical prescribing compared to medical prescribing included a total of 46 studies with 20 studies reporting pharmacist prescribing with the other studies reporting nurse prescribing. This systemic review found that non-medical prescribing was as effective medical prescribing.[6] An Australian study found pharmacists and doctors had substantial agreement on the number of medicines to discontinue (deprescribe) for complex frail older people.[7] There is evidence internationally and locally which indicate that prescribing models for pharmacists must be adopted in Australia to ensure that prescribing is safe, patient-centered, timely, effective, efficient and equitable. There are other reviews and submissions that will include literature review of existing supporting evidence to demonstrate a public need consequently, we have focused this submission will focus on specific local data that shows the benefit of approaches within the Australian context. We have shown, through the evidence included in this submission that patient care can be improved by having pharmacists, working within the healthcare team, and alongside doctors, taking responsibility for prescribing within their scope of practice. These models, implemented and evaluated within Victoria (described as partnered charting) provide the evidence required to support prescribing by pharmacists.		

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	EVIDENCE (published or unpublished)			
2	What is the evidence that these models of prescribing by pharmacists would be a safe and effective way of improving access to medicines for the community?	**We are providing evidence of local practices to illustrate safe and effective models** ***Model:* Prescribing under a structured prescribing arrangement *(underpinned by locally approved clinical guidelines.*** Eligible pharmacists at Alfred Health are currently credentialed to undertake a de facto prescribing arrangement using multiple established and approved protocols accepted by the local jurisdiction. These are multidisciplinary arrangements based on team based care with a shared vision for desired outcomes. The pharmacists who undertake these roles are appropriately credentialed by the hospital to perform these roles and do so in accordance with the guidelines (see appendix for guidelines). This practice (akin to prescribing under a structured arrangement) includes dose adjustments for vancomycin, aminoglycosides and warfarin where pharmacists order pathology tests for therapeutic drug monitoring, and adjust the doses accordingly. Pharmacists can initiate proton pump inhibitor and opioid dose de-escalation and cessation in line with the protocol. Pharmacists can also initiate venous thromboembolism	**We are providing evidence of local practices to illustrate safe and effective models** **Model: Prescribing under supervision** Eligible pharmacists at Alfred Health are currently credentialed to undertake a partnered pharmacist charting process (akin to a prescribing arrangement under a supervised structure) A partnered pharmacist charting process was implemented in the hospital setting as an alternative to medical prescribing. It is a multidisciplinary arrangement and team based care with shared outcomes This model was implemented at Alfred Health in the General Medicine Unit and Emergency Short Stay Unit in 2012. Subsequently, it was expanded to an evaluation of the model in 2017 at seven Victorian public hospitals. It has since been expanded further with Department of Health funding through a Workforce Innovation Funding for State Wide implementation. Independent evaluation indicated that the model saved approximately $1.95M across the seven hospitals	We have not looked at autonomous prescribing as our setting is a major metropolitan hospital where we work as part of a multidisciplinary team. The priorities have been to develop and implement partner models that are resulted in prescribing under **a structured prescribing arrangement** and **Prescribing under supervision** There is significant overseas evidence to support autonomous prescribing. We have decided not to include here as that will be covered in other submissions

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		(VTE) prophylaxis and nicotine replacement therapy (NRT) according to the protocol. (The protocols are attached as appendices.) *Credentialing program* Alfred Health has a formal credentialing program established for each individual program. The credentialing program generally includes pre-requisites, readings, worked case and assessments. *Evaluation* We have formally evaluated each program with before and after studies (see below) *Evidence* We have published the evaluation of three of these initiatives in peer reviewed journals (citations listed in the next question).	over 2840 admissions. Estimates suggest potential savings of $202M annually when the model is rolled out statewide during business hours. Pharmacists, as a component of medication history and review, discuss the medication regimen with the medical practitioner, and then chart the medications under a partnered charting model It is a partnership between a pharmacist who is credentialed by the hospital and a medical practitioner. As part of the process, the credentialed pharmacist takes a medicine history and performs a venous thromboembolism risk assessment. The pharmacist and the admitting medical practitioner have a face to face discussion about current medical and medicine-related problems and develop a shared medicines management plan. Appropriate medicines and venous thromboembolism prophylaxis are then charted by the pharmacist on the in-patient medication chart from which nurses administer the medicines. The pharmacist and the treating nurse then discuss the medicines management plan, including any urgent medicines to be administered, drug related monitoring and reasons for any medicines changes. *Credentialing program*	

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			There is a structured credentialing program at Alfred Health that pharmacists are required to undertake prior to being credentialed to participate in the partnered pharmacist charting model. There are pre-requisites to the program, and a number of readings as well as practice cases. The final stage is an OSCE assessment. *Number of pharmacists* There are over 100 Victorian pharmacists already credentialed to undertake a partnered charting model. *Evaluation* An expanded evaluation of the model was undertaken in 2017 in general medical units in seven public hospitals in Victoria which was funded by the Victorian Department of Health and Human Services. Patients were included from two rural and five metropolitan hospitals. The expanded evaluation was independently evaluated. The independent evaluation and the randomized controlled trials found that pharmacists are more accurate than doctors in charting regular medications. *Evidence* We have published the evaluation of three of these initiatives in peer	

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			reviewed journals (citations listed in the next question).	
3	What is the evidence that these models of prescribing by pharmacists support the *Quality Use of Medicines (QUM)*, i.e. judicious, safe, appropriate and efficacious use? (For example, by minimising overuse of medicines, reducing adverse events, improving health outcomes and/or other elements outlined in QUM)	We have implemented these models at Alfred Health. They have been evaluated, and in many cases published in peer reviewed journals. These evaluations have shown that there were limitations in the prescribing and utilization of these medications previously that were improved by pharmacists prescribing. **Dooley MJ, McGuiness JV, Choo S, Ngo-Thai LL, Tong E, Neave K, Poole S, Street A. Successful implementation of a pharmacist anticoagulant dosing service in ambulatory care. Journal of Pharmacy Practice and Research. 2011 Sep;41(3):208-11.[8]** • The 53 participants in the pre-intervention group had their warfarin managed by medical practitioners. • The 35 participants in the post-intervention group had their warfarin managed by pharmacists. • Patients managed by pharmacists reached therapeutic INRs earlier (p=0.009) with a mean 10 days (range 4-20) in the group managed by medical practitioners compared to a mean 8 (3-16) days in the pharmacist group.	This model was been implemented at Alfred Health then to seven other Victorian hospitals. It is now being rolled out across Victoria. It has been tested using different study designs including a randomised controlled trial. These studies showed that pharmacists were less likely to make errors on the medication charts than doctors. **Tong EY, Roman CP, Newnham H, Galbraith K, Dooley MJ. Partnered medication review and charting between the pharmacist and medical officer in the Emergency Short Stay and General Medicine Unit. Australasian Emergency Nursing Journal. 2015 Aug 1;18(3):149-55.[3]** - A cross-sectional study - There were 549 participants randomized with 4901 medications, of which 4765 were charted, 136 medications intentionally ceased, with the other 420 medications withheld. - There were 7 (0.1%) charting errors identified. **Tong EY, Roman CP, Mitra B, Yip GS, Gibbs H, Newnham HH, Smit DV, Galbraith K, Dooley MJ. Reducing medication errors in hospital discharge summaries: a randomised controlled trial.**	

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		- Patients managed by pharmacists used therapeutic low molecular weight heparin for significantly shorter durations (p=0.02) with a mean 10 days (range 4-20) in the group managed by medical practitioners compared to a mean 8 (3-17) days in the pharmacist group. **Cairns KA, O'brien DJ, Corallo CE, Guidone DM, Dooley MJ. Pharmacist-led therapeutic drug monitoring: implementation of a successful credentialing model. Journal of Pharmacy Practice and Research. 2017 Dec;47(6):477-82.** • Reported the credentialing process. • 160 pharmacists had successfully undergone initial credentialing. • 95 pharmacists had undergone annual re-credentialing	**Medical Journal of Australia. 2017 Jan;206(1):36-9.[5]** - Randomised controlled trial - There were 832 participants randomized - 431 people with 4116 medications randomized to the medical practitioner only discharge summary group. - 401 people with 4363 medications randomized to the discharge summary with the pharmacist completed medication management plan. - There were 265 (62%) participants in the medical arm who had at least one medication error detected compared to 60 (15%) in the pharmacist arm (p <0.001). **Tong E, Mitra B, Yip G, Roman C, Smit D, Gibbs H, Newnham H, Galbraith K, Dooley MJ, Kirsa S, Weeks G, Jones N, Toner P, Turner C, Hua P, Terril D Multi-site Evaluation of a Collaborative Medication Charting Model and in-hospital Length of Stay. Medical Journal of Australia. Submitted.[9]** - There were 8648 participants enrolled - 5612 people with 53,371 medicines where a medical practitioner alone undertook the charting. - 3036 people with 31658 medicines in the partnered pharmacist charting group.	

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			- Partnered pharmacist charting reduced length of stay 4.7 (IQR 2.8-8.2) days to 4.2 (IQR 2.3-7.5) days (p<0.001) - 66% in the medical arm who had at least one medication error detected compared to 4% in the pharmacist arm (p<0.001) - This evaluation demonstrated potential savings of $4725 to $9450 per pharmacist per day, with the estimated average cost of a pharmacist of $460 per day. **Tong EY, Roman C, Mitra B, Yip G, Gibbs H, Newnham H, Smit DP, Galbraith K, Dooley MJ. Partnered pharmacist charting on admission in the General Medical and Emergency Short-stay Unit–a cluster-randomised controlled trial in patients with complex medication regimens. Journal of clinical pharmacy and therapeutics. 2016 Aug;41(4):414-8.[10]** - Randomized controlled trial - There were 881 participants randomized - 473 people with 4459 medicines were randomized to the medical practitioner only charting group. - 408 people with 4031 medicines were randomized to the partnered pharmacist charting group. - There were 372 (79%) participants in the medical arm	

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			who had at least one medication error detected compared to 15 (4%) in the pharmacist arm (p <0.001). - Pharmacists were significantly less likely to make a severe error (256 (54%) vs 5 (1%) (p=0.01). **Tong EY, Mitra B, Roman CP, Yip G, Olding S, Joyce C, Galbraith K, Dooley MJ. Improving influenza vaccination among hospitalised patients in General Medicine and Emergency Short Stay units–a pharmacist-led approach. Journal of Pharmacy Practice and Research. 2018 Jun;48(3):231-5.**[11] - Randomized controlled trial - There were 6595 patients admitted during the study period. There were 316 patients included in this study who had their medications chartered under the partnered pharmacist charting model. - Pharmacists assessed patients for suitability to receive the influenza vaccine as part of the partnered pharmacist charting group. There were 52 participants assessed as eligible. - For the 52 participants eligible for an influenza vaccine in the partnered pharmacist charting group, 60% of eligible participants had an influenza vaccine chartered for administration.	

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			- For the medical practitioner only charting group, no participants had an influenza vaccine charted for administration. - This was a significant difference ($p<0.01$) of people vaccinated against influenza when there was partnered pharmacist charting.	
4	Are there any gaps in the evidence for pharmacist prescribing under these models? If so, how could this evidence be obtained?	There is evidence for specific protocols. The evidence shows that pharmacist can improve patient care in identified areas of suboptimal medication use.	The evidence for partnered pharmacist medication charting on admission is comprehensive. We had Department of Health funding to evaluate the model across seven different hospitals. This research was externally evaluated using both qualitative and quantitative methodology. This model demonstrated a reduction in length of hospital stay and medication errors from a collaborative medication-charting model involving a doctor and a pharmacist. The publication is currently under peer review but can be made available on request.	
	EDUCATION AND TRAINING			
5	What education requirements (if any) would pharmacists with general registration need to complete to competently prescribe under each model? (i.e. postgraduate education)	The requirements are dependent on the type of prescribing. For the hospital setting, we have a local credentialing model for each protocol. We recommend local jurisdictional oversight. For nicotine replacement therapy, Alfred pharmacists are required to undertake the required readings and	The criteria for partnered pharmacist medication charting are: - For prescribing under supervision we believe that additional requirements are necessary after registration as a pharmacist. The “charting model” described above required:	

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		successfully complete an online assessment. For warfarin dosing, Alfred pharmacists are required to: - Minimum one year practicing as a clinical pharmacist - Complete online module - Complete practice cases - OSCE assessment For antibiotic dosing, Alfred pharmacists are required to: - Minimum one year experience as a clinical pharmacist - Complete online module - Undertake 20 assessed cases.	- Minimum two years practicing as a clinical pharmacist in clinic environment - Complete online module - Complete practice cases - OSCE assessment We believe that similar requirements are necessary to ensure appropriate and robust delivery	
6	Are current undergraduate program providers addressing the competencies to prescribe under each model? If not, what are the gaps and how can they be addressed?	We refer to the evidence from the Assessment of Prescribing in Health project as reported in the Pharmacy Prescribing Forum background paper. The ASPRINH (Assessment of Prescribing in Health) Project found that the current curriculum performed favourably in relation to the competencies relating to Treatment Options and Professional Practice, and identified a gaps in those relating to Shared Decision Making, Co-ordination and Monitors and Reviews. This review found that new registrants would be 'very well qualified to complete most prescribing tasks, as defined by the NPS Prescribing Competencies Framework 2012.' As the National Competency Standards Framework for Pharmacists in Australia 2016 reflect the expectations of a registered pharmacist, the project concluded that: 'the practice of currently registered pharmacists would reflect the majority of components relevant to prescribing.'		
7	Before being authorised to prescribe under each model, would a pharmacist need to accumulate a minimum period of supervised practice under the supervision of an authorised prescriber (e.g. during the internship, before gaining general registration or after gaining general registration)?	No, if addressed gaps identified above	Yes, after gaining general registration and as part of a structured credentialing program dependent on the setting and supervision.	Yes , require post-graduate or equivalent

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8	Before prescribing under each model, would a pharmacist need to have achieved a minimum period of practice experience as a pharmacist with general registration? If so, for what period?	Dependent on the nature of the structured prescribing arrangement This arrangement could be governed by scope of practice within the institutional setting i.e. No, if was in the context of simple prescribing analogous to prescribing for nicotine replacement therapy for example i.e. Yes, if for more complicate structured prescribing arrangements such as the undertake dose adjustments for warfarin, vancomycin and aminoglycosides. The local requirements for these credentialing programs include one year of practice as a registered pharmacist.	Yes This would be dependent on the complexity of the prescribing under supervision Our local model requires that pharmacists have two years of experience before prescribing under the pharmacist partnered medication charting model This model is supported by quantitative and qualitative outcomes	
9	Would pharmacists prescribing under each model need to meet different annual CPD requirements to pharmacists who do not prescribe?	The current requirements state that pharmacists need to plan their learning to reflect their professional development needs reflecting on the role they perform and the services they provide. It would be expected that if a pharmacist was able to prescribe, the professional development needs that they identify would be expected to include those related to prescribing. Ongoing CPD related to prescribing to maintain competency could meet the need for demonstration of ongoing credentialing and competency.		
	REGULATION			
10	Would these models of prescribing by pharmacists require additional regulation by the Pharmacy Board or could it be adequately governed through relevant jurisdictional policy or legislation?	These models can be adequately governed through local jurisdictional oversight.		An endorsement for scheduled medicines in accordance with Section 94 of the National Law would be required for pharmacists to prescribe under this model.
11	What are the risks associated with each model of pharmacist prescribing and how could they be managed?	The partnered pharmacist charting model was initiated at The Alfred, and has been trialed across seven Victorian hospitals.		

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		In addition, to extensive external qualitative and quantitative evaluation, the Department of Health Victoria Victorian Innovation and Reform Impact Assessment Framework (VIRIAF) was applied to examine and address potential risks associated with the model implementation. (https://www2.health.vic.gov.au/health-workforce/reform-and-innovation/supporting-workforce-reform/victorian-innovation-and-reform-impact-assessment-framework). This included management of risks identified and this, with the resultant positive impact of the model, widespread adoption and the level of support from the DHHS for further expansion can provide guidance regarding risk mitigation. The risks are that if there was poor prescribing, it could result in patient harm and loss of credibility. These risks can be managed by implementing robust structured program to implementing pharmacist prescribing. Existing robust structured programs such as the one initiated at the Alfred and now rolled out statewide have been demonstrated to have a positive impact on patient outcomes. The fundamental components of the partnered model involve early review of the medications by a pharmacist, a face-to-face discussion about the medication regimen between the doctor and the pharmacist and consideration of venous thromboembolism prophylaxis and influenza vaccination. After this discussion, the pharmacist charts the agreed medications on the chart for admission. There is now substantial evidence for the program. The evidence clearly demonstrates that pharmacists significantly reduce the error rate on medications charts. Additionally, pharmacists increased the appropriate use of the influenza vaccine, increasing the public health benefits of vaccination. There is also a risk of not enabling pharmacists to prescribe. The initiatives undertaken at the Alfred have been instigated in response to identified deficits and have been to improve the quality use of medicines to our patients. Evidence supports the public health benefit for pharmacists undertaking these activities demonstrated by the improved outcomes when pharmacists have undertaken these activities. This is illustrated by a range of examples detailed above including a significant increase of patients who are appropriately vaccinated against influenza when pharmacists chart medications compared to doctors($p<0.01$).[11] and patients who have their warfarin dosing managed by pharmacists reach therapeutic INRs in significantly less time (10 days vs 8 days, $p=0.009$). [8] There is an ongoing risk of charting errors regardless of which profession is undertaking the prescribing. However compared to doctors, pharmacists are		

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		significantly less likely to make any medication error when charting (62% v 15%, p <0.001), and more importantly significantly less likely to make a severe error (54% vs 1%) (p=0.01).[10] Length of stay is significantly reduced as a result of partnered pharmacist charting (4.7 days v 4.2 days, p<0.001). This demonstrated potential savings of $4725 to $9450 per pharmacist per day, with the estimated average cost of a pharmacist of $460 per day.[9]		
	OTHER			
12	What factors would contribute to sustaining each model of pharmacist prescribing if introduced?	The training, engagement and workforce requirements for each model contribute to its sustainability.		
13	Do you have any additional comments about these models of prescribing by pharmacists?	These are clear, existing models of care supported and underpinned by evidence. The number of pharmacists already credentialed means that the model is readily implementable and transferable.		

1. Pharmaceutical Society of Australia. *Medicine Safety: Take Care.* Canberra, Australia2019.
2. Parekh N, Ali K, Page A, Roper T, Rajkumar C. Incidence of Medication-Related Harm in Older Adults After Hospital Discharge: A Systematic Review. *Journal of the American Geriatrics Society.* 2018;66(9):1812-1822.
3. Tong EY, Roman CP, Smit DV, Newnham H, Galbraith K, Dooley MJ. Partnered medication review and charting between the pharmacist and medical officer in the Emergency Short Stay and General Medicine Unit. *Australasian Emergency Nursing Journal.* 2015;18(3):149-155.
4. Tong EY, Roman CP, Mitra B, et al. Reducing medication errors in hospital discharge summaries: a randomised controlled trial. *Med J Aust.* 2017;206(1):36-39.
5. Tong EY, Roman CP, Mitra B, et al. Reducing medication errors in hospital discharge summaries: A randomised controlled trial. *Medical Journal of Australia.* 2017;206(1):36-39.
6. Weeks G, George J, Maclure K, Stewart D. Non-medical prescribing versus medical prescribing for acute and chronic disease management in primary and secondary care. *Cochrane Database of Systematic Reviews.* 2016;2016(11).
7. Page AT, Etherton-Beer CD, Clifford RM, Burrows S, Eames M, Potter K. Deprescribing in frail older people–Do doctors and pharmacists agree? *Research in Social and Administrative Pharmacy.* 2016;12(3):438-449.
8. Dooley MJ, McGuiness JV, Choo S, et al. Successful implementation of a pharmacist anticoagulant dosing service in ambulatory care. *Journal of Pharmacy Practice and Research.* 2011;41(3):208-211.
9. Tong E MB, Yip G, Roman C, Smit D, Gibbs H, Newnham H, Galbraith K, Dooley MJ, Kirsa S, Weeks G, Jones N, Toner P, Turner C, Hua P, Terril D. Multi-site Evaluation of a Collaborative Medication Charting Model and in-hospital Length of Stay. *Medical Journal of Australia.* 2019;Submitted.
10. Tong EY, Roman C, Mitra B, et al. Partnered pharmacist charting on admission in the General Medical and Emergency Short-stay Unit – a cluster-randomised controlled trial in patients with complex medication regimens. *Journal of Clinical Pharmacy and Therapeutics.* 2016;41(4):414-418.
11. Tong EY, Mitra B, Roman CP, et al. Improving influenza vaccination among hospitalised patients in General Medicine and Emergency Short Stay units – a pharmacist-led approach. *Journal of Pharmacy Practice and Research.* 2018;48(3):231-235.