

WENTWEST GENERAL PRACTICE PHARMACIST PROJECT

Evaluation Update: second report

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BACKGROUND

Western Sydney Primary Health Network, WentWest, has committed to identifying service gaps and commissioning solutions in the areas of population health, chronic disease and aged care. The WentWest general practice pharmacist project was commissioned as a result of a proposal supporting the use of a non-dispensing pharmacist in general practice (1).

Initially WentWest made funds available to the Hills, Blacktown and Mt Druitt doctors' associations to implement a general practice pharmacist pilot. In addition WentWest provided resources to assist in the consultation, commissioning and project management of the pilot.

A research team from the Discipline of Pharmacy from the UTS Graduate School of Health was assigned the task of conducting an initial mixed methods evaluation to provide information to WentWest regarding the pilot phase of the project and to assist with planning and implementing the for the ongoing project. The results of the UTS initial evaluation of the project pilot were communicated in a report provided to WentWest in August 2016.

This second report is prepared in two sections. Section 1 refers to the implementation changes resulting from the previous UTS evaluation of the pilot phase of the project and Section 2 is an analysis of quantitative data collected by project pharmacists following these changes from October 2016 until March 2017.

1.0 IMPLEMENTATION CHANGES RESULTING FROM PILOT PHASE EVALUATION

The initial pilot phase (March-June 2016) evaluation conducted by UTS recommended three main areas of improvement in delivery of the service including:

1. Specific Training for project pharmacists to improve the consistency and effectiveness of the integrated pharmacist service.
2. Implementation support including:
 - identification of a champion GP at each practice to facilitate the integration of the pharmacist,
 - educating practice staff about the role of the practice pharmacist,
 - provision of support materials including patient leaflets and posters explaining the role of the clinical pharmacist and potential benefit to patients.
3. Standardization of pharmacist activities, especially in the areas of selection and recruitment of patients, activities to be conducted during the patient consultation and data collection procedures.

In response to these recommendations the following activities were undertaken prior to the second phase of the project in October 2016-March 2017:

1. Pharmacist Training

A full day training program was developed by UTS and delivered to project pharmacists at the WentWest head office in Blacktown in September 2016. The timetable and a description of activities conducted during the training day is attached as Appendix 1.

The training included a discussion of the WentWest pharmacist project model and the delivery of the pharmacist intervention in a standardized manner. Project pharmacists were introduced to relevant literature supporting the use of non-dispensing pharmacists in general practice and were given guidance on inter-professional collaboration and conflict resolution.

Pharmacists were provided with training on the management of medication adherence, the identification and resolution of drug related problems (DRPs) and chronic disease management, specifically diabetes, asthma and hypertension management.

This workshop also facilitated the development of a support network for the pharmacists participating in the project.

2. Implementation support.

Patient information leaflets were developed and distributed to participating general practices by the WentWest project team explaining the role of the pharmacist at the general practice (Appendix 2). To raise awareness of the Patient Centred Medical Home (PCMH) as a primary care model WentWest conducted the PCMH Showcase for WentWest Health Care Professionals which highlighted the role of allied health as part of the general practice team. Appendix 3 is an outline of the PCMH Showcase timetable.

3. Standardization of practice

As a result of the training and communications from the WentWest project team, a number of processes and procedures were standardized to improve the implementation of the intervention and the comparability of data between pharmacists and between sites, including:

- the method used for patient selection and recruitment - where practicable the pharmacist identified and booked identified patients on the day they were due to visit GP.
- the pharmacist consultation - to ensure that a consistent service was provided to patients the consultation included:
 - i. a complete medication history,
 - ii. reconciliation of the patient medication record,
 - iii. a medication adherence assessment,
 - iv. a review of medications to identify and resolve DRPs and optimise therapy,
 - v. a review of lab tests and requesting additional lab tests where required,

- vi. discussion of the pharmacist's recommendations with the patient and the GP.
- review of the data collection sheet used for recording the results of the patient consultation
 - the edited version included a unique patient identification field and a date of consultation field.
- the importance of the pharmacists accurately recording all data fields, especially the acceptance of recommendations by the GP.

2.0 EVALUATION UPDATE REPORT

The results presented in this report are from analysis of quantitative data collected by project pharmacists from October 2016-March 2017.

2.1 AIM

The aim was to:

- evaluate the quantitative data collected by the participating pharmacists in the six months of the program with regards to the medication reconciliation activities and detection and resolution of Drug-Related Problems (DRPs);
- make recommendations for future improvement of the current project model and procedures.

2.2 INTRODUCTION

The medication review and therapy optimisation activities conducted by the project pharmacists resulted in the identification and potential resolution of DRPs. The detection and resolution of DRPs was chosen as the primary outcome measure for the quantitative analysis.

A DRP can be described as any undesirable event experienced by a patient that may actually or potentially impact desired patient outcomes and that are thought to involve drug therapy.^{1, 2}

Examples of DRPs include Adverse Drug Reactions (ADRs), incidences of incorrect medication dosage, medication use without indication, and indications that are untreated.

DRPs have been linked with an increase in hospital admissions with an estimated prevalence of between 3-7% of hospital admissions being drug related.³⁻⁵

The resolution of drug related problems is complex and requires different responses depending on the problem detected. An example would be the resolution of an adverse drug reaction which may require a change in therapy to an alternate agent or cessation of a medication. The Pharmaceutical Society of Australia (PSA) guidelines for pharmacists conducting home medicines reviews (HMR) have a classification system for DRPs adapted for the Australian general practice setting. This classification system was used for the purposes of this evaluation¹ with a slight amendment to the wording of one category from improper drug selection to inappropriate drug selection as this was thought to more clearly describe the DRP. This classification system categorizes DRPs into 8 categories; 1) medication not indicated, 2) over dosage of a medication, 3) untreated patient indication, 4) sub-therapeutic medication dose, 5) inappropriate medication selected, 6) adverse drug reaction detected, 7) medication adherence issues and 8) drug interactions present.

A logical response to resolving DRPs associated with prescribed medications when they are not indicated or where the prescribed dose of a medication is too high for a patient is to cease a medication or to reduce the medication dose. These activities may be collectively known as de-prescribing. Previous studies have linked de-prescribing activities to an increase in patient quality of life, a reduction in medication cost and a reduction in drug related adverse events.^{6, 7}

2.3 METHOD

a) Sample and Data Collection

As part of their usual practice, the five pharmacists (and one pharmacist who has since left the project) collected quantitative patient data. Data was collected using a standardised data collection spreadsheet (in Excel) that was developed to support the delivery of the intervention. Data collected between October 2016 and the end of March 2017 was used in the analysis.

b) Data Analysis

Data was entered into the Statistical Package for Social Sciences (SPSS) for Windows Version 24.0 (IBM, New York, USA). To ensure accuracy, the data was checked for discrepancies by two researchers. The data was then analysed using standard descriptive statistics.

2.4 RESULTS

Patient Data

Pharmacists collected data on 493 patient consultations (see table 1 for patient characteristics).

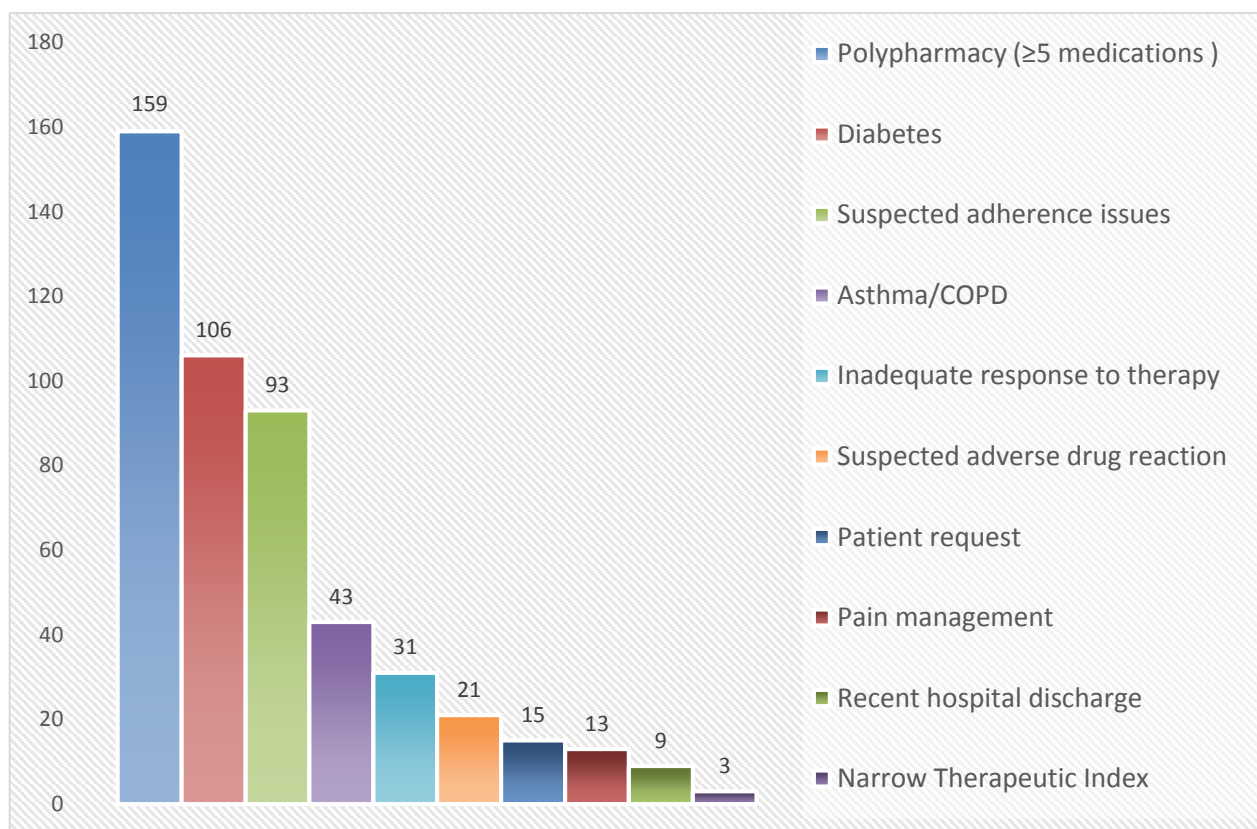
Table 1: Patient data

	Average	Standard Deviation
Patient Age (years)	67.7	± 13.6
Number of comorbidities	5.5	± 2.7
Number of medications (prescription and non-prescription)	9.2	± 4.3

The primary reason patients were selected for consultation with a pharmacist are described in Figure 1.

Some patients met multiple selection criteria but are only included in Figure 1 under their primary reason for selection.

Figure 1: Primary Reason for patient selection/referral

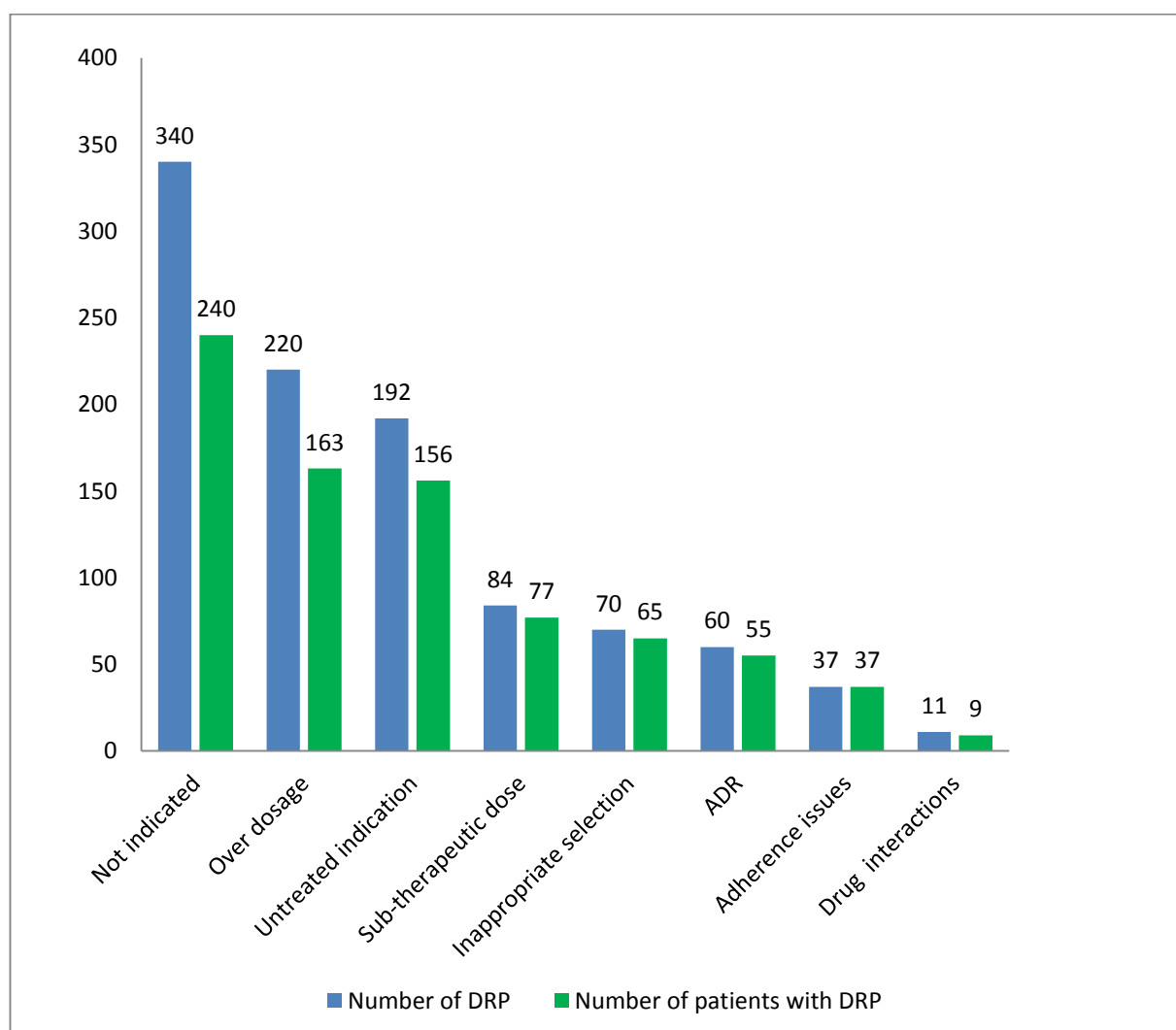


In the 493 consultations, project pharmacists also identified and corrected 374 discrepancies between the patient's clinical record and the medication actually being taken by the patient.

Drug-Related Problems (DRPs) Identified

The majority of patients seen by the pharmacists (90%) presented with at least one DRP, with a mean number of DRPs per patient of 2.1 ($sd \pm 1.3$). Figure 2 outlines the DRPs detected and the number of patients affected by each type of DRP.

Figure 2: Drug-Related Problems detected



Pharmacists made a total of 984 recommendations in relation to the 1014 DRPs identified, of which 685 were recorded as actioned by the GP (Table2).

The number of recommendations was lower than the number of DRPs detected as not all DRPs required action by the doctor, as is the case with patient education on inhaler technique or where the pharmacist addressed adherence concerns. In addition sometimes multiple DRPs were resolved with one recommendation for example ceasing a medication may have resolved both an over dosage and medication indication problem.

Table 2 outlines the contributions of the individual project pharmacists and demonstrates the variations between practitioners in both average consult length and recommendations per consult. Interestingly increasing the length of the consult does not appear to have increased the number of recommendations made.

Table 2: Pharmacist/patient consultations and acceptance rates

Pharmacist	Consults*	Av Consult Length (mins)	Number of Recommendations to general medical practitioners	Recommendations /Consult	Recommendations accepted by general medical practitioners (%)
Pharmacist 1	277	34	468	1.8	230 (49%)
Pharmacist 2	165	33	421	2.6	409 (97%)
Pharmacist 3	11	31	20	1.8	20 (100%)
Pharmacist 4	13	25	27	2.1	10 (37%)
Pharmacist 5	9	44	13	1.4	Not recorded
Pharmacist 6	18	48	35	1.9	16 (46%)
Total	493	34 mins (sd ±12.6)	984	2.0	685 (71%)
*Consults= consultation between pharmacist and patient					

One pharmacist is working full time on the project and conducted 59% of the patient consultations (277 of 493). All of the other project pharmacists are currently working a maximum of one day per week on the project so this limited their contribution to the data set. In addition several of the project pharmacists took leave over January and this reduced the number of consultations over this period. Two of the project pharmacists only commenced patient consultations in January again limiting their contribution to the dataset.

Table 3 shows detail on the activities of the project pharmacists at the 16 general practice sites.

It is interesting to note the variation in recommendations/consult and percentage of recommendations accepted between individual practitioners and between the same practitioner at different sites.

Table 3: Consultations at general practice sites

Pharmacist	Practice	Consults	Number of recommendations	Recommendations /consult	Recommendations accepted n (%)
1	Practice 1	17	29	1.71	17 (59%)
1	Practice 2	7	19	2.71	6 (32%)
1	Practice 3	20	44	2.2	28 (64%)
1	Practice 4	54	80	1.48	39 (49%)
1	Practice 5	41	65	1.59	29 (45%)
1	Practice 6	19	30	1.58	9 (30%)
1	Practice 7	24	34	1.42	16 (47%)
1	Practice 8	3	8	2.67	8 (100%)
1	Practice 9	90	158	1.76	77 (49%)
1	Practice 10	2	1	0.50	1 (100%)
2	Practice 11	90	227	2.52	219 (96%)
2	Practice 12	75	194	2.59	190 (98%)
3	Practice 11	11	20	1.82	20 (100%)
4	Practice 13	13	27	2.08	10 (37%)
5	Practice 14	4	6	1.50	Not recorded
5	Practice 15	5	7	1.40	Not recorded
6	Practice 16	18	35	1.94	16 (46%)
Totals		493	984	2.00	685 (70%)*
*71% after adjustment for missing values					

Table 4 links the reason for patient selection with the number of recommendations made by project pharmacists and accepted by the GP.

Table 4: Primary reason for patient selection and number of recommendations accepted by GP

Primary reason for patient selection	Number of recommendations made	Number of recommendations accepted by GP	Recommendations accepted %
Polypharmacy	342	244	71
Diabetes management	200	154	70
Suspected adherence issues	157	103	66
Asthma/COPD management	85	42	49
Inadequate response to therapy	76	40	53
Suspected ADR	41	32	78
Pain management	27	19	70
Recent hospital discharge	20	15	75
Patient education/lifestyle	18	18	100
Patient request	12	12	100
Medication with narrow therapeutic index	6	6	100
Total	984	685	71

2.5 DISCUSSION AND RECOMMENDATIONS

The results demonstrate that the pharmacists were effective in identifying patient DRPs. The patient population had a high proportion of DRPs indicating that an appropriate target population had been selected. These results indicate that there is an established patient need for optimising pharmacotherapy and that pharmacists are effective in making appropriate recommendations to resolve DRPs once they have been detected.

There was a high acceptance rate (71%) by GP of the pharmacists recommendations. The true acceptance rate may actually be higher as two of the project pharmacists failed to record the number of

their recommendations that were accepted by the GP. This high acceptance rate correlates with a previous study examining the acceptance rate of pharmacist medication review recommendations across different settings which found that integrated pharmacists had a higher acceptance rate (71%) than pharmacists not embedded in the general practice (53%).⁸

There was however, a large variability in the recommendation acceptance rate between both individual project pharmacists (ranging from 51-100%) and between project sites (for example, Pharmacist 1 had an acceptance rate ranging from between 30% and 100% at different sites.) It would be interesting to further investigate the reasons behind these differences in future studies and to establish if the differences were related to practice or practitioner variation or other factors that could be addressed to improve the impact of the intervention.

The 560 DRPs related to medication use without indication (340) and over dosage (220) [see Figure 2] indicate the potential opportunities for integrated pharmacists to initiate de-prescribing. Due to the level of detail of the data collected around the recommendations made and accepted by the GP it was not possible to fully analyse the impact of the project pharmacists in de-prescribing. Further studies are needed to investigate the impact of the integrated pharmacist de-prescribing activities on patient outcomes.

It appears that the pharmacists acted as educators for both patients and prescribers. The 100 percent acceptance of pharmacist recommendations relating to patient education and lifestyle show that this education role is well received by GPs. In addition the 70 DRPs detected relating to inappropriate drug selection demonstrate the potential role of pharmacists in educating and advising prescribers on best practice prescribing.

Previous studies have identified that the detection and resolution of ADR by pharmacists are associated with significant health cost savings⁹. In the current study pharmacists did not record detail on the medications associated with the 60 ADRs detected. This limited the ability of the research team to investigate the impact of the outcomes associated with detecting and resolving these ADRs. It would be beneficial for future studies to record detail of the medications (including strength, dose and dosing schedules) which may have contributed to the ADRs detected to enable further learnings to be gained.

More comprehensive and in depth data collection is required. In particular it would be helpful to know

the individual medications related to each DRP and the exact pharmacist recommendations. This collection of specific and detailed data would enable a more accurate assessment of the potential impact of the pharmacist intervention on clinical, humanistic and economic outcomes.

2.6 CONCLUSION

The WentWest general practice pharmacist project has demonstrated the benefits of inter-professional collaborative care and provides evidence to support the ongoing implementation of the intervention in practice. Pharmacists have a valuable role to play in reducing and resolving DRPs, improving chronic disease state management and supporting the general practice team.

Further studies could investigate the impact of integrated pharmacists on broader patient and health system outcomes. A proposal is currently being developed by the UTS team to enable a more extensive evaluation and health economics analysis.

2.7 FUTURE DIRECTIONS

It is recommended that adjustment of the data collection method by project pharmacists is made to include information on medications taken, a more comprehensive description of drug related problems detected and more detail on the exact recommendations made and accepted.

For the ongoing project a clustered randomised controlled trial is proposed to measure clinical outcomes such as medication changes, and clinical parameters relating to disease control such HbA1c, blood pressure, cholesterol levels, and control of negative clinical outcomes arising from medication usage (DRP), humanistic (Health related quality of life, patient reported outcomes) and economic (emergency department admissions, hospitalisation data, medication costs, medical visits etc.) outcomes.

The clustered randomised clinical trial would follow specific patients over a 12 month period.

2.8 REFERENCES

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APPENDIX 1 WentWest Pharmacist Project Training Day Timetable

WentWest Clinical Pharmacist Project Training Workshop Timetable				
13th September 2016 10am-5pm				
Time	Contents	Description	Method	Materials
10-10:15am	Welcome and introduction		Hand out workbooks Sign in attendance sheet	Work books Sign in sheet
10:15-10:30 am	The Wentwest Project Model	Description of Protocol- Recruitment-Consultation- Communication-Follow-up	Powerpoint Hand out iPads	Workbooks iPads with data collection spreadsheet
10:30-11:15am	Identification of drug related problems. (DRPs)	Review of research Discussion of variables to be collected	Powerpoint	
11:15-11:30am	Break			
11:30-12:30pm	Adherence Assessment	Adherence theory- prevalence and relevance Types and causes of non-adherence Adherence Models Stages of Change Motivational Interviewing Case studies	Powerpoint Video presentation Case studies	Data collection spreadsheet
12:30-1:00pm	Lunch Break			
1-1:30pm	Inter-professional collaboration	Literature review of barriers and facilitators and strategies to address them	Powerpoint	
1:30-2:15pm	Barriers and facilitators for the project-strategies for success	Review of barriers/facilitators and suggested strategies	Powerpoint Brainstorming session	
2:15-2:30pm	Break			
2:30-3:30pm	Review of Disease State Management	Presentation of literature around non-dispensing	Powerpoint	Workbook

		pharmacist interventions and disease state management		
3:30-4:30pm	Case studies	Case study 1- Case study 2-	Individual case study attempts-practice recording consult results in data collection spreadsheet via iPad	
4:30-5pm	Wrap up, training evaluation completed.			

APPENDIX 2: WentWest General Practice Pharmacist Information Leaflet.



phn
WESTERN SYDNEY
AN AUSTRALIAN GOVERNMENT INITIATIVE

Non-Dispensing Pharmacist

Providing advice about your prescribed medicines

BOOK IN NOW TO SEE THE PHARMACIST

What is a Non-Dispensing Pharmacist?

The Non-Dispensing Pharmacist is the newest member of the practice team looking after your health. The pharmacist works with you and your GP to ensure you are getting the best results from the medication you are taking.

How the Non-Dispensing Pharmacist can help you?

- ▶ Review medications for people with long-term chronic conditions such as asthma, COPD, diabetes, arthritis, heart disease or high blood pressure.
- ▶ Review medications for people experiencing side effects.
- ▶ Provide support and advice when commencing a new medication.
- ▶ Review medication after a stay in hospital.

When should I see the Non-Dispensing Pharmacist?

Make an appointment to see the Non-Dispensing Pharmacist if you would like some advice on your medicines. Your doctor, or the primary care practice nurse may also refer you if they have any concerns, or just to make sure your current medication list is accurate and up to date.

Contact us

To book an appointment or for more information contact or to book an appointment to book an appointment please speak to reception.

To book an appointment, please speak to reception or speak with the Non-Dispensing Pharmacist.

Proudly supported by

Blacktown Medical Practitioners' Association,
Hills Doctors' Association and
Mt Druit Medical Practitioners' Association

APPENDIX 3: PCMH Showcase timetable

When: Tuesday, 29th November 2016

Where: Rosehill Gardens Racecourse, James Ruse Drive, Rosehill 2142

Introduction

MC: Adjunct A/Prof Walter Kmet, *CEO, WentWest, Western Sydney Primary Health Network (WSPHN)*
5:45pm 5mins

Welcome to the Country

Baabayn Aboriginal Corporation
5:50pm 15mins

The Health Consumer Experience

Speaker: Julie Milsom, *Chair, WSPHN Consumer Advisory Council*
6:05pm 15mins

PCMH in the Australian Context

Speaker: Dr Kean-Seng Lim, *2015 RACGP GP of the Year, Vice President of AMA NSW, GP – Mount Druitt Medical Centre*
6:20pm 15mins

PCMH - A Partnership between the Patient, GP, and Health Care Team

Speaker: Dr Michael Wright, *The Royal Australian College of General Practitioners, GP, Medical Director and Primary Care Researcher, University of Technology Sydney*
6:35pm 15mins

ACI Navigating the Health Care Neighbourhood

Speaker: Mr Chris Shipway, *Director Primary Care, Agency Clinical Innovation*
6:50pm 10mins

Transition Period

Dinner and Special Interest Breakout Sessions 7:00pm 30mins

PCMH: Teams and Neighbourhood

Special Interest Sessions (Please select one of the below sessions to attend)

7:30pm 30mins

- a) General Practice: Bringing PCMH to life
Dr Michelle Crockett *2014 RACGP General Practice of the Year, GP – Riverstone Family Medical Practice*
- b) Integrated Care: PCMH at the heart of the medical neighbourhood
Dr Michael Crampton, *Clinical Lead Western Sydney Integrated Care Program, Western Sydney Local Health District (WSLHD). 2014 RACGP General Practitioner of the Year;*
Mr Ian Corless, *Director Integrated Care, WentWest, WSPHN*
- c) Mental Health: PCMH and the whole person

Mr John Feneley, *Commissioner, Mental Health Commission of NSW*;

Mr Bill Campos, *Head of Mental Health Services & Senior Clinical Psychologist, WentWest, WSPHN*

d) Allied Health and Pharmacy: PCMH and team based care

Radhika Somasundaram, *Clinical Pharmacist*

Dea Krismarietta, *Dietitian*

Helen Benson, *University of Technology Sydney*

Transition Period

8:00pm 10mins

Enablers and Evaluation

Speaker: Prof Jennifer Reath, *Peter Brennan Chair of General Practice School of Medicine, Western Sydney University*

8:10pm 10mins

Leadership Panel – What does it take to make PCMH a reality?

Moderator: Dr Wally Jammal, *Chair PCMH GP Leaders Group*

Panelists:

Prof Di O'Halloran, *Chair, WentWest, WSPHN*

Ms Leanne Wells, *CEO, Consumer Health Forum of Australia*

Mr Danny O'Connor, *Executive Officer, Western Sydney Local Health District*

Mr Mark Booth, *First Assistant Secretary, Health Systems Policy Division, Department of Health*

Mr John Feneley, *Commissioner, Mental Health Commission of NSW*

8:20pm 40mins

Next Steps and Close

MC: Adjunct A/Prof Walter Kmet, *CEO WentWest, WSPHN*

9:00pm 10 mins