When Community Pharmacists and GPs Communicate….

FINAL REPORT

CASE CONFERENCES AND CARE PLANS: COLLABORATION BETWEEN COMMUNITY PHARMACISTS AND GPs

AFTER HMR IN PRIMARY MENTAL HEALTH CARE

2001:064

Faculty of Pharmacy
The University of Sydney

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"Medications are relied upon to treat many mental disorders and (psychotropics) comprise approximately 8.3% of all medicines dispensed (Britt et al 1999). In addition, most mental disorders are managed in primary care without referral to specialists. Therefore, Home Medicines Review (HMR) is a potentially significant intervention for consumers with mental disorders."

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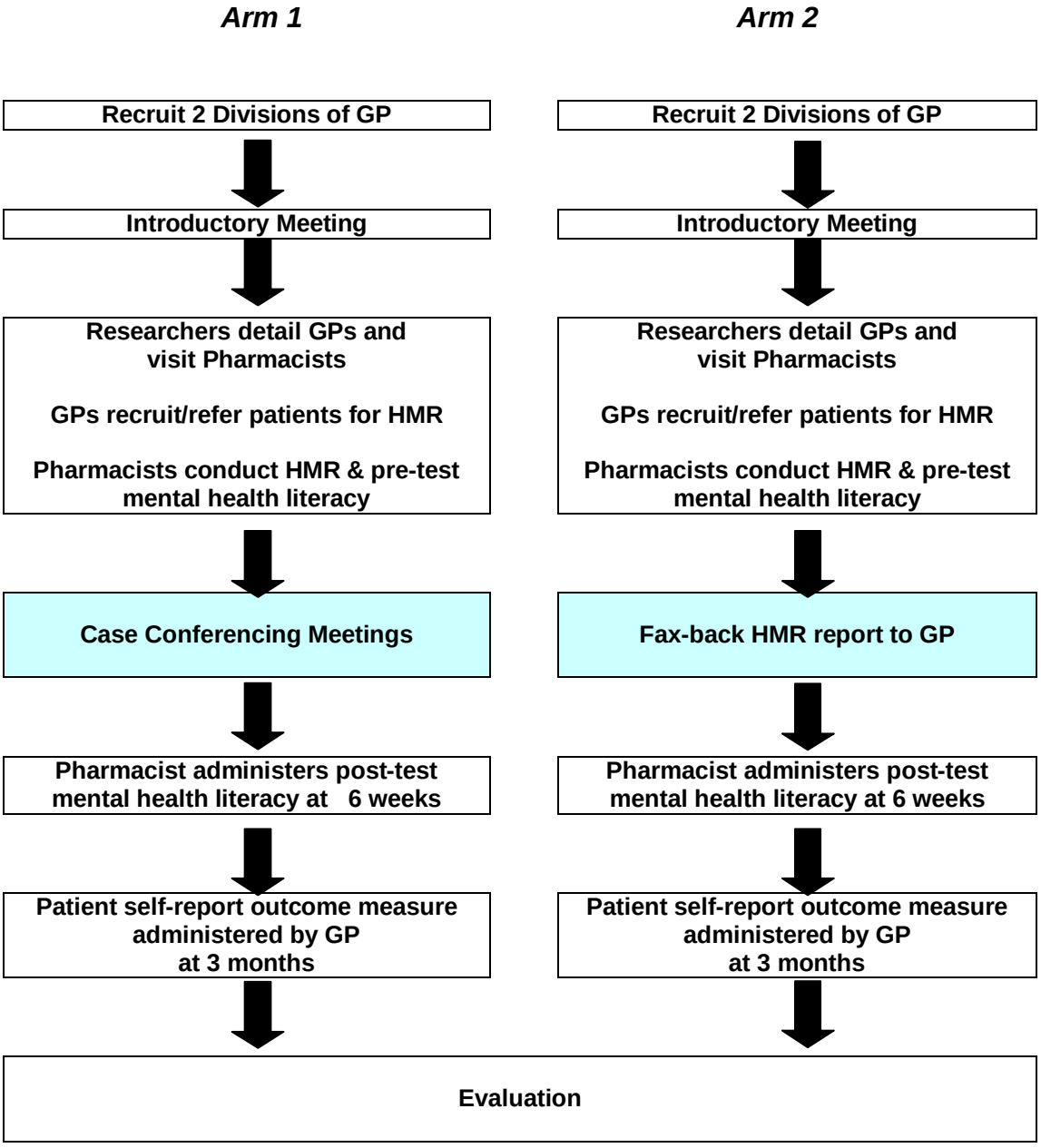
THE STUDY AT A GLANCE

Figure 1: The two arms of the cluster randomised comparative trial Case Conferences and Care Plans: Collaboration between Community Pharmacists and General Practitioners



Some Abbrieviations and Definitions

The following abbrievations and definitions are used in this document

AACP	Australian Association of Consultant Pharmacy
ADR	Adverse drug reaction
BOMH	Better Outcomes in Mental Health programme
CC	Case Conference
CPS	Cognitive pharmaceutical service
DMMR	Domiciliary medication management review
EPC	Enhanced Primary Care
GP	General Practitioner
HIC	Health Insurance Commission
HMR	Home Medicines Review
MMP	Medication Management Plan
MMR	Medication management review
PGA	Pharmacy Guild of Australia
PSA	Pharmaceutical Society of Australia
Psychotropics	The Australian Medicines Handbook 2004 has been used in the classifying of psychotropic drugs. Psychotropic drugs refer to antidepressants, antipsychotics, drugs for bipolar disorder, anxiolytics and hypnotics, drugs for attention deficit hyperactivity disorder, drugs for alcohol dependence, drugs for nicotine dependence and drugs for opioid dependence.
RACGP	Royal Australian College of General Practitioners

EXECUTIVE SUMMARY AND RECOMMENDATIONS

Introduction

Care plans and case conferences are relatively new primary health care services designed to improve health outcomes for patients with complex chronic care needs. Under the Commonwealth Government's Enhanced Primary Care (EPC) programme General Practitioners (GPs) are remunerated for their involvement in these important services. The EPC programme stipulates that these services must involve at least two other health care professionals, only one of whom may be another medical doctor. It seems logical, therfore, that pharmacists could be ideal primary health care participants in case conferences and care plans, because of their expertise in medication management.

Interestingly, whilst the uptake of care plans has increased rapidly (with 155,486 claimed in 2001) the uptake of case conferences has been slow (11,095 claimed for the same period) (Mitchell et al, 2002). The idea for this project was to evaluate the contribution pharmacists can make through participation in post-HMR case conferences.

This report contains an analysis of case conference meetings and HMRs undertaken by community pharmacists and GPs in Sydney. This analysis is contextualised through a discussion of interprofessional communication (Chapter One); a narrative literature review of adult mental disorder in primary care (Chapter Two); a discussion on community pharmacists as contributors to primary mental health care (Chapter Three); a quantitative analysis comparing case conferencing post-Home Medicines Review (HMR) with standard (fax-back/written report) HMR (Chapter Five); and a qualitative analysis of actual case conference meetings between community pharmacists and GPs (Chapter Six).

Since the introduction of HMRs in Australia in 2001, little research has been undertaken on their benefits for specialised patient groups, such as mental health patients. There is a lack of research on how to best deliver HMR services for specialised, specific patient groups. Furthermore, a detailed understanding of the necessary strategies and incentives for the uptake of HMR referrals by GPs for specialised patient groups, participant outcomes for specialised groups, including satisfaction of patients and practitioners is not known. This study is the first study in Australia to focus specifically upon case conferencing in relation to HMRs and the first to attempt to apply HMRs to mental health care. The overall research question for this study was to determine if case conferencing between GPs and Community Pharmacists about a Home Medicines Review enhance outcomes for patients and the participating health practitioners when compared to a standard (eg fax-back or written) Home Medicines Review?

Few or no data are available in Australia on what collaborative activities pharmacists undertake with other health care practitioners (public and private psychiatrists, GPs, nurses, case managers) for patients with mental disorders. That is, the extent of sharing of complex information regarding the multi-modal management of consumers with mental disorders is not known. Therefore a secondary aim of this study was to explore and provide a basis for the increased role of community pharmacists in the management of consumers with mental disorders.

This report is intended to be read by pharmacy, general practice and mental health policy, clinical, research and consumer stakeholders.

Methods

A prospective cluster randomised comparative two group intervention study was utilised. This design was used so that key project question could be tested, that is whether face-to-face case conferencing between GPs and Community Pharmacists about a Home Medicines Review enhance outcomes for patients and the participating health practitioners when compared to a standard (eg fax-back or written) Home Medicines Review. The original study design was a prospective cluster randomised comparative three group intervention study, where group three was a prospective control. Due to data capture difficulties associated with the control group (arm three), it was not possible to collect any (meaningful) control data and so the focus of data collection was for the two comparative arms of the trial (Arms 1 and 2).

The intervention in Arm 1 comprised HMR followed by a face-to-face case conference meeting between the pharmacist and GP. The intervention in Arm 2 involved HMR followed by "usual" means of communication about the HMR report (eg written or fax-back) beween the pharmacist and GP. Pharmacists and GPs from four metropolitan Divisions of General Practice in Sydney were recruited to this study.

Originally, the intervention involved pairs of GPs and Pharmacists delivering Home Medicines Reviews (HMRs) to 5 patients with an ICD10-defined mental disorders. However due to the considerable delays in the recruitment of patients with an ICD10-defined mental disorder, and in order to answer the principal research question concerning case conferencing benefits post-HMR, relaxation of the entry criteria to include patients with any illness was sought from and approved by the Funding Body (Interim Report September 2003).

The key data collected and presented in this report are:

1. HMR data for Arms 1 and 2 – quantitative analysis
    a. Number of participants (GPs, pharmacists, patients)
    b. Number of findings and recommendations per HMR
    c. Acceptance rate of HMR recommendations
    d. Action rate of HMR recommendations
2. Case conference data for Arm 1
    a. Number of case conferences
    b. Duration of case conferences
    c. Thematic analyses of case conferences
3. Mental health literacy data for pharmacists

Results and Discussion

A total of 89 HMRs were conducted for 89 consumers (n=44 consumers in Arm 1 and n=45 in Arm 2). The mean age for participants in each of the groups was 66 years and 74 years respectively. A total of 866 medications were being taken by these consumers (mean=9.7 per patient). In addition to psychotropic medications which accounted for 15.1% of all medications (131/866), other commonly used medications were for cardiovascular conditions (24.3%), gastrointestinal (9.4%) and analgesic medications (8.9%).

A mean of 1.73 mental health diagnoses were made for each patient recruited to Arm 1 and 1.47 for Arm 2. The most frequent mental illnesses in both groups were depression, sleep disorder and anxiety. Other diagnoses included manic depression/bipolar disorder, post-traumatic stress disorder and schizophrenia.

The most frequent physical comorbidities were hypertension, hypercholesterolaemia and hyperlipidaemia, osteoarthritis, osteoporosis, ischaemic heart disease, type two diabetes and asthma/chronic airways limitation. The pattern of physical comorbidities was strikingly similar in both groups.

A total of 601 HMR findings (potential problems) were documented by pharmacists in the 89 HMR reports. The overall mean number of findings (identification of potential problem) documented per HMR was 6.8. The mean number of findings per HMR in Group Arm 1 was 7.7. This compares to a mean of 5.8 in Arm 2.

A total of 521 HMR recommendations (potential solutions) were documented by pharmacists in the 89 HMRs. The overall mean number of recommendations documented per HMR was 5.9. The mean number of recommendations per HMR in Arm 1 was 7.0. This compares to a mean of 4.7 in Arm 2.

In Arm 1, there was a high rate (92%; 252 of 274 recommendations) of GP acceptance of pharmacists HMR recommendations following the face-to-face case conferences meetings. Few recommendations were rejected by GPs. It was hypothesized that this was due to the opportunity for face-to-face interprofessional discussion between the GP and pharmacist. This discussion allowed for dialogue about a broad range of clinical issues documented in the HMR report. Specifically there was dialogue about the rationale and evidence behind specific findings and recommendations. In interpreting this data it is important to recognise that the high acceptance rate does not necessarily reflect a high action rate by GPs. It is likely, however that a high action rate would follow a high rate of acceptance of HMR recommendations. The rates of acceptance are comparable with acceptance rates reported in other mental health medication review projects involving case conferences. For example, in a study of pharmacist recommendations made in case conferences in a community mental health team in the United Kingdom, 91% of recommendations were accepted and actioned, and just 3.5% rejected (Kettle et al, 1996). Based on other Australian data, where the action rate of pharmacist recommendations was 42% (Gilbert et al., 2002), the action rate for group one was estimated to be 106 of 274 recommendations (38%).

In Arm 2, a Medication Management Plan (MMP) was returned to the community pharmacy in only 11 of the 45 HMR cases (24%), although this is required by the HIC. A total of 60 recommendations were documented in these HMRs. The documented action rate (per MMP) was a little less than one in five recommendations (18%; 11 of 60 recommendations). This is lower than the rate of action for group one, estimated to be 38% (109 of 274 of recommendations).

It is noteworthy that the estimated action rate for Arm 1(where a case conference meeting was conducted in all cases post-HMR) was approximately double the action rate for Arm 2 (18%). This suggests that the impact of the pharmacist on HMR, as measured by uptake and implementaion of HMR recommendations is greater if a case conference meeting occurred post-HMR. Overall, this means that the overall estimated implementation rate for pharmacist HMR recommendations was 35.9% (120 of 334).

Analysis of case conference meetings demonstrated a number of important findings such as the notion of joint decision making, discussion about general therapeutic areas not directly related to the HMR report, and discussion about specific medication issues not included in the HMR report.

Post-HMR case conference enable pharmacists to “add value” to the HMR report through explaining “the thinking” behind their recommendations and also provides an opportunity for pharmacists to receive direct feedback on their HMRs. Similarly GPs have the opportunity to explain to pharmacists the rationale for their prescribing and provide further relevant clinical information about the patient. Case conference meetings therefore provide an opportunity for dialogue between pharmacists and GPs about complex therapeutic issues, potentially resulting in a true inter-disciplinary approach to medication management. The rapport building from case conferencing is central to the sustainability of the HMR programme, as it allows both health professionals to learn more from each other and about each other.

Conclusion and Recommendations

1. A successful Home Medicines Review (HMR) programme requires excellent inter-disciplinary rapport between pharmacists and GPs. A case conference meeting post-HMR provides an ideal opportunity for pharmacists and GPs, who ordinarily work with each other, to identify and discuss “complex” care needs for patients with chronic diseases. It is recommended that post-HMR case conference meetings be given a higher priority by both pharmacists and GPs when conducting HMRs, especially in the initial stages of interprofessional rapport building.

2. Although case conference meetings have been described as a part of the “normal”HMR process, they are not mandatory and in practice they are generally not undertaken. This is evidenced through the HMRs conducted in the Arm 2 of this trial, in which no HMRs involved a case conference. It is recommended that direct effort in establishing case conference meetings as a standard part of HMR practice should be undertaken from both the medical and pharmacy perspectives.

3. This research has focussed on an evaluation of the value of conducting case conferences post-HMR. It is recommended that pharmacists be adequately remunerated for participation in case conference meetings under EPC. This will enhance a multi-disciplinary approach to primary health care.

4. This research has demonstrated that the HMR programme remains a relatively new and relatively poorly understood intervention for general practice and for patients, and mental health services in the study locations. It is strongly recommended that public health campaigns designed to raise the awarness of and the value of HMRs be undertaken.

5. One challenge in undertaking practice-based research involving pharmacists and GPs is the time required to deliver health interventions and complete paper work associated with data collection. It is recommended that GPs and pharmacists be paid for practice-level data collection for (mental health) research that requires extensive data collection by health practitioners. This may help facilitate timely data collection and may be a more cost effective method compared to data collection directly by researchers.

6. It is recommended that future HMR studies investigate both the documented action rate (per MMP) as well as the acceptance rate of accredited pharmacist recommendations. These data complement each other and aid in the interpretation of the impact of pharmacist-conducted HMR.

7. It was our intention in this study to recruit pharmacists and GPs who ordinarily have a professional working relationship in the delivery of HMR services. We

identified that a majority of cases (not all cases) that professional working relationships between many of the pharmacists and GPs were superficial. In some cases pharmacists were proactive in their development of professional relationships with their GPs, however, in general, pharmacist 'collaboration' with GPs was tentative and reserved. Accordingly, pharmacists were less able than expected to facilitate GP recruitment and subsequent HMR referrals. It is therefore highly recommended that significant effort be placed on the development of better professional working relationships between pharmacists and GPs, by all key stakeholder groups, including but not limited to professional organisations, government, universities and professional colleges. It is envisaged that at a local level, Divisions of General Practice (eg HMR facilitator) will continue to play a major role in fostering interprofessional collaborative working relationships.

8. Continuity of care and feedback after the HMR process is important to ensure positive outcomes for consumers. After GPs have received the HMR report from pharmacists, they are required to consult with the patient and draw up an HMR Medication Management Plan (MMP), including specific actions. This MMP should be signed by the patient, indicating their agreement with actions. The MMP should also be forwarded to the pharmacy/pharmacist. This trial demonstrated that pharmacists rarely receive feedback on their HMR reports via the structured HMR Medication Management Plan (eg 11 of 45 cases in Arm 2). In the view of the authors, this feedback is essential if pharmacists are to improve their skills and rapport with GPs. It is strongly recommended that Medication Management Plans be automatically forwarded by GPs to pharmacies and that pharmacists should actively request the MMPs from GPs if they do not receive them. Pharmacies should also develop record keeping systems for storage and retrieval of MMPs, as well as all other documentation associated with the HMR process. This is very important because MMPs form an imporant data source for evaluating the impact of HMRs.

9. In this study there appeared to be a wide variability in standard of HMR reports generated by pharmacists. It is therefore recommended that on-going training programmes and continuing education be made available for all pharmacists undertaking HMRs.

10. It is likely that the impact and overall quality of HMRs could be improved through better transfer of relevant clinical information between pharmacists and GPs. Prescription writing software (eg Medical Director) allows GPs to generate a template for a HMR referral or MMP. These templates may be tailored by the GP. For example the section on the indications for the HMR (or the reasons for the HMR) should be completed. In many cases this information was lacking. It is therefore recommended that GPs include all relevant information on HMR referrals and that pharmacists contact GPs prior to conducting HMRs if relevant information is not provided.

11. A relative strength of pharmacist conducted HMRs is the important role (of the pharmacist) in ascertaining a comprehensive list of medications consumed by patients. Pharmacist play a significant role in identifying medcations (prescribed, non prescription and complementary and alternative medicines) taken by consumers through the conduct of home interviews. In this study, pharmacists in Group One identified a statistically significantly ($p=0.002$) higher number of medications per patient than GP records. On averge, an extra 1.4 medications per regimen was identified by pharmacists. This highlights the important role pharmacists play in conducting comprehensive HMRs.

CHAPTER ONE - WHEN COMMUNITY PHARMACISTS AND GPS COMMUNICATE: INTRODUCTION

Background

This comparative trial is the first study in Australia to focus upon case conferencing in relation to Home Medicines Reviews (HMRs) and the first to apply HMRs to mental health care. GPs, community pharmacists and patients participated from the jurisdictions of four Divisions of General Practice in Sydney: Hornsby-Ryde, Northern Sydney, Central Sydney and St George Divisions of General Practice. More than half of these have significant patient populations of persons from cultures other than English, in particular Central Sydney and St George Divisions of General Practice. Central Sydney has the highest proportion of people with serious mental disorders including boarding house and homelessness populations. Of our intervention Divisions (Arms 1 and 2 originally randomised), St George, Northern Sydney, Hornsby, and Central Sydney are within the top 5 of the higher HMR using Divisions in NSW (Health Insurance Commission website, 2003).

The study adopted the operational name of 'Home Management and Understanding of Medications in Mental Health Care trial' to emphasise to GPs the patient-centred philosophy of HMRs and our focus upon patient management, intake, adherence and understanding of their medications. This was to avoid a perception by GPs of a potentially uncomfortable focus upon (sub)optimal GP prescribing. Case conferencing between GPs and community pharmacists took place in person after an HMR was conducted by the pharmacists in Arm 1 (intervention arm). This was to see if case conferencing had added value to patient care planning and outcomes, relative to standard HMR (arm two).

This report is intended to be read by pharmacy, general practice and mental health policy, clinical, research and consumer stakeholders.

About Home Medicines Reviews

Home Medicines Reviews (HMRs) aim to achieve quality use of medicines through a collaborative effort of general practitioners and pharmacists. Through HMRs, pharmacists and doctors first identify medication related problems (eg dosage problems, drug/disease interactions, adverse drug reactions – side effects, poor patient understanding of medicines, poor adherence to medication regimens etc) and then jointly develop and implement strategies to improve the use of medicines for patients. HMRs were introduced by the Commonwealth Government as a $120M Domiciliary Medication Management Reviews (DMMR) scheme over 5 years (Commonwealth of Australia, Department of Health and Aged Care Website, 2003). The scheme remunerates community pharmacists and GPs to collaborate on medication management of patients with chronic care needs. The stated goal of a Domiciliary Medication Management Review, now more commonly known as Home Medicines Review (HMR) is:

> "to maximise an individual patient's benefit from their medication regimen. The reviews involve a team approach including the GP, the patient's preferred community pharmacy and an accredited pharmacist, with the patient as the central focus. A DMMR may also involve other relevant members of the healthcare team, such as nurses in community practice or

> carers…(It) allows the patient the opportunity to have a pharmacist, in collaboration with their general practitioner, comprehensively review their medication regimen in a home visit and to be central in the development and implementation of an agreed medication management plan" (Commonwealth Department of Health and Ageing, 2003).

Guidelines for pharmacists on the conduct of HMRs (Pharmaceutical Society of Australia, 1999) state that their objective is to "assist the appropriate, safe, judicious and efficacious use of medicines" and further, that the intervention aims to:

- contribute to optimising the therapeutic effectiveness and management of the consumer's medication regimen;
- facilitate a cooperative working relationship between pharmacists and other members of the healthcare team in order to benefit health and well being; and
- provide a medication information resource for the consumer and health professionals involved.

Since the introduction of HMRs in Australia, little research has been undertaken on their benefits for specialised patient groups. There is a lack of research on how to best deliver HMR services for specialised, specific patient groups. Furthermore, a detailed understanding of the necessary strategies and incentives for the uptake of HMR referrals by GPs for specialised patient groups, participant outcomes for specialised groups, including satisfaction of patients and practitioners is not known.

By definition, an HMR entails collaboration. It therefore involves communication between a GP, patient and pharmacist with or without other health care providers being involved. This study compares the scope, quality and outcomes of that communication between GPs and community pharmacists in case conferencing to that of a standard or fax-back/written HMR report between the two parties. We were interested in the impact on comprehensive patient care. We focused upon case conferencing because while GPs are rumunerated for case conferences under the Enhanced Primary Care (EPC) program, other health professionals (including pharmacists and nurses) are not. Yet case conferences may be a critical element to achieving outcomes from HMR services. Of the suggested criteria (Pharmaceutical Society of Australia, 2001) for Australian GP referral of a patient for a HMR we have indicated which ones have a high potential to apply to patients with mental disorders (Table 1.1).

Aim of the study

The study design is shown in Figure 1. We hypothesise that the added intervention of a case conference in Arm 1 facilitates more detailed inter-professional dialogue and communication, leading potentially to the following benefits for patients:

1. some joint (GP and pharmacist) medication-related care planning;
2. improved GP medication care planning with patients (physical and mental health) with contributions from the pharmacist;
3. more comprehensive care planning by the GP with patients (lifestyle, prevention, psychosocial care) concerning both physical and mental health;
4. better use of pharmacotherapies across physical and mental health; and
5. continuous quality improvement of Home Medicine Review services by community pharmacists.

The study is funded by the Commonwealth's Third Community Pharmacy Agreement for its relevance to the ongoing evaluation of HMR for specialised groups and to identify and evaluate the contribution of pharmacists to case conferencing and care planning.

Table 1.1: Guide for the identification of patients who may benefit from a referral for a HMR and how the guide might apply to those with mental disorders

Pharmaceutical Society of Australia (2001) 9-item guide for identifying patients who may benefit from a HMR.	Item potentially applies to pts with mental disorders [#]
1. Currently taking 5 or more medications*	✓ (if comorbid physical illness)
2. Taking more than 12 doses of medication per day*	✓(if comorbid physical illness)
3. Recently hospitalised in past 4 weeks	✓(if comorbid physical illness)
4. Has had recent medication changes in past three months	✓✓
5. On medication with narrow therapeutic index or requiring therapeutic monitoring	✓✓✓
6. Symptoms suggestive of an adverse drug reaction	✓✓
7. Sub therapeutic response to medication treatment	✓
8. Suspected non-compliance or not managing medications	✓✓✓
9. Consumer managing own medications is at risk due to language difficulties, dexterity problems, impaired sight, confusion/dementia or other cognitive difficulties	✓✓✓

this is an intuitive interpretation and has not been subject to scrutiny by an analysis of HMR patient data
Source: (First column) Interim Update of Professional Practice Standards and Related Resources, PSA, July 2001.

The study also meets criteria for nationally-agreed priority research under the National Mental Health Strategy (Table 1.2) identified by Jorm, Griffiths, Christensen and Medway (2001). Our study is in *primary* mental health care. HMRs are most likely to contribute to clinical areas such as affective disorders (eg depression) and possibly may reduce suicide risk related to medications. Our study is in an area acknowledeged as difficult to research, because it relies upon the timely cooperation of GPs, pharmacists and consumers, amongst others. It is also 'real-world' research. Few or no data are available in Australia on what collaborative activities pharmacists undertake with other health care practitioners (public and private psychiatrists, GPs,

nurses, case managers) for patients with mental disorders. That is, the extent of sharing of complex information regarding the multi-modal management of consumers with mental disorders is not known. Often pharmacists do not know which therapies are applied, with which patients, with what outcome and why particular outcomes were obtained. Moves to measure consumer health outcomes in mental health do not capture practitioner application of particular therapies (eg MOAT system). The gap in knowledge about clinical practice preferences and applications, the extent to which practices comply with standards or guidelines, and the general lack of quality of care research and infrastructure in the real-world in community settings in mental health is underscored by a host of ethical and practical difficulties in researching this diverse patient population. These are all true, if not amplified for primary care mental health research. We have no data in Australia on pharmacy related practices in mental health other than medications dispensed.

HMRs are also a relevant research topic in mental health in the area of secondary prevention of disablement from mental disorders. This is because they may optimise pharmacological management earlier in the onset of the disorders. Most currently available research in mental health in Australia and internationally is on pharmacotherapies trials (efficacy studies) for the treatments of mental disorders in specialist settings (Jorm, Griffiths, Christensen & Medway, 2001) rather than optimising use of medicines in routine clinical practice and in community populations.

Table 1.2: Nationally-agreed Australian mental health research priorities

How need was identified	Under-researched areas research priorities
by type of mental disorder	Affective disorders
	Suicide and self-inflicted injury
by type of research setting	General community mental health (non-clinical populations)
	Primary care (general practice) – however there is a problem currently in engaging GP cooperation in research
by research topics	Prevention of mental disorders & promotion of mental health
	Psychological and social treatments of mental disorders
	Mental health service evaluation
by subgroup population	Children and adolescents
	Aboriginal and Torres Strait Islander peoples
	Socially and economically disadvantaged

Source: Jorm et al (2001) Research priorities in mental health. Centre for Mental Health Research. The Australian National University. A report commissioned by the National Mental Health Strategy.

Hypotheses

Hypotheses to be tested in this study were:

1. That case conferencing (in addition to written / fax-back reporting) between GPs and community pharmacists after an HMR will generate clearer and more comprehensive medication-related communications between health care practitioners and will lead to more joint medication care planning.

2. That GPs will be more likely to consider, clarify and discuss pharmacist findings and recommendations in case conferencing than with fax-back written communications alone.

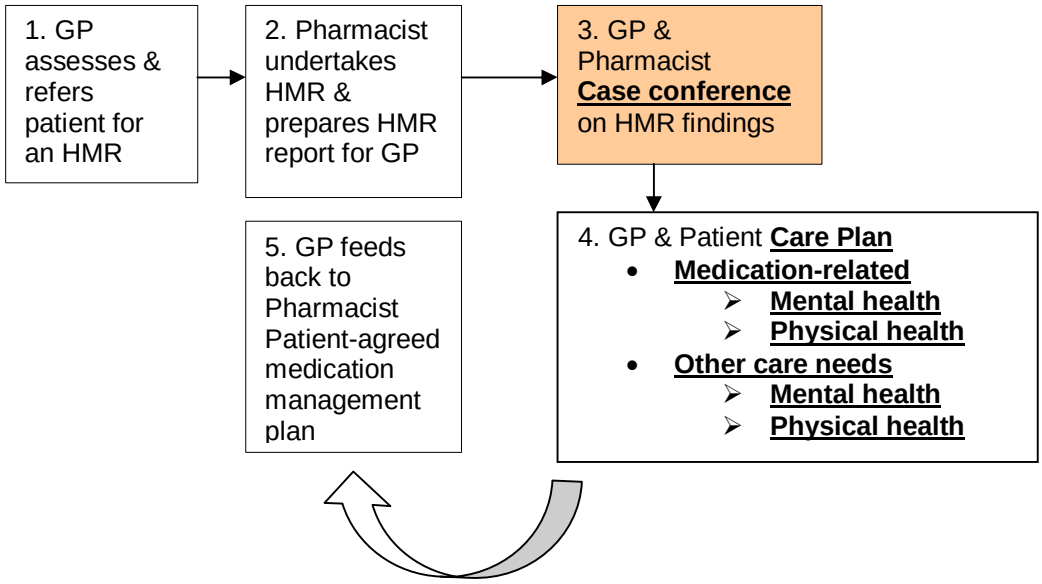
3. That GPs will be more likely to accept findings and recommendations in case conferencing than with fax-back written communications alone, and are more

likely to discuss these findings with patients for potential consideration and action.

4. That case conferencing enables shared assessment and mutual understanding of patient health literacy and in particular, understanding and management of medications leading to differences in patient self-management of medication-related care.

We were also interested to learn if HMR services, as currently structured, were applicable to patients with mental disorders. Figure 1.1 shows how we structured the clinical intervention for Arm 1 of the trial to address the principal research question of the added value of case conferencing as an input to care planning.

Figure 1.1 The clinical intervention showing Case Conferencing as an input to Care Planning



Outcomes of interest in this study potentially attributable to case conferencing include:

differences in what pharmacist HMR reports communicate;

extent to which practitioners engage in joint care planning;

proportion of pharmacist recommendations given consideration by GPs;

proportion of pharmacist recommendations accepted for action by GPs;

proportion of pharmacist recommendations acted upon; and

relevance of HMR as a intervention for people with mental disorders and its acceptability to people with mental disorders.

Pharmacist 'cognitive pharmacy services' and 'pharmaceutical care'

HMRs are a prime example of a wider set of new professional cognitive pharmacy services. The concept of 'pharmacy practice' includes those professional services other than the scientific study of and making of medications and includes those pharmacist-to-patient, and pharmacist-to-other health care practitioner interactions

during dispensing and monitoring of medication use. ‘New Professional Cognitive pharmaceutical services’ are increasingly becoming a significant aspect of the practice of pharmacy.

Although the international literature reports many different meanings and philosophies when referring to the term, “*pharmaceutical care”,* the term generally encompasses the provision of cognitive pharmaceutical services and a wider philosophy of care by pharmacists. The Hepler and Strand definition of pharmaceutical care (1990) was adopted in a recent systematic review of the evidence for pharmacy practice in the community (Roughead, Semple & Vitry 2002):

> *“Pharmaceutical care is the responsible provision of drug therapy for the purposes of achieving definite outcomes that improve a patient’s quality of life. These outcomes are (i) cure of a disease, (ii) elimination or reduction of a patient’s symtomatology; (iii) arresting or slowing of a disease process; or (iv) preventing a disease or symptomatology. They go on to describe the patient care processes as including:*

establishment of a therapeutic relationship;

assessment and identification of medication-related problems;

development of a care plan;

evaluation; and

continuous follow-up.

This review included experimental studies involving pharmacist one-on-one patient consultation on drug management problems, development of care plans and follow-up, undertaken in the community and hospital outpatient or ambulatory settings. A total of 19 categories of pharmacy services were identified (Appendix 1). The present study is underpinned by this broader knowledge base, the weight of evidence suggesting that pharmacists can positively contribute to patient health outcomes, with less, yet important evidence suggesting that health care system savings can be made from these interventions (Roughead, Semple & Vitry, 2002).

It is important to distinguish how a Home Medicine Review intervention differs from how medical and other non-pharmacist health practitioners might review a patient’s medicines. The latter might involve only a subset of the medicines for a particular condition (eg by a specialist medical practitioner); or only prescribed medicines (and not non-prescription or complementary medicines); or prescribing and not patient administration issues.

It is also important to differentiate between basic medication reviewing by a pharmacist at the time of dispensing and the comprehensive service provided through a Home Medicines Review. The latter is shown in Table 1.3.

Table 1.3 Some differences between basic and comprehensive medication reviews #

	BASIC MEDICATION REVIEW	COMPREHENSIVE MEDICATION REVIEW
Time taken to conduct	Minutes	Hours
Number per day	50-100 or more per day	Approximately 5 per day
When conducted	At the time of dispensing or during a hospital or ward round	Independent of the dispensing process
Remuneration	Nil	$140.00
Additional qualifications	Nil	Accreditation*

The purpose of this table is to demonstrate the range of medication review practice in which pharmacists may participate. It is acknowledged that it may not be possible to categorise all reviews into these two levels and that individual practitioners may have differing levels of involvement in medication reviews.
* The main accrediting body is the Australian Association of Consultant Pharmacy (AACP).
Source: Chen, Whitehead et al (2002) Pharmaceutical Society of Australia – Case Studies in Practice: Medication Review: A Process Guide for Pharmacists.

Mental disorders as a 'disease-management' focus

That we selected mental health care as the disease-management focus for the study was somewhat incidental to the overall research question about whether or not case conferencing has an added value to the outcomes of HMRs. However, since medications are the mainstay of treatment for many mental disorders and comprise approximately 8.3% of all medicines dispensed (Britt et al 1999 in Commonwealth of Australia, 2000) and since most mental disorders are managed in primary care without referral to specialists, HMRs are therefore a potentially significant intervention for this group. We retain this focus for the remainder of our analyses.

While the study was a three-arm quasi experimental prospective comparative trial, it had elements of a naturalistic study in that it required the uptake of routine incentives and standard (albeit new) interventions by GPs and pharmacists, rather than highly contrived experimental interventions. These Service Incentive Programs (SIP) including the Better Outcomes in Mental Health (BOMH) introduced July 2002 (Appendix 3), and the Enhanced Primary Care (EPC) package were used in association with referral for HMR as a structured, 'naturalistic' and flexible way to give the study rigour and to engage GPs interested and trained in providing mental health care. These GP incentives / interventions are further described in our policy review in Chapter 3.

Study justification – about case conferencing and care planning

The General Practice Enhanced Primary Care (EPC) initiative, launched in November 1999, was designed to provide incentives for GPs to coordinate longitudinal and multidisciplinary care for patients with chronic conditions. Funding was made available for GPs to develop care plans and to participate in multi-disciplinary case conferences.

Care plans and case conferences organised by the GP must involve at least two other health care professionals, only one of whom may be another medical doctor. Financial incentives have not yet been offered to other participating health care professionals. Whilst the uptake of care plans has increased rapidly (with 155,486 claimed in 2001) the uptake of case conferences has been slow (11,095 claimed for the same period) (Mitchell et al, 2002).

Several papers have discussed the barriers to participation in multidisciplinary case conferences which include workload, education, patient, cultural and other barriers (Mitchell 2002; Blakeman, 2001a; 2001 b; 2002; Harris, 2002; Martin, 2002). However, little is published regarding the outcomes achieved by conducting such meetings, with only 6 trials available of 13 studies found (Bell et al, 2003).

In mid 2000, as part of the Third Community Pharmacy Agreement, the Commonwealth committed $114 million over five years to remunerate pharmacists to provide domiciliary medication management reviews (DMMRs). This represented the first significant opportunity for community pharmacists to be remunerated for cognitive professional services (Chen, 2002).

Case conferencing either before or after pharmacist-conducted HMR is logistically difficult given that both general practice and community pharmacy are time-intensive professions in patient-intensive settings, and where practitioners are often unable to leave their location without substantial reorganisation of their practices. Finding feasible and sustainable models that can facilitate case conferencing remains a challenge in more ways than remuneration for the participating parties. However it is an area of ongoing research interest. We do not attempt to overcome the feasibility concerns in this research but focus on an evaluation of the value of conducting case conferences post-HMR.

No studies that we are aware of have evaluated the face-to-face communication in case conferencing independent of the wider medication review process, and this is what our study attempts. We attempt to substantiate the value of case conferencing in relation to the quality and effectiveness of HMRs. Our previous literature review (previous interim report to the Pharmacy Guild) on case conferencing however, could not locate studies in adult mental health involving pharmacists (Bell et al, 2003) and only two involving any pharmacists at all. Benefits arising from case conferences however have been identified from other literatures (Blakeman 2001; 2002; Davis &Thurecht, 2001; Mitchell 2002; Harris & Blakeman, 2001; Harris, 2002) and these include:

creation of time and structure to deal with complex cases;

facilitation of a holistic approach to patient care;

improved contact with other health care providers;

empowers patient and improves patient-doctor relationship;

financial compensation for GPs to manage chronic illness;

potential improvements in patients' quality of life;

potential reduction in rates of hospital admissions, morbidity and mortality; and

improvements in continuity of care.

Pharmacists' interventions more generally have also been associated with significant cost savings in residential aged care facilities. Case conferences are not only a means of achieving multidisciplinary collaboration but they also depend on effective collaboration for their success (Harris, 2002). Changes already proposed to improve the EPC program to enable participation by other care providers in case conference meetings are shown in Appendix 4.

Like case conferences, care plans are also multidisciplinary (GP and two other health care professionals) and focus on the longitudinal complex health care needs for patients with chronic illness. However they are written plans rather than plans derived from face-to-face meetings. Eligible patients primarily include those persons who are living in the community (ie Community Care plans), however other categories of care plans exist (eg residential care) (http://www.health.gov.au/epc/careplan.htm).

Contents of this Report

Chapter 2 provides a context for pharmacist involvement in mental health with an overview of the epidemiology of mental disorders. Chapter 3 provides further contextual introduction to our data with a literature review to November 2003 as a backdrop to our analysis. It draws upon vast international literature on: models of collaboration in primary care; evidence for effective collaborative mental health care by different disciplines; a policy review to summarise the incentive programs in primary care in Australia (our study attempted to use these incentives to engage GPs) and the literature on the role and effectiveness of community pharmacists in mental health care.

This is followed by a quantitative analysis of the data comparing Arms 1 (HMR with case conferencing intervention) and Arms 2 (standard HMR) in Chapter 5 and in Chapter 6, an analysis of the qualitative data from in depth case conferencing meetings. These are told as 'stories' about GPs and community pharmacists communicating about patient care.

The data we report reveal rich information for understanding pharmacist and GP collaboration in primary mental health care and go some way toward answering our principal research questions.

This final report does not replicate our earlier detailed discussions on the key barriers experienced in the GP recruitment and data collection process. These pertained to the fact that HMRs remain a relatively new and relatively poorly understood intervention for general practice and for patients, and not known of at all by mental health services in the study locations. Despite having the support of participating Divisions, the research challenge was to apply a relatively structured intervention involving a 'novel' treatment approach (HMR), to a challenging clinical area (mental health). Despite our highly consultative approach, the intervention turned out to be overly complex and intensive for the majority of participating GPs and pharmacists.

CHAPTER TWO - EPIDEMIOLOGY OF ADULT MENTAL DISORDERS IN PRIMARY CARE: IMPLICATIONS FOR PHARMACY PRACTICE

"Comorbidity of more than one mental disorder at a time is common and makes the pharmacological management complex. Mental illness coexisting with substance abuse disorders is common and carries elevated risks for crime, violence, suicide and overall poorer health status".

Introduction

This chapter provides an epidemiological overview of the rates of mental disorders in Australian adults and the level of social impairment and comorbidity these disorders carry. That this population has an overall higher morbidity for physical ill health renders pharmacological care more challenging. We exclude disorders of childhood and adolescence (although recent child health surveys are available) because our study concerned those aged 17 years and over.

Epidemiology of adult mental disorders in Australia

Australian epidemiological data comes from the only national household survey of 12 month prevalence rates of mental disorder reported by 10,600 adults aged 18 years and over (ABS, 1998). The survey was conducted in all States and Territories between May and August 1997. It also comes from the related low prevalance survey of people with psychotic disorders (Jablensky et al, 1999). These surveys excluded patients in residential care and under-report mental disorder in persons aged over 65, a key group for whom HMRs are delivered.

Almost 1 in 5 met criteria for a mental disorder in the 12 months prior to the survey, with men and women living alone having the highest rates. Of young people aged 18-24 years, 27% experienced a mental disorder. This rate decreased with age to 6.1% in those 65 years and over. Rates of mental disorders were highest in those separated or divorced (24% for men and 27% for women) and in those unemployed or not in the workforce (26.9% for males and 26.4% for females). The prevelance of mental disorders by type of disorder were reported as follows:

- anxiety disorders (9.7%);
- affective disorders (5.8%);
- substance use disorders (7.7%) of which 6.5% was alcohol related;
- men were more likely to have substance use disorders (11% compared with 4.5% in women);
- 41% of women compared with 36% of men reported physical ill health rising with age from 21% in those aged 25-35 years to 77% in those aged 65 years and over;
- hospital admissions for mental disorders were rare (less than 1% for a 12 month period);
- of people with a mental disorder few use services – 38% used any health service in the 12 month period while 29% consulted a GP for their mental disorders; and

- 58% of those with affective disorders used services and 66% of those with combinations of mental disorders were more likely to use services.

Psychosis and seriously disabling low prevalence disorders

The 'low prevelence disorders survey' (Jablensky et al, 1999) interviewed over 3000 adults using mental health services for psychosis in four Australian states. It reported that:

- 4-7 persons per 1000 members of the adult, urban population use mental health services in any one month due to psychotic disorder;
- the average duration of illness is 15 years and comorbid conditions are common;
- 43% were chronic without recovery between episodes;
- 61% of this treated population experienced current psychotic symptoms;
- 73% had pervasive depressed mood and problems enjoying life, 25% currently;
- 68% had experienced thoughts of suicide, 18% currently;
- 47% were seriously impaired in their occupational and everyday social domains;
- 59% had experienced severe difficulties socialising, and 39% were disabled in maintaining intimate relationships;
- one third lived alone, only 9% had a carer living with them and one third had not had contact with a close relative during the past year;
- 84% were single, separated, divorced or widowed;
- 85% relied on welfare benefits;
- 45% lived in supporting housing; and
- the majority had lost social roles and experienced serious social isolation.

Comorbidity

Comorbidity of more than one mental disorder at one time is common and makes the pharmacological management of mental disorders complex. Additionally, comorbid mental illness and substance abuse disorders (or 'MISA' or 'dual diagnosis') is common and carries elevated risks for crime, violence, suicide and overall poorer health status. The epidemiology of comorbid mental disorder and substance abuse as reported in the National Survey of Mental Health and Wellbeing of Adults (ABS, 1998) was:

- of men with antisocial personality disorder, 89% had current substance abuse;
- of men with schizophrenia, 47% had curren substance abuse;
- of men with anxiety disorders, 31% had current substance abuse;
- of men with depression, 34% had current substance abuse;
- of men with alcohol abuse, 78% had mental illness; and
- of women with alcohol abuse, 86% had mental illness.

These high prevalence rates, but relatively large gaps between presence of a mental disorder and use of services suggests that many people cope with their mental disorders without intervention or else perceive that there are not helpful interventions available to them. There is large unmet need. Service use does increase with age

and disablement of comorbid mental disorders and comorbid mental and physical disorders.

Mental disorders presenting in general practice and pharmacy

Britt and colleagues' (1999) Bettering Evaluation And Care of Health ('BEACH') report provide systematically collected data on the patient characteristics, needs and patterns of service provision by Australian GPs. Along with HIC data, these services are summarised in regular reports of the Commonwealth General Practice Branch. In 1999, the most common reason patients attended GPs was for *general and unspecified conditions*. *Psychological reasons* were the 7th most common reason after respiratory, musculoskeletal, skin, circualatory and digestive problems. *Depression* was the most common psychological presentation, being the 12th most common reason for encounter (2.1 per 100 encounters) and the 12th new problem managed, but depression is the 4th most common problem managed by GPs. These data are consistent with other literature, that GPs detect some depression opportunistically, rather than relying only upon patients raising it in the consultation, even though concern remains about its under-detection. Anxiety is the 26th most common reason for presenting. This compares with diabetes, which is ranked 30th.

Psychiatrists are the 10th in the top ten specialists to whom GPs refer patients (0.3 per 100 encounters). Psychologists are the 4th most common allied health profession to whom they refer. Drug and alcohol workers are the 7th most common (0.1 per 100 encounters) and 'counsellors' are the 8th most likely to whom they refer. Aged Care Assessment allied health teams are the 10th most common. Data were not reported in 1999 from the BEACH data on referals to pharmacists. HIC claims for HMRs Item 900 is the key data source for HMR uptake by GPs.

Hickie et al (2001) report far higher levels of general practice prevalence for mental disorders in an Australian non-randomised survey because their SPHERE National Depression Program instrument measured depressive, anxiety, somataform and substance-misuse disorders concurrently. They concluded that rates were as high as 63% (including alcohol and other substance misuse). They identified two 'levels' of disorder and three 'types', identifiable in 49% of general practice patients. Level 1 disorders affected 25% of patients and were disabling with similar severity to those presenting in specialist psychiatry. When co-existing mental and substance use disorders were present, disability increased. Key findings were:

only 44% of patients with current mental disorders and 54% of those with the more severe category attract psychological diagnosis in general practice;

young people are the most poorly served; and

treatments are largely non-pharmacological – only 12% of all patients, and 39% of those for whom the GP makes a diagnoses, and 27% of those with more severe categories of disorder are prescribed medication treatments.

"treatments are largely non-pharmacological – only 12% of all patients, and 39% of those for whom the GP makes a diagnoses, and 27% of those with more severe categories of disorder are prescribed medication treatments."

These data sources acknowledge that there are major gaps in our understanding of the work of general practice in Australia – "*there remain major gaps in data*

describing the processes of care, which are the hallmarks of general practice. Little has been documented to allow consideration of continuity or the psychosocial aspects of care that GPs provide" (Commonwealth of Australia, 2000). The current study helps to fill that gap particularly at the pharmacist interface with GPs.

Social epidemiology and the context of care planning

The context for care planning in primary mental health care extends beyond medication management and decision making. Costs of medications and other treatments are important considerations. This is because the high level of social disadvantage amongst those with mental disorders, who are 12 times more likely than other Australians to be unemployed (Sane, 2003). Reporting a secondary analysis of the National Survey of Mental Health and Wellbeing data, Butterworth (2003) showed that of the sample, one quarter of all income support recipients had experienced substantial psychological distress in the past 4 weeks and that one in three had a diagnosable mental disorder in the past 12 months. Of unpartnered women with children on income support 45% had a mental disorder compared with 19% in the general population.

Also reporting a secondary analysis of the Survey data, Comino, Harris, Chey, Manicavasaar and Penrose-Wall et al (2003) showed that the prevalence of symptoms of anxiety and affective disorders was higher for those unemployed. Unemployed people were less likely to seek help but when they did, they were provided with comparable care in general practice. An earlier report showed that GPs were more likely to prescribe for unemployed persons with anxiety and affective disorders but were not more likely to refer them for other psychosocial services (Comino, Harris, Silove et al, 2000) despite the latter being potentially helpful.

As stated above, of those with psychotic conditions, 85.2% receive disability pensions or other welfare payment and as many as 72% are unemployed (Jablensky et all, 1999). These data compare with 5.7% (Sane, 2003) of the general population. Optimising treatments such as medications, can lessen disability and help people access employment. It is remarkable that only 10% currently access specialist employment agencies (Sane, 2003), despite being available for many years. These data suggest that there are major access issues to a range of services that could improve the wellbeing of people with mental disorders. Intuitively, home-based services, such as Home Medicines Reviews by community pharmacists can address issues of access by helping to 'reach out' to a very disadvantaged group of patients with chronic illness.

Conclusion

Mental disorders are common and they commonly present in general practice leading to almost one in ten medicines dispensed by pharmacists being a psychotropic medication. Notwithstanding this, there appears to be under-prescribing due to under-dection and diagnosis, and therefore much unacceptable unmet need according to the Australian clinical audit survey of a cohort of general practitioner clinical practice by Hickie et al (2001).

There is considerable unmet need in mental health at primary and specialist care levels. "Care planning" or a treatment plan by GPs is intended to address all psychiatric symptoms, physical health and the social dimensions of mental health

needs, even though our focus here is upon medication management specifically. Care planning is also supposed to help coordinate and integrate care.

These data on the nature of mental disorders also imply that there are considerable sensitivities and issues for pharmacists to be aware of when visiting the homes of people who are medically, psychiatrically, socially, educationally and economically so disadvantaged. The scope for improved quality and effectiveness of care in all sectors by all practitioners is significant and poses challenges for the design of interventions and for the preparation of practitioners to perform them.

Pharmacists should not be left out as important potential contributors to better health outcomes across the spectrum of interventions to prevent and manage mental disorders.

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Pharmacists should not be left out as important potential contributors to better health outcomes across the spectrum of interventions to prevent and manage mental disorders.

CHAPTER THREE - POLICY AND LITERATURE REVIEWS: COMMUNITY PHARMACISTS AS CONTRIBUTORS TO PRIMARY MENTAL HEALTH CARE

'Our policy and workforce review in mental health concluded that pharmacists were currently not considered as members of the mental health workforce in either primary or specialist settings'.

'Collaborative', rather than 'replacement models' are more effective ways of collaborating in primary care as they rely upon long term mutual learning'.

Introduction

The question arising from the epidemiology of mental disorders becomes, are all health care disciplines optimised in their training, cooperation and deployment? As the first Australian study to apply HMRs to patients with a diagnosed mental disorder treated in primary care, the current study adds to the knowledge on pharmacy practices in the provision of new cognitive pharmaceutical services as well as the provision of services to those with mental illnesses.

While it is not our purpose to answer the question, 'what is the optimal role of pharmacists in primary mental health care?' nor our task to pose recommendations for the reconfiguration of primary mental health care teams to merely add in or legitimate community pharmacists, it is important that the potential value pharmacists can add to mental health care be considered. This literature and policy review highlights the omission of pharmacists in Australian mental health systems and research while drawing on the wider evidence base for collaborative models with and without pharmacists as a backdrop to reporting our study findings. This review attempts to answer these key questions:

1. What roles do pharmacists perform in mental health care in Australia and internationally?

2. Which roles and interventions are effective, cost effective and acceptable to patients and other practitioners?

3. Are pharmacists recognised in policy and acknowledged in the literature in Australian mental health policy?

4. How is the involvement of community pharmacists organised – based on what models of collaboration? ie what is the place of HMRs and how transferable and sustainable are HMRs as a mental health intervention in the broader context of primary mental health care delivery?

Method

For the literature on the roles of pharmacists in mental health care, we searched International Pharmaceutical Abstracts, Medline (1966-), Embase (1975-), The Cochrane Database of Systematic Reviews (3rd quarter 2003), PsycInfo (1984-),

Drugstar and Cinhahl (1982-) to December 2003 using the terms: *mental health, mental illness, psychiatry, psychotropic, pharmacy, pharmacist, community pharmacist, psychiatric phramacists, multidisciplinary, interdisciplinary, case conference, team meeting* and *care team.* We did further searches using specific mental disorders: eg *depression, mood disorder, psychosis, schizophrenia*, and *primary care*. Only the first three databases were searched on case conferences and pharmacists to April 2003.

Major Australian policy reviews and Australian General Practice Mental Health Conference Proceedings were searched to December 2003, as were reports commissioned under the 1st and 2nd National Mental Health Strategy. General Practice Reviews were also searched from the beginning of the General Practice Strategy (1992) to December 2003. Finally, using 'pharmacy', 'community pharmacist', 'pharmacists', 'DMMR', 'medication reviews', and 'case conference' we searched relevant primary care databases to December 2003 for studies and Division of General Practice projects:

Primary Health Care Research and Information Service (PHCRIS) database (www.phcris.org.au/) including:

- GPEP (General Practice Evaluation Program) research projects;
- the Divisions of General Practice Program Database which closed in 1999 (1993-1999);
- Division Activities Database;

Primary Mental Health Care (PARC) database of Division mental health programs (which coordinated collections from 2001) Website: http://som.flinders.edu.au/FUSA/PARC

Summary of Results

Excluding descriptions of single case conferences and those used for teaching, we previously reported on a review of 11 intervention studies identified in peer-reviewed journals on hospital and community pharmacist involvement in any mutidisciplinary case conferencing (Bell et al, 2003). Six were controlled trials. Four involved community pharmacists, while only 2 involved pharmacists and GPs. While case conferencing is an established mode of medical education and a tool for collaboration between multidisciplinary teams, none of the above studies informed our question greatly since there is a gap in the case conferencing research concerning pharmacists working with general practitioners in adult mental health care. We already pointed to the tentative conclusions about case conferencing evidence in Chapter 1.

More research is available on the wider roles of pharmacists specifically in *mental health care (*discussed at the end of this Chapter in Table 3.4*),* mostly from the health systems of North American and the United Kingdom. We found 32 studies. Most concerned medication reviews. No comparable Australian studies were found in the literature or in primary care databases. We also found a published Dutch thesis (Rijcken, 2003) on psychiatric pharmacy care in schizophrenia. Psychiatric pharmacy conferences and subdisciplines of psychiatric pharmaceutical care have been well established over the past twenty years in the USA and UK. Of 4 Australian Divisions pharmacy-related programs not including Division recent deployment of pharmacists

to promote HMR, Divisions appear not conducted interventions concerning pharmacists' collaboration in mental health.

Ten years on from the first National Mental Health Strategy, the abundance of Australian mental health policy and commissioned research reports omit pharmacists as members of either primary or secondary/specialist mental health care systems. This is despite the fact that medication is the mainstay of psychiatric treatment, and may also be relied upon in primary (general practice) care. While the broader literature recognises pharmacists as 'medication experts' (Patel et al, 2001), more recently, pharmacists are questioning what "culpability" they have for poor patient outcomes in many areas of health care, including in depression (Wells,1999), dementia (Rojas-Fernandez et al, 2003), behavioural disturbance in mental retardation (Patel et al, 2001). Increasingly, pharmacists appear willing to take proactive approaches to improve patient outcomes and argue for more integration of professional pharmacy services within primary care (Cohen, 1999). While pharmacists in Australian mental health literature appear not to be considered to be experts on overall (comprehensive), that is, bio-psycho-social-cultural care of patients, nor to be members of mental health services or multidisciplinary mental health teams (see Commonwealth of Australia, 1996) there is no reason why pharmacists cannot develop new roles and expand their skills to improve patient comfort with and outcomes from their medication treatments. This is particularly important given that pharmacists have skills in medicines across the physical and mental health domains, a skill that psychiatrists and other mental health providers do not necessarily posess. Here we elaborate on our findings by drawing upon wider literatures on:

the efficacy of home based interventions in mental health

the typology of mental health problems in primary care

evidence base for collaboration in mental health

recent policy reforms in primary mental health care

literature supporting pharmacists as mental health team members

opportunities for pharmacists' engagement in mental health care

"Ten years on from the first National Mental Health Strategy, the abundance of Australian mental health policy and commissioned research reports omit pharmacists as members of either primary or secondary/specialist mental health care systems. This is despite the fact that medications are the mainstay of psychiatric treatment, particularly in primary (general practice) care."

Efficacy of home-based interventions in mental health care

That HMR services are delivered partially in the patients' homes, and are by definition intensive and *social* interventions, they may accrue benefits to mental health outside of the pharmacist's pharmacological intervention. Relatively few interventions in Australia are delivered at home for mental health by sole practitioners. Despite the serious shortage of mental health nurses (Clinton & Hazleton, 2000) *pairs* of nurses visit patients at home usually in 'crises assessment' for new and known patients or 'case management' (understood as care coordination) for existing patients. Patients attend centres and clinics. Case management (for treatment and maintenance phases of illness) involves ongoing monitoring of patient understanding, use, outcomes and adherence to medications as a core component of care and social components of care. Home based visiting is also used for the primary prevention and early intervention of paternal and infant mental disorders and the prevention of adolescent social and alcohol and other drug problems. This is central to the 'Families First' initiative in NSW.

A systematic review of the literature from 1990 to 2002 on pharmacist professional services in the community setting (Roughead, Semple & Vitry, 2002) did not report on mental health contributions made by pharmacists. It also stated that no controlled studies were found on pharmacy related 'hospital in the home' interventions.

A systematic review of the effectiveness of home based treatment for mental health problems (Catty et al, 2002) included 91 randomised and non-randomised studies that focussed on outcomes arising from treatment being delivered in the home comparing outcomes to in-patient treatments. A key feature was 'regular' home visiting and there was some evidence that where interventions combined both health care and social care, hospitalisation was reduced. The authors concluded that the evidence for home based treatment, though such interventions are acceptable to consumers, remains inconclusive. This review did not include explicit medication review studies in the home nor the involvement of pharmacists, notwithstanding the fact that medication monitoring is a key activity of other disciplines when visiting patients at home.

Case management by nurses for people with pervasive and severe mental disorders is the main treatment approach by specialist community mental health teams. Case managers develop the treatment plan, educate the patient and family on the illness and its management, and educate and monitor medication adherence. These are roles that cannot be taken on by public sector psychiatry (Rosen, 2001). Three recent Cochrane Reviews (Marshall, Gray, Lockwood & Green, 2003; Marshall & Lockwood, 2002; Tyre et al, 2003) have appraised the efficacy of case management and community mental health teams for improving mental health outcome. They concluded that there is a lack of evidence for case management for improving mental health status — case management is an expensive intervention aimed to achieve medication monitoring and to help patients stay in contact with treatment teams (a treatment engagement strategy) (Marshall, Gray, Lockwood & Green, 2003). Assertive outreach models are most efficacious for the group of patients whose medication adherence is critical to their remaining in community, as opposed to hospital care (Marshall & Lockwood, 2002).

HMRs do not have this purpose and importantly, they do not duplicate existing services. They are a once-per-year expert revision of all pharmaceutical care and patient administration of medicines, including a review of the advisory services to patients performed by other providers. HMRs also aim to contribute to medication adherence.

‘Teamwork’ and collaboration in specialist mental health services

Despite nurses being 52.8% of the specialist mental health workforce (Commonwealth of Australia, 2000) and allied health disciplines (excluding pharmacists) being 17%, nurses report dissatisfaction with interdisciplinary teams and underrecognition of their skills and roles (Grigg, 2001). Psychiatrists represent approximately 8.7% of the mental health workforce (Australian Medical Workforce Advisory Committee, 2000). There is a 60/40 private/public split, being 57.1% working in private psychiatry while 38.3% work in the public sector.

Citing Diamond’s analysis, psychiatrists’ roles have been described by Rosen (2001) as ‘essential’: [a] medical expert and [b] medico-legal signatory; and ‘non-essential’: [a] joint assessor, [b] teacher, [c] scholar, and [d] generalist. The ‘medical expert’ role includes assessing medical illnesses, prescribing and ‘medical translating’. The generalist role includes many bio-psycho-social-cultural skills, including understanding of the biological underpinnings of psychopharmacology. It also includes “modelling **not working alone”** and “being a team builder” (Rosen, 2001).

Refuting other psychiatrists’ opinions that the psychiatrists must take responsibility, supervision of and leadership in each case, Rosen argues that direct psychiatrist control would waste scarce expertise, delay treatment and further disempower other disciplines to use their skills. He notes that psychiatrists cannot ‘go out’ to patients and cannot monitor their needs if managing several hundred cases at once. By contrast, ‘case managers’ in public mental health, are professionals with autonomous responsibility for the clients in their care and are a more numerous, affordable and mobile workforce. But this work is still undertaken as a team approach, nurses facilitating access to other disciplines in and beyond the team as needed. Rosen goes as far as to say that psychiatrists do not have full membership within multidisciplinary and interdisciplinary teams because their dominant culture is not acceptable to other professions. A role as ‘medication expert’ is not discussed.

The point of this discussion is to highlight the fact that there is no absolute consensus within specialist mental health systems as to the roles performed by those with membership of such teams, and that teams may be far from harmonious even before they attempt an interface with primary care. The overarching philosophy that mental health services be ‘comprehensive’ and ‘integrated’ and community based underscores the importance of all team-based approaches. National Standards are agreed as to what these teams should achieve (National Mental Health Strategy, 1998) but these too do not include a role for pharmacists.

Typology of challenges associated with primary care and collaboration working relationships

During 2003, an edition of Australia’s primary care bulletin, *Journal Watch*, reviewed the literature on collaboration in primary care (Hurley et al 2003). It commented that many new incentive schemes in general practice pragmatically fostered teamwork without necessarily being based on knowledge about what kinds of collaboration or team care works. ‘Multidisciplinary’, ‘interdisciplinary’, or ‘team-based care’ for complex and chronic conditions were described as being often confused in primary care where role boundaries often remain uncertain.

‘Multidisciplinary’ is defined as different independent disciplines working on the same site with the same clients. In contrast, ‘interdisciplinary’ teams are defined as teams in which there is a “*much higher degree of collaboration in care, representatives of*

multiple professions work together to plan, implement and evaluate the outcomes of health care…the work is characterised by a high degree of cooperation and mutual respect…the team as a whole takes responsibility for program effectiveness….with leadership functions shared among members. All team members are assumed to be colleagues and there is no hierarchical team organisation" (Hurley et al citing Zeiss & Gallagher-Thompson, 2003). As relatively new interventions, HMRs may give rise to issues of patient care that can alter team composition or relations.

To clarify the type of collaboration, and the possible contributions by pharmacists through HMRs to a) the comprehensiveness of mental health care and b) to comprehensive physical and mental health care, we look briefly at the types of problems presenting in general practice and the evidence base for collaborative models in mental health at the interface between primary and specialist care. This is because to 'add in' a pharmacist, the GP may rule out involving another care provider, or another provider's (social worker, mental health nurse, psychiatrist) role may change.

To describe models of collaboration in primary mental health care and the evidence for the effectiveness of collaborative approaches, Bower (2002) reports on Goldberg and Gournay's (1997) typology of 4 broad categories of mental health problems which present in general practice. This crude typology is replicated in Table 4. It is helpful to the current study context because it alludes to the prognosis, severity, examples of disorders, the types of treatments that are indicated (pharmacological or psychological) and whether sole or collaborative care is appropriate. The author reports that the recent re-deployment of specialist allied health providers as Primary Care Mental Health Workers by the National Health Service in the United Kindom aims to manage groups 2 and 4 disorders. This is an example of vertical integration between primary and speciaist care. By contrast, community pharmacists and GPs working together is an example of horizontal integration, strengthening the relationships between and quality of care from two primary care providers.

Table 3.1 Typology of mental health problems in primary care #

Group description	Examples of Disorders	Care
1. Severe mental disorders unlikely to remit spontaneously.	Schizophrenia, organic disorders.	Involves both primary and secondary care.
2. Well-defined disorders, for which there are effective pharmacological and psychological treatments. Even when these disorders remit, they are likely to relapse once more.	Anxious depression, pure depression, panic disorder.	Can usually be managed entirely within primary care.
3. Disorders for which drugs have a more limited role, but for which psychological therapies are available.	Somatised presentations of distress, eating disorders.	Rarely treated within primary care, and only a small proportion of cases are treated by community mental health teams.
4. Disorders that resolve spontaneously.	Bereavement, adjustment disorder.	Supportive help only is required.

Source: Goldberg & Gournay's (1997) table in Bower, 2002.

Using this typology, HMRs would be directed toward that subset of patients with mental disorders in groups 1 and 2 who are seriously ill enough to require

pharmacotherapy for mental disorders, and moreover, have potentially problematic pharmacotherapy regimens or medication management issues. These patients may be on monotherapy for mental disorders, but possibly on other medications to address side effects, or on other medications for physical ill health. Patients in group 3 may also be on medications when other therapies are more appropriate. The emphasis on the structured 3-step "assessment", "mental health plan" and "review" under the BOMH aims to skill GPs in correctly identifying and treating patients in all groups, including providing psychological treatments where efficacious to group 3 patients, and providing GPs with access to allied health support (psychologists and social workers). Pharmacists may still be involved with group 4 patients in health promotion advisory services concerning their general health.

Evidence base for collaborative primary mental health care

Harris and Powell Davies (in Commonwealth of Australia, 1996) reviewed the literature on the integration of general practice with other health services in which they summarise Australian mental health shared care as one approach. They identified 29 mental health shared care projects by Divisions of General Practice to October 1995. The literature they identified included shifted outpatient clinics (Tyrer, 1984; Browning et al, 1987), combination shifted outpatient clinics with liaison attachment models with psychiatrists (Brown et al 1998) and various other liaison attachment models (McKechnie et al, 1981; Rose, 1988 and Creed & Marks, 1989). Most involve case conferencing and advisory services by the specialist with the GP, psychiatrists often providing GPs with a second opinion on medication management. Australian GPs have reported that this is a principal need they have in shared mental health care arrangements (Penrose-Wall, 1998; 2000). Another paper by Freiberg-Golvan et al (1988) described the co-location of psychologists to the GP practice.

Often the focus of shared care programs is on managing demand, rather than quality of care. That is, they aim for throughput of patients from specialist care back into primary care to enhance access to specialist care (for example the Australian CLIPP Program – Consultation Liaison in Primary Care Psychiatry by Prof Meadows) by new patients. This is achieved by redistributing demand for service by chronic patients, for example, discharging chronic but stable psychiatric inpatients to GP care in the community.

By 1999 repeat census surveys of Divisions Mental Health and Alcohol and Other Drug programs (Penrose-Wall, 1999 in Penrose-Wall, 2000) reported that 85% of Divisions (n=104) had mental health programs or future plans that interfaced with other parts of primary and specialist care. Content analysis of Division reports and plans found that none included pharmacists (Table 3.2). In a review of models of shared care for illicit drugs, 'needle and syringe and pharmacy based shared care' was recognised as one of 8 models in the international literature often involving comorbid mental illness (Penrose-Wall, Copeland & Harris, 2001). That review defined shared care as "*systemic cooperation and how systems agree to work together, and it is operational cooperation at local levels between different groups of clinicians" (p.4)*. A distinction is made to delineate structured interventions and agreements from more general collaborative relationship building between different disciplines or individuals. Implicit in these models is economic and health system changes to make services more accessible.

HMRs are automatically *systemic* and *structured* because they are systematised by Government as industry-agreed remuneration arrangements, whether or not a

relationship for operational cooperation at the local level is developed enough by agencies and individuals to achieve uptake and to sustain the intervention. While HMRs can be accessed by all chronic care patients who need the service, collaborative programs involving pharmacists do not appear to have necessarily developed 'from the ground up'. That is, pharmacist medication review services or other pharmacy collaborations have not naturally evolved by Division interventions seeking to engage with pharmacists as part of Division collaborative mental health interventions, although many Quality Use of Medicine programs did so across general health care.

The application of the EPC item numbers had a similar difficulty of an uncertain application to patients, often young people, with mental disorders (Alliance of NSW Divisions, 2002). The significance of this is that using HMR as part of a treatment plan within a GP-delivered mental health intervention is not currently routine for GPs, pharmacists, or Divisions.

Returning to Bower's (2002) systematic review of collaboration models in primary mental health care, he concluded that the weight of (still weak) evidence, is that rather than "replacement models" (also called "provider substitution models" by Hastings et al, 1997) in which nurses or other professionals replace the GP involvement in a procedure or role by providing independent professional services, "collaborative models" are more efficient. This is because they facilitate a skills transfer between the external provider or other discipline and the GP occurs.

> *"Collaborative care models are based on the assumption that improvements in GP management will have a greater impact on overall quality of care for practice populations, but that the GP needs support and assistance with management and that this is best provided through a structured system of care" (Bower, 2002).*

Bower reports that the bulk of the existing evidence for collaborative models comes from consultation liaison models of 'shared care' between psychiatrists and GPs which was predicated on the idea of long-term mutual learning. Similar models exist across general health care. An example is Whitehead et al (2003) described the 'general practice pharmacist' as a sustainable model of a pharmacists providing cognitive pharmacy services on site with GPs in Australia. At the outset there is agreement on what services the pharmacist will provide: a range of 'clinical prescribing support services', 'services supporting prescribing policies' and 'support on prescribing issues and policy at the interface' of care. These are all clearly defined.

Given that GPs can potentially routinely review medications it is initially intuitive to think of HMRs as a 'replacement model': the pharmacist checking medications and patient responses to them, plus having more time to consult the literature on behalf of the GP as if a delegation.

However, what HMRs offer to GPs, is more an expert and additional professional opinion on a range of patient factors about their uses of medications, and this service thus meets criteria as truly *collaborative* between equal but different sorts of experts, rather than a *replacement* approach. The collaboration proposes that while both may function alone, neither practitioner need entirely function alone when collaboration may improve the intervention through an exchange of expert opinions. Moreover, if pharmacists are case conferencing with GPs on their findings and recommendations further to their written HMR report, joint care planning between health professionals prior to the GP and patient care planning, may be facilitated. This 'two heads are better than one' approach reflects an equal professional relationship which combines

different sets of skills and insights to the patient for continuous mutual learning. The extent to which HMRs are a collaborative rather than replacement model may vary depending of the quality of the service performed by different pharmacists. Chiefly it relies upon the giving of a professional assessment, findings and recommendations by the pharmacist on a case by case basis, rather than only providing a formulaic or mechanical drug information service.

Furthermore, if pharmacists were routinely to provide HMRs for people with mental disorders, including those most at risk for medication non-adherence and mismanagement, and even though HMR visits are not 'regular' (as they might be daily or weekly by mental health nurses) they may well collaborate more with nurses as part of their review visits. Findings in the current study already showed that pharmacist recommendations were intended for psychiatrists, mental health nurses, nursing home staff, other pharmacies delivering webster packs, and not just those for GP care (See Chapter 6). This advice may add value to, rather than ever intend to 'replace' some of the functions of other providers in medication monitoring and home visits to patients with pervasive mental illnesses.

Table 3.2 Mental health program models of Australian Divisions of General Practice to 2001.

Program approaches 1993-1996
Consultation liaison adult and aged shared mental health care
Clinical attachment shared mental health care
Illicit drug shared care – methadone maintenance
Alcohol and drug home detoxification
Education and training of GPs in mental health
Education and training of GPs in sybstance misuse
Depression and anxiety screening and resource development
GPs' mental health and Doctor Support Programs
Domestic violence interventions
Paediatric mental health and interventions for learning disabilities
Psychological services related to social disadvantage or homelessness
Emerging program approaches 1999-2001
GP education in mental health within youth health, obstetrics and aged care
Shared care in the management of AOD problems
GP integration with schools for prevention and early intervention
GP integration with private and non-government mental health providers
GP-Hospital integration and psychiatric inpatient discharge communications
Clinical attachments of GPs to mobile crisis and acute care teams
Strategic program approaches requiring development
GP Hospital intergration in emergency departments for post-discharge of suicide
Clinical practice guideline dissemination including structured shared care
Clinical audit in case identification

Source: National Mental Health Shared Care Network National Mental Health and Alcohol and Other Drugs Survey of Divisions (Penrose-Wall, 1999/2000)

Policy review continued - reforms in primary mental health care

National Mental Health Strategy Primary Mental Health Care Program

The Primary Mental Health Care Program of the National Mental Health Strategy was announced in 1999. Further to the interventions in Table 3.2, there remains a lack of agreement in Australia on effective models of mental health shared care between disciplines (Holmwood et al, 2000) with each mental health system determining its own configuration of partnerships and preferred providers at State and local levels. These depend upon local resources and existing quality and effectiveness drivers by State Health and Mental Health policies to build educational or practice links between general practice and mental health services. There is not currently an expectation to forge better horizontal linkages between components of primary care, eg, between general practitioners and pharmacists although partnerships between sectors are emphasised and encouraged generally through mental health policy.

Evidence-based treatments in primary care

Policy efforts in mental health are prioritising training GPs to deliver evidence-based treatments. Some international authors suggest that medications are the mainstay of treatment for many mental disorders in primary care because all GPs can prescribe whereas many may not be trained to deliver psychological treatments. Hickie et al (2001) on the other hand suggests that an Australian cohort of GPs showed that they seldom prescribe for this group, but nevertheless advocated that they be urgently trained in psychological therapies. Many may not be able to deliver other therapies, and most cannot deliver focussed psychological therapies due to lack of time and training. Medications often have equal efficacy to psychological treatments for the most studied group of disorders, depressions, and for some anxiety disorders, although combination therapies are advocated for the latter if GPs have specific psychological therapy skills (Andrews et al, 2003). Policy reforms have not had a focus on the increasing of prescribing, nor on the quality use of medicines in mental health care. Instead, training is focusing upon teaching focused psychological treatments. There are a number of possible reasons for this:

research shows high patient satisfaction from ‘counselling’ and a mistrust of ‘drugs’ and patient preferences are one driver of GP treatment preferences (Churchill et al 2000);

psychological therapy (12 sessions of non-directive counselling or CBT) has been shown to be more effective than usual GP care of depression (Ward et al, 2000) although ‘usual care’ is not defined, and a Cochrane Review has concluded that medications and psychological treatments often have equal efficacy in those more common mental disorders studied (Huibers et al, 2003);

those therapies with equal efficacy to medications for depression are in recent primary care depression guidelines (Ellis et al, 2001) and these findings vary depending upon the severity of the illness;

Interpersonal Therapy and CBT are also effective if extensive training is available to practitioners to apply them (Bower, 2002); and

It is generally good practice for policy makers to promote a wider range of skills in general practice care and there is concern over escalating PBS costs, including an increase in antidepressant prescribing.

There is caution needed in interpreting these highly summarised findings as the results concern international general practice literature and treatments have varying efficacy depending of illness severity and comorbidity. The most current Australasian

clinical practice guideline for the management of depression in primary care discusses these complexities and concludes that all their nominated effective treatments have a role without a superior treatment being identified. That is, a selected range of psychological treatments can achieve efficacy equal to that of medications, but that continuing any treatment, rather than selecting one or another is of most importance (Ellis et al, 2002). Indeed, policy makers have fashioned the BOMH initiative on the Hickie et al (2001) 8-point plan for primary care reported in 2001 as follows:

"*To improve identification and mangement of common mental disorders in general practice, progress requires*:

1. *Detection by both the introduction of brief self-report screening instruments and enhanced interview techniques;*

2. *Active identification of disorders in patients aged less than 25 and those aged more than 65 years;*

3. *Recognition of patients who present with comorbid mental illness and substance misuse need to be given greater attention;*

4. *Intensive patient and general practitioner education and appropriate organisational reforms, that will maximise the chances that the greatest range of evidence-based treatments is provided to the greatest number of patients;*

5. *That enough GPs offer at least basic mental health services to achieve reasonable public health outcomes;*

6. *Urgent provision of skilled non-pharmacological interventions by both trained GPs and other mental health specialists;*

7. *Improved interaction between GPs and specialist mental heath services to created an integrated system for mental health interventions; and*

8. *Ongoingnresearch into the characteristics of primary care psychiatry and the consequence of any future reforms of the Australian healthcare system"* (Hickie et al, 2001).

Notwithstanding this, there remains a role for quality prescribing, optimal use and patient understanding of and continuation of their medications. Despite pharmacists not being specifically included in these mental health-specific reforms, they should not be considered as not relevant.

Better Outcomes in Mental Health initiative (BOMH)

The above 8-point plan advised governments to aim to achieve 60% of GPs providing 'essential care', 30% providing 'enhanced care' and 10% providing 'skilled care'. The new HIC Service Incentive Payment, BOMH attempted to recruit the latter 10% and has exceeded its orginal target, although the uptake is still very low (Appendix 2).

National Mental Health Stragegy reforms have now directed attention to practice-level barriers, rather than only resourcing Division programs and infrastructure or

mental health system-level linkages. Divisions are acting as an infrastructure to support practice-level reforms. The BOMH program aims to address barriers to GPs providing mental health care which have been identified (Commonwealth of Australia, 2003 Mental Health Branch Website):

inadequate education and training;

inadequate remuneration for long consultations;

limited access to allied health services in mental health; and

limited access to specialist psychiatry and emergency support.

Uptake of the BOMH is defined as the sign-on for GPs for the initial Familiarisation Training and not routine use in practice. The components of the $120.4 million package over four years are:

Education and training for GPs - to familiarise GPs with the initiative and to increase the mental health skills

The 3 Step (BOMH) Mental Health Process – (1st July 2002) a Service Incentive Payment (SIP) is provided to encourage effective management of mental health problems by GPs (See Appendix 2).

Focused Psychological Strategies – (from November 2002) to encourage appropriately trained GPs to provide evidence based focused psychological strategies under a MBS rebate.

Access to Allied Health Services – (2003) to enable GPs to access psychological and other allied health services to support their patients with mental health disorders.

Access to Psychiatrist Support – (2003) to better enable psychiatrists and GPs to participate in case conferencing and for psychiatrists to provide emergency advice to support GPs.

Table 3.3 ICD-10 Primary Health Care conditions that GPs may include as the principal provisional diagnosis of patients at intake into this study

Include	**Don't Include**
Depression	Delirium
Bipolar disorder	Dementia
Phobic disorders	Conduct disorders
Generalised anxiety disorder	Enuresis
Adjustment disorder	Bereavement disorders
Panic disorder	Disassociative (conversion) disorder
Mixed anxiety and depression	Neurasthenia
Drug use disorders	Sleep problems
Alcohol use disorders	Hyperkinetic (attention deficit) disorder
Eating disorders	Mental retardation
Mental disorder not otherwise specified	
Unexplained somatic complaints	

The current study involved only the application by GPs of the structured care approach - the 3-step 'assessment', 'plan' and 'review'. This was to be undertaken

before and after a HMR in separate consultations for the same patients defined as appropriate (selected ICD 10 disorders) to the BOMH (Table 3.3). In reality, because of the difficulty obtaining active GP recruitment of patients, we accepted data concerning any of these conditions.

Enhanced Primary Care

Enhanced Primary Care incentive payments for GPs to case conference and care plan in collaboration with other providers may also be applied for mental health care. Like BOMH, EPC items remunerate GPs for longer (20 mins+) consultations and remunerate them to collaborate with other providers and to coordinate this care. A Discussion Paper has just been released which proposes some collapsing of the BOMH and EPC SIP payments into a simplified package to finance general practice chronic care interventions, viewed as unpopular and overly complex by some GPs (Productivity Commission Red Tape Taskforce, 2003).

Literature review on the value of pharmacists in mental health care

Table 3.4 only reports the medication management review studies from our systematic review to December 2003 of the international literature on the descriptive and experimental studies involving pharmacists as members of primary and specialist mental health teams. We devised a different typology of professional pharmacy services to Roughead et al (Appendix 1) by locating 6 distinct kinds of services where pharmacists contribute to mental health care. These were:

medication management reviews;

'collaborative drug therapeutic management services';

community pharmacy patient advisory services;

consultation liaison shared care involving pharmacist educators;

medication case management; and

cost containment services.

In all, we found 32 experimental and quasi experimental studies: 20 papers reported models of medication management review; 3 were on patient advisory services by community pharmacists; 3 reported the pharmacist as a prescriber; another reported the pharmacist as a case manager while several described cost containment consultant roles. A Dutch thesis (discussed above) (Rijcken, 2003) discribed in detail the value of pharmacy data to schizophrenia care in primary and specialist settings. It illuminates how the pharmacy profession, as medication experts, with a new perspective and different data sources and expertise to that of mental health services, can prioritise consumer concerns with medication, such as a focus upon those medications causing specific problems for adherence, such as sexual disfunction. It also discussed psychotropic medication issues differentially affecting male and female consumers, an area which is under-researched.

The majority of studies were on hospital pharmacists' input to psychiatric inpatient care or discharge planning. Only 4 were controlled trials. Collaboration between disciplines generally resulted in a high level of health practitioner and patient satisfaction, a decrease in hospital bed days and/or patient contact with acute psychiatric services. Pharmacist involvement was associated with a reduction in

number and cost of medications. There were high rates of medical practitioner acceptance of pharmacists' recommendations in all studies that examined this, however, reported rates of implementing their recommendations were variable. Here we focus only on medication review related studies.

Key medication reviews and mental health

Most of the medication management review studies in mental health are naturalistic studies. Alderman (1997) reviewed patient records of pharmacist recommendations for 127 patients admitted to a **South Australian** acute psychiatric ward over a 6-month period (16). Of the 204 clinical pharmacy recommendations for 69 of the patients, 187 (91.7%) were accepted and implemented by the consultant psychiatrist. Twenty percent were classed by an expert multidisciplinary panel as being of major significance and 59% of moderate significance. The author concluded that pharmacists can make valuable contributions to patient care in this setting.

King and Roberts (2001) reported on medication reviews conducted with multidisciplinary case conferences between GPs, nurses and pharmacists in three **Canberra** nursing homes with attention paid to psychotropic medications for many of the patients. This before and after study reported non-significant improvements in medication orders and cost and in patient mortality. Practitioners of all clinical disciplines reported satisfaction with their collaboration in the case conferences. The authors recommended case conferences be part of medication reviews in nursing home settings.

In a **Swedish** randomised controlled trial of 33 nursing homes (representing 5% of all Swedish nursing homes) a pharmacy outreach program designed to optimise psychotropic prescribing was evaluated. Eighteen homes were randomised to the intervention group and 15 homes to the control group. The sample consisted of 1854 residents with a mean age of 83 years. Of the sample, 74% were women; 42% had a diagnosis of dementia; 5% had a diagnosis of a psychotic disorder and 5% were diagnosed with depression. In the intervention group the pharmacists presented their medication management review findings at regular meetings of physicians, nurses and nurses' assistants. At 12 months, prescribing of antipsychotics, benzodiazepines and antidepressants was reduced by 19%, 37% and 59% respectively in the intervention homes. This was interpreted to be a positive change. A follow-up study of the same homes three years later (20) demonstrated that the intervention agencies maintained a statistically significant higher quality of drug use than controls ($p=<0.05$).

In the **United Kingdom**, Kettle et al (1996) evaluated the acceptability and outcomes of pharmacists' roles within a mental health team serving inpatients and outpatients. A single pharmacist participated in ward rounds for a four-month period reviewing medications on the following basis: untreated indication, improper drug selection, sub-therapeutic dose, failure to receive the drug, overdose, adverse drug reaction, drug interaction, no indication for drug use, duration of treatment, formulation, contribution to therapy, and rationalisation of drug therapy.

Patient impacts were measured as follows: problem identified, problem resolved, problem prevented, problem unresolved, improved drug therapy, improved drug supply and monitoring. Regular contact with ward nursing staff resulted in two thirds of the pharmacists' recommendations being made during team discussions. Of the 142 medication recommendations made, 129 (91%) were actioned and 5 (3.5%) were rejected. The consultant psychiatrist considered 81.6% of the pharmacist's recommendations as either significant or useful to patient care. The authors

concluded that pharmacists can make valuable recommendations relevant for patients, nurses and specialists.

Also in the **United Kingdom**, Cloete and Heath (1987) reported a naturalistic study on pharmacist participation in consultant ward rounds in psychiatric inpatient settings over a 12-month period. They reported a 29% reduction in the number of drugs prescribed and a subsequent saving in drug costs to the hospital.

Shaw et al (2000) reported a model of medication review that attempted to bridge the continuity of care gap between inpatient and community care. They provided pharmacist discharge planning care to 97 patients allocated to randomised intervention and control groups from three acute admission wards. There was a non-significant trend toward lower readmission rates in the intervention group. The pharmacists in the community who received care plans from the discharge hospital pharmacists were in a position to identify medication related problems for patients, whereas controls not in receipt of discharge care plans were less likely to identify and report these problems.

In the **United Kingdom**, Smith et al (1997) reported on a controlled trial of 28 patients who received pharmaceutical care plan and discharge counselling from a pharmacist and compared outcomes with 25 controls, who received only a medication card. At one week, compliance was better in the intervention group and a follow-up home visit by a pharmacist identified fewer medication-related problems than when compared with controls.

Also in the **United Kingdom**, Watson (1997) reported on two projects, which appointed a pharmaceutical facilitator to work with community pharmacists to provide services to people with mental illness in the community. While the pharmacists responded positively to the training, the study reported some negative attitudes toward medication review services and the expanded role of pharmacists by community mental health teams.

Ewan and Greene (2001) evaluated the impacts of medication reviews conducted by three community pharmacists in the **United Kingdom** for 35 patients with histories of persistent and enduring mental illness. Over the nine-month study period, a community pharmacist accompanied the patients' key worker on home visits. The pharmacists had previously attended a training course in mental health. They identified 94 medication-related problems in 30 cases. Two specialist mental heath pharmacists and a consultant psychiatrist acting as an expert panel appraised the pharmacists' interventions. Their documentation was judged as appropriate in 84 of 92 interventions. In 35% of cases the panel agreed that the interventions were clinically significant. No measures of cost-effectiveness were reported in this study.

Two naturalistic studies in **Israel** by research teams lead by Dorevitch (1993, 1996) reported inpatient and outpatient experiences of involving pharmacists in the care of people with schizophrenia. The 1993 study reported the care of 14 patients over a ten-year period who attended an outpatient clinic at a teaching hospital. Pharmacists conducted mental state examinations. Hospital days as inpatients, number of symptoms, side effect profiles and costs were monitored. The authors of both studies concluded that the interventions were effective and that substantial savings from reduced hospital days, rather than drug savings, were made. In the Dorevitch et al 1996 study, patients rated the intervention as unsatisfactory in only 8 out of 82 cases. The studies note that the results may not be attributable to only the pharmacist's involvement given that in the long study period, other prescribing changes may have

contributed to better health outcome and savings, including the introduction of atypical antipsychotics.

Bultman and Svarstad (2002) reported the impacts of community pharmacist from 23 community pharmacies in Wisconsin, in the **United States** who monitored antidepressant therapy to see if it enhanced patient adherence and satisfaction with treatment. Of the 100 study patients, 59 were taking antidepressants for the first time, 70% of patients reported that the pharmacists asked them about their medication problems; 53% and 54% respectively said that pharmacists encouraged them to ask questions about their medications and listened to these concerns, while 32% found the pharmacists helpful in problem solving. These data suggest that pharmacists have an important role in monitoring and preventing drug-related problems, which otherwise may result in patient drop-out from treatment. They found that patient beliefs about antidepressants predicted adherence. This suggests that the monitoring by pharmacists and being available to patients as a discussant is potentially important to adherence. The authors concluded that this service by pharmacists is important from the beginning of use of antidepressants to enable problem solving, reinforcement and patient satisfaction with treatment.

Also in the **United States**, Stewart et al (1992) reported on the medication regimen reviews of three hospitalised patients with mental illness reviewed in case conferences with the patients physician. The intervention resulted in the patients being discharged on reduced amounts of medications, interpreted by the authors as an improvement in care.

Canales et al (2001) reported on a controlled trial of clinical pharmacy services in a **Texan** psychiatric inpatient setting where the pharmacists perform the following functions: attend team meetings; perform baseline assessments; provide weekly medication reviews; provide pharmacotherapy recommendations; obtain medication histories; review drug administration records of nursing staff; provide discharge planning drug counselling to patients; and provide medication education classes to staff and patients. The study used an interrupted time-series design to compare intervention and control groups on the following variables: costs of care, length of stay, rate of adverse drug and other events, rates of acceptance of pharmacotherapy recommendations, patient compliance, patient quality of life and patient satisfaction. Intervention patients showed fewer negative side effects, improved responses to treatment, and were more satisfied with services than were controls. Medication costs and length of stay were the same in both groups.

Conclusion

Although evidence from controlled trials is sparse, the literature suggests that pharmacists may make positive contributions as consultant members to multidisciplinary and interdisciplinary specialist and primary care teams providing pharmacological treatments to people with mental disorders. Primary studies in the Australian context are needed in both specialist and primary care.

Table 3.4 Key international literature on pharmacist medication management in mental health care

Author/Year	Country	Journal	Study type
Alderman, CP (1997)	Australia	*Journal of Clinical Pharmacy and Therapeutics* 1997;22:27-31.	Prospective record audit appraising pharmacy interventions of acute psychiatry inpatient records by multi-discipline expert panel.
Bultman, DC & Svarstad, BL (2002)	USA	*Journal of American Pharmaceutical Association* 2002; 42:36-43.	
Canadian Psychiatric Assoc (2000)	Canada	*www.cpa.apc.org/publications/archives/bulletin*	8-month feasibility descriptive project in which pharmacists assessed 243 atients (15% of all patients in outpatient setting) to review drug related problems. 3 main problems were dose, adverse reaction and not taking or receiving drug as prescribed. 453 recommendations were made, of which 95% were accepted.
Canales, PL, Dorson, PG & Crismon, ML (2001)	USA	*American Journal of Health System Pharmacy* 2001; 58(4):1309-1316.	15-month phased comparative trial of two inpatient wards for acute psychiatric patients.
Cloete BG, Gomez, C, Lyon, R & Male, BM (1992)	UK	*The Pharmaceutical Journal* 1992; 249:102-103.	Economic evaluation of medication management reviews in long stay psychiatric unit.
Cloete, BG & Heath, PE (1987)	UK	*The Pharmaceutical Journal* 1987; 244:42-43.	Naturalistic evaluation over 12 months with economic evaluation of medication cost savings.
Cohen, LJ (1999)	USA	*Journal of Clinical Psychiatry* 1999; 60 Supplement (19):54-57.	Policy discussion with emphasis on economic benefits of pharmacist care.
Dorevitch, A, Aronzon, R & Zilberman, L (1993)	Israel	*Journal of Clinical Pharmacy and Therapeutics* 1993; 18:183-186.	Prospective 10-year follow up case study of 14 patients with schizophrenia with no control comparison group.
Dorevitch, A, Perl E (1996)	Israel	*Journal of Clinical Pharmacy and Therapeutics* 1996; 21:45-48.	Naturalistic study of pharmacists recommendations with psychiatric inpatient team.
Ewan, MA & Greene, RJ (2001)	UK	*International Journal of Pharmacy Practice* 2001; 9:225-234.	Naturalistic study community pharmacists' home medicine reviews with psychiatric case manager.
Kettle, J, Downie, G, Palin A, & Chessn, R (1996)	UK	*The Pharmaceutical Journal* 1996; 257:814-816.	Naturalistic study of medication management reviews in inpatient care over 3 months including economic evaluation.

King, MA & Roberts, MS (2001)	Australia	*Pharmacy World Science*; 2001 23:41-45.	Medication management review. Before and after study of GP and Pharmacists case conferences for 245 patients in nursing homes with mental health care needs.
Schmidt, IK, Claesson, CB, Westerholm, B & Nilsson, LG (1998)	Sweden	*Annals of Pharmacotherapy* 1998; 32(1):27-32.	RCT of 33 nursing homes of physician and staff assessments of pharmacist drug interventions.
Schmidt IK et al (1998)	Sweden	*Journal of American Geriatrics Society* 1998; 46:77-82.	Follow up study of multidisciplinary team interventions on psychotropic prescribing in Swedish Nursing Homes.
Schmidt, IK, & Fastbom, J (2000)	Sweden	*Clin Drug Invest*. 2000; 6:433-446.	Follow up study
Shaw H, Mackie CA, & Sharkie, I (2000)	UK	*The International Journal of Pharmacy Practice* 2000; 8:144-153.	RCT of medication counselling/care plans by pharmacist discharge vs no pharmacist intervention at discharge for 97 hospitalised psychiatric patients.
Smith, McGowan, L, Moss-Barclay, C, Wheater, J, Knass, D & Chrystyn H (1997)	UK	*British Journal of Clinical Pharmacology* 1997; 44:163-165.	RCT of a home medicine review 10 days post discharge or elderly patients to appraise post discharge continuity of pharmacist care.
Stewart RB, Yedinak, KC & Ware, MR (1992)	USA	*Annals of Pharmacotherapy* 1992; 26:529-533.	Naturalistic study of Medication management reviews for 3 inpatients.
Watson, PJ (1997)	UK	*The Pharmaceutical Journal* 1997; 258:419-420.	Naturalistic study using 160 key stakeholder interviews and qualitative evaluation.

CHAPTER FOUR - PROJECT METHODS

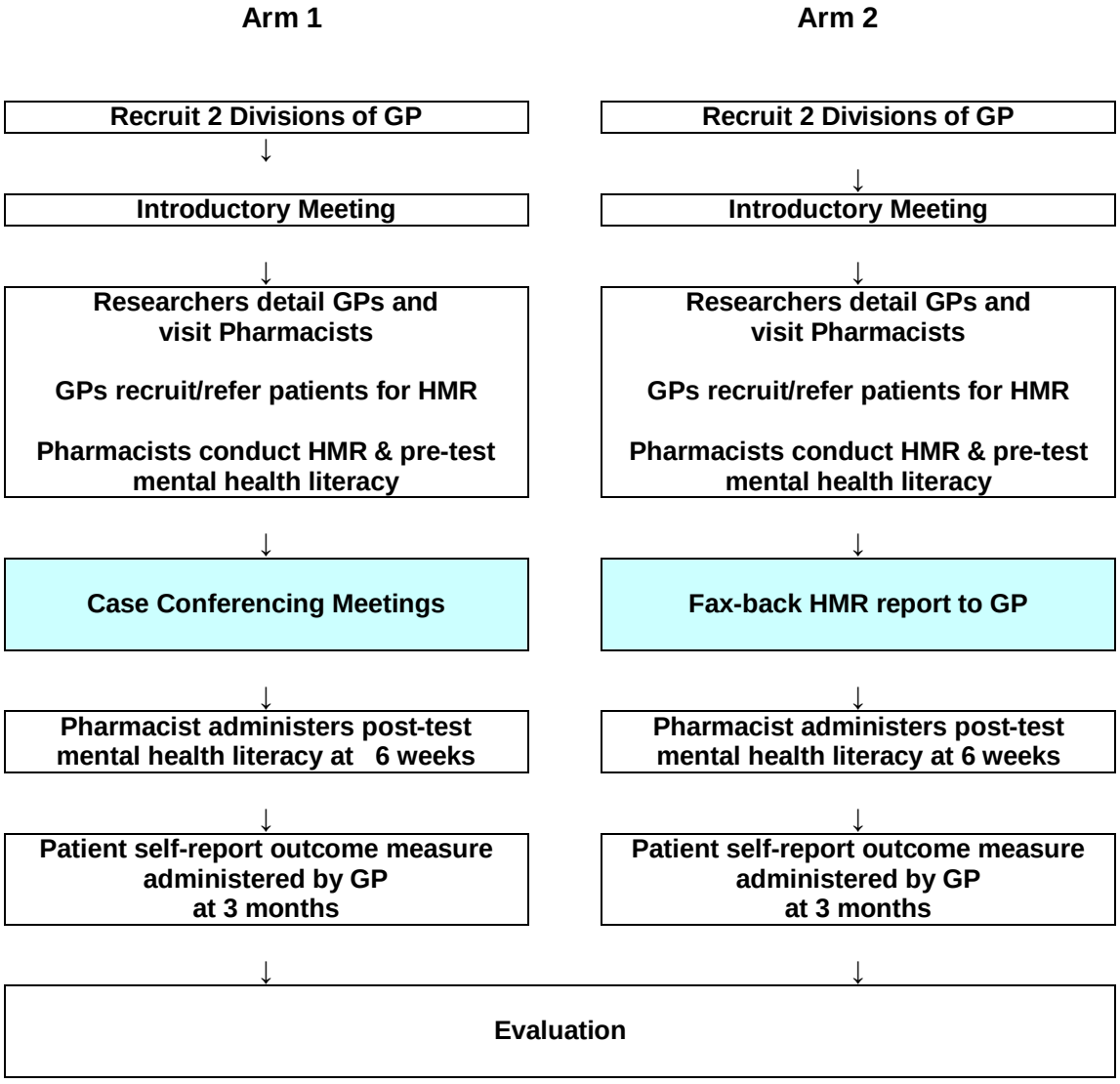
This chapter describes the methods used in undertaking this research, including the revised methodological approach taken as a result of difficulties experienced in recruitment of participants. The chapter concludes with a discusion on the methodological approach used to engage and recruit participants.

Study Design and Intervention

A prospective cluster randomised comparative two group intervention study (Figure 4.1) was utilised. This design was used so that key project hypotheses could be tested, that is whether face-to-face case conferencing between GPs and Community Pharmacists about a Home Medicines Review enhance outcomes for patients and the participating health practitioners when compared to a standard (eg fax-back or written) Home Medicines Review. The original study design was a prospective cluster randomised comparative three group intervention study, where group three was a prospective control. Due to data capture difficulties associated with the control group (Arm 3: Fairfield, Liverpool), it was not possible to collect any (meaningful) control data and so the focus of data collection was for the two comparative arms of the trial (Arms 1 and 2).

The intervention in Arm 1 comprised HMR followed by a face-to-face case conference meeting between the pharmacist and GP. The intervention in Arm 2 involved HMR followed by “usual” means of communication about the HMR report (eg written or fax-back) beween the pharmacist and GP.

Figure 4.1: The two arms of the cluster randomised comparative trial Case Conferences and Care Plans: Collaboration between Community Pharmacists and General Practitioners



Inclusion Criteria: Originally, the intervention involved pairs of GPs and Pharmacists delivering Home Medicines Reviews (HMRs) to 5 patients with an ICD10-defined mental disorders (Table 3.3), with practitioners in Arm 1 case conferencing post-HMR and practitioners in Arm 2, communicating through "usual" mechanisms. However due to the considerable delays in the recruitment of patients with an ICD10-defined mental disorder, and in order to answer the principal research question concerning case conferencing benefits post-HMR, relaxation of the entry criteria to include patients with any illness was sought from and approved by the Funding Body (Interim Report September 2003.). This change meant that the aspects of the intervention concerning Better Outcomes in Mental Health was relevant for those patients with an ICD10-defined mental disorder but not for patients without a ICD10-defined mental disorder. Figures 4.2 and 4.3 summarise the intervention schematically for Arms 1 and 2 of this study respectively. While Step 1 in each arm shows one consultation between the GP and patient, in reality, two or more consultations may be required to achieve the assessment and patient consent to participate in the study and to arrive at a conclusion that a HMR is also warranted.

Peer Review of Intervention: Our intervention was externally peer reviewed by the RACGP during the process of applying for QA&CPD points for participating GPs. The approval by the RACGP for linking continuing professional development points with our intervention was received in July 2003. In all, 35 "Group 1" points were approved by the Better Outcomes in Mental Health National Coordinator of QA&CPD approval at the RACGP. This is an important example of a process of peer-review appraisal of our study intervention. Specifically, the point allocation requires agreement by the General Practice Mental Health Training Collaboration, which is comprised of a number of GP and Mental Health Agencies, who accredit education programs for GPs in mental health which aim to implement the BOMH and related programs. We consider the point allocation to be generous and a recognition of the value and complexity of our research intervention.

Furthermore, an continuing education application was lodged with the Pharmaceutcial Society of Australia for participation in the various training sessions for pharmacists. Pharmacists who attended the introductory case conference dinner meeting were eligible to receive 2 Continuing Professional Education (CPE) points. Those pharmacists who participated in one of the interactive training days received 3 CPE points.

Ethics: The Human Ethics Committee at the University of Sydney approved the project methods.

Recruitment of Health Care Professionals

In order to maximise recruitment of health care professionals, multiple strategies were adopted at the Division of General Practice level. Researchers liaised closely with key persons in each of the Divisions of General Practice including the Medication Management Review (MMR) facilitators, mental health specialists, and Chief Executive Officers. The purpose was to identify community pharmacists and GPs who were interested in mental health and HMRs. These practitioners were then sent a formal invitation to participate in the project and visited by a member of the research team. Our intention was to identify pairs of pharmacists and GPs who ordinarily work together in HMR.

At the organisational level, consultation with the State HMR Facilitator (PGA), Practice Support Manager for HMR (PSA), Alliance of NSW Divisions, BOMH Coordinator (Alliance of NSW Divisions) was also undertaken to explain the project procedures and seek advice on recruitment issues.

Through collaboration with the School of Public Health at the University of Sydney, the research team was able to identify a GP peer leader in mental health. This GP was able to nominate a number of GP colleagues most of whom (5/7) were recruited to the project.

Community pharmacists located in the immediate vicinity (same suburb and adjacent suburb/s) of the recruited GPs were approached to participate. Where a pharmacist was interested in receiving referrals for the project through the pharmacy in which they worked, but was not accredited to conduct HMRs themselves, the research team provided assistance to those pharmacists to contract accredited pharmacists in their area to undertake the reviews. The research team also liased closely with the MMR facilitators in the respective Divisions to develop networks between accredited pharmacists and those pharmacies receiving referrals for HMRs.

Recruitment of Patients by GPs and Identification of Patients by Pharmacists

GPs recruited to the project were asked to recruit patients by consecutive assessment of new patients or recall patients thought to potentially benefit from structured mental health care (Better Outcomes in Mental Health) and HMR intervention. For example, GPs originally were invited to select prospectively, the following patients:
Patients not in hospital who have a (provisional) ICD-10 diagnosable mental disorder* AND

Patients who are prescribed at least one antidepressant, antipsychotic, and /or anti-anxiety medication AND

Patients aged 17 years and over AND

Patients who can read and understand English sufficiently to provided informed consent.

The ICD-10 primary mental health care conditions to include as the principal provisional diagnoses (the patient may have other co-morbid ICD-10 disorders and other physical health problems) are as shown in Table 3.3. However as stated in the inclusion criteria section above, relaxation of the entry criteria to include patients with any illness, not just ICD-10 diagnosable mental disorder was sought from and approved by the Funding Body (Interim Report Septembe 2003).

Pharmacists were also asked to identify patients that met the inclusion criteria for the project and would likely benefit from an HMR. Where a pharmacist identified a suitable patient, some may have contacted the patient's GP to request a referral to the project. It was the final decision of the GP as to which patients they believed would benefit from the service and ultimately referred for the project.

Study Sites and Data Collection

Data collection procedures were operationalised in the following divisions of general practice.

1. Arm 1 (intervention Divisions [1]) – Northern Sydney and Hornsby
2. Arm 2 (intervention Divisions [2]) – Central Sydney and St George

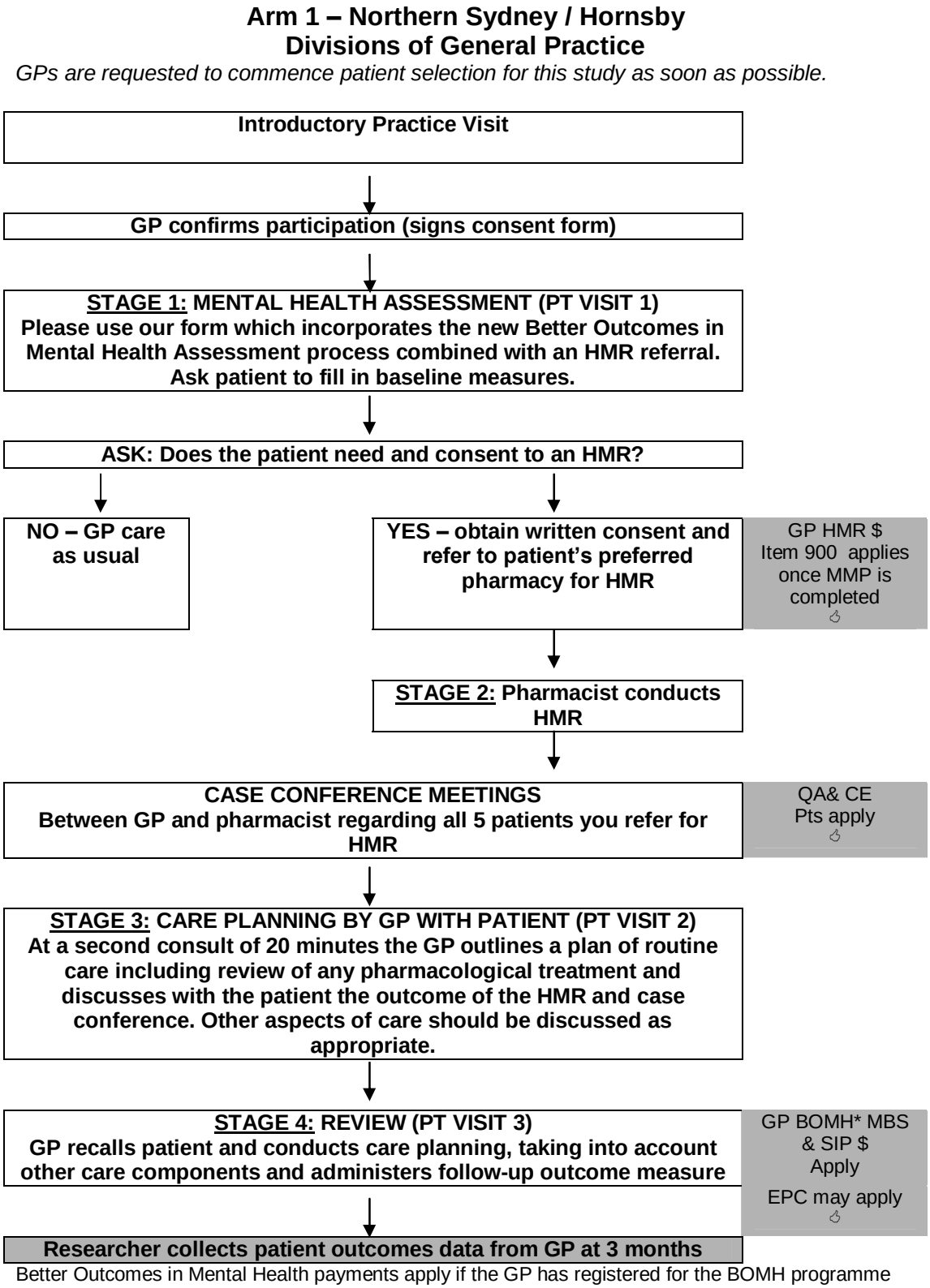
The follwing data have been collected. There has been a loss in the quality of data collected in this project principally due to difficulties associated with recruitment. Notwithstanding this, we have data which will enable a comparison between HMR folowed by face-to-face case conference versus "standard" HMR.

HMR and case conference data from Arm 1 is collected. Three month post-intervention follow-up consultations were not available. All data were collected prospectively.

HMR data from Arm 2 is collected, including medication management plans where available. Three-month post intervention data were not available. Data for arm two were collected prospectively and retrospectively (during the study period).

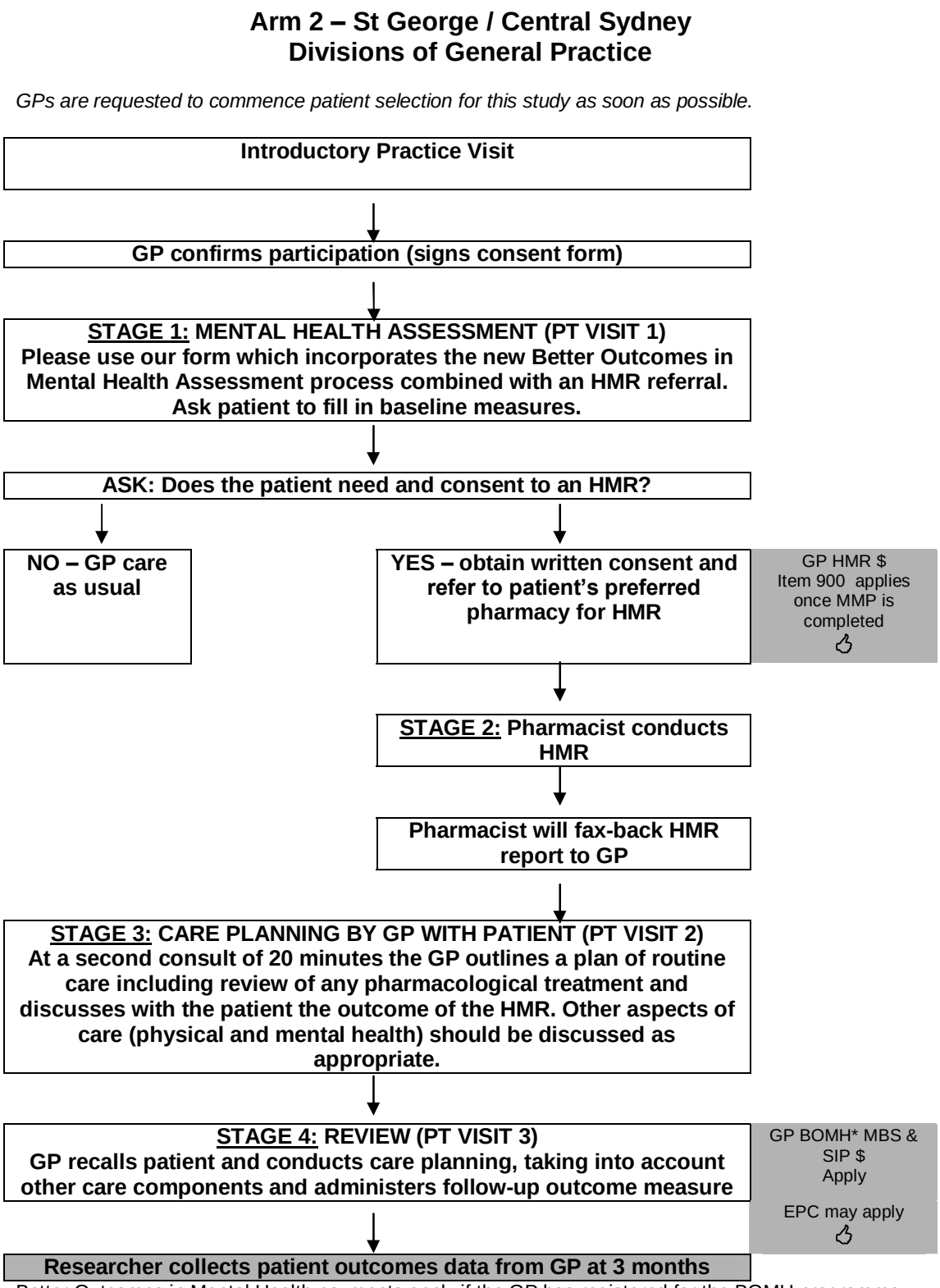
Some mental health literacy data for pharmacists (n=20) are presented. However, this data is not sufficient to determine an impact on the HMR / case conferencing process or patient adherence to medications.

Figure 4.2: Schematic representation of the intervention for arm 1.



Better Outcomes in Mental Health payments apply if the GP has registered for the BOMH programme and have completed Familiarisation Training. An upfront payment of $150 applies for GPs registering for the BOMH programme with their Division of General Practice. For some patients EPC may apply depending on case plan and complexity.

Figure 4.3: Schematic representation of the intervention for arm 2.



Better Outcomes in Mental Health payments apply if the GP has registered for the BOMH programme and have completed Familiarisation Training. An upfront payment of $150 applies for GPs registering for the BOMH programme with their Division of General Practice. For some patients EPC may apply depending on case plan and complexity.

Data Collection Instruments

Originally it was proposed that a broad range of instruments be used to help assess the impact of the intervention/s. However as outlined above, significant difficulties primarily to do with recruitment resulted in a less than complete range of indicators for evaluation purposes. Proposed measures of mental health functioning, quality of life, adherence, knowledge and beliefs are reported in Appendix 7.

The key data collected and presented in this report are:

4. HMR data for arms one and two – quantitative analysis (Chapter 5)
    a. Number of participants (GPs, pharmacists, patients) - process
    b. Number of findings and recommendations per HMR - impact
    c. Acceptance rate of HMR recommendations - impact
    d. Action rate of HMR recommendations - impact
5. Case conference data for Arm 1 – qualitative analysis (Chapter 6)
    a. Number of case conferences – process
    b. Duration of case conferences - process
    c. Thematic analyses of case conferences - impact
6. Mental health literacy data for 20 pharmacists (Chapter 5) - impact

Data collection instruments were developed specifically for the project after wide consultation with key stakeholders, including the participating Divisions of General Practice, the NSW Alliance of Divisions of General Practice, general practitioner and pharmacy researchers.

The **Mental Health Assessment and Referral Form** (Appendix 4) was a compilation of a traditional HMR Referral Form and Better Outcomes in Mental Health Assessment Form. This served to minimise time-consuming paperwork for participating GPs whilst still conforming to the Health Insurance Commission (HIC) criteria for provision of incentive payments for both these schemes. Providing reviewing pharmacists with a background on each patient's mental health history and treatment was seen as necessary to enable the pharmacist to conduct a relevant and meaningful review. General practitioners also completed a patient risk assessment prior to the pharmacist making appointments to conduct their home interviews. This patient 'risk assessment' included potential risks to both themselves (overdose, suicide) and to others.

The **Pharmacist Interview Guide** (Appendix 4) was designed to assist pharmacists to conduct their home interviews in a professional and standardised manner. Key elements of the guide included a four-question adherence assessment and brief measure of medication knowledge and beliefs.

The **Pharmacist HMR Report Form** (Appendix 4) was provided to pharmacists in both hardcopy and electronically to assist them in preparing their reports to the general practitioner. Key sections of the form included a list of medications being taken by the patient, a section for pharmacist review findings and recommendations, sections to report adherence, knowledge and beliefs and a "tick box" section for GPs to indicate what recommendations they accepted, would consider or did not accept.

Quantitative Data Management and Analysis

In this study we have undertaken an evaluable analysis rather than an intention-to-treat analysis. Data analysis for quantitative comparison between Arms 1 and 2 was conducted using the Statistical Package for Social Sciences (SPSS) Version 11. The HMR referral forms, pharmacist interview guides and HMR Report Forms were coded

and entered into an SPPS database. Coded response variables were entered using coding frames developed from earlier medication management review projects conducted at the University of Sydney. These coding frames are included in Appendix 5.

Number and class of medications used

The number and types of medications being taken by each of the patients was recorded by the GPs on the HMR Referral Form and by the pharmacist on the HMR Report Form.

General practitioners were asked to list all current medication therapy at the time of referral as well as recently discontinued medications taken by the patient. Many GPs expressed a wish to use their Medical Director © software to assist them in compiling this list. A set of directions for printing off this medication list was provided to these general practitioners to facilitate the data collection.

Pharmacists were also asked to list the current medication therapy on their HMR report forms. These lists were compiled after the pharmacist home interview and were provided to the general practitioners as a service at the case conference meetings. Several pharmacists also produced patient medication cards to help their patients better comprehend their prescribed medication regimens.

To facilitate data analysis all documented lists of medications were coded by therapeutic category using the Australian Medicines Handbook (AMH) 2004. Psychotropic medications were also coded into their specific class.

Patient mental health and medication literacy

Pharmacists were asked to assess patients knowledge about the psychotropic they take using a series of questions developed Svarstad et al.
Pharmacists were instructed to initially ask the open-ended question “How were you told to take this medication” [*while holding up the psychotropic medication being asked about*]. For information not volunteered the pharmacist then proceeded to enter into a dialogue with the patient about their medication using the following nine prompts.

What is the medication is being taken.
The number of capsules/tablets being taken at each dose.

The frequency of the dose/s.

The time of day to take the dose/s.

The expected length of treatment.
A potential adverse effect from taking the medication.
What to do if an expected adverse effect occurred.
How the medication works.
How long the medication takes to work after a dose is taken.

Pharmacists were asked to place a tick in the box next to the relevant prompt if patients were able to answer the pharmacists’ questions relating to this item. If patients did not know the answers, pharmacists were asked place a cross in the box but to “fill in the gaps” by providing verbal and/or written medication information.

The Pharmacist HMR Report Form included a section for pharmacists to report their medication knowledge findings to the GP.

Pharmacist reporting of HMR findings

Pharmacists produced a set of HMR findings after consideration of the each patient's prescribed medication regimen and home interview. A section for documenting these findings was provided on the Pharmacist HMR Report Form. Special sections were also provided on the form for pharmacists to document their recommendations relating to medication adherence, knowledge and beliefs.

For the purposes of data analysis all pharmacist findings were coded using a system used successfully in earlier medication review projects conducted at The University of Sydney. The coding frame is included as Appendix 6

Home Medicines Review (HMR) recommendations

The HMR findings were the basis of pharmacists' recommendations. A section was provided on the Pharmacist HMR Report Form for pharmacists to document their recommendations. The recommendations were provided confidentially to the GP and not discussed with the patients prior to being discussed verbally with the GP at the case conferences.

To facilitate analysis of the recommendations they were coded using a coding frame developed and successfully used in earlier medication review projects conducted at the University of Sydney. The coding frame used is included in Appendix 6.

GP acceptance of pharmacist HMR recommendations

General practitioners were asked to indicate on the Pharmacist HMR Report Forms which recommendations they a) accepted b) will consider and c) do not accept.

So that pharmacists present at the case conferences did not influence the GP responses, the researchers made it clear that GPs were not obliged to complete this section at the case conferences. Instead GPs were asked to mail their indications of acceptance to the research team within two weeks after completion of the case conference meetings.

Number of recommendations actioned by GPs

General practitioners were asked to provide copies of their medication management plans to the research team. GPs were obliged to complete these plans prior to claiming for the Medicare Item and receiving $120 for completion of the review process. These plans documented the actions that had occurred as a result of the pharmacist HMRs and were signed by both the GPs and patients. Researchers also asked pharmacists to provide computerised dispensing history from their community pharmacy computer as a way of validating whether the actions relating to medications had actually taken place.

Qualitative Data Management and Analysis

Qualitative research generally results in the collection of rich and complex data. There are a variety of techniques which can be applied in the analysis of qualitative data, with no single right way to undertake analyses (Punch, 1998). Two broad approaches were therefore adopted: thematic content analysis and phenomenological analysis.

Thematic analysis is undertaken to uncover common threads or patterns in the dataset (Gifford, 1998).

Our case conferences were not 'interviews', 'documents' (that lend toward content, document or discourse analysis) nor were they 'case studies' or observations by the researcher. They were *recorded clinical conversations* without the intrusion of the investigators, the analysis of which must apply the appropriate methodology*, phenomenological analysis*.

This approach refuses to reduce what is present and allows the voices of multiple persons, perspectives, interpretations and realities to enter into the study. This assumes that no two GPs, nor patients nor pharmacists are alike and that the experience of communicating together generates rich information about how these practitioners function in and experience their workplaces and patient relationships.

Specifically, our approach involved one investigator delineating themes and subthemes allowing the data to 'speak for themselves'. Each theme was numbered sequentially in the order that it emerged from case conference meetings held on 16/7/03. Other case conferences were read and themes included until the same themes were repeated and no new ones emerged. They were then regrouped and categorised into domains from which stories have summarised the clinical experience of the participants involved in each case discussed.

Findings arise from the data, themselves, ie *penomenologically* – or, reports the 'world-as-experienced' (Baker 2002, 1356) by valuing the word of the participants themeselves. This approach meets criteria for fidelity to Heideggerian hermeneutical phenomenology (1927/1962) derived from the study of human experience and activity through the study of texts. Its aim is to understand everyday practices (Benner, 1985:5) and the meaning of these practices. This approach is contrasted to the Husserlian approach (Dreyfus, 1991) in that the former seeks to understand how case conferencing is intelligable to the participants themselves and their practices rather than holds meaning for pre-determined priorities or bias of researchers.

The fact that each case conference reflects quite different emphasis and dynamics between participants draws attention to the importance of relationships between and the personalities of individuals, rather than our analysis relying upon presumed relationships between actors of a professional class or group (health professionals of a particular discipline).

Study Limitations

The study design utilised was a prospective cluster randomised comparative two group intervention study (Figure 4.1). The unit of analysis for randomisation was not at the patient level but at the Division of General Practice level. It is noteworthy that for public health interventions, "quasi-experimental" designs are used when "whole communities of defined geographical regions" (eg Division of General Practice) are exposed to an intervention. It has been reported that even a few communities or units may be randomised to different groups (eg intervention and control/comparison) and provide evidence of effectiveness (cited in Bauman, 1998). However it is acknowledged that this may result in unbalanced intervention and control groups (Bauman, 1998). We nevertheless aimed to demonstrate the comparbility of the two groups based on demographic, diagnostic and medication characteristics.

Due to the difficulties associated with recruitment of participants and subsequent data collection, two changes in our methods were adopted during this project. First there was a relaxation of the inclusion criteria, such that patients with any illness (not just mental illness) were eligible for inclusion, Second, data for the prospective

control (Arm 3) were not available and so the study design shifted from a three group design (control plus two intervention groups) to a two group design (two intervention groups: Arm 1 and Arm 2). Whilst these changes may impact on the generalisability of our data to the mental health population, the study design was still appropriate for answering the principal research question regarding the impact of case conferencing post-HMR.

Our original study intervention combining BOMH and HMR was complex. Whilst both BOMH and HMR are approved services which can be offered by GPs, relatively few providers had previous experience in offering these services. This had a significant impact on our ability to collect data in a timely manner. A full discussion of our methodological approach to facilitate recruitment/data collection and our rationale for the BOMH intervention, is reported in Appendix 9.

CHAPTER FIVE - RESULTS: QUANTITATIVE ANALYSIS COMPARING CASE CONFERENCE POST-HMR WITH STANDARD HMR

Introduction

This chapter describes quantitative HMR data obtained from the comparison arms of this study. Data for 89 HMRs were evaluated (n=44 HMRs in arm one and n=45 HMRs in arm two). A comparison of HMR findings (n=340 in arm one and n=261 in arm two) and recommendations (n=308 in arm one and n=213 in arm two) is presented along with the acceptance rate of pharmacists recommendations in arm one as recorded at the case conference meetings and the uptake rate of recommendations in arm two as recorded by Medication Management Plan records.

An assessment of mental health literacy is also presented at the conclusion of this chapter.

Introductory Medico-pharmacy Meetings

Two introductory Medico-pharmacy meetings were conducted on 27th February 2003 (Arm 1) and 12th March, 2003 (Arm 2) (Table 5.1). These meetings were conducted to engage the support of local community pharmacists and GPs in this research. Prominent speakers were organized to opinion lead and to encourage primary care practitioners (pharmacists and GPs) to participate in joint care of consumers with mental illness.

Nineteen GPs and 33 community pharmacists attended the introductory medico-pharmacy meeting in Chatswood on February 27, 2003. Two mental health nurses from the Chatswood Community Mental Health Centre and staff from the Northern Sydney and Hornsby Ku-ring-gai Ryde divisions of General Practice also attended, to represent their respective organisations. Two continuing professional education points were allocated by the Pharmaceutical Society of Australia to pharmacist attendees.

Six of 19 participating GPs indicated their willingness to be visited by a researcher to learn more about the research project. Five of these GPs were subsequently recruited to participate in this research (although only three referred for a HMR).

Twenty pharmacists indicated their willingness to participate in the research at the meeting. Of the remaining 13, only two indicated that they would be unable to participate. The remainder were pharmacists employed in pharmacies where their manager/owner had already indicated their willingness to participate, pre-registration pharmacists or pharmacists who weren't accredited to conduct HMRs. Those pharmacists willing to participate were asked to nominate corresponding GPs in their area that were interested in referring for HMRs.

Additional Recruitment of General Practitioners and Community

Table 5.1 Outline of Medico-Pharmacy Meetings

Divisions Attending	Venue and Speakers	Date of Function
Northern Sydney Division of General Practice Hornsby Ku-Ring-Gai Ryde Division of General Practice	Saville Hotel Park Suites 10 Brown St Chatswood 7.00 for 7.30pm Guest Speaker The Hon Dr Brian Pezzutti RFD, MLC, MB, BS (Syd), FFARACS, FANZCA Chairman of the Parliamentary Inquiry into Mental Health Services – What does the Inquiry mean for GPs Pharmacists and Primary Care? Dr Tim Chen and Mr Simon Bell – Case study examples in conducting Home Medicine Reviews for patients with mental illnesses.	27 February 2003
Divisions Attending	**Venue and Speakers**	**Date of Function**
St George Division of General Practice Central Sydney Division of General Practice	Novotel Brighton Beach Brighton Le sands 7.00 for 7.30pm Guest Speaker Prof Gavin Andrews Professor of Psychiatry, St Vincents Hospital, University of NSW Dr Tim Chen and Mr Simon Bell – Case study examples in conducting Home Medicine Reviews for patients with mental illnesses.	12 March 2003

Demographic Characteristics of Pharmacist and GP Participants – Group One

General practitioners - Group One

Twenty-six GPs were recruited to participate in the Northern Sydney and Hornsby Ku-ring-gai Ryde Divisions of General Practice.

Fourteen were male; seven were part time GPs and nine practiced in at least one other language in addition to English. The mean length of time since graduation from medical school was 24 years (range 6 – 38 years). Two of the participating general practitioners gained a pharmacy qualification prior to studying medicine.

The majority of participating GPs worked in small group practices; however, three of the GPs were employed in large medical centres (defined as medical centres that employ 5 or more full time medical practitioners). There were no solo practitioners in the sample of GPs recruited.

Eighteen of the GPs who were recruited had never completed an HMR referral prior to signing up for the project.

Community pharmacists - Group One

Forty-seven community pharmacists received a visit from a member of the research team and consented to participate in the study. This included employee pharmacists, owners and external consultant pharmacists. Twenty-three of these pharmacists that were initially recruited were male. Due to the pattern of HMR referrals, 11 pharmacists completed the 56 reviews. Of these five were male.

External accredited pharmacists completed 31/56 reviews; pharmacy owners 21/56 reviews, and the remaining four reviews were completed by accredited pharmacist employees of the preferred community pharmacies.

The Australian Association of Consultant Pharmacy (AACP) had accredited all pharmacists who completed the reviews and case conferences.

Patients – Group One

Fifty-six patients were recruited by their GP to participate in the study.
Forty-nine patients received a home interview by an accredited pharmacist; home medicines review and a post HMR case conference. Fort-four of the case conference meetings were audio-taped and analysed.

This indicated a very high level of patient acceptance of the pharmacist home interview process. Initially our project team was concerned that people with mental illnesses may not want a home visit, but this did not appear to be a factor. It may be that GPs only recruited patients who they believed would be happy to receive a home visit, or alternatively those who were not happy to have a pharmacist visit their home did not consent to participate in the programme.

The mean age of the patients recruited was 65.5 years (range 21-87) and the mean number of medications taken by each patient at the time of referral was 7.3 (range 1-18). Twenty four of 56 patients were male.

One patient was too deaf to complete the review process and withdrew from the project at the pharmacist interview stage. Six of the patients could not be contacted for interviews and the reviewing pharmacist completed the reviews and case conferences based on the GP referral information and pharmacy dispensing history alone. These patients were excluded from the data analysis relating to uptake of review recommendations and medication knowledge, beliefs and adherence

Interesting to note is that the patient sample in this project was younger and taking fewer medications than in another recently conducted HMR project (Chen et al., 2000) (mean age 71.9 years and taking 10.7 medications). Chen and colleagues found that the patient sample was predominantly female compared to this project where there was an equal distribution between males and females. This may be due to the inclusion criteria, targeting mental health patients.

Documented Diagnoses – Comparisons between Groups

Mental Illnesses

A mean of 1.73 mental health diagnoses were made each patient recruited to Group One and 1.47 for GroupTwo. The most frequent mental illnesses in both groups were depression, sleep disorder and anxiety. Other diagnoses included manic depression/bipolar disorder, post-traumatic stress disorder and schizophrenia.

A further two patients (5%) in Group One were referred for an HMR and case conference who were taking psychotropic medications but for which no diagnosis of mental illness was recorded.

In a further 14 (41%) cases in Group Two, patients were taking psychotropic medications, but had no documented diagnosis of a mental illness. This explains the differences seen in the Table 5.2.

Table 5.2 Comparison of mental illnesses between groups

Mental Illness	Group One (n=42*)		Group Two (n=45)	
	N	%	n	%
Depression	32	76	10	22
Anxiety / "nerves"	19	45	5	11
Schizophrenia	9	21	0	0
Insomnia	7	17	8	18
Panic attack	4	10	0	0
Alcohol abuse	2	5	0	0
Bipolar disorder	0	0	1	2
Post traumatic stress disorder	0	0	1	2

* No diagnostic data were available for 2 of the 44 patients

These findings are consistent with other research that suggests that anxiety and depression are chronic conditions that are commonly managed in general practice (Hickie et al, 2001). Moreover, the development of short and reliable screening tools (Hickie et al, 2002) to assess depression and anxiety in general practice may assist in the way these conditions are managed in the community. Furthermore, new incentive schemes for GPs to collaborate with other health professionals, such as the Better Outcomes in Mental Health (BOMH) Initiative and Enhanced Primary Care (EPC) Programs, may offer increased opportunities for community pharmacists to participate in the management of these disabling conditions. Depression has also been identified as a therapeutic area that deserves clinical attention from pharmacists (Parker, 2002).

Physical co-morbidities

The most frequent physical co-morbidities in the sample referred for HMR were hypertension, hypercholesterolemia and hyperlipidemia, osteoarthritis, osteoporosis, ischaemic heart disease, NIDDM and asthma/CAL. The pattern of distribution of co-morbidities was strickingly similar for both groups (Table 5.3).

Table 5.3 Comparison of physical co-morbidities between groups

Mental Illness	Group One (n=42*)		Group Two (n=45)	
	n	%	n	%
Hypertension	20	48	21	47
Hypercholesterolaemia	12	29	13	29
Arthritis – OA and RA	10	24	17	38
Osteoporosis	8	19	8	18
IHD	5	12	8	18
NIDDM	5	12	11	24
Asthma / CAL	5	12	6	13

* No diagnostic data were available for 2 of the 44 patients

Physical co-morbidities in people with mental illnesses have been the topic of considerable clinical and research interest over the past year. People with mental illnesses have higher rates of cardiovascular and respiratory disorders than the general population (Lambert et al, 2003). Of note hypertension and hypercholesterolemia / hyperlipidemia were the two most common co-morbidities identified in the sample of patients referred for HMR. The importance of developing strategies to overcome barriers to the detection and recognition of physical co-morbidities has been recognised in recent medical literature (Lambert et al, 2003). It is possible that pharmacist conducted HMR may be one valuable way that these physical comorbidities can be recognised and treated.

Reasons for Medication Review – Comparisons between Groups

In the majority of cases, the specific reason for HMR referral was not provided. When documented, the most sited reasons were for patients taking five or more medicines and to improve or assess compliance. Although it is difficult to interpret these data due to an incomplete data set, it does suggest that some GPs recognise the value of pharmacists performing a role in assessing adherence.

Non-adherence to prescribed medication regimens is a major cause of treatment failure for people with mental illnesses. Pharmacists therefore have a potentially important role in encouraging adherence to medications used to treat mental illnesses. Pharmacist monitoring of antidepressant therapy, using same protocol as outlined on the Pharmacist Interview Form, has been demonstrated to correlate with increased patient satisfaction and adherence to antidepressant medications (Bultman and Svarstad, 2002).

The most common reasons for medication review referral in *The Comparative Study of Two Collaborative Models for the Provision of Domiciliary Medication Review* (Chen, Bennett et al, 2000) were multiple medication use and to screen for potential drug interactions. To improve compliance was the eighth most common reason for referral.

Numbers and Classes of Medications Used – Comparisons between Groups

This sections presents an overview of the numbers and types of medications prescribed and taken by consumers in this study. A total of 866 medications (including prescription, non-prescription and complementary and alternative medicines) were being taken by 89 consumers, an average of 9.7 per patient (Table 5.4). Cardiovascular, gastrointestinal and analgesic medications were most commonly documented in medication regimens, in addition to psychotropic medicines.

Table 5.4 Comparison of categories of medications taken by respondents in Group One and Group Two

	Group One		Group Two	
Therapeutic Class	**Documented by pharmacist post home interview**		**Documented by pharmacist post home interview**	
	n	%	n	%
Allergy and anaphylaxis	5	1.2	0	0
Analgesics	41	10.0	36	7.9
Anti-infectives	1	0.2	1	0.2
Cardiovascular	88	21.5	123	26.9
Anticoagulation	8	2.0	4	0.9
Dermatological	5	1.2	34	7.4
Ear, nose and throat	2	0.5	1	0.2
Endocrine	20	4.9	49	10.7
Eye	19	4.6	11	2.4
Gastrointestinal	42	10.3	39	8.5
Genitourinary	7	1.7	3	0.7
Immunomodulators	1	0.2	1	0.2
Musculoskeletal	10	2.4	32	7.0
Neurological	8	2.0	5	1.1
Psychotropic	80	19.6	51	11.2
Respiratory	19	4.6	24	5.3
Vitamins and Herbals	53	13.0	42	9.2
Other	0	0	1	0.2
TOTAL	**409**	**100**	**457**	**100**

Table 5.5 Comparison of psychotropic medications taken by respondents in Group One and Group Two

	Group One		Group Two	
Psychotropic medication	**Document by pharmacist at interview**		**Document by pharmacist at interview**	
	n	%	n	%
Tricyclic and tetracyclic antidepressants	12	15.0	5	9.8
Monoamine oxidase inhibitors	1	1.3	0	0
Reversible inhibitors of monoamine oxidase-A	2	2.5	0	0
Selective serotonin reuptake inhibitors	19	23.8	8	15.7
Other types of antidepressants	8	10.0	5	9.8
Conventional antipsychotics	2	2.5	1	2.0
Atypical antipsychotics	7	8.9	3	5.9
Mood stabilisers	2	2.5	0	0
Benzodiazepines	25	31.3	25	49.0
Other anxiolytics	2	2.5	3	5.9
Drugs for nicotine dependence	0	0	1	2.0
TOTAL	**80**	**100**	**51**	**100**

Differences in the number of medications between Pharmacist and GP records – Group One

Forty-six patients referred to their community pharmacist were documented to be taking a total of 347 medications. The mean number of medications taken by each patient was 7.5 (range 1-18). In contrast, the number of medications taken by each patient as reported by the pharmacists after their home interviews were statistically significantly higher (p=0.002) than that indicated by the GP on the HMR referral forms. Pharmacists found the patients to be taking a mean number of 8.9 medications (range 1-20). This translates to an extra 1.4 medications per patient on average (Table 5.6).

Table 5.6 Frequency of medications taken at baseline and post-HMR – Group One

Therapeutic Class	**Documented by GP at baseline**	**Documented by pharmacist post home interview**
Allergy and anaphylaxis	6	5
Analgesics	38	41
Anti-infectives	2	1
Cardiovascular	88	88
Anticoagulation	8	8
Dermatological	8	5
Ear, nose and throat	2	2
Endocrine	20	20
Eye	18	19
Gastrointestinal	27	42
Genitourinary	6	7
Immunomodulators	0	1
Musculoskeletal	10	10
Neurological	8	8
Psychotropic	82	80
Respiratory	12	19
Vitamins and Herbals	12	53
TOTAL	**347**	**409**

Patients were taking a greater numbers of vitamins and herbal medications and medications for gastrointestinal disorders than indicated by the GPs. This may have been because the patients either forgot or chose not to inform their GP they were taking these medications. Many of these products can be purchased through pharmacies and health food stores without a prescription. Differences in the total number of medications consumed can also be attributed to people taking medications prescribed by other general and specialist medical practitioners, patients who were receiving duplication of therapy (for example, generic double dosing) and people who had failed to discontinue a medication that the GP had intended the patient to cease taking.

The differences in the numbers of medications being consumed are larger than the 62 medications reported in the table above because some patients were also taking fewer medications than the GP indicated. This was often due to patient non-adherence and/or poor record keeping by general practitioners in not deleting old therapies from their computerised medical notes.

In one case a patient prescribed 19 medications was found to have discontinued seven of these medications without informing their GP.

Table 5.7 Psychotropic medications taken at baseline and post-HMR – Group One

Psychotropic medication	Documented by GP at baseline	Document by pharmacist at interview
Tricyclic and tetracyclic antidepressants	13	12
Monoamine oxidase inhibitors	1	1
Reversible inhibitors of monoamine oxidase-A	2	2
Selective serotonin reuptake inhibitors	17	19
Other types of antidepressants	8	8
Conventional antipsychotics	3	2
Atypical antipsychotics	9	7
Mood stabilisers	2	2
Benzodiazepines	23	25
Other anxiolytics	3	2
Drugs for nicotine dependence	1	0
TOTAL	**82**	**80**

The most commonly taken psychotropic medications were the benzodiazepines (n=25), tricyclic antidepressants (n=12) and SSRIs (n=19). This is consistent with depression and anxiety being the most common diagnoses in the sample referred. It is likely that the people referred for a HMR in this project were using these medications for anxiety and depression, rather than one of the many 'off label indications', since a diagnosis or provisional diagnosis of a mental disorder was one of the project inclusion criteria.

Considering that many of the patients referred were elderly, the high usage of tricyclic antidepressants and benzodiazepines is of some concern. Tricyclic antidepressants and benzodiazepines have both been linked to an increased likelihood of falls (Thapa et al, 1998 and Campbell, 1999) and tricyclic antidepressants to cardiac complications (Australian Medicines Handbook, 2004). Furthermore, recent clinical practice guidelines recommended cognitive behavioural therapy (CBT) in place of benzodiazepines for the management of anxiety and panic disorder (Andrews et al, 2003).

Documented HMR Findings – Comparisons between Groups

A total of 601 findings were documented in the 89 HMR reports. The overall mean number of findings (identification of potential problem) documented per HMR was 6.8. The mean number of findings per HMR in Group One was 7.7. This compares to a mean of 5.8 in Group Two.

Table 5.8 Comparison of HMR findings documented by accredited pharmacists for participants in Group One and Group Two

	Group One		Group Two	
Finding	**n**	**%**	**n**	**%**
Additional monitoring required	3	0.9	4	1.5
Additional therapy required	9	2.6	4	1.5
Sign/symptom attributable to medication	31	9.1	4	1.5
Be alert to a potential adverse drug reaction (ADR)	51	15.0	55	21.1
Patient is non-adherent	28	8.2	12	4.6
Prescribed medication is contraindicated	3	0.9		
The dose of a medication is too high	10	2.9	4	1.5
The dose of a medication is too low	10	2.9	2	0.8
There is a drug-drug interaction	25	7.4	13	5.0
Medication being used to treat ADR	1	0.3	0	
Drug-disease state interaction	4	1.2	2	0.8
Drug-lab test interaction	3	0.9	4	1.5
GP documented strength is different to that being used by patient	10	2.9	2	0.8
Extra biochemistry tests required	2	0.6	1	0.4
No diagnosis for use of medication	6	1.8	0	
Finding provides information only	17	5.0	36	13.8
Clarification of dose or directions required	1	0.3	2	0.8
Abnormal clinical biochemistry	10	2.9	8	3.1
Particular medication should be used with caution	10	2.9	1	0.4
Suboptimal dosage form	1	0.3	6	2.3
Suboptimal dosing regimen	14	4.1	6	2.3
Suboptimal drug	16	4.7	2	0.8
Suboptimal duration of use	9	2.6	2	0.8
Suboptimal route of administration	1	0.3		
Suboptimal storage of medication/s	4	1.2	1	0.4
Duplication of therapy	3	0.9	8	3.1
Unnecessary drug therapy	5	1.5	2	0.8
Patient needs dose administration aid	3	0.9	1	0.4
Diagnosis with no apparent therapy	1	0.3		
Suboptimal response to therapy	10	2.9	4	1.5
Suboptimal administration technique	4	1.2	7	2.7
Additional information is required from GP	1	0.3		
Extra medication counseling needed	11	3.2	1	0.4
Patient has poor lifestyle	3	0.9	4	1.5
Patient is taking extra medication	20	5.9	5	1.9
Other	0	0	58	22.3
Total	**340**	**100**	**261**	**100.0**

Similarities in findings between groups

Although the mean number of findings per HMR was higher in Group One than Group Two, in both groups, the most common finding documented in HMR reports concerned an alert to a potential adverse drug reaction, with 51 (15%) occurrences in Group One and 55 (21.1%) in Group Two. This is not surprising because pharmacists' training gives them expert knowledge to recognise and be alert for potential adverse reactions (Badger et al, 2002), a significant cause of hospitalisation in the elderly (Roughead, 2002).

The pattern was similar with two other commonly reported findings: non-adherence and drug-drug interactions. Non-adherence to the medication regimen was the third most commonly documented finding in Group One (n=28 occurrences; 8.2%) and the fourth most common in Group Two (n=12 occurrences; 4.6%). This is significant because non-adherence is a major cause of treatment failure for people with mental illnesses.

The rankings for drug-drug interactions were similar for both groups with this finding being the fourth most common in Group One (n=25 occurrences; 7.4%) and the third most common in Group two (n=13 occurrences; 5%).

Differences in findings between groups

In Group One, other common HMR findings related to signs and/or symptoms attributable to a medication (n=31; 9.1%) and the fact that patients were taking extra medications not recorded on the GP HMR referral (n=20; 5.9%).

In Group Two, other common HMR findings included duplication of therapy (n=8; 3.1%) and findings which pertained to information delivery only (n=36; 13.8%).

One explanation for the variations in these patterns is a potential clustering effect, as a consequence of the relatively small number of participant pharmacists: 11 in Group One and 7 in Group Two. Thus each pharmacist in Group One conducted a mean of 4.0 reviews whilst in Group Two, pharmacists conducted a mean of 6.4 reviews.

Documented HMR Recommendations – Comparisons between Groups

A total of 521 recommendations (potential solutions) were documented in the 89 HMRs. The overall mean number of recommendations documented per HMR was 5.9. The mean number of recommendations per HMR in Group One was 7.0. This compares to a mean of 4.7 in Group Two.

Table 5.9 Comparison of HMR recommendations documented by accredited pharmacists for participants in Group One and Group Two

	Group One n=44 HMRs		Group Two N=45 HMRs	
Recommendation	**N**	**%**	**n**	**%**
Add medication	22	7.1	32	15.0
Additional or ongoing monitoring required	58	18.8	45	21.1
Advise on administration technique	4	1.3	0	0
Change dosage form of medication	3	1.0	7	3.3
Change dose of medication	31	10.1	19	8.9
Change medication	35	11.4	29	13.6
Change duration of therapy	4	1.3	0	0
Change route of administration	1	0.3	0	0
Confirm dose schedule	7	2.3	11	5.2
Change time of administration	12	3.9	0	0
Confirm diagnosis	6	1.9	0	0
Confirm dose of medication	8	2.6	2	0.9
Counsel or reassure patient	20	6.5	10	4.7
Discontinue medication	27	8.8	17	8.0
Investigate sign, symptom or ADR	3	1.0	6	2.8
Monitor adherence	2	0.6	2	0.9
Finding without recommendation	2	0.6	7	3.3
Use medication administration aid or device	12	3.9	3	1.4
Use non-pharmacological therapy	22	7.1	7	3.3
Confirm of clarify medication order	16	5.2	2	0.9
Refer to another health care professional	13	4.2	2	0.9
Other	0	0	12	5.6
Total	**308**	**100.0**	**213**	**100**

Similarities in recommendations between Groups

Although the number of recommendations in Group One was higher than Group Two, the pattern and distribution of the most common recommendations was similar. In both groups, the five most common recommendations were the same: additional or on-going monitoring required; change in medication; change in dose; addition of a new medication; discontinuation of a medication.

Differences in recommendations between Groups

In Group One, other common HMR recommendations concerned dose administration aids and referrals to other health care professionals. Specifically it was recommended that 11 (of 44) patients have their medications blister packed to improve adherence. The other medication aid recommendation related to the use of a device to assist in the administration of eye drops.

In terms of referrals, Group One, pharmacists recommended that GPs refer 13 (of 44) patients to other health care professionals. Importantly this helps encourage a multidisciplinary treatment approach and may improve access to community care for mental illnesses, a stated aim in the recent *Inquiry into mental health services in New South Wales, 2002.* The most common health professionals that pharmacists recommended referral to were psychologists, psychiatrists and dieticians.

In Group Two, other common HMR recommendations concerned the counseling and reassurance of patients and confirmation of dose schedules, in cases where discrepancies existed.

One explanation for the variations in these patterns is a potential clustering effect, as a consequence of the relatively small number of participant pharmacists: 11 in Group One and 7 in Group Two. Thus each pharmacist in Group One conducted a mean of 4.0 reviews whilst in Group Two, pharmacists conducted a mean of 6.4 reviews.

The rate of HMRs undertaken in the study was slow at approximately one HMR every two months ie approximately 5 reviews in 10 months. This has significant implications for future HMR research if the current rate of HMR service delivery remains static. Based on our experience in this project, a pragmatic estimate of the rate of HMR recruitment is 5 cases per pharmacy/pharmacist over a 6 to 12 month period. Furthermore, even 5 HMRs per pharmacy/pharmacist over a 6 to 12 month period would be unrealistic if the pharmacy/pharmacist was not currently involved in HMR service delivery at the time of commencement of the study. This has practical research implications when sample sizes are computed for relatively short term projects of 12 to 18 months duration; and presents a challenge if random samples of pharmacies are utilized.

Rate of Acceptance of HMR Recommendations Post Case Conference – Group One

There was a high rate (92%; 252 of 274 recommendations) of GP acceptance of pharmacists HMR recommendations following the face-to-face case conferences meetings Few recommendations were rejected by GPs. It was hypothesized that this was due to the opportunity for face-to-face interprofessional discussion between the GP and pharmacist. This discussion allowed for dialogue about a broad range of clinical issues documented in the HMR report. Specifically there was dialogue about the rationale and evidence behind specific findings and recommendations. In interpreting this data it is important to recognise that the high acceptance rate does not necessarily reflect a high action rate by GPs. It is likely, however that a high action rate would follow a high rate of acceptance of HMR recommendations.

Based on other Australian data, where the action rate of pharmacist recommendations was 42% for 2,764 potential problems (Gilbert et al., 2002), the action rate for group one was estimated to be 106 of 274 recommendations (38%).

Detailed thematic content analyses of the transcripts of the case conference meetings are presented in Chapter Six.

Table 5.10 Acceptance of recommendations documented in the HMR report by accredited pharmacists participating in Group One[1]

	Frequency *	**Percentage (%)***
Recommendation accepted	252	92
Recommendation will be considered	20	7
Recommendation not accepted	2	1
Total	**274**	**100**

1. Frequency and percentage acceptance based on analysis of 37 cases.

The rates of acceptance are comparable with acceptance rates reported in other mental health medication review projects involving case conferences. For example, in a study of pharmacist recommendations made in case conferences in a community mental health team in the United Kingdom, 91% of recommendations were accepted and actioned, and just 3.5% rejected (Kettle et al, 1996). In another study involving medication reviews for people with mental illnesses, conducted by three community pharmacists in the United Kingdom, 35% of interventions were rated as clinically significant by three expert reviewers (Ewan and Greene, 2001).

It is noteworthy that in a Canadian study, there was not a statistically significant decline in potentially inappropriate prescriptions post pharmacist-conducted medication review. The was because reviewing practitioners were not those involved in the day-to-day care of the patients and because reports were mailed to the patients' GP and not discussed face-to-face. (Allard et al, 2001).

Furthermore, pharmacy owners and employee pharmacists may have an opportunity to develop a better rapport with the referring GP at a local level, and may have a better background knowledge of the patients' medication history than a "consultant pharmacist". On the other hand, consultant pharmacists may be more practiced at undertaking HMRs and liaising with medical practitioners about therapeutic issues..

In the current study, it is not yet known whether the high rates of recommendation acceptance will translate into a high percentage of recommendations being actioned by GPs.However the aforementioned UK data suggest that this would be likely.

Rate of Action of HMR Recommendations – Group Two

For Group Two, it was not possible to ascertain the rate of acceptance of accredited pharmacist recommendations because face-to-face case conference meetings were not conducted. Instead, the documented action rate of pharmacist recommendations was analysed through a review of Medication Management Plans. GPs are required to complete MMPs after receiving HMR reports from accredited pharmacists. These plans are undertaken in consultation with the consumer, who "signs off" an any specific actions. MMPs must be completed by GPs before MBS Item 900 may be claimed through the HIC. It is also recommended that MMPs be forwarded to the consumer's community pharmacy to provide pharmacists with timely feedback on the actions taken as a result of the HMR process.

In 11 of 45 HMR cases (24%), the MMP was forwarded to the consumer's pharmacy. A total of 60 recommendations were documented in these HMRs. The documented action rate (per MMP) was a little less than one in five recommendations (18%; 11 of 60 recommendations).

It is noteworthy that the estimated action rate for Group One (where a case conference meeting was conducted in all cases post-HMR) was approximately double the action rate for group two (18%). This suggests that the impact of the pharmacist on HMR, as measured by uptake and implementaion of HMR recommendations is greater if a case conference meeting occurred post-HMR.

Table 5.11 Documented action rate of HMR recommendations for Group Two[1]

	Number of Recommendations In HMR Report	**Documented Action Rate per MMP % Rate**		**Example or comment**
	N	n	%	
Case 7	6	1	17	Rivotril ceased
Case 8	9	0	0	
Case 10	10	0	0	
Case 13	10	0	0	
Case 17	8	2	25	Celebrex ceased; trial of regular doses of paracetamol
Case 18	4	3	75	Webster pack initiated; FGF commenced; dietary modifications reinforced
Case 24	2	1	50	Psyllium commenced
Case 26	3	2	67	Monoplus ceased; INR monitored more closely
Case 32	2	1	50	Zocor dose changed
Case 35	4	1	25	Celebrex ceased due to interaction with warfarin
Case 42	2	0	0	
Case 45	0	0	0	
Total	**60**	**11**		
Mean	**5.5**	**1**	**18%**	

1. Frequency and percentages are based on analysis of 11 of 45 HMRs, where MMPs were forwarded to the consumer's pharmacy

It is likely that the documented action rate (as per medication management plan) is a conservative estimate of the actual action rate undertaken by the GP. Hence these analyses have some methodological limitations, primarily due to perceived low rates of documentation by GPs, and the low proportion of MMPs returned to the consumer's preferred community pharmacy (24.4%; 11 of 45 HMRs).

It is highly recommeded that after GPs have completed MMPs with the consumer, that these be forwarded to the consumer's pharmacy. This would allow pharmacists to re-inforce any medication actions jointly agreed by the GP and consumer. Importantly, MMPs may serve as a useful mechanism for interprofessional communication and provide feedback for pharmacists on their HMRs. This may help inform future HMRs conducted by pharmacists.

It is recommended that future HMR studies investigate both the documented action rate (per MMP) as well as the acceptance rate of accredited pharmacist

recommendations. These data complement each other and aid in the interpretation of the impact of pharmacist-conducted HMR.

Mental Health Literacy of Community Pharmacists

Twenty pharmacists completed the mental health literacy assessment. Five respondents reported attending previous training on a mental health topic in the previous twenty-four months. Nine of the respondents reported that they knew a relative, close friend or work colleague who had experienced a mental illness. All pharmacists surveyed correctly labelled the vignette as a description of a person with depression.

The same vignette used in this project was used to survey the general public (Jorm et al, 1997), general practitioners, psychiatrists and clinical psychologists (Jorm et al, 1997). Ninety-seven percent of psychiatrists, 97% of clinical psychologists and 99% of GP's correctly labelled the same vignette. Thirty-nine percent of consumers correctly labelled the vignette.

The mean helpfulness ratings of various professional groups and treatments differed between consumers and health care professionals. The tables below display the mean rating of helpfulness where –1 is harmful and +1 is helpful.

Table 5.12 Groups able to help person described in 'depression vignette'.

	Jorm et al., 1999				Our study
People who could help	**General public (n=2031)**	**GPs (n=872)**	**Psychiatrists (n=1128)**	**Clinical psychologists (n=454)**	**Community pharmacists (n=20)**
GP	0.87	0.99	0.97	0.81	1.00
Pharmacist	0.21	0.11	0.16	0.02	0.77
Counsellor	0.80	0.81	0.49	0.74	0.85
Social Worker	0.48	0.47	0.48	0.62	0.69
Telephone support	0.54	0.72	0.50	0.57	0.65
Psychiatrist	0.47	0.95	0.99	0.86	1.00
Psychologist	0.49	0.85	0.78	1.00	0.92
Close family	0.77	0.69	0.53	0.55	0.85
Close friends	0.78	0.63	0.46	0.54	0.77
Naturopath	0.27	-0.38	-0.39	-0.12	0.00
Religious leader	0.48	0.65	0.34	0.36	0.69
Deals with problems on own	-0.17	-0.56	-0.56	-0.16	-0.54

The community pharmacists rated GPs, psychiatrists and psychologists as the most helpful health professionals to consult for a person with the depressive symptoms described in the vignette. Community pharmacists also generally considered

themselves to be a helpful health professional to consult (0.77). Community pharmacists, however, were not rated a helpful profession to consult by general practitioners (0.11), psychologists (0.02), psychiatrists (0.16) or members of the general public (0.21). Indeed the general public rated pharmacists as the least likely to be helpful out the ten groups of people asked about. This may have been because pharmacists were seen as suppliers of medications rather than prescribers or experts in counselling or providers of information on psychotropic medications.

Table 5.13. Usefulness of medications for person described in 'depression vignette'.

	Jorm et al., 1997				Our study
Medications that could help	**General Public (n=2031)**	**GP (n=872)**	**Psychiatrists (n=1128)**	**Clinical psychologists (n=454)**	**Community Pharmacists (n=20)**
Vitamins or herbal medicines	0.63	0.05	-0.01	0.18	-0.01
Analgesics	-0.35	-0.48	-0.63	-0.55	-0.31
Antidepressants	-0.16	0.97	0.97	0.85	1.00
Antibiotics	-0.28	-0.42	-0.46	-0.37	-0.38
Sedatives	-0.44	-0.53	-0.36	-0.51	-0.46
Antipsychotics	-0.59	-0.67	-0.64	-0.71	-0.23
Anti-anxiety agents	-0.65	-0.32	-0.31	-0.31	0.77

Psychologists, psychiatrists, GPs and pharmacists all rated antidepressants as likely to be very helpful for a person with the depressive symptoms described. Interestingly the general public perceived that antidepressant medications, the mainstay of treatment for the symptoms described, would be more harmful than helpful. This suggests that the general public may have concerns about efficacy and safety of antidepressant medications, an area that medication counselling from community pharmacists may be beneficial in addressing. Therefore it is essential to assess and consider patient beliefs when trying to address issues of adherence and concordance.

Table 5.14. Usefulness of activities for the person described in the 'depression vignette'.

	Jorm et al., 1997				Our study
Activities or therapies that could help	**General public (n=2031)**	**GPs (n=872)**	**Psychiatrists (n=1128)**	**Clincal psychologists (n=454)**	**Community pharmacists (n=20)**
Becoming more physically active	0.87	0.78	0.52	0.87	0.77
Reading a self help book	0.64	0.65	0.45	0.67	0.23
Getting out and about more	0.85	0.65	0.42	0.81	0.69
Course of relaxation	0.86	0.74	0.50	0.72	0.85
Cutting out alcohol	0.61	0.59	0.58	0.41	0.31
Counselling	-	0.90	0.69	0.85	0.92
Cognitive Behavioural Therapy	-	0.63	0.77	0.95	0.77
Psychodynamic Psychotherapy	-	0.48	0.46	0.37	0.38
Psychotherapy	0.26	-	-	-	-
Hypnosis	-0.03	0.10	-0.15	0.07	0.23
Admission to Psychiatric ward of hospital	-0.65	0.00	0.48	-0.31	-0.54
Electroconvulsive therapy (ECT)	-0.80	-0.07	0.42	-0.54	-0.54
Having an alcoholic drink to relax	0.22	-0.09	-0.09	0.08	0.15
Going on a special diet	0.40	-0.15	-0.16	-0.04	0.00

All the health professionals surveyed rated provision of counselling and cognitive behavioural therapy as highly beneficial. This is consistent with the evidence based treatment guidelines for depression. Conversely, all the respondents except the psychiatrists rated electro-convulsive therapy, a gold standard treatment for severe and refractory depression, as more harmful than helpful. The community pharmacists, clinical psychologists and general public also considered admission to a psychiatric ward more harmful than helpful. This suggests that there is still a large amount of misunderstanding in relation to standard treatments for mental illnesses.

Misunderstandings about mental illnesses among health professionals and consumers may also delay recognition and referral to specialist mental health practitioners. Public concern over the use of standard treatments for mental illnesses, especially antidepressants, indicates that there is a large opportunity for community

pharmacists to provide reliable and evidence based information to consumers in relation to their prescribed medications.

CHAPTER SIX - QUALITATIVE ANALYSIS: METHOD AND THEMATIC OVERVIEW OF THE CASE CONFERENCES

Does case conferencing after a HMR add value and if so, how relevant is this to the care and treatment outcomes for people with mental disorders?

Introduction

This chapter reports the qualitative analysis from the case conferences held between community pharmacists and GPs in Arm 1 of the trial. Because ours is a multidisciplinary research team which comprises both pharmacy practice and mental health care perspectives, the two perspectives are included. This adds rigour to the analysis as 'investigator triangulation'. Between the first and second parts of the chapter we also use 'method triangulation' by using different qualitative methods to make sense of the same object of study (Cohen & Manion, 1994:236). In the first part one investigator provides the broad thematic overview that spans all the mental health and pharmaceutical care dimensions (JPW). It is followed by further analysis that 'drills down' to more detail on pharmacology covering physical and mental health and summative dimensions of the case conferencing (SB). The team draws findings together in relation to the literature and policy contexts reported in Chapters 2 and 3. The chapter goes to the heart of the principal research question:

Does case conferencing between practitioners (GP and community pharmacist) add value to patient care (and outcomes) when compared to a standard Home Medicines Review intervention (reported between practitioners by fax or mail without face-to-face communication)?

In Chapter 1 we hypothesised that gains for patients may be mediated through the enhanced quality of information communicated between practitioners, and in turn, may impact on clinical decision making by GPs for and with patients in care planning and follow-up. It may also impact on clinical decision making by pharmacists. Gains for practitioners may be relationship building, a sense of mutual support, educational gains and others.

Context of the analysis

First we analyse communications about mental health related pharmacological care and how this might impact upon the *comprehensiveness* of care for people with mental disorders, for example through, more comprehensive care planning addressing physical and mental health. *Care planning* was defined in Chapter 1 in Figure 2, along with the overview of its context in current models of primary mental health care in Australian General Practice. The focus here is on the *collaboration between practitioners* facilitated to some degree by HMR alone, but to an additional degree through case conferencing.

By commenting upon practitioner relationships, communication styles and patterns, collaborative clinical trouble shooting and / or decision making, the involvement of possible third parties in patient care and indicators of future action, this chapter contributes to the knowledge base about HMR as an example of mental health shared care. These phenomena are reported as 'stories'. Our conclusions make tentative judgements about the extent to which these stories have public health

importance and clinical significance to specific cases given that it is the first time that HMRs in mental health have been described in-depth.

How the case studies were conducted

The case conferences were conducted between July and November 2003. They were face-to-face and held in private between GPs and community pharmacists in two ways.

1. Four pairs of practitioners conducted their case conferences on 16 July 2003 during a meeting on home medicine reviews which was hosted especially to facilitate after hours exchange between the pairs rather than being done in the surgery or pharmacy during business hours. These case conferences were undertaken at separate desks in private areas so that each pair was not disturbed by others case conferencing in the same room. Tape recorders recorded the conversations as GPs and pharmacists reported from their HMR reports and clinical files.

2. The remaining pairs of practitioners case conferenced using the same approach but at times mutually agreed between the practitioners and in the GP surgery.

All case conferences were audio taped for the purposes of data analysis.

Parties to the case conferences

Seven GPs and 20 pharmacists indicated they would attend the case conference dinner function at the Stamford Grand Hotel in North Ryde on July 16. Three GPs and two pharmacists did not attend, despite having confirmed their attendance with researchers on the day prior to the event.

Three pairs of pharmacists and GPs conducted case conferences for nine patients on this evening. Representatives of the Northern Sydney and Hornsby Ku-ring-gai Ryde Divisions of General Practice and members of the project steering committee also attended the function but did not sit in on the case conferencing.

Case conferences in the GPs' surgeries

Case conferences involving pharmacists and GPs who were unable to attend the case conference meeting were conducted in the GPs' surgeries. The conferences took place at the following times and locations.

GP 6 and Pharmacist 5 – Monday August 11 (Beecroft)

GP 9 and Pharmacist 11 – Monday September 1 (Artarmon)

GP 3 and Pharmacists 53 and 54 – Wednesday September 10 (Willoughby)

GP 25 and Pharmacist 5 – Thursday September 25 (Carlingford)

GP 14 and Pharmacist 32 and 52 - Friday October 10 (Woollahra)

GP 8 and Pharmacist 11 – Monday November 3 (Artarmon)

GP 8 and Pharmacist 11 - Thursday November 27 (Artarmon)

Third parties (but not patients or their carers) were invited at the discretion of the practitioners. These may have included another pharmacist other than the accredited pharmacist who performed the review, another GP in the practice, or another health care professional directly involved in the patient's care. Researchers were generally

not present, unless requested to operate tape recording equipment, and where present, this is reported.

Confidentiality

Practitioners were asked to case conference by using only the first names of patients so that patient-identies were not disclosed or recorded. While GPs and Pharmacists had in their possession patient files with identifiers on them, no other parties accessed this material (eg researchers). Where the pharmacy manager, or collaborating pharmacist who may have also been present as one of the providers of the HMR service, they had full access to all data provided by the Accredited Pharmacist. Independent transcribers reported patient and participating GPs and pharmacists using only initials.

Results

Our broad thematic analysis found at least 68 major themes in the data. Each of these lend themselves to the extraction of subthemes, however, we limited the subtheme analysis to report only which practitioner expressed them, or to clarify particular dynamics, or to flesh out which particular treatments or kinds clinical decisions were being made (eg physical or mental health). The summary domains revealed in the data are:

Patient characteristics and care complexity level (Table 6.1)

Care coordination / practitioner to patient related domains (Table 6.2)

Communication dynamics when discussing HMR report (Table 6.3)

Interprofessional relationship and relationship building (Table 6.4)

Collaborative clinical decision making (Table 6.5)

Mental health treatment planning domains

Summary patient descriptors

These themes relate to the complexity of each patient's medical, social and psychiatric history and current needs. We found that the majority were patients with the more severe mental and physical health conditions. They were patients with compromising social conditions given their level of comorbidity of mental disorders. They were more often patients categorised as D, E, or F in Table 6.1. These patients clearly meet criteria for existing guidelines for referral for HMR (Table 1.3 , Chapter One).

Table 6.1: Summary patient descriptors for overall level of care needs being discussed on patient
A= Mental illness only B= Physical health only C= Comorbid mental illness D= Comorbid physical illnesses E= Comorbid physical and mental illness F= Chronic diseases and complex care patient with multiple comorbidities and needs

Care context / practitioner-to-patient related domains

The orientation of the 15 themes in Table 6.2 relate to practitioner characteristics, or practitioner to patient themes eg "I"ve known Mrs J now for 15 years and also treat her husband". They report the past and present relationship of practitioners to patients, how practitioners prefer or actually practice, why they are performing HMRs, values of practice, attitudes toward patients, who else is involved in the interview, or in the patients care. It is where practitioners report their wider knowledge of a specific patient and their social and psychiatric and medication history of patient which sometimes illuminate practitioner motivations for being involved. These themes also cover practitioners getting started, seeking engagement with each other and setting the scene for discussing in more detail a particular patient's HMR intervention.

Table 6.2 Care context / practitioner-to-patient related domains

15 themes and 17 subthemes emerged

1.Issues raised about patient being co-managed by psychiatrist or other specialist mental health service discipline
2. Case conference involved a third party
3. Mental disorder treatments
- 3.1 conventional EBM pharmacotherapy
- 3.2 conventional pharmacotherapy
- 3.3 complementary or alternative medication
- 3.4 non-pharmacological non-specific treatment or referral
- 3.5 non-pharmacological focused psychological treatment or referral

4. Treatment change being discussed in history
5. Treatment cessation being discussed in history

6. Pharmacist attitude to mental health patient
- 6.1 positive attitude
- 6.2 negative attitude
- 6.3 compassionate and interested in patient preferences and or wellbeing
- 6.4 practitioner promotes consumer self management of mental disorder

7. GP Attitude to mental health patient
- 7.1 positive attitude
- 7.2 negative attitude
- 7.3 compassionate and interested in patient preferences and wellbeing
- 7.4 practitioner promotes consumer self management of mental disorder

8. GP Attitude to mental health service
9. GP confidence in care provided for mental illness
10. Pharmacist confidence in care provided to mental health patient
11. GP discusses perceived relationship quality with patient
12. Pharmacist discusses perceived quality of relationship with patient
13. GP reports on in-depth medical and / or social history of patient
14. Practitioner confidence providing care overall (not mental health exclusively)
- 14.1 GP not confident
- 14.2 GP confident
- 14.3 Pharmacist not confident
- 14.4 Pharmacist confident

15. Pharmacist shares in-depth information about the patient in general to GP

(not from HMR)

Communication dynamics when discussing HMR report

We found 19 themes specific to the communication patterns during direct discussion between practitioners of the pharmacist findings in the HMR intervention. These are the most significant themes because they illuminate the extent to which new information comes into the conversation that may not be documented in the pharmacists' reports to GPs. The discussions also lead in most case conferences to 'joint decision making' which is facilitated by the style of communication and the relevance to the GP of what is discussed. Patterns of leadership, acceptance or rejection of information is recorded as is the use by both practitioners of external data as triangulation of information reported eg databases, literature searching, use of pharmacy prescribing databases, input by psychiatrists or third parties such as a carer or other health provider.

Table 6.3 Communication dynamics when discussing HMR report

19 themes and 2 subthemes emerged

16. GP asks pharmacist advice or opinion on a medication or patient matter
17. Pharmacist asks GP advice or opinion on a medication or patient matter
18. Pharmacists takes lead and orients discussion to a medication issue found in HMR
19. Practitioners exchange general knowledge about medications
20. Practitioners exchange general knowledge about mental illness and its treatments
21.Practitioner exchange general knowledge about physical illness and it treatments
22. Pharmacist offers specific advice, view or alternative view for consideration uninvited
23. GP considers but does not accept necessarily pharmacist view or advice (eg "I suppose I could consider it")
24.Clarification discussed about managing or interpreting patient behaviour arising from mental disorder
25.Pharmacist makes general statement of knowledge of mental illness or treatment
26.GP reflects on quality of prescribing relative to literature or data source
28. Pharmacist acknowledges in general the complexity of the case or GPs tasks
29.Small talk is engaged in to change subject or re-engage each other
36. Pharmacist clarifies or justifies HMR report, procedures, recommendations
37. GP asks pharmacist to clarify finding on medications
38. Pharmacist clarifies patient use or storage of medication found during HMR
66. Pharmacist 'backs off' – offers reassurance or confirmation of agreement with situation or opinion of GP in order to remain cooperative or engage GP
67. Medico legal issues are raised
    - 67.1 by GP
    - 67.2 by pharmacist
68. Practitioners assist one another with other issues (eg use of Medical Director software, computerisation, liaison and networks in same health district)

A significant aspect of the communication concerned ongoing patient access to HMR services, which was suggested by general practitioner and pharmacist attitudes toward providing the service for any patients, in general, and for this patient group in particular. Communications that suggest the current status of the relationship, intent to continue it and refer in future for HMRs were found. Table 6.4 shows the need for GPs to clarify how HMRs are conducted and intent to use the service again.

Table 6.4 Interprofessional relationships and relationship building
8 themes emerged 30. Indication of pre-existing relationship between GP and Pharmacist 31. Indication that relationship would continue in future (exchange of business card/details) 32. Clarification is sought by GP on Pharmacist roles in HMR or in general 33. Clarification is sought by GP on procedures for HMR or case conferencing 34. GP expresses negative attitude toward HMR 35. Role overlap or boundaries are raised between treatment roles of disciplines (GP, Pharmacists, Psychiatrist, Mental Health Services) 42. Pharmacist is defensively justifying recommendation (I was only trying to help) 55. Pharmacist complements GP on good practice or prescribing or other skill

Collaborative clinical trouble shooting or decision making

The orientation of themes in Table 6.5 is toward **joint clinical decision making** for the patient taking into account all information reported (pharmacist, patient and third party such as psychiatrist) and where the parties are clearly working together equally to arrive at an outcome. While not all joint clinical decision making suffices as 'shared care', clearly there is a sharing of information and trust to enable 'team work' between practitioners, which is usually understood in the literature to enhance care quality and reduce the potential for error and adverse events. The themes identify practitioner understanding of and working toward care planning by discussing all relevant considerations jointly, planning ongoing continuity of care, clarifying care coordination responsibilities and reviews of care, taking into account patient disablement, recovery, preferences and social factors which are relevant.

Stories that follow at the end of this chapter show that this joint decision making has both clinical significance to individual patients and potential public health importance. Such joint discussion may safeguard against medication errors, may lead to the seeking of further opinions from specialists, or may enhance patient choices of new medications.

Table 6.5 Collaborative clinical decision making in relation to HMR including discussion of patient preferences

27.Case specific shared decision making takes place (GP with Pharmacist)
39. General exchange of patient medication related behaviour or care plan or illness
40. Agreement case conference is going well or is useful
41. Identification of practice organisation or procedure of GP could be modified to avoid adverse event or medication error
43. GP accepts recommendation of pharmacist
44. GP defends practice and limits agreement as to preparedness to alter practice
45. Pharmacist admits to making error
46. Shared trouble shooting or problem solving
47.GP acts as case-coordinator
48. Practitioners jointly consider the information or view of other professional
49. Practitioners jointly consider the information or view of carer
50. Pharmacist raises patient lifestyle issues or health promotion
51. GP acknowledges pharmacist has provided new inform on pt that GP did not previously have
52. Case conference elicits more information in conversation than what is in report
53. GP confirmed knowing already what pharmacist reports on pt symptoms, use of meds
54. Exchange of information on patient health literacy, or pt preferences in treatment plan
56. Hospitalisation is discussed concerning physical illnesses
57. Hospitalisation is discussed concerning mental illnesses
58. Pharmacist reports making a recommendation for nurse/professional other than GP
59. GP acknowledges that pharmacist has knowledge that other team members may not
60. GP reads report whilst pharmacist speaks to it, or merely acknowledges what pharmacist reports but with no further detailed statement (eg “yep, OK, good, yes, fine”)
61. GP discusses care plan or patient’s wishes /preferences arising from HMR
62.GP states that he/she found HMR report useful
63. GP reports positive patient attitude or experience
- 63.1 toward HMR
- 63.2 toward other pharmacist intervention

64. Pharmacist discusses finding that patient won’t dispose of medicines when advised
65. Practitioners engage in small talk intended to terminate the interview
69. GP takes lead and moves onto the next patient/case for discussion.

Duration of case conferences

The mean duration of the face-to-face case conferences was 9 minutes 54 seconds per patient (range 1 minute 45 seconds to 45 minutes 15 seconds).

This time represents a very significant increase in the duration of inter-professional contact that normally takes place through telephone communication. In an earlier study conducted by Chen et al (1999) the authors found that the average duration of telephone discussions between community pharmacists and GPs was 73 seconds per intervention.

The duration of case conferences should be interpreted in the context in which they were conducted. For example, case conferences that took place at the specially organised case conference meeting were generally longer (mean 20 minutes 52 seconds per patient) than those that took place in the GP surgeries. This may have been because for those case conferences conducted in the GP surgeries often it was only possible to make a half hour appointment. GPs and pharmacists were therefore forced to condense their patient discussions into the time available. Pharmacists and GPs would typically discuss 4 to 5 patients per half hour case conference session.

Reasons for securing only half hour appointments included the fact that GPs had heavy schedules of patient bookings and that the pharmacists were only able to take limited time away from their businesses (often in their lunch break).

In-depth discussion occurred most frequently when GPs were presented with the written HMR report at the case conference for the first time. The pharmacist then explained their findings and recommendations and gave justifications. These justifications often resulted in the pharmacist providing additional information to that presented in the written HMR report, and in several cases led the discussion in new directions. In the minority of conferences at which GP had previously reviewed the written report the discussions tended to be shorter and involve less interaction. In cases where GPs had accepted the recommendation already they rarely sought additional clarification or justification.

Qualitative analysis of case conference discussions

Dialogue in the case conference interactions was two-way and interactive. An earlier study of 23 GP-pharmacist case conferences conducted at The University of Sydney revealed that 69% of dialogue in GP-pharmacist case conferences was from the pharmacist (Roberts et al., 2002).

GPs were asked to bring their case notes to the case conferences and often adjusted their care plans and made annotations to the case notes after discussion with the pharmacists.

The HMR findings and recommendations made up most of the discussion, however, the case conferences also provided an opportunity to discuss matters not covered in the written HMR reports. The case study presented in this chapter illustrates how this occurred.

For those HMR findings and recommendations that were discussed at the case conferences there was an extremely high level of GP acceptance. This may have been because the pharmacist had an opportunity to provide further background information and justification for their statements.

Discussion of themes presenting in the case conferences

The following statements provide some examples of the types of discussions that took place in the case conference discussions. The discussion focused on patient, professional and clinical issues.

Patient issues raised

Pharmacists commonly provided a patient perspective and additional information to the GPs relating to how the patient was using their prescribed medications:

> *GP: I didn't think she was still on Stilnox because I haven't prescribed that for a long time.*
> *Pharmacist: But she still has it there*
> *GP: That's interesting*

Pharmacists also presented information relating to dosage discrepancies:

> *GP: It's interesting because on my list I have 3 morning and 3 at night. So I'm wondering whether her psychiatrist made this change and I didn't even know about it.*

There was evidence that patients were prepared to discuss issues relating to their knowledge, beliefs and adherence to medications with the pharmacist that they may not have been prepared to discuss with the prescribing GP. This included information relating to complementary medicines:

> *Pharmacist: She used complementary therapies for a few days on then a few days off.*
> GP: Are they working?
> *Pharmacist: Obviously it resolves*
> GP: *Oh it's interesting because she hasn't mentioned that to me.*

Adherence to psychotropic medications was another topic that patients discussed openly with the pharmacist.

> *Pharmacist: He said that he usually took two in a day [Zyprexa 10mg tablets] approximately three times a week. Otherwise he was only having one 10mg tablet a day.*
> *GP: He'd never tell me that!*

Pharmacists were also able to identify potential adverse drug reactions that the patient may not have thought to discuss with their GP.

> *GP: She never mentioned her sore mouth to me. If she had I would have suspected an adverse drug reaction because I had another lady with a sore mouth on Efexor.*

The case conferences also demonstrated that the pharmacist had been able to gain an insight into the patients' beliefs about their medications in some of the conversations that transpired.

Pharmacist: I've put down there on the report that she's amenable to current drug therapy. The psychiatrist wants to change her onto something like Nardil but she's got a very strong idea in her mind about the side effects of Nardil
GP: That's her perception, because she feels that the psychiatrist is angry with her for not taking on her recommendation.

Professional issues raised

GPs often sought the professional opinion of the pharmacist in relation to a range of issues:

GP: Do you think she would find it offensive to use something like a Webster pack…is she too young and would get defensive?

Pharmacists also asked the GPs about their opinions of a range of treatment issues:

Pharmacist: What's your view on a 78 year old with benzodiazepine withdrawal?

Pharmacists demonstrated the desire to find out more about the care networks in the community for people with mental illnesses and how patients could gain access to them.

Pharmacist: I am not that familiar with some of the outside [community mental health] services.

Other discussion related to the actual mechanics of conducting HMRs and case conferences.

Pharmacist: I'm the accredited pharmacist but the DMMR referral has to go to the preferred community pharmacy. The people need to nominate who their pharmacist is.

Clinical issues raised

Discussion around the selection of medications was a major point of discussion at all the case conferences:

Pharmacist: If they are susceptible to increased weight…and also towards type II diabetes…they are some of the factors that may preclude the use of olanzapine.

The potential of specific medications to cause adverse reactions and the ongoing monitoring required to detect these potential reactions was also a frequent topic of discussion:

GP: It is interesting…I wasn't aware that Lisinopril could increase urinary tract infections.
Pharmacist: Yes. It's only Lisinopril that I know of that does it.

Drug-drug interactions were an area where GPs recognised the experience and knowledge of the pharmacists:

GP: I think you said serotonergic syndrome; I thought that was more of a problem with SSRIs, but can it happen with moclobemide as well?

Pharmacist: Apparently this is a problem with the combination of these two.

Case example

The following is a copy of the written HMR report for Mr GJ. There were 4 findings and recommendations documented on the HMR report. The subsequent case conference encompassed a wider variety of topics with additional information volunteered by both pharmacist and GP.

The potential benefits of conducting the case conference discussion were not limited to the patient being reviewed but were generalised to other patients. The significance of the latter is that case conferencing facilitated a mutual learning exchange as discussed in Chapter 3. The case conference discussion also allowed for justification of the findings and recommendations made in the report, and for both professionals to provide additional information relating to their observations made.

Finding	Recommendation
1. Recommended daily dose of moclobemide is 450-600mg daily in divided doses, currently taking 300mg/day (AMH).	Review moclobemide dose, may require an increase
2. Patient is unsure of current dose of moclobemide. Dispensed as 150mg bd but patient only takes 150mg in the morning.	Try once a day dose (mane) to maintain compliance. Reinforce correct dose and increase if required.
3. Amiodarone and diltiazem adversely effect sinus node function and may cause bradycardia (MIMS).	Use combination with caution. Monitor cardiac function.
4. Mild renal impairment (creatinine clearance is 33ml/min). Vioxx is not recommended in patients with renal impairment (MIMS).	Monitor renal function. Consider Panamax prn if knee pain has settled.

The reviewing pharmacist provided additional information about the patient's potential non-adherence to the prescribed medication that was not described the written report:

Pharmacist: I said "are you remembering to take these?" and he said "I mostly do if Jess reminds me." If Jess wasn't there I'm sure he'd just forget most of the time.

The case conference was also an opportunity to discuss and clarify the diagnosis of depression:

Pharmacist: I not actually sure at what point he became depressed; I gather it was mostly after his knee operation.
GP: That's a tough question because he's one of those fellows who comes in complaining about being tired and you can find little other cause. I don't think he

has any frank overt signs of depression, but has he had a really good therapeutic dose and trial is a very good question.
Pharmacist: He comes in saying that he is really tired and has writer's block. But when I went down there [to the retirement village] he was really enthusiastic and perky, he introduced me to everybody he could find.

The case conference was also an opportunity for the pharmacist and GP to discuss wider issues relating to patient care. The pharmacist used the case conference as an opportunity to ask about the GP's opinion of a pain clinic (not referred to in HMR report):

Pharmacist: His pain control is still bad I think. I don't know what your experience with the pain clinic is?
GP: Yep, he's been to the pain clinic
Pharmacist: Do you get good results from the pain clinic?
GP: I think a lot of people go to the pain clinic with the expectation that they are going to wave a magic wand and their pain is going to disappear, but a lot of the strategies they use at the pain clinic are getting people to look at new ways to cope with their pain rather than cure it. So a lot of people come away disappointed.

The pharmacist also provided extra information to the GP not described on written HMR report relating to complementary medicines:

Pharmacist: Also I'm not sure if you are aware of his vitamins and minerals but he takes a few different ones. The Macuvision actually has reasonably good evidence Blackmores multivitamins he just takes occasionally cause he thinks he should be taking a multivitamin.

Health practitioner satisfaction with HMRs and case conferences

Some health practitioners expressed in their discussions, a satisfaction with the case conferences conducted, and many, reported a willingness to continue this model of practice once the project is over.

One GP commented on the poor quality of HMR reports from another HMR provider:

GP: I like these reports very much, I've got your reports and I've got reports from other pharmacists. I can show you one from another pharmacist that is a stinker. It's the worst possible report I've ever received. It's not worth its weight.

One GP recognised the level of professionalism demonstrated by the pharmacist:

GP: What I have found is that all your information that is being given to the patient meets all the evidence that is available at the moment, and you're not prescribing or suggesting things that are not evidenced based. That's very much appreciated by me.

Some pharmacists reported appreciating the case conferences as a mechanism of receiving feedback about the reviews they have conducted:

Pharmacist: I send off my reviews but I never hear back about what you liked and didn't like – it's great to know that you're actually implementing some of my recommendations.

Pharmacists also recognised the value of the case conferences as a valuable way to build rapport and to learn what each GP would like from the review:

Pharmacist: One GP said to me that I'm only interested in medication interactions and side effects, but another GP said that he would go crazy if he read about more interactions. He was more interested in lifestyle and compliance issues.

Pharmacists also used the opportunity to ask what style of report the GP would like to receive and sought to justify their style of report writing:

Pharmacist: What I find hard, I mean, knowing what to leave out and what to put in, because what I feel is not important, might be crucial. That's why I put everything in.

Pharmacists used the opportunity to ask the GP for the feedback they have heard from the patients who have received the home visits and medication reviews:

Pharmacist: What are their comments on the reviews, are they…?
GP: *They've been good…you're making them feel important…empowered by the process…it makes them think about their medications.*

Conclusion

The themes revealed in the data are numerous and are clinically relevant to the clinical education and quality improvement of professional practice for community pharmacists providing HMRs, and for GPs for their day-to-day care of patients identified with mental disorders.

Specifically, of the 68 themes we identified in the earlier part of this chapter, the following is a list are themes which directly answer our research question as to whether or not case conferencing adds value to the practitioner and patient outcomes of a HMR. These are themes, which suggest that case conferencing enhances the processes within the inter-professional relationship:

Theme 30. Indication of pre-existing relationship between GP and Pharmacist

Theme 31. Indication that relationship would continue in future (exchange of business card/details)

Theme 32. Clarification is sought by GP on Pharmacist roles in HMR or in general

Theme 33. Clarification is sought by GP on procedures for HMR or case conferencing

Theme 34. GP expresses negative attitude toward HMR

Theme 35. Role overlap or boundaries are raised between treatment roles of disciplines (GP, Pharmacists, Psychiatrist, Mental Health Services).

While Theme 34 is negative, it is important that such an opinion be raised for mutual discussion and presents the opportunity for the pharmacist to provide clarification

and information or research evidence to refute the negative opinion. Such negative opinions are potential barriers to patient access to the service and are thus of critical public health importance.

Further themes directly answering our research question, this time about inter-professional communication about patient characteristics and disease state knowledge were:

Theme 19. Practitioners exchange general knowledge deficit on medications

Theme 20. Practitioners exchange general knowledge about mental illness and its treatments

Theme 21.Practitioner exchange general knowledge about physical illness and it treatments

Theme 22. Pharmacist offers specific advice, view or alternative view for consideration (by GP) uninvited

Theme 23. GP considers but does not accept necessarily pharmacist view or advice (eg “I suppose I could consider it”)

Theme 24. Clarification discussed about managing or interpreting patient behaviour arising from mental disorder.

These themes go to the heart of the matter of making mental health care, a complex treatment area, more manageable through supportive inter-professional collaboration.

Finally, the most crucial themes which suggest significant, clinically relevant positive enhancements in the processes of care following a HMR that is communicated about through case conferencing were in Table 6.5. These demonstrated that case conferencing permitted (provisional) mutual clinical decision making about how care planning might be undertaken with the patient. Almost all the themes in Table 6.5 suffice, but key examples are repeated here:

Theme 27.Case specific shared decision making takes place (GP with Pharmacist)

Theme 39. General exchange of patient medication related behaviour or care plan or illness

Theme 40. Agreement case conference is going well or is useful

Theme 41. Identification of practice organisation or procedure of GP could be modified to avoid adverse event or medication error

Theme 43. GP accepts recommendation of pharmacist

Theme 44. GP defends practice and limits agreement as to preparedness to alter practice

Theme 45. Pharmacist admits to making error

Theme 46. Shared trouble shooting or problem solving

Theme 48. Practitioners jointly consider the information or view of other professional

Theme 49. Practitioners jointly consider the information or view of carer

Theme 51. GP acknowledges pharmacist has provided new inform on pt that GP did not previously have

Theme 52. Case conference elicits more information in conversation than what is in report

Theme 53. GP confirmed knowing already what pharmacist reports on pt symptoms, use of medications

Theme 54. Exchange of information on pt health literacy, or pt preferences in treatment plan

Theme 58. Pharmacist reports making a recommendation for nurse/professional other than GP

Theme 59. GP acknowledges that pharmacist has knowledge that other team members may not

Theme 60. GP reads report which pharmacist speaks to it, or merely acknowledges what pharmacist reports but with no further detailed statement (eg “yep, OK, good, yes, fine”)

Theme 61. GP discusses care plan or patient’s wishes /preferences arising from HMR

Theme 62.GP states that he/she found HMR report useful

Theme 63. GP reports positive patient attitude or experience

Theme 63.1 toward HMR

Theme 63.2 toward other pharmacist intervention

These themes were repeated again and again in many of the case conferences. These case conference data (example quotations from the case conferencing participants) suggest that case conferencing add significant value and that this value is of public health importance.

The case conference was also an opportunity for the pharmacist and GP to discuss wider issues relating to patient care. The pharmacist used the case conference as an opportunity to ask about the GP’s opinion of a pain clinic (not referred to in HMR report).

The case conference discussion also allowed for justification of the findings and recommendations made in the report, and for both professionals to provide additional information relating to their observations made.

CHAPTER SEVEN - SUMMARY AND RECOMMENDATIONS

Care plans and case conferences are relatively new primary health care services designed to improve health outcomes for patients with complex chronic care needs. Under the Commonwealth Government's Enhanced Primary Care (EPC) programme General Practitioners (GPs) are remunerated for their involvement in these important services. The EPC programme stipulates that these services must involve at least two other health care professionals, only one of whom may be another medical doctor. It seems logical, therfore, that pharmacists could be ideal primary health care participants in case conferences and care plans, because of their expertise in medication management.

Interestingly, whilst the uptake of care plans has increased rapidly (with 155,486 claimed in 2001) the uptake of case conferences has been slow (11,095 claimed for the same period) (Mitchell et al, 2002). The idea for this project was to evaluate the contribution pharmacists can make through participation in post-HMR case conferences.

This report contains an analysis of case conference meetings and HMRs undertaken by community pharmacists and GPs in Sydney. This analysis is contextualised through a discussion of interprofessional communication (Chapter One); a narrative literature review of adult mental disorder in primary care (Chapter Two); a discussion on community pharmacists as contributors to primary mental health care (Chapter Three); a quantitative analysis comparing case conferencing post-Home Medicines Review (HMR) with standard (fax-back/written report) HMR (Chapter Five); and a qualitative analysis of actual case conference meetings between community pharmacists and GPs (Chapter Six).

Since the introduction of HMRs in Australia in 2001, little research has been undertaken on their benefits for specialised patient groups, such as mental health patients. There is a lack of research on how to best deliver HMR services for specialised, specific patient groups. Furthermore, a detailed understanding of the necessary strategies and incentives for the uptake of HMR referrals by GPs for specialised patient groups, participant outcomes for specialised groups, including satisfaction of patients and practitioners is not known. This study is the first study in Australia to focus specifically upon case conferencing in relation to HMRs and the first to attempt to apply HMRs to mental health care. The overall research question for this study was to determine if case conferencing between GPs and Community Pharmacists about a Home Medicines Review enhance outcomes for patients and the participating health practitioners when compared to a standard (eg fax-back or written) Home Medicines Review?

Few or no data are available in Australia on what collaborative activities pharmacists undertake with other health care practitioners (public and private psychiatrists, GPs, nurses, case managers) for patients with mental disorders. That is, the extent of sharing of complex information regarding the multi-modal management of consumers with mental disorders is not known. Therefore a secondary aim of this study was to explore and provide a basis for the increased role of community pharmacists in the management of consumers with mental disorders.

This report is intended to be read by pharmacy, general practice and mental health policy, clinical, research and consumer stakeholders.

A prospective cluster randomised comparative two group intervention study was utilised. This design was used so that key project question could be tested, that is whether face-to-face case conferencing between GPs and Community Pharmacists about a Home Medicines Review enhance outcomes for patients and the participating health practitioners when compared to a standard (eg fax-back or written) Home Medicines Review. The original study design was a prospective cluster randomised comparative three group intervention study, where group three was a prospective control. Due to data capture difficulties associated with the control group (arm three), it was not possible to collect any (meaningful) control data and so the focus of data collection was for the two comparative arms of the trial (Arms 1 and 2).

The intervention in Arm 1 comprised HMR followed by a face-to-face case conference meeting between the pharmacist and GP. The intervention in Arm 2 involved HMR followed by "usual" means of communication about the HMR report (eg written or fax-back) beween the pharmacist and GP. Pharmacists and GPs from four metropolitan Divisions of General Practice in Sydney were recruited to this study.

Originally, the intervention involved pairs of GPs and Pharmacists delivering Home Medicines Reviews (HMRs) to 5 patients with an ICD10-defined mental disorders. However due to the considerable delays in the recruitment of patients with an ICD10-defined mental disorder, and in order to answer the principal research question concerning case conferencing benefits post-HMR, relaxation of the entry criteria to include patients with any illness was sought from and approved by the Funding Body (Interim Report September 2003).

The key data collected and presented in this report are:

7. HMR data for Arms 1 and 2 – quantitative analysis
    a. Number of participants (GPs, pharmacists, patients)
    b. Number of findings and recommendations per HMR
    c. Acceptance rate of HMR recommendations
    d. Action rate of HMR recommendations
8. Case conference data for Arm 1
    a. Number of case conferences
    b. Duration of case conferences
    c. Thematic analyses of case conferences
9. Mental health literacy data for pharmacists

A total of 89 HMRs were conducted for 89 consumers (n=44 consumers in Arm 1 and n=45 in Arm 2). The mean age for participants in each of the groups was 66 years and 74 years respectively. A total of 866 medications were being taken by these consumers (mean=9.7 per patient). In addition to psychotropic medications which accounted for 15.1% of all medications (131/866), other commonly used medications were for cardiovascular conditions (24.3%), gastrointestinal (9.4%) and analgesic medications (8.9%).

A mean of 1.73 mental health diagnoses were made for each patient recruited to Arm 1 and 1.47 for Arm 2. The most frequent mental illnesses in both groups were depression, sleep disorder and anxiety. Other diagnoses included manic depression/bipolar disorder, post-traumatic stress disorder and schizophrenia.
The most frequent physical comorbidities were hypertension, hypercholesterolaemia and hyperlipidaemia, osteoarthritis, osteoporosis, ischaemic heart disease, type two

diabetes and asthma/chronic airways limitation. The pattern of physical comorbidities was strikingly similar in both groups.

A total of 601 HMR findings (potential problems) were documented by pharmacists in the 89 HMR reports. The overall mean number of findings (identification of potential problem) documented per HMR was 6.8. The mean number of findings per HMR in Group Arm 1 was 7.7. This compares to a mean of 5.8 in Arm 2.

A total of 521 HMR recommendations (potential solutions) were documented by pharmacists in the 89 HMRs. The overall mean number of recommendations documented per HMR was 5.9. The mean number of recommendations per HMR in Arm 1 was 7.0. This compares to a mean of 4.7 in Arm 2.

In Arm 1, there was a high rate (92%; 252 of 274 recommendations) of GP acceptance of pharmacists HMR recommendations following the face-to-face case conferences meetings. Few recommendations were rejected by GPs. It was hypothesized that this was due to the opportunity for face-to-face interprofessional discussion between the GP and pharmacist. This discussion allowed for dialogue about a broad range of clinical issues documented in the HMR report. Specifically there was dialogue about the rationale and evidence behind specific findings and recommendations. In interpreting this data it is important to recognise that the high acceptance rate does not necessarily reflect a high action rate by GPs. It is likely, however that a high action rate would follow a high rate of acceptance of HMR recommendations. The rates of acceptance are comparable with acceptance rates reported in other mental health medication review projects involving case conferences. For example, in a study of pharmacist recommendations made in case conferences in a community mental health team in the United Kingdom, 91% of recommendations were accepted and actioned, and just 3.5% rejected (Kettle et al, 1996). Based on other Australian data, where the action rate of pharmacist recommendations was 42% (Gilbert et al., 2002), the action rate for group one was estimated to be 106 of 274 recommendations (38%).

In Arm 2, a Medication Management Plan (MMP) was returned to the community pharmacy in only 11 of the 45 HMR cases (24%), although this is required by the HIC. A total of 60 recommendations were documented in these HMRs. The documented action rate (per MMP) was a little less than one in five recommendations (18%; 11 of 60 recommendations). This is lower than the rate of action for group one, estimated to be 38% (109 of 274 of recommendations).

It is noteworthy that the estimated action rate for Arm 1(where a case conference meeting was conducted in all cases post-HMR) was approximately double the action rate for Arm 2 (18%). This suggests that the impact of the pharmacist on HMR, as measured by uptake and implementaion of HMR recommendations is greater if a case conference meeting occurred post-HMR. Overall, this means that the overall estimated implementation rate for pharmacist HMR recommendations was 35.9% (120 of 334).

Analysis of case conference meetings demonstrated a number of important findings such as the notion of joint decision making, discussion about general therapeutic areas not directly related to the HMR report, and discussion about specific medication issues not included in the HMR report.

Post-HMR case conference enable pharmacists to “add value” to the HMR report through explaining “the thinking” behind their recommendations and also provides an opportunity for pharmacists to receive direct feedback on their HMRs. Similarly GPs

have the opportunity to explain to pharmacists the rationale for their prescribing and provide further relevant clinical information about the patient. Case conference meetings therefore provide an opportunity for dialogue between pharmacists and GPs about complex therapeutic issues, potentially resulting in a true inter-disciplinary approach to medication management. The rapport building from case conferencing is central to the sustainability of the HMR programme, as it allows both health professionals to learn more from each other and about each other.

Recommendations

1. A successful Home Medicines Review (HMR) programme requires excellent inter-disciplinary rapport between pharmacists and GPs. A case conference meeting post-HMR provides an ideal opportunity for pharmacists and GPs, who ordinarily work with each other, to identify and discuss "complex" care needs for patients with chronic diseases. It is recommended that post-HMR case conference meetings be given a higher priority by both pharmacists and GPs when conducting HMRs, especially in the initial stages of interprofessional rapport building.

2. Although case conference meetings have been described as a part of the "normal"HMR process, they are not mandatory and in practice they are generally not undertaken. This is evidenced through the HMRs conducted in the Arm 2 of this trial, in which no HMRs involved a case conference. It is recommended that direct effort in establishing case conference meetings as a standard part of HMR practice should be undertaken from both the medical and pharmacy perspectives.

3. This research has focussed on an evaluation of the value of conducting case conferences post-HMR. It is recommended that pharmacists be adequately remunerated for participation in case conference meetings under EPC. This will enhance a multi-disciplinary approach to primary health care.

4. This research has demonstrated that the HMR programme remains a relatively new and relatively poorly understood intervention for general practice and for patients, and mental health services in the study locations. It is strongly recommended that public health campaigns designed to raise the awarness of and the value of HMRs be undertaken.

5. One challenge in undertaking practice-based research involving pharmacists and GPs is the time required to deliver health interventions and complete paper work associated with data collection. It is recommended that GPs and pharmacists be paid for practice-level data collection for (mental health) research that requires extensive data collection by health practitioners. This may help facilitate timely data collection and may be a more cost effective method compared to data collection directly by researchers.

6. It is recommended that future HMR studies investigate both the documented action rate (per MMP) as well as the acceptance rate of accredited pharmacist recommendations. These data complement each other and aid in the interpretation of the impact of pharmacist-conducted HMR.

7. It was our intention in this study to recruit pharmacists and GPs who ordinarily have a professional working relationship in the delivery of HMR services. We identified that a majority of cases (not all cases) that professional working relationships between many of the pharmacists and GPs were superficial. In

some cases pharmacists were proactive in their development of professional relationships with their GPs, however, in general, pharmacist 'collaboration' with GPs was tentative and reserved. Accordingly, pharmacists were less able than expected to facilitate GP recruitment and subsequent HMR referrals. It is therefore highly recommended that significant effort be placed on the development of better professional working relationships between pharmacists and GPs, by all key stakeholder groups, including but not limited to professional organisations, government, universities and professional colleges. It is envisaged that at a local level, Divisions of General Practice (eg HMR facilitator) will continue to play a major role in fostering interprofessional collaborative working relationships.

8. Continuity of care and feedback after the HMR process is important to ensure positive outcomes for consumers. After GPs have received the HMR report from pharmacists, they are required to consult with the patient and draw up an HMR Medication Management Plan (MMP), including specific actions. This MMP should be signed by the patient, indicating their agreement with actions. The MMP should also be forwarded to the pharmacy/pharmacist. This trial demonstrated that pharmacists rarely receive feedback on their HMR reports via the structured HMR Medication Management Plan (eg 11 of 45 cases in Arm 2). In the view of the authors, this feedback is essential if pharmacists are to improve their skills and rapport with GPs. It is strongly recommended that Medication Management Plans be automatically forwarded by GPs to pharmacies and that pharmacists should actively request the MMPs from GPs if they do not receive them. Pharmacies should also develop record keeping systems for storage and retrieval of MMPs, as well as all other documentation associated with the HMR process. This is very important because MMPs form an imporant data source for evaluating the impact of HMRs.

9. In this study there appeared to be a wide variability in standard of HMR reports generated by pharmacists. It is therefore recommended that on-going training programmes and continuing education be made available for all pharmacists undertaking HMRs.

10. It is likely that the impact and overall quality of HMRs could be improved through better transfer of relevant clinical information between pharmacists and GPs. Prescription writing software (eg Medical Director) allows GPs to generate a template for a HMR referral or MMP. These templates may be tailored by the GP. For example the section on the indications for the HMR (or the reasons for the HMR) should be completed. In many cases this information was lacking. It is therefore recommended that GPs include all relevant information on HMR referrals and that pharmacists contact GPs prior to conducting HMRs if relevant information is not provided.

11. A relative strength of pharmacist conducted HMRs is the important role (of the pharmacist) in ascertaining a comprehensive list of medications consumed by patients. Pharmacist play a significant role in identifying medcations (prescribed, non prescription and complementary and alternative medicines) taken by consumers through the conduct of home interviews. In this study, pharmacists in Group One identified a statistically significantly ($p=0.002$) higher number of medications per patient than GP records. On averge, an extra 1.4 medications per regimen was identified by pharmacists. This highlights the important role pharmacists play in conducting comprehensive HMRs.

APPENDICES

Appendix 1: Summary of 19 pharmacy professional services identified in systematic review

Appendix 2: Standards for mental health skills training in the Better Outcomes in Mental Health

Appendix 3: HIC Percentage uptake of GP sign-on for new Better Outcomes in Mental Health Service Incentive Program (SIPs) by jurisdiction in Australia

Appendix 4: Schema of interventions

Appendix 5: Recommendations from the literature for the refinement of EPC incentives to include Case Conferencing.

Appendix 6. Coding Frames for Quantitative Analysis

Appendix 7: Proposed Evaluation Measures

Appendix 8: Summary of Outcomes from Recruitment Strategies

APPENDIX 1: Summary of 19 pharmacy professional services* identified in systematic review by Roughead, Semple & Vitry (2002) [1]

PROFESSIONAL SERVICE	NO. LEVEL 1 STUDIES[2]	NO. LEVEL 2 STUDIES
Pharmaceutical care services	20	6
Continuity of care services	9	1
Pharmacist clinic services	2	5
Pre-admission clinics	0	1
Medication review for repeat prescriptions	2	0
Medication review in aged care facilities	3	2
Medication review in the outpatient setting	2	
Pharmacist services providing education to patients/consumers	16	1
Education services for health care professionals	9	9
Drug information services	0	0
Pharmacist participation in therapeutic decision making	2	0
Pharmacists involvement in non-prescription medicine use	1	0
Smoking cessation services	3	0
Pharmacist advocacy for immunisation services	2	0
Pharmacist administration of vaccines	0	0
Hospital in the home	0	0
Interventions	0	0
Screening	0	0
Monitoring	2	0
Total	**73**	**25**

* Where no study is reported, it is because an intervention or role of pharmacists is reported in the literature without an experimental study design.

1. Roughead L, Semple S, Vitry A (2002) The Value of Pharmacist Professional Services in the Community Setting. A systematic review of the literature 1990-2002. Quality Use of Medicines and Pharmacy Research Centre, School of Pharmaceutical, Molecular and Biomedical Sciences, University of South Australia.

2. (our reference added to original table) NMHRC 'levels of evidence' derived from US Preventive Services Task Force (1989) Guide to clinical preventive services: an assessment of the effectiveness of 169 interventions (ed M Fisher), Williams and Williams, Baltimore.

APPENDIX 2: Standards for mental health skills training in the Better Outcomes in Mental Health

Appendix A in Better Outcomes in Mental Health Care Familiarisation Training Manual. (Learning outcomes of the Skill-Based training required for registration for Incentive Payments under the 3-step Mental Health Process in GP care).

The Mental Health Assessment

1. Skills in detecting common, disabling and treatable mental health disorders in general practice (eg identifying mental disorders in patients with chronic medical problems)
2. Understanding of the need for systematic assessment including interview skills, history taking, mental status assessment, risk assessment and co-morbidity
3. Understanding the epidemiology and aetiology of mental health conditions and the complexities of comorbidity
4. Understanding of contextual issues – time limitations, competing demand and undifferentiated clinical presentations in recognition and treatment of mental health disorders
5. Appropriate use of psychometric instruments (eg screening and severity rating scales) to aid assessment and identify a baseline of severity of the disorder against which improvement or deterioration can be assessed.
6. Capacity to reassess people with a known mental health disorder in their care
7. Ability to transfer generic knowledge and skills across the range of patients and disorders.

The Mental Health Plan

8. Ability to negotiate a shared understanding of a mental health problem with consumers that culminates in an agreed mental health plan.
9. Knowledge of the appropriate use of effective pharmacological and psychological therapies for treatment of common mental health disorders
10. Understanding and knowledge of the importance of consumer and carer education; use of accurate and consumer friendly education materials about common mental health problems.
11. Awareness and knowledge of local specialist mental health care providers and allied health professionals from the public, private and non government sectors; commitment to working with these providers.
12. Ability to introduce self-help strategies into ongoing management.
13. Ability to transfer generic knowledge and skills across the range of patients and disorders.

The Mental Health Review

14. Understanding of the need for systematic follow-up of consumer and ongoing monitoring of mental health plan outcomes.
15. Knowledge of how to assist people with mental health disorders with self-monitoring strategies to increase proactive steps in response to early warning signs.
16. Knowledge of how to assist people with a mental disorder to develop a personal relapse prevention plan.
17. Ability to transfer generic knowledge and skills across the range of patients and disorders.

APPENDIX 3: HIC Percentage uptake of GP sign-on for new Better Outcomes in Mental Health Service Incentive Program (SIPs) by jurisdiction in Australia

Source: Health Insurance Commission website.

The right hand column shows update of BOMH (sign on for training) in the first six months since introduction in July 2003 as percentage of eligible GPs. Uptake at December 2003 is around 20% sign-on (Groom, G in response to the Red Tape Taskforce Report on Financing General Practice in Mental Health Council of Australia Newsletter, December 2003).

PIP Mental Health provider participation by State Divisions

February 2003 Payment Quarter		Sign on	Mental Health SIPs	
State Divisions	Total number PIP providers	Number of eligible providers*	Number of SIPs	% Eligible providers* receiving SIPs
NSW Divisions	6,409	701	516	15%
VIC Divisions	5,793	771	619	17%
QLD Divisions	4,073	438	333	18%
SA Divisions	2,166	313	251	17%
WA Divisions	2,240	357	241	18%
TAS Divisions	689	76	74	13%
NT Divisions	172	12	11	*
ACT Division	375	21	*	*

* The number of providers is based upon the number of eligible providers listed against PIP practices as data on location is only available for PIP

PIP Mental Health coverage by RRMA

February 2003 Payment Quarter	RRMA 1	RRMA 2	RRMA 3	RRMA 4	RRMA 5	RRMA 6	RRMA 7
PIP providers	13,606	1,584	1,442	1,613	3,130	257	285
Eligible - providers*	1,608	166	202	257	417	21	18
SIP	1,434	78	118	240	174	7	*

* The number of providers is based upon the number of eligible providers listed against PIP practices as data on location is only available for PIP

APPENDIX 4: Data Collection Forms

- **GP Mental Health Assessment and HMR Referral Form**
- **Pharmacist Interview Guide Pharmacist**
- **HMR Report Form**

GP Mental Health Assessment and HMR Referral Form

While you are completing this form you may ask the patient to fill in their GHQ and COOP instruments

Patient name:	**GP name :**
Patient code:	**GP code:**

For patient and GP code, please use the initials followed by a two digit number eg Mary Smith would be MS-01

Assessment date:		**Patient year of birth:**	
Patient weigh:t		**Patient height:**	
Gender:		**Blood pressure:**	

Presenting problems:
1
2

Provisional diagnoses – current mental disorder:
1
2
Other diagnoses:
3
4
5

Mental Health History / Treatment	**Social History / Lifestyle Factors**
	Married □ Single □ Divorced □ Separated □ Employed? FT□ PT □ Home duties □
Allergies (include nature of reaction)	**Surgical and/or Medical History**

Risk Assessment		**Key family contacts / support**
Self-harm?		
Other?		

Could patient benefit from and agree to HMR review by pharmacist?
Yes □ No □ Pt-preferred Pharmacy: (please obtain written consent from patient) Ph: Fax

Specific issues GP would like Pharmacist to address (if applicable)
1
2

Current Drug Therapy	Directions
1	
2	
3	
4	
5	
6	
7	
8	
9	

Recently ceased medications	Directions
1	
2	
3	

Relevant biochemistry and test results

Test	Range	Date	Date	Date	Date	Date	Date	Date	Date	Date	Date
Sodium											
Potassium											
Bicarb											
Urea											
Creatinine											
Uric acid											
Hb											
Glucose											
HbA1c											
INR											
TSH											
fT4											
fT3											

Any other tests to be added ***HMR Review Date***_____

PLEASE FAX THIS FORM TO THE PHARMACIST AND PUT A COPY IN THE PATIENT'S FILE

Pharmacist Patient Interview Form

This form is to be used as guide to the interview. Other issues may also be important to the patient

Pharmacist code	**GP code**	**Patient code**

Date of assessment

Problems administering any medication

Consumer complains of:

□ Constipation □ Diarrhoea □ Drowsiness □ Headaches
□ Insomnia □ Nasal congestion □ Nausea □ Pain
□ Rash □ Tinnitus □ Urticaria □ Vomiting
□ Other please specify

Medication for pain	**Medication for sleep**

Administration techniques check (if appropriate eg inhaler technique)

Adherence Assessment (adapted from Morisky et al)

1. ***Do you ever forget to take your medicine? Yes / No***
2. ***Are you careless at times about taking your medicine? Yes / No***
3. ***When you feel better do you sometimes stop taking your medicine? Yes / No***
4. ***Sometimes if you feel worse when you take your medicine, do you stop taking it? Yes / No***

Yes=0 and No=1 Sum the scores for the 4 questions above. **TOTAL**_____

PRN medication

How often is the patient using medicines that were prescribed on a PRN basis?

Expiry date check on all medication

Other issues (eg OTC medicines, CAMs)

Please use additional sheet/s if necessary

For psychotropic medications only (adapted from Svarstad et al)

Please ask the patient the open-ended question "How were you told to take this medication" [Hold up the medication for which knowledge is being assessed]. Please then proceed to further assess the patient's knowledge of how to take the medication by asking the 9 questions below.
Place a tick in the boxes for questions that are answered correctly. If a question cannot be answered or is answered incorrectly explain the correct answer ("fill in the gaps") but do not place a tick in the box.

Knowledge	Medication 1 ……	Medication 2 ……	Medication 3 ……
What the medication is being used for			
The number of capsules/tablets that are to be taken at each dosing			
The frequency of the dose/s			
The time of day to take the doses			
The expected length of treatment			
A potential adverse effect from taking the medication			
What to do if an adverse effect/s or suspected adverse effect occurs			
How the medication works			
How long it takes for the medication to start work after a dose			

Please ask the patient how strongly they agree with each of the following statements. Mark the responses on a 5-point scale where 1=strongly agree, 2=agree, 3=neutral, 4=disagree and 5=strongly disagree.

Beliefs	Medication 1 ……	Medication 2 ……	Medication 3 ……
Taking this medication is a good option for me			
I would prefer a different medication			
The side effects of the medications are bothersome			
Taking this medication on a daily basis can be harmful to my body			

Please do nit forget to mail a photocopy of this completed form with your HMR report to the Faculty of Pharmacy.

Pharmacist HMR Report Form

Pharmacist code:	Doctor code:	Patient code:
Date of assessment:		

Current Medications (including OTC, CAMs, Vitamins, etc)

Name	Strength	Directions	Indication

Previous Medications (including OTC, CAMs, Vitamins, etc)

Name	Strength	Directions	Start	Stop	Indication

Renal Function	Normal	30-50ml/min	< 30ml/min	<10ml/min	Unknown
LFT	Normal	Raised (include levels above)			Unknown

Review Findings (Include relevant references)	Recommendations (Include relevant references)	Acceptance (please tick)
1		1. Accept 2. Will consider 3. Do not accept
2.		1. Accept 2. Will consider 3. Do not accept
3		1. Accept 2. Will consider 3. Do not accept
4.		1. Accept 2. Will consider 3. Do not accept
5.		1. Accept 2. Will consider 3. Do not accept
6.		1. Accept 2. Will consider 3. Do not accept
References used		

Attach extra sheets if you have more than six findings / recommendations.

Medication Adherence Assessment

Findings	Recommendations	Acceptance
		1. Accept 2. Will consider 3. Do not accept

Medication Knowledge Assessment

Findings	Recommendations	Acceptance
		1. Accept 2. Will consider 3. Do not accept

Medication Belief Assessment

Findings	Recommendations	Acceptance
		1. Accept 2. Will consider 3. Do not accept

APPENDIX 5: Barriers to participation in Enhanced Primary Care case conferencing.

Barriers	Explanation
Compliance Issues	• Complex bureaucratic requirements. • Fear of being accused of defrauding Medicare. • Reluctance to bill patients for non face-to-face services.
Workload Issues	• Unpredictable workload. • Perception that face-to-face consultations are a higher priority. • Participation is uneconomic. • Too time consuming to contact other health care providers. • Other health care professionals are not reimbursed for their involvement.
Education	• Lack of understanding about how to contact other heath-care providers. • Lack of training to work in a multidisciplinary environment. • Other health care professionals lack understanding of GPs role as main care coordinator. • Other health care professionals may not understand the purpose of case conference. • Lack of evidence about outcomes achieved from case conferences.
Cultural Barriers	• GPs perception that their contribution would not be valued. • Different work practices (eg. relating to the difficulty of finding a mutually acceptable time for meeting) • Success of conference dependent on personalities of participants.
Patient Factors	• Patients may not understand benefits of the conference and subsequently feel threatened. • Patients may have language barriers that limit their communication with other health care professionals.

Suggestions about how to improve the uptake of case conference enhanced primary care conferencing

- Employ a project officer to facilitate uptake.
- Peer education strategies.
- Better use of IT to contact community health care providers.
- Hospitals to encourage GPs to participate in discharge planning.
- Continuous feedback and evaluation to policy makers and other GPs.
- Divisions of General Practice to conduct regular meetings of GPs and other service providers.
- Education of non-medical practice staff to help coordinate participation.
- Build case-conference reminder systems into medical software.
- Further undergraduate and postgraduate training in multidisciplinary collaboration.
- Enable allied health professionals to perform clinics or consultancies in GP surgeries.
- Encourage a range of health professionals to identify patients who would benefit from multidisciplinary case conferences
- Match treatment goals to various team members/professions.
- Change the criteria for remuneration of medical and allied health professionals.

APPENDIX 6: Coding Frames for Quantitative Analyses

Pharmacist medication review recommendations

1. Add medication
2. Additional or ongoing monitoring required (including clinical biochemistry)
3. Advise patient about administration technique
4. Change medication dosage form
5. Change dose of medication
6. Change medication
7. Change duration of therapy
8. Change route of administration
9. Change dosing schedule (e.g. bd to tds)
10. Change time of administration (e.g. in respect to food)
11. Confirm diagnosis
12. Confirm dose of medication
13. Counsel patient or provide extra information to patient
14. Discontinue medication
15. Investigate sign, symptom or ADR
16. Monitor adherence
17. No recommendation
18. Investigate patient reported diagnosis
19. Suggest medication aid or device (including blister pack)
20. Use non-pharmacological therapy
21. Confirm or clarify medication order
22. Refer to another health care professional

The above classification was adapted from that used in the St George/Canterbury Domiciliary Medication Review Project

Medications classes

1. Medications for allergy and anaphylaxis
2. Anaesthetics
3. Analgesics
4. Antidotes and antivenoms
5. Anti-infectives.
6. Cardiovascular
7. Coagulation/blood formation
8. Dermatologicals
9. Ear, nose and throat
10. Endocrine
11. Eye
12. Gastrointestinal
13. Genitourinary
14. Immunomodulators/Antineoplastics
15. Musculoskeletal
16. Neurological
17. Obstetric and gynaecological
18. Respiratory
19. Vaccines and immunoglobulins
20. Tricyclic and tetracyclic antidepressants
21. Monoamine oxidase inhibitors
22. Reversible inhibitors of monoamine oxidase A
23. SSRIs
24. Other antidepressants
25. Conventional antipsychotics
26. Atypical antipsychotics

27. Mood stabilisers for bipolar disorder
28. Benzodiazepines
29. Other anxiolytics and hypnotics
30. Drugs for ADHD
31. Drugs for alcohol dependence
32. Drugs for nicotine dependence
33. Drugs for opioid dependence
34. Vitamins and OTC Herbal medications
35. Other

The above classification was adapted from the Australian Medicines Handbook 2004.

Diagnoses

More detailed coding frame will be applied to an analysis of mental health care medications using categories of psychiatric diagnosis following the ICD-10 diagnostic system.

1. Allergic conjunctivitis
2. Allergic rhinitis
3. Anaemia
4. Angina
5. Anxiety depression
6. Anxiety
7. Aortic valve stenosis
8. Atherosclerosis
9. Asthma
10. Atopic dermatitis
11. Atrial fibrillation
12. Atrophic vaginitis
13. Back pain
14. Bladder dysfunction
15. Bowel cancer
16. Bronchitis
17. Cancer breast
18. Cancer prostate
19. Cardiac arrhythmias
20. Cataracts
21. CCF
22. Cerebral Ischaemia
23. Chronic anxiety
24. Chronic back pain
25. Chronic bronchitis
26. Chronic cough
27. Chronic erosive
28. Chronic pain syndrome
29. COAD
30. Constipation
31. Depression
32. Depressive aggressive behaviour
33. Depressive illness
34. Diarrhoea
35. Diverticulitis
36. Dry eyes
37. Duodenal ulcer
38. Dumping Syndrome
39. Dyspepsia
40. Eczema
41. Emphysema
42. Endogenous depression
43. Epilepsy
44. Erectile dysfunction
45. Fibromyalgia
46. Fistula
47. Fluid retention
48. Fracture
49. Gastritis
50. Glaucoma
51. Glomerulonephritis
52. Gout
53. Headache
54. Hiatus Hernia
55. Hypercholesterolemia
56. Hyperlipidemia
57. Hypertension
58. Hypothyroidism
59. IDDM
60. Incontinence
61. Indigestion
62. Infection
63. Insomnia
64. Iron deficiency
65. Irritable bowel
66. Ischaemic heart disease
67. Labyrinthitis
68. Left Hemiparesis
69. Leukaemia
70. Meniere's disease
71. Meningioma
72. Menopausal symptoms
73. Migraine
74. Mitral valve dysfunction
75. Muscle pain
76. Nausea
77. Neuralgia
78. NIDDM
79. Nocturnal cramps
80. Obesity
81. Oedema
82. Osteoarthritis
83. Osteoporosis

84. Osteoporotic fracture
85. Other
86. Panic attack
87. Parkinson's disease
88. Peptic ulcer disease
89. Peripheral vascular disease
90. Pernicious anaemia
91. Polymyalgia rheumatica
92. Psoriasis
93. Pulmonary emboli
94. Pulmonary fibrosis
95. Rash
96. Recurrent UTI
97. Reflux
98. Renal failure
99. Rheumatoid arthritis
100. Schizophrenia
101. Seizure
102. Sinusitis
103. Hepatitis
104. Sleep apnoea
105. Spondylitis
106. Stress incontinence
107. Supraventricular tachycardia
108. Thrombocytopenia
109. Thyroiditis
110. Thyrotoxicosis
111. Ulcer, skin
112. Ulcerative esophagitis
113. Vasculitis
114. Ventricular dysfunction
115. Ventricular tachycardia
116. Vertigo
117. Abdominal aortic dysfunction
118. Addison's disease
119. Alcohol abuse
120. Aortic valve rep
121. Arachnitis
122. Aspergillus
123. Benign prostatic hypertrophy
124. Biliary and pancreatitis
125. Belpharitis
126. Blind loop diarrhoea
127. Cardiomyopathy
128. Carotid stenosis
129. Carpel tunnel syndrome
130. Chronic pain
131. Claudication
132. Colitis
133. Deafness
134. Debility
135. Diverticular
136. Dry skin
137. DVT
138. Ear wax
139. Flatulence
140. Gastrectomy
141. Goitre
142. GORD
143. Grover's disease
144. Hay fever
145. Heart transplant
146. Hemiplegia
147. Herpes Zoster
148. Hypocalcaemia
149. Hypopituitism
150. Inflammatory bowel disease
151. Lumbar canal ste
152. Lumbar disc
153. LV thrombosis
154. Macular degeneration
155. Mesothelioma
156. Mitral valve rep
157. Myalgia
158. Neuritis
159. Oesphageal stri
160. Otitis externa
161. Paget's disease
162. Pain
163. Palinominic rhem
164. Palpitations
165. Paranoid delusions
166. Paronychia
167. Pneumonia
168. Polyarteritis
169. Post traumatic stress disorder
170. Preventative the
171. Prostate
172. Renal transplant
173. Sciatica
174. Scleritis
175. Scelodoma
176. Shoulder pain
177. Sinus tachycardia
178. Solar keratosis
179. Tendonitis
180. T51.9
181. Tinnitus
182. Urinary frequency
183. UTI
184. Varicose veins
185. Upper Respiratory Tract Infection
186. Hepatitis C
190. Bipolar disorder

The above classification was adapted from the International Classification of Diseases – 10 (ICD-10).

Medication Review Findings

1. Additional monitoring is required
2. Additional therapy is required
3. A sign/symptom may be attributed to a specific medication
4. Doctor should be alert to a potential ADR of a specific medication
5. Patient may be non-adherent to prescribed regimen (including not taking prescribed medication at all)
6. There are contraindications to the use of a prescribed medication
7. The dose is too high
8. The dose is too low
9. Drug-allergy interaction
10. Drug-drug interaction
11. Drug-induced therapy – a medication is being used to treat a preventable ADR of another medication
12. Drug-disease state interaction
13. Drug-food interaction
14. Drug-lab test interaction
15. Suboptimal duration of regimen
16. The GP documented strength, pharmacy documented strength and/or strength taken by patient is inconsistent.
17. Extra clinical biochemistry tests required
18. No documented diagnosis for a specific medication
19. Finding provides information only (no immediate action required)
20. Clarification of dose, strength or directions required
21. Abnormal clinical biochemistry results observed
22. Specific medication should be used with caution
23. Suboptimal dosage form
24. Suboptimal dosing regimen
25. Suboptimal drug (a better medication exists)
26. Suboptimal duration of use
27. Suboptimal route of administration
28. Suboptimal storage of medication (including storage of OOD medications)
29. Duplication of therapy (two or more medications being used for same purpose, including generic duplication)
30. Unnecessary drug therapy or medication no longer required
31. Unnecessary or unused prn medication being taken but no longer indicated
32. Patient would benefit from dosage administration aid or device (e.g. blister pack or spacer)
33. There is a diagnosis for which there is no apparent therapy (pharmacological or non-pharmacological)
34. Suboptimal response to therapy
35. Suboptimal administration technique
36. Additional information is required from GP
37. Patient requires additional counselling or reassurance
38. No finding
39. Patient has an inappropriate or poor lifestyle
40. Patient is taking extra medication not documented on referral

APPENDIX 7: Proposed Evaluation Measures

Mental health functioning and quality of life
Although originally intended, we were not able to collect adequate data pertaining to mental health or quality of life.

Originally, The General Health Questionnaire (GHQ-12) and CO-OP/WONCA Charts were selected for use in this project because both instruments are a quick to administer and are validated for use in general practice settings (I have two references for this). The GHQ-12 has previously been used to monitor for psychological distress in primary mental health care in Australia (Harris, Pond et al, 1996). The CO-OP /WONCA charts have been validated for use in depression internationally and have been used in several earlier domiciliary medication management review (DMMR) through the University of Sydney. The selection of instruments was made after wide consultation with the key stakeholders and endorsed by the project steering committee.

Adherence, knowledge and beliefs about medications
Although originally intended, we were not able to collect adequate data pertaining to adherence, knowledge and beliefs about medicines.

We originally planned for the Pharmacist Interview Guide to use with patients to include items for pharmacists to discuss and evaluate medication adherence, knowledge and beliefs. Although these items were included, responses were not routinely collected by participating pharmacists. For medication adherence we had planned to collect data using four validated questions developed by Morisky et al, 1986. These questions have previously been used in other medication management review projects in Australia. The four questions were:

1. Do you ever forget to take your medicine? Yes/No
2. Are you careless at times about taking your medicine? Yes/No
3. When you feel better do you sometimes stop taking your medicines? Yes/No
4. Sometimes if you feel worse when you take your medicine, do you stop taking it? Yes/No

Beliefs
Although originally intended, we were not able to collect adequate data pertaining to beliefs about medicines. Originally we had planned to use four validated statements developed by Svarstad et al. The statements were:

“Taking this medication is a good option for me.”
“I would prefer a different medication.”
“The side-effects of this medication are bothersome.”
”Taking this medication on a daily basis can be harmful to my body.”

Pharmacists were to ask patients to indicate whether they 1=strongly agreed, 2=agreed, 3=neutral, 4=disagreed or 5 strongly disagreed with each of the above statements.

The pharmacist HMR report form included a section for pharmacists to report their medication beliefs findings to the referring GP.

APPENDIX 8: Summary of outcomes from recruitment strategies

Strategies and outcomes for GP recruitment

Recruitment strategy	GP response	Achieved recruitment?
List acquisition attempt via 2 Area Mental Health Services and Centre for Mental Health	Nil	✗
Pharmacist direct recruitment of GP using personalised approach HKR and NS Division area	Pharmacists nominated 4 GPs to attend the dinner	✓ (2)
Pharmacist direct recruitment of GP using personalized approach CS Division area	1 accepted invitation	✗
Pharmacist direct recruitment of GP using personalised approach St George Division area	Declined invitation	✗
Direct mail with HKR Division (800 GPs) to local Gourmet Dinner with QA& CPD Points with Division	15	✓ (3)
Contact with all NS Division Pharmacists and asked them to invite GPs to local Gourmet Dinner with QA& CPD Points with Division (300 letters in designated suburbs)	Some RSVP's with assertive follow-up by researcher	Nil
Direct mail with HKR Division (800 GPs) to participate in study	Nil	✗
Saturation practice visits to AGPAL practices distribute flier and 1 ring binder per practice in CS Division	2 phone calls, one being researcher's GP	✓
Practice visits to identified GPs trained in BOMH, St George Division to distribute flier and 1 ring binder per practice in CS Division	Nil response by GPs. Researcher had to revisit and phone	✗
Saturation practice visits to AGPAL practices to distribute flier and 1 ring binder per practice in SG Division	Nil response by GPs. Researcher had to revisit & phone	✓
Repeated practice presence with project ring binder by repeated visits	Opportunity granted to make appointment	✓ Most successful strategy
Direct mail through CS Division to selected Mental Health GPs only	1 phone call from GP	✗
Direct mail by researchers using St George Division list of BOMH trained GPs	Nil	✗
Direct mail through Liverpool Division	Underway	
Guest speaker with 1 hour discussion at Liverpool Division Mental Health GP Peer Support Meeting and with Psychiatrist opinion leading support for project	4 GPs attended of 10 with an interest	✓ (2)
Guest presentation to Fairfield and Liverpool Division BOMH Level 2 Training to 10 GPs with an interest in mental health	11 GPs attended	✓ (4)
Use of personal contacts of GPs with whom the researcher did prior mental health work	GPs granted interview promptly	✓ (4)
Personalised letter from researcher using consent of a consumer nominating their GP	GPs granted interview promptly	✓ (3)
Personalised letter to GPs identified through Sector (local) Mental Health Service Clinics	GPs granted interview promptly	✓ (6)
Request to GP academics to opinion lead	7 GPs nominated	✓ (5)
Total GPs recruited (many part-time)		**26 Arm 1** **26 Arm 2**

Strategies and outcomes for Community Pharmacist recruitment

Recruitment strategy	Pharmacists response	Achieved recruitment?
Direct mail (personalised) to community pharmacies (Hornsby) to Gourmet Dinner with GPs with PD pts	RSVPs were faxed back	✓
Direct mail (personalized) to community pharmacies (NS) to gourmet dinner with GPs with PD pts	RSVPs were faxed back	✓
Faxing personalised invitation to pharmacy teams to attend Seminar for HKR and NS Division	10 attended Others gave apologies	✓
Personally delivered invitations and discussion with community pharmacies (CS) to gourmet dinner with GPs with PD pts	15 attended	✓
Personalized direct mail to community pharmacies (St George) to gourmet dinner with GPs with PD pts	20 attended	✓
Pharmacy faxing to invite to Seminar for St George and Central Sydney Division pharmacists	8 attended 2 Hospital Pharmacists attended	✓
Personalised phone calls for RSVPs	25 gave apologies	✓
Follow-up visits to detail on the project to achieve recruitment to study.	Consent given at first visit. Follow-up needed to get forms from accredited pharmacists who were only recruited by telephone after consent given by Pharmacy Manager	✓
Visits with detailing to new pharmacies which did not have a representative at the dinner, or at the Seminar in order to match with a participating GP.	On all occasions but 1 in each Arm, consent to participate was given at these visits with great enthusiasm.	✓
Total Community Pharmacists Arm 1 **Total Community Pharmacists Arm 2**		**44** **40**

APPENDIX 9: Discussion of methodological approach to facilitate recruitment/data collection and rationale for BOMH intervention

BOMH: We required that GPs provide mental health care by using the Better Outcomes in Mental Health (BOMH) Framework which is the new HIC item number for interventions of 20 minutes or longer for the comprehensive care of patients with mental disorders. The key elements of this intervention are shown in Table 4.2. The rationale for using the BOMH was as follows:

it facilitates minimal diagnostic criteria to be met at intake, other than the prescribing of one or more psychotropic medications

it facilitates a structured care approach to enable rigorous data yield that is required for research;

it requires the use of at least 1 health outcome measure at patient intake "assessment";

it enables research to be performed in the context of quality routine care for which qualifying doctors can be remunerated;

it attempts to piggy back the research onto a nationally-agreed new clinical expectation of GPs, or, in other words, supports the roll out of an existing innovation, rather than trying to roll out our own using a mental health framework which was entirely foreign or not consulted upon within the industry.

Taking account of the competing claims on the time and attention of GPs, the BOMH was agreed in consultation with Divisions, to be the best approach to take. However, a major challenge in using the BOMH approach is that it is still a very new intervention. It comprises clinical tasks which are new to GPs including a Mental State Examination, a risk assessment, structuring psychological care into care planning and organising systems for the recall and follow-up of patients at maintenance phases of treatment.

Table 4.2: The new 'Better Outcomes in Mental Health' (BOMH) 3-step Framework

1. Mental Health Assessment (20 min^{+} consultation)
    - taking a detailed biological, psychological and social history
    - recording the presenting complaint
    - conducting a Mental State Examination [3]
    - conducting a risk assessment
    - documenting a diagnosis and/or formulation
    - administering a health outcome tool

2. Mental Health Plan (20 min^{+} consultation)

3. Mental Health Review (20 min $^{+}$ consultation) – this includes treatment monitoring, serial assessment and maintenance phases of treatment.

As can be seen in Table 4.3, the uptake of the BOMH by the participating Divisions was lower at intake than the remainder of Australia (Appendix 2). While NSW reported overall, the lowest rate of uptake of all States and Territories, our participating Divisions had half the percentage rate of NSW uptake. Overall the poor uptake hindered data collection opportunities for this project.

Table 4.3 Membership and number trained to use Better Outcomes in Mental Health in the 4 participating Divisions of General Practice at intake

Division of General Practice	No. GPs in Membership	No. GPs trained BOMH
Northern Sydney	300	35
Hornsby Kurringai Ryde Division	781	70
Central Sydney	600	-
St George	195	31

Recruitment Issues

Divisions of General Practice

Privacy legislation constraints have been a key difficulty operating at the Division of General Practice level. Only 2 Divisions permitted use of the Divisions' membership lists to identify those GPs who are trained in mental health generally, or who have trained in BOMH or who have otherwise shown an interest in mental health. Similar barriers have been experienced with specialised mental health services. They carry directories of GPs with an interest in mental health but have policy against the provision of these to those outside of the agency.

GP practices

We tried to recruit practices by first asking to visit and speak at Division Board meetings, mental health committees or other small opinion leading groups of GPs. Meetings of this sort have been held in Fairfield and Liverpool Division. The assessment of other Divisions was that negotiation should remain at the staff level. In Liverpool and Fairfield Divisions we gave guest presentations within mental health training programs to the 10 GPs in each Division known to have a mental health interest in and readiness to commence the BOMH program. These are now beginning to participate. In one of these sessions, opinion leading by the local psychiatrist helped. Considerable time is required to engage with GPs.

Researchers visited practices which had the following characteristics:

practices with Australian General Practice Accreditation Limited (AGPAL) stickers showing they qualify for applying HMR and BOMH (for example, 43% are AGPAL practices in Northern Sydney);

practices in which GPs work who are known to have had a leadership role in past mental health, Quality Use of Medicines (QUM) or HMR programs of Divisions;

practices located in areas of high English speaking patients;

large medical centers with high throughput of patients because they are likely to have support with practice managers, practice nurses and allied health staff on site likely to help in patient recall for a 3-consultation intervention;

solo practices with a receptionist or other staff to assist with research processes such as liaison, photocopying data and patient recall;

group practices which can better support patients with mental illness in the practice load because there is back up clinical support; and

practices in high density population areas such as within large shopping centers.

While practices serving population areas with patients from cultures other than English were visited, we found that recruitment was completely unsuccessful. Practices which were avoided include:

practices with an obvious specialist interest in paediatrics, child health and obstetrics;

practices without any bulk billing (given that people with mental illness are likely to be on a low income or to be social security recipients;

practices with an overt alternative medicine orientation; and

practices that are unlikely to have patients who are English-speaking.

We have found that it is more likely that practices will participate with the following characteristics:

practices not in the city (those in the city predominantly have patient loads of professional workforces without major mental disorders);

practices not in large shopping centers where there are too few regular patients, many 'walk-ins' and which do not work on appointment basis;

practices in suburban areas likely to have a stable and older population and likely to have all patients on a practice register;

practices with an interest in research participation;

practices with specialist interest in mental health, boarding house care, methadone maintenance or the after care of people with serious mental illness; and

practices with a psychologist or psychiatrist on site with whom GPs can liaise about potential patients to refer.

We have experienced several large medical centers which work on a highly commercial basis and which do not permit GPs to make appointments or to work flexibly (some centers have explicit policies against appointments, against industry visits to GPs, and against participating in research).

General Practitioners
Our strategy has been to target GPs who

have completed Familiarisation Training under the BOMH initiative which permit GPs to be remunerated for using BOMH;

are willing to use BOMH but have not done their training;

have an interest in HMR and if available, where HMR is being used routinely;

are referred to us by patients and consumer consultants;

were identified by specialist mental health services with an interest in mental health;

had a higher proportions of older patients (likely to benefit from HMR) due to comorbid disorders;

were practising close to specialist mental health service outpatient centers of close to former Fifth Schedule (psychiatric) hospitals or close to psychiatric inpatient units; and

had high numbers of boarding house residents who are more likely to have need for medication management interventions.

Incentives for GPs to participate
The approval of QA&CPD points was an incentive to participate in this study. Sutherland, Fairfield and Liverpool Divisions were only recruited in July 2003 after confirmation was received that participating GPs would be eligible to receive 35 points for participation.

Gift packs for GPs have been organised. Contributions have been made by 10 non-government organisations active in mental health, the NSW Centre for Mental Health and the Commonwealth Mental Health Branch. These will be provided to GPs at risk of dropping out, or otherwise provided at the final meeting of GPs as a gesture of our appreciation.

Strategies used to recruit GPs
A range of strategies was adopted to recruit GPs.

Direct mail with the support of the Division;

Newsletter items in Division press;

Direct individualised letters to GPs generated from various lists;

Practice visits with brief, followed by more detailed information;

Encouraging pharmacists to invite the participation of their local GPs;

Recommendations made by consumers with mental illness.

An invitation to participate was printed on 2-sided sheets and flagged incentives, the BOMH framework, emphasises HMR and shows the intervention algorithm (Appendix 4). These were direct mailed with a cover letter in some areas where Divisions permit this, and in others, they were delivered with a ring binder to each practice.

Up to **5 practice** visits were made in order to initially engage GP interest, sufficient enough for them to permit an appointment or brief detailing on how they might participate. This was facilitated by having a personal presence in the surgery, rather than relying upon telephone calls to be put through to GPs by the reception staff. GPs were generally not accessible to researchers as they were usually in session with patients.

We have found direct mail to be completely unsuccessful mechanism for recruitment. It has been labor-intensive practice presence that has facilitated engagement with the practice receptionist and then the GPs.

We have had gestures of support by academic general practitioners in the target areas. They too have needed to recruit GPs for studies in the target areas and expressed an inability to email or access lists of GPs for this purpose.

Approximately 500 practice visits in Arm 2 were undertaken. In over one fifth of these a 20 minute detailing of GPs was achieved to invite their interest. In the remainder, only 1-10 minute discussions were possible at reception with the GP in an attempt to engage their interest in making an appointment for detailing.

Most successful recruitment strategy
A summary of the outcome of strategies for recruitment of both GPs and pharmacists is presented in Appendix 8. Ina previous interim report (September 2003) an

exhaustive discussion of recruitment issues was presented. In summary, the two most successful recruitment practices have been:

Consumer consultants referring their own GPs to us, or other GPs they know with an interest in mental health and enabling us to use their name in personalised correspondence with GPs stating they were recommended by the consumer.

GP opinion leaders referring their colleagues and asking on our behalf for them to agree to an initial practice visit

Efficiencies and costs of practice visits

We are aware of the inefficiencies of practice visits but believe this to be the only recruitment strategy viable for an complex and intensive intervention. The initial medico-pharmacy meetings were less successful than anticipated in attracting GPs, but were highly successful in attracting participating pharmacists.

Our researchers worked in defined districts matching participating pharmacists with GPs. If GPs agreed to participate, but did not commence with a relevant patient immediately, there was a need to re-detail. GPs appeared to rely upon verbal and not the written materials supplied by project staff.

The majority of GPs in Arm 2 were part time practitioners. This impacted on the logistics of appointments and slowed their capacity to recruit patients. During periods when GPs were not available, pharmacists were visited. Pharmacists were more accessible than GPs in terms of recruitment. A large number of pharmacists however worked only part time in particular locations.

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