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# PHARMACIST INTERVENTION IN PATIENT MONITORING IN A PSYCHIATRIC SETTING

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## ABSTRACT

**OBJECTIVES** To develop a 'Patient Monitoring Tool' (PMT) to evaluate the quality of pharmaceutical care provided to patients in a psychiatric setting and to determine benefits of ward-based pharmacist services in this setting.

**METHOD** A PMT consisting of 'Patient Monitoring Guidelines' (PMG) and a 'Pharmaceutical Care Issues Documentation Sheet' (PCIDS) was developed. The tool was tested for validity, applicability, practicality and reliability and used to monitor 30 patients in an acute psychiatric ward. The PMT was implemented and evaluation was carried out after 4 weeks using a self-administered evaluation questionnaire.

**KEY FINDINGS** The developed PMT was found to be valid, applicable, practical and reliable for use in the psychiatric setting. A total of 75 pharmaceutical care issues (PCIs) were identified; 55 involved psychotropic medications. A positive evaluation of the tool was obtained.

**CONCLUSION** This study demonstrated that the proposed tool can be implemented in an acute psychiatric setting and patient monitoring may lead to optimisation of patient care. Pharmacist incorporation into the multi-disciplinary healthcare team and direct patient involvement may further enhance the value of such services.

**KEYWORDS** Patient Monitoring, Pharmaceutical Care Issues, Pharmacist Intervention, Psychiatry

**The tool developed allows standardisation of patient monitoring and documentation of pharmaceutical care issues**

## INTRODUCTION

Psychiatric patients are a high-risk patient population posing several challenges for the provision of safe and effective pharmaceutical care.<sup>1</sup> Many psychotropic medications have a narrow therapeutic index and polypharmacy is common. Moreover, patients with psychiatric conditions are becoming an aging population, mirroring the demographics of the general population with an increased potential for medical co-morbidities requiring treatment with additional non-psychotropic medications leading to potential drug-drug and drug-disease interactions.<sup>2</sup>

Over the past few decades the pharmacist's role has evolved from being predominantly product-focused to patient-oriented, targeted at improving the quality of drug therapy and enhancing patient safety through clinical pharmacy services.<sup>3</sup> Patient monitoring and provision of recommendations regarding dosing and administration of medications, contemporary evidence-based treatment guidelines, adverse drug reactions, drug-drug interactions and therapeutic drug monitoring are pharmacist interventions which may contribute to prevention and resolution of pharmaceutical care issues (PCIs), leading to cost reductions, shorter hospital stays and improved patient care.<sup>4</sup> Documentation of PCIs instils pharmacist accountability, enhances continuity of care and demonstrates the importance of PIs in the provision of high-quality pharmaceutical care and optimisation of patient outcomes.<sup>5,6</sup>

The aim of this study was to develop a 'Patient Monitoring Tool' (PMT) to evaluate the quality of pharmaceutical care provided to patients in a psychiatric setting and to determine benefits of ward-based pharmacist services in this setting.

## METHOD

This study was carried out at Mount Carmel Hospital (MCH), a 400-bed hospital offering mental health and geriatric services. Approval was granted by the Clinical Chairperson and Head of Pharmacy Services at the hospital.

A draft 'Patient Monitoring Tool' (PMT) consisting of 'Patient Monitoring Guidelines' (PMG), a comprehensive six-step method guiding the pharmacist during patient monitoring,



and a 'Pharmaceutical Care Issues Documentation Sheet' (PCIDS), allowing standardised documentation of PCIs identified, were developed. A panel of 8 healthcare professionals from within and outside the hospital was asked to validate the draft PMG and PCIDS. Each validation panel member was given a consent form, a draft version of the tool and a validation questionnaire to assess presentation, comprehensiveness and validity and allowing inclusion of further comments. The validation questionnaires were scored out of a total score of 11 for the PMG and out of 10 for the PCIDS. The PMT was amended following validation and a second draft was developed.

A pilot study was undertaken to assess the applicability and practicality of the PMT to determine its feasibility and adequacy for use in the practical scenario. The principal investigator (MM) followed the PMG during the monitoring of 10 patients and documented identified PCIs in the PCIDS. Inter-observer reliability testing was determined by asking another investigator to monitor the same 10 patients. Both investigators were pharmacists. Data was inputted into IBM SPSS® version 21 to analyse the correlation between scores obtained by the two investigators using the Kappa statistic. Subsequently, a meeting between the two investigators was held to discuss PCIs identified, including any discrepancies and their relevance to clinical practice.

No changes to the PMT were made following the pilot study so the 10 patients were included in the actual study. A total of 30 patients were monitored in the actual study to evaluate the quality and safety of pharmaceutical care provided. Patients were chosen by convenience sampling from those admitted at the Mixed Admissions Ward (MAW), an acute ward for both male and female patients between the age of 12 to 90 years experiencing a first or an acute psychiatric episode. On completion of this study and following appropriate training of two other pharmacists, the PMT was implemented for use in practice during weekly patient monitoring sessions in which medication review of newly admitted patients is carried out. Evaluation of the tool was undertaken one month after implementation using a self-administered questionnaire.

## RESULTS

Validation of the PMG resulted in a mean validation score of 10.7 (range 10.5 to 11.0) and the mean validation score for the PCIDS was 9.6 (range 9.5 to 10.0). The applicability and practicality study demonstrated that the PMT is applicable and practical to use in the psychiatric setting and no further amendments were deemed necessary. Monitoring of patient's treatment was fairly time consuming, however time taken generally depended on the complexity of the patient's situation. During inter-observer reliability testing, 20 out of a total of 25 identified PCIs were common to both pharmacists. This resulted in a Kappa value of 0.574 implying moderate agreement between PCIs identified by the two pharmacists. During the post-study meeting it

was agreed that although some inconsistencies between PCIs identified did exist, these minimal differences which could be attributed to difference in professional experience and judgement had no detrimental effect on the patients' medical condition.

Demographics of the 30 patients monitored are shown in Table 1. Seventeen patients (8 male and 9 female) were identified as high-risk patients, namely  $\geq 65$  years old or suffering from co-morbidities including cardiovascular disorders, diabetes, hepatic and/or renal impairment. A total of 164 medications were prescribed in the 30 patients monitored, with the majority ( $n=100$ ) being psychotropic medications. An average of 6 medications was prescribed for each patient, ranging from 1 to 12 medications per patient. The most commonly identified PCIs included long-term use of benzodiazepines, clinically significant interactions and improper drug selection. A quantitative analysis of PCIs identified is compiled in Table 2 and categorisation of PCIs is shown in Table 3. Experience from implementation of the PMT was positive and evaluation demonstrated that the tool is fit for purpose, user friendly and ensures standardisation of the service.

Patient Demographics	
<b>Gender</b>	
Male	17
Female	13
<b>Mean age (range) of patients in years</b>	<b>54.4 (23-88)</b>
Males	52.9 (23-88)
Females	56.4 (30-75)
<b>Total number of medications</b>	<b>164</b>
Regular medications	136
<i>Psychotropic</i>	85
<i>Non-psychotropic</i>	51
PRN (as needed) medications	28
<i>Psychotropic</i>	15
<i>Non-psychotropic</i>	13
<b>Mean number (range) of medications per patient</b>	<b>5.56 (1-12)</b>
Males	4.94 (1-10)
Females	6.38 (5-12)

**Table 1:** Patient demographics according to gender (N=30)

	Number of PCIs
Total number of patients in whom PCIs were identified	27
Total number of PCIs identified	75
Mean number (range) of PCIs identified per patient	2.5 (0-7)
Males	3.08 (0-6)
Females	2.06 (0-7)

PCIs: Pharmaceutical care issues

**Table 2:** Quantitative analysis of pharmaceutical care issues identified (N=30)

## DISCUSSION

At MCH, similar to other local settings, a large proportion of pharmacist time is being spent on administrative services which could be delegated to pharmacy technicians and other trained staff.<sup>7</sup> This study confirms the applicability of the developed tool as a means to introduce a structured clinical pharmacy service in a psychiatric hospital.

Promoting safe medication use in a psychiatric hospital necessitates adopting lessons learnt from other health care settings, whilst concomitantly focusing on strategies directed at the unique challenges of psychiatry.<sup>8</sup>

A significant proportion of PCIs identified involved psychotropic medications. This result differs to studies by Alderman<sup>2</sup> and O'Hare<sup>9</sup> et al. in which the majority of

Pharmaceutical Care Issue	Frequency	
Too many drugs for indication	7	<b>Drug selection (n=40)</b>
Improper drug selection	13	
Identified clinically significant interactions	15	
Need for additional drug	5	
Unclear/Unconfirmed indication	0	
Inappropriate dosage form	0	<b>Dosage form</b>
Dose too low	4	<b>Dose Selection (n=16)</b>
Dose too high	6	
Dosage regimen not frequent enough	4	
Dosage regimen too frequent	1	
Drugs given PRN despite practice not recommended	1	
Drugs with slow titration	0	<b>Drug effect</b>
Untreated indication	0	
Prescribing error (wrong or missing information)	1	<b>Logistics (n=1)</b>
Others (including long-term use of benzodiazepines, medications to be used with caution in patients with comorbidities, wrong timing of doses)	18	<b>Others (n=18)</b>

**Table 3:** Categorisation of pharmaceutical care issues identified (n=75)



pharmacist interventions were related to non-psychotropic drugs. A plausible explanation may be that the majority of medications (73%) prescribed in patients included in this study are psychiatric medications.

The evolution of the pharmacist's role from a product-centred profession to one which makes the patient the fulcrum of its activities has been ongoing in various Maltese healthcare settings such as geriatric and rehabilitative care<sup>10-12</sup> and rheumatology.<sup>13-15</sup> However, in the psychiatric setting, evolution of the pharmacist's role is happening at a much slower pace.<sup>16</sup> This may be due to lack of human resources and the stigma associated with mental health. Nevertheless, the pharmacy department at MCH aims to extend the services offered to include clinical services in this setting, together with allocation of more manpower. This may be done through adaptation of clinical pharmacy standards established in other settings<sup>11,12</sup> to enhance patient monitoring and enable identification of PCIs to ensure safe and effective medication use and improve patient outcomes. Standardisation of documentation of PCIs may be considered as the first steps towards enhancing the quality of patient care.<sup>11,12</sup>

Various limitations of the study were identified. Patient monitoring was carried out on a small sample of inpatients, in an acute ward, under the care of six consultant psychiatrists which may limit extrapolation of results to the entire patient population at MCH. Identification of PCIs relied heavily upon experience and professional judgement of the pharmacist and patient monitoring was carried out solely through review of medication records which sometimes consisted of poorly recorded and/or incomplete documentation. Moreover, PCIs identified and recommendations made did not take into consideration patient input, hence important PCIs including adverse drug reactions and adherence to treatment could not be determined.

## CONCLUSION

This study demonstrated that pharmaceutical care being provided to inpatients at MCH may be optimised. The tool developed allows standardisation of patient monitoring and documentation of PCIs. The provision of clinical pharmacy services such as monitoring of patients in an acute psychiatric ward can contribute to amelioration of patient care and safer use of medications. The value of the provision of such services may be further enhanced through direct patient interaction and the integration of the pharmacist into the multidisciplinary healthcare team especially during ward rounds.

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