

Evaluation of the Patient Medication Counseling Services in the Philippine General Hospital Using the CIPP Model

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ABSTRACT

Objectives. The patient medication counseling (PMC) services at Philippine General Hospital (PGH) started 21 years ago. While several changes have been incorporated into the program, no formal evaluation has been conducted to date. The objective of this evaluation was to assess the relevance, usefulness, responsiveness, acceptability, efficiency, impact, and sustainability of the service using the context, input, process (CIPP) model of Stufflebeam.

Methods. The study utilized a mixed-methods study design. Interviews and surveys were conducted on pharmacist-counselors, a purposive sample of doctors, nurses, and other stakeholders. A review of records from the Department of Pharmacy of UP College of Pharmacy (UPCP) and PGH, such as patient and student satisfaction surveys and monthly reports of counseled patients served from 2015 to 2019, was conducted. The results were analyzed using descriptive statistics for quantitative data and content analysis for qualitative data.

Results. Context evaluation revealed that the establishment of PMC resulted from informal interactions with hospitalized patients due to incorrect use of prescription medicines. Correct information was envisioned to address the irresponsible use of medicines. The input evaluation revealed that only 24% (N=75) of the pharmacists are involved in PMC, which comprise only 10% of their workload. There was also a lack of comprehensive training for counseling and insufficient physical facilities. The process evaluation identified lack of time (94%) as a significant limiting factor for the involvement of pharmacists in PMC. The interns became an additional workforce for the service, but scheduling and the consistent availability of both students and faculty-preceptors were experienced. The product evaluation revealed positive perceptions among the pharmacists, faculty, and student interns. From the patient satisfaction survey records of 5,071 patients counseled, 98 to 100% expressed high service satisfaction, and 100% were likely to recommend PMC to other patients. The pharmacists, interns, and faculty-preceptors suggested that PMC improved their confidence, communication skills, and decision-making.

Conclusion. The PMC service is relevant and valuable to ensure patients' rational and quality use of medicines. As a value-added service to existing hospital pharmacy services, it serves as a venue for enhancing soft skills among pharmacists and students alike. However, physical and human resources and current processes need to be upgraded to improve efficiency, ensure sustainability, and expand service coverage to more patients.

Key Words: patient medication counseling, CIPP model of evaluation, pharmacist counseling, pharmacist, patient safety, quality improvement

INTRODUCTION

Hospital pharmacists are in the prime position to assess the medication-related issues and needs of a patient because of their expertise to evaluate and address possible and existing drug-related problems during and after hospitalization.¹ A patient medication counseling (PMC) service in a hospital is an avenue for a pharmacist to effectively communicate with

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the patients their medications, thus, contributing to positive health outcomes. Literature shows that medication counseling by pharmacists prevented adverse drug events, resulted in better medication adherence, and lowered the incidence of cardiovascular-associated hospital readmissions.^{1,2}

As the University of the Philippines (UP) Manila and premier referral center, the Philippine General Hospital (PGH) is considered the largest modern government tertiary training hospital that provides direct and quality services to more than 600,000 patients annually, primarily indigent Filipinos.³ Its Pharmacy Department started to provide its PMC service in 1998 during the Outpatient Department (OPD) Anniversary and Pharmacy week. Since then, the PMC services have expanded to several wards as more pharmacists were trained to become pharmacist-counselors. In 2014, the University of the Philippines College of Pharmacy (UPCP) Department of Pharmacy included PMC services as part of its hospital pharmacy internship program through the Good Pharmacy Practice (GPP) Project, which used an academe-training hospital collaboration framework. Since then, PGH Pharmacy and UPCP have worked together to improve the service. Despite the expansion and changes introduced to the PMC service, no formal evaluation has been conducted since it was first offered.

This formal evaluation was conducted to appraise the PMC services of PGH using the Context, Input, Process, Product (CIPP) model of Stufflebeam.⁴ The CIPP model of evaluation is a framework for guiding evaluations of programs, projects, personnel, products, institutions, and evaluation systems.⁵⁻⁷ Context evaluation provides information about the stakeholder's need and rationale, organizational strengths, and opportunities for strengthening the program. The input evaluation offers data about the human and physical resources allocation, while process evaluation addresses program implementation to improve, detect or predict defects in the

design. Finally, product evaluation identifies intended and unintended program outcomes by comparing these outcomes to the needs of stakeholders.

The objective of this evaluation was to assess the relevance, usefulness, responsiveness, acceptability, efficiency, impact, and sustainability of the PMC service.

METHODS

Study Design

A mixed-methods study design used key informant interviews, surveys, and review of records as data collection methods to address the four types of evaluation using the CIPP framework (Table 1). The study sites included the Department of Medicine Wards 1, 3, its OPD clinics, Medical Intensive Care Unit (MICU), and the Department of Family and Community Medicine.

Participants and other data sources

Survey participants included the pharmacists performing PMC duties, nurses, and doctors. Nurses were those identified to have worked at the study sites. At the same time, doctors were the second- and third-year residents and second-year fellows of the Department of Internal Medicine and the Department of Community and Family Medicine. All eligible pharmacists, doctors, and nurses were provided with the corresponding survey questionnaires. A response rate of 100% for pharmacists (n=17), 75.8% for doctors (n=91), and 88.7% for nurses (n=71) were recorded. Key informants included the Head of PGH Pharmacy, PGH Pharmacy Training and Research Section Supervisor, Senior Pharmacist in the Charity In-Patient Services, Chair and Faculty Coordinators of UPCP Department of Pharmacy, and PGH Hospital Pharmacy Internship Coordinator. Records reviewed and processed included patient satisfaction

Table 1. Evaluation of Patient Counseling Services using the CIPP Model

Evaluation Type	Purpose/ objects of evaluation	Source of Data	Method of Data Collection		
			Key Informant Interview (KII)	Review of Records	Survey
Context	Applicability, relevance, the responsiveness of the program	Head of PGH Pharmacy, Chairperson and Faculty Coordinators of UPCP Department of Pharmacy, PGH Hospital Pharmacy Internship Coordinator	✓		
Input	Efficiency and sustainability of the program (human and physical resources allocation)	Head of PGH Pharmacy, Chairperson and Faculty Coordinators of UPCP Department of Pharmacy, PGH Hospital Pharmacy Internship Coordinator, pharmacists, doctors, nurses, survey forms from students and patients	✓	✓	✓
Process	Efficiency and sustainability of the program	Head of PGH Pharmacy, Chairperson and Faculty Coordinators of UPCP Department of Pharmacy, PGH Hospital Pharmacy Internship Coordinator, pharmacists, doctors, nurses, survey forms from students and patients	✓	✓	✓
Product	Impact, efficiency, the applicability of program, marketability, and sustainability	Head of PGH Pharmacy, Chairperson and Faculty Coordinators of UPCP Department of Pharmacy, PGH Hospital Pharmacy Internship Coordinator, pharmacists, doctors, nurses, survey forms from students and patients	✓	✓	✓

surveys (n=5,071), PGH Hospital Pharmacy Internship Student Survey (n=162), patient counseling records for both out- and in-patients, and the monthly and annual reports from 2015-2019.

Instrumentation

Two survey questionnaires were used for the pharmacists and another for the doctors and nurses. The pharmacist questionnaire asked about demographic characteristics, strengths, weaknesses, and benefits of PMC service. The doctor’s and nurse’s questionnaires asked about demographic characteristics, level of awareness, perceived benefits, and areas for improvement of the program. Before implementing the study, these questionnaires were pretested to check for clarity of questions. For KIIs, the interview schedule consisted primarily of open-ended questions about the PMC service’s goals, processes, issues on the implementation, effects, and areas for improvement of the service.

Data Collection

The administration of the survey was either through online or paper-based forms. The password-protected online form, letter of invitation, and consent form were sent to respondents. Hard copies of the questionnaire were also provided to the different Departments as an alternative for the doctors and nurses who preferred to answer paper-based forms. KIIs were conducted virtually using a password-protected Zoom meeting room. The virtual interviews lasted 30 to 45 minutes. All the interviews were digitally recorded.

Data Processing and Analysis

All quantitative data were properly encoded and edited in Microsoft® Excel to check accuracy. Patient and student identifiers were removed. Descriptive analysis of data utilized Microsoft® Excel. All key informant interviews were transcribed verbatim using Microsoft® Word and analyzed by content analysis using the NVivo 10 application.

Before implementing the study, ethical approval from the UP Manila Research Ethics Board (UPMREB) was sought.

RESULTS

Context Evaluation

PMC at PGH started in 1998 due to an in-house training of the pharmacists on clinical pharmacy. Initially, it was conducted twice a year during the OPD anniversary celebration in April and the Pharmacy week in December. The need to implement it regularly resulted from personal encounters of a single pharmacist, the PMC coordinator, with hospitalized patients who self-medicated with dexamethasone and other patients who were non-adherent to their prescribed medications. The PMC service was then proposed with objectives as shown in Table 2.

The PMC service was offered to both in-patients and out-patients. The service was provided in the OPD Pharmacy

Table 2. Objectives of the PMC Service at PGH

Objectives of PMC	Recipients/ Beneficiaries
1. To educate patients about their medications for improved compliance	
2. To prevent medication error and antibiotic resistance	For patients
3. To help patients prevent hospitalization or readmission after discharge through counseling	
4. To have pharmacists and trainees apply knowledge and skills in patient counseling in a hospital setting	For pharmacists and students
5. To develop good communication skills of pharmacists and trainees with the patients and other healthcare providers	
6. To involve pharmacists in performing clinical pharmacy functions while fulfilling other activities relevant to the position	
7. To improve the decision-making ability of pharmacists in problems encountered during counseling with the patient	For pharmacists
8. To aid pharmacists in gaining self-confidence through patient contact	

and Main Pharmacy for out-patients. There were no short- or long-term goals identified nor indicators to measure the program’s success. But through the years, the PMC service has evolved to adapt to the resources available and needs of the hospital. Partnership with UPCP was forged, and PMC became an avenue for practical learning of the students through their internship.

Input Evaluation

Human Resources

Out of the 75 pharmacists of PGH, only 24% provide PMC. The majority of them are female (94.1%), B.S. Pharmacy graduates (94.1%), assigned in dispensing areas (58.8%), and spent 3-4 hours/month (52.9%) to counsel 1-6 patients a month (70.6%). PMC services comprise only about 10% of a pharmacist’s workload. For the pharmacy student-interns, a total of 634 participated in PMC. Most were females (68.8%) taking PMC subjects during the second semester or hospital pharmacy internships during summer breaks. Interviews with the pharmacists and faculty preceptors revealed that, at present, the current number of pharmacist-counselors, faculty-preceptors, and administrative support is insufficient. While interns can cover many counseling sessions, their participation is limited since the Patient Medication Counseling subject, and the Hospital Pharmacy Internship only happens during the second semester and summer break. Moreover, there are limitations in counseling stations or spaces in the PGH premises.

Training of Human Resources

Before becoming a pharmacist-counselor, a pharmacist should undergo a 200-hour in-house PMC training and

attend Continuing Professional Development (CPD) activities to provide the service effectively. However, key informants revealed that the current training program and staff development activities were not comprehensive in terms of their content. Regular and continuous training on clinical pharmacy, clinical practice guidelines, and medication device operation were identified as necessary in the capacity building of the pharmacists. Sustainability of these activities must be established, its duration must be optimized, and protected time for its attendees must be ensured.

Students taking Patient Medication Counseling and Hospital Pharmacy Internship subjects must provide the PMC service supervised by a faculty preceptor. Before counseling duties, these students must attend orientation sessions where hospital activities, including PMC, are discussed, and a workshop on patient counseling is conducted. Participation in the PMC service of PGH was perceived positively by both faculty of UPCP and the students. The students surveyed (n=162) believed that the counseling sessions very much (61.1%) to somewhat (34.6%) improved their skills in patient counseling. This was identified as a venue for applying and developing knowledge and skills learned inside the classroom. However, gaps were still identified and needed to be addressed. Teaching strategies for counseling may be improved. More experiential learning opportunities for students should be created to increase their confidence in communicating with patients effectively.

Physical Facilities and Resources

The service's tables, chairs, tablets, infographics, and promotional materials like television, posters, and signages are placed within the counseling area. The UPCP procured these through a grant from the Federation of Asian Pharmaceutical Associations (FAPA) Foundation to improve the PMC service. Counseling aids like Drug Information Sheets (DIS), flipcharts, calendar, references, and subscriptions to online resources like UpToDate, Lexicomp, and Micromedex are also available, and an internet connection to ensure access to online references during counseling.

While the current physical resources are helpful for the pharmacist-counselors and pharmacy students during PMC, areas for improvement were identified. These include increasing the number of copies of DIS, updating reference materials, increasing and installing gadgets with pharmacy applications, and improving Internet connectivity. Additional materials for persons with disabilities can be developed. Setting up a private space for the PMC service was also suggested.

Process Evaluation

Planning of PMC Service

The delivery of PMC service in PGH starts with target setting of the work percentage of the pharmacist-counselor every rating period then providing a monthly schedule for

them by the PMC coordinator. The internship coordinators of PGH Pharmacy and UPCP also plan the schedule of pharmacy students who will provide the service. However, there is limited coordination with the hospital administration for implementing and improving the PMC service. The faculty preceptors have limited interaction with other healthcare providers and hospital pharmacists in PGH.

The stakeholders have agreed that planning for PMC service can be improved further for completeness and consistency. It should consider how to effectively schedule counseling duties of the pharmacist-counselors and the inclusion of a referral system to the service by other healthcare professionals. Improving the planning for the PMC services can be done by unifying the stakeholders involved in PMC and encouraging collaborations with other healthcare professionals. The PGH Pharmacy Department and UPCP Department of Pharmacy should strategize regarding their partnership for the PMC service provided by the pharmacy students.

Implementation of PMC Service

In terms of implementation, about 94% of the pharmacist-counselors identified limited counseling practice due to pharmacists' lack of time as a weakness of the PMC service. Other perceived weaknesses of the PMC service are lack of support staff for the pharmacists to focus on the PMC service (64.7%), shortage of pharmacist-counselors (58.8%), and poor collaboration among pharmacists, nurses, and doctors (52.9%). Monthly schedules set for pharmacist-counselors were not fulfilled. Instead, an adjustment in the timetable was implemented to continue the service and help pharmacists meet their work targets. A dispensing function is more prioritized, so there is limited time to conduct counseling.

The interns became additional staffing for the service, but challenges in the consistent availability of both students and faculty-preceptors were experienced. There is much difficulty in planning the schedule of counseling duties of students that were affected by uncontrollable factors. Also, there are limited faculty-preceptors during PMC services by students, which led to challenges on the distribution of workload and additional workload for others. A different number of pharmacists to train and counsel and optimize faculty preceptor's tasks and schedule would address the limited workforce of UPCP and PGH counselors.

Monitoring and Evaluation of PMC Service

The primary evaluation tool used for the service is the patient counseling satisfaction survey, which is administered by the pharmacist- and student- counselors after each counseling session. Faculty-preceptors use a rubric as a standard to evaluate students during counseling sessions, while UPCP stakeholders observed that there is no system to record the pharmacy student's interventions. On the side of patients, there is still no research conducted to document

and evaluate the impact of PMC among patients, such as prevention of medication error, effects of antimicrobial resistance, and prevention of hospitalizations/readmissions.

The PGH Pharmacy and UPCP stakeholders agreed that the implementation of the PMC service could be improved through the development of systematic documentation and validated evaluation guideline for PMC. Some of the suggested strategies included the addition of a computer database for processing documents of patients and an alternative way of documenting patient satisfaction such as text messaging or having a third person administer the survey to reduce the bias.

Outcomes of PMC Service

Despite the availability of the PMC service for over 20 years, only about 39% (n=132) of the healthcare professionals surveyed were aware of the service and had observed medication counseling done by a pharmacist-counselor. However, these healthcare professionals supported and agreed that the PMC service could be improved (Table 3).

Table 3. Other Healthcare Professionals Support for Improvement of PMC service

Parameter (n=17)	Frequency	%*
Acknowledgment and inclusion of pharmacists as an important part of the healthcare team	101	76.5
Improve dissemination of information about the service	98	74.2
Increase number of pharmacist-counselors	95	72.0
Improve coordination with the different clinical departments	93	70.5
Increase support of the counseling service by the hospital administration through funding of additional pharmacist-counselors and their training programs	87	65.9
Provide more counseling training for pharmacists	81	61.4

*Percent who answered "most important."

The limitations in the delivery of the PMC service included difficulty in monitoring patients, an encounter with patients who have a visual impairment, lack of follow-up visits for counseling, and difficulty of patients in consistently accessing the service, as evidenced by the low number of patients availing it. Currently, no data is available to prove some PMC goals and outcomes.

Pharmacy students likewise identified the problems encountered during their counseling, such as the unwillingness of patients to participate in PMC, handling of polypharmacy patients, or engaging those with a strong belief in incorrect common household practices and the use of herbal supplements. In addition, limited ventilation, lack of enclosed space for confidentiality, oversights of counseling tables as an information desk, and unorganized and lack of updated counseling materials were enumerated.

Product Evaluation

From 2015 to 2019, 5,071 patients were counseled by 18 pharmacist-counselors and 634 pharmacy interns. Students identified patients' misconceptions about their medications and adherence problems during their counseling (Table 4). Interventions provided on these included education, recommendation of generic alternatives, and creation of a medication guide.

Interviews with pharmacists revealed medication errors during counseling such as compliance, omission, unauthorized drug, and wrong time errors. Interventions included correcting the misinformation, educating patients about the right medication information, emphasizing medication adherence, and correcting the identified medication errors. Documentation of the mistakes identified is done by filling out a Medication Safety Alert (MSA) Form.

Regarding patient satisfaction, records of surveys conducted on the service recipients from 2015 to 2019 showed that the service is much appreciated. Results revealed that information about the medicines and instructions on

Table 4. Issues and concerns identified by pharmacy students during counseling

Common misconceptions about drugs and other health-related information	Reasons commonly cited by patients for non-adherence to medications
<ul style="list-style-type: none"> • Branded medicines are more effective than generic counterparts • Intake of antibiotics can be stopped once the illness/symptoms are gone and can be used for any kind of diseases • Antibiotics can be used to cure skin inflammation even without a doctor's consultation • Intake of maintenance medications can be taken intermittently or stopped once the patients' values are normalized • Maintenance medications should be taken only in the morning • Herbal products and food supplements are alternatives to maintenance medications • Herbal supplements are more effective than the medicines prescribed by a doctor • All drugs should always be taken with food • A drug prescribed a year ago can still be used even without a doctor's order and can be substituted with another drug salt • All tablets can be broken/crushed and can be cut into half using the teeth • Double the dose when missed dose occurs • There are no generic alternatives to the prescribed medications outside the PGH Pharmacy 	<ul style="list-style-type: none"> • Cost and income • Forgetfulness • Side effects • Health beliefs/patient's knowledge • Lack of accessibility to prescriber/pharmacy • Duration of the treatment period • Unhappy clinic visits • Degree of behavioral change required • Disease symptoms/severity of disease • Route of administration

Table 5. Patient Counselor Satisfaction Survey Ratings

	Overall Rating (%)				
	2015 (n=1085)	2016 (n=849)	2017 (n=1225)	2018 (n=1011)	2019 (n=901)
1. Naipaliwanag ba kung para saan ang inyong mga gamot?	98.43	97.37	98.37	98.34	99.44
2. Naipaliwanag ba ang tamang paraan ng paggamit/pag-inom ng inyong mga gamot?	96.14	97.12	97.56	97.17	96.49
3. Nasiyahan ba kayo sa pagbibigay namin ng kaalaman ukol sa inyong mga gamot?	99.73	100.00	99.67	98.72	99.57
4. Irerekomenda nyo po ba ang serbisyo ng pharmacist napagbibigay ng kaalaman ukol sa gamut sa ibang pasyente?	100.00	100.00	100.00	100.00	100.00

For Questions 1-2, results are % who responded "malinaw na naipaliwanag"; For Question 3 results are % who responded "labis na nasiyahan" and for Question 4, results are % who responded "Oo"

Table 6. Other Healthcare Professionals Support for PMC Service Provided by the Pharmacist-Counselors

Parameter (n=132)	Frequency	%
Agrees that medication counseling will be beneficial to patients*	129	97.7
Benefits of medication counseling to patients**		
1. Increase understanding of their medication	101	76.5
2. Improve compliance	97	73.5
3. Prevent hospitalization/readmissions	88	66.7
4. Improve relationship with healthcare providers	92	69.7
Agrees that medication counseling will be beneficial to doctors and nurses*	129	97.7
Benefits of medication counseling to doctors and nurses**		
1. Unloading burden in medication information dissemination	85	64.4
2. Lessening of patients to attend to because of prevented hospitalization/readmissions	77	58.3
3. Improving patient and healthcare providers relationship	86	65.2
Willingness to recommend a pharmacist to perform medication counseling to patients*	130	98.5
When to perform medication counseling***		
Upon admission	55	41.7
Upon discharge	96	72.7
Throughout confinement period	49	37.1
Whenever a new medication is prescribed	81	61.4

*Results are % who responded "yes"; **Results are % who responded "most beneficial"; ***Respondent answer more than one option

properly using their medications were clear (Table 5). This is consistent with pharmacists' perspective, who believed that the PMC service helps PGH patients understand their medications (94.12%).

The PMC service was similarly demonstrated to affect both the pharmacists and students who served as counselors. All pharmacist-respondents (n=17) in the survey agreed that the service improved their confidence in providing patient care (88.24%) as well as their communication skills with patients (82.35%) and other healthcare providers (76.47%). The key informants noted similar observations from PGH Pharmacy and UPCP. Other effects mentioned include improved decision-making skills for both pharmacists- and student-counselors. The key informants added other service

impacts to the students, such as improved consultation behaviors, critical thinking skills, and increased drug information knowledge. From the student's perspective, survey records showed that only 61.1% (n=162) regarded their counseling sessions or experiences as significantly improving their counseling skills. They also viewed this as an excellent venue to enhance their interpersonal, communication, social, analytical, and critical thinking skills, challenge their flexibility, and acquire the more important lessons of understanding the needs of patients and the community, embodying excellence and credibility, and developing empathy and respect for the profession.

The survey on health professionals suggested that 60% of the doctors and nurses also provide medication information such as drug dose, route, and frequency of administration during their patient interactions. Only a few discussed pertinent details on the mechanism (37.7%), duration (18.9%), and the onset of action of drug (16.7%), actions to do in case of missed dose (22.0%), significant drug-food interactions (37.9%), storage recommendation and ancillary instructions (31.8%), proper disposal of unused drug and used devices (syringes and empty inhalers) (26.5%), and techniques for self-monitoring (46.2%). While both doctors and nurses provide medication information to patients, they also agreed that PMC services by pharmacists would be beneficial to patients, doctors, and nurses (97.7%, n=132) (Table 6).

DISCUSSION

This evaluation identified the strengths and areas for improvement of the PMC service. Context evaluation demonstrated the need for PMC service to the patients, the pharmacist, and pharmacy students. The establishment of the PMC service addressed the need for patient education regarding their medications to prevent irresponsible self-medication and optimize therapeutic outcomes. For pharmacists, PMC is an added value to the existing hospital pharmacy services that capitalize on their expertise in drug therapy. The PMC service was envisioned as a venue for experiential learning for the students. The input evaluation showed the limitations in manpower, training, updated

references, and physical facilities such as a dedicated space for counseling for the service to be sustainable and cover more patients. The process evaluation revealed a lack of time as a significant limiting factor for pharmacists to participate in PMC actively. It also identified the need for better planning and coordination between PGH and UCP to ensure consistency in PMC service delivery. There is also an inherent lack of an evaluation system to monitor the effectiveness of PMC in improving patient outcomes. Finally, the product evaluation showed that despite the inadequate physical and human resources, the PMC service was appreciated by patients, as demonstrated by the patient satisfaction surveys. It also strengthened the need for patient education, as shown by the misconceptions, adherence issues, and other health-related concerns identified during counseling sessions that can be quickly addressed by providing correct information. The pharmacists and students alike perceived improved confidence in providing patient care, communication, and decision-making skills.

The establishment of PMC was aimed to benefit the patients that PGH serves. Literature documents that PMC is an intervention directed to patients' health-related needs.⁸ There have been several studies conducted that demonstrate its effectiveness in improving health-related outcomes in many acute and chronic conditions. Pharmacists' counseling prevented adverse drug events, resulted in better medication adherence, lowered the incidence of cardiovascular-associated hospital readmissions and other morbidity and mortality events related to drug therapy.^{1,2} Some studies also demonstrated the cost-effectiveness of PMC.⁹ In the implementation of PMC at PGH, clinical outcomes were not documented. Only patient satisfaction surveys were conducted, primarily measuring patients' perception of the service. The incorporation of key performance indicators reflective of the service's strategic and operational goals could be considered in improving the current evaluation system to monitor the service's success better and add to the absence of local literature on the effectiveness of PMC.^{10,11} The issues on lack of manpower and time identified in the evaluation are similar to other reports. They have noted that the major obstacle in pharmacy is limited counseling time.^{12,13} Also, another study revealed that the pharmacist present in their hospital is not sufficient in carrying out counseling.¹⁴ Consistent with the existing studies, the functions of pharmacists in government hospitals include both managerial and clinical pharmacy services. PGH can choose to increase its number of pharmacists or revisit the current workload of pharmacists to prioritize patient care services and delegate other administrative functions to pharmacy assistants. The need for more comprehensive training and CPD should also be emphasized. The influx of new technologies and medications in healthcare necessitates that a pharmacist continually is updated on these trends. The lack of clinical knowledge is a hindrance that may negatively affect the ability of pharmacists to provide adequate

counseling to their patients.¹⁵ CPD helps pharmacists enhance and develop their professional competence and professional practice.^{16,17}

PMC is a suitable venue for practical learning among students. Participation in this activity allowed the students to apply concepts learned in classrooms. As the pharmacy profession tailors the need for a value-based health care system, the current training program and continuing education system should be comprehensive and well-updated.¹⁷ Role-playing, simulation activities, and experiential learning significantly contribute to developing and enhancing a pharmacist's skillset in a more direct patient care role. The need to include the shift beyond an attendance-based credit system and increased focus on interprofessional learning was also highlighted. With the students immersed in the hospital setting, they can appreciate the role of different health professions in optimizing patient outcomes, eliminating stereotypes, and promoting a patient-centered practice.¹⁸ PMC also provides an excellent opportunity for collaborative learning and training among the health professionals in the hospital. It encouraged communication and shared decision-making among health professionals and their patients to improve the quality of patient care.¹⁹ Hospital pharmacists in one study described how good working relationships with other members of the healthcare team facilitated the achievement of their counseling goals through information sharing and understanding the pharmacist's role in medication counseling.²⁰

Despite significant findings for further improvement of PMC, this study has certain limitations. The purposive selection of doctors and nurses included in the survey limits the generalizability of results to all the doctors and nurses in PGH. Conducting the study for the doctors and nurses during the pandemic when the PMC service had changed implementation may have introduced a bias since the evaluation period is pre-pandemic. Patients' insight on the service is limited to the close-ended questions in the satisfaction survey, which may not have described the impact of PMC on their medication therapy and health outcomes entirely.

CONCLUSION

This evaluation demonstrated that the PMC offered by the Pharmacy Department of PGH is a relevant and valuable service to correct patients' misconceptions about medications and other health-related concerns. It also serves as an opportunity for experiential and collaborative learning and practices for both students and pharmacists. The service is acceptable to the patients and other healthcare professionals who concurred with the benefits of patient counseling by a pharmacist. However, inadequacies in physical and human resources and current processes in the implementation need to be addressed to improve efficiency, ensure sustainability, and expand coverage of the service to more patients.

Disclaimer

The views and opinions that presented in the article will be those of the authors and do not necessarily represent that of the hospital.

Statement of Authorship

All authors participated in the data collection and analysis and approved the final version submitted.

Author Disclosure

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