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Impact of an interprofessional practice experience on medication histories within a dental admissions clinic

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ABSTRACT

Purpose: To examine the impact of an interprofessional practice experience by comparing medication histories of dental patients receiving interprofessional care (IPC) to those receiving standard care (SC).
Methods: A retrospective chart review was conducted on patients presenting to a dental admissions clinic who received either SC from dental students or IPC from pharmacy-dental student teams. Demographics, medication clarifications, clinical relevance, and interventions to resolve discrepancies were collected and compared between groups.
Results: One hundred twenty-six patients received IPC and 131 received SC. IPC clarified significantly more medication discrepancies (9 [IQR 5–14] versus 1 [0–6]; $p < 0.001$), and drug omissions (2 [IQR 1–5] versus 0 [0–1]; $p < 0.001$) compared to SC. The majority of charts with ≥1 drug omission clarification were deemed clinically relevant.
Conclusions: IPC clarified more medication discrepancies which translates to more accurate medication histories. These findings suggest that this interprofessional practice experience had a positive impact on patient care.

1. Introduction

Interprofessional collaborative practice is recommended by the World Health Organization (WHO) as a means to improve the quality and efficiency of healthcare.[1] In an effort to adequately prepare future healthcare providers to build more effective teams once they enter the workforce, many accrediting bodies now require that health profession schools incorporate interprofessional education (IPE) into the curriculum, notably the Accreditation Council for Pharmacy Education (ACPE) and Commission on Dental Accreditation (CODA).[2,3] In 2015, the Institute of Medicine (IOM) systematically reviewed the literature to evaluate the impact of IPE and identified that the current evidence has focused on learner outcomes, such as knowledge, skills, and attitudes.[4] The IOM concluded that there is a lack of robust studies that establish a link between IPE and improvements in health and system outcomes. Based on these findings, the IOM recommended that researchers must move beyond examining the impact on learners' knowledge, skills, and attitudes, and instead, focus on the link between IPE and collaborative behavior. They recommended specifically focusing on performance in practice and health and system outcomes.

Currently, there is a limited amount of literature describing or evaluating IPE that involves dental and pharmacy students. The literature that is available describes case-based discussions, online

Abbreviations: ACPE, Accreditation Council for Pharmacy Education; ADR, adverse drug reaction; CAD, coronary artery disease; CODA, Commission on Dental Education; COPD, chronic obstructive pulmonary disease; CVA, cerebral vascular accident; IOM, Institute of Medicine; IPC, interprofessional care; IPE, interprofessional education; IQR, interquartile range; SC, standard care; TUKSoD, Temple University Kornberg School of Dentistry; TUSP, Temple University School of Pharmacy; WHO, World Health Organization.

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modules, observation activities, and simulations.[5–9] Prior to the design of our interprofessional practice experience,[10] there were no studies evaluating an interprofessional collaboration with dental and pharmacy students in a clinical practice setting. This interprofessional practice experience has demonstrated a positive impact on learner outcomes, notably improvements in interprofessional competencies and perceptions,[10] as well as patient outcomes in regard to tobacco cessation.[11]

Accurate medication histories are necessary to improve the quality and safety of healthcare across all care settings, including the dental care setting. Thus, the goal of this study was to examine the impact of an interprofessional practice experience by comparing medication histories of patients receiving interprofessional care (IPC) to patients receiving standard care (SC). The primary objective was to compare the total number of medication clarifications per patient for those receiving IPC versus SC. The secondary objectives were to (a) describe the frequency and type of medication clarifications; (b) assess the clinical relevance of the clarifications regarding the potential impact on dental care; (c) describe the potential impact of clinically relevant clarifications on the provision of dental care; (d) describe the pharmacy interventions recommended to resolve medication discrepancies or medication-related problems.

2. Methods

2.1. Research design and setting

This was a retrospective chart review using a convenience sample from Temple University Kornberg School of Dentistry's (TUKSoD) dental admissions clinic. The dental admissions clinic provides care for patients who are (a) presenting for an initial visit to establish care at the dental school or (b) re-establishing care if more than two years have elapsed since last receiving care at the dental school.

2.2. Practice description and innovation

During the spring semester of 2015, we created an ongoing interprofessional practice experience with third and fourth year dental students from TUKSoD and third-professional year pharmacy students from Temple University School of Pharmacy (TUSP). A complete description of the design and evaluation of this interprofessional practice experience was presented previously.[10] In short, the interprofessional practice experience involves dental and pharmacy student-teams working together to provide IPC at the dental admissions clinic under the direct supervision of licensed dental and pharmacy faculty. Approximately 4–5 pharmacy students are paired with dental students in a 1:1 or 2:1 ratio, respectively, depending on patient workload with approximately 1 pharmacy and 2 dental faculty members supervising. Prior to the dental encounter, pharmacy and dental faculty reinforce profession-specific roles and responsibilities with each interprofessional team. After the interprofessional teams complete the histories and exams, they gave a shared patient presentation to dental and pharmacy faculty to finalize patient care plans. After the patient presentation, both pharmacy and dental students document separate notes in the chart.[10] The dental admissions clinic is open Monday through Friday with ten clinic sessions per week (five morning and five afternoon sessions). Dental and pharmacy student-teams provide IPC on two afternoon clinic sessions per week for medically compromised patients during the fall and spring semesters. For patients who are not medically compromised and for all patients seen during the remaining clinic sessions, dental students provide SC. SC in the admissions clinic involves a medical history review (including a medication history), head and neck examination, and soft-tissue cancer screening. IPC includes the same components as SC, and in addition, pharmacy students take the lead in conducting medication histories, clarifying medication discrepancies, and providing medication education (e.g. proper inhaler use), as appropriate. Clarifying medication discrepancies involves verbal inquiry from the student provider, calling the patient's pharmacy, and/or contacting the patient's medical provider. The medical history review, for both IPC and SC, involves reviewing a health questionnaire that each patient fills out prior to the appointment. The health questionnaire contains information regarding demographics, reason for visit, past medical, surgical, and social history, allergies, and current prescription and nonprescription medications. During IPC clinic sessions, patients who report multiple disease states and report taking multiple medications on their health questionnaire are preferentially chosen to receive IPC over healthy patients with no prescription medications listed. Additionally, patients who report tobacco use receive tobacco cessation education. During IPC sessions, dental and pharmacy student-teams work together to provide this education. Pharmacy students lead the education utilizing the ask-advise-assess-assist-arrange method. During SC sessions, dental students provide education utilizing the ask-advise-refer method.[10,11]

2.3. Patient charts

All charts of patients who presented to the dental admissions clinic on the dates of the IPC sessions between September 8, 2015 to December 2, 2015 (fall semester) and February 2, 2016 to April 28, 2016 (spring semester) were eligible for inclusion in this study. A list of patients who were scheduled on these days (for both morning and afternoon sessions) was generated from an electronic schedule. Paper charts of patients from this list were screened to determine if they met inclusion criteria for either IPC or SC groups. To reduce confounding between different dental students, dental students who participated in the IPC group served as their own controls for the SC group. The first step of the screening process involved identification of a separate medication history note written by a pharmacy student, which was unique from patients who received SC. The charts with a pharmacy medication history note were included in the IPC group. The second step of the screening process involved identifying the dental students who participated in the IPC group, which was located on the health questionnaire. The third step of the screening process involved identifying charts of patients who received SC from the dental students who had participated in the IPC. If a dental student provided SC to multiple patients, the chart of the patient with the most medications was chosen for inclusion in the SC group and the other charts were excluded. This allowed for better matching between groups. Charts were also excluded if the patient was <18 years of age; if the patient was not taking any medications; if the chart was illegible, missing the health questionnaire, or could not be located during the time of chart review.

2.4. Definitions

Medication discrepancies were defined as either missing or incorrect information from a medication regimen (e.g. missing drug, dose, route, frequency, drug commission, or incorrect drug, dose, route, frequency). A drug commission was a prescription medication reported by the patient on the health questionnaire but was not verified as a current medication after calling the patient's pharmacy. Medication clarifications were discrepancies that were subsequently corrected (i.e. “clarified”) by the student provider(s) conducting the medication history. Medically compromised