Evaluating Interprofessional Education Outcomes of Dental School Pharmacotherapy Consult Services

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Jennifer B. Harmon, RDH, MS[2]; Shannon H. Mitchell, RDH, MS[2]; Heidi N. Anksorus, PharmD, BCPS[1,2]
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OBJECTIVE

To evaluate interprofessional (IP) education outcomes with implementation of a pilot pharmacotherapy consult service involving doctor of dental surgery (DDS), dental hygiene (DH), and doctor of pharmacy (PharmD) students in dental school-based clinics

METHODS

PROGRAM DESIGN

- Pharmacy and dental faculty created a pharmacotherapy consult request decision pathway that allowed DDS and DH students to discuss their patients' medication-related issues
- All students received an orientation on scopes of practice of each discipline and overview of consult types (Table 1)
- Consult services were conducted by pharmacy faculty and second year PharmD students with a focus on education and clarification

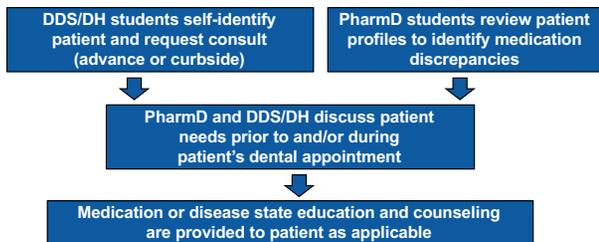| Table 1: Consult Types |
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| Medication History Verification |
| High Risk Medication Education |
| Common Chronic Disease States/Treatment |
| Disease States/Medications That Impact Oral Health |
| New Medication Prescriptions |
| Drug Information Request |

DATA COLLECTION

- Pre-post experience surveys were conducted at baseline and the end of the academic year assessing DDS, DH, and PharmD students':
  - Knowledge of each discipline's scope of practice using confidence scale statements
  - Perceptions of interprofessional communication using the Readiness for Interprofessional Learning Scale (RIPLS)
  - Overall program evaluation
- Assessment of student clinical experience was evaluated through self-reflection, focus groups, and consult tracking technology.

DATA ANALYSIS

- Univariate analysis conducted using descriptive statistics. Non-parametric tests were used to measure differences between pre-post test results
- All qualitative data (survey open responses and focus groups) were analyzed using thematic coding

RESULTS

DDS/DH students self-identify patient and request consult (advance or curbside)

PharmD students review patient profiles to identify medication discrepancies

↓

PharmD and DDS/DH discuss patient needs prior to and/or during patient's dental appointment

↓

Medication or disease state education and counseling are provided to patient as applicable

- One hundred sixteen students (DDS=68, DH=33, PharmD=15) were included; of those, 75 completed pre-post experience surveys (DDS=45, DH=24, PharmD=6)
- Three eighty-three documented pharmacy consults occurred over the course of a 5-month period with the Medication History Verification being the most common
- RIPLS pre-post experience showed no significant differences attributed to high initial baseline scores

Program Evaluation	
Program Strengths	• Collaboration provided holistic care and benefitted patients • Well-organized and expanded understanding of other disciplines • Better understanding of how medications impact dental care
Program Improvements	• Difficulty in arranging consults due to schedule availability and complexity of consult form • Pharmacy proactively speaks to patients already • Develop education sessions for common drugs, side effects, and red flags

What did DDS/DH students learn from collaborating with pharmacy faculty and students?

Pharmacy Faculty:
- Importance of complete medication histories
- How to counsel on diabetes care, medications, and symptoms of hypoglycemia for chronic disease states
- Recognition of oral side effects of medications

Pharmacy Students:
- Asking appropriate follow-up questions to obtain more information
- Drug-drug interactions and drug delivery mechanisms
- PharmD curriculum and their scope of knowledge

FOCUS GROUPS

Three additional focus groups with a total of 11 DDS students were conducted.

Emerging themes identified included:
- ↑ Ability to assess how medications on patients' lists may impact oral health
- ↑ Appreciation of communication with other health disciplines to impact overall patient care

Confidence in Knowledge of Pharmacy Statement[a]	DDS (n = 45)		DH (n = 24)	
	Pre-Median	Post-Median[b]	Pre-Median	Post-Median[b]
1) Define basic pharmacy terminology	4	5*	4	5
2) Recognize how a patient's medications affect his/her oral health	5	6*	5	6*
3) Describe common side effects of medications that affect oral health	4	5*	5	6*
4) Recognize common pharmacy documentation processes	3	5*	2	5*
5) Recognize how certain medications can affect dental treatment	5	6*	4	6*
6) Explain the types of diagnostic labs or point of care tests that are important to consider in a dental setting	3	5*	2	4*
7) Understand the types of lab monitoring that are important to consider in a dental setting	3	5*	2	4*
8) Describe the components of a well-written medication prescription	4	5*	3	4.5
9) Understand the educational process to achieve a PharmD degree	2	4*	2	4*
10) Describe the role of a pharmacist in various settings	4	5*	3	5*
11) Recognize how consulting with a clinical pharmacist can improve patient care	5	6*	5	6*

a-Each item measured on a scale from 0 (cannot do at all) to 8 (highly confident can do).
b-Wilcoxon signed-rank test used to compare pre- and post- responses. Range reporting varied from 0-8
* Significant change from baseline (p-value < 0.05)

CONCLUSIONS

- Dental school clinic settings provide a rich opportunity for interprofessional interaction and results indicate benefits for student learning within the dental clinic environment
- Outcomes indicate the benefit of this IP practice collaboration and support continued integration of pharmacy practitioners within the dental school clinic practice environment
- Data collected from this study is being used to help guide and inform further development of interprofessional experiences between the schools as well as identifying ways to better frame interprofessional experiences to assess interprofessional education learning outcomes

Confidence in Knowledge of Dentistry Statement[a]	PharmD Students (n = 6)	
	Pre-Median	Post-Median[b]
1) Define basic dental terminology (including procedures and oral anatomy)	2	3.5
2) Recognize how a patient's medications affect his/her oral health	3	6.5*
3) Describe common side effects of medications that affect oral health	3.5	7*
4) Recognize common dental documentation processes (including treatment plan, progress notes, medical history, general exam, periodontal exam)	2	3.5
5) Recognize which dental procedures may be impacted by certain patient medications (patient safety)	2.5	6*
6) Explain the types of diagnostic labs or point of care tests that are important to consider in a dental setting.	1.5	5*
7) Understand the types of lab monitoring that are important to consider in a dental setting.	1.5	4.5*
8) Describe most common medications used for dental procedures (including local anesthetics, antibiotics, pain medications)	3.5	5*
9) Understand the educational process to achieve a DDS degree (prerequisites, years of study, curriculum structure)	1.5	3.5*
10) Understand the educational process to achieve a DH degree (prerequisites, years of study, curriculum structure)	1	2.5*
11) Distinguish the difference between the role of a dentist and the role of a dental hygienist	2.5	5.5*
12) Recognize how consulting with a DDS or DH can improve patient care (scope of practice)	2.5	6.5*

a-Each item measured on a scale from 0 (cannot do at all) to 8 (highly confident can do).

b-Wilcoxon signed-rank test used to compare pre- and post- responses. Range reporting varied from 0-8

* Significant change from baseline (p-value < 0.05)