


Summer 8-12-2018

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## Recommended Citation

Prodan, Oksana, "Benefits of Interprofessional Education between Advanced Practice Nurse Practitioner and Dentistry Students" (2018). *DNP Qualifying Manuscripts*. 3.  
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Benefits of Interprofessional Education between Advanced Practice Nurse Practitioner and  
Dentistry Students

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### Abstract

**Background:** Interprofessional Education (IPE) is mandated for accreditation in health professional schools. IPE between Advanced Practice Registered Nurse (APRN) and dentistry students have been developed to improve health oral systemic health outcomes and improve inter-professional practice competencies.

**Method:** Literature on APRN dental IPE was searched via CINAHL Complete from 2007-2018, looking for scholarly journals, English language. The search was narrowed from 55 to three relevant, data-based studies.

**Results:** Review of literature produced one study demonstrating benefits of IPE for both APRN and dentistry students, one study only focused on benefits for APRN students, and another IPE article was descriptive and did not provide any outcome data.

**Conclusion:** Not enough research is available to say if this IPE pairing would be beneficial. However, preliminary studies show promise, especially in helping APRNs learn oral-systemic health skills and in fulfilling IPE competencies. Further research is needed.

*Keywords:* interprofessional education, health education, dentist, nurse practitioner, APRN

## Introduction

The Institute of Medicine and the World Health Organization put forth a report on the importance of Interprofessional Education (IPE) in healthcare due to an increase in the complexity of healthcare delivery, requiring collaborative management by multidisciplinary professionals (IOM, 2009; Health Professions Networks Nursing and Midwifery Office, 2010). The reports stated that when various disciplines work together patients have better outcomes, as well as increased satisfaction. It is becoming increasingly important for the multidisciplinary healthcare professions to work together and understand each other's roles to provide optimum care in spite of a complex and frequently fragmented US healthcare system.

Collaborative IPE is intended to allow healthcare students and health professionals to learn the practice capacity of their own and of each other's professions. It is also intended to teach healthcare professionals how to communicate and collaborate effectively with others in the field (Sullivan, Kiovisky, Mason, Hill, & Dukes, 2015). In 2012 six major national healthcare organizations, including American Association of Colleges of Nursing (AACN) and American Dental Education Association (ADEA), have responded to this need by putting forth their own individual curriculum mandates for IPE for all accredited healthcare institutions at all levels of education. This made it mandatory for healthcare institutions to provide IPE for their students in order to maintain their accreditation.

Various studies have been published about IPE between professionals that are most likely to work together, such as an IPE experience between nursing and medical students, or dentistry and pharmacy students. Yet the IPE relationship between Advanced Practice Registered Nurses (APRNs) and dentistry students has not been as widely explored. Although APRNs and dentists are not a usual pair of healthcare collaborators, there is a need for the two professions to learn

and to work together to improve oral systemic health outcomes, particularly among vulnerable populations.

Dentists typically have a fairly narrow specialty practice, where few other health professional fields overlap with them. However, in 2008, American Academy of Pediatrics put forth a call to action for pediatric primary care providers to help reduce early childhood caries (ECC) (American Academy of Pediatrics, 2008). Therefore, as primary care providers, pediatric and family specialty APRNs, are expected to learn the skills for performing a pediatric oral health exam and to be able to provide preventive measures including the application of fluoride varnish in primary care. This was brought forth in order to bridge the gap for young pediatric patients, who have not yet established a dental home, but whose teeth have already erupted and are in need of care, and to provide education for families about how to care for the child's teeth at that age (Mahat, Lyons, & Bowen, 2014). This presents an excellent opportunity for IPE between APRN and dentistry students. APRN students can learn oral health examination skills and how to apply fluoride varnish application from dentistry students.

Interprofessional education between APRN and dentistry students allows both sets of students to meet their interprofessional education competencies, as stated by the American Association for colleges of Nursing (AACN) and the ADEA, as well as to meet the recommendations by the American Academy of Pediatrics. The experience would also allow APRN and dentistry students to jointly learn the skills necessary to perform an oral health exam and to build a collaboration based on the strengths of the individual professions. Furthermore, the experience would be beneficial in helping these providers learn when and how to refer or consult a health professional outside of their own field, as well as to be able to view the patient holistically.

From a dentistry student's point of view the IPE pairing with APRNs may be more beneficial than a pairing with medical students. Spielman, Fulmer, Eisenberg & Alfano (2005) compared the competencies of APRNs, dentists, and physicians and found that dentists' competencies overlap more with those of APRNs than they do with those of physicians (38 percent overlap compared with 25.4 percent). The authors noted that medical schools have broader learning objectives than those of nursing and dentistry schools, which was one reason for the difference in competencies. They go on to explain that the level of expertise that APRN and dentistry students are expected to have by the time they graduate is somewhat different from that of medical students because medical students are expected to go on to residency and complete their specific competencies at that time. This is yet another reason an IPE between dentistry students and APRN students may work well: the two sets of students are in similarly structured programs, which also have similar learning objectives and can enhance each other's learning.

The purpose of this paper is to explore the data-based literature examining the outcomes of IPE activities between APRN and dentistry students.

### Methods

A literature search was conducted using Cinahl Complete database. The following keywords were utilized: Interprofessional education, IPE, nurse practitioner or APRN, and dentist. From a total of 55 articles, the search was narrowed down to 29 results after selecting the Peer Reviewed articles, in the English language, which were published from 2007-2018. Most of the articles at this point were related to IPE but did not include APRNs and dentists together in the same study. The search was further narrowed down by selecting studies that included interprofessional activity between both, dentistry and APRN students. The final search revealed three relevant studies.

## Results

Three studies were found to have addressed IPE between APRNs and dentistry students. Lin, Miller, & Zhan, (2013) explored IPE held at University of California, San Francisco between their schools of nursing and dentistry. The outcomes of this study focused only on the APRN students, despite the fact that the IPE involved both, APRN and dentistry students. The measures were done via surveys of APRN students at zero and then between five and nine months after the completion of the IPE. The surveys measured APRN's knowledge, confidence and attitudes toward their ability to provide oral health services. The IPE itself included a one-time, one-hour lecture by APRN faculty, followed by a one-hour simulation, and a half-day observation at the pediatric dentistry clinic at UCSF. The participants showed a statistically significant overall increase in their knowledge of oral health and fluoride application ( $p < 0.001$ ). Furthermore, overall confidence level of APRN students regarding oral health increased significantly ( $p < 0.001$ ), and eighty three percent of participants stated that they incorporated pediatric oral health exams as part of the well-child visits in their clinical practice.

Haber, Spielman, Wolff, & Shelley (2014) described an IPE within New York University between their schools of nursing and dentistry. The IPE focused on teaching dentistry students to be able to assess each patient in a comprehensive way, as well as to know when to refer a patient to a specialist. APRN students were expected to show their ability to do an oral health exam. The two sets of students were expected to interact and to teach one another what they knew in their own health fields, as well as to work with an APRN or dentistry faculty. APRN faculty were available to dentistry students to review charts regarding the patient's holistic health, while APRN students were paired with dentistry students to learn how to do oral health exams and to also provide information about the patient's overall health status. Patient treatment plans were

heavily reliant on the collaboration between the two sets of health professionals. Although the authors did not describe methods of evaluation to show outcomes, they stated that they did perform their own surveying and pre- and post- testing, but did not discuss this in their findings. The authors also eluded the success of this program by describing the multidisciplinary enthusiasm of the students, as shown by the number of attendees to early morning seminars.

Nash, Hall, Ridner, Hayden, Mayfield, Firriolo, *et. al.*, (2018) conducted a study, involving dentistry and APRN students at the University of Louisville. The students' learning revolved around systemic-oral health and the IPE was in the form of various lengthy lectures and group activities over a period of time for the two groups of professional students. APRN and dentistry students were split up into two groups: students who were involved in the IPE and those who were not a part of this activity. The results showed that those who participated in the activity had higher levels of self-efficacy to participate as a part of an interdisciplinary team at the end of the IPE compared to those who did not participate in the IPE. In the non-IPE group APRN students showed higher readiness for interprofessional learning than did dentistry students, whereas in the IPE group, both showed equal levels at the end of the activity.

All three of the studies found that the IPE between dentistry and APRN students was feasible and showed some positive outcomes, even though one of the studies did not provide concrete measurements of improvement. Two of the studies showed that the students felt they gained more self-confidence (Lin, Miller, & Zhan, 2013; Nash, *et. al.*, 2018) and in two of the studies dentistry and APRN students were expected to learn collaboratively from and to teach one another (Haber, *et. al.*, 2015; Nash, *et. al.*, 2018). All three studies focused on oral-systemic health as the bridging activity between the two disciplines. Only one study looked into outcomes other than APRN students' confidence or knowledge retention level (Lin, Miller, & Zhan, 2013).



## Discussion

Findings from these studies suggest that an IPE between APRN and dentistry students can lead to positive outcomes for the students, while also fulfilling the competencies of each of the professions and of the schools. Although a majority of the studies describe the outcomes of APRN students, dentistry students were also described to have made improvements in the IPE competencies (Nash, *et. al.*, 2018). So far, these studies have looked into the immediate effects of the health professionals. Future studies may need to address the long-term benefits of the IPE in order to make appropriate recommendations regarding the activity and its competencies.

Limitations of this report include that only a small amount of published studies was available regarding IPE between APRNs and dentistry students. All the IPEs described were widely different in their program set ups and the data collected, which made it difficult to make conclusive recommendations on how to structure the IPE for the most benefit. Yet, all the IPE experiences showed to have benefits as part of their conclusions.

Lastly, the IPE activity in these studies focused on oral-systemic health training as the main learning objective for APRNs. Yet, it may be beneficial to provide a focused learning objective for dentistry students as well. For instance, APRN students can continue to focus on learning and mastering their oral health exam skills, which are skills that dentistry students have mastered and can help teach to APRN students. At the same time dentistry students may need to focus on mastering a needed skill that the APRNs have mastered, such as improving interpersonal communication or learning about complete physical health assessments. This way the intervention would not be one sided.

## Conclusion

Based on available evidence, it appears that an IPE between APRN and dentistry students has the potential to produce positive outcomes. Although more conclusive evidence would be beneficial to find out how the pairing between the two health professional students would affect their patients in the future, there may be clear ethical implications of their work together.

When healthcare providers collaborate effectively, not only would their patients receive efficient and appropriate care due to the involvement of appropriate healthcare experts, it would also allow for the healthcare system to avoid unnecessary expenditures as a result of preventive care and teaching, and of timely recognition of issues. The IPE between APRN and dentistry students may have a clear benefit in that both specialties frequently work with vulnerable populations. APRNs in particular would be able to gain valuable skills from the IPE experience and make an impact because they would be knowledgeable about when to refer a pediatric patient to an appropriate dentistry specialist, as well be able to implement preventive interventions, such as fluoride varnish application, in a timely manner. The IPE experience between APRN and dentistry students can be the start of a very valuable and effective interprofessional relationship, which can lead to them improving oral and systemic health of their patients.

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