An update on the status of interprofessional education and interprofessional prevention education in U.S. academic health centers

Maria C. Clay a,*, David Garr b, Annette Greer a, Rebecca Lewis c, Amy Blue d, Clyde Evans e

a Department of Bioethics and Interdisciplinary Studies, Brody School of Medicine, East Carolina University, Greenville, NC, USA
b South Carolina Area Health Education Consortium, Medical University of South Carolina, Charleston, SC, USA
c Department of Bioethics and Interdisciplinary Study, and the NC Agro-medicine Institute, East Carolina University, Greenville, NC, USA
d University of Florida College of Public Health and Health Professions, Gainesville, FL, USA
e Academy for Academic Leadership, Needham, MA, USA

ABSTRACT

Purpose: A national study was conducted in 2010 that described the status of interprofessional education and interprofessional prevention education in the United States. This manuscript compares the results from the 2010 survey with those of an expanded survey in 2015.

Method: The original 10 questions comprising the 2010 survey were retained in 2015 and re-sequenced to facilitate completion. An additional 15 questions were added to the survey to capture information about issues not assessed by the first survey – language and program changes in IP-Education, IP-Practice and IP-Prevention Education, and demographic variables of interest. Respondents were again drawn from the membership list of the Association of Academic Health Centers.

Results: The respondent group of 156 represents 36 of the 42 states that have Association of Academic Health Centers (AAHC) member institutions, and 103 of the 125 AAHC member institutions that were eligible to receive surveys responded representing 82.4% of eligible AAHC institutions. Reported activity is higher in the area of course offerings with the least activity reported in the area of infrastructure. Data from the responses to the IP-Prevention Education questions, by contrast, indicate that there has been a decrease in IP-Prevention Education between 2010 and 2015.

Conclusion: The trend in growth of IP-Education and IP-Practice is encouraging and deserves to be tracked to assess whether the positive direction continues and whether the prevalence of dedicated personnel and infrastructure (centers and offices) continue to increase. Relative to IP-Prevention Education, increased assessment needs to be given to the proposed linking of IP-Education with prevention education.

© 2017 Elsevier Inc. All rights reserved.

1. Introduction

The need for health professions students to engage in interprofessional learning experiences has been proposed for several years," and changes in health care and an emphasis on improving population health have increased the need to educate students and patients about the importance of disease prevention and health promotion.3 The need to utilize an interprofessional approach when providing preventive care has been recommended by several national organizations including the American College of Preventive Medicine, the Association for Prevention Teaching and Research, and the Healthy People Curriculum Task Force. In 2010, we examined the status of interprofessional education and an interprofessional approach to teach prevention in US academic health centers. Our purpose with the 2010 survey was to establish baseline measures of interprofessional education, interprofessional practice, and interprofessional prevention education in the U.S.4,5

Our study, based on the Interprofessional Education Assessment and Planning Instrument,6 revealed the prevalence of IP-Education infrastructure was lower than the prevalence of interprofessional course work or personnel.4 Of note was the low occurrence of IP-Prevention Education.3 An important outcome from the study was that its results made possible the addition of the interprofessional education Objective ECBP-19 in 2014 to Healthy People 2020,
("Increase the proportion of academic institutions with health professions education programs whose prevention curricula include interprofessional educational experiences.")

Since 2010, several critical activities have occurred in interprofessional education. In 2011, the Interprofessional Education Collaborative (IPEC) representing six professions led to the publication of the Core Competencies for Interprofessional Collaborative Practice. This document outlined four competency domains (and associated subdomains) for interprofessional collaborative practice. The presence of these competencies provided a foundation upon which health professions education programs could build academic curricula and student experiences.

Another significant development was the creation in 2012 of the National Center for Interprofessional Practice and Education. Founded with the goal of aligning health professions education with practice to improve the quality of care provided to patients and clients, the Center has as its mission to offer and support “evaluation, research, data and evidence that ignites the field of interprofessional practice and education and leads to better care, added value and healthier communities.” These resources help encourage and enhance greater IP-Education activities in the health professions. The establishment of the center, along with increased emphasis by funding agencies and accreditors on interprofessional care, further facilitated responses and actions relating to the need for health professions programs to implement interprofessional learning experiences for students. Some reviews of the field of interprofessional education have been published. There have been a few reports in literature focusing on interprofessional prevention education. In 2011, Evans et al. reported on the efforts that emerged from two separate installments of the Institute for Interprofessional Prevention Education (convened by the Association for Prevention Teaching and Research), highlighting projects from several health professions teams that focused on the development of IP-Prevention Education curricular initiatives. Additional reports in the literature describing specific interprofessional prevention education efforts have included the prevention of falls in the elderly, the prevention of childhood obesity, and the integration of preventive services as part of the Medicare Wellness Visit.

With the apparent growth in interprofessional education and the continued recognized need for prevention education, we sought to compare the status of interprofessional education and interprofessional prevention education in 2015 with the baseline information collected in 2010.

2. Methods

The research team returned to the Association of Academic Health Centers (AAHC) for an endorsement of this 5 year follow-up study and to seek permission to utilize their membership list. This resulted in the identification of 125 academic health centers located in 42 states, Puerto Rico and Washington, D.C. As in 2010, the membership list was further refined to identify the deans/leaders of specific schools/colleges/programs within each academic health center; all correspondence was sent to the deans/leaders who could complete the survey or forward to someone more knowledgeable in that school/college/program. This resulted in 481 participants who receive emails with links to the survey. An initial review of respondent showed that there were no respondents that represented the same program/college/school.

Similar to the 2010 study, the research team utilized an online survey housed in www.surveymonkey.com. The survey, however, underwent some modification. The original 10 questions comprising the 2010 survey were retained in 2015 and were resequenced to facilitate completion. Fifteen (15) additional questions were included in the survey to capture information not sought in the first survey - language and program changes in IP-Education, IP-Prevention Education, and demographic variables of interest (See Appendix). This manuscript compares findings from the 2010 survey with those of the 2015 survey.

3. Respondents and survey analysis

Of the 481 surveys sent, 156 persons responded to the IP-Education survey questions (34% response rate), and 154 persons responded to the IP-Prevention Education questions (32% response rate). The respondents represented 36 of the 42 states that had AAHC member institutions, and at least one academic program completed the survey in 103 of the 125 (82%) AAHC member institutions. A simple frequency, descriptive analysis was used to compute survey findings and a trend comparison was used to compare the 2010 results with those acquired in 2015.

4. Results

IP-Education activities increased in all categories between 2010 and 2015 (see Table 1). Specifically, 96% (N = 150) of the 156 respondents offer courses that include interprofessional collaborative experiences with 90% (N = 141) reporting an increase in such courses during the last four years. Eighty-eight percent (N = 137) of the 156 respondents indicated that such courses are team taught and 69% (N = 110) stated that these courses are required. Sixty-seven percent (N = 105) of respondents reported an increase in opportunities to assess interprofessional student teams using standardized simulation methods. Another form of education occurs in practice settings. Relative to interprofessional practice opportunities, 88% (N = 137) reported interprofessional clerkship opportunities with 66% (N = 103) of the 156 respondents indicating there was an increase of such opportunities during the past four years.

Relative to support for IP-Education through resource allocation and promotion, 83% of respondents (N = 129) indicated that there are dedicated personnel for IP-Education, 76% (N = 118) reported the presence of interprofessional centers or offices and 82% (N = 128) reported interprofessional language in official documents. Resource support through funding, however, is multifaceted with 34% (N = 53) of the 156 respondents reporting internal funding, 12% (N = 18) reporting external funding, 28% (45) reporting funding from a combination of internal and external sources, and 26% (40) reporting no funding to support interprofessional initiatives.

In summary, this snapshot of interprofessional activity reveals an upward trend line when comparing the 2010 findings with the reported 2015 activities in IP-Education and IP-Practice (See Table 1).

Faculty development, a new area of inquiry in the 2015 survey, was more prevalent in IP-Education than in IP-Practice. Eighty-one percent of 156 respondents (N = 127) reported faculty development opportunities for IP-Education while only 47% (N = 73) reported faculty development opportunities for IP-Practice. Relative to faculty development for prevention education, only 29% (n = 45) of the 154 respondents reported such opportunities and fewer (24%, n = 37) reported faculty development for prevention practice.

When reviewing the IP-Prevention Education results of the 2010 and 2015 surveys, IP-Prevention Education activities were more mixed (See Table 2). Specifically, 49% (n = 75) of the 154 respondents in 2015 indicated that interprofessional courses were offered during which students from multiple disciplines learned...
prevention compared to 58% (n = 74) of the 127 respondents responding to this same question in 2010. IP-Prevention Education that focused on clinical rotations or internships were reported by 43% (N = 67) of the 154 respondents in 2015 compared to 48% (N = 62) of the 127 respondents in 2010. As pertained to support for IP-Prevention Education, dedicated personnel was reported by 39% (N = 60) of the 154 respondents (N = 154) compared to nearly 60% (N = 76) of the 127 respondents reporting such personnel in 2010.

In the 2015 survey, seven new IP-Prevention Education questions were added to the survey which was similar in focus to those added to the IP-Education section of the survey. They included questions about faculty development, specifics regarding course offerings, use of simulation for evaluation, and funding. In relation to the nature of course offerings, 38% (n = 58) indicated that at least one prevention course was required with a similar response rate of 38% (N = 58) of the 154 respondents indicating that at least one IP-Prevention Education course was taught by an interprofessional team. Of interest was the specific finding that 41% (N = 63) of 154 respondents indicated that opportunities in prevention education had increased during the prior four years with almost an equal number of respondents (40%, n = 61) indicating that prevention education had remained the same. Relative to assessment, 29% (n = 45) indicated that standardized simulation for student prevention-focused team performance had increased during in the past four years. Lastly, only 24% (n = 37) of the 154 respondents indicated receiving any funding to support prevention education.

## 5. Discussion

The results of this follow-up national survey on IP-Education and IP-Practice activities are very encouraging. Reported activity is evidenced in all major IP-Education and IP-Practice categories (courses, personnel, and infrastructure). Didactic and practice-based courses, often the first IP-Education activity, have high occurrences according to the respondents. With the growth in courses, personnel dedicated to IP-Education become a specific point of interest. Survey results attest to the progress made in providing IP-Education personnel for academic health centers. Equally encouraging is the increase in the creation of interprofessional centers or offices—evidence of infrastructure support. Unfortunately, funding remains a problem with only a third of the respondents reporting support through internal funding and another 28% reporting the presence of a combination of internal and external funding sources. The lack of dedicated internal funds is surprising, as the existence of interprofessional courses (including required courses) would lead to an expectation that mainstream curricular activities would not

### Table 1
Percentage of respondents indicating “yes”. Comparison 2010 and 2015 survey data IP-Education.

<table>
<thead>
<tr>
<th></th>
<th>2010 Yes</th>
<th>2015 Yes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Courses</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Clinical</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Personnel</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Documents</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Office/Center</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Table 2

<table>
<thead>
<tr>
<th></th>
<th>2010</th>
<th>2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>Courses</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Clinical</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Personnel</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
be dependent on external funding. Further research should be conducted to determine why this discrepancy exists and to identify mechanisms that will fully support IP-Education and IP-Practice activities within academic health centers.

Another encouraging trend is the prevalence of faculty development—a new focus that was included in the 2015 survey. It is noteworthy that 81% of respondents indicated the availability of IP-Education faculty development opportunities at their institutions. As Reeves^{10} has indicated, faculty development is a cornerstone of successful interprofessional integration into curricula and practice settings. Of concern is the 47% positive response to the questions about faculty development opportunities focusing on IP-Practice. Further research should explore the nature and type of faculty development provided, the reason(s) for the difference in the availability of faculty development for IP-Education and IP-Practice, and future plans to ensure equity in access to faculty development for both of these interprofessional areas of focus.

The results for IP-Prevention Education present a more complex picture. The data indicate that there has been a limited increase in the number of IP-Prevention Education courses during the five years that elapsed between the two surveys and that the number of “no” responses has actually increased. Several explanations for this are possible.

One explanation might be that the prevalence of prevention education content may have increased during this period but an interprofessional approach has not been employed to teach this content. Is there a perception that prevention education and the provision of preventive services does not merge well with interprofessional education or does not require an interprofessional approach? While one could argue this, alternative explanations are possible.

Instead, one might propose that prevention education, especially when coupled with interprofessional education, is not occurring in discrete courses and a survey that places emphasis on IP-Prevention Education within the context of interprofessional courses fails to capture the reality of IP-Prevention Education initiatives. This could certainly be the case if prevention content is integrated into many courses or throughout an entire curriculum.

Still another possible explanation is that IP-Prevention Education may find a more meaningful connection in a practice-based setting rather than in a classroom or course setting. This might be inferred from the small gain in number of programs reporting IP-Prevention Practice: 67 reported such activity in 2015 while 62 reported such activity in 2010. This resonates with a professional environment that is moving toward both interprofessional education and inclusion of prevention in clinical practice. Nevertheless, the data point to the need to more fully investigate IP-Prevention Education to fully understand the trends.

There is a noticeable difference between IP-Education and IP-Prevention Education relative to infrastructure. Here, the data indicate substantially more support for IP-Education than IP-Prevention Education on all infrastructure variables. Take, for instance, the number of identified IP-Education and IP-Prevention Education personnel. While the number of IP-Education personnel increased between 2010 and 2015, during that same time period, the number of reported IP-Prevention Education personnel declined. It is possible that, as prevention becomes integrated into the fabric of the curriculum, the need for identified personnel diminishes. Alternatively, the results suggest that, from an institutional perspective, identified IP-Education personnel may not yet have extended their focus to include IP-Prevention Education. This represents an untapped resource—dedicated interprofessional personnel who might be called upon to champion the greater inclusion of prevention education without the need for institutions to incur additional personnel costs.

The Core Competencies for Interprofessional Collaborative Practice: 2016 Update^{9} places a greater emphasis on the importance of utilizing an interprofessional approach when addressing prevention and population health issues. This increased emphasis on both of these priorities may lead to an increased emphasis in the future on the role of the interprofessional team in the delivery of preventive services.

A crosswalk has been developed between the revised 2016 IPEC Core Competencies and the 2015 Clinical Prevention and Population Health Curriculum Framework that was developed by the Association for Prevention Teaching and Research-sponsored Healthy People Curriculum Task Force. Titled “Advancing Interprofessional Clinical Prevention and Population Health Education: A Curriculum Development Guide for Health Professions Faculty”^{10} and endorsed by the Interprofessional Education Collaborative, this crosswalk resource can be useful to educators who seek to advance interprofessional education and practice by having teams of students from different health professions learn and work together to address prevention-related priority areas in classroom and clinical settings.

6. Limitations

The findings of this research have several limitations. The survey was only sent to AAHC members and thus the findings do not extend to programs outside of AAHC member institutions. In addition, survey respondents included both individuals at the program/school level (the actual unit of analysis) and those at the centralized, institution-level interprofessional offices or centers serving entire universities. While some effort was made to control for this fact, differences in who answered the survey present interpretation difficulties. Generalizations and interpretations across universities cannot be made.

7. Conclusion

The growth of IP-Education has been impressive between 2010 and 2015 and deserves to be prospectively monitored to assess trends in the availability of dedicated personnel and infrastructure (centers and offices) to support IP-Education. This is especially the case when monitoring extends beyond the membership of the AAHC. In addition, more in-depth investigation into the nature of faculty development offerings and the responsibilities of dedicated personnel and infrastructure seems warranted.

Relative to IP-Prevention Education, greater thought and introspection needs to occur relating to the conceptual link between IP-Education and IP-Prevention Education. Is the lack of IP-Prevention Education evidence a function of the survey instrument that fails to capture such activity, or are most IP-Education offerings (courses, clerkships) focused on working as interprofessional teams and less utilized as a vehicle for other content information? Further research is needed to address these issues.

Acknowledgments

The authors acknowledge funding provided by the Josiah Macy Jr. Foundation grant #P15-02 in support of this research.
Appendix. Glossary and Survey Questions

For the purposes of this survey, the following definitions are being used:

**CLINICAL ROTATIONS:** May include clerkships, practical, and/or internships that are experiential in nature and commonly found outside the traditional classroom setting.

**INTERPROFESSIONAL EDUCATION:** “When two or more professions learn with, from and about each other to improve collaboration and the quality of care” (Center For The Advancement Of Interprofessional Education (CAIPE), 2002).

**INTERPROFESSIONAL TEAM (IP team):** When two or more professionals work collaboratively towards common goals.

**PREVENTION EDUCATION:** Education which teaches about public health.

**INTERPROFESSIONAL TEAM (IP team):** When two or more professionals work collaboratively towards common goals.

**FACTORIAL HAZARD:** The antecedent of an event that is associated with an increase in the risk of the event in the event at hand.

**HARMFUL FACTOR:** Any combination of health promotion and health education and related organizational, political, and economic interventions designed to facilitate behavioral and environmental adaptations that will improve or protect health.” (Definitions from Turnock, Bernard. (2009) Public Health: What it is and how it works. 4th edition. Jones and Bartlett, Sudbury, MA, pg 516)

**HEALTH PROMOTION:** “An intervention strategy that seeks to eliminate or reduce exposures to harmful factors by modifying human behaviors. Any combination of health education and related organizational, political, and economic interventions designed to facilitate behavioral and environmental adaptations that will improve or protect health.” (De

1. Please provide the following information:
   - University/Institution
   - Your College/School
   - Your Professional Discipline
   - State

2. Please provide us with the title you hold at the school or college at your institution.
   - Title Write In

3. This school or college offers COURSES that include opportunities for INTERPROFESSIONAL collaborative learning experiences.
   - Response: Yes, No, Do not know

4. If yes, at least one of the INTERPROFESSIONAL COURSES taught by an Interprofessional Faculty Team.
   - Response: Yes, No, Do not know (space for comments)

5. If you have INTERPROFESSIONAL COURSES, are any of them required?
   - Response: Yes, No, Do not know, Do not have INTERPROFESSIONAL Courses

6. This school or college offers CLINICAL ROTATIONS OR INTERNSHIPS that include opportunities for interprofessional collaborative learning experiences.
   - Response: Yes, No, Do not know

7. During the past 4 years, the number of opportunities for evaluation of INTERPROFESSIONAL student team performance in a standardized simulation experience have:
   - Response: Increased, Remained the same, Decreased, Do not know. We do not have standardized simulation experiences (space for comments: Describe changes)

8. During the past 4 years, the number of INTERPROFESSIONAL EDUCATION opportunities provided to students by your school or program has:
   - Response: Increased, Remained the same, Decreased, Do not know (space for comments: Describe changes)

9. During the past 4 years, the number of INTERPROFESSIONAL PRACTICE opportunities provided to students by your program has:
   - Response: Increased, Remained the same, Decreased, Do not know, Do not have INTERPROFESSIONAL PRACTICE

10. This school or college has PERSONNEL with designated responsibilities (e.g., administrative, teaching, or research) for INTERPROFESSIONAL EDUCATION.
    - Response: Yes, No, Do not know (space for comments)

11. This school or college has INTERPROFESSIONAL OR SIMILAR INTERPROFESSIONAL LANGUAGE which appears in official institutional documentation (e.g., mission or vision statement, strategic plan, governance documentation).
    - Response: Yes, No, Do not know

12. This institution has an OFFICE, CENTER, OR OTHER INFRASTRUCTURE that supports INTERPROFESSIONAL efforts.
    - Response: Yes, No, Do not know

13. This school or college provides FACULTY DEVELOPMENT opportunities in INTERPROFESSIONAL EDUCATION.
    - Response: Yes, No, Do not know (space for comments)

14. This school or college provides FACULTY DEVELOPMENT opportunities in INTERPROFESSIONAL PRACTICE.
    - Response: Yes, No, Do not know (space for comments)

15. Have you received funding to support INTERPROFESSIONAL initiatives?
    - Response: Yes, No, Do not know, Do not have INTERPROFESSIONAL initiatives

16. Have you received funding to support INTERPROFESSIONAL initiatives?
    - Response: Yes, No, Do not know, Do not have INTERPROFESSIONAL initiatives

17. This school or college has PERSONNEL with designated responsibilities (e.g., administrative, teaching, or research) for INTERPROFESSIONAL EDUCATION.
    - Response: Yes, No, Do not know (space for comments)

18. This school or college has PERSONNEL with designated responsibilities (e.g., administrative, teaching, or research) for INTERPROFESSIONAL PRACTICE.
    - Response: Yes, No, Do not know (space for comments)

19. Have you received funding to support INTERPROFESSIONAL initiatives?
    - Response: Yes, No, Do not know (space for comments)

20. Have you received funding to support INTERPROFESSIONAL initiatives?
    - Response: Yes, No, Do not know (space for comments)
References