Impact on Clinical Performance of Required Participation in a Student-Run Pro Bono Clinic

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Background and Purpose. Early opportunities for students to develop clinical skills and professional attributes are important to maximize clinical learning. Student-run pro bono clinics have the potential to provide early contextual exposure. This article describes the impact of required compared to voluntary participation in a student-run pro bono clinic on clinical performance during the first full-time internship.

Method/Model Description and Evaluation. Students in the University of Florida Doctor of Physical Therapy program were assigned to one of four service learning groups including a pro bono clinic. While attendance at the clinic was encouraged for all students, only the assigned group was required to attend twice a semester. A retrospective analysis of student performance on the Clinical Performance Instrument (CPI) for the first internship was conducted. Clinician CPI ratings were categorized as beginner or intermediate and above. Median scores for safety, professional practice, and practice management items for those students who were required to attend the clinic were compared to students from the other service learning groups who did not attend or attended voluntarily using Chi-square analysis.

Outcomes. At midterm, a higher proportion of the required pro bono group were rated as intermediate or above by clinical instructors for safety, all professional practice items except professional development, and all patient management items except diagnosis/prognosis, education, and consideration of financial resources. Differences were present at the final evaluation for safety, professional behavior, cultural competence, clinical reasoning, and examination.

Discussion and Conclusion. Positive outcomes were present for students involved in the pro bono clinic, illustrating the potential benefits of required pro bono clinic experiences early in a professional curriculum for accelerating clinical performance.

Key Words: Pro bono clinic, Student-run clinic, Clinical performance, Physical therapy.

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The authors declare no conflicts of interest.

Received May 25, 2018, and accepted October 22, 2018.

DOI: 10.1097/JTE.0000000000000083

BACKGROUND AND PURPOSE

Early opportunities are needed for professional students in all health care disciplines to develop clinical skills and professional attributes necessary for value-oriented care for fast-paced clinical practice environments.[1-3] There are growing concerns that students are not optimally prepared to enter clinical education due to unwarranted variation in student qualifications, readiness, and preparation for an ever-evolving and complex health care environment.[4-8] The current pressure for productivity has decreased time available for student supervision, and clinical instructors and administrators have expressed their desire for students to be able to "hit the ground running" while also preparing students adequately for the complexities of current practice.[4,5,7] Strategies to enable students to develop clinical skills, solve problems, and develop reflective and critical thinking are therefore important early in health professional training. Models to facilitate preparation and maximize early learning in preparation for clinical internships are therefore important in light of the mission to promote innovation and excellence in physical therapy education.[3] One model that has become increasingly popular merges early contextual learning and service learning using student-run pro bono clinics.[2,9-13] This article describes the impact of required and voluntary participation in a pro bono clinic on the clinical performance in an early internship.

Westin et al[14] stress the importance of "meaningful" learning; that is, linking and applying didactic content to practical and clinical skills. Early clinical and community engagement experiences have been recommended for active and meaningful early learning.[15-17] Some options to prepare students include integrated clinical experiences,[16] standardized patient simulations,[15] and service learning.[9,17-20] Service learning is defined as community engagement activities coupled with learning objectives, preparation, and reflection.[17] One of the most relevant and mutually beneficial service learning and community engagement learning methods is student-run pro bono clinics offered by multiple professions[10-13,21,22] and in interprofessional teams.[23,24] The experiences provide a transition between didactic academic training and clinical practice with early hands-on realistic and context-based experience and provide valuable community services.[17,22] While students have reported benefits such as improved skills and knowledge using survey, interview, or other qualitative methods,[11,12,22] there is limited evidence of the translation of this learning into clinical practice.[22,25]

In the student-run pro bono clinic model, students assume responsibility for administration, logistical operations, and patient care under the supervision of a licensed professional.[11,13,22] The relationship between the students and patients is reciprocally valuable. Students enhance their learning experience using a hands-on approach in a clinical setting, while patients receive care at little or no cost. By serving the community, students have

an opportunity to link classroom learning with direct application to real-world scenarios, providing high fidelity contextual learning. The timing allows students to apply theoretical information soon after topics are introduced in the classroom, provides concrete examples to solidify learning, and allows students to practice their skills.[12]

The recent expansion of pro bono clinics is supported by evidence of meaningful patient improvements[26,27] and patient satisfaction.[28] Students have reported improved attitudes toward the community, cultural sensitivity, and critical thinking.[17] Students involved in the organization and administration of pro bono clinics also have opportunities to advance their leadership skills[11,24] while developing competency as a result of the experience.[11,12] In the only study that investigated the impact of pro bono clinic experience on clinical performance we could find, Porretta et al[12] conducted focus groups with 16 students and analyzed the comments from clinician evaluations at midterm in the first internship after mandatory participation in the university's pro bono clinic as part of their curriculum. Both students and the clinical instructors commented on strong student–client and student–clinical instructor interactions and professional communication skills that were attributed to the preceding experiences. The study also attributed increased student confidence to the pro bono clinic experience.[12] Other studies have also reported improved understanding of interprofessional competencies and team care, personal development, and appreciation of other professions' roles in interprofessional settings.[23,24]

METHOD/MODEL DESCRIPTION AND EVALUATION

The physical therapy pro bono student-run clinic described in this study is a component of an established network of student-run free health care clinics with multiple different professional services.[29] The physical therapy clinic is operated by one of four community engagement service learning groups in the University of Florida Doctor of Physical Therapy (DPT) curriculum. The clinic provides free physical therapy services one night a week for 2 hours with approximately 12–15 patients seen each night. The population reflects a general outpatient clinic: orthopedic diagnoses (70%), neurological disorders (20%), and movement and balance impairments in older adult patients (10%). Most patients were uninsured or had prohibitive co-payments. At least two supervising volunteer licensed clinicians and/or faculty were present each night. They provided guidance after students reported their findings and solutions and direct assistance as needed for further testing and treatment. Students in the first year of the physical therapy program observe and assist, while second-year students examine, evaluate, and treat patients in pairs, all under clinician and faculty supervision. Second-year students in the pro bono clinic group assume responsibility for administrative and leadership functions by serving as clinic managers at least once each semester.

The other three groups participate in one of the following: 1) adaptive gymnastics classes for children with physical and intellectual disabilities, 2) physical activity promotion in the community through a walking program, and 3) balance and fall screenings and group exercise classes at a senior center. The adaptive gymnastics group assists the children with participating in the physical activity in a circuit format. The activities chosen by the nonprofit organization have been developed by rehabilitation consultants and are consistent from week to week. Students work with other volunteers and the coaches to provide physical assistance and motivation during the classes. The students are trained in physical handling skills, communication with children with special needs, and behavioral management during an early orientation session and also receive feedback from volunteer clinicians.

The students participating in the walking program conduct blood pressure and risk factor screenings, assist with overall health and activity goals, and accompany participants while walking. They also provide weekly education on a number of topics including the importance of activity and general health topics. Most of the participants are middle aged and some have chronic conditions such as hypertension, arthritis, and diabetes. A faculty member and members of the health department are present to assist with consultations and provide guidance and mentoring on interaction, motivation, and education skills.

The balance and fall screenings and group exercise classes consist of older adults, some of whom have identified fall risk and others who want to prevent falls in the future. The screenings are conducted individually while the classes consist of between 4 and 12 participants. The screenings are conducted using validated tools, and the balance class has been developed from evidence-based programs. All programs are supervised by faculty and clinicians who provide feedback, debrief after the experiences, and provide guidance. However, in the three community groups, the organization and choice of screening procedures are predetermined. These groups focus on activity promotion (adaptive gymnastics, walking program, and balance classes), screening, and education (walking program and balance classes) in comparison to the pro bono clinic where students are responsible for evaluation and treatment for rehabilitation purposes with clinician guidance. One of the common goals for all the community engagement activities is to provide opportunities for students to develop patient-centered communication, interaction, and education skills. All students are required to complete a minimum of 5 hours of service for their group per semester and also attended at least one other group's activity in the second semester. There are also required organizational meetings two to three times per semester. Each group has an assigned faculty mentor who helps with continuity and program development.

All students were randomly assigned to participate in an allocated group in the first 2 years of the program, with second-year students taking on leadership and administration roles. Students are required to participate in their assigned group activities for at least 5 hours per semester in the first year of the curriculum and complete a group leadership and quality improvement project in the second year. Participation in the pro bono clinic is required at least twice a semester for students assigned to the pro bono clinic group to meet the minimum of 5 hours of service. At the time of this study, students in the other community engagement groups could volunteer at the clinic; but although recommended, attendance was not mandatory.

While the students assigned to the other community engagement groups in this cohort gained valuable experience with screening, communication, activity promotion, and interaction, they did not necessarily have as much exposure to, or experience with, physical therapy examination, evaluation, and treatment skills in a rehabilitation clinic setting. Investigators were interested to determine if there was an impact of participation in the pro-bono clinic on clinical performance on the student's first internship; that is, if the clinical performance of students assigned to the pro-bono clinic group was rated at a higher level by clinical instructors than other students. We used a retrospective analysis of clinical instructor ratings of students' performance in the first internship for students who were required to participate in a student-run pro-bono clinic at least twice a semester compared to those students in other community engagement groups who could volunteer but were not required to participate to determine if the outcomes differed. This retrospective study was approved by the University of Florida Institutional Review Board.

The frequency of participation in the pro bono clinic was collected for the class of

2017 DPT students (n = 69) prior to the first full-time clinical internship. The Clinical Performance Instrument (CPI) is used by many physical therapy programs in the United States to evaluate student performance on key metrics associated with clinical practice while on internships.[30] The 18 evaluative criteria are grouped into 3 broad categories: professional practice (items 1–6), patient management (items 7–15), and practice management (items 16–18). The student's performance on each criterion is rated on a continuum from beginning to beyond entry-level performance (Table 1). Evaluators are instructed to consider the dimensions of supervision/guidance, quality, complexity, consistency, and efficiency when assessing student performance. The student and clinical instructors complete the CPI at the midpoint and end point of the internship and complete training on how to score the CPI. We chose to focus on the clinical instructor ratings as others have investigated student perceptions of the impact of pro bono clinic experience in qualitative studies.[5,10,11]

All clinical instructor ratings were extracted from the CPI software using the 10-point rating scale.[31] The number of students rated as entry level was small, as to be expected on the first internship. After initial analysis of the frequencies in each of the beginner, intermediate, and entry-level categories, comparisons were restricted to comparison of the number of students who were rated as beginner (1–4) compared to intermediate and above in a collapsed category (5–10). The proportion of students in the 2 CPI categories was examined using Chi-square analyses, with the *P* level set at .05, to establish if there was a difference between the required pro bono and other service learning groups. These comparisons were performed for clinical instructor ratings at both the midterm and final time points. Influential cells in the chi-squares analyses were determined from standardized residuals and from comparisons of proportions. We also used ordinal regression models to test for the interaction between clinical site and the pro bono clinic group associated with CPI performance. All analyses were completed using IBM SPSS v24.0.

OUTCOMES

All 69 students in the class agreed to participate in the analysis. Of these students, 18 (26%) had been randomly assigned to the pro bono clinic group at the onset of the program. Of the 51 students in the other groups, 49 (71%) volunteered and only 2 (3%) students did not volunteer in the five semesters prior to their first internship. The median number of nights students in the pro bono clinic attended was 8 (range: 7–12) and for those who volunteered was 4 (range: 1–10). Most students worked with one patient per evening and numbers of patients were therefore proportional to attendance.

There were significant differences in clinical instructor ratings at midterm between the required pro bono group and the other service learning groups. There were higher ratings for the required pro bono groups for most safety, professional practice, and patient management items with odds ratios for the pro bono group rated as intermediate or above ranging from 3.1 to 7.8 (Table 2). At midterm, clinical instructors rated pro bono group students higher for safety ($P = .008$). They also rated the students higher for professional practice criteria; specifically, for professional behavior ($P = .027$), accountability ($P = .007$), communication ($P = .024$), and cultural competence ($P = .007$). There was no difference for ratings of professional development. Similarly, instructors rated a higher proportion of the pro bono group at intermediate or above for patient management skills, including clinical reasoning ($P = .005$), screening ($P = .005$), examination ($P = .045$), evaluation ($P = .012$), plan of care ($P = .027$), procedural interventions ($P = .027$), documentation ($P = .018$), outcomes ($P = .043$), and direction of personnel ($P = .001$). There was no difference between groups for diagnosis/prognosis, educational interventions, and considering financial resources.

At the end of internship, the significant effects were retained for some important clinical instructor ratings, including safety ($P = .047$), professional behaviors ($P = .047$), cultural competence ($P = .047$), clinical reasoning ($P = .043$), and examination ($P = .036$). These effects were driven for both sets of evaluations by higher than expected proportions of pro bono group members rated at intermediate or higher level in comparison to students rated at beginner level.

Most students (71%) completed the first internship at an outpatient orthopedic practice facility. We specifically examined the interaction between setting and pro bono group membership, hypothesizing that these students would perform better in an outpatient setting, by testing for the interaction term; however, there was no significant effect at the midterm or final evaluations on any skill.

Table 1. Clinical Performance Instrument Levels and Criteria[30]

CPI Performance Levels	Student
Beginner	Requires close clinical supervision 100% of the time
	Demonstrates inconsistent performance and clinical reasoning
	Performance reflects little or no experience and does not carry a full caseload
Intermediate	Requires clinical supervision less than 50% of the time managing patients with simple conditions and 75% of the time managing patients with complex conditions
	Is proficient with simple tasks and is developing the ability to consistently perform skilled examinations, interventions, and clinical reasoning
	Is capable of maintaining 50% of a full-time physical therapist's caseload
Entry level	Is capable of functioning without guidance or clinical supervision while managing patients with simple or complex conditions
	Demonstrates consistent proficiency and skill with simple and complex tasks
	Consults with others to resolve unfamiliar or ambiguous situations
	Maintains 100% of a full-time physical therapist's caseload in a cost-effective manner

CPI = Clinical Performance Instrument.
APTA. Physical Therapist Clinical Performance Instrument for students. VA: APTA Department of Physical Therapy Education; 2017;1–51.

Table 2. Clinical Instructor Clinical Performance Instrument Rating Differences Between Proportion of Students Rated as Entry Level or Above for Students Required to Attend the Pro Bono Clinic and Other Service Learning Groups Using Chi-Squares Analysis

	Midterm			Final		
	Chi-Squares	*P*	OR (95% CI)	Chi-Squares	*P*	OR (95% CI)
Safety	6.2	.008[a]	4.2 (1.3–13.8)	3.3	.047[a]	5.8 (0.7–48.1)
Professional practice						
Professional behavior	4.5	.027[a]	3.4 (1.1–11.1)	1.6	.047[a]	5.8 (0.7–48.1)
Accountability	7.1	.007[a]	5 (1.4–17.3)	1.6	.137	3.6 (0.4–31.0)
Communication	4.7	.024[a]	3.3 (1.1–10.2)	2.0	.133	4.1 (0.5–35.0)
Cultural competence	6.4	.007[a]	4.6 (1.3–16.0)	3.7	.047[a]	0.9 (0.3–23.7)
Professional development	3.1	.050	2.6 (0.9–8.0)	2.0	.103	3 (0.6–14.9)
Patient management						
Clinical reasoning	8.1	.005[a]	5.3 (1.6–17.3)	3.5	.043[a]	3.5 (0.9–13.3)
Screening	6.9	.005[a]	4.8 (1.4–16.4)	3.0	.072	3.2 (0.8–12.6)
Examination	4	.045[a]	3.3 (1.0–11.2)	3.8	.036[a]	4.4 (0.9–21.1)
Evaluation	5.6	.012[a]	4.2 (1.3–13.9)	3.3	.062	4 (0.8–19.4)
Diagnosis and prognosis	2.3	.088	2.6 (0.7–8.8)	2.6	.073	3 (0.8–11.6)
Plan of care	5.1	.027[a]	3.7 (1.2–12.1)	2.6	.073	3 (0.8–11.6)
Procedural interventions	4.9	.027[a]	3.6 (1.1–11.8)	1.6	.161	2.7 (0.6–13.5)
Educational interventions	0.7	.267	1.6 (0.5–5.3)	2.0	.103	3 (0.6–14.9)
Documentation	5	.018[a]	3.5 (1.1–11.1)	1.6	.161	2.7 (0.6–13.5)
Outcomes assessment	3.3	.043[a]	3.1 (0.9–11.1)	0.3	.381	1.5 (0.4–5.2)
Financial resources	1.1	.170	1.9 (0.6–6.3)	0.2	.390	1.3 (0.4–4.0)
Direction and supervision of personnel	12.7	.001[a]	7.8 (2.3–25.9)	1.3	.162	2.5 (0.5–12.6)

CI = confidence interval; CPI = Clinical Performance Instrument; OR = odds ratio.
Clinical instructor ratings. Group not required to attend is the reference group for OR calculations.
[a]Significance level $P < .05$.

DISCUSSION AND CONCLUSIONS

Our goal was to determine if there was a difference between clinical instructor ratings of students' performance during the first internship for students who were required to participate in a student-run pro bono clinic at least twice a semester compared to those students who were not required to participate but could volunteer. Clinicians rated those students assigned to the pro bono clinic higher on many categories of the CPI at midterm with some important differences retained in safety, professional behavior, clinical reasoning, examination, and clinical competence at the final evaluation. Interestingly, these findings were consistent regardless of the clinical setting of the internship.

Overall, these results were positive and encouraging for clinical educators and faculty who aim to prepare students to take advantage of clinical practice learning as soon as possible. Some of the midterm results from this study are consistent with results from other qualitative and self-report studies.[12,23] In these studies, students noted improvements in evaluation, intervention, communication, and clinical decision-making skills after participating in an interprofessional student-run clinic[23] or a pro bono physical therapy clinic.[12] In the study by Poretta et al,[12] students felt that their clinical reasoning, evaluation, intervention, documentation, and cultural competency skills were affected positively and attributed positive interactions with patients and instructors to the pro bono clinic experience. Other qualitative research studies reported benefits for the development of professional behavior, accountability, and cultural sensitivity.[10,22] After experience in a similar community-based clinic, a small sample of physical therapy students were interviewed and completed a self-assessment on the American Physical Therapy Association core values[32], including accountability, altruism, compassion, excellence, integrity, professional duty, and social responsibility.[20] These students felt that they gained an understanding of professionalism and accountability by participating in the clinic.[20]

At the final evaluation, there were still strong likelihoods for higher instructor ratings for safety, clinical reasoning, and examination in the pro bono group, demonstrating valuable outcomes of the required experience. The higher ratings for safety at both time points were of particular importance. Once clinical instructors determine that students are able to practice in a safe manner, they are able to provide students with opportunities to work with patients with more complex problems and advance performance toward entry-level expectations.[33] As entry-level expectations are also based on responsibility for an independent case load, clinicians are

more likely to reduce the amount of direct supervision if the student is consistently demonstrating safe practices. The higher ratings for clinical reasoning skills were encouraging as these higher level skills take longer to develop.[33] Students are likely to be able to progress toward more advanced aspects of physical therapist practice if they are practicing safely and demonstrating good clinical reasoning skills, although this is speculation as the longer term outcomes were not evaluated in this study.

While all professional practice categories were higher at midterm except for professional development, cultural competence was the only area that differed at both time points, albeit with a small odds ratio. The appreciation of cultural competence is supported by the only other study focusing on clinical performance related to pro bono clinic participation.[12] The service learning groups working in the community interact with patients of different age ranges (pediatrics for the adaptive gymnastics group, geriatrics for the falls and balance class) and also serve an underserved area for the walking program. The pro bono clinic population represents a wider variety of ethnic cultures, some patients who are homeless, and more patients who have economic hardship, possibly providing additional exposure and requirements for enhanced cultural competence. Finally, ratings of professional development were not different between groups. This would suggest that participation in any of the service learning groups, and the associated interactions with faculty, clinicians, and the public, prepared students equally well for this aspect of clinical performance. Alternatively, the early stage of clinical preparation may have affected the results for this component of the CPI ratings.

There were observations by the clinical instructors of stronger patient management performance attributes at the final evaluation for clinical reasoning and examination skills. In Porretta's[12] study, the CPI ratings were not analyzed as they felt that the results are affected by caseload, but they did use the open-ended comments from instructors to triangulate themes. Overall, the positive results for marked differences in all categories and strong differences in safety and examination performance in our study supported and drove a decision to change program requirements. All students are now required to attend the pro bono clinic at least once each semester in the first 2 semesters, twice in the third and fourth semesters, and once in the first 8 weeks of the fifth semester.

There were more criteria rated as intermediate or above for students required to attend the pro bono clinic at midterm, with fewer differences at the final evaluation. While students receive guidance and mentoring during the pro bono clinic, the number of patients is limited compared to the clinical internships, and it is likely that students in the other groups gained sufficient experience to equalize the proportion of students at an intermediate or higher level. There is also a possibility that smaller differences were present that were not reflected by comparing beginner to intermediate and above groups. We believe that the distinction between 1) requiring close clinical supervision 100% of the time compared to less than 50% of the time and 2) progressing from inconsistent performance and clinical reasoning to being proficient with simple tasks along with developing examination, intervention, and clinical reasoning are important and desired outcomes for the first clinical internship. The findings that criteria were rated higher for the required pro bono group are important particularly for safety and clinical reasoning criteria.

In addition to clinic participation, meetings, projects, and assignments focus on operations, and students might have expanded their skills and developed more confidence from experiences beyond direct patient care requiring reflection. We hypothesize that consistent exposure over the 2 years, additional leadership and administration roles as clinic managers, and being immersed in the clinic operations provided greater opportunities to assimilate skills in a realistic context. While other studies have described the perceived benefits of student leadership experience in starting and managing a pro bono clinic,[10,13] there is no evidence in the literature of the impact of leadership and administration experience for early clinical performance. These opportunities may also have improved confidence in professional interactions, resulting in clinicians allowing students to take on further patient responsibility. Other studies have found that students participating in a pro bono clinic report improved confidence through exposure to patient care in settings with the opportunity to develop skills with less time constraints than normal practice.[10,12] Practice of these skills could translate to improvements in safety, professionalism, and clinical reasoning. One of the recommendations for future studies and evaluation of the impact of pro bono experiences is to include a measure of student confidence.

The degree of interaction and supervision, and the potential for modeling from faculty members and other licensed clinicians, may have also played a role in our findings. While each of the other groups worked with faculty mentors to develop and implement the service learning programs, the feedback to the students working in the clinic was specific to performing aspects of clinical care on which he or she would be assessed on the full-time clinical internship. Students also observe and participate in smaller groups when other students are treating patients, also increasing the comfort level and reflection on practice. There are also differences in the level of involvement and independence required for individual physical therapy examination, evaluation, and treatment. In the groups providing falls/balance interventions and the walking group, students provide screenings and collect basic health information, but there is limited need for clinical reasoning and choices to drive treatment. The adaptive gymnastics program requires individual modification and assistance to help the children participate but does not require extensive decision making or responsibility for choices in a context similar to clinical settings. In the pro bono clinic, students are immersed in the process of collecting, assimilating, and interpreting patient findings to develop and implement treatment plans and monitor progress. Consequently, the outcomes are likely due to the combined effect of observation and direct mentoring for physical therapy examination, evaluation, and interventions in a clinical context rather than community-based environments. Future comparisons of pro bono clinic experience to other options used to prepare students for their first internship may be useful. Miller et al[15] reported similar results following condensed preparatory modules using standardized patient simulations and competency-based assessment prior to the first internship. Students who participated in a 2-week module focusing on examination and evaluation immediately prior to their first internship received higher CPI ratings of between 1 and 3.5 points for clinical reasoning, screening, examination, and evaluation compared to those who did not.[15]

There are limitations of this study, particularly the variability inherent with ratings from 69 different clinical instructors. Although the CPI is the most commonly used instrument for physical therapy clinical education, previous experience with the instrument and the multifactorial, sometimes intuitive, approach to clinical performance evaluation introduces variability.[33] Demographics and experience of clinical instructors were not analyzed in this study but would be an area of further exploration. We did not specifically compare the four service learning groups for all criteria, and larger sample sizes are needed to establish if there are benefits of more exposure to patients in the pro bono setting. This study only examined the impact of early pro bono exposure on performance in

the first full-time clinical experience and longer term outcomes would be of interest.

This study demonstrates positive clinical performance outcomes at midterm and final evaluations in the first full-time clinical experience for students involved in the pro bono clinic. Students demonstrated higher performance for safety, clinical reasoning, cultural competence, and examination at the final evaluation than those who were not required to participate in the pro bono clinic. Differences between the groups were marked at the midterm evaluation, providing justification for the pro bono experience as a platform to prepare students for initial clinical internships. Early required participation in all areas of the clinic including administrative roles may be a useful component for early professional preparation and has resulted in requiring attendance for all students across first and second years. The pro bono clinic has expanded rapidly, and these results provided rationale and justification for the time and resources. Other programs may find the results useful when deciding to implement a pro bono clinic and when requesting resources for support of a pro bono clinic.

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