Advising physiology students: perceptions from the programs

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Crecelius AR, Crosswhite PL. Advising physiology students: perceptions from the programs. Adv Physiol Educ 44: 646–652, 2020; doi:10.1152/advan.00184.2019.—Academic advising outcomes can be linked to both student success and retention. Yet relatively little is known specifically related to advising in physiology programs. Professional organizations dedicated to academic advising in general, and more specifically advising future health professional students exist, yet, whether current physiology programs utilize these resources remains unknown, as does a number of other demographic information about advising in physiology programs. Here we present data gathered from a sample of physiology educators to inform what current advising practices of physiology students are. Forty-five respondents from a variety of institutions and programs provided information on advising structures, resources utilized, student populations, and concerns. While programs may differ, many of the concerns regarding advising physiology students are the same.

academic; health professions; mentoring

INTRODUCTION

Student success and persistence can be an assumed goal of all higher educational institutions, particularly in today’s competitive marketplace (2). Student services, including academic advising, can be valuable components of an undergraduate experience that not only help recruit students, but support students in being successful, in a variety of assessment metrics. Academic advising is an important part of student services; however, it can be difficult to define, even by professional organizations, such as the National Academic Advising Association (NACADA), the global community for academic advising (12). The definition of academic advising may differ by institution based on their unique values, missions, and program goals. Furthermore, the line between advising and mentoring may be explicit in some cases and in others quite blurred. Student needs vary on a continuum from those that are non-academic (e.g., administrative and finances) to those that are academic in nature (e.g., course selection). At the same time, student needs vary from those that are transactional (e.g., simply getting a new ID, course registration codes) to those that are highly complex (e.g., a lack of belonging, career discernment) (7). Academic advising and those who do the advising may be faced with a range of inquiries along the continuum. Correspondingly, while many definitions are available, we provide the following broad context for the present work: academic advising takes place in “situations in which an institutional representative gives insight or direction to a college student about an academic, social, or personal matter” (10).

The status of undergraduate physiology and physiology-related programs has been one of emerging interest (6), with a series of articles being written about issues that pertain to these programs (18, 19). The Physiology Majors Interest Group (P-MIG) is a grass-roots organization that has formed to help develop programmatic guidelines and serve those engaged in undergraduate physiology or physiology-related programs. Unsurprisingly, for a discipline that lacks program-level curricular guidelines, there is a similar lack of published data particular to academic advising within these programs. However, given that the interests of many physiology majors are future health profession education (e.g., medicine, dental, physician assistant, physical therapy, etc.) (15, 17), it is of note that there is in fact a professional organization that focuses on advising for health professions. The National Association of Advisors for Health Professions (NAAHP), established in 1974 has a mission to be “a representative voice with health professions schools and their professional associations, undergraduate institutions, and other health professions organizations.” And to “assist[s] advisors in fostering the intellectual, personal, and humanistic development of students as they prepare for careers in health professions.” However, NAAHP serves students in a variety of disciplines and its membership may not be representative of the same groups served by the P-MIG community.

The P-MIG community represents a range of institution types and physiology or physiology-related programs (11), and thus we set out to collect a number of demographic characteristics regarding advising models and advisors for each program, as well as resources and training that may be available. As advising is student centered, we were also interested in understanding the aspirations of the students our community is advising and what their career goals are. Lastly, we sought to collect data on the advisor’s perceptions of their advising work. The goal of this descriptive data set is to better understand the current advising environment of physiology majors and begin a conversation about best practices for advising in our P-MIG community.

METHODS

Survey Development

The survey was developed collaboratively by the authors using the Google Forms software platform and consisted of ~25 questions. All survey questions are provided in Table 1. The authors discussed the goals of the survey and developed questions to gain insight into current practices for advising physiology students. A variety of question formats were utilized, including multiple-choice, multiple-
Table 1. A complete list of all questions administered in the survey

1. What is your job title?
2. What is your institution?
3. What is your department?
4. How many physiology majors are in your department?
5. Are there non-physiology majors in your department?
6. If yes, how many are not physiology majors?
7. How many of your physiology majors are targeting clinical careers in health?
8. How many of your physiology majors are targeting entry-level employment after graduation?
9. Is there a dedicated Pre-Health Advising office at your institution?
10. Do you advise students?
11. If you do not advise students, what is the reason?
12. If you do advise, what type of students do you work with?
13. How long have you been an advisor?
14. How many students are you assigned to formally advise?
15. How many students do you meet face-to-face for formal advising in an academic year?
16. How many students do you mentor?
17. Where does advising fit in your workload?
18. How often do you discuss the following issues when advising?
   - Student’s academic progress
   - Scheduling or registration procedures
   - Dropping/adding a course
   - Selecting or changing majors
   - Meeting graduation requirements
   - Improving student habits
   - Obtaining tutoring services
   - Focusing life or career goals
   - Identifying current skills, abilities, or interests
   - Finding internship or work opportunities
   - Coping with academic difficulties
   - Obtaining financial aid
   - Obtaining employment
   - Continuing education after graduation
   - Withdrawing or transferring from school
   - Dealing with personal issues
19. What issues do you regularly encounter as an advisor?
   - Lack access to training or resources for effective advising
   - Students do not want, or value, advising
   - Students do not take an active role in advising
   - Good advising is not recognized by my department or institution
   - Lack access to training or resources for effective advising
20. What resources do you use in your advising?
   - Colleagues
   - Institutional resources
   - Professional organizations of health professions
   - Application sites and reports
   - Advising organizations
   - General websites
   - Other institution’s websites
21. If you advise, please respond to the following based on your experience:
   - I have the necessary knowledge and skills to advise well
   - I have sufficient time to advise well
   - I make a positive difference as an advisor
   - I enjoy advising
   - In general, students in my department are advised well
22. Do you think there is a role for P-MIG in academic or career advising?
23. Are there resources you use in advising that you would be willing to share?
24. Would you be interested in an Advising Session at the next P-MIG meeting in Minneapolis, MN (June 2019)?
25. Please leave any other comments.

The survey was created using Google Forms software and sent out via e-mail to potential respondents.
ported they might advise students, and 5 individuals (11%) reported they did not advise students. Regardless of whether the respondent listed that they do not or might advise students, their responses were still included in data analysis. When asked how advising fits into their job description, 13 (29%) respondents said advising was their primary job description compared with 27 (60%) who listed advising as service to their institution, whereas 13 (29%) said advising was considered part of their teaching expectations (Fig. 2A). In terms of experience, 23 respondents, or nearly 58%, reported having 10 yr or more experience advising, 4 respondents (10%) had 5–9 yr experience, and 13 (33%) reported having 4 yr or less of experience.

In regard to how their institutions approach advising, 19 respondents (42%) reported having a dedicated Pre-Health Advising office on their campus, whereas 26 respondents (58%) reported there was not a dedicated Pre-Health Advising office available on campus (Fig. 2B). When asked how many students they currently are responsible for advising, 13 respondents (31%) advise 20 students or less, 7 respondents (17%) advise 21–50 students, and 12 respondents (29%) advise 51 or more students. Ten respondents (24%) reported they currently do not advise students (Fig. 2C).

Advising the Physiology Student

Participants were asked to estimate how many of their students were pursuing clinical careers (medicine, physical therapy, physician assistant, etc.) compared with entry level employment after graduation. Thirty-five respondents (83%) estimated that at least 50% of their physiology students are pursuing a clinical career after graduation. This mirrors the response when asked how many of their students are specifically pursuing entry-level employment after graduation, where 39 respondents (92%) estimated less than one-half of their students were pursuing entry-level employment.

Respondents were provided with a variety of advising-related issues and were asked how often they are discussed during their meetings with students (Table 2). The issues more commonly discussed included the student’s current academic progress (73% of the time), the student’s progress toward graduation (58% of the time), helping students focus their career or life goals (56% of the time), and scheduling or registration procedures (44% of the time). The issues least commonly discussed included obtaining financial aid, withdrawing or transferring from school, and obtaining employment.

Participants were also asked about what resources they use to help advise students. A majority of respondents reported using resources available at their institution compared with outside resources. Thirty-seven respondents (90%) reported utilizing institutional resources, and 35 respondents (85%) reported using fellow colleagues as resources. This is in comparison to only 19 respondents (46%) using resources from professional advising organizations, or only 15 respondents (37%) using application websites (Central Application Service for Physician Assistants, Association of American Medical Colleges, etc.) and their reports as resources, or 17 respondents (42%) using general advising websites.

Participants were asked what challenges they often encounter when advising a physiology student. Seventeen respondents (47%) reported that students do not take an active role in advising. Fifteen respondents (42%) reported they lack access to training or resources to properly advise students. This compares to only 13 respondents (36%) listing that they have too little time to advise students or that they have too many advisees (10 respondents, 28%). When asked if they enjoyed advising students, 15 (38%) and 16 (41%) respondents said they “strongly agreed” or “agreed,” respectively. Furthermore, 14 (36%) respondents “strongly agreed” that they make a positive impact on students, while 21 (54%) respondents “agreed.” When asked how well physiology students are advised compared with nonphysiology students at their institution, 27 respondents (69%) “agreed or strongly agreed” physiology students are advised well compared with only 16 respondents (41%) agreeing that all students at their institution are advised well.

DISCUSSION

The present report highlights demographics and perceptions of advising in physiology and physiology-related programs in the P-MIG community. As anticipated, a diversity of models exists, yet many programs share similar concerns and are advising students with similar interests. Here, we provide a discussion of these data in the context of what is known more broadly regarding health professions advising, as well as aca-
ademic advising in general. In addition, we aim to inform advisors about resources that are available to them, as well as what some upcoming challenges may be for physiology majors and their advisors.

Table 2. Advising the physiology student

| More commonly discussed issues during advising meetings with physiology students: |
|---------------------------------|
| - Student’s current academic progress (73%) |
| - Student’s progress toward graduation (58%) |
| - Helping students focus career or life goals (56%) |
| - Scheduling or registration procedures (44%) |

| Least commonly discussed issues during advising meetings with physiology students: |
|---------------------------------|
| - Obtaining financial aid |
| - Withdrawing or transferring from school |
| - Obtaining employment |

Most common challenges to advising physiology students:
- Students do not take an active role in advising (47%)
- I lack access to training or resources to properly advise students (42%)
- I have too little time to advise students or I have too many advisees (28%)

The respondents to the present advising survey broadly reflect the general P-MIG membership in terms of the diversity of departments in both nomenclature and size (20). As discussed previously, more programs identify as “physiology programs” than programs that contribute to a BS or BA degree in physiology, and we welcome these programs to the P-MIG community. The number of nonphysiology-named departments may also reflect that nearly three-fourths of the departments consist of multiple majors, including nonphysiology majors. Regarding size, the programs with <50 students were approximately equal to those programs with >501 students. The vast majority of respondents (~80%) state that the majority (~50%) of students in these programs are pursuing health professions, and a similar majority (70%) report few students (≤30%) seek entry-level employment. Thus findings of the NAAHP membership survey (4), most recently published in 2017 (representing responses from 382/1470 advisor members), can provide additional context for some of our physiology-specific findings. Importantly, many of the resources provided by NAAHP are relevant to readers. For example, prior literature from NAAHP and discussions at related conferences have addressed both divergent and shared concerns of advisors at small schools (13) and those at larger institutions (16). Given the diversity of
respondents, both in institution type as well as role in advising, rather than parse into small categories, we aimed to take a broad perspective toward the current state of advising at all institutions that responded to the survey.

The profile of advising services reflects that a majority (~80%) of institutions have specific pre-health advising, either via dedicated office or dedicated advisors. However, only 11% of respondents reported that “advisor” was their job title. This likely reflects the method of distribution of the survey, as well as the P-MIG membership (1), but it is important to point out and differs from the NAAHP respondents, of which the majority are in the “staff/professional advisor” role. While we did not correlate size of program with advisor role (as research or teaching faculty, professional advisor, or other), we anticipate our findings would be similar to those from the NAAHP that larger institutions more commonly utilize professional advisors, whereas smaller institutions utilize more faculty in advising roles. It is likely that our minimal response from professional advisors also contributes to the modest advising loads reported here. Only 20% of respondents reported meeting with 101 or more advisees. This is well below the NACADA reported median caseload of ~300 students (14); yet, as NAAHP points out, pre-health advising is unique versus general academic advising (5) and thus may merit a lower ratio.

A range of topics is discussed with advisees based on the current findings, and these topics more often fall on the moderate complexity level and are highly academic (e.g., career goals, graduation requirements, and coping with academic issues) rather than on the transactional level (e.g., adding/dropping courses, changing majors) or less academic issues (e.g., coping with personal problems). Nearly 70% of our sample reported being an advisor for ≥5 yr, yet this experience perhaps does not lead to expertise, as 42% reported not having training or resources for advising effectively. The need to be effective in advising work is underscored by the common (~30%) response that there is too little time, too many advisees, and that good advising is not recognized institutionally. The range of advising activities also speaks to a common discussion of “advising” versus “mentoring.” We must acknowledge that, in our survey, we did not provide a cogent definition of “advising.” Thus it was up to respondents to consider whether their work was considered “advising.” For clarity, we try to distinguish “academic advising” where possible to try to avoid confusion.

Thus what resources are available for advisors, whether professionals or faculty, and how is P-MIG working to support quality advising of physiology students? First, general resources for advising from NACADA and the Educational Advisory Board are valuable, particularly at the institutional level and if centralized approaches are utilized. For physiology programs, the particular resources and content provided by NAAHP are likely more relevant. One of the primary resources that NAAHP provides is centralized access to the many different advisor portals for the various health professions based on the centralized application systems (Table 3). Membership in NAAHP determines one’s level of access to application portals and associated organizations that can provide helpful information on tracking applicants, nationwide data on appli-

### Table 3. Health profession organizations

| Health Profession                  | Professional Association                                      | Application Service                                                                 |
|-----------------------------------|--------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Medicine—Allopathic               | AAMC: Association of American Medical Colleges               | AMCAS: American Medical College Application Service                                 |
|                                   | [https://www.aamc.org/](https://www.aamc.org/)               | [https://students-residents.aamc.org/applying-medical-school/applying-medical-school-process/applying-medical-school-amcas/](https://students-residents.aamc.org/applying-medical-school/applying-medical-school-process/applying-medical-school-amcas/) |
| Medicine—Osteopathic              | AACOM: American Association of Colleges of Osteopathic Medicine | AACOMAS: American Association of Colleges of Osteopathic Medicine Application Service |
|                                   | [https://www.aacom.org/](https://www.aacom.org/)             | [https://aacomas.liaisoncas.com/applicant-ux/](https://aacomas.liaisoncas.com/applicant-ux/) |
| Physician Assistant               | PAEA: Physician Assistant Education Association              | CASPA: Central Application Service for Physician Assistants                           |
|                                   | [https://paeaoonline.org/](https://paeaoonline.org/)         | [https://caspa.liaisoncas.com/applicant-ux/](https://caspa.liaisoncas.com/applicant-ux/) |
| Physical Therapy                  | APTA: American Physical Therapy Association                  | PTCAS: Physical Therapist Centralized Application Service                            |
|                                   | [https://www.apta.org/](https://www.apta.org/)               | [http://www.ptcas.org/home.aspx](http://www.ptcas.org/home.aspx)                    |
| Occupational Therapy              | AOTA: American Occupational Therapy Association                | OTCAS: Occupational Therapy Centralized Application Service                          |
|                                   | [https://www.aota.org/](https://www.aota.org/)                | [https://otcas.liaisoncas.com/applicant-ux/](https://otcas.liaisoncas.com/applicant-ux/) |
| Athletic Training                 | NAT: National Athletic Trainers Association                   | ATCAS: Athletic Training Centralized Application System                               |
|                                   | [https://www.nata.org/](https://www.nata.org/)                | [https://atcas.liaisoncas.com/applicant-ux/](https://atcas.liaisoncas.com/applicant-ux/) |
| Nursing                           | AACN: American Association of Colleges of Nursing             | NursingCAS: Nursing’s Centralized Application Service                                |
|                                   | [https://www.aacn.org/](https://www.aacn.org/)               | [https://nursingcas.liaisoncas.com/applicant-ux/](https://nursingcas.liaisoncas.com/applicant-ux/) |
| Optometry                         | ASCO: Association of Schools and Colleges of Optometry       | OptomCAS: Optometry Centralized Application Service                                 |
|                                   | [https://optometriceducation.org/](https://optometriceducation.org/) | [https://www.optomcas.org/](https://www.optomcas.org/)                             |
| Pharmacy                          | AACP: American Association of Colleges of Pharmacy            | PharmCAS: Pharmacy College Application Service                                       |
|                                   | [https://www.aacp.org/](https://www.aacp.org/)               | [http://www.pharmacas.org/](http://www.pharmacas.org/)                            |
| Dentistry                         | ADEA: American Dental Education Association                   | AADSAS: Associated American Dental Schools Application Service                      |
|                                   | [https://www.adea.org/](https://www.adea.org/)               | [https://aadsas.liaisoncas.com/applicant-ux/](https://aadsas.liaisoncas.com/applicant-ux/) |

Common health profession associations and application services are given. Information is collated by the National Association of Advisors for Health Professions ([https://www.naahp.org/home](https://www.naahp.org/home)).
cants, and program information, such as prerequisites. Membership also affords specific toolboxes for new advisors as well as resources directed at common health profession advising topics, such as letter writing, fact sheets by profession, and other print and online resources. Much of the information provided by NAAHP can be found elsewhere online, but it may require additional efforts on the part of advisors that report a lack of time already.

The recognition of advising as a growing profession should necessitate that advisors (faculty or professionals) should seek out relevant research and reports published in advising-specific journals, as well as a continued interest in and support for systematic analysis of advising. Much like curricula and courses are designed utilizing best practices, so should our advising work. A role of P-MIG aims to further refine some of the resources and information provided by NAAHP, as well as address those students who do not seek health professions as a career or need other options. It is apparent that there are more students interested in health professions than there are seats. For example, in allopathic medicine, in 2019 there were 53,371 applicants and only 21,869 matriculants, an acceptance rate of ~41%. Despite growth in the number of programs or program size, limitations in clinical sites will ultimately cap the training opportunities of some of the more popular health professions (e.g., medicine, physician assistant, physical therapy). Thus P-MIG will help to inform advisors and, therefore, students on the various opportunities for which a physiology program prepares them, based on the broadly applicable professional skills developed (8).

As the demand for student services increases and demographic shifts put student retention at even more of a premium (2), additional topics are likely to emerge in the discussion of advising. Students transferring from 2-yr institutions may counter declines in enrollment at 4-yr schools, and/or more students are opting to take courses at 2-yr colleges to reduce cost or as part of high school postsecondary programs. The transfer of credits can be complex, and advisors will need to be familiar with the related processes of transfer and application of credits. In addition, there may be a need to adjust curricular plans, when possible, to best serve students and avoid loss of credits and/or time during the transfer process (9). In addition, mental health issues are on the rise (3) in undergraduate populations, and this can cause minor and sometimes major disruptions in academic progress. Appropriate training in handling students in crisis and those who have experienced trauma will likely need to be mandatory to provide best practice advising. Several online resources are available, and it is important that advisors identify their institution-specific crisis resources and procedures.

Overall, the present findings indicate that those who advise physiology students are reflective of those who advise students in general. Workload and capacity are of concern, yet the vast majority (80%) of advisors enjoy the work. Just as the face-to-face advising appointment is often most valuable in addressing the needs of a student, P-MIG is dedicated to continuing to provide face-to-face opportunities for those engaged in advising physiology students to discuss relevant issues, novel approaches, and best practices at our annual meeting. The community of practice P-MIG provides supports those who support our students.

This paper is published as part of a special collection/special issue from P-MIG, a grassroots organization that has formed to help develop programmatic guidelines and serve those engaged in undergraduate physiology or physiology-related programs. To find out more about this collective, or get involved, please visit our website (https://www.physiologymajors.org/) and consider joining our listserv.

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DISCLOSURES

No conflicts of interest, financial or otherwise, are declared by the authors.

AUTHOR CONTRIBUTIONS

A.R.C. and P.L.C. conceived and designed research; A.R.C. and P.L.C. analyzed data; A.R.C. and P.L.C. prepared figures; A.R.C. and P.L.C. drafted manuscript; A.R.C. and P.L.C. edited and revised manuscript; P.L.C. approved final version of manuscript.

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