

Best practices for supporting and improving pharmacy resident research and quality improvement projects

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Abstract

The 2023 ACCP Research Affairs Committee was charged with developing a commentary to address best practices in pharmacy resident research and quality improvement projects and to consider methods to overcome the challenges encountered in conducting these projects. Literature regarding best practices was evaluated, and approaches were recommended that might help (1) advance the value of the projects to stakeholders; (2) overcome limited preparation for research by residents and mentors, including writing skills and dissemination experience; (3) overcome challenges related to resources (e.g., time and mentors); and (4) avoid burnout among residents and mentors. Although there are many challenges to completing projects and disseminating the results, studies have provided useful recommendations to help circumvent the barriers.

KEYWORDS

mentoring, pharmacy resident, quality improvement, research

1 | INTRODUCTION

The Commission on Credentialing (COC) of the American Society of Health-System Pharmacists (ASHP) states that pharmacy residents must “demonstrate ability to evaluate and investigate practice, review

data, and assimilate scientific evidence to improve patient care and/or the medication-use system.”^{1,2} This is generally accomplished through completion of a project, which can include original research or practice-related quality improvement (QI) projects.^{3,4} The rationale underpinning this expectation is well-founded because these experiences can provide residents with a variety of positive gains, from improving their critical thinking skills to increasing their effectiveness as future researchers and research mentors.⁵ Well-designed projects can also provide many internal and external benefits to the institution and profession.⁶ Nevertheless, obstacles to completing and disseminating projects have been identified, including lack of perceived project value, resident and preceptor preparation to undertake research endeavors and resources. These challenges contribute to situations

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where residents end up with limited research knowledge and skills and low rates of residency project publication.⁷⁻¹² As the pharmacy profession moves forward with the prerequisite for residency training for entry into direct patient care practice¹³ and continued specialization, the subsequent expansion of residency training will likely exacerbate these obstacles.

Research has traditionally been defined as a systematic approach to answering a question that is hypothesis-driven, or hypothesis-generating, and leading to generalizable knowledge.^{3,4} QI has been defined as “the systematic and continuous actions that lead to measurable improvement in healthcare services and the health status of targeted patient groups.”¹⁴⁻¹⁶ QI projects typically use already-existing data and may not require institutional review board (IRB) approval, improving the feasibility of project completion in 1 year. For residency programs, having some residents undertake a QI project rather than original research may be in the program's best interest, depending on the needs of the institution and the resources available, while still imparting the knowledge, skills, and attitudes important to engaging in clinical research.

The 2023 ACCP Research Affairs Committee was charged with developing an ACCP commentary to address best practices in pharmacy resident research and QI projects. The committee also considered methods to overcome the challenges encountered in conducting these projects. This commentary describes practices that may help optimize the outcomes associated with both types of projects, leading to benefits for the resident, preceptor(s), and institution.

2 | PERCEIVED VALUE TO RESIDENTS, MENTORS, AND INSTITUTIONS

The common agreement among residents, preceptors/mentors, and institutional administration on the value of resident research represents an important prerequisite for building a robust and sustainable program. Although initiatives aimed at increasing the perceived value of pharmacy resident research have not been formally described within the literature, there are opportunities to highlight or increase the value of research among each of these groups.

2.1 | Value to residents

Residency program directors (RPDs) often underestimate residents' interest in research. In one survey, 66% of RPDs, but only 25% of residents, identified resident motivation as a barrier to completing and publishing residency projects.¹⁷ Supporting this perception, 100% of the surveyed residents across four academic and community centers had a positive attitude about research after a multidisciplinary training program.¹⁸ Similarly, after a program to guide resident research experiences, most residents (93%–100%) acknowledged the value of pharmacist-conducted research and believed it was “essential to driving pharmacy practice and expanding the roles of pharmacists.”¹⁹ In another study, 93% expected to conduct further scholarship in their

professional career.²⁰ Unfortunately, however, the residency project experience may not foster continued research pursuits. In one survey, 71% of residents expected the residency program to increase their desire to be involved in research, but only 59% believed the program met that expectation.⁸ Reinforcing the goals of the research project experience while tempering unrealistic expectations may help narrow the expectations gap.

External awards such as those offered by the ACCP and ASHP foundations and the ACCP Practice and Research Networks and opportunities for internal recognition for research exist for residents. These may serve as motivators to complete and submit projects. The residency website can serve as a useful tool for displaying research performed by residents, celebrating achievements, and communicating both program expectations and any support and training offered.²¹

Longer-term benefits to highlight include skills development and instilling a lifelong desire to complete and publish original research.²² Irrespective of publication success, training in research can serve as a conduit for obtaining broadly applicable skills, including project management, teamwork/collaboration, and critical thinking, which can, in turn, enhance the potential for future career opportunities.^{5,22} For example, programs offering PGY2 training appear to place a stronger emphasis on research,²³ and many clinical pharmacists remain engaged in practice-based research, with over one-third of former residents publishing after residency.²⁴ Furthermore, evidence of scholarship and publication is a general requirement for faculty members in colleges and schools of pharmacy, and grant-funded research with pharmacist principal investigators is becoming more prevalent.^{25,26} Thus, research training may provide considerable value by preparing individuals for these opportunities.

2.2 | Value to preceptors/mentors

Appropriate mentorship, training, and direction from research preceptors/mentors are crucial for the success of projects. However, preceptors may be disincited by competing demands for their time. Work-life balance, autonomy, and opportunities for professional advancement are some of the most important factors for career satisfaction among pharmacists in general²⁷ and should ideally be addressed to increase the value of residency research to preceptors.

Ensuring preceptors have adequate time to dedicate to research is critical because this is a commonly encountered barrier. Among over 800 frontline clinical pharmacists, only 11% reported having work time set aside for clinical research activities, with 58% desiring additional time.²⁷

Aligning resident research with preceptors' current priorities can help increase engagement and support both clinical and scholarly endeavors. Other values to highlight include interprofessional relationship-building and networking, where partnerships to address a shared question can support positive team relationships and benefit clinical practice.²⁸ Multicenter research collaborations are generally viewed favorably by preceptors²⁹ and can connect researchers with

common interests, provide additional resources, and potentially increase project scope and publication potential.

Mentors should be prepared to finish submissions and respond to reviewer comments if the resident has moved on to a position and is not timely in revising the paper, even though, ideally, the resident will see the project through to publication. Many mentors, particularly those with a scholarly requirement for their job, will value a publication and find the additional time required to secure higher-level (e.g., national) presentations and/or publications.

Pharmacy managers and institutional administrators have opportunities to directly incentivize research involvement and demonstrate that preceptors' efforts are valued, including financial recognition for research and publication during performance reviews. Funding can also be allocated to support travel for residents and preceptors to present research at conferences or set aside publication fees for reputable journals to facilitate research dissemination.

2.3 | Value to the institution

Although 73%–80% of RPDs believe residency projects and research training are valuable to the institution, pharmacy research may not be perceived as a priority for hospital administrators.^{6,17} To address this gap, opportunities may exist to better showcase residents' contributions and increase the visibility of their research efforts beyond the department. Because individuals working at institutions where original research was conducted were more likely to assign a higher value to such research in one study,⁶ increasing the awareness of resident research successes could help support institutional buy-in. This includes highlighting research findings and their relevance in a variety of settings. Projects addressing quality or cost indicators may be of particular interest to institution administrators.³⁰

Table 1 provides overall recommendations to help add value to projects.

3 | RESEARCH READINESS

3.1 | Previous research experience

The primary goal of Pharm.D. programs is to create pharmacists prepared for direct patient care, which leaves limited time to focus on research education. In one survey of Pharm.D. programs, 15% of respondents indicated they did not provide research methods coursework.³³ Although ACCP has provided guidance on the research coursework that should be available to pharmacy students during their studies,³⁴ the extent of adoption of these recommendations by colleges and schools is unknown. Many graduates continue to enter residency programs with limited experience, which is an important barrier to completing a project in the short timeline of a single postgraduate year.

To address the lack of research experience, training in fundamental research skills during residency may be undertaken. Such development

programs are highly variable, with a spectrum of time commitment, content, review, and practice opportunities.^{18,19,35–39} Program providers are variable and include residency preceptors, the site of the residency program, the college or school of pharmacy, local or national pharmacy organizations, and interprofessional organizations. Development programs may be free or may require purchase; thus, the choice of program may depend on residency funding capabilities. Timing of the research program is also variable, with some occurring during residency orientation and others delivered at milestone points where learners receive the specific research knowledge needed as they begin or complete a step in the research process. Studies have shown improvement in resident confidence in completing research activities after completion of a research development program,^{18,19,36,37} though a barrier to such training is balancing it with other required experiences.

Collaboration can help overcome a lack of research experience and often occurs with a residency preceptor assigned to the project and a resident for mentoring purposes. Experienced coinvestigators and involvement of a site-specific research team that has worked to guide resident research from beginning to end have resulted in higher publication rates.^{31,40,41}

Availability of experienced collaborators is often a challenge that may be addressed by involving non-site-specific and non-pharmacist research experts as needed. In one study, the use of an interprofessional, university-based research team that was developed to address challenges in the resident research process led to all residents presenting at one regional or national presentation.⁴² In another study, residents given advice by an institution-specific research committee (with clinical pharmacy specialists, a data analytics expert, and a statistics expert) led over 80% of surveyed residents to agree that the committee helped anticipate barriers and improved project quality.⁴³

TABLE 1 Recommendations to enhance the value of resident research and projects.

Involve residents in research project idea development and selection processes
Emphasize research project goals and connection to clinical practice
Cultivate a culture of scholarship through program requirements, recognition of research efforts, and internal and external project promotion ³¹
Share project results that affect patient care or work efficiency, which is one of the benefits of disseminating results that should be stressed to residents, mentors, and institutional administrators as an influencer on the value of project completion
Provide financial support for dissemination of project results
Integrate merit-based recognition of research within annual performance reviews of preceptors/mentors
Work with academic institutions to have teaching credit provided to faculty who serve as research mentors, which has been shown beneficial to Pharm.D. student research mentoring ³²
Align research efforts with the institution's educational and research missions
Seek project ideas from administrators to heighten their interest, particularly for quality improvement projects

TABLE 2 Recommendations to overcome lack of research experience and understanding of research methods.

Develop a research-focused curriculum internally or using outside resources to teach residents the knowledge and skills needed to complete a research project⁴⁶

Provide a research manual and access to previously completed projects

Create didactic lectures to educate research personnel on general topics and improve resident efficiency in performing research activities

Provide targeted workshop sessions to help residents overcome specific obstacles that prevent them from progressing to the next step of their project

Provide resources to compensate for limited research skills, such as consultation with a statistician and data analysis services

Use interprofessional collaboration to expand research resources (e.g., by identifying and/or accessing data sources)

Provide preceptors and frontline clinical pharmacists with time to participate in research training so that they can participate in projects²⁷

Provide vetted research ideas/projects. A list of vetted research ideas may come from program preceptors, other individuals at the practice site, or a formalized program/site residency research committee⁴⁴

Assign an experienced research mentor/collaborator to each resident

Developing skills in research methods and statistical analysis should ideally occur through repeated, paralleling experiences. Baseline knowledge should be established at the beginning of residency and expanded on using departmental, institutional, and external resources. Formal, structured research training programs that provide didactic education to parallel the longitudinal research experience and advice from a research committee can provide the tools necessary for residents to successfully complete their project and gain confidence in their research abilities.^{18,19,43,44} Given the variation in residency program resources, some methods may be more or less feasible with respect to implementation.⁴⁵ Table 2 summarizes recommendations for overcoming the lack of research experience, including an understanding of research methods.

Managers can also help support the professional development of research preceptors by providing funding and time off for research skills programs and the presentation of project results. Table 3 shows external opportunities provided by several organizations for research skills development and dissemination of project results.

3.2 | Writing skills

Medical writing is distinct from other forms of writing commonly taught in high school and college (e.g., creative), leading many health-care trainees to struggle with this type of writing. In one study of 54 family medicine residents, over 50% rated “lack of medical writing skills” as an important barrier to conducting high-quality research.⁴⁷ Another survey of 1225 medical residents found that those who

TABLE 3 Resources to advance research skills and support research dissemination.

ACCP Academy Research and Scholarship Development Certificate Program: a 20.0-h educational program with five learning modules and a 4-h elective aimed at developing basic clinical research and scholarly abilities (<https://www.accp.com/academy/researchAndScholarship.aspx>)

ACCP Foundation Futures Grants: mentored developmental awards to support the development of research skills among students, trainees, and early-career ACCP members (<https://www.accp.com/research/ri/futures.aspx>)

Mentored Research Investigator Training (MeRIT) Program for pharmacy faculty or practitioners with limited research experience (<https://www.accp.com/research/ri/merit.aspx>)

ACCP Focused Investigator Training (FIT) Program for experienced investigators looking to advance to NIH-funded research (<https://www.accp.com/research/index.aspx>)

ASHP Research Skills Certificate—designed to increase participants' knowledge and skills in planning and conducting credible research (<https://elearning.ashp.org/products/9795/research-skills-certificate>)

Journal of the American College of Clinical Pharmacy: “Research and Scholarly Methods” (a series of papers) (<https://accpjournals.onlinelibrary.wiley.com/doi/toc/10.1002/jacp.11904>)

ASHP: Resident Research Resources (<https://www.ashp.org/pharmacy-practice/resource-centers/career-transitions/pharmacy-resident-resources?loginreturnUrl=SSOCheckOnly#research>)

ACCP Foundation Frontiers Fund: supports the development of pharmacy researchers, including trainees, and pharmacy research advancement (<https://www.accpfoundation.org/futures/index.aspx>)

ACCP Resident/Fellow Travel Award: a travel stipend that can help defray resident and fellow costs when attending the ACCP Annual Meeting to present research findings (<https://www.accp.com/membership/resfelAward.aspx>)

Some ACCP Practice and Research Networks (PRNs) provide travel funds for residents and fellows to present at PRN meetings during the Annual Meeting

Other professional societies may provide awards to those with interests in their subspecialties (e.g., Hematology/Oncology Pharmacy Association or Society of Critical Care Medicine, Clinical Pharmacy and Pharmacology section)

answered “yes” to the question “Have you been taught how to write a paper?” were over four times more likely to successfully publish a manuscript than those who answered “no.”⁴⁸

Data describing interventions to improve medical writing skills are limited. In one report, nine papers were published by 8 of 18 pharmacy residents in the 4 years before initiation of a writing development program. In the 4 years after implementation, 23 papers were published by 18 of 25 residents.⁴⁹ Opportunities within the writing program included involvement in review articles, case reports, drug information rounds, book chapters, letters to the editor, and high-quality medication-use evaluations, with mentoring and feedback to refine scientific writing skills.⁴⁹ In a study of 43 internal medicine residents, 98% “agreed” or “strongly agreed” that writing a case report

TABLE 4 Recommendations to improve medical writing skills.

- Give residents opportunities to learn medical writing by having them do a drug information response, review, or other medical writing
- Give feedback on writing projects similar to that provided by a professional reviewer
- Provide writing resources such as *Do I Make Myself Clear?* by Harold Evans and *Dreyer's English* by Benjamin Dreyer when residents enter postgraduate programs with limited English writing proficiency and require work in basic principles

increased scientific writing skills.⁵⁰ These findings suggest that having postgraduate residents start by writing a simpler document increases their writing proficiency before they are asked to compose a review article or research report. Table 4 provides recommendations to enhance medical (and basic English, when needed) writing skills.

3.3 | Dissemination of results

Presenting and publishing project results increases the chances that the work done can affect patient care and work efficiency. Although most projects are presented in some fashion (internally, locally, or at a residency conference), national presentation occurs less often, and publication of resident projects is reportedly as low as 2%.¹⁰ To enhance the potential for publication, the intent to pursue publication should begin at the project outset so that the idea meets the FINER (feasible, interesting, novel, ethical, relevant) criteria, with strong consideration given to novelty and methodologic rigor.⁵¹ Other approaches to overcome challenges to presenting and publishing include conveying expectations to residents at project initiation, setting milestones to ensure steady progress, providing adequate time to work on projects, and ensuring appropriate mentorship. Table 5 provides recommendations to enhance the rate of presentation and publication of project results.

4 | RESOURCES

4.1 | Time

Several surveys have identified insufficient time as the most important barrier to the successful completion and publication of a resident project. The median time from regional or national presentations to publication has been reported to be 19–23 months,^{10,17,20,60} making the likelihood of publication during a 1-year residency low. Perceptions regarding the provision of protected research time for residents appear to vary drastically between RPDs and residents. In one survey of 369 RPDs, 83% of respondents indicated they provided residents with protected research time, whereas in a survey of 209 residents, only 12% were given dedicated time for scholarly activities.^{10,20}

All residency programs would likely benefit from having a research committee to ensure the effective use of time for the resident. Before resident onboarding, the research committee can solicit

TABLE 5 Recommendations to overcome barriers to publishing/presenting.

- Create a culture and provide mentorship to support the pursuit of publication
- Require participation in the presentation and publication submission processes as part of the project experience because these are only fully understood once an individual has undergone the activities required
- Establish presentation and publication expectations among residents and mentors for the project early in the year, including expectations for what is necessary to be an author and a communication plan for post-residency follow-up.⁵ A research “contract” agreement between residents and mentors to hold all accountable through project completion may be useful in this regard
- Encourage mentors to complete project submission when the graduated resident is unable or unwilling to do so
- Provide incentives for presentation and journal submissions to complement program requirements and serve as a positive alternative to mandatory submission
- Use team-based research, formal writing, and research development programs, projects with IRB approval, non-pharmacy coinvestigators, and results included at the time of abstract submission as methods to increase presentation and publication rates^{52–56}
- Choose an appropriate journal for submission of the work
- Respond appropriately to and value reviewer comments. Take advantage of the comments to improve the document for revision to the original journal or submission to another journal, if rejected
- Recognize resident research efforts through internal or external acknowledgment and awards to help instill pride in residents, spur residents to devote additional time and effort toward developing a high-quality product, and serve as a satisfying culmination of months of hard work^{57–60}
- Select projects with consideration to the FINER (feasible, interesting, novel, ethical, relevant) criteria⁵¹

research ideas and determine project feasibility within the established time interval.^{41,61,62} The committee may also serve as a departmental liaison to leverage institutional resources and navigate difficulties in IRB approval and data analysis, which are commonly associated with longer turnaround times.

A research team consisting of at least the resident and the mentor should be constituted early in the research process, and including pharmacy students or several residents may add rigor to projects and provide additional support for project completion.^{45,63,64} A team-based approach in which several residents are assigned to each mentor or mentor pairing could enable a larger sample size with more research rigor and potentially increase the opportunity for publication. At one institution, pharmacy students who were integrated into a prospective resident research project completed 48.6% of data collection.⁶³ Challenges with these approaches include uneven sharing of workload among residents and varying project interest levels, which may lead to unreliable levels of motivation. Careful planning and clear expectations are needed to coordinate projects involving more residents and mentors.⁴⁵

Programs must set realistic project timelines and expectations that may need to extend beyond the residency year. Most programs use a traditional model that begins with protocol development and ends with dissemination of results. One traditional approach emphasized having residents identify their own project,⁶⁵ whereas others provided project ideas for residents to choose from. A flipped model that begins with data collection on a previously approved protocol can allow for earlier dissemination of results. This is followed by the creation of a new protocol for use by a future resident. The flipped approach may allow earlier manuscript submission for presentation and publication. At one institution, the implementation of a flipped model increased publication rates from 12.8% to 31.8%.⁶⁶

TABLE 6 Example research timeline.

	Responsibility (stakeholders responsible)
Before residency year	Research mentor recruitment (research committee) Project idea submission (research mentors) Project feasibility screening (research committee)
July	Research orientation (research committee) Required IRB training (research team) Project selection (resident) Literature review (resident) Target journal selection (research team) Author order discussion (research team) Research timeline customization (research team) Statistician consultation (research team)
August	Protocol development and presentations (resident) Data collection tool development (resident)
September	Draft abstract for poster presentation at a national conference (resident) Manuscript: Background (resident) IRB submission (research team)
October	Manuscript: Methods (resident) Data collection (resident)
November	Data collection (resident) Final abstract for poster submission to a national meeting (resident)
December	Data collection (resident)
January	Data collection (resident) Submit final data set to statistician (resident)
February	Data analysis (statistician) Practice platform presentations (resident)
March	Platform presentation at a regional resident conference (resident) Manuscript: Results (resident)
April	Manuscript: Discussion and Conclusions (resident)
May	Close study with IRB (research team) Final internal manuscript review (research committee)
June	Manuscript edits (resident)
After residency graduation	Submission for publication (research team) Manuscript revisions (research team)

Alternatively, programs may find success using several smaller projects (e.g., QI projects) to satisfy ASHP requirements,¹ particularly if process improvement is the primary goal.

Regardless of the model chosen, a detailed project timeline that establishes important deadlines and prioritizes project components throughout the year should be provided.⁶⁷⁻⁶⁹ Table 6 presents an example timeline.

Regular meetings should be scheduled throughout the residency year to discuss progress, address challenges, and modify the timeline according to individualized needs.⁴⁵ Achievement of intermediate milestones (e.g., finalizing data collection) and overcoming obstacles should be celebrated at these meetings to encourage progress and lay the groundwork for post-residency research participation. Table 7 summarizes recommendations to facilitate timeliness in the project experience.

4.2 | Research mentors

The development and recruitment of effective research mentors are critical to ensuring a meaningful and productive research and scholarly experience. Some barriers to this have been characterized as programmatic (i.e., limited mentor number and expertise and lack of sustainable incentives for mentor engagement). A key factor associated with having insufficient mentors is inexperience with publishing.⁴⁵ Residency programs with RPDs who have published are more likely to have a research-focused preceptor, dedicated time for resident research, a program that enables residents to publish, and more stringent policies on publishing.¹⁰

TABLE 7 Recommendations to overcome time limitations.

Seek institutional support and provide protected time for research and research skills development to support the importance of project completion
Use team-based research projects to enhance available time. For example, include pharmacy students on projects to assist with data collection
Include more than one resident per project to decrease the number of projects that need to be generated each year, distribute data collection responsibilities, and increase the amount of data that can be collected
Provide project proposals for residents to choose from that have prior IRB approval
Offer administrative days or service credit to preceptors who serve as research mentors to help fit research responsibilities into clinical service and keep projects on track
At sites with sufficient research mentors, include more than one mentor on a project to distribute the project workload and precepting responsibilities
Consider use of a flipped research model
Develop a research timeline with specific deadlines. Communicate the timeline early in the residency year, including posting timelines on the residency website and presenting to residents and research mentors before resident onboarding or during research orientation

TABLE 8 Recommendations to increase the availability of research mentors.

Provide research skills development for preceptors to ensure the availability of knowledgeable mentors

Pair experienced preceptors/mentors with new preceptors to create additional research mentors

Use a research committee (possibly interprofessional, if available) as an alternative to individual mentors if such mentors are unavailable and/or to conserve resources and provide consistency

Use a research committee to objectively evaluate project feasibility, including project size and timeline

Involve residents in a mentor's existing research program and potentially on projects already in progress

Use a layered-learning approach where the mentor's research team (e.g., senior residents, fellows, graduate students) assumes some responsibility for resident research and scholarship training

Maintain or develop an association with a college or school of pharmacy and partner with faculty members involved in research to serve as mentors or co-mentors

Offer incentives for research mentor engagement, such as administrative days or dedicated time to participate in research training for clinicians and teaching credit for faculty members (promotion, tenure, reappointment)

One solution to insufficient research mentorship is to facilitate a layered learning approach in which preceptors with less research experience are paired with more seasoned researchers, which helps develop a pool of research mentors for the program. In some instances, this can be facilitated by partnering with faculty from a school of pharmacy or another academic unit.⁴⁵ Such cross-collaboration can provide more training opportunities, additional resources, and a more robust experience.^{32,45} Many studies in the medical training setting support the impact of mentor relationships on research trainee productivity and increased publication rates.^{70,71} Table 8 summarizes recommendations for increasing the availability of mentors.

4.3 | Resident and mentor burnout

Resident and mentor burnout is another potential barrier to achieving desired outcomes from resident research projects. Burnout is defined in the *International Classification of Diseases (ICD-11)* as a “syndrome resulting from chronic workplace stress that has not been successfully managed.”⁷² Burnout can occur at all career stages of health professionals and can include residents and mentors.^{73–75} The prevalence of burnout has been estimated as 19%–37% among pharmacists overall⁷⁶; however, rates as high as 74% have been reported among pharmacy residents.⁷⁷ Because burnout is related to overall job responsibilities and not just research, strategies to address burnout need to consider the overall well-being of residents and mentors.

The accreditation standards for PGY1 pharmacy residency programs provided by the ASHP COC suggest that preceptors and residents should be educated on recognizing burnout and applying

appropriate mitigation strategies.⁷⁸ Resources are provided on the ASHP website, and various strategies have been suggested in the literature; however, implementation of well-being initiatives is left to individual residency programs.⁷⁹ This can be challenging because data are limited on strategies that reduce burnout among pharmacists and pharmacy residents. More data exist from medical residency programs, which can be extrapolated for use in pharmacy residency programs.⁷³

Of importance, although mentoring can benefit mentees and reduce their burnout, it can also contribute to burnout for the mentor. Mentor burnout can be exacerbated by taking on too many mentees and not having dedicated time to devote to mentoring.⁸⁰ Many strategies reported to reduce burnout in pharmacy residents can be applied to mentors as well.⁷³

5 | CONCLUSIONS

Many barriers have been identified that can reduce the desired outcomes of the residency project experience for the resident, mentor/preceptor, and institution. Because the residency year is crowded with clinical and administrative objectives that must be fulfilled in addition to the objectives related to the project, addressing these challenges in a manner that benefits all involved is critical. To overcome known barriers, considerable research has been conducted to identify best practices for research and QI projects, with some solutions working better than others depending on the characteristics and resources of the residency institution. In addition to meeting the criteria for residency accreditation relative to projects, the value of well-conducted projects can make overcoming the barriers worthwhile.

CONFLICT OF INTEREST STATEMENT

The authors declare no conflict of interest.

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