Letter to the Editor

Predicting Success in Residency: The Quarterback Problem

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TO THE EDITOR:

A well-established trend over recent years has been the move toward requiring pharmacists to complete a postgraduate year 1 (PGY1) residency as a qualification for practice. The American Association of Colleges of Pharmacy (AACP) and the American Society of Health-System Pharmacists (ASHP) have voiced their recommendations for all pharmacists involved in direct patient care to have completed a residency by the year 2020.^{1,2} From 2011 to 2015, there was a 33% increase in the number of pharmacy residency applicants entering the match cycle.³

The implementation of the PhorCAS system streamlined the application process: Applicants can apply to a larger number of programs with greater convenience, and programs can more easily track applicant characteristics.⁴ Many programs use screening tools to select which applicants they will invite for an interview.⁵ Are these screening tools doing what they are supposed to be doing? Are they selecting for the best residency applicants and, subsequently, predicting the success of matched residents?

Residency programs are challenging and the curriculum builds upon existing skill sets and knowledge, therefore there is the need for matching the best applicants. Several survey studies have attempted to describe which applicant characteristics are considered by various programs when screening residency applicants, however there seems to be conflicting evidence and opinions regarding the importance and utility of various factors that are commonly used to screen residency applicants both for medical and pharmacy residencies.^{4,5}

A survey by Butts et al⁴ reported that when surveyed, PGY1 residency program directors (RPDs) weighted the domain of application features/program fit (ie, recommendation letters, perceived program fit, professional goals, and communication skills) the most heavily in terms of relative importance when selecting candidates for on-site interviews. The next most heavily weighted domains were involvement (in

community service, leadership roles, organizations, etc), academics/credentials, professional experience, and, lastly, research and teaching experience. A survey by Hillebrand et al⁵ reported that the 5 top factors considered in screening applicants were overall impression (based on curriculum vitae and letters of recommendation), letters of recommendation, letters of intent, quality of clerkship rotations, and leadership roles.

Grade point average (GPA) was not found to be highly valued by surveyed PGY1 programs in Hillebrand's study. In contrast, GPA was the most highly valued factor ranked by PGY1 RPDs in the domain of academics in the survey by Butts et al, and Jellinek-Cohen reported that 98.9% of respondents considered pharmacy school grades to be important or critical.⁴⁻⁶

Jungnickel⁷ contends that class ranking and GPA provide limited information regarding an applicant's motivation, professional promise, leadership, and patient care skills. Instead, he believes that recommendation letters should be used to inform decisions about which applicants are most qualified. However, these letters may be limited in their utility. According to a study by Ensor et al,⁸ letters of recommendation and intent were not useful in determining whether an applicant was extended an interview at their site, due to the fact that the majority of applicants scored highly on these features *regardless* of interview status. A 2011 letter to the editor by Paloucek noted, "My own experience over the past three years with more than 500 letters of intent is that they are exceedingly similar and rarely, if at all, differentiating."^{9(p2218)} Nisly et al¹⁰ found no correlation between quality of applicants' letters of intent and the strength of their interview performance at their site, suggesting a disparity between candidates' written and oral communication skills. Despite these potential pitfalls, another survey by Gohlke et al¹¹ found that programs continue to rank letters of recommendation and intent as the most highly valued, modifiable applicant qualities.

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In a survey by Gohlke et al,¹¹ residency program candidates ranked the following qualities of an ideal PGY1 resident in order from highest to lowest in importance: familiarity with the applicant's college, hospital work experience, club leadership, volunteer service and professional organization leadership (ranked equally), non-hospital work experience, poster presentations, shadowing experience, research projects, peer-reviewed publications, and non-peer-reviewed publications.

When Ensor et al performed correlation analyses to see which applicant characteristics were associated with an invitation to interview at their institution, they found that 7 characteristics retained a significant association: professional association involvement, presentations, rotation experiences, publications, pharmacy work experience, GPA, skills, and certifications. Although the authors made note of which applicant characteristics are correlated with an invitation to interview, they openly state that "no attempt was made to assess how this information might relate to performance during the PGY-1 pharmacy practice residency year."^{8(p1674)}

The surveys conducted and analyses performed indicate that there may be disparities between the importance placed on applicant qualifications during the screening process and their utility in predicting whether an applicant is invited to interview. Going beyond the interview invitation, are these characteristics predictive of future success during the PGY1 pharmacy practice residency year? If our screening tools evaluate qualifications and characteristics that do not have a strong correlation with either the likelihood of being interviewed or success in the residency program, then we may be screening out applicants who would make successful residents and our process may not be fair.

Perhaps we face what Malcolm Gladwell terms the *quarterback problem*: "There are certain jobs where almost nothing you can learn about candidates before they start predicts how they'll do once they're hired. So how do we know whom to choose in cases like that?"^{12(p317)}

Screening tools may be missing something fundamental in evaluating which applicants to interview. Applications are designed with a stronger focus on cognitive abilities, but they give little insight into noncognitive abilities. Noncognitive abilities include interpersonal skills, personal integrity, and social

consciousness.¹³ Generally only the letters of intent and recommendation can be expected to provide any information regarding an applicant's noncognitive abilities. Romanelli et al refer to these noncognitive abilities as *emotional intelligence* in a discussion on this topic published nearly 10 years ago, defining it as "the set of skills people use to read, understand, and react effectively to emotional signals sent by others and oneself."^{14(p2)} Emotional intelligence encompasses skills such as "empathy, problem-solving, optimism, and self-awareness which allow people to reflect, react to, and understand various environmental situations."^{14(p2)} Health care professions dovetail clinical competence with a service orientation toward caring, but the importance of emotional intelligence as a predictor of success is generally not reflected in the world of health care, and specifically the world of pharmacy. Romanelli et al¹⁴ further speculate that technological advances in medicine have created a disproportionate emphasis on clinical competencies at the sacrifice of a focus on service and caring.

One solution may be to correct the disparity between our assessments of residency applicants' cognitive abilities and their emotional intelligence. Our emphasis on cognitive abilities leads us to attempt to define and predict success through quantitative assessments. Perhaps successful residents can be defined through a more balanced assessment of their quantitative cognitive abilities and qualitative emotional intelligence. Nearly the entire body of literature for this topic in pharmacy focuses on quantifying residency applicants' attributes, but there is little to no discussion of how qualitative assessments may provide insights into a candidate's potential for success. We therefore recommend that pharmacy programs seek to define a successful resident in qualitative terms and to seek qualitative measures when assessing their residency applicants prior to determining which applicants to interview. Further qualitative research is necessary in order to describe the perspectives on success in residency, and input from residency program directors, preceptors, residents, and students will help to shed light on these topics. Perhaps then we can identify qualitative factors that can help us to predict success in residency. Although cognitive abilities are vital to success, a balanced assessment that includes emotional intelligence will help programs to develop stronger screening tools and more thoroughly evaluate potential pharmacy residents.

REFERENCES

1. Murphy JE, Nappi JM, Bosso JA, et al. ACCP position statement. ACCP vision of the future: Postgraduate pharmacy residency training as a prerequisite for direct patient care. *Pharmacotherapy*. 2006;26:722-733.
2. American Society of Health-System Pharmacists. ASHP long-range vision for the pharmacy work force in hospitals and health systems. *Am J Health Syst Pharm*. 2007;64:1320-1330.
3. ASHP resident matching program statistics. <https://www.nat-match.com/ashprmp/aboutstats.html>. Accessed March 4, 2016.
4. Butts A, Smith K. Application and interview features used to assess applicant qualifications for residency training. *Hosp Pharm*. 2015;50(2):125-133.
5. Hillebrand K, Leinum CJ, Desai S, Pettit NN, Fuller PD. Residency application screening tools: A survey of academic medical centers. *Am J Health Syst Pharm*. 2015;72(suppl 1):S16-S19.
6. Jellinek-Cohen SP, Cohen V, Bucher KL, Likourezos A. Factors used by pharmacy residency programs to select residents. *Am J Health Syst Pharm*. 2012;69:1105-1107.
7. Jungnickel PW. Grade-point averages and class rankings in evaluation of pharmacy residency applicants. *Am J Health Syst Pharm*. 2010;67(18):1500,1502.
8. Ensor CR, Walker CL, Rider SK, Clemente EU, Ashby DM, Shermock KM. Streamlining the process for initial review of pharmacy residency applications: An analytic approach. *Am J Health Syst Pharm*. 2013;70(19):1670-1675.
9. Paloucek F. Better letter of intent for pharmacy residency applications. *Am J Health Syst Pharm*. 2011;68:2218.
10. Nisly SA, Howard ML, Isaacs AN TT. Association between application scores and positive onsite interviews of pharmacy residency applicants. *Am J Health Syst Pharm*. 2014;71:2110-2114.
11. Gohlke AL, Ray DB, El-Ibiary SY, Barletta JF. Characteristics of the ideal postgraduate year 1 pharmacy practice residency candidate: A survey of residency program directors. *J Pharm Pract*. 2014;27(1):84-88.
12. Gladwell M. *What the Dog Saw and Other Adventures*. New York: Little Brown and Company; 2009.
13. Reede JY. Predictors of success in medicine. *Clin Orthop Relat Res*. 1999;(362):72-77.
14. Romanelli F, Cain J, Smith KM. Emotional intelligence as a predictor of academic and/or professional success. *Am J Pharm Educ*. 2006;70(3):69. ■