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**Association between application scores and positive onsite interviews of pharmacy
residency applicants**

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Application to pharmacy residency programs has become increasingly competitive over the past several years. Although successful candidates must excel in the various stages of the application process, preparing written applications and securing onsite interviews are early and arguably the most difficult steps. Residency programs vary in the criteria used for offering onsite interviews. The majority of insight into this topic comes from surveys of residency program directors, but corresponding analyses of interview offers have been minimal. (1, 2)

The pharmacy residency program at Indiana University (IU) Health has undergone exponential growth over the past six years. The program currently trains 14 postgraduate year 1 (PGY1) residents annually within our academic health care center, encompassing three different hospitals. Our residency application and interview process has remained relatively unchanged during this time of growth. Each completed application packet, which includes a survey, undergoes independent review by at least two pharmacy residency preceptors. Consistency among reviews is improved through the use of a scoring rubric. Candidate scores are then averaged among reviewers, and top-scoring candidates are invited to an onsite interview.

Historically, candidates had three separate interviews, each with three preceptors. This process was altered in 2012 to incorporate two interviews with three preceptors each and a separate clinical case discussion. Preceptors involved in interviewing vary from year to year and often differ from those who conduct the initial review of applications. Interview scores are averaged among all preceptors, and a final interview score is added to the application-packet score to produce a total candidate score.

We sought to identify components of residency applications that correlated with a positive onsite interview. Data were gathered for applicants for the 2009-13 IU Health traditional PGY1 residencies. Average scores were calculated for all application components and interview scores. Spearman's correlation coefficients were calculated for all variables in relationship to the interview score.

For this period, IU Health had 499 applications for the PGY1 program, and 213 interviews were completed. Application materials were archived after completion of onsite interviews; data were incomplete for 13 applicants (6%), who were thus removed from the analysis. The table summarizes the study results for the 200 remaining candidates. Among factors related to the applicants' curriculum vitae, only publication experience correlated positively ($p < 0.05$) with the strength of the onsite interview. Four other application components (two elements of the survey, letters of recommendation, and a discretionary point) were significantly correlated with a positive onsite interview. Some application components were added during the study period and had a smaller sample size than components that were present since 2009.

Although this is the first study correlating application information to interview performance, previous investigations found that research and work experience, publications, presentations,

strong letters of intent, and professional involvement were correlated with an offer of an interview onsite. (1-4)

Our analysis added to this work by considering interview performance rather than merely an invitation to interview. We too found that publication experience and strong letters of recommendations were important but were surprised that the quality of applicants' letters of intent had no correlation with the onsite interview performance; this suggests a possible disconnect between candidates' written and oral communication skills. Our program application survey contained questions that showed positive correlation with interview scores. Use of this nontraditional tool within our application also allows reviewers to evaluate applicants' predicted fit with our program and allows the awarding of an additional discretionary point to an applicant's score. Analysis showed that applicants awarded the discretionary point had a stronger onsite interview.

Our analysis was limited by having been conducted for only a single program. Although some significant correlations were found, they do not necessarily indicate the qualities of a model resident. One strength of the study was the inclusion of data from 94% of onsite interviews completed over a five-year span of residency applications. The study period included data from a variety of program preceptors, which should have eliminated bias that might have arisen if the same group of preceptors had always reviewed applications and interviewed candidates.

A similar analysis can be conducted for any program with a standardized application review and interview process. Identifying factors that predict positive onsite interviews may increase the likelihood of finding residents who fit within a program. As residency training increases in popularity, a streamlined process to identify optimal candidates becomes essential. The advent of the Pharmacy Online Residency Centralized Application Service (PhORCAS) has the potential to sort, screen, and identify candidates who possess the characteristics that individual programs seek. The combined use of these techniques may lead to a more efficient and thorough selection process.

(1.) Jellinek-Cohen SP, Cohen V, Bucher KL et al. Factors used by pharmacy residency programs to select residents. *Am J Health-Syst Pharm.* 2012; 69: 1105-8.

(2.) Gohlke AL, Ray DB, El-Ibiary SY et al. Characteristics of the ideal postgraduate year 1 pharmacy practice residency candidate: a survey of residency program directors. *J Pharm Pract.* 2014; 27: 84-8.

(3.) Clark JS, Khalidi N, Klein KC et al. Using a novel approach to collect, disseminate, and assess residency application materials. *Am J Health-Syst Pharm.* 2010; 67: 741-5.

(4.) Ensor CR, Walker CL, Rider SK et al. Streamlining the process for initial review of pharmacy residency applications: an analytic approach. *Am J Health-Syst Pharm.* 2013; 70: 1670-5.

Relationship Between Candidate Application Characteristics
and Interview Performance (a)

Characteristic	Correlation Coefficient
Curriculum vitae components	
Practicing pharmacist for > 6 mo (b)	0.186
Work experience in pharmacy	-0.073
Patient care rotations	-0.032
Presentations or posters	0.037
Publications	0.187 (c)
Involvement in professional pharmacy organizations	-0.065
Nonpharmacy extracurricular activities	0.011
Curriculum vitae grammar, flow, appearance (d)	-0.121
Grade point average	0.092
Letter of intent	
Grammar	-0.054
Flow and content	-0.013
Application survey	
Which rotation would you prefer to receive and not receive during residency?	0.094
Why did you select those rotations? (d)	0.032
Describe your best and worst job	0.181 (c)
What are your long-term career goals? How will residency prepare you to accomplish these goals?	-0.009
State why you want to be a resident at Indiana University Health	0.219 (c)
Survey grammar	-0.019
Letters of recommendation, averaged	0.221 (c)
Overall good fit for residency program (discretionary point)	0.23 (c)

(a) Unless otherwise indicated, n = 200.

(b) Component evaluated 2012-13; n = 94.

(c) $p < 0.05$.

(d) Component evaluated 2011-13; n = 132.