

Drug Testing Incoming Residents and Medical Students in Family Medicine Training: A Survey of Program Policies and Practices

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Abstract

Background Despite well-established negative consequences, high rates of substance use and related disorders continue to be reported. Physicians in training are not immune from this, or the associated risks to their health and careers, while impaired physicians are a threat to patient safety.

Objective We surveyed family medicine residency programs' practices relating to drug testing of medical students and incoming residents. The survey asked about the extent to which residency programs are confronted with trainees testing positive for prohibited substances, and how they respond.

Methods The survey was sent to the directors of family medicine residency programs. A total of 205 directors (47.2%) completed the survey.

Results A majority of the responding programs required drug testing for incoming residents (143,

68.9%). Most programs did not require testing of medical students (161, 81.7%). Few programs reported positive drug tests among incoming residents (9, 6.5%), and there was only 1 reported instance of a positive result among medical students (1, 3.3%). Respondents reported a range of responses to positive results, with few reporting that they would keep open training spots or offer supportive services for a medical student who tested positive.

Conclusions Changing laws legalizing certain drugs may require corresponding changes in the focus on drug testing and associated issues in medical training; however, many residency program directors were not aware of their institution's current policies. Programs will need to reexamine drug testing policies as new generations of physicians, growing up under altered legal circumstances concerning drug use, progress to clinical training.

Editor's Note: The online version of this article contains a table of policies and responsibilities regarding organizational oversight and payment for drug testing.

Introduction

Despite well-established negative consequences of misusing drugs and alcohol, high rates of substance use disorders continue to be reported in the US population.¹ Health care

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professionals, including medical students and resident physicians, are not immune from these disorders and the adverse effects they may cause to patients' medical care as well as to their own health, well-being, and careers.² Approximately 10% to 15% of physicians will develop a substance use disorder during their careers, with some disorders emerging during medical school and residency training.³⁻⁶ Substance use disorders may affect the functioning and reputation of residency programs and their sponsoring health systems.

An increasing number of states have decriminalized, legalized, or medically sanctioned the use of marijuana, a previously illegal substance.⁷ Concurrently, societal views on recreational drug use and appropriate legal consequences appear to be evolving into greater acceptance.⁸ These changes have caused confusion relating to drug use and what may be allowed in the workplace.⁹ Studies of medical students and residents indicate that many are unaware of drug testing practices employed by their training institutions.^{10,11} The consequences of this lack of awareness or misunderstanding could be significant to medical students,

residents, and their training institutions if learners assumed drug use was allowed or not monitored.

A review of the relevant literature reveals a dearth of research on drug testing of medical students and incoming residents in residency programs. Consequently, we developed a survey of family medicine program directors to learn more about how drug testing programs address policies and practices for physicians in training. Specifically, our goals were to determine whether programs tested medical students and incoming residents, and what actions were taken when positive tests were obtained. We also sought to determine how frequently residency programs obtained positive results, and whether there were program characteristics associated with testing practices.

Methods

We developed a questionnaire to examine family medicine residency programs’ policies and practices relating to testing for drug use among incoming residents and medical students rotating within their systems. To assess clarity and relevance, drafts of the questionnaire were reviewed by 6 individuals who are program directors or faculty of family medicine residency programs. No other procedures were conducted to obtain reliability or validity measures of the survey.

What was known and gap

Drug testing of residency applicants is recommended to increase protection of the public, yet little is known about policies and practice.

What is new

A survey of program directors found that most tested incoming residents, yet only a few reported positive results.

Limitations

Survey study with an increased risk for response and social desirability bias.

Bottom line

Changing laws that blur classic definitions of illegal substances may require programs to reexamine their drug testing policies.

The questionnaire was directed toward residency program directors and covered drug testing policies, including cost and oversight responsibilities, and the consequences of positive results. We also included questions to determine the extent to which positive results had been found during the previous 5 years. Specific questions addressed marijuana use and its legal status in the state in which the program was located. No questions were included examining specific drug testing protocols that were used by programs or, except for marijuana, the specific drugs that were included. We also did

TABLE 1 RESIDENCY PROGRAM DEMOGRAPHICS OF RESPONDENTS					
	Region		Community Type		
	No. (%)	Missing		No. (%)	Missing
Northeast	42 (22.4)	–	Urban	81 (41.5)	–
Southeast	44 (23.5)	–	Suburban	75 (38.4)	–
Midwest	65 (34.8)	–	Rural	23 (11.8)	–
West	36 (19.3)	–	Inner-City	12 (6.2)	–
	–	–	Other	4 (2.1)	–
Total	187	18	Total	195	10
	Program Type		No. of Residents per Class		
	No. (%)	Missing	Residents Admitted	No. (%)	Missing
Community-based, medical school affiliated	120 (61.9)	–	1–6	76 (39.6)	–
Medical school–based	26 (13.1)	–	7–8	64 (33.3)	–
Community-based, medical school administered	25 (12.8)	–	9–12	42 (21.9)	–
Community-based, nonaffiliated	20 (10.3)	–	> 12	10 (5.2)	–
Military	3 (1.6)	–	–	–	–
Total	194	11	Total	192	13

TABLE 2 DRUG TESTING PRACTICES FOR INCOMING RESIDENTS AND MEDICAL STUDENTS AND STATE MARIJUANA USE STATUS

	Incoming Residents					Medical Students				
	Yes, No. (%)	No, No. (%)	Don't Know, No. (%)	Total	Missing	Yes, No. (%)	No, No. (%)	Don't Know, No. (%)	Total, No. ^a	Missing, No.
Require routine drug testing prior to training	143 (69.7)	62 (30.2)	0 (0)	205	0	31 (16.1)	161 (83.9)	0 (0)	192	8
Require random drug testing at any other time during training	19 (9.7)	177 (90.3)	0 (0)	196	9	3 (1.6)	184 (98.4)	0 (0)	187	13
Include marijuana on the list of banned substance	111 (79.9)	1 (0.7)	27 (19.4)	139	4	23 (74.1)	0 (0)	8 (25.8)	31	0
	State Marijuana Use Status									
	Yes, No. (%)		No, No. (%)		Don't Know, No. (%)		Total, No.		Missing, No.	
Located in a state that allows medical prescriptions for marijuana use	58 (29.9)		129 (66.5)		7 (3.6)		194		11	
Located in a state where marijuana use is a noncriminal activity	12 (6.2)		165 (85.5)		16 (8.3)		193		12	

^a Five respondents reported that medical students did not train at their programs.

not examine program policies relating to issues associated with drug testing, such as dealing with inaccuracies and challenges to results, or verifying results.

In September 2013, we sent a web link to the questionnaire via e-mail to program directors of the 456 Accreditation Council for Graduate Medical Education–accredited family medicine residency programs listed by the American Academy of Family Physicians. We provided assurances that the results would be kept anonymous, and that no responses would be linked to individuals or programs. Second and third e-mails were sent to nonresponders at 2-week intervals.

The Institutional Review Boards of the Heritage Valley Health System and the Excela Health System reviewed and approved this study.

We computed descriptive statistics and conducted χ^2 tests to analyze collected data and to identify any relationships among program characteristics and drug testing practices and results.

Results

Twenty-two of the questionnaires could not be delivered because of incorrect or changed e-mail address listings. Of the remaining 434 questionnaires, 205 were completed and returned, for a total response rate of 47.2%. Characteristics

of the sample, including regional and community type distribution, program type and affiliation, and residency class size, are shown in TABLE 1.

Most respondents' programs were located in states that did not allow marijuana prescriptions (129, 66.5%) or noncriminal use (165, 85.5%). The majority of programs that conducted drug testing included marijuana on the list of banned substances for residents (111, 79.9%) and medical students (23, 74.1%; TABLE 2). In most programs, the health system sponsoring the residency determined drug testing policies for residents (130, 93.5%) and medical students (20, 64.5%). Medical schools paid for student drug testing in most programs that engaged in this practice (20, 64.5%; provided as online supplemental material).

Family Medicine Residents

Respondents indicated that the majority of programs drug test incoming residents (143, 69.7%; TABLE 2). In response to a positive drug test, an approximately equal number of programs may allow training, albeit under special conditions (36, 25.9%), as would revoke the offer of a position (39, 28%). A sizeable number of directors did not know what actions would be taken in response to positive tests (62, 44.6%; TABLE 3). The incidence of positive drug tests

TABLE 3

ACTIONS TAKEN FOR POSITIVE DRUG TESTS PRIOR TO STARTING RESIDENCY OR MEDICAL STUDENT ROTATION

	Incoming Residents		Medical Students	
	No. (%)	Missing	No. (%)	Missing
Will be allowed to join program/start rotation without restrictions or special conditions	0 (0)	–	0 (0)	–
May be allowed to join program/start rotation with specialized conditions	36 (25.9)	–	2 (6.4)	–
Will be denied a residency position/student rotation, but rehabilitation or other supportive services will be offered	7 (5)	–	1 (3.2)	–
Will be denied a residency position/student rotation, and rehabilitation or other supportive services will not be offered	32 (23)	–	10 (32.3)	–
Don't know	62 (44.6)	–	18 (58.1)	–
Other	2 (1.5)	–	0 (0)	–
Total	139	4	31	0

during the previous 5 years among programs that conduct testing was low (9, 6.5%; TABLE 4).

Chi-square analyses indicated that whether a program conducted pre-employment drug testing with incoming residents was not related to the community type ($\chi^2 = 4.79$ [4, $n = 195$]; $P > .05$) or the region in which a program was located ($\chi^2 = 7.31$ [3, $n = 187$]; $P > .05$). The likelihood of having an incoming resident produce a positive drug test was not related to the community type ($\chi^2 = 5.99$ [4, $n = 136$]; $P > .05$) or the region in which a program was located ($\chi^2 = 2.64$ [4, $n = 131$]; $P > .05$). Similarly, no relationships were found between positive test results and whether a program was located in a state that allowed for medical prescriptions for marijuana use ($\chi^2 = 0.12$ [2, $n = 135$]; $P > .05$) or whether it was located in a state where marijuana use is a noncriminal activity ($\chi^2 = 0.11$ [2, $n = 134$]; $P > .05$).

Medical Students

Most respondents indicated that their programs do not drug test medical students on clerkship rotations at their institution

(161, 81.7%; TABLE 2). Among programs that do test, the majority of directors were unaware of the actions that would be taken in response to positive findings (18, 58.1%; TABLE 3). Only 1 program that routinely tested medical students reported positive results during the past 5 years (TABLE 4).

Chi-square analyses indicated that programs located in the Southwest were more likely to test medical students than programs in other regions ($\chi^2 = 13.8$ [6, $n = 187$]; $P < .05$). The likelihood of a program drug testing medical students was not related to the community type in which it was located ($\chi^2 = 5.44$ [8, $n = 195$]; $P > .05$). Due to the low number of positive results, no valid statistical analyses could be conducted to identify program characteristics that would predict positive drug test findings.

Discussion

The findings of our survey indicate that most programs require pre-employment drug testing for incoming residents, while comparatively fewer programs test medical students on clerkship rotations at their facilities. Few

TABLE 4

PROHIBITED SUBSTANCES DETECTED IN RESIDENTS TESTING POSITIVE DURING THE PREVIOUS 5 YEARS

	No. (% of Sample)	Alcohol	Marijuana	Cocaine	Barbiturates	Amphetamines	Unknown
Incoming Residents ^a	9 (6.5)	2	6	1	1	1	1
Medical Students	1 (3.3)	–	–	–	–	1	–

^a Three incoming residents tested positive for multiple prohibited substances.

programs have found positive drug screens among incoming residents in the previous 5 years, and only 1 program reported a positive finding in medical students during the same time period. Programs varied in their responses to positive drug tests. An approximately equal number of programs would deny training positions to residents testing positive for drugs as would consider allowing training under special conditions. Many program directors reported being unaware of the consequences of such an event, potentially because few programs have been confronted with positive drug tests. There also was a lack of awareness among some program directors relating to marijuana, such as whether it was included for drug testing, or whether it could be prescribed or used legally in the state in which the residency program was located. Given the recent and pending potential changes in numerous states relating to this drug, efforts at educating residency programs in matters associated with marijuana use and the medical workplace appear warranted.

In addition to program directors, residency applicants and medical students in general would benefit from education regarding drug testing policies in their schools, training sites, and future residency programs. Previous studies have found that many students and residents lack knowledge of their institutions' drug use and testing policies.^{10,11} This group may not be aware that they may be drug tested when starting clinical rotations or residency training, and that the consequences of positive findings could involve disruptions to their education and career plans. This may be especially important regarding marijuana use, as it may be detected for a long period after it has been used (days to weeks).¹² Awareness of drug testing policies may also limit recreational use of potentially dangerous substances, and subsequent dependence and addiction issues, as well as increase the likelihood of students with substance use disorders seeking help.

Increasing medical student awareness of drug testing policies could also benefit residency programs. Although there appear to be few instances of positive results, when they do occur, the potential for major disruption of program and applicant plans is significant. In the case of an incoming resident testing positive, depending on program policies, issues relating to last-minute changes to scheduling, mustering supportive services, developing a probation agreement, loss of funding for a training position, and scrambling to fill an open training slot may need to be addressed on short notice.

Our survey found that 30% (62 of 205) of residency programs do not conduct drug tests for incoming residents prior to them initiating training. This was perhaps the most surprising finding of the study in light of the potential deleterious impact of impaired residents on patients,

colleagues, training institutions, and the public trust in medicine, as well as potential benefits of intervening with drug-abusing medical professionals early in their careers.⁵ Similarly, the small percentage (16%, 31 of 192) of residency programs that test medical students prior to them starting clinical training within their health systems was surprising, because many of the concerns associated with impaired residents would seemingly also apply to this population. We suspect that residencies and their sponsoring health systems may wish to reexamine drug testing policies for physicians in training as new generations of students, growing up under altered legal circumstances concerning drug use, progress through medical training.

Our study has several limitations. Its relatively low return rate limits the extent to which firm conclusions can be drawn for the national sample of family medicine programs. However, some characteristics of the sample strengthen confidence in the representativeness of the findings. Specifically, respondents were located throughout the country in programs fairly evenly distributed regionally and across community types and training settings. Another limitation relates to respondents possibly misunderstanding questions because the survey was not examined for reliability and validity evidence. Also, because family medicine residency directors were surveyed, the extent to which results may be generalized to other specialties may be limited.

Conclusion

A national survey of family medicine residency program directors found that most programs drug test residents entering training and that a minority test medical students. There were few instances of positive test results in the past 5 years. Programs reported a variety of program responses to positive tests, as well as a lack of awareness among some program directors regarding the actions that would be taken in such an event.

References

- 1 National Institute of Drug Abuse. The science of drug abuse and addiction. <http://www.drugabuse.gov/related-topics/trends-statistics>. Accessed March 3, 2014.
- 2 McLellan AT, Skipper GS, Campbell M, DuPont RL. Five year outcomes in a cohort study of physicians treated for substance abuse disorders in the United States. *BMJ*. 2008;337:a2038.
- 3 Hughes PH, Brandenburg N, Baldwin DC Jr, Storr CL, Williams JC, Sheehan DV. Prevalence of substance use among US physicians. *JAMA*. 1992;267(17):2333–2339.
- 4 Hughes PH, Baldwin DC Jr, Sheehan DV, Conard S, Storr CL. Resident physician substance use, by specialty. *Am J Psychiatry*. 1992;149(10):1348–1354.
- 5 Baldisseri MR. Impaired healthcare professional. *Crit Care Med*. 2007;35(suppl 2):106–116.
- 6 Shah AA, Bazargan-Hejazi S, Lindstrom RW, Wolf KE. Prevalence of at-risk drinking in a national sample of medical students. *Subst Abuse*. 2009;30(2):141–149.
- 7 National Conference of State Legislatures. State medical marijuana laws. <http://www.ncsl.org/research/health/state-medical-marijuana-laws.aspx>. Accessed March 3, 2014.

- 8 Swift A. For first time, Americans favor legalizing marijuana. *Gallup*. October 22, 2013. <http://www.gallup.com/poll/165539/first-time-americans-favor-legalizing-marijuana.aspx>. Accessed March 3, 2014.
- 9 McGuire J. Legalized marijuana and its effect on the workplace. *Occupational Health & Safety*. September 1, 2013. <http://ohsonline.com/articles/2013/09/01/legalized-marijuana-and-its-effect-on-the-workplace.aspx>. Accessed March 3, 2014.
- 10 Baldwin DC, Hughes PH, Conard SE, Storr CL, Sheehan DV. Substance use among senior medical students: a survey of 23 medical schools. *JAMA*. 1991;265(16):2074–2078.
- 11 Conard SE, Hughes P, Achenbach K, Sheehan D. Substance use and the resident physician: a national study. *Res Med Educ*. 1988;27:256–261.
- 12 Hoffman RJ. Testing for drugs of abuse. In: Traub SJ, ed. *UpToDate*. <http://www.uptodate.com/home/index.html>. Accessed August 18, 2014.