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Abstract:

Introduction: Emergency physicians (EPs) are reported to have a higher rate of substance use disorder (SUD) than most specialties, although little is known about their prognosis. We examined the outcomes of emergency physician compared to other physicians in the treatment of substance use disorders in Physician Health Programs (PHP).

Methods: This study used the dataset from a 5-year, longitudinal, cohort study involving 904 physicians with diagnoses of SUD consecutively admitted to one of 16 state PHPs between 1995



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and 2001. We compared 56 EPs to 724 other physicians. Main outcome variables were rates of relapse, successful completion of monitoring, and return to clinical practice.

Results: EPs had a higher than expected rate of SUD (odds ratio [OR] 2.7 confidence interval [CI]: 2.1–3.5, $p=0.001$). Half of each group (49% of EPs and 50% of the others) enrolled in a PHP due to alcohol-related problems. Over a third of each group (38% of EPs and 34% of the others) enrolled due to opioid use. During monitoring by the PHPs, 13% of EPs had at least one positive drug test compared to 22% of the other physicians; however, this difference was not significant ($p=0.13$). At the end of the 5-year follow-up period, 71% of EPs and 64% of other physicians had completed their contracts and were no longer required to be monitored (OR 1.4 [CI: 0.8-2.6], $p=0.31$). The study found that the proportion of EPs (84%) continuing their medical practice was generally as high as that of other physicians (72%) (OR 2.0 [CI: 1.0–4.1], $p=0.06$).

Conclusion: In the study EPs did very well in the PHPs with an 84% success rate in completion and return to clinical practice at 5 years. Of the 3 outcome variables measured, rates of relapse, successful completion of monitoring, and return to clinical practice, EPs had a high rate of success on all variables compared to the other physician cohort. These data support the conclusion that EM physicians do well following treatment of SUD with monitoring in PHPs and generally return to the practice of emergency medicine. [West J Emerg Med. 2014;15(1):20–25.]

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Prognosis for Emergency Physician with Substance Abuse Recovery: 5-year Outcome Study

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Methods: This study used the dataset from a 5-year, longitudinal, cohort study involving 904 physicians with diagnoses of SUD consecutively admitted to one of 16 state PHPs between 1995 and 2001. We compared 56 EPs to 724 other physicians. Main outcome variables were rates of relapse, successful completion of monitoring, and return to clinical practice.

Results: EPs had a higher than expected rate of SUD (odds ratio [OR] 2.7 confidence interval [CI]: 2.1–3.5, $p < 0.001$). Half of each group (49% of EPs and 50% of the others) enrolled in a PHP due to alcohol-related problems. Over a third of each group (38% of EPs and 34% of the others) enrolled due to opioid use. During monitoring by the PHPs, 13% of EPs had at least one positive drug test compared to 22% of the other physicians; however, this difference was not significant ($p = 0.13$). At the end of the 5-year follow-up period, 71% of EPs and 64% of other physicians had completed their contracts and were no longer required to be monitored (OR 1.4 [CI: 0.8-2.6], $p = 0.31$). The study found that the proportion of EPs (84%) continuing their medical practice was generally as high as that of other physicians (72%) (OR 2.0 [CI: 1.0–4.1], $p = 0.06$).

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INTRODUCTION

The prevalence of substance abuse disorders (SUD) among physicians has been estimated between 10% and 14%.^{1,2} This is similar to the prevalence in the general population.³ More importantly, it has been reported that several specialties appear to have a higher than expected rate of SUD.^{1,4,5} Anesthesiology,

emergency medicine, and psychiatry are the 3 specialties most commonly reported as being over-represented. In the most recent AAMC manpower survey, emergency medicine accounted for 2.9% of physicians,⁶ whereas, reports in the literature suggest that EPs (EP) account for 7% to 18% of physicians treated for SUD and managed by Physician Health

Programs (PHPs).^{4,5,7} Despite their reported higher rates of SUD and participation in PHPs, there are no published data focusing specifically on the prognosis and recovery of EPs in these programs.

As a group, physicians who are enrolled in PHPs do well, with a reported 75% to 90% abstinence rate at 5 years after treatment.^{2,5,8} However, there are observed differences among specialties as to type of disorder and recovery success. Anesthesiologists, for example, suffer disproportionately from opioid dependence than alcohol dependence.⁹ Surgeons appear to have a lower rate of return to clinical practice, although having a comparable 5-year successful completion rate.¹⁰ It is unclear whether the subset of EPs served by PHPs have similar 5-year outcomes differences.

In this study, we use data from 16 state PHPs that followed participants with SUD for 5 or more years. The objective of the present study is to compare outcomes of EPs versus non-EPs EPs enrolled in state PHPs. To date, there are no reports regarding whether EPs perform as well as other physicians. It is also important to determine if there are any characteristics within the EP cohort that differ significantly from the non-EPs. We sought specifically to identify rates of relapse, monitoring contract completion, and successful return-to-clinical-practice after 5 years.

METHODS

Design

The study used the dataset from a 5-year, longitudinal, cohort study reported previously, involving 904 physicians with diagnoses of substance abuse or dependence consecutively admitted to one of 16 state PHPs between 1995 and 2001.⁵ The characteristics and outcomes of a subset of 56 EPs were compared to those of 724 other physicians. We restricted the comparisons to objective data from official records (for example, treatment services, attendance, sanctions by the program, reports to licensing boards) and from laboratory records (urine tests and other specimens). To protect the confidentiality of the physicians, members of each program's medical records department collected the data. Data were collected between November 2006 and January 2007 under training, supervision, and monitoring by the authors (GS). All components of this study were reviewed and approved by the Institutional Review Board of the Treatment Research Institute.

Participant Sample

Of the 904 participants in the original study, 42 (4.6%) were residents, all of whom were excluded from this study since they constituted a population of physicians who were both younger than the average practicing physician and therefore at higher risk of substance abuse and, although there were no significant differences between residents and practicing physicians on any outcome variables measured, their numbers were deemed too small to be conclusive. Residents excluded

from the study included 1 in emergency medicine and 41 in other specialties.

Of the remaining 862 participants, 64 (7.4%) were EPs. As stated previously, at the time these participants enrolled in PHPs, EPs account for 2.9% of the approximately 749,000 physicians (excluding residents) providing patient care in the U.S. The overrepresentation of EPs in the participant sample (odds ratio [OR] 2.7; confidence interval [CI]: 2.1–3.5, $p < 0.001$) is consistent with findings from previous studies of physician enrollment in substance abuse treatment programs.

Lost to Follow up

During the study period, 82 of the 862 participants (9.5%) moved out of their state program's jurisdiction. We had no access to any continuing records for those participants so they were not included in the analyses for this study. Those lost to follow up included 8 EPs and 74 other physicians. Comparisons between those lost to follow up and those retained in the study revealed no significant differences between groups on gender, age, primary substance of abuse at admission, history of prior treatment, or treatment participation status (mandatory vs. voluntary). Among those lost to follow up, there were no significant differences between EPs and other physicians on these same variables. We therefore carried out analyses comparing 56 EPs to 724 other physicians for whom 5 years of follow-up data were available.

Statistical Analysis

We analyzed demographic and outcome variables for EPs and other physicians using chi-square and t-test statistics for comparisons of proportions and means, respectively. We computed univariate ORs with 95% CIs to compare the 2 physician groups on selected binomial characteristics and outcomes. All ORs are the odds of the outcome in EPs compared to other physicians. We used SPSS for Windows version 15 (SPSS, Inc., Chicago, IL) for the analyses.

RESULTS

The study was based on treatment records from 16 programs that had previously participated in a survey of 42 PHPs conducted by the authors.⁵ That original study described the structure, function, funding, and overall characteristics of the PHPs, as well as the intervention, evaluation, referral for treatment, and monitoring activities after treatment provided. We contacted the 26 PHPs that did not participate in the phase II record review, and all claimed lack of resources and/or regulatory impediments as the reason for declining to participate. The programs that did and did not participate in the follow-up study were not statistically or clinically significantly different for evaluation, referral, treatment, supervision, support, and monitoring practices. The 16 participating programs tended to be large: 31% were in the largest quarter of programs. The mean number of physicians in each program was 56 (range 11–119). Although these 16 programs may not

Table 1. Characteristics of emergency physicians and other physicians participating in state physician health programs for substance use disorders.*

Characteristic	Emergency physicians (n = 56)	Other physicians (n = 724)	p-value**
Age at enrollment			
Mean ± SD	42 ± 7	44 ± 8	0.008
Range	27–63	26–75	
Gender			
Male	49 (91)	621 (86)	0.41
Female	5 (9)	102 (14)	
Enrollment status			
Mandatory	33 (60)	409 (57)	0.67
Voluntary	22 (40)	315 (43)	
History of prior treatment			
Yes	26 (46)	272 (38)	0.20
No	30 (54)	450 (62)	
Type of agreement			
Dependence (5-year)	48 (86)	639 (88)	0.52
Diagnosis/Abuse	8 (14)	85 (12)	
Primary drug of abuse			
Alcohol	27 (49)	357 (50)	0.89
Opioids	21 (38)	242 (34)	
Stimulants	5 (9)	52 (7)	
Sedatives	0 (0)	27 (4)	
Other	2 (4)	39 (5)	
Intravenous drug use history			
Yes	8 (16)	88 (13)	0.53
No	43 (84)	587 (87)	
Number of substances			
Single	25 (45)	357 (49)	0.58
Multiple	31 (55)	367 (51)	
Months in testing period			
Mean ± SD	48 ± 25	47 ± 25	0.97
Range	3–111	0–155	
Number of tests			
Mean ± SD	82 ± 77	86 ± 75	0.72
Range	2–364	1–662	

* Values are number (percentage) unless otherwise indicated.

† From t-test for independent means or chi-square test for comparison of proportions (two-tailed) as appropriate.

be considered nationally representative, they showed no obvious clinical, administrative, or organizational differences from those not participating.

The 780 participants in the present study were distributed

among the 16 programs so that on average, there were 4 EPs (range 0 to 12) and 45 other physicians (range 9 to 98) per PHP. EPs did not constitute more than 14% of the participants in any of the 16 programs. Examination of demographic, treatment, and outcome variables across PHPs did not reveal significant clustering by program. Nor was a relationship found between any of these variables and the year of enrollment in a PHP. Since there was no evidence of clustering by time or program, we compared the 56 EPs to 724 other physicians on a wide range of demographic, drug use, and outcome measures.

Descriptive characteristics of EM and other physicians are presented in Table 1. On average, program enrollees were in their forties with males comprising at least 86% of each group. The majority of physicians in both groups were mandated to participate in the program. According to intake records, 46% of EPs and 38% of the other physicians had a history of prior treatment for substance use when they enrolled in the program. In each group at least 86% of enrollees signed a 5-year dependence agreement, indicating that a diagnosis of substance dependence had been made and the physician agreed to be monitored for at least 5 years. The others signed a diagnostic monitoring agreement, a more limited and shorter-duration agreement used when the diagnosis was substance abuse only or there was no diagnosis of SUDS.

The 2 groups did not differ regarding the primary substance of abuse as recorded in their intake records. Half of each group (49% of EPs and 50% of the others) enrolled in a PHP due to alcohol-related problems ($p=1.00$). Over a third of each group (38% of EPs and 34% of the others) enrolled due to opioid use ($p=0.56$). Physicians in both groups were equally likely to have a history of intravenous drug use (EPs, 16%; others, 13%) $p=0.53$, and the majority of physicians in both groups (EPs, 55%; others, 51%) had been abusing more than one substance immediately prior to enrollment ($p=0.058$.) These findings indicate that the overall pattern of substance abuse prior to enrollment in PHPs was no different for EPs than for their peers.

Random drug testing was required of physicians participating in the programs. Data presented in Table 1 show that both EPs and other physicians were subject to testing for an average period of about 48 months. During this time, the mean number of tests (82) administered to EPs was not significantly lower than the number (86) administered to other physicians ($t=0.36$, $df=766$, $p=0.72$).

Table 2 compares EPs and other physicians on primary outcome measures examined in this study: positive drug tests during monitoring, physicians reported to the licensing board, program status at 5-year follow up, occupational status at follow up, and deaths. The PHP records, which chronicled each instance in which a program participant tested positive for drugs, revealed that 13% of EPs had at least one positive test compared to 22% of the other physicians; however, this

Table 2. Drug-testing outcomes and program and occupational status of emergency physicians and other physicians at 5-year follow up of being in a state physician health program for substance use disorders.*

Outcome	Emergency physicians (n = 56)	Other physicians (n = 724)	p-value**
Positive drug test			
Yes	7 (13)	158 (22)	0.13
No	49 (87)	559 (78)	
Reported to board			
Yes	9 (16)	146 (20)	0.60
No	47 (84)	577 (80)	
Program status			
Completed contract	40 (71)	464 (64)	0.40
Contract extended	9 (16)	118 (16)	
Failed to complete	7 (13)	142 (20)	
Occupational status			
Licensed and practicing medicine	47 (84)	524 (72)	0.19
Licensed & working (not clinical)	4 (7)	35 (5)	
Retired or left practice voluntarily	1 (2)	30 (4)	
License revoked	2 (4)	82 (11)	
Died	0 (0)	29 (4)	
Unknown	2 (4)	24 (3)	

* Values are number (percentage).

† From chi-square test for comparison of proportions (two-tailed).

difference was not significant ($p = 0.13$). Similarly, the percentage of EPs (16%) reported to their state licensing agencies due to non-compliance with the terms of the PHP agreement or relapse was no different than the percentage for other physicians (20%) ($p = 0.60$).

At the end of the 5-year follow-up period, 71% of EPs and 64% of other physicians had completed their contracts and were no longer required to be monitored (OR 1.4 [CI: 0.8-2.6], $p = 0.31$) (Table 3). Another 16% of both groups had their contracts extended beyond the initial monitoring period (OR 1.0 [CI: 0.5-2.1], $p = 1.00$). The reasons for continued monitoring included relapse; failure to comply with requirements, such as group attendance or therapy; or, in some cases, voluntary continuance to help prevent relapse and/or demonstrate continued recovery to others. Thirteen percent of EPs failed to complete the program, as did 20% of other physicians (OR 0.6 [CI: 0.3-1.3], $p = 0.22$). These results indicate that EPs were no more or less likely than other physicians to complete the program, to fail to complete, or to extend the monitoring period beyond the original 5 years specified in their agreements.

The final outcome examined was participants' occupational status at follow up. A primary category of interest was the extent to which physicians who had participated in the programs were licensed and practicing medicine at the 5-year follow-up. The study found that the proportion of EPs (84%) continuing their medical practice was not significantly different than that of other physicians (72%) (OR 2.0 [CI: 1.0-4.1], $p = 0.06$). Nor was there a statistically significant difference between EPs (4%) and other physicians (11%) in regard to the percentage who had their licenses revoked (OR 0.3 [CI: 0.1-1.2], $p = 0.08$).

Table 3. Odds ratios (OR) for selected characteristics and outcomes of emergency physicians and other physicians in state physician health programs for substance use disorders.*

Characteristic/Outcome	Emergency physicians (n = 56)	Other physicians (n = 724)	OR (95% CI)	p-value**
Primary drug of abuse				
Alcohol	27 (49)	357 (50)	1.0 (0.6-1.6)	1.00
Opioids	21 (38)	242 (34)	1.2 (0.7-2.1)	0.56
Program status				
Completed contract	40 (71)	464 (64)	1.4 (0.8-2.6)	0.31
Contract extended	9 (16)	118 (16)	1.0 (0.5-2.1)	1.00
Failed to complete	7 (13)	142 (20)	0.6 (0.3-1.3)	0.22
Occupational status				
Licensed and practicing medicine	47 (84)	524 (72)	2.0 (1.0-4.1)	0.06
License revoked	2 (4)	82 (11)	0.3 (0.1-1.2)	0.08

* Values are number (percentage); all odds ratios are emergency physicians/other physicians.

† From chi-square test for comparison of proportions (two-tailed).

DISCUSSION

This is the first published report examining the performance and outcomes of EPs enrolled in PHPs for SUD. Our study found EPs with SUD to be significantly over-represented in PHPs. This is consistent with previous research findings of higher rates of SUD by EPs when compared to other physicians.

In this study, we examine the performance of EPs compared to other physicians with SUD in PHPs. It appears EPs did very well in the PHPs with an 84% success rate in completion and return to clinical practice at 5 years. Of the 3 outcomes variables measured, rates of relapse, successful completion of monitoring, and return to clinical practice, EPs had similar rates of success on all variables compared to the other physician cohort. Although not statistically better, EPs trended towards higher return-to-clinical-practice rates. There was also a trend in less license revocation in the EP cohort. These data support the conclusion that EPs do well following treatment of SUD with monitoring in PHPs and generally return to the practice of emergency medicine.

The higher rate of SUD in EPs found in this, as well as other studies, is an important bellwether of physician well-being for the specialty of emergency medicine. The reason for over-representation by EPs in PHP is unclear. It has been hypothesized that job stress, personality-type selection bias, and access to controlled substances, may be contributing factors.¹¹ Most of this is conjecture as there is no published evidence substantiating the cause.

Other specialties with high substance abuse prevalence, anesthesiology in particular, have examined this issue much more closely.^{9,12-16} Anesthesia has unique practice variables that may make long-term recovery from substance abuse more challenging (i.e. unrestricted access to narcotics); as such, the specialty has incorporated the understanding of physician SUD in anesthesia practice and training. Some specialties, such as pediatrics, have a much lower rate of SUDs in published results; consequently, specialty choice may be a variable in the development of SUDs.⁵ It is important for emergency medicine to examine potential situations and risk factors in EM practice that may contribute to the development of SUD. Numerous genetic, psychological and social factors contribute to the development of SUD. However, evidence of higher rate of EPs with SUDs is concerning and an important area for examination. It can be hypothesized that EPs enjoy and are rewarded by high stress situations. Given the neurochemical nature of SUDs and the malfunction in the brain's reward center, the practice of emergency medicine may actually place individuals with a genetic potential for SUD at higher risk. Discussion of this particular issue is beyond the scope of this paper.

The results of this study are encouraging for the prognosis of EPs who enter PHPs. Addiction produces significant negative biologic, psychological, economic, and social

consequences for the physician. It is a progressive and fatal disease if left untreated. As with all diseases, early detection and intervention is important. Physicians need early and effective intervention to help recovery and prevent the negative consequences of addiction. However, the stigma, shame, and guilt associated with addiction frequently prevent physicians from seeking care. Many state licensing boards understand that a physician in recovery remains an excellent physician, which is why they often mandate participation in PHPs. This study indicates that physicians who fully embrace the lifestyle changes necessary for healthy recovery can go on to have happy and successful careers.

LIMITATIONS

There are several limitations to the study. First, it is a retrospective cohort design. Unfortunately, given that there is no state, regional, or national registry of PHPs, data of this scope are difficult to obtain in a prospective manner. A second limitation is the small sample size of EPs. Although this study uses the largest existing dataset of physicians in PHPs followed for 5 years, the sample size prevents drawing some conclusions that may be more clearly seen with a larger study. Given the small sample size, the loss of 8 physicians to follow up may have affected the results. Some outcome variables trended towards significance, but the sample size precluded drawing a definite conclusion. Thirdly, there is the limitation in whether each participating state PHPs had an equivalent penetration into its medical community in the acquisition of physicians for monitoring. We were unable to determine the degree to which physicians from each of the states came forward and received intervention relative to the medical community at large.

CONCLUSION

The study supports the conclusion that EPs with SUD who participate in PHPs for 5 years of monitoring do well and have a similar relapse rates, program completion rates, and successful return-to-practice as compared to non-EPs. EPs have a high degree of success in PHPs. The study also supports previous research that has found that emergency medicine has a higher prevalence of substance abuse over other specialties. Further research is needed into the factors contributing to a higher prevalence of substance use disorder in emergency medicine and areas for education and early intervention. Given the significant patient care implications and the potential negative physical, psychological, and legal consequences of SUD, the emergency medical community needs to raise awareness of this problem and the resources available for treating affected physicians.

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Conflicts of Interest: By the WestJEM article submission agreement, all authors are required to disclose all affiliations, funding sources and financial or management relationships that could be perceived as potential sources of bias. The authors disclosed none.

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