

# Physician health programmes and malpractice claims: reducing risk through monitoring

Elizabeth Brooks<sup>1</sup>, Michael H. Gendel<sup>2</sup>, Doris C. Gundersen<sup>2</sup>, Sarah R. Early<sup>2</sup>, Richard Schirrmacher<sup>3</sup>, Alan Lembitz<sup>4</sup> and Jay H. Shore<sup>1</sup>

<sup>1</sup>University of Colorado Denver, Aurora, CO, USA, <sup>2</sup>Colorado Physician Health Program, Denver, CO, USA, <sup>3</sup>Independent Consultant, formerly with COPIC Insurance, Denver, CO, USA, <sup>4</sup>COPIC Insurance, Denver, CO, USA

Correspondence to: E. Brooks, University of Colorado Denver, Mail Stop F800, 13055 E.17th Ave, Room 238, Aurora, CO 80045, USA. Tel: +1 303 724 1405; fax: +1 303 724 1120; e-mail: [elizabeth.brooks@ucdenver.edu](mailto:elizabeth.brooks@ucdenver.edu)

<b>Background</b>	Physician health programmes (PHPs) are peer-assistance organizations that provide support to physicians struggling with addiction or with physical or mental health challenges. While the services they offer are setting new standards for recovery and care, they are not immune to public debate and criticism since some have concerns about those who are enrolled in, or have completed, such programmes and their subsequent ability to practice medicine safely.
<b>Aims</b>	To examine whether medical malpractice claims were associated with monitoring by a PHP using a retrospective examination of administrative data.
<b>Methods</b>	Data on PHP clients who were insured by the largest malpractice carrier in the state were examined. First, a business-model analysis of malpractice risk examined relative risk ratings between programme clients and a matched physician cohort. Second, Wilcoxon analysis examined differences in annual rates of pre- and post-monitoring claims for PHP clients only.
<b>Results</b>	Data on 818 clients was available for analysis. After monitoring, those enrolled in the programme showed a 20% lower malpractice risk than the matched cohort. Furthermore physicians' annual rate of claims were significantly lower after programme monitoring among PHP clients ( $P < 0.01$ ).
<b>Conclusions</b>	This is the only study examining this issue to date. While there are a variety of reasons why physicians present to PHPs, this study demonstrates that treatment and monitoring is associated with a lowered risk of malpractice claims and suggests that patient care may be improved by PHP monitoring.
<b>Key words</b>	Mental health; monitoring; occupational health; physician health programmes physicians; substance abuse.

## Introduction

In 1973, the American Medical Association (AMA) issued *The Sick Physician* [1], a seminal report, documenting the problems of doctors' illness and challenging doctors to address professional health problems in the medical community. The AMA called upon state medical societies to create appropriate avenues for the treatment and monitoring of doctors impaired by illnesses, including addiction, depression and heart disease. Consequently, physician-assistance groups, often called physician health programmes (PHPs), emerged and today are widespread. Almost every state in the USA and every province in Canada offers such care. PHPs can also be found in Australia, New Zealand, Spain, Great

Britain, Norway, Finland and other countries [2–5]. While their services vary between countries and programmes, they are primarily structured to conduct comprehensive assessments, develop treatment plans and monitor doctors' compliance.

PHPs are geared to address the occupational hazards facing doctors. They do not themselves directly treat doctors but rather coordinate and facilitate formal treatment with outside organizations and care providers giving direct patient care. Failure to comply may result in reports to the doctors' medical board or workplace [6]. Two of the most common occupational hazards physicians face are stress/burnout and alcohol/substance abuse. Studies show that doctors across disciplines and countries report high levels of stress [7–10], frequently

relating that they feel overworked, are inundated by administrative regulations and lack on-the-job control. Often stress causes burnout, which may result in physical and emotional complaints, pessimism and impaired job performance [7–9,11]. Abuse of alcohol and other substances is also a topic of concern in doctors' health. While it is thought that doctors generally suffer from substance abuse at about the same rate as that of the general population (roughly 10–15%) [9,12] some specialities with greater access to addictive pharmaceuticals, such as anaesthetists, have elevated usage rates [13,14]. Moreover, substance addiction among any health care professional raises grave concerns for public safety. In addition to these occupational considerations, clients present to PHPs for problems with boundary violations and inappropriate prescribing, among others.

While the role and services offered by PHPs set new standards for doctors' recovery and care [15], they are not immune to public debate and criticism. For some, there is concern about the ability of those who are enrolled in or have completed such programmes to practice medicine safely. Although some research shows that the workplace may be the last area to be affected by doctors' illness [16], it could be argued that ill doctors should automatically have their licences suspended because the potential risk of patient harm is too great, even under monitoring. Proponents of PHPs argue that public safety is protected by doctors utilizing PHPs because they are able to receive treatment that might otherwise be delayed or never take place. Moreover, doctors might be less likely to have enrolled in PHPs if doing so meant losing their ability to practice [17,18]. In virtually all programmes, if a doctor's condition is considered to threaten patient safety, PHPs recommend that the doctor immediately ceases practice and the client must sign an agreement to not participate in patient care until health and ability to practice safely are restored [17].

In a recent literature review, we found a paucity of studies that systematically examined whether doctors enrolled in PHP programmes do indeed pose an increased risk to patients in their medical practice. A single cohort study documented instances where patient harm occurred as a result of relapse in substance abuse among doctors enrolled in a PHP. Among 905 physicians treated and monitored for substance-related illness, there was only one incident of patient harm documented [19]. Studies examining treatment outcomes for physicians enrolled in PHPs are more abundant in the literature. These studies generally find positive outcomes for doctors as patients [19–22] and better than expected outcomes for addiction treatment compared with the general population. Patient safety issues are not directly addressed in these studies.

We undertook this study because of the limited data that directly address safety to practice among physicians monitored by PHPs. Data on the quality of a doctor's patient care

is important not only for public safety but also from the perspective of medical malpractice insurers who assume legal and financial responsibility for their clients. The study examines several perspectives: from the patients' point of view, we explore the question of safe and effective care; from the insurers' perspective, we address the question of carrier risk and cost; and from the PHP point of view, we examine the benefit of understanding outcomes associated with treatment and monitoring.

## Methods

We examined the number and change in medical malpractice claims filed with the Colorado Physicians Insurance Company (COPIC), Colorado's leading medical malpractice insurer. Malpractice claims were defined as suits in which compensation was *paid* to a plaintiff; dismissed cases, or those in which the physician was otherwise found not liable, were not examined. Because a claim can span several years between the date it occurs, when it is reported and when a final resolution is reached, the date of the incident (i.e. the date that started an adverse event leading to a claim) was used as the claim date. In some instances, participants had multiple claims. The University of Colorado human subjects' ethics committee reviewed and monitored this study.

Participant data were drawn from both active and formerly active clients of the Colorado PHP. Clients were doctors from a variety of specialities who either self-referred to the PHP or were mandated by the local medical board or other entities. We examined data for clients enrolled in the PHP at any time between 1 July 1983 and 30 January 2010.

We accessed two data sets in this study: one from the PHP and one from COPIC. PHP data contained demographic characteristics and PHP enrolment dates. COPIC data contained doctors' speciality and malpractice claim information, such as the number of claims, claim dates and the cost of each claim. A single data set combined information from both sources so that common client information could be examined.

Demographic baseline characteristics of PHP clients with a malpractice claim and clients without a malpractice claim were compared using chi square tests for categorical data and *t*-tests for continuous data. Binomial logistic regression was employed to consider the effect of each covariate (gender, age, marital status, race, medical speciality, substance use and referral status (mandated or voluntary)). The total cost of malpractice claims was reported before, during and after PHP monitoring using simple descriptive statistics. The cost of a malpractice claim was defined as the total of indemnity and expense costs. Indemnity costs reflected the amount paid directly to the plaintiff, while expenses included attorney fees and other administrative costs incurred as a result of the claim. We used SPSS for analysis, and an alpha <0.05 indicated statistical significance.

Risk relativity ratings are a business-specific procedure used to determine the relative risk of a malpractice claim among different medical specialities or groups of individuals. The combination of frequency (number of claims) and severity (dollars paid/dollars reserved) was compared with doctor-years of coverage to derive a relative risk indication. Doctor-years of coverage refer to the length of time the doctor has been covered by the insurer. Unlike most traditional statistical tests generating a significance value, meaningful differences are determined by each individual malpractice carrier and as a result can be somewhat subjective in nature. For this study, risk was assessed prior to, during and after monitoring with PHP doctors compared with a reference population of COPIC-insured doctors who had not utilized the PHP. The comparison group was determined by the insurer and was comparable with the PHP group in terms of medical speciality and doctor-years of coverage.

In a post hoc examination, the annual rate of malpractice claims was compared before and after PHP monitoring. The before-monitoring period began on 1 July 1983 (the first date that malpractice data could be obtained through COPIC records) until the date of the doctor's enrolment at the PHP. The after-monitoring period began when client was discharged from the PHP up until 30 January 2009. This earlier cut-off allowed us to examine only those with *at least* one year of follow-up data. Given that many subjects had no malpractice claims history, a non-parametric statistical test, the Wilcoxon signed rank test, was used for analysis. We performed the Wilcoxon analysis by examining subjects' annual rate of claims rather than the total number of claims to account for unequal pre- and post-monitoring periods between participants. SPSS software was used for this comparison.

## Results

Data were available for 818 clients enrolled in the PHP and for 656 reference COPIC-insured doctors who had not utilized the PHP. The total number of subjects with follow-up data fell from 818 to 682 after removing 136 without at least 12 months of follow-up data.

Out of 818 PHP clients a total of 110 claims were paid against 82 doctors (10%) over the observation period. [Table 1](#) shows number (or mean) and percent (or standard deviation) of the group characteristics between PHP clients who had one or more paid claims and those who had no paid claims. Adjusted regression analysis, shown in [Table 2](#), revealed that doctors with a malpractice claims history were more likely to be male (odds ratio (OR) = 2.27,  $P < 0.05$ ) and older (OR = 1.06,  $P < 0.01$ ). Several specialities showed an elevated risk for malpractice claims: family practitioners (OR = 3.55,  $P < 0.05$ ), anaesthetists (OR = 4.25,  $P < 0.05$ ), obstetricians/gynaecologists (OR = 17.2,  $P < 0.01$ ) and surgeons

(OR = 15.1,  $P < 0.01$ ). Factors unrelated to malpractice history included marital status, race/ethnicity and those who were mandated to participate in PHP monitoring. The average claim cost was \$556 022, and there was no statistical difference in the average payment per claim before, during or after monitoring (data not shown).

In the risk relativity analysis, PHP clients were 111% worse than the non-PHP cohort prior to receiving any PHP services. From the insurers' standpoint, a group that is judged to be worse than a comparison cohort is responsible for the additional risk. In monetary terms, for every \$1.00 spent by the insurer to cover the comparison group, the PHP group would require \$2.12 more prior to monitoring.

During monitoring, the relative risk for PHP clients fell dramatically although they were still 28% worse than the non-PHP cohort. Therefore, for every \$1.00 spent on the comparison group, insuring the PHP clients during treatment would cost the insurer \$1.28.

After monitoring, the pattern reversed and PHP clients performed better than their peers. Doctors who were discharged from the PHP were judged to be 20% better than the non-PHP cohort. In other words, for every \$1.00 spent on the comparison group, the PHP clients would require \$0.20 less than their peers.

In a post hoc comparison between pre- and post-monitoring malpractice claims, PHP clients had more claims before monitoring ( $n = 73$ ) than after monitoring ( $n = 13$ ;  $z = -3.09$ ,  $P < 0.01$ ). It should be noted, however, that the incidence of malpractice claims during the observation period occurred infrequently during both pre-monitoring (annual rate = 0.008) and post-monitoring (annual rate = 0.004; see [Table 3](#)).

## Discussion

Our results revealed important aspects of the relationship between malpractice claims and PHP enrolment. Prior research shows that a history of malpractice claims is a positive predictor of future claims [[23,24](#)]. Our study suggests that the involvement of a PHP reduced the risk of subsequent claims. We found that most malpractice claims occurred prior to doctors' enrolment in the Colorado PHP and the subsequent number of paid claims dropped significantly after monitoring. Risk relativity analysis by the doctors' malpractice insurer also showed that doctors constituted a 20% lower risk than the matched cohort after monitoring. These findings suggest that there is a group of doctors at higher risk of malpractice claims whose risk can be dramatically reduced through PHP participation.

The results prompt consideration of the reasons why PHP monitoring may reduce the risk of future malpractice claims. One hypothesis is that PHPs lower subsequent malpractice risk by effectively addressing the PHP client's presenting problem, medical or otherwise.

**Table 1.** Characteristics of PHP clients with and without paid malpractice claims

Characteristic	History of malpractice claim ( <i>n</i> = 82) <i>n</i> (%)	No history of malpractice claim ( <i>n</i> = 736) <i>n</i> (%)
Gender, <i>n</i> (%)		
Female	11 (13)	226 (31)
Male	71 (87)	510 (69)
Age at first evaluation, mean (SD)	50 (10.3)	44 (10.1)
Marital status, <i>n</i> (%) <sup>a</sup>		
Never married, separated, divorced, widowed	17 (21)	256 (36)
Married, living together	63 (79)	453 (64)
Race/Ethnicity, <i>n</i> (%) <sup>a</sup>		
Caucasian	70 (89)	626 (90)
African American	2 (2.5)	10 (1)
Asian	4 (5)	31 (4)
Hispanic	1 (1)	23 (3)
Other	2 (2.5)	8 (1)
Speciality, <i>n</i> (%) <sup>b</sup>		
Other	6 (7)	176 (24)
Family practice	13 (16)	155 (21)
Anaesthetics	5 (6)	47 (6)
Emergency medicine	5 (6)	61 (8)
Internal medicine	8 (10)	146 (20)
Obstetrics/gynaecology	14 (17)	39 (5)
Paediatrics	3 (4)	48 (7)
Surgery	28 (34)	64 (9)
Substance use disorder, <i>n</i> (%)		
No	66 (80)	565 (77)
Yes	16 (20)	171 (23)
Mandated to PHP, <i>n</i> (%)		
No	40 (49)	384 (52)
Yes	42 (51)	352 (48)

<sup>a</sup>Indicates categories with 5% or less of missing data.

<sup>b</sup>Only specialities with 50 or more cases were examined as separate groups.

In fact, several studies demonstrate the effectiveness of PHP monitoring and doctor outcomes [19, 25–27]. For example, a seminal study by McClellan and colleagues examined outcomes for doctors presenting to a PHP with substance abuse issues. It established that approximately three-quarters of physicians had favourable outcomes at 5 years' post-enrolment with 80% successfully completing their PHP contract and resuming practice [19]. Similar success rates were found for doctors who enrolled in Canadian substance use programmes [26]. Other researchers have found robust recovery rates for mental health problems such as depression and disruptive behaviour [25].

Second, doctors may assume a lower risk of malpractice claims because they learn skills in treatment and monitoring that improve their practice as clinicians. This is an important goal of many PHPs, and while little systematic research has been conducted, some evidence suggests that peer-assistance programmes can improve practice. For example, nurses who were enrolled in a chemically dependent diversion programme reported that their professional practice improved as a result of the experience. In particular, they cited being more patient,

tolerant and compassionate. Furthermore the monitoring experience helped nurses recognize the need to utilize more social support [28].

Similarly, physicians may learn skills that enable them to communicate better with patients. Research shows that in primary care, the risk of malpractice claims is lower for doctors who demonstrate better communication with their patients [29]. Many PHPs and malpractice insurers educate doctors on the best ways of communicating with patients, especially when misunderstandings occur. Arguing against this hypothesis is the fact that in our study, malpractice claims were those in which a claim was settled financially by the insurer rather than all claims formally initiated. It is likely that our cohort's difficulties, while possibly arising from communication problems, may reflect more substantial practice issues.

Third, doctors who have a positive PHP experience may make better use of other professional supports, such as seeking peer consultations in the workplace. A fourth reason malpractice risk may be lower after monitoring is because doctors subsequently adopt more conservative clinical practices as opposed to 'cutting-edge' medical care. Lastly, a reduction in malpractice claims may

**Table 2.** Logistic regression analysis of predictors of paid medical malpractice claims for PHP clients<sup>a</sup>

		Odds ratio (95% CI)	<i>P</i> value
Gender	Female (ref)	–	–
	Male	2.27 (1.08–4.78)	*
Average age at evaluation		1.06 (1.03–1.09)	***
Marital status	Unmarried (ref)	–	–
	Married	1.40 (0.76–2.58)	NS
Race	Caucasian (ref)	–	–
	African American	1.66 (0.27–10.2)	NS
	Asian	1.28 (0.38–4.31)	NS
	Hispanic	0.46 (0.06–3.64)	NS
	Other	1.81 (0.31–10.4)	NS
Speciality	Various	–	–
	Family practice	3.55 (1.20–10.5)	*
	Anaesthetics	4.52 (1.21–17.0)	*
	Emergency medicine	2.57 (0.64–10.2)	NS
	Internal medicine	2.02 (0.61–6.69)	NS
	Obstetrics/gynaecology	17.2 (5.47–54.0)	***
	Paediatrics	2.70 (0.59–12.3)	NS
	Surgery	15.1 (5.37–42.5)	***
Substance use disorder	No (ref)	0.87 (0.45–1.68)	NS
	Yes	–	–
Mandated to physician health programme	Not mandated (ref)	–	–
	Mandated	0.76 (0.45–1.29)	NS

<sup>a</sup>Model covariates: gender, age, marital status, race, speciality, substance use, mandated to treatment.

\**P* < 0.05, \*\**P* < 0.01, \*\*\**P* < 0.001; NS, not significant.

**Table 3.** Average rate of claims before and after PHP monitoring

	<i>n</i>	Total no. of claims	Annual rate of claims	SD	<i>z</i> <sup>a</sup>	<i>P</i> value
Claims before monitoring	682	73	0.008	0.029	–3.092	**
Claims after monitoring <sup>b</sup>	682	13	0.004	0.044	–	–

<sup>a</sup>Comparison performed using Wilcoxon signed rank test.

<sup>b</sup>Participants in follow-up period had at least 1 years' worth of data.

\*\**P* < 0.01.

occur because doctors, through their PHP experience, become more educated about the adverse consequences of substandard care in terms of licensure problems, practice restrictions and other professional sanctions. This increased awareness may motivate them to better evaluate and regulate their own behaviour and/or adhere to practice regulations.

This study is a preliminary investigation of administrative data and is subject to limitations. First and foremost, this is a retrospective review and thus we were unable to establish direct causation. This means that while there is an association between PHP monitoring and the occurrence of malpractice claims, we cannot be certain that this affected subsequent claims. We also do not know the licensure status of doctors who have completed PHP monitoring. If licences were restricted, doctors may have had less access to patients and thereby less risk of malpractice claims. Our administrative experience indicates, however, that over 95% of the former client population had active,

unrestricted licences at the time monitoring ceased. An additional problem was that the length and dates of monitoring varied by doctor so that that exposure time before and after monitoring also varied. For some doctors, several years of practice preceded a malpractice incident. We accounted for this by examining annual rates of claims but recommend better control of the observation period in further research. It should also be stressed that risk relativity rating is a business-specific procedure and results may vary by insurer. Lastly, we were unable to determine whether the presenting problems of PHP clients were directly linked to malpractice claims. To address these limitations, we recommend conducting additional prospective research to examine further the impact of monitoring on malpractice claims and occurrences. Further research should also include other potential indicators of quality such as patient satisfaction, practice restriction history or medical board sanctions and compliance with continuing medical education and board certification.

This study suggests that future malpractice claims may be reduced for doctors who are currently monitored or have been monitored by a PHP. Importantly, post-monitoring malpractice claims risk is actually below that of matched controls who have not utilized PHP services. These results are consistent with the literature demonstrating that PHP-monitored doctors have excellent treatment outcomes, particularly for addiction, which historically has been associated with poorer prognoses in the general population [19,20,30].

Prior to their PHP contact, doctors demonstrated a higher malpractice claims risk relative to the comparison cohort. This finding highlights the importance of early identification of illness and prompt referral for assessment, treatment and monitoring of doctors who have situational stress or potentially impairing physical or mental health conditions. In the interests of advancing patient safety, all PHPs need to work diligently in their efforts to educate individual doctors, those involved in the training of medical students and residents, hospital administrators and other medical workplace personnel on the availability and benefits of PHP services.

### Key points

- After monitoring by a physician health programme, doctors had fewer malpractice claims compared both with their pre-monitoring rates and with those of a matched cohort.
- These study results suggest that participation in a physician health programme may teach skills that reduce doctors' risk of subsequent malpractice claims and improve patient safety.
- The findings highlight the importance of early identification of illness and prompt referral for assessment, treatment and monitoring in doctors who have situational stress or potentially impairing physical or mental health conditions.

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### Conflicts of interest

None declared.

### References

1. American Medical Association. The sick physician. Impairment by psychiatric disorders, including alcoholism and drug dependence. *J Am Med Assoc* 1973;**223**:684–687.
2. American Psychiatric Association. Impaired physicians get more attention. *Psychiatric News* 2004;**39**:11.
3. Braquehais MD. *Internet and Psychiatry*, 2012.
4. Gray RW. Physicians health programs an international movement. *Tenn Med* 2006;**99**:27.
5. Godlee F. Doctors' health matters. *Br Med J* 2008;**337**.
6. White WL, DuPont RL, Skipper GE. Physicians health programs: what counselors can learn from these remarkable programs. *Counselor* 2007;**8**:42–47.
7. Maslach C, Schaufeli WB, Leiter MP. Job burnout. *Annu Rev Psychol* 2001;**52**:397–422.
8. Spickard A Jr, Gabbe SG, Christensen JF. Mid-career burnout in generalist and specialist physicians. *J Am Med Assoc* 2002;**288**:1447–1450.
9. Kay J, Izenour S. The impaired physician. *Psychiatry* 2008;**11**:1–11.
10. Lee FJ, Stewart M, Brown JB. Stress, burnout, and strategies for reducing them: what's the situation among Canadian family physicians? *Can Fam Physician* 2008;**54**:234–235.
11. Shanafelt TD, Balch CM, Bechamps GJ *et al*. Burnout and career satisfaction among American surgeons. *Ann Surg* 2009;**250**:463–471.
12. Hughes PH, Brandenburg N, Baldwin DC Jr *et al*. Prevalence of substance use among US physicians. *J Am Med Assoc* 1992;**267**:2333–2339.
13. Ward CF, Ward GC, Saidman LJ. Drug abuse in anesthesia training programs. A survey: 1970 through 1980. *J Am Med Assoc* 1983;**250**:922–925.
14. Lutsky I, Hopwood M, Abram SE, Jacobson GR, Haddox JD, Kampine JP. Psychoactive substance use among American anesthesiologists: a 30-year retrospective study. *Can J Anaesth* 1993;**40**:915–921.
15. Federation of State Physician Health Programs. *Physician Health Program Guidelines*, 2005; 1–29. [http://www.fsphp.org/2005FSPHP\\_Guidelines.pdf](http://www.fsphp.org/2005FSPHP_Guidelines.pdf) (5 January 2012, date last accessed).
16. Talbott GD, Benson EB. Impaired physicians: The dilemma of identification. *Postgrad Med* 1980;**68**:56–64.
17. Skipper GE, DuPont RL. The physician health program: a replicable model of sustained recovery management. In: Kelly JF, White WL, eds. *Addiction Recovery Management: Theory, Research and Practice, Current Clinical Psychiatry*. Springer Science+Business Media, 2010; 281–299.
18. Watkins D. Substance abuse and the impaired provider. *J Healthcare Risk Manag* 2010;**30**:26–28.
19. McLellan AT, Skipper GS, Campbell M, DuPont RL. Five year outcomes in a cohort study of physicians treated for substance use disorders in the United States. *Br Med J* 2008;**337**:a2038.
20. Domino KB, Hornbein TF, Polissar NL *et al*. Risk factors for relapse in health care professionals with substance use disorders. *J Am Med Assoc* 2005;**293**:1453–1460.
21. Paris RT, Canavan DI. Physician substance abuse impairment: anesthesiologists vs. other specialties. *J Addict Dis* 1999;**18**:1–7.
22. Pelton C, Ikeda RM. The California Physicians Diversion Program's experience with recovering anesthesiologists. *J Psychoactive Drugs* 1991;**23**:427–431.
23. Bovbjerg RR, Petronis KR. The relationship between physicians' malpractice claims history and later claims. Does the past predict the future? *J Am Med Assoc* 1994;**272**:1421–1426.
24. Weycker DA, Jensen GA. Medical malpractice among physicians: who will be sued and who will pay? *Health Care Manag Sci* 2000;**3**:269–277.

25. Knight JR, Sanchez LT, Sherritt L, Bresnahan LR, Fromson JA. Outcomes of a monitoring program for physicians with mental and behavioral health problems. *J Psychiatr Pract* 2007;**13**:25–32.
26. Brewster JM, Kaufmann IM, Hutchison S, MacWilliam C. Characteristics and outcomes of doctors in a substance dependence monitoring programme in Canada: prospective descriptive study. *Br Med J* 2008;**337**:a2098.
27. Ganley OH, Pendergast WJ, Wilkerson MW, Mattingly DE. Outcome study of substance impaired physicians and physician assistants under contract with North Carolina Physicians Health Program for the period 1995–2000. *J Addict Dis* 2005;**24**:1–12.
28. Darbro N. Alternative diversion programs for nurses with impaired practice: completers and non-completers. *J Addict Nurs* 2005;**16**:169–182.
29. Levinson W, Roter DL, Mullooly JP, Dull VT, Frankel RM. Physician-patient communication. The relationship with malpractice claims among primary care physicians and surgeons. *J Am Med Assoc* 1997;**277**:553–559.
30. Brooks E, Early SR, Gundersen DC, Shore JH, Gendel MH. Comparing substance use monitoring and treatment variations among physician health programs. *Am J Addict* 2012;**21**:327–334.