

Professional Status and Physicians' Views of Expanding Governmental Oversight of Prescribing Drugs

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Abstract

Prescription drug monitoring programs (PDMPs) represent new challenges to physicians' professional autonomy and authority. In this study, physicians' attitudes toward government officials' use of PDMP data are explored using online survey data. In general, the physicians surveyed ($n = 2,444$) expressed qualified support of criminal justice officials' accessing PDMP data to combat abuse. Also, doctors with higher professional status, older physicians, and those who prescribed more opioids were significantly less supportive of criminal justice oversight. The findings have implications both for reducing the prescription drug epidemic and for sociological research on the profession of medicine.

Keywords

prescription drug abuse, profession of medicine, medical sociology, prescription drug monitoring programs

Health care continues to evolve as a formidable and complex social system, driven by a range of forces within and beyond the traditional boundaries of medicine. Although physicians remain the central pillar of the health care system, the internal stratification and fracturing of medicine along specialty lines and the proliferation of other health care professions pose challenges to physicians' traditional authority and autonomy. External to the health care-related professions stand "other parties include[ing] private insurance agencies, government agencies, hospital organizations, pharmaceutical companies and medical device manufacturers, and organized groups of patients" (Timmermans and Oh 2010:S96). This host of countervailing powers bring varied perspectives to patient care and public health (Light 2004, 2010b) and are reshaping the institution of medicine by limiting "clinical discretion" and altering "the way physicians process clinical data, think about matters of health and disease, and act on the basis of that knowledge" (Hafferty and Light 1995:144). Indeed, Conrad (2005) argued that medical providers' centrality and authority have diminished because of the growing influence of these "other parties."

The dramatic expansion of state-level prescription drug monitoring programs (PDMPs) is an important recent example. Beginning in the early 2000s, many states launched PDMPs requiring electronic reporting and sharing of prescription data to better understand the growing prescription

drug epidemic, identify patients who may be abusing prescription drugs, and monitor inappropriate prescribing practices (Barrett and Watson 2005; Feldman et al. 2011). Although the structure and operation of PDMPs vary across states, criminal justice officials have defended, even applauded, these regulatory changes, as these systems have expanded their ability to identify and prosecute potential cases of patient and/or prescriber abuse (Brushwood 2003; Burke n.d.; Davis, Pierce, and Dasgupta 2014). From a sociological perspective, these systems signify new potential threats to traditional medical authority by state regulators generally and criminal justice authorities in particular, because they represent, both explicitly and implicitly, policy strategies designed to "limit clinical discretion." In this article, we examine variation in physician attitudes toward criminal justice officials' use of PDMP data both to better understand the public health policy debates regarding the

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prescription drug epidemic and to contribute to the sociological literature on the profession of medicine.

Background

Historical Shifts in the Social Organization of Medical Practice

Since the mid- to late twentieth century, the forces shaping the profession of medicine have shifted. During the first half of the twentieth century, physicians secured professional authority over their work because of government-granted licensure laws (Freidson 1970; Starr 1982; Zhou 1993). As Thompson (1981) cited in his analysis of the Medicare Act of 1965, the government's "hands-off" approach to medical practice persisted even into the late twentieth century. More recently, driven by concerns about rising health care costs, questionable professional and business practices, and changing patient demands, the federal and state governments have taken steps to expand the regulation and oversight of medicine (Richards 1999; Timmermans and Oh 2010). Over time, legislation has chipped away at medical providers' autonomy and authority. In 1970, President Nixon signed the Controlled Substances Act regulating pharmaceuticals on the basis of their potential for addiction and their treatment properties. This act required providers to register with the Drug Enforcement Agency (DEA) to legally prescribe "controlled" substances. Many states followed suit by augmenting these basic requirements with their own state-specific regulations governing prescribing practices (Hoffman and Tarzian 2003; Manchikanti 2006; von Gizycki 2013; Wailoo 2014; Walsh and Klein 1986). Together, many of these rules call into question the medical profession's traditional autonomy by imposing limits on clinical discretion and prescribing practices, which have been one of the historical bases of medicine's high professional status (Freidson 1970, 1988).

Although the professional status of physicians may have fallen somewhat in recent decades, it remains generally high in American society (Hodson and Sullivan 2011; Pescosolido 2006; Pescosolido, Tuch, and Martin 2001). At the same time, theory and empirical research indicates professional status varies significantly *within* the ranks of medicine. Freidson (1970, 1984) was among the first to theorize about the importance of professional status and the internal stratification within medicine. In his study of professional prestige and the doctor-patient relationship, Shortell (1974:2) defined prestige as the degree one "looks up to" particular specialists. Interestingly, he assessed prestige in terms of practice authority and autonomy, but a review of the participating physicians' prestige scores mirrors the relative income rankings of the various specialties. Rosoff and Leone (1991) came to a similar conclusion that "income is likely to be the single best unidimensional predictor of relative status" (p. 325). Moreover, Schwartzbaum, McGrath, and Rothman (1973) cautioned that "studies which treat physicians as a

homogeneous group are obscuring significant findings by their failure to examine internal differences such as type of specialty" (p. 371). More important for this study, Abbott (1981) submits that physicians with higher status, often those in formal clinical, administrative, and professional organizational leadership roles, have special influence on and structural responsibilities for the "professional purity" of medicine and clinical practice guidelines.

Light (2010a, 2010b) observed that the pharmaceutical industry's influence on medical practice has increased significantly in recent decades. Indeed, Light (2010b) argued that the relationship between the pharmaceutical industry and medical providers results in providers' economic resource dependence or "indebtedness" to industry (i.e., fees paid to clinicians for educational program endorsements, paid continuing education opportunities) and, possibly, indirectly contributes to the further erosion of medical authority. As noted by Conrad (2005), the pharmaceutical industry extended its reach further when the federal government lifted the ban on direct-to-consumer advertising in the 1997 Food and Drug Administration Modernization Act. This allowance has complicated the provider-patient relationship, as a number of patients are now more likely to self-diagnose, seek specific pharmacologic treatments on the basis of advertising, and be generally more assertive in their clinical encounters with physicians (Gellad and Lyles 2007). These shifts have resulted in an expanded use of prescription medications generally, and prescription opioids specifically, as well as dramatic increases in pharmaceutical company profits (Light, Lexchin, and Darrow 2013; McDonald, Carlson, and Izrael 2012; Rome 2013). Not surprisingly, the close relationship between the pharmaceutical industry and medical practice has resulted in expanding political support for more regulation of the pharmaceutical industry, as evidenced in the Medicare Prescription Drug, Improvement, and Modernization Act of 2003 and, more recently, in the Patient Protection and Affordable Care Act of 2010 (Patel and Rushefsky 2014; Teitelbaum and Wilensky 2016).

More than at any time in recent history, the profession of medicine is practicing in an environment of disruptive change, which is reshaping how physicians provide care to their patients (Jameson 2014; Topol 2012). Electronic medical records, evidence-based medicine, practice protocols, resource restrictions, value-based reimbursement, and changing health insurance rules are only some of the factors affecting physicians. Health care reform advocates and policy analysts believe that these changes will promote efficiencies and improve quality of care. Many physicians fear that the expanded regulations will be detrimental to the provider-patient relationship and interfere in the practice of medicine.

The Problem of Prescription Drug Abuse

The emergence of the prescription drug abuse epidemic is a major driver behind federal and state governmental efforts to

implement regulations designed to reduce patient and provider abuse (Manchikanti 2006; Office of National Drug Control Policy 2011). To understand the significance of this epidemic on the practice of medicine, one must understand the origins of the problem and how various health care sectors are responding.

An estimated 100 million adults in the United States suffer with chronic pain, more than the number of Americans suffering from cancer, diabetes, and vascular diseases combined (Loeser 2012). In the late 1990s, pain advocacy groups lobbied to legalize long-acting opioids for the treatment of noncancer chronic pain (NCCP), leveraging a case study report of general efficacy and safety in the NCCP population to support their appeal for more “humane” treatment (Portenoy and Foley 1986). This ethical mandate gained considerable ground, and the Joint Commission on Accreditation of Healthcare Organizations recommended screening for pain as the fifth vital sign (Jackson 2003; Lanser and Gesell 2001; Wailoo 2014). Therapeutic guidelines were issued in 1998, and opioids began to be liberally prescribed (Federation of State Medical Boards of the United States 2005). Opioid analgesic sales quadrupled between 2000 and 2010 (Sullivan and Howe 2013). A corresponding fourfold increase in opioid-related deaths was reported over a similar time frame—2,749 opioid-related deaths in 1999 compared with 11,693 in 2011—making poisoning the leading cause of injury-related deaths in the United States (Chen, Hedegaard, and Warner 2014). Since the late 1990s, more than 100,000 Americans have died from opioid use, which, as Franklin (2014) poignantly reminded us, is more than the 58,300 American lives lost in Vietnam (Jones, Mack, and Paulozzi 2013).

Pharmaceutical Industry Response. Pharmaceutical companies have attempted to address opioid misuse and abuse by developing opioids with abuse-deterrent formulations, which, in theory, make these engineered opioids more difficult to misuse. Whether these technological interventions will reduce abuse and misuse is a matter of continued debate (Alexander et al. 2014; Cassidy et al. 2014). Moreover, not all specialties prescribe abuse-deterrent and tamper-resistant formulations of opioids with equal fervor. Pain management physicians prescribe significantly more abuse-deterrent medications, citing greater concern over abuse and misuse in their patient populations, as well as greater confidence in product efficacy and in their pain management education and training (Turk et al. 2014). However, substantive and feasibility concerns over these “safer” formulations of opioids remain (U.S. Food and Drug Administration 2014; Katz 2008; Pedersen and Fredheim 2015).

Governmental Response. To address problems related to prescription drug misuse and abuse, state governments have imposed a range of new regulations regarding prescribing privileges and practices for different categories of health

care providers (Harkless 1989; Manchikanti 2006). With federal assistance, many states also have established PDMPs to collect and maintain data on controlled substances at the patient, prescriber, and pharmacy levels (Association of State and Territorial Health Officials n.d.). Not surprisingly, PDMP data have proved to be a useful tool for state officials to monitor the epidemic. More important, these systems are now being used by state health officials to develop new practice standards and by state and federal criminal justice officials and licensing boards to investigate instances of patient and prescriber abuse. As of October 2016, 49 U.S. states and one territory had operational PDMP programs (Prescription Drug Monitoring Program Training and Technical Assistance Center 2016). In some states, PDMPs are organizationally housed in and operated primarily from a criminal justice perspective (Alliances of States with Prescription Monitoring Programs 2007).

Physician Response. Faced with the task of appropriately treating chronic pain in their patients while avoiding iatrogenic addiction and abuse, physicians have struggled to respond. Reacting to the heightened public health concerns over the opioid epidemic and greater scrutiny by governmental regulatory agencies and criminal justice on prescribers, some physicians have altered their prescribing (Rosenblum et al. 2008). Many physicians have adopted defensive prescribing strategies to lessen liability, from both a patient addiction standpoint and a criminal justice one (Garcia 2013; Tkacz et al. 2013). This patient profiling may have influenced the racial disparities in opioid-related death rates. Caucasian opioid-related deaths have increased at double the rate of Hispanics and non-Hispanic blacks (Chen et al. 2014; Jones et al. 2013). Wishing to avoid the stigma of opioid prescribing, some clinicians have chosen to avoid them entirely, opting to use other medications off label (Gandley 2010).

Physicians’ attitudes toward opioids and prescribing patterns vary by specialty, largely influenced by their knowledge of proper opioid use and the perceived clinical needs and risks of the patients they treat (Wolfert et al. 2010). Internists are more concerned about potential abuse and diversion, while geriatricians are more concerned with appropriate pain control (Canada, DiRocco, and Day 2014; Keller et al. 2012; Lin, Alford, and Moore 2007; Spitz et al. 2011). Pain management physicians report the greatest comfort prescribing opioids for chronic pain (Alexander et al. 2014).

The Present Study

Scientific evidence regarding physicians’ attitudes toward prescription drugs is limited and generally anecdotal. Although some physicians appear to be supportive of programs designed to identify patients who may “doctor-shop” or circumvent the system in other ways to abuse opioids,

other doctors tend to be skeptical of programs that focus on the prescriber (Barrett and Watson 2005; Feldman et al. 2011). As noted earlier, it would be a mistake to view physicians as a homogenous group. In this study, we examine variation in physicians' attitudes toward Indiana's PDMP. Drawing on prior sociological work, we hypothesize that older physicians and doctors with higher professional status will be more resistant to this type of governmental oversight because they are more likely to hold more traditional views regarding medical professional authority. We hypothesize further that physicians who prescribe more opioids will view prescription drug monitoring negatively because of their greater resource dependency on pharmaceuticals. Our study offers a unique opportunity to elaborate empirically on prior work regarding the social organization of medicine by examining contemporary physicians' views of new government regulations of medical practice.

Data and Methods

The data for this study come from an evaluation of the Indiana Professional Licensing Agency's (IPLA) Indiana Scheduled Prescription Electronic Collection and Tracking (INSPECT) program. Collaborators from Indiana's State Task Force on Prescription Drug Abuse, IPLA, and researchers at Indiana University developed the survey instrument. Before administration, the research team tested the survey among a small convenience sample of licensed medical providers and pharmacists operating around the state. The survey was distributed using a Web-based platform in late 2013. The study protocol was reviewed and approved by the Indiana University institutional review board.

Sample

IPLA distributed information about the survey with an invitation to participate electronically to all 38,333 health care providers licensed in 2013 to prescribe and/or dispense controlled substances in Indiana. A total of 5,994 providers returned completed surveys, yielding a 15.6 percent response rate.

Because the present study focuses on the medical profession, we restricted our analyses to the 2,444 licensed physicians who completed surveys (or 40.8 percent of the sample). The subsample of physicians includes 2,204 medical doctors, 191 doctors of osteopathic medicine, and 49 doctors of podiatric medicine. The response rates for these subgroups were 12.7 percent, 13.7 percent, and 14.1 percent, respectively.

Measures

The survey took approximately 20 minutes to complete and included questions regarding respondents' knowledge and use of INSPECT as well as their views on the use and abuse of controlled substances, particularly prescription opioids, in

Indiana. The central dependent variable was the physicians' attitudes toward criminal justice oversight. Specifically, respondents were asked two questions: (1) "Should criminal justice professionals (e.g., police, the DEA) be allowed to access INSPECT for patient information?" and (2) "Should criminal justice professionals (e.g., police, the DEA) be allowed to access INSPECT to determine if medical providers are potentially overprescribing controlled prescription medication?" For both questions, respondents could answer "no," "yes," or "yes, but only under certain circumstances." Immediately below the last response category, on the same screen, respondents were presented with the option to select one of the following specific circumstances: (1) "To identify potential drug diversion for illicit purposes" (for the patient abuse question) or "To identify potential 'pill mills'" (for the provider abuse question), (2) "During the investigation of an ongoing case involving controlled substances," and (3) "Under other circumstances (please specify)." Using the responses to this series of items, we computed three separate dichotomous variables to indicate whether each respondent supported ("yes" or "yes, but only under certain circumstances" = 1) or did not support ("no" = 0) criminal justice accessing PDMP data to identify cases of patient abuse and provider abuse.

The focal independent variables selected to operationalize and evaluate our central hypotheses included age (hypothesis 1), professional status (hypothesis 2), and the percentage of patients prescribed opioids by the responding physician (hypothesis 3). Age was measured on the basis of the respondents' birth year and is used as a continuous measure ($M = 52.96$ years, $SD = 12.21$ years). To estimate each respondent's level of professional status and following Rosoff and Leone's (1991) recommendations, we used the respondent's self-reported medical specialty and national data on the median income of the major medical specialties. The original survey offered the option to select 1 of 36 medical specialties formally recognized by the American Board of Medical Specialties (2014) or to "specify" another specialty if the respondent's specialty was not listed. Many respondents specified other specialties or other names for the American Board of Medical Specialties-recognized specialties. Using the respondents' self-identified specialties and median income data from the American Medical Group Association (2012), we assigned each respondent an ordinal status ranking on the basis of the median income for his or her specialty. To simplify the analysis and to protect the confidentiality of respondents in relatively rare specialties, we collapsed the detailed prestige ranking into an ordinal variable of six status tiers (1 = lowest, 6 = highest) that accurately represented the distribution of specialties in our data set. To operationalize our respondents' dependency on pharmaceuticals, we used a question that asked all respondents to indicate what percentage of their patients was "currently prescribed opioid medications." The original question assessed the provider's perception in 10 percent increments from 0 percent to 100

percent. Because the response categories were heavily skewed, responses were recoded to seven categories to facilitate data analysis.

We also constructed a number of demographic and professional background variables to describe the sample and used as controls in our multivariate analyses. Gender was treated as a dichotomous variable, with men serving as the reference group (female = 1). Because the sample was predominately white, race/ethnicity was recoded as a dummy variable (nonwhite = 1, white = 0). Years in practice was coded into an ordinal measure: 1 = 1 to 4 years, 2 = 5 to 9 years, 3 = 10 to 14 years, 4 = 15 to 19 years, 5 = 20 to 24 years, and 6 = 25 or more years. Practice site was coded as a series of four dummy variables indicating the primary work setting of each respondent as outpatient, inpatient, emergency department (including urgent care centers), and other nonclinical care settings (e.g., administration, diagnostic testing centers, pathology laboratories, retired physicians). Because outpatient setting was most common, it was treated as the reference category and omitted from the multivariate models. Finally, we also included each provider's perception of the percentage of his or her patients who they believe abuse prescription medications. The original question assessed the provider's perception in 10 percent increments. As with the percentage of patients prescribed opioids, the distribution was heavily skewed, so we recoded responses into a six-category ordinal variable to facilitate analysis. Higher values indicate beliefs that larger proportions of their patients are abusing prescription medications.

Because the rate of missing data was relatively low (<3 percent to 6 percent) and random, we recoded missing responses on our dummy and ordinal variables to the category corresponding to the sample mean. For interval variables, we recoded missing values to the mean value of the variable. Table 1 presents the frequency distributions and descriptive statistics for these measures after adjusting for missing data.

Data Analysis

The data for this study were analyzed using SPSS 20.0 and Stata 14.0. We began by examining the frequency distributions and descriptive statistics for all of the variables included in the analysis and cross-classifying our focal independent variables with our attitude indicators regarding criminal justice access to PDMP data. We elaborated on these basic descriptive analyses by using binary and ordered logistic regression methods to control for the influence of the respondents' demographic and clinical background characteristics.

Results

Table 1 summarizes the distribution and descriptive statistics for our sample on the measures included in this analysis. The mean age of participating providers was 53 years. The sample was primarily white (83.2 percent) men (72.1 percent)

Table 1. Sample Descriptive Statistics on Key Variables ($n = 2,444$).

Variable	Frequency (%)	M	SD
Age (years) (range = 27–92 years)		52.96	12.21
27–35	241 (9.9)		
36–45	464 (19.0)		
46–55	714 (29.2)		
≥56	1,025 (43.9)		
Gender			
Male	1,761 (72.1)		
Female	683 (27.9)		
Race/ethnicity			
White	2,034 (83.2)		
Nonwhite	410 (16.8)		
Years practicing medicine (range = 1–61)		19.94	12.19
<5	299 (12.2)		
5–9	286 (11.7)		
10–14	286 (11.7)		
15–19	326 (13.3)		
20–24	341 (14.0)		
≥25	906 (37.1)		
Practice setting			
Outpatient	1,438 (58.8)		
Inpatient	538 (22.0)		
Emergency department	318 (13.9)		
Administration, laboratory, other non-patient care role, retired, not specified	150 (6.1)		
Percentage of own patients who misuse			
0	285 (11.7)		
1–10	1,119 (45.8)		
11–20	492 (20.1)		
21–30	238 (9.7)		
31–50	196 (8.0)		
>50	114 (4.7)		
Percentage of patients prescribed opioids			
0	288 (11.8)		
1–10	843 (34.5)		
11–20	568 (23.2)		
21–30	276 (11.3)		
31–40	144 (5.9)		
41–50	86 (3.5)		
>50	239 (9.8)		
Aware of INSPECT	1,846 (75.5)		

Note: INSPECT = Indiana Scheduled Prescription Electronic Collection and Tracking.

who had practiced medicine for nearly two decades (19.94 years). More than half (58.8 percent) practiced in an outpatient setting, 22 percent in an inpatient setting, 13.9 percent in emergency departments, and 6 percent in other settings, including laboratories, administration, and other nonclinical roles (including retired physicians). Regarding providers' perception of the percentage of their patients who misuse or abuse prescription medications, nearly half the sample (45.8 percent) believed that between 1 percent and 10 percent of

their patients abused prescription medications, and the vast majority (87.3 percent) reported the prevalence of medication abuse in their practice as falling somewhere between 0 percent and 30 percent. Only a minority of physicians reported that a majority of their patients (9.8 percent) were prescribed opioid medications. The vast majority of the respondents in our sample (75.5 percent) had heard of the INSPECT system and were asked to respond to more detailed questions regarding their experiences and perceptions of the program. Consequently, our analyses of physicians' views regarding criminal justice oversight of their prescribing practices focused on the 1,846 respondents who reported they were aware of Indiana's PDMP system.

As illustrated in Table 2, there was quite a range of specialties and professional status in our sample. As might be expected, the distribution is skewed toward lower status specialties, with the largest percentage of respondents (27.1 percent) falling in the second status tier, which included family and general practice physicians. The two tiers with the smallest numbers of respondents were the top (tier 6, $n = 268$ [11.4 percent]) and lowest status groups (tier 1, $n = 223$ [9.5 percent]). The highest status physicians included more technically skilled specialties (e.g., neurosurgeons, radiology, gastroenterology), while the lowest tier included geriatricians, psychiatrists, addiction specialists, and podiatrists.

Because of the overall response rate, we conducted a series of analyses to better understand our sample and evaluate the potential for selection bias in the survey responses (see Appendix). Specifically, we compared our sample with data available from two other external sources. First, we contrasted our sample with the population data available from the IPLA's 2013–2014 licensure application database. By law, all prescribers and dispensers must have active licenses to legally practice, prescribe, and/or dispense medications. Second, we put side by side our respondents with those surveyed by the Indiana University Department of Family Medicine Health Workforce Studies Program's 2013 Indiana Physician Licensure Survey. That year, licensure applicants were invited to complete a voluntary survey about their professional background and practice characteristics immediately after completing their biannual licensure applications online. This process captured information from approximately 70 percent of the 2013 licensed physicians in Indiana (Sheff et al. 2014). Our sample is remarkably comparable with both external data sources on age and gender. Our sample, however, had a statistically significant, slightly smaller proportion of minority physicians (16.8 percent vs. 22.4 percent) than the sample of licensure survey respondents (race/ethnicity is not collected in the licensure application process). Our sample also had somewhat smaller percentages of respondents in the status groups at the extreme upper (i.e., tiers 5 and 6; 11.4 percent vs. 14.5 percent and 14.7 percent vs. 18.9 percent, respectively) and a somewhat larger proportion (9.5 percent vs. 4.8 percent) at the lower end of the distribution (i.e., tier 1) compared with the licensure survey

Table 2. Medical Specialty Status Rankings ($n = 2,354$).

Medical Specialty	Ranking (Highest to Lowest)	Median Income ^a	<i>n</i>	%
Professional status tier 6			268	11.4
Neurosurgery	47	\$656,250	15	
Cardiac and thoracic surgery	46	\$544,087	13	
Sports medicine	45	\$536,823	<10	
Orthopedic surgery	44	\$515,759	71	
Hand surgery	43	\$507,750	<10	
Interventional radiology	42	\$485,277	<10	
Radiation oncology	41	\$471,000	28	
Radiology	40	\$459,186	47	
Gynecological oncology	39	\$440,000	<10	
Gastroenterology	38	\$435,120	11	
Cardiology	37	\$430,316	44	
Urology	36	\$415,598	15	
Professional status tier 5			346	14.7
Plastic and aesthetic surgery	35	\$409,772	14	
Colon and rectal surgery	34	\$405,000	<10	
Dermatology	33	\$397,370	25	
Anesthesiology	32	\$377,375	115	
Otolaryngology	31	\$374,387	22	
Ophthalmology	30	\$371,987	33	
General surgery and surgical oncology	29	\$370,024	61	
Pathology	28	\$363,559	37	
Oncology and hematology	27	\$348,157	24	
Professional status tier 4			509	21.6
Critical care medicine	26	\$334,342	26	
Nuclear medicine	25	\$321,282	<10	
Pulmonary disease	24	\$311,750	29	
Obstetrics and gynecology	23	\$303,350	107	
Neonatology	22	\$300,000	<10	
Emergency medicine	21	\$297,500	256	
Allergy and immunology	20	\$286,116	<10	
Pediatric hematology	19	\$277,134	<10	
Pain medicine/physical medicine and rehabilitation	18	\$253,750	59	
Pediatric cardiology	17	\$249,990	<10	
Neurology and sleep medicine	16	\$249,250	43	
Professional status tier 3			369	15.7
Urgent care	15	\$242,145	<10	
Hospitalist	14	\$235,014	85	
Hyperbaric and wound care/occupational health/ preventive medicine	13	\$229,644	25	
Infectious diseases	12	\$229,511	10	
Rheumatology	11	\$229,051	17	
Internal medicine	10	\$224,417	209	
Endocrinology	9	\$221,400	17	
Professional status tier 2			639	27.1
Adolescent medicine/ developmental pediatrics	8	\$220,644	<10	

(continued)

Table 2. (continued)

Medical Specialty	Ranking (Highest to Lowest)	Median Income ^a	n	%
Family medicine/general practice/general pediatrics	7	\$219,362	634	
Professional status tier I			223	9.5
Geriatric medicine	6	\$219,273	22	
Addiction medicine and psychiatry/mental health	5	\$217,194	130	
Pediatric endocrinology	4	\$199,195	<10	
Hospice and palliative care	3	\$196,262	19	
Pediatric nephrology	2	\$196,191	<10	
Podiatry	1	\$116,440	49	

Note: To preserve the confidentiality of respondents, specialties with fewer than 10 respondents are reported above as "<10," and the percentages for the detailed specialty categories are not reported.

^aSource: American Medical Group Association (2012).

sample. Unfortunately, IPLA does not collect data on physicians' specialties as part of the licensure application process. Although there are some small differences between our sample and these two external data sources, the general shape of the distribution of status groups is strikingly similar. Apart from prescribing patterns, the existing literature does not provide clear guidance on whether these results indicate systematic selection bias. There is some evidence that physicians who are more involved in clinical pain management may be more economically invested in prescribing opioids, which could explain the slightly lower response rates of physicians in tiers 5 and 6 (Alexander et al. 2014; Canada et al. 2014; Keller et al. 2012; Light 2010b). In our classification scheme, the specialties in which pain is more likely to be a clinical concern are concentrated in tiers 4, 5, and 6. Unfortunately, we simply do not have sufficiently detailed data on respondents' clinical practice or the patients they serve to fully evaluate this pattern. At a more general level, though, we did find a growing body of evidence that response rates for surveys of physicians have fallen significantly over the past decade and that our overall response rate was consistent with other academic researchers' recent experiences in surveying this population (Cunningham et al. 2015; Nicholls et al. 2011; Wiebe, Kaczorowski, and MacKay 2012).

Table 3 presents the frequency of responses to our focal attitude questions regarding support for using INSPECT data to investigate cases of patient abuse and provider abuse. Support for criminal justice officials accessing INSPECT data was generally strong regardless of whether the focus was on investigating patient or provider abuse, with 1,476 (60.4 percent) and 1,434 (58.7 percent) indicating "yes" and "yes, but only under certain circumstances," respectively. The number of physicians who voiced support for criminal justice officials to access PDMP for both types of investigations, however, was smaller, with only 1,300 (53.2 percent) of the respondents indicating yes to both questions.

Table 3. Descriptive Statistics for Respondents Aware of INSPECT to Questions Regarding Criminal Justice Oversight (n = 1,846).

Variable	n (%)
Patient abuse: "Should criminal justice professionals (e.g., police, the DEA) be allowed to access INSPECT for patient information?"	
No	968 (39.6)
Yes	471 (19.3)
Yes, but only under certain circumstances	1,005 (41.1)
Circumstances endorsed (n = 996) ^a	
"To identify potential drug diversion for illicit purposes"	613 (61.5)
"During the investigation of an ongoing case involving controlled substances"	895 (89.0)
"Under these conditions (please specify)"; sample responses: when a judge issues a warrant, a court order, or a subpoena; when an MD, a DO, a dentist, or a pharmacist refers a case to the criminal justice system; and when there is probable cause	65 (6.5)
Provider abuse: "Should criminal justice professionals (e.g., police, the DEA) be allowed to access INSPECT to determine if medical providers are potentially overprescribing controlled prescription medication?"	
No	1,010 (41.3)
Yes	499 (20.4)
Yes, but only under certain circumstances	935 (38.3)
Circumstances endorsed (n = 918) ^a	
"To identify potential 'pill mills'"	584 (63.6)
"During the investigation of an ongoing case involving controlled substances"	791 (86.2)
"Under these conditions (please specify)"; sample responses: when a judge issues a warrant, a court order, or a subpoena; when there is probable cause; when a formal complaint is filed with the licensing board	54 (5.9)
Supports criminal justice monitoring for patient and provider abuse	
Yes to both questions above	1,300 (53.2)

Note: DEA = U.S. Drug Enforcement Agency; INSPECT = Indiana Scheduled Prescription Electronic Collection and Tracking.

^aParticipants could select "all that apply," so percentages do not total 100 percent.

Table 3 also provides a more detailed breakdown of the frequencies with which respondents endorsed a qualified "yes." With regard to cases of patient abuse, respondents overwhelming felt that criminal justice should have access to PDMP data only when there is "an ongoing case involving controlled substances" (n = 895 [89 percent]) or "to identify potential drug diversion for illicit purposes" (n = 613 [61.5 percent]). Sixty-five respondents offered "other" comments that, for the most part, emphasized that the judicial system should be involved through the issuing of a warrant, a court order, or a subpoena before granting access to PDMP data. Nine respondents indicated that access should be granted when another medical provider (e.g., a pharmacist or a physician) refers a potential case of patient abuse.

Similar responses were noted when we posed the same conditional follow-up question about provider monitoring.

Table 4. Cross-tabulation of Opinions Regarding Criminal Justice Oversight by Age Group, Professional Status, and Percentage of Patients Prescribed Opioids ($n = 1,846$).

	Patient Abuse			Provider Abuse		
	No	Yes, but Only Under Certain Circumstances	Yes	No	Yes, but Only Under Certain Circumstances	Yes
	<i>n</i> (%)	<i>n</i> (%)	<i>n</i> (%)	<i>n</i> (%)	<i>n</i> (%)	<i>n</i> (%)
Age (years)						
≤45	93 (16.03)	324 (55.86)	163 (28.10)	132 (22.76)	296 (51.03)	152 (26.21)
46–55	100 (18.73)	293 (54.87)	141 (26.40)	115 (21.54)	272 (50.94)	147 (27.53)
≥56	177 (24.18)	388 (53.01)	167 (22.81)	165 (22.54)	367 (50.14)	200 (27.32)
		$\chi^2 = 15.65^{**}$			$\chi^2 = 0.49$	
Professional prestige						
Lower status	276 (18.49)	811 (54.32)	406 (27.19)	309 (20.70)	762 (51.04)	422 (28.27)
Higher status	94 (26.63)	194 (54.96)	65 (18.41)	103 (29.18)	173 (49.01)	77 (21.81)
		$\chi^2 = 18.09^{***}$			$\chi^2 = 13.83^{***}$	
Percentage of patients prescribed opioids						
0–10	169 (20.44)	452 (54.66)	206 (24.91)	162 (19.59)	425 (51.39)	240 (29.02)
11–30	143 (21.47)	357 (53.60)	166 (24.92)	161 (24.17)	340 (51.05)	165 (24.77)
31–50	22 (12.29)	110 (61.45)	47 (26.26)	33 (18.44)	98 (54.75)	48 (26.82)
≥50	36 (20.69)	86 (49.43)	52 (29.89)	56 (32.18)	72 (41.38)	46 (26.44)
		$\chi^2 = 10.21$			$\chi^2 = 18.73^{**}$	

** $p \leq .01$. *** $p \leq .001$.

The majority of “other (please specify)” responses indicated that access should be granted only when there is a warrant or court order issued. Several respondents ($n = 9$) felt that access should be granted when a formal complaint is made to the licensing board indicating that a provider might be over-prescribing. Similar to the feedback on the patient abuse question, the majority of respondents offering conditional endorsement felt that access should be granted only when there is an ongoing investigation ($n = 791$ [86.2 percent]), and nearly two-thirds ($n = 584$ [63.8 percent]) of those surveyed felt that access should be given to help identify “pill mills.” It is important to note that respondents could select more than one specific condition; thus, the total percentages sum to greater than 100 percent. Taken together, the pattern of responses, coupled with the details included in the open-ended answers, suggests that a larger percentage of providers feel there should be some restraints placed on granting criminal justice officials access to PDMP data and that access should be contingent on well-established criteria that are evaluated in accordance with formal legal procedures prior to conducting an investigation.

Table 4 presents the cross-tabulation of our focal attitude measures regarding criminal justice officials’ using PDMP data to identify cases of patient and provider abuse by age, professional status, and percentage of patients prescribed opioids. Consistent with the patterns observed in Table 3, the majority of physicians indicated conditional support for criminal justice oversight of potential patient and provider

abuse regardless of their age, professional status, or dependency on prescribing opioids. At the same time, however, we do observe that the three focal independent variables shape our sample’s views. Significantly more physicians with higher levels of professional status appear to be resistant to government regulation regardless of whether the aim is curbing patient or provider abuse ($\chi^2 = 18.09$ and $\chi^2 = 13.83$, $p < .001$). Being older and prescribing more opioids also appear to reduce support for criminal justice oversight, but this effect is significant only for instances of patient abuse ($\chi^2 = 15.65$, $p < .01$) and provider abuse ($\chi^2 = 18.73$, $p < .01$).

To examine variation in these physicians’ attitudes, we also conducted a series of logistic and ordinal logistic regression analyses of our two attitude measures using both a bivariate specification of support for expanded government oversight (“no” = 0 vs. “yes, but only under certain circumstances” or “yes” = 1) as well as the original three-ordinal response version (“no” = 0 vs. “yes, but only under certain circumstances” = 1 vs. “yes” = 2). Because the results were similar and the bivariate specification was easier to interpret, we present the results from the bivariate logistic regression models in Table 5 (the ordered logistic regression results are available upon request from the first author). Column 1 displays the analysis of the physicians’ views of using PDMP data to identify cases of patient abuse, while column 2 presents the corresponding model for provider abuse. Because the respondents’ age and years of practice were highly

Table 5. Logistic Regression of Support (“No” vs. “Yes” or “Yes, but Only Under Certain Circumstances”) of Criminal Justice Oversight for Patient Abuse or Provider Abuse ($n = 1,846$).

	Column 1		Column 2	
	Patient Abuse		Provider Abuse	
	OR	SE	OR	SE
Demographics				
Age	0.984**	0.005	1.009+	0.005
Female	0.972	0.135	1.183	0.157
Nonwhite	1.056	0.177	0.956	0.149
Professional status (high)	0.720*	0.109	0.742*	0.109
Practice Setting				
Emergency department	1.480+	0.344	1.901**	0.414
Inpatient	1.059	0.173	1.223	0.194
Nonclinical	1.119	0.172	1.348*	0.198
Percentage of patients misusing prescription medications	1.203***	0.068	1.210***	0.064
Percentage of patients prescribed opioids	0.989	0.378	0.875***	0.031
Log likelihood	-900.793		-957.561	
Likelihood ratio χ^2	48.12***		45.00***	
Pseudo- R^2	.026		.023	

Note: OR = odds ratio.

+ $p \leq .10$. * $p \leq .05$. ** $p \leq .01$. *** $p \leq .001$.

intercorrelated ($r = .817$), only age was included in the final multivariate analyses, to avoid any concerns regarding potential multicollinearity.

As hypothesized and foreshadowed in the bivariate analyses reported in Table 4, we found a consistent statistically significant negative relationship between professional status and both attitude measures. That is, physicians with higher levels of professional prestige are significantly less likely to express support for criminal justice oversight in cases of patient (odds ratio [OR] = .720, $p \leq .05$) and provider (OR = .742, $p \leq .05$) abuse, controlling for demographic characteristics and practice setting and providing clear support for hypothesis 2. The findings regarding age and prescribing more opioids were generally in the hypothesized directions; however, prescribing more opioids was statistically significantly associated only with a reduction in support for investigating cases of provider abuse (OR = .875, $p \leq .001$). Interestingly, the effect of age was associated statistically only with support for identifying cases of patient abuse (OR = .984, $p \leq .01$).

Our analysis indicates that the clinical backgrounds of physicians also may influence their attitudes. Compared with doctors who practiced in outpatient settings, doctors in our sample were significantly more supportive of government oversight in cases of provider abuse if they practiced primarily in emergency departments (OR = 1.901, $p \leq .001$) and when they were not currently involved in providing direct

patient care (OR = 1.348, $p \leq .05$). The most consistent background predictor, however, was the extent to which physicians perceived more of their patients as abusing prescription medications (OR = 1.203, $p \leq .001$, and OR = 1.210, $p \leq .001$, for cases of patient and provider abuse, respectively).

Discussion

As health care grows in complexity, more and more parties, including state and federal criminal justice officials, are becoming influential in how care and treatment are provided. Since the beginning of modern medical practice, the government has played a significant role in granting and protecting physicians' professional autonomy and authority, yet this trend appears to be changing. Recent public and political concern regarding rising health care costs, questionable practices, and shifting patient expectations have resulted in more government regulation of health care. The findings of our study suggest physicians are generally supportive of criminal justice officials using PDMP to monitor both physician-prescribing practices and patients' prescription drug use. However, this study also documented, consistent with our hypotheses, that doctors who have higher levels of professional status, who are older, and who prescribe more opioids are more likely to have concerns about this form of expanded government intervention in the practice of medicine. Perhaps because they are more directly affected by the prescription drug abuse epidemic, physicians who practice in emergency departments as well as those who perceive higher rates of medication misuse in their patient rolls are strongly supportive of criminal justice monitoring of medical work.

These findings have practical implications for public health policy efforts to address the prescription drug abuse epidemic in the United States. Although the findings underscore that physicians in general may be “on board” and support the expansion and use of PDMPs, our analyses suggest that public health leaders and health care regulators should proceed cautiously, as there is significant variation within the ranks of medicine. Indeed, significant resistance persists among some physicians, particularly those who have potentially more to lose economically and those who may yield more professional influence among their peers. At the same time, the data also indicate that there are physicians who are more likely to be policy allies, particularly doctors who are most directly affected by prescription drug abuse, such as those who work in emergency departments. Public health leaders interested in advancing state-level efforts to expand prescription drug monitoring may wish to consider launching special initiatives to promote a broader awareness of the prevalence of prescription drug abuse in communities, as our study indicates this may be particularly influential in shaping physicians' attitudes.

The support uncovered in our study reflects the formal positions of many professional organizations, including the

American Medical Association (2013) and the American Osteopathic Association (2012). Indeed, these and other professional organizations maintain policies favoring PDMPs to curb prescription drug misuse and “doctor shopping.” For example, the American Pain Society (2011) issued a policy statement in response to the Food and Drug Administration’s risk mitigation and evaluation strategy for long acting and controlled release opioids, stating that it “will support only forward-thinking educational mechanisms that do not interrupt patient care nor deter physicians from becoming credentialed to provide such care” (p. 3)

Although expressing general support, this and similar organizational policy statements also hint at some medical providers’ reluctance to fully embrace government intervention and expanded regulation, and specifically the criminal justice system’s oversight of prescribing practices. Where this hesitation is often most apparent and indicative of the pockets of resistance noted earlier is in state-level debates over legislation. For example, Dr. Greg Hood (2012) wrote of Kentucky’s HB 1, the “Pill Mill Bill,” in his blog Weekend Call, “This far reaching bill includes such onerous and tedious requirements for us as practicing physicians to be in compliance that I believe patients will get fed up with the bureaucracy and disengage from therapeutic relationships.” In response to Dr. Hood’s position, and in the blog’s comment section, a psychiatrist stated,

We do need solutions for the [Kentucky] epidemic of narcotic problem. The doctors and politicians need to work together. This plan seems to have so many medical mistakes and illogical and excessive demands that it only divides physicians and government leaders in my opinion. (Response 10 in Hood 2012)

In many ways, Dr. Hood and the responding psychiatrist express views held by many medical providers who are concerned that increased regulatory oversight through PDMPs will have little impact on curbing prescription drug misuse and ultimately negatively affect the quality of medical care.

On a more theoretical level, our research contributes to the growing body of research on the profession of medicine. Specifically, our findings underscore early findings that the organization and culture of medicine is heavily stratified (Freidson 1984) and, more important, that higher status physicians are more likely to be resistant to government oversight and regulation. Our findings also indicate that older physicians were more likely to endorse using PDMP data to pursue cases of patient abuse but not instances of provider abuse. Their greater concern with prosecuting patient abuse may reflect more traditional, profession-centered views of medical work which may be more likely to assign responsibility or even “blame” patients for their health problems, particularly when it comes to prescription drug abuse (Burgess et al. 2011).

The fact that physicians who prescribe more opioids are less supportive of government oversight to pursue

investigations of provider abuse is particularly intriguing. It may signal recognition that their work is increasingly dependent and deeply intertwined with the pharmaceutical industry, as suggested by Conrad (2005) and Light (2010b). In fact, our more detailed analyses of the specific circumstances that physicians support criminal justice officials accessing PDMP data suggest that there is widespread recognition among physicians that some of their peers are not conforming to the best clinical prescribing standards. Most of our respondents are supportive of censure, but only when there is clear evidence and/or a formal complaint filed against a physician through some formal legal or regulatory process. In short, they appear to endorse more, not less, external accountability.

More generally, the high level of support in this sample of physicians may signal a shift in the profession’s overall position within the health care policy arena. In some ways, their responses suggest a recognition and endorsement of the need for greater accountability in prescribing practices, and these quietly supportive views may be behind the seemingly rapid proliferation of PDMPs across the 50 states. In this regard, our analysis offers support for a dynamic that Hafferty and Light (1995) observed nearly a decade ago:

If an emphasis on accountability can be raised as a counterbalance to that of autonomy, if clinical practice can be placed within the larger context of prevention, early intervention, self-management, and interprofessional programs for managing chronic problems (such as pain), perhaps medicine and society will be the better for it. (p. 145)

In this regard, public health professionals may have been successful in shaping and securing the professional support of physicians because they have successfully defined prescription drug abuse as a public health problem requiring more professional accountability. In the long run, these governmental efforts may indirectly help maintain or improve the overall status of the profession by strengthening the public’s confidence in medical care. Nevertheless, there is clear evidence that professional support is not universal and related to physicians’ stature and position within the medical profession.

Several limitations warrant caution in interpreting the results of this study. First, the sample was based on a convenience sample collected in Indiana and may not be generalizable. Although the response rate is low, our sample of physician respondents was relatively large, particularly compared with other survey studies of physicians. Our sample also includes a significant proportion of a population of physicians who are subject to the same state-level health policy initiative. Nevertheless, we sampled only physicians within Indiana, so our findings may not be generalizable to doctors across the United States.

Second, our analysis was restricted to medical doctors, doctors of osteopathic medicine, and doctors of podiatric

medicine and excludes other health care providers with prescribing privileges (e.g., nurse practitioners, physician assistants, dentists), who are subject to similar regulatory oversight. We focused our analysis on physicians because of our theoretical interest in the distribution of attitudes within the medical profession and because the operational conceptualization of professional prestige is more complicated because of differences in the training and the organization of these professions.

Third, we also restricted our analysis of status to rankings defined by the median incomes of the various specialties, and this operationalization may not accurately or fully captured some of the nuances of physicians' professional prestige, such as societal value or technical skill (see Davis and Moore 1945; Shortell 1974).

Finally, given the political attention devoted to the prescription drug abuse epidemic in Indiana and across the nation,

social desirability may have influenced how some of the physicians in our sample responded to the attitude questions.

In sum, in this study we examined physician attitudes regarding access and use of PDMP data by criminal justice officials to monitor patient and provider abuse. Although physicians were cautiously supportive, their views are heavily influenced by their professional standing and practice setting, and subgroups of physicians who strongly oppose the new governmental efforts to reshape the traditional autonomy and authority of the profession of medicine remain. Although our study has important limitations, this research underscores the theoretical importance of considering the role of professional status and other divisions within the profession in future sociological research regarding the practice of medicine, particularly in light of the many new policy initiatives that are profoundly reshaping the U.S. health care system.

Appendix

Comparison of Study Sample with External Data Sources on Physicians Practicing in Indiana, 2013.

Variable	Sample (<i>n</i> = 2,444)	Licensure Applicants (<i>n</i> = 20,941)	Licensure Survey (<i>n</i> = 9,460)	Comparison	
				Sample vs. Licensure Applicants	Sample vs. Licensure Survey
				Difference of Means, <i>t</i> Score (<i>p</i> Value)	
Age (years)				0.88 (.21)	0.72 (.26)
27–35	241 (10.3)	2,249 (13.3)	889 (9.9)		
36–45	464 (19.9)	5,291 (26.6)	2,279 (24.3)		
46–55	606 (25.9)	5,290 (26.6)	2,238 (28.3)		
≥56	1,225 (43.9)	6,224 (33.5)	3,270 (37.5)		
<i>M</i>	52.96	50.95	53.90		
<i>SD</i>	12.49	12.30	11.00		
				Difference of Proportions, <i>z</i> Score (<i>p</i> Value)	
Gender					1.22 (.22)
Male	1,261 (72.1)	1,2010 (72.8)	6,254 (70.8)		
Female	683 (27.9)	5,294 (27.2)	2,222 (29.2)		
Race/ethnicity					12.39 (.000)***
White	2,234 (83.2)		6,297 (77.6)		
Nonwhite	410 (16.8)		1,232 (22.4)		
Specialty status tier ^a					
Tier 6 (ranks 36–47)	268 (11.4)		1,203 (14.5)		–3.92 (.000)***
Tier 5 (ranks 27–35)	346 (14.7)		1,265 (18.9)		–4.71 (.000)***
Tier 4 (ranks 16–26)	509 (21.6)		1,254 (20.0)		1.72 (.09)
Tier 3 (ranks 9–15)	369 (15.7)		1,207 (15.8)		–0.15 (.88)
Tier 2 (ranks 7–8)	639 (27.1)		2,241 (25.9)		1.22 (.22)
Tier 1 (ranks 1–6)	223 (9.5)		399 (4.8)		8.47 (.000)***

Note: The comparative data come from the 2013 Indiana Physician Licensure Survey (licensure survey) and 2013–2014 licensure application data. For the specialty prestige tier ranking comparison, self-reported medical specializations were compared.

^aThe licensure survey sample's specialty prestige tier comparison does not total 9,460, given that 1,050 participants did not report specialties and 141 reported specialties not captured by the American Board of Medical Specialties (e.g., genetics, aerospace medicine).

****p* ≤ .001.

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Eric R. Wright is a 2nd Century Initiative professor of sociology and public health and chair of the Department of Sociology at Georgia State University (Atlanta, Georgia). He holds a BA in sociology from Lewis & Clark College in Portland, Oregon, and an MA and PhD in sociology and human sexuality from Indiana University Bloomington. As a medical sociologist, his research interests center on social and public policy responses to mental health and illness; substance use, abuse, and addiction; sexual health; and HIV and sexually transmitted infection prevention. From 2005 to 2013, he served as a professor and founding director of the Center for Health Policy at Indiana University–Purdue University Indianapolis, where he led a number of major research and evaluation studies, including the research project that led to the development of this article.

Neal A. Carnes is a 2nd Century Initiative fellow and PhD candidate in sociology at Georgia State University. He will complete his doctorate in philosophy in May 2017. In addition, Neal is a behavioral scientist at the Centers for Disease Control and Prevention in the Prevention Research Branch of the Division of HIV/AIDS Prevention. In this position and as part of a research team, Neal helps manage a series of studies looking broadly at population and response system efforts to minimize the impact of HIV, while attempting to eradicate new infections. Neal received his bachelor's degree in secondary education from Indiana University Bloomington and his master's degree in sociology from Indiana University–Purdue University Indianapolis. His areas of interest include the intersection of sexual behavior and recreational drug use, health equity, and queer communities. Neal was part of the research and writing teams resulting in this article.

Wyndy Greene Smelser had more than 20 years of experience in the health care industry and held several executive and research positions in research, provider, and medical insurance companies, most recently as senior vice president for healthcare and life sciences at CMI, based in Atlanta. She received her master's degree in medical sociology with highest distinction as well as her undergraduate degree in social and behavioral sciences from Indiana University–Purdue University Indianapolis. Unfortunately, Ms. Smelser passed away suddenly in late 2016, before the publication of this article.

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