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The Effect of Legal and Hospital Policies on Physician Response to Prenatal Substance Exposure

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Objectives: To determine the influence of a state's legal environment and a hospital's Prenatal Substance Exposure (PSE) protocol on physicians' propensity to respond when prenatal substance exposure is suspected. *Methods*: Using a sample of 1367 physicians from every state and the District of Columbia, we formulate a set of linear models to determine the impact of the legal environment and hospital protocol on physicians' response to PSE, the agreement between physicians' perceptions and actual state legal environments, and physicians' motivation to act when PSE is suspected. *Results*: Both protocol and legal environment showed to be significantly correlated with physicians' propensity to take action when PSE is suspected ($p < 0.05$). Our analysis shows that physicians prefer a public health (patient-centered) approach to more punitive measures. *Conclusions*: Our results suggest a policy strategy focused first on enacting laws that would encourage a patient-centered approach, by developing and using hospital protocols to implement state policy, and then on educating physicians about the actual legal environment.

KEY WORDS: prenatal substance exposure; hospital protocol; legal environment; linear regression models.

INTRODUCTION

Substance exposure among pregnant women and its effects on newborns continue to generate considerable public policy concern. Most of this concern has focused on understanding the magnitude and consequences of such exposure (1–4), but some state legislatures have actively intervened to define prenatal substance exposure (PSE) as child abuse. More controversially, the Supreme Court of South Carolina recently upheld a criminal conviction for PSE (5). These laws and subsequent interventions raise a number of ethical, legal, and public policy issues: Should PSE be treated as a public health (patient-focused) issue or as a criminal matter? Should PSE be considered child abuse? What role should physicians and the health care system play in responding to PSE? What are the appropriate PSE detection and referral policies, and should institutions be mandated to develop them?

Because most pregnant women come into contact with the health care system during the course of their pregnancy, physicians potentially could play an important role in detecting and responding to prenatal substance exposure. In one of the few available studies of physician response to PSE, Zellman *et al.* (6) conducted exploratory research in the Los Angeles area to examine physician response to PSE and the factors that constrain response. Study data revealed many disincentives to detecting substance exposure, including lack of institutional policies and procedures, a sense that other issues are far more important, and concerns about losing patients if PSE detection is pursued aggressively. Further, issues such as maternal autonomy, maternal–fetal conflict, the medical versus criminal view of addiction, autonomy and confidentiality of the doctor–patient relationship

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make this subject quite difficult for physicians. Yet the decisions that physicians make—to ignore their suspicions or to respond to them through a series of actions that may include screening tests, referrals, and child abuse reports—are critical to the perceptions of the prevalence of PSE and to the individual women and infants whose lives may be affected by medical intervention or its absence. A key policy question concerns whether such disincentives or other individual proclivities or policy options influence physicians' decisions about responding to PSE.

The general purpose of the current study is to examine whether two important policy levers—a state legal environment that compels a physician to report suspicions of PSE and the existence of a hospital protocol for identifying PSE—increase the likelihood that physicians will act on their suspicions. We also discuss the most effective policy approaches for involving the health care system in preventing or mitigating the adverse consequences of maternal substance use based on our findings.

Conceptual Framework

A key aspect of the prenatal substance exposure policy context is the state's legal environment. The policy and legislative environment in the United States regarding PSE continues to evolve, as indicated by the recent criminal conviction for PSE in South Carolina noted above. Many state legislatures have attempted to deal with PSE. In general, the legislation can be divided into three broad approaches: a patient-centered approach (focusing on education, treatment, and counseling); civil sanctions (declaring maternal substance use to be child abuse); and criminal sanctions. According to a recent survey, the patient-centered approach is yielding to more punitive state intervention (7), although only a few criminal prosecutions have actually been brought.

Another potentially important aspect of the policy context involves institutional guidelines for physician behavior around PSE, specifically an institutional protocol, which specifies guidelines for the detection and management of suspected PSE. While the existence of a protocol may be important in influencing physician response, the way in which a protocol is implemented as well as its content and auspices may also bear importantly on physician response (8).

The following figure depicts a proposed hypothetical model by which physicians' actions to respond to prenatal substance exposure are influenced by the state legal environment and a hospital PSE protocol,

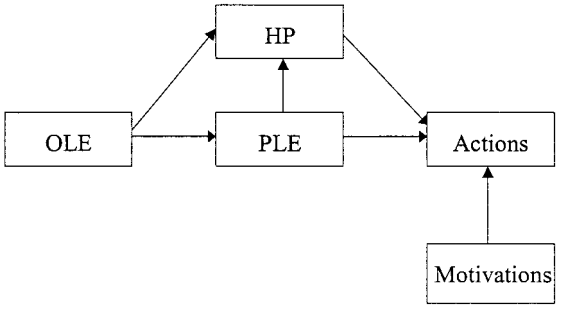

Fig. 1. Conceptual framework.

where OLE = Objective Legal Environment, PLE = Perceived Legal Environment, HP = Hospital Protocol, Motivations = Factors that may affect physicians' response to PSE, and Actions = Actions to respond to PSE.

This framework proposes that a physician's likelihood of acting on a suspicion of prenatal substance abuse is influenced by the existence of a hospital protocol and by the legal environment in the state. Consistent with prior research (9), it is not assumed that physicians have an accurate notion of the existence or content of the key aspects of the PSE legal environment, and so their actions are more likely to be influenced by what physicians perceive these factors to be. In other words, we hypothesize that physicians may indeed by influenced by what they believe they are expected to do (the protocol and perceived legal environment), but we also postulate that in the case of legal environment, their perceptions may not match reality. Regarding hospital protocol, we assume that physicians are aware of the protocol that exists in the hospital where they practice. As such, we make no distinction between actual (objective) and perceived hospital protocol. On the conceptual framework, we also recognize a set of professional motivations that may influence physicians' response to PSE.

Specific Aims of the Study

The goals of the study are to investigate some of the relationships suggested by the conceptual framework described above, to understand what motivates physicians to act when they do suspect PSE, and the policy implications of each. Regarding the conceptual framework, we seek 1) to investigate the impact of a hospital protocol and perceived legal environment on physicians' response to PSE; 2) to understand the agreement between actual and perceived

legal environments; 3) to understand the link between actual legal environment and the existence of a hospital protocol; and 4) to assess physician motivations on responses to PSE.

METHODS

Data

The data presented in this paper derive from a larger, national study on prenatal substance exposure, which involves four components: a mail survey of practicing obstetricians and pediatricians who see newborns; a survey of hospital staff working in the hospitals in which surveyed physicians practice; an analysis of state legal environments in all 50 states and the District of Columbia; and the coding and analysis of prenatal substance exposure protocols from surveyed hospitals (9). For this paper, the analysis is driven by data from the physician survey and the analysis of state legal environments.

Physician Survey

We drew a sample of 3200 physicians, from every state and the District of Columbia, who identified their primary specialty as obstetrics or pediatrics in the American Medical Association (AMA) Masterfile of Physicians, which identifies physicians, including both AMA and non-AMA members, by primary practice specialty. Physicians are captured in the AMA files as they receive licenses, maintain membership in specialty societies, and respond to AMA questionnaires. Physicians born prior to 1924 were excluded a priori. To improve the representativeness of the sample, we stratified within medical specialty by state.

Two slightly different versions of a 25-item PSE survey were mailed in summer 1995—one for obstetricians and one for pediatricians. Each survey packet contained a $10 incentive payment. Sixty-three percent of sampled physicians returned the survey. About one-third of these checked a box indicating that they did not currently deliver babies (obstetricians) or never examined newborns under 24 hours old (pediatricians), and returned a blank form as instructed. Thus, our sample is limited to practicing obstetricians and to pediatricians who see newborns on at least some occasions. Excluding the ineligible physicians, as described above, we obtained a sample of 1367 physicians–620 obstetricians and 747 pediatricians.

Analysis of State (Objective) Legal Environments

To characterize the states' legal environments, our research team analyzed state statutes, relevant litigation, and relevant state Attorney General opinions to determine whether and how each state has dealt with PSE (analysis includes the District of Columbia). We included in the state legal environment whether the legislature has made any response to PSE, and if so, the nature of that response. In each state's statutes, we looked for specific reference to prenatal substance exposure in definitions of child abuse; reporting requirements for physicians/providers; other physician/provider responsibilities (such as counseling, education, or referral); mandatory or priority drug treatment for pregnant women; and other state activities (i.e., prevalence surveys). We then examined relevant litigation, reviewing cases interpreting the state's definition of child abuse and cases considering PSE in custody decisions. In addition, we reviewed relevant state Attorney General opinions and legislative analyses from the U.S. Department of Health and Human Services' (HHS) Inspector General and from the National Association for Perinatal Addiction Research and Education.

On the basis of our view, we determined that states' legal environments could be categorized along several dimensions, including the presence or absence of legislation or case law on PSE, whether PSE falls under child abuse mandates, whether states require toxicology screens, and whether states require priority access to drug treatment facilities for pregnant women. Finally, states differ in whether they pursue a patient-centered model (focusing on treatment, counseling, and prevalence studies) or a punitive approach (focusing on criminal sanctions) and what role physicians are expected to play in maternal substance use. For the purposes of this analysis, we characterized the states according to the existence ($n = 31$) or absence ($n = 20$) of legislation on PSE.

Analysis

The Impact of Hospital Protocol and Perceived Legal Environment on Physician Action

Independent Variables. To address the impact of a hospital protocol on physician action, the existence of a protocol was obtained from the following question in the physician survey: "Is there a protocol for identification and/or management of substance

use/exposure in pregnant women/neonates in the hospital where most patients in your practice were born?" If the physician indicated that there was a protocol for either pregnant women only, neonates only, or both, they were coded 'Yes." Otherwise, they were coded "No" if not, or "DK" if they responded that they did not know. According to the physicians' answers, 52% of the sample responses to the existence of a hospital protocol were coded as "Yes," while 27% and 21% were coded as "No" and "DK," respectively.

Perceived legal environment was similarly derived from the physician survey. Physicians were asked a series of six questions, of the form: "Are physicians in your state legally obligated to make a child maltreatment report when their suspicions of prenatal substance exposure are based on [each of six categories of evidence]?" The categories of evidence were: maternal signs and symptoms; neonate signs and symptoms; mother's drug use or drug use history; other risk factors, e.g., lack of prenatal care; mother toxicology results; and infant toxicology results. All sub-questions were collapsed into a single item as follows: "Yes" (there is a legal requirement), if any of the sub-questions corresponding to the original design was answered as "Yes." It was coded as "No" (there is no legal requirement) if at least one of the responses to the six sub-questions is a "No," and none of the remaining sub-questions received an affirmative answer. Finally, the collapsed question was coded as "DK" (don't know if a legal environment exists) if all the original sub-questions were answered as "don't know" exclusively. Based on physicians' answers, 47% of the sample responses to the existence of a legal environment were coded as "Yes," while 19% and 34% were coded as "No" and "DK" respectively.

Dependent Variables. To assess physicians' proclivity to act, physicians were asked on the physician sample: "If you suspected that a pregnant patient was using substances, how likely would you be to [take each of the ten stated actions]?" Loosely, we divided the 10 specific actions into two major groups: those by which the physician works with the patient through counseling and delivery of information to address the substance abuse problem (we term them "patient-centered" actions); and those by which the physician acts in a more coercive manner to stop the patient's behavior (we name those "punitive" actions). The specific actions that we included in the "patient-centered" group are: ignore your suspicions out of concern that the patient might discontinue care; provide the patient with information about prenatal substance use; recommend HIV testing; discuss treatment program referrals with the patient; and establish a nonuse contract with the patient. The actions that we characterized as "punitive" include: get a substance use history; discuss your suspicions with the neonate's doctor; run a tox screen; report the patient to a site-based resource, e.g. hospital, social worker; and make a child abuse report.

Physicians were asked to rate each possible response along a 4-point scale ranging from *very likely* (response = 1) to *very unlikely* (response = 4). These codes were then reversed for this analysis so that higher numbers reflect greater likelihood of taking action.

Estimation Models. The proposed linkage among the existence of protocol, the perceived legal environment, and physicians' action was investigated via linear regression models. The general form of the regression models is shown below:

$$
\begin{aligned}
Y_k = \beta_0 &+ \overbrace{\beta_1 \mathrm{HP}_y + \beta_2 \mathrm{HP}_{dk}}^{\text{Hospital Protocol}} \\
&+ \overbrace{\beta_3 \mathrm{PLE}_y + \beta_4 \mathrm{PLE}_{dk}}^{\text{Legal Environment}} + \overbrace{\beta_5 (\mathrm{HP}_y)(\mathrm{PLE}_y)}^{\text{Interaction}} \\
&+ \overbrace{\beta_6 (\mathrm{HP}_y)(\mathrm{PLE}_{dk}) + \beta_7 (\mathrm{HP}_{dk})(\mathrm{PLE}_y)}^{\text{Terms}} \\
&+ \overbrace{\beta_8 (\mathrm{HP}_{dk})(\mathrm{PLE}_{dk})} \qquad [k = 1, \ldots, 10] \quad (1)
\end{aligned}
$$

where, HP_y is an indicator variable that is coded 1 if a hospital protocol exists, and 0 otherwise. In the same manner, HP_{dk} is an indicator variable set equal to 1 if a physician answered that he or she did not know whether a protocol to address prenatal substance exposure existed in the hospital where he/she works. Similarly, PLE_y is an indicator equal to 1 if there exists a perceived legal environment which compels physicians to act when PSE is suspected, as defined above. PLE_{dk} is an indicator variable equal to 1 if the physician does not know whether a legal environment exists. The model also accounts for the possible interaction between hospital protocol and perceived legal environment. For example, a physician reporting a hospital protocol and no perceived legal environment would have $\mathrm{HP}_y = 1$, $\mathrm{HP}_{dk} = 0$, $\mathrm{PLE}_y = 0$, $\mathrm{PLE}_{dk} = 0$, and all interactions set equal to zero.

The case of no hospital protocol and no perceived legal environment is used as reference; as such, the model parameters correspond to the differential effect of hospital protocol and law (and their interaction) with respect to the situation that consists of the absence of both. A linear regression was run for each

of the 10 dependent variables corresponding to each possible physician actions detailed above.

Agreement Between Objective Legal Environment and Perceived Legal Environment

Variables. OLE is defined based on the analysis of state legal environments described above. The possible values for OLE are 1 if the state has a legal environment, either mandatory reporting or some other patient-centered response ($n = 31$) and 0 otherwise ($n = 20$). PLE is defined above.

Analysis. The correlation between the variables OLE and PLE is investigated by calculating sample Pearson correlation coefficients.

Link Between Objective Legal Environment and Hospital Protocol

Variables. The OLE variable is the same as that used in the correlation analysis above. Existence of a protocol is represented by an indicator variable that is coded 1 if the protocol exists, and 0 otherwise. As indicated previously, 52% of the physicians in the sample reported the existence of a hospital protocol.

Analysis. The correlation between OLE and P is investigated by calculating sample Pearson correlation coefficients.

Physician Motivation

Variables. Variables used to address this aim include physicians' propensity to take the 10 specified actions as described above. Additionally, the physician survey included the question: "How important were the following (*seven*) factors in your decision(s) to act on your suspicions?" We loosely divided the motivation factors into two groups: those factors that are "patient-oriented" concerns, and those that are "externally-imposed." In the former group, we included: "Protect fetus/prevent fetal problems"; "Help patient see seriousness of problem"; "Stop substance use"; and "Get help for patient." In the "externally-imposed" motives category we included: "Legal requirement to report"; "Reporting policy or protocol where I work"; and "Fear of lawsuit if not reported." Responses were along a 4-point scale ranging from *very important* (response = 1) to *not at all important* (response = 4). For this study, these values were reversed such that higher responses indicate greater importance.

Analysis. Sample Pearson correlation coefficients are calculated between each of the 10 physician action variables and each of the 7 motivation variables.

RESULTS

The Impact of Hospital Protocol and Perceived Legal Environment on Physician Action

Our results show that the policy environment—expressed through a hospital protocol, perceived legal environment, or both—does influence physician propensity to act on suspected prenatal substance exposure. They also indicate that physicians are inclined to act in response to suspected PSE in some manner, regardless of their policy environment.

On Table I, under the heading "Unadjusted Propensity to Act," we present the raw means of the variables that record physicians' propensity to take action when PSE is suspected. The unadjusted means range from 1.19 (Ignore suspicions) to 3.85 (Run a tox screen), and most of them fall between 3 and 4, indicating that for most of the categories described under "physician actions," the sample respondents where between "somewhat likely" and "very likely" to react when suspecting PSE. It is interesting to note that the unadjusted mean for "Make a child abuse report" is 2.29, implying that in general, the physicians who responded to the survey are between "somewhat unlikely" and "somewhat likely" to employ this punitive measure.

We could not make a distinction between those physicians who answered that there was no legal requirement to report suspected PSE and that there was no hospital protocol, and those who said they did not know whether both existed or not. None of the coefficients corresponding to a "don't know" about HP or PLE in the full regression model (including interaction terms that contained "don't know" responses) were statistically significant at $p \leq 0.05$.

To assess the impact of the two policy environments (PLE and/or HP), the unadjusted propensity to act scores were modified to create adjusted scores based on the regression coefficients that were significant at $p \leq 0.05$ indicating predicted propensity to act when PSE is suspected. The physicians' reaction to suspected PSE, adjusted for the existence of hospital protocol and/or a perceived legal environment, is recorded in columns 3, 4, 5, and 6 in Table I, with column 3 indicating propensity to act among those

Table I. Estimated Physician Propensity to Respond to PSE Under Different Policy Environments

Decision variable	Unadjusted propensity to act[a]	Propensity to act adjusted by policy environment[b]			
		None	Protocol	PLE	Both
Ignore suspicions	1.19	1.19	1.19	1.19	1.19
Inform patient about PSE	3.45	3.23	3.52	3.23	3.52
Recommend HIV testing	3.47	3.34	3.58	3.34	3.58
Discuss treatment with patient	3.62	3.32	3.65	3.64	3.65
Establish nonuse contract with patient	2.38	2.00	2.42	2.00	2.42
Get a substance use history	3.81	3.71	3.84	3.71	3.84
Discuss with neonate's mother's doctor	3.61	3.61	3.61	3.61	3.61
Run a tox screen	3.85	3.72	3.84	3.82	3.94
Report patient to site-based resource	3.49	3.22	3.43	3.42	3.63
Make a child abuse report	2.29	2.11	1.72	2.66	2.66

[a] All figures range from 1 (*low*) to 4 (*high*).
[b] For the adjusted figures, any change from none is significant at the 5% level.

physicians who do not believe that a report is required or that a hospital protocol exists. For example, the average propensity of running a tox screen in the absence of both protocol and PLE is 3.72. When a protocol exists, this propensity increases to 3.84 (implying a statistically significant coefficient on protocol in this regression). Further, in the tox screen case, no statistically significant interaction between protocol and PLE was found, therefore the average propensity when both a protocol and PLE exist reflects the purely additive effects of protocol and PLE alone. In the case of physicians' propensity to ignore suspicions, the average propensity to act is the same in each case, indicating that none of the coefficients representing policy interventions were statistically significant at the 5% level (full data results are available from the authors upon request).

Derived from the data presented in Table I, Table II indicates the significant percentage change in physicians' propensity to act on PSE suspicions in the specified policy environments compared to the response of physicians who perceived that neither a protocol nor a legal reporting mandate exists.

Table II. Percentage Increase in Physicians' Propensity to Act When PSE is Suspected as a Function of Protocol and PLE

Decision variable	Protocol	PLE	Both
Ignore suspicions	0	0	0
Inform patient about PSE	9.0	0	9.0
Recommend HIV testing	7.2	0	7.2
Discuss treatment with patient	9.9	9.6	9.9
Establish nonuse contract with patient	21.0	0	21.0
Get a substance use history	3.5	0	3.5
Discuss with neonate's doctor	0	0	0
Run a tox screen	3.2	2.7	5.9
Report patient to site-based resource	6.5	6.2	12.7
Make a child abuse report	−18.5	26.1	26.1

Most notably, physicians who report a hospital protocol but no perceived legal environment are 9.9% more likely to discuss treatment with the patient (a patient-centered approach), 21.0% more likely to establish a nonuse contract with the patient (another patient-centered approach), and 18.5% less likely to make a child abuse report (a punitive approach) than physicians who report neither a protocol nor a PLE.

Physicians reporting a legal environment (but no protocol) are 9.6% more likely to discuss treatment with the patient and 26.1% more likely to make a child abuse report than physicians in the comparison group.

Note that regarding the action of making a child abuse report, an important interaction effect exists between the two policy factors. As seen in Table I, when physicians perceive the existence of both a protocol and a reporting mandate for PSE, the effect of the legal environment overwhelms the effect of a protocol, and leads to an increased likelihood of making a child abuse report that is equal in magnitude to the effect of a perceived child abuse-reporting mandate alone.

Agreement Between Objective Legal Environment and Perceived Legal Environment

We found a significant, but low correlation between OLE and PLE, which suggests that physicians do not have accurate knowledge of the legal environment in their respective states. The estimated Pearson correlation coefficient for variables PLE_y and OLE is 0.194, significant at the 5% level.

We also assessed whether physicians' propensity to act is related to their OLE (Mandatory Reporting,

Some State Action, and No State Action) through simple regression analysis. Our results indicate that physicians did not respond differentially based on the OLE (results not shown).

Relationship Between Objective Legal Environment and Hospital Protocol

There is a significant link between OLE and the existence of a hospital protocol, but it appears to be rather weak. The estimated Pearson correlation coefficient for variables HP_y and OLE is 0.136, significant at the 5% level.

Physician Motivation

In the final part of the analysis, we attempted to understand physicians' professional motivations for acting on their suspicions of PSE by analyzing the correlations between the 10 physician action variables and the 7 motivation variables described in the Methods section. The unadjusted sample mean scores for the action variables are shown in Table I, column 2, and were already discussed. The sample mean scores for the motivation variables are shown in Table III. The scores range from 1.93 (fear of a lawsuit) to 3.83 (get help for patient).

The correlations between action and motivation variables are summarized in Table IV. The table shows the value of all correlations that are significant at the 5% level.

Although most of the correlations are quite low, relatively significant correlations are found between physicians' propensity to take patient-centered action overall and specific motivations of protecting the fetus, helping the patient realize the seriousness of the problem, stopping substance abuse, and getting help for the patient—which are patient-oriented motivations. Punitive actions are also correlated with patient-oriented motivations, but such links are weaker than those in the former group.

Externally-imposed motivations (legal requirement to report, reporting policy at workplace, and fear of lawsuit if not reported) are mostly correlated with punitive actions. Motivation by a protocol is most highly correlated with running a tox screen, reporting the patient to a site-based resource, and making a child abuse report—actions that are punitive in that they involve the collection of potentially revealing evidence or the disclosure of the patient's substance use to third parties. Motivation by PLE seems to be most highly correlated to the same three actions, and the correlation with making a child abuse report is quite strong (0.39). Fear of lawsuit does correlate substantially with making a child abuse report (0.20).

Table III. Sample Means for Physicians' Reported Motivations to Act When PSE is Suspected

Physicians' motivation	Sample mean[a]
Protect fetus/prevent fetal problems	3.76
Help patient see seriousness of problem	3.62
Stop substance use	3.40
Get help for patient	3.83
Legal requirement to report	2.63
Reporting policy or protocol at workplace	2.59
Fear of lawsuit if not reported	1.93

[a] All figures range from 1 (*low*) to 4 (*high*).

DISCUSSION

Our results indicate that physicians are inclined to act in response to suspected PSE in some manner, regardless of their policy environment, and their actions are fairly evenly distributed between punitive and patient-centered approaches (Table I). Our results also show that both a perceived legal environment and a hospital protocol do influence physicians' behavior regarding PSE. However, the existence of a hospital protocol influences more broadly changes in physicians' response to PSE than a state legal mandate. As can be seen in Table II, with two exceptions ("Ignore suspicions" and "Discuss with neonate's doctor"), all actions categories were impacted by the existence of a legal environment, while only four actions categories were influenced by the existence of a legal environment. Further, a hospital protocol, except for the case of making a child abuse report, promotes larger changes in patient-centered than in punitive actions. In general, the existence of a legal environment promotes changes on a subset of punitive actions, the exception being "Discuss treatment with patient," as can be seen in Table II.

From Table IV, our results show that patient-centered actions are motivated by patient-oriented concerns, while reporting behavior and other punitive actions are more strongly related to externally-imposed compliance concerns. It is interesting to note that physicians seem unwilling to directly admit the influence of any external factors or compliance concerns in their decision making, including the existence of a protocol (even though such factors have in fact been shown to influence physician actions).

Table IV. Correlation Between Physicians' Response to PSE and Reported Motivations to Act[a]

	Ignore suspicions	Inform patient about PSE	Recommend HIV testing	Discuss treatment with patient	Establish nonuse contract with patient	Get a substance use history	Discuss with neonate's doctor	Run a tox screen	Report patient to site-based resource	Make a child abuse report
Protect fetus	−0.08	0.20	0.20	0.20	0.10	0.16	0.14	0.09	0.08	
Help patient realize seriousness of problem		0.29	0.25	0.24	0.12	0.26	0.13	0.06	0.10	0.08
Stop substance use		0.21	0.21	0.18	0.19	0.19	0.12	0.11	0.11	0.11
Get help for patient	−0.08	0.18	0.16	0.25	0.16	0.17	0.12	0.11	0.14	
Legal requirement to report								0.13	0.12	0.39
Reporting policy at workplace								0.16	0.20	0.25
Fear of lawsuit if not reported	0.11					−0.08				0.20

[a]All figures are significant at the 5% level.

Because of the rather weak link between the objective and the perceived legal environment, our findings suggest that physicians are not knowledgeable about the legal mandate in their state regarding PSE, so they can only act on their perceptions. The message that laws regarding PSE exist apparently does not reliably reach physicians, although our findings indicate that physician behavior would be influenced by them if the message were received.

Although weak, we also found a significant link between the existence of state laws and hospital protocols regarding PSE, thus suggesting that having a state legal mandate concerning PSE might influence the creation of hospital protocols.

Taken together, these results suggest a policy strategy focused first on enacting laws that would stimulate a patient-centered approach by developing and using hospital protocols to implement state policy and then on educating physicians about the actual legal environment around PSE. Although the latter may be easier than the former, we emphasize the use of protocols to increase a physician's propensity to detect substance use and take a patient-focused action in response. Detection efforts are a first crucial step in getting help for substance-using women and their children.

Limitations of the Study

Although we believe that our findings and conclusions are robust, some limitations on our study must be mentioned. First, in order to carry out our analysis, in several occasions we had to lump diverse responses and categories into a single variable, thus losing resolution. For example, the existence of a state legal environment was analyzed as a Yes/No variable, while, in reality, the states laws show different levels of punitive actions concerning PSE, which might affect differentially physicians' response.

Additionally, the subject of prenatal substance exposure is a very complex one. In this study we have focused on specific policy levers and response actions. As a result, our conceptual framework makes no attempt to encompass every factor pertaining to PSE.

Finally, the generalizability of our results is limited by the accuracy of the study sample and the rapidly changing policy environment in which PSE is immersed.

Policy Responses

State Legislation

Despite the recent tendency for states to shift from a patient-focused approach to more punitive approaches, our results suggest that physicians are more likely to respond to PSE by counseling and warning patients and by recommending drug treatment (i.e., a patient-focused approach) than by making a child abuse report or referral for criminal prosecution, irrespective of the existence of a protocol or any legal reporting mandate. According to our survey results, an important motivation for a patient-centered approach is that physicians believe that these responses are helpful to patients, as opposed to punitive measure, which physicians perceived as externally imposed. This suggests that policymakers are likely to engender greater physician support and cooperation with a patient-centered approach than with more punitive policies.

Thus, state legislators should shift their strategy away from a punitive approach toward a patient-centered approach. States can accomplish this in two ways. First, legislation can define PSE as evidence of child abuse with a mandate to state child welfare agencies that patient-centered interventions, including referral for treatment, must be implemented before a finding of child maltreatment can be made. Second, the state should mandate the development and implementation of hospital PSE protocols, which we discuss further in the next section. The use of protocols is especially important given our finding that the objective legal environment made no difference in a physician's likely response to suspected PSE.

Protocol Development and Implementation

Our results indicate that the existence of a hospital protocol is associated with greater inclination to act in response to suspected PSE. Unfortunately, only half (52%) of the physicians surveyed reported that there is a protocol covering some aspect of PSE, while 27% reported no protocol, and 21% did not know. However, further analysis of these protocols indicates that they are not as clear and informative as they might be (8). Even more than changing the state's legal environment, the development and implementation of protocols presents an opportunity for the health care system to develop a coherent approach to

PSE. There is an emerging consensus that protocols can be effective mechanisms through which medical practice variation may be diminished, quality of care enhanced, and the cost of care contained (10). Protocols also help hospital staff overcome the many disincentives that they may perceive to pursuing suspected PSE. Protocols also present opportunities for hospital management, staff, and physicians to develop consensus on how to identify, treat, manage, and refer pregnant or maternal substance users and their fetuses or infants. In this sense, a PSE protocol sends dual messages of concern for maternal and fetal health and possibilities for help.

Several barriers to the effective use of protocols must be addressed by policymakers. To date, clinical practice guidelines have been difficult to implement for a variety of reasons. Our results suggest that PSE protocols may be even more difficult to implement because of beliefs that prenatal exposure rarely occurs; staff can be trusted to respond in an appropriate professional manner; the lack of available treatment facilities for referral; and concerns about patient–physician relationships (6).

To surmount these barriers, as recommended above, state legislatures should mandate the use of PSE protocols in all hospitals with a labor and delivery service. This can be achieved by mandating the appropriate state agency to develop a model protocol to be enforced by county child welfare agencies, or by delegating the county agencies to work with local hospitals to design them. In either event, it will be important to include staff training on the protocols and compliance monitoring of them as part of the mandate.

Education

Given that only 52% of physicians report a protocol and the absence of a strong correlation between actual and perceived legal environment, we conclude that there is not a strong policy message to physicians concerning response expectations for PSE. Since physicians are more likely to be aware of the existence of a protocol than to accurately understand their state's legal environment, better mechanisms for communicating the state's legal environment would enhance the probability of a response.

Legislatures in every state have created a clear signal to physicians about what is expected of them when child maltreatment is suspected through mandated child abuse reporting laws. These laws require physicians and other professionals likely to come into contact with children to make reports to Child Protective Services or to law enforcement. As yet, there is no equivalent legislative policy message with regard to PSE, despite the fact that PSE shares many attributes with child maltreatment. Since it appears that physicians act in response to the perceived legal environment, policymakers should deal with PSE by first educating physicians about the state's objective legal environment.

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