Differing Attitudes Toward Fetal Care by Pediatric and Maternal-Fetal Medicine Specialists

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**KEY WORDS:** prenatal care, pediatrics, pregnancy complications, treatment refusal, attitudes

**ABBREVIATIONS**

AAP—American Academy of Pediatrics
AZT—azidothymidine
FCP—fetal care pediatrics specialist
MFM—maternal-fetal medicine specialist

Dr Brown, as principal investigator, obtained funding for this study and developed the concept with substantial contribution from Drs Donelan and Ecker. Drs Brown, Donelan, and Ecker developed the survey instrument, with substantial contributions from Drs Buchmiller, Sayeed, and Ms Mitchell. Dr Donelan coordinated the fieldwork with Harris Interactive. Dr Martins and Ms Burmeister conducted the analysis, with guidance and feedback from Drs Brown, Donelan, and Ecker. Drs Brown, Donelan, Ecker, Martins, and Ms Burmeister were involved in the interpretation of the data. Dr Brown drafted the article. Drs Donelan, Martins, Buchmiller, Sayeed, and Ecker, and Ms Burmeister and Ms Mitchell critically reviewed the article and suggested revisions. Each author approved the final version for submission to *PEDIATRICS*.

www.pediatrics.org/cgi/doi/10.1542/peds.2012-1352
doi:10.1542/peds.2012-1352

Accepted for publication Jul 24, 2012

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PEDIATRICS (ISSN Numbers: Print, 0031-4005; Online, 1098-4275).

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**FINANCIAL DISCLOSURE:** The authors have indicated they have no financial relationships relevant to this article to disclose.

**FUNDING:** Funding was provided by grants from the Greenwall Foundation, the Kornfeld Program in Bioethics and Patient Care, and the Harvard University Milton Fund. Dr Brown received salary support from the American Roentgen Ray Society Leonard Berlin Scholarship in Medical Professionalism, and a Faculty Career Development Award, Office of Faculty Development, Boston Children’s Hospital.

**WHAT’S KNOWN ON THIS SUBJECT:** Pediatric specialists are increasingly involved in prenatal care, particularly for congenital fetal conditions. Questions remain about pediatricians’ role in the management of maternal conditions that may affect postnatal health, and the attitudes of obstetric and pediatric specialists around such care.

**WHAT THIS STUDY ADDS:** Obstetric and pediatric specialists’ attitudes differ substantially regarding pediatricians’ role in providing consultation for maternal conditions that may affect a child’s health postnatally, and regarding whether court authorization may be appropriate when a woman refuses certain treatment recommendations.

**OBJECTIVES:** The expansion of pediatric-based fetal care raises questions regarding pediatric specialists’ involvement in pregnancies when maternal conditions may affect pediatric outcomes. For several such conditions, we compared pediatric and obstetric specialists’ attitudes regarding whether and when pediatrics consultation should be offered and their views about seeking court authorization to override maternal refusal of physician recommendations.

**METHODS:** We used a mail survey of 434 maternal-fetal medicine specialists (MFM) and fetal care pediatrics specialists (FCP) (response rate: MFM, 60.9%; FCP, 54.2%).

**RESULTS:** FCPs were more likely than MFMs to indicate that pediatric counseling should occur before decisions regarding continuing or interrupting pregnancies complicated by maternal alcohol abuse (FCP versus MFM: 63% vs 36%), cocaine abuse (FCP versus MFM: 60% vs 32%), use of seizure medications (FCP versus MFM: 62% vs 33%), and diabetes (FCP versus MFM: 56% vs 27%) (all *P* < .001). For all conditions, MFMs were more than twice as likely as FCPs to think that no pediatric specialist consultation was ever necessary. FCPs were more likely to agree that seeking court interventions was appropriate for maternal refusal to enter a program to discontinue cocaine use (FCP versus MFM: 72% vs 33%), refusal of azidothymidine to prevent perinatal HIV transmission (80% vs 41%), and refusal of percutaneous transfusion for fetal anemia (62% vs 28%) (all *P* < .001).

**CONCLUSIONS:** Pediatric and obstetric specialists differ considerably regarding pediatric specialists’ role in prenatal care for maternal conditions, and regarding whether to seek judicial intervention for maternal refusal of recommended treatment. *PEDIATRICS* 2012;130:1–7

abstract

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Pediatric specialists have become increasingly engaged in the care of pregnancies complicated by congenital fetal conditions. Pediatric-based fetal care first emerged with efforts to develop intrauterine interventions to treat fetal surgical conditions such as congenital diaphragmatic hernia and spina bifida. Fetal care centers’ provision of imaging services such as fetal MRI has further broadened the scope of fetal care pediatrics. Pregnant women carrying fetuses with a range of surgical and nonsurgical fetal conditions are now increasingly referred to pediatric subspecialists who, in some cases, refine the fetal diagnosis, and, in most cases, provide further counseling on the conditions and their expected short- and long-term postnatal sequelae. With such counseling no longer the sole domain of obstetricians, the possibility arises that pediatric specialists may provide counseling that sometimes contrasts with that of their obstetric counterparts.

Fetal conditions currently cared for at fetal care centers (eg, Down syndrome, congenital diaphragmatic hernia, and spina bifida) are rare compared with many maternal conditions (eg, diabetes, substance use, and abuse) that also are known to affect a child’s health postnatally. As increasing attention is paid to how the intrauterine environment shapes postnatal health and development, the range of recognized maternally derived (and paternally derived) antecedents to postnatal well-being will likely expand considerably. The growing interest in how maternal conditions influence pediatric outcomes raises important questions about the scope of pediatric-based fetal care. For example, should pregnancy management include pediatric specialist consultation when maternal conditions exist that may affect the future child’s postnatal medical care? The American Academy of Pediatrics (AAP) has long suggested that pediatricians have an important role in providing guidance and support prenatally to prospective parents, including over issues of maternal obesity and substance abuse. However, the AAP has not addressed how such counseling should be structured. For example, when in pregnancy should such consultation occur?

If pediatric specialists assume consultative roles for maternal conditions during pregnancy, these specialists will be positioned to recommend treatments that a pregnant woman might undertake to benefit the future child. Proposed interventions might include smoking cessation, tighter nutritional control, adjustment in seizure medications, or entry into a program for alcohol or cocaine addiction. Compared with intrauterine congenital diaphragmatic hernia or spina bifida repair, these interventions for maternal conditions carry lower likelihoods of risk and potentially higher likelihoods of benefit for both the pregnant woman and future child. It is unknown whether pediatric and obstetric specialists’ counseling will differ over such issues. Because pediatric and obstetric specialists practice within distinctly different professional cultural milieux, a question arises regarding whether pregnant women will face different degrees of expectations about adherence to treatment recommendations depending on whether consulting physicians are pediatric or obstetric specialists. Specifically, might pediatric and obstetric specialists differ in their willingness to seek court intervention in an effort to compel maternal compliance when women fail to adhere to treatments that are recommended for fetal benefit?

Questions about the appropriate role of pediatric specialists in the management of maternally mediated pregnancy conditions remain largely unaddressed, as do questions about providers’ expectations regarding maternal compliance with physician recommendations around such care. We, therefore, sought to explore these questions by using a survey of FCPs and obstetric-based maternal-fetal medicine specialists (MFM) in the United States.

METHODS

This study’s primary objectives were to (1) compare the attitudes of FCPs and MFMs regarding the appropriate timing of pediatrics referral for various maternal conditions during pregnancy and (2) compare these specialists’ attitudes regarding the appropriateness of seeking court authorization to override maternal refusal of physician recommendations for treatments that are of proven benefit to the fetus and low or minimal risk for the pregnant woman. Our secondary objectives were to determine whether, if such binary differences exist, they persist after considering their association with and potential confounding by demographic and other variables.

From November 2009 to February 2010, we mailed confidential, self-administered, 8-page, 106-item questionnaires to 454 MFMs and 416 FCPs in 21 states. Because no “gold standard” national FCP listing exists, we performed multistage Web-based searches to create a comprehensive population census listing of FCPs practicing within fetal care or fetal treatment centers in the United States. We used the American Medical Association Masterfile to compile a random sample of MFMs after they were matched to the last 3 zip codes of the FCP population, and matched to the age and gender of MFMs nationally. The questionnaire addressed practitioners’ practices and attitudes about pregnancy management in various contexts. Up to 3 separate mailings were sent; the first included a $70 incentive. The Boston Children’s Hospital Clinical Investigation Committee (institutional review board) approved this study. The methods have been detailed previously.
management of pregnancies with antenatally diagnosed congenital conditions. The first set of primary outcome variables analyzed in our present study were physician responses to a series of questions about when pregnant women should be counseled by pediatric specialists in the setting of maternal conditions that may affect neonatal or pediatric health. Specifically, we asked whether and when pregnancies at risk should be seen and counseled by pediatric specialists with relevant clinical expertise caring for children affected prenatally by (1) maternal alcohol abuse, (2) maternal cocaine abuse, (3) maternal use of seizure medications, and (4) maternal diabetes. We asked whether such counseling should occur (1) before a decision about continuing or terminating the pregnancy, (2) only if the decision has been made to continue the pregnancy, (3) only after delivery, or (4) never. For analysis, responses were collapsed to “prior to decision about continuing or terminating pregnancy” or “other” based on underlying distributions. The second set of outcome variables analyzed here were physician responses regarding the appropriateness of seeking court intervention to compel adherence when a pregnant woman has decided to continue a pregnancy but refused to comply with recommendations regarding the following: (1) a program to discontinue cocaine use at 25 weeks; (2) azidothymidine (AZT) therapy to prevent perinatal transmission of HIV at term; and (3) percutaneous transfusion for fetal anemia secondary to Rh isoimmunization at 25 weeks. Specifically, we asked whether physicians (1) “strongly agree,” (2) “agree,” (3) “disagree,” or (4) “strongly disagree” with the appropriateness of seeking court interventions to compel the woman to comply with these treatments. For analysis, responses were collapsed to “strongly agree/agree” or “disagree/strongly disagree.” We used logistic regressions to assess whether FCP/MFM differences (where significant) persisted in the presence of various demographic variables. Demographic variables were added by using a backward elimination variable selection procedure. They included age, gender, race/ethnicity (white, non-Hispanic versus others), self or close family or personal friend with disability (versus none), income (< or ≥ $300,000/year), political ideology (liberal versus conservative or moderate), and religiosity (not at all religious versus very, somewhat, or not very strong).

RESULTS

Two hundred forty-two MFMs and 192 FCPs completed the survey; response rates were 60.9% and 54.2%, respectively. A thorough description of this sample’s demographics is provided elsewhere. Sixty-five percent of FCPs and 55% of MFMs were men. The respective average ages of FCPs and MFMs were 49.8 and 52 years. MFM and FCP respondents did not differ regarding income, race/ethnicity, personal experience with disability, religious affiliation, religiosity, political affiliation, or political ideology.

TABLE 1  FCPs and MFMs Responses to Timing of Pediatrics Consultation

<table>
<thead>
<tr>
<th>Maternal Alcohol Abuse</th>
<th>FCP, % (n = 192)</th>
<th>MFM, % (n = 242)</th>
<th>Odds Ratio</th>
<th>95% Confidence Interval</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Consult before any decision</td>
<td>63.1</td>
<td>35.9</td>
<td>3.5</td>
<td>2.2–5.4</td>
<td>.000</td>
</tr>
<tr>
<td>All other responses</td>
<td>36.9</td>
<td>64.1</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Maternal Cocaine Abuse</td>
<td>Consult before any decision</td>
<td>59.7</td>
<td>31.9</td>
<td>3.5</td>
<td>2.3–5.4</td>
</tr>
<tr>
<td>All other responses</td>
<td>40.3</td>
<td>68.1</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Maternal Use of Seizure Medications</td>
<td>Consult before any decision</td>
<td>62.1</td>
<td>32.8</td>
<td>3.3</td>
<td>2.2–5.0</td>
</tr>
<tr>
<td>All other responses</td>
<td>37.9</td>
<td>67.2</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Maternal Diabetes</td>
<td>Consult before any decision</td>
<td>56.5</td>
<td>27.4</td>
<td>3.5</td>
<td>2.4–5.4</td>
</tr>
<tr>
<td>All other responses</td>
<td>43.5</td>
<td>72.6</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
</tbody>
</table>

Respondents answered the following question: “At what point, if ever, should a pregnant woman be counseled by a pediatric specialist with relevant clinical expertise caring for affected children?”

* Significant difference (P < .05) between FCPs and MFMs, using logistic regressions, when significant demographic variables are included. Missing responses are excluded from analysis.
Predicting odds of responding that counseling should occur before any decision to continue or terminate a pregnancy complicated by each of the above conditions compared with all other responses. Age, race/ethnicity, gender, political ideology, and religiosity were nonsignificant for these analyses and thus were removed during the backward elimination procedure. Sample group was included in these analyses (Table 1). Empty cells indicate that these variables were not significant and thus were removed during the backward elimination procedure.

vs 55%) and maternal cocaine abuse (36% vs 50%). For maternal diabetes and use of seizure medications, physicians reporting personal experience with disability were much more likely than those reporting none to respond that counseling should occur before any decision (diabetes: 54% vs 35%; seizure: 56% vs 42%, respectively). No other personal or demographic variables, including political ideology and religiosity, correlated with responses regarding appropriate timing of pediatric specialist consultation across the maternal conditions studied.

### Appropriateness of Court Intervention

We next compared responses when MFM and FCP physicians were asked to assess the appropriateness of seeking court authorization to compel treatment in clinical practice situations where a pregnant woman has decided to continue a pregnancy but has refused to adhere to physician treatment recommendations (Table 3). Compared with MFM physicians, FCPs were significantly more likely to indicate agreement that it was appropriate to seek court interventions for maternal refusal to enter a cocaine cessation program at 25 weeks, maternal refusal of AZT therapy to prevent perinatal transmission of HIV at term, and maternal refusal of percutaneous transfusion for fetal anemia secondary to Rh isoimmunization at 25 weeks.

We again used logistic regression to assess whether these FCP/MFM differences persisted in the presence of various demographic variables (Table 4). For maternal refusal to enter a cocaine cessation program at 25 weeks, conservatives (60%) and moderates (51%), compared with liberals (43%), were more likely to agree that it is appropriate to seek court intervention. Moderates (46%), compared with liberals (37%), were more likely to agree that seeking court intervention is appropriate in cases of maternal refusal of percutaneous transfusion for fetal anemia secondary to Rh isoimmunization at 25 weeks. Physicians with very strong religiosity (64%) and somewhat strong religiosity (62%) were considerably more likely than those who were not at all religious (50%) to agree that it is appropriate to seek court intervention for maternal refusal of AZT therapy to prevent perinatal transmission of HIV at term. Fifty-four percent of white, non-Hispanic physicians (74% of the entire sample) agreed that it is appropriate to seek court intervention for refusal of AZT, compared with 72% of physicians from other race/ethnicities. No other demographic variables predicted responses to the appropriateness of seeking court intervention for the 3 situations assessed.

### DISCUSSION

In this national survey, we found differences in the attitudes of FCPs and MFM physicians regarding 2 key aspects of pregnancy management. FCPs and MFM physicians differed about when, if ever, pediatric consultation should occur for pregnancies in which a maternal condition may affect the health and development of the future child. They also differed in their attitudes regarding the use of court intervention when pregnant women refuse to adhere to clinical recommendations for generally well-established and low risk interventions to treat maternal conditions during pregnancy. Our results point to divergent professional cultures and/or understandings between
TABLE 4 Association of Demographic Characteristics With Attitudes Regarding Appropriateness of Court Authorization for Maternal Refusal of Physician Recommendations

<table>
<thead>
<tr>
<th>Ideology</th>
<th>Race/Ethnicity</th>
<th>Religiosity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conservative (vs Liberal)</td>
<td>Moderate (vs Liberal)</td>
<td>White, Non-Hispanic (vs Other)</td>
</tr>
<tr>
<td>OR 95% CI</td>
<td>OR 95% CI</td>
<td>OR 95% CI</td>
</tr>
<tr>
<td>Maternal refusal to enter a program to discontinue cocaine use at 25 wk</td>
<td>2.4**</td>
<td>1.4–4.3</td>
</tr>
<tr>
<td>Maternal refusal of AZT therapy to prevent perinatal transmission of HIV at term</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Maternal refusal of percutaneous transfusion for fetal anemia secondary to Rh isoimmunization at 25 wk</td>
<td>1.7</td>
<td>1.0–2.9</td>
</tr>
</tbody>
</table>

CI, confidence interval; OR, odds ratio. Predicting odds of responding that counseling should occur before any decision to continue or terminate a pregnancy complicated by each of the above conditions compared with all other responses. Age, gender, income, and personal experience with disability were nonsignificant for all analyses. Sample group was included in these analyses (Table 5). Empty cells indicate that these variables were not significant and therefore not included in the final analysis.

* P < .05. ** P < .01.

The pediatric and obstetric specialists around some important clinical, legal, and ethical aspects of prenatal care.

To date, few studies have compared obstetric and pediatric specialists’ attitudes regarding pregnancy management in the context of pregnancies complicated by maternal conditions that could affect the health of the future child. To our knowledge, no studies have evaluated either obstetric or pediatric specialists’ attitudes about whether pediatric specialists should be consulted for these conditions. A 2009 AAP Clinical Report describes a role for pediatricians in identifying and discussing such high-risk prenatal maternal conditions as drug abuse and obesity. The report appears directed toward general pediatricians and does not state when prenatal visits should occur. Such counseling by pediatric specialists, particularly at a point in pregnancy optimal for effective prenatal interventions, would represent a significant shift in the current care paradigm.

Pediatric specialists at the forefront of prenatal diagnosis and therapy have long claimed that medical innovations in prenatal diagnosis and therapy will ultimately blur the boundaries between obstetrics and pediatrics, insofar as the well-being of the fetus and future child are concerned. Much current research exploring the prenatal antecedents to postnatal health emanates from institutions with a strong pediatric focus. Over time, such investigations may lead practitioners within these institutions to acquire novel perspectives about the conditions or to develop management alternatives not available elsewhere. These developments may bring more pregnant women to pediatric centers in the context of pregnancies complicated by maternal conditions. If pediatric practitioners are more routinely brought into consultations for maternal conditions such as alcohol abuse, our data raise questions about any unique attitudes pediatric providers may have and suggest an important issue to consider in association with any expansion of pediatric-based fetal care.

Our finding that, for pregnancies complicated by maternal alcohol or cocaine abuse, use of anticonvulsants, or diabetes, many MFMs in this study did not think pediatric specialist consultation should occur even after birth, whereas many FCPs thought consultation should occur before a decision to continue or terminate the pregnancy, may reflect fundamental differences in understandings of the conditions, the proper role of pediatric specialists in prenatal and postnatal decision-making, or both. These findings resemble our previously reported results that demonstrated MFM and FCP differences in attitudes about the timing of prenatal consultation for Down syndrome. As with Down syndrome, our current data suggest that MFM and FCP practitioners may harbor contrasting clinical perspectives about the pediatric consequences of specific maternal conditions.

One important difference between fetal conditions we have previously studied, such as Down syndrome, spina bifida, and congenital diaphragmatic hernia, and those outcomes that may derive from maternal health or behavior, is the likelihood that the future child will be affected. All children with spina bifida, congenital hernia, and Down syndrome will have postnatal physical and/or developmental/intellectual impairments, albeit variable in severity. In contrast, many, if not most, children born to women with diabetes or who use alcohol and cocaine during pregnancy will be unaffected. Thus, our demonstrated differences between FCPs and MFMs regarding pediatric consultation for maternal conditions may not
only reflect different understandings about the conditions per se, but also, the likelihood of postnatal consequences.

Existing data are also scant comparing obstetric and pediatric specialists’ attitudes around the use of legal remedies to compel or punish maternal behaviors during pregnancy. One study revealed that pediatricians are more likely than obstetricians to think that illicit drug use and alcohol abuse during pregnancy should be considered “child abuse” for the purpose of removing the child from maternal custody. Unlike punitive measures, such as filing child abuse reports for maternal drug abuse, the treatment recommendations we evaluated here (a cessation program for cocaine abuse, perinatal AZT therapy, and percutaneous transfusions for fetal anemia) present near-minimal maternal risk, have well-established benefits to the postnatal health of children, and/or are considered standard of care. Even so, these treatments represent a range of burden and invasiveness to patients. Responses may have reflected practitioners’ perceptions of risk for each specific treatment. This may explain the observed trend toward less agreement with court intervention for refusal of transfusions, compared with the other interventions.

To our knowledge, no previous studies have compared pediatric and obstetric specialists’ attitudes about legal recourse for maternal noncompliance with such standard treatment recommendations. Our findings raise a vital question of whether pediatrics specialists, if they assume greater roles as prenatal consultants for maternal conditions, will harbor expectations of maternal compliance with their recommendations that are stronger than the expectations of their obstetric counterparts. As fetal care evolves, pediatric and obstetric practitioners (and their respective institutions and professional organizations) should recognize gaps in knowledge, understanding, and values, and work toward consensus reflecting best medical evidence and legal precedent. Local institutional practices and broader professional policies should promote pregnant patients’ cognizance of professional differences when evidence and precedent are lacking. Further, they should support patients’ abilities to make well-informed decisions accordant with patients’ values and free from coercion.

Our data could reflect earnestly held, divergent perceptions of ethical or professional obligations among individual practitioners or between specialties. It is important to note, however, that seeking court authorization to compel maternal behavior during pregnancy is discordant with the most recent related obstetric and pediatric professional guidelines and with long-established legal precedent. Moreover, despite rigorous challenges, upper courts have generally supported the rights of women who refuse medical interventions. In the limited population of physicians sampled in this survey, it is not possible to know whether those who agreed with court authorization for maternal refusal are unaware of current normative standards or disagree with them. Regardless, our results suggest that collaborative educational initiatives would help to bring MFM to similar understandings of the normative foundations underpinning the care of pregnant patients.

Our multivariate analyses suggest that the binary differences demonstrated between FCPs and MFM persist after controlling for religion and ideology, as well as other important physician demographics. Our model demonstrates inconsistent results regarding what demographic characteristics, beyond specialty orientation, predict the attitudes probed in this survey. This study’s limitations have been detailed previously. Some are characteristic of physician surveys in which reported attitudes may not reflect actual practice and in which selection and response biases may confound data. The rapid evolution in the composition and distribution of pediatric-based fetal care centers may have created imprecision in the sample and have contributed to the slightly lower response rate for FCPs.

CONCLUSIONS
Our results suggest that obstetric and pediatric specialists’ attitudes differ substantially about pregnancy management for maternal conditions that may affect a child’s health postnatally. FCPs and MFM possess contrasting views regarding pediatricians’ role in providing consultation for these conditions, and FCPs are more likely to agree that court authorization may be appropriate when a woman refuses certain treatment recommendations. These findings merit attention as pediatric specialists become increasingly incorporated into prenatal care. Where interdisciplinary differences persist, patients should be informed.

ACKNOWLEDGMENT
Sandra Applebaum, MS, led the fieldwork team from Harris Interactive and provided key assistance throughout this project.

REFERENCES

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*Pediatrics*; originally published online November 5, 2012; DOI: 10.1542/peds.2012-1352

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