In the

SUPREME COURT OF THE STATE OF SOUTH CAROLINA

STATE OF SOUTH CAROLINA,
Respondent,

v.

BRENDA KAY PEPPERS,
Appellant.

Case No. 98-GS-30-0809

Appeal from Laurens County

Court of General Sessions

Larry R. Patterson, Circuit Court Judge

MOTION OF AMERICAN PUBLIC HEALTH ASSOCIATION ET AL., TO ADD NATIONAL ASSOCIATION OF SOCIAL WORKERS, INC. AND SOUTH CAROLINA NATIONAL ASSOCIATION OF SOCIAL WORKERS, INC., AS AMICI CURIAE IN SUPPORT OF APPELLANT, BRENDA KAY PEPPERS

Amici Curiae American Public Health Association et al., move for leave to add the National Association of Social Workers, Inc. ("NASW"), and its South Carolina chapter as Amici Curiae to the Amicus Brief filed in support of Appellant, Brenda Kay Peppers in the above captioned case.

This motion is necessary because NASW and its state affiliate requested to join as Amici Curiae after the Amicus Brief had been sent to the printer for binding. NASW and its affiliate have extensive experience working with pregnant women who use drugs and advocating to ensure the health of pregnant women, children, and fetuses. NASW strongly believes that punitive measures against women who are pregnant and use drugs are antiethical to the principles of social work and public health, and wish to add their support to this Amicus Brief. Accordingly, Amici request that the

Court grant this motion to include NASW and its state affiliate as Amici and accept the attached amended caption page and page v of Appendix A to the Amicus Brief.

Dated: May 9, 2001

Respectfully submitted,

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BRIEF AS AMICI CURIAE IN SUPPORT OF APPELLANT, BRENDA PEPPERS

SUBMITTED BY

AMERICAN PUBLIC HEALTH ASSOCIATION, SOUTH CAROLINA MEDICAL ASSOCIATION, AMERICAN NURSES ASSOCIATION, SOUTH CAROLINA NURSES ASSOCIATION, AMERICAN ACADEMY ON PHYSICIAN AND PATIENT, AMERICAN ACADEMY OF ADDICTION PSYCHIATRY, ASSOCIATION OF MATERNAL AND CHILD HEALTH PROGRAMS, INSTITUTE FOR HEALTH AND RECOVERY, IRA J. CHASNOFF, M.D., NATIONAL ASSOCIATION OF SOCIAL WORKERS, INC., SOUTH CAROLINA NATIONAL ASSOCIATION OF SOCIAL WORKERS, INC.

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Amicus Curiae National Association of Social Workers, Inc. ("NASW") is the world's largest association of professional social workers with over 155,000 members in fifty-five chapters throughout the United States and abroad. Founded in 1955, NASW is devoted to promoting the quality and effectiveness of social work practice, advancing the knowledge base of the social work profession, and improving the quality of life through utilization of social work knowledge and skills.

Amicus Curiae South Carolina National Association of Social Workers, Inc. ("SC NASW") is the South Carolina chapter of NASW and has over 1,300 members. SC NASW believes that the expansion of law enforcement into the treatment context and the blurring of lines between prenatal/obstetrical care providers and law enforcement is inimical to family stability and counter to the best interests of the child.

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INTRODUCTION

This brief Amici Curiae is filed by medical and public health professionals in support of Brenda Kay Peppers' appeal of her conviction for unlawful conduct towards a child; a charge levied against Ms. Peppers for being pregnant and using cocaine. It is Amici's firm belief that the legal basis for Ms. Peppers' prosecution and conviction, namely, this Court's decision in South Carolina v. Whitner, 492 S.E.2d 777 (S.C. 1997), cert. denied, 118 S.Ct. 1857 (1998), lacks scientific validity, is undercut by the United States Supreme Court's recent opinion in Ferguson v. City of Charleston, South Carolina, 121 S.Ct. 1281 (2001), and is causing substantial harm to the very health interests the panel majority professes to protect. For these reasons, explained more fully below, Amici respectfully request that this Court overturn the Whitner decision and direct the trial court to grant Ms. Peppers' motion to quash her indictment.

INTEREST OF AMICI CURIAE

The legal issues presented by Ms. Peppers' conviction cannot properly be decided in isolation from the scientific, medical, and public health contexts in which her prosecution is rooted. The just resolution of these issues depends on an understanding of these contexts and an appreciation of

adverse consequences this Court's decision in this case can have on the health of South Carolinians, particularly pregnant and parenting women.

Amici are state and national professional associations of physicians, nurses, public health officers, substance abuse treatment professionals, and medical researchers that have a keen understanding of issues of substance abuse, pregnancy, neonatal health, and medical ethics.[1] Amicus Curiae Ira Chasnoff, M.D., a leading physician, researcher and author in the field of prenatal drug exposure, appears in his individual capacity to inveigh against the erroneous reliance by the Whitner Court on his research, and that of his peers, in ostensible support of its flawed and dangerous opinion. 492 S.E.2d at 782.

While there is great variety among Amici as to experience, expertise, and perspective on medical, scientific, and public health issues, Amici are united in their condemnation of South Carolina's prosecution of pregnant drug users and the Whitner decision. Amici join together in this brief to explain why the prosecution under S.C. Code § 20-7-50 of women who ingest drugs, particularly cocaine, while pregnant, flies in the face of good medicine. Amici additionally join in informing this Court of the significant damage that the application of the Whitner decision has already wrought,

[1] Descriptions of the Amici are set forth as Appendix A to this brief.

and the considerable danger it portends for treatment professionals and their patients.

STATEMENT OF THE CASE

On September 30, 1996 Brenda Kay Peppers suffered a stillbirth. At the time, Ms. Peppers had been diagnosed with the HELLP Syndrome, Rec. on App. at 13, ll 9-10, a pregnancy-related, life-threatening condition for both mother and fetus characterized by hemolysis ("H") (the breaking down of red blood cells), elevated liver enzymes ("EL"), and low platelet count ("LP").

In July 1998, the Attorney General of South Carolina indicted Ms. Peppers on a charge of Unlawful Conduct Towards a Child in violation of S. C. Code § 20-7-50. The charge was based upon the fact that the stillborn fetus was found to have traces of cocaine in its system. According to the State, the alleged offense occurred between June 30, 1996 and September 30, 1996. On June 10, 1999, Ms. Peppers moved to quash the indictment on the ground that it failed to allege a cognizable crime, in violation of the state and federal constitutions. The trial court denied her motion.

Ms. Peppers then entered a plea of guilty and was given a two years suspended sentence and two years probation. At the time of her plea, the

State acknowledged that it had no proof that cocaine adversely affected the health of Ms. Peppers' fetus or precipitated the stillbirth, of its own accord or in conjunction with the HELLP Syndrome. Rec. on App. at 13, ll 7-25.

On June 18, 1999, Ms. Peppers filed her Notice of Intent to Appeal. In November 2000 Ms. Peppers' appeal was certified to the South Carolina Supreme Court, upon its own motion and pursuant to the provisions of Rule 204(b) of the South Carolina Appellate Court Rules. On April 23, 2001, this Court granted the motion of Amici Curiae for leave to file this brief.

SUMMARY OF ARGUMENT

Amici are firmly convinced, based on years of clinical experience and rigorous scientific study, that prosecutions such as the one at issue here are medically unsound and yield adverse health consequences, particularly for the women and children whose interests they purportedly protect.

South Carolina's Supreme Court stands alone among the fifty states in permitting the prosecution, conviction, and punishment for child endangerment of pregnant drug users for ingesting substances on which they are dependent. The highest courts of every other state to have addressed this issue have repudiated the approach taken in Whitner. Moreover, this term the United States Supreme Court called into question the fundamental

underpinning of South Carolina's prosecutions of women for drug use during pregnancy. See Ferguson v. City Of Charleston, 121 S.Ct. 1281 (2001). In so doing, the Court observed that the leading medical and public health organizations had all rejected South Carolina's policy as deeply flawed and counterproductive to the health and well-being of women, fetuses, and children. See e.g., Ferguson infra at 1292, n 23. See also Amicus Brief of the American Medical Association to the South Carolina Supreme Court, South Carolina v. Whitner, No. 24468 (filed September 28, 1994).

In the case at bar, this Court has the opportunity to re-visit the Whitner decision, jettison the position adopted by the narrow majority in that case, and join the medical and public health community and other state courts in a reasonable and well-founded approach to dealing with drug use during pregnancy.

The assumption that animates the prosecution of Brenda Kay Peppers – that the dangers of maternal cocaine use are fundamentally different from or more serious than other behaviors that may pose risk of fetal harm – has been shown to lack scientific basis. While not denying the obvious advisability of protecting fetuses from exposure to potential teratogens, Amici bring to this Court's attention the fact that the so-called "crack baby"

crisis that prompted both these prosecutions and the policy struck down as unconstitutional by the Supreme Court in Ferguson, was myth and misnomer. The most thorough and comprehensive scientific survey assessing the impact of maternal cocaine use on pregnancy outcomes and child development fails to link in utero cocaine exposure with chronic, adverse consequences. See generally Wendy Chavkin, Cocaine and Pregnancy – Time to Look at the Evidence 285 JAMA 1626 (2001). Put simply, the prosecution of pregnant cocaine users for Unlawful Conduct Towards a Child in violation of S.C. Code § 20-7-50 lacks adequate grounding in science and medicine.

In addition, the Whitner decision fails to take account of the special medico-ethical relationship between a patient and her health care provider. While the ethical duties of honesty and confidentiality ultimately rest on principles of morality, their practical importance to the daily delivery of health care is considerable. Competent health care cannot be rendered unless a patient trusts her caregiver sufficiently to share medically relevant, but potentially embarrassing (or incriminating) information; or, for that matter, unless she is willing to see a treatment provider in the first place. Patient trust does not automatically attach: it must be earned and sustained by treatment professionals. The challenges of establishing this relationship

are particularly formidable where a patient is poor, drug-dependent, or pregnant; or (as in this case) all three. Research and clinical experience teach that when (as here) the personal risks of seeking medical care are raised to intolerably high levels, it is more likely that prenatal care and patient candor – and not drug use – will be what is deterred, often with tragic health consequences. This dangerous dynamic is precisely what has ensued in South Carolina since the Whitner decision.

Finally, it will be shown that the Whitner decision fails provide a clear analytical system for resolving the question of what type of conduct taken during pregnancy will subject women to criminal liability or obligate health care professionals to report pregnant women to state law enforcement officials for investigation and possible arrest and charging. The recent and conflicting experience of state law enforcement and public health agencies demonstrates the "irretrievably confused" messages sent by the decision and the need for a "fresh start." Holtzscheiter v. Thomson Newspapers, 506 S.E. 2d 497, 513 (Toal, J., concurring).

Because the Whitner decision cannot be justified by scientific research, because its impact on maternal and fetal health is directly contrary to the stated goals of both this Court and the State, and because as case law it lacks predictability and has confounded state actors and the general public,

Amici urge the Court to replace the Whitner decision with legal precedent that is consonant with good science and sound medicine, and that protects -- not corrodes -- core tenets of clinical practice.

ARGUMENT

I. The South Carolina Supreme Court Stands Alone in Using Child Neglect Statutes to Punish Women for Conduct During Pregnancy.

A. Other State Appellate Courts Have Repudiated the Whitner Reasoning and Policy.

As the dissenting justices of this Court and the rulings of every state appellate court to have addressed this issue have observed, the extension of child abuse statutes to include maternal conduct that may endanger a fetus leads to absurd, unintended, and dangerous results. Health and social services professionals, among others, must guess whether, for example, a pregnant woman's failure to obtain prenatal care, to quit smoking or drinking, to stop taking over-the-counter medicine, or to refrain from playing rigorous sports constitutes unlawful behavior. See Whitner, 492 S.E.2d 777, at 787, 788 (Moore, J., dissenting) (Noting that the majority of this Court "embark[ed] on a course of judicial activism rejected by every other court to address the issue," and by doing so rendered the statute

unconstitutionally vague because "a pregnant woman potentially [will now be] criminally liable for myriad acts which the legislature has not seen fit to criminalize."); Nevada v. Encoe, 885 P.2d 596, 598 (Nev. 1994) (per curiam); Commonwealth v. Welch, 864 S.W.2d 280, 283 (Ky. 1993); Reinesto v. Arizona, 894 P.2d 733, 736-37 (Ariz. Ct. App. 1995).

The high courts of Kentucky, Nevada, and Ohio have declined to extend the use of child neglect statutes to punish women for their conduct during pregnancy, recognizing that the due process guarantee of notice and its prohibition against vague criminal statutes precludes such prosecution. See Sheriff v. Encoe, 110 Nev. 1317, 1319, 885 P.2d 596, 598 (1994); Commonwealth v. Welch, 864 S.W.2d 280, 283 (Ky. 1993); State v. Gray, 62 Ohio St.3d 514, 584 N.E.2d 710 (Ohio 1992). From 1977 to the present[2], prosecutors in more than thirty states have attempted to use existing criminal laws to punish women for pregnancy-related behavior that posed potential harm to fetuses.[3] With the sole exception of the South Carolina Supreme Court, every state court of last resort, as well as all intermediate appellate

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[2] See Reyes v. Superior Court of San Bernadino Cty, 75 Cal. App.3d 214 (4th Dist. 1977).

[3] While many of those charged under such laws were addicted to illegal substances during pregnancy, others were charged for engaging in other conduct, such as drinking alcohol. See, e.g., State v. Zimmerman, No. 96-CF-525, slip op. (Cir. Ct. Racine Cty, Wis. Sept. 18, 1996), appeal filed, No. 96-2797-C.R. (Wis. Ct. App. Dist. II).

courts[4] and numerous trial courts that have addressed this issue, have rejected the use of child endangerment and similar criminal statutes to punish women for their conduct during pregnancy.

As the Kentucky Supreme Court in Welch explained when reviewing such a prosecution:

> The mother was a drug addict. But, for that matter, she could have been a pregnant alcoholic, causing fetal alcohol syndrome; or she could have been addicted to self abuse by smoking, or by abusing prescription painkillers, or over-the-counter medicine; or for that matter she could have been addicted to downhill skiing or some other sport creating serious risk of prenatal injury, risk which the mother wantonly disregarded as a matter of self-indulgence. What if a pregnant woman drives over the speed limit, or as a matter of vanity doesn't wear the prescription lenses she knows she needs to see the danger of the road? The defense asks where do we draw the line on self-abuse by a pregnant woman that wantonly exposes to risk her unborn baby? The Commonwealth replies that the General Assembly probably intended to draw the line at conduct that qualifies as criminal, and then leave it to the prosecutor to decide when such conduct should be prosecuted as child abuse in addition to the crime actually committed.

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[4] See, e.g., Reinesto v. Superior Court, 182 Ariz. 190, 894 P.2d 733 (Ct. App. 1995) (in dismissing child abuse charges filed against a woman for heroin use during pregnancy, court held that the ordinary meaning of "child" excludes fetuses, and to conclude otherwise, would offend due process notions of fairness and render statute impermissibly vague); Collins v. State, 890 S.W.2d 893 (Tex. App. El Paso 1994) (charges brought for substance abuse during pregnancy dismissed because application of the statute to prenatal conduct violates federal due process guarantees); State v. Dunn, 82 Wash. App. 122, 916 P.2d 952 (1996) (holding that the legislature did not intend to include fetuses within the scope of the term "child" which was defined "as a person under eighteen years of age"), review denied, 130 Wash. 2d 1018, 928 P.2d 413 (1996); State v. Gethers, 585 So. 2d 1140 (Fla. App. 1991) (dismissing child abuse charges brought for prenatal drug use on ground that such application misconstrues the purpose of the law).

> However, it is inflicting intentional or wanton injury upon the child that makes the conduct criminal under the child abuse statutes, not the criminality of the conduct per se. The Commonwealth's approach would exclude alcohol abuse, however devastating to the baby in the womb, unless the Commonwealth could prove an act of drunk driving; but it is the mother's alcoholism, not the act of driving that causes the fetal alcohol syndrome. The "case-by-case" approach suggested by the Commonwealth is so arbitrary that, if the criminal child abuse statutes are construed to support it, the statutes transgress reasonably identifiable limits; they lack fair notice and violate constitutional due process limits against statutory vagueness.

864 S.W.2d at 283 (emphasis added).

Similarly, in Encoe, the Nevada supreme court held that its child neglect statute, NRS § 200.508, did not apply to a mother's prenatal substance dependency. The Encoe court "recognized that due process prohibits courts from interpreting existing laws in an unforeseeable or unintended manner," and stated that such an interpretation would render the statute unconstitutionally vague. 885 P.2d at 598. "To hold otherwise," reasoned the court, "would ... open the floodgates to prosecution of pregnant women who ingest such things as alcohol, nicotine, and a range of miscellaneous, otherwise legal, toxins." Id. at 598.

As the next section makes clear, the United States Supreme Court further called into question the wisdom of the prosecutorial policies sanctioned by Whitner and signaled the important role that the medical

community can and should play in informing the legal community about the appropriate scope and application of certain criminal laws.

B. The United States Supreme Court Recently Questioned the Medical Evidence Justifying the Whitner Decision.

On March 21 of this year, the United States Supreme Court ruled that South Carolina's interest in conducting nonconsensual, suspicionless drug testing of pregnant women to gather evidence for possible criminal charges as part of a government effort to deter pregnant women from ingesting cocaine and other drugs cannot justify circumventing the warrant requirement of the Fourth Amendment. Ferguson, 121 S.Ct. at 1293. While the Ferguson Court did not directly address the lawfulness of prosecuting pregnant drug users for child endangerment, the Court's analysis does cast serious doubt on the proposition, endorsed by the Whitner majority, that the prosecution of pregnant drug users is a valid way to protect fetuses. As the Court observed,

> It is especially difficult to argue that the program here was designed simply to save lives. Amici claim a near consensus in the medical community that programs of the sort at issue, by discouraging women who use drugs from seeking prenatal care, harm, rather than advance, the cause of prenatal health.

Ferguson, 121 S.Ct. at 1292, n 23. See also, Brief for American Medical Association as Amicus Curiae at 6–22, Ferguson, 121 S.Ct.; Brief for American Public Health Association, et al., as Amici Curiae, Ferguson, 121 S.Ct.). Indeed, more than one hundred leading physicians and researchers from around the country specializing in prenatal care and child development encouraged the Surgeon General of the United States to intervene to protect the rights and health of the pregnant patients affected by the testing policy at issue in Ferguson. As these experts stated:

> Threat-based approaches have been shown to deter pregnant and parenting women not from using drugs, but from seeking health care. In short, the Charleston policy undermines rather than advances the interest in maternal, fetal, and child health.

Susan L. Adams, et al., An Open Letter to the United States Surgeon General David Satcher, M.D., The Hill, Oct. 4, 2000, at 7. See Appendix B. What is more, in the Supreme Court, "[w]hile dozens of medical, public health and civil rights groups filed or joined briefs in support of the women's appeal, not one friend-of the court- brief was filed on the city's side." Linda Greenhouse, Justices Consider Limits of the Legal Response to Risky Behavior by Pregnant Women, New York Times, Oct. 5, 2000 (emphasis added).

Just as the U.S. Supreme Court gave legal expression to its concern that the city policy at issue in Ferguson dramatically departed from the

accepted teachings and practices of the medical profession, so to should this Court correct the dangerous imbalance created by Whitner between the criminal law and the public health.

C. Public Health and Medical Organizations Uniformly Condemn South Carolina's Prosecution of Pregnant Drug Users.

Every major medical and public health organization to examine the issue has repudiated the prosecution of pregnant drug users, like that permitted by Whitner, as counterproductive to the health and well-being of both mother and fetus.

In 1994, the American Medical Association ("AMA") filed an amicus brief with this Court in the Whitner case urging this Court to strike down prosecution of a pregnant drug-dependent woman for child abuse based on the woman's ingestion of cocaine while pregnant. A copy of the AMA brief is attached as Appendix C. In so arguing, the AMA was acting upon an earlier resolution of its Board of Trustees that observed that if the criminal justice system is used to deal with drug-abusing mothers, "[p]regnant women will be likely to avoid seeking prenatal or other medical care for fear that their physicians' knowledge of substance abuse or other potentially

harmful behavior could result in a jail sentence rather than proper medical treatment."[5]

The Southern Regional Project on Infant Mortality ("The Project") echoes this warning. The Project, an initiative of the Southern Governors' Association and the Southern Legislative Conference, undertook a comprehensive three-year study of perinatal substance abuse in southern states, including South Carolina. Leading the list of the study's conclusions and recommendations, the Conference urges: "Emphasize prevention and treatment rather than punitive measures." Specifically, the Conference found:

> It is clear from these findings that fear of losing children is a major reason women delay or avoid seeking treatment. If pregnant women . . . feel that they will be "turned in" by health care providers or substance abuse treatment centers, they will avoid getting care. If women are able to discuss their addiction with providers without fear of retribution . . . they are more likely to enter treatment. Attempts to impose criminal penalties for alcohol or drug use during pregnancy exacerbate women's fears and make it less likely they will seek or receive the care they need for either their pregnancies or their addiction.[6]

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[5] American Medical Ass'n, Legal Intervention During Pregnancy: Court-Ordered Medical Treatment and Legal Penalties for Potentially Harmful Behavior by Pregnant Women, 264 JAMA 2663, 2669 (1990). The AMA accordingly resolved that "[c]riminal sanctions or civil liability for harmful behavior by the pregnant woman toward her fetus are inappropriate." Id. at 2670.

[6] Southern Regional Project on Infant Mortality, A Step Toward Recovery: Improving Access to Substance Abuse Treatment for Pregnant and Parenting Women 21 (1993); accord Southern Legis. Summit on Healthy Infants and Families, High Risk Pregnancies/Substance Abuse (Oct. 4-7, 1990) ("[S]tates should adopt, as preferred

The American Society of Addiction Medicine concurs. This organization comprised of the leading specialists in the field of substance abuse treatment and prevention, states that:

> [t]he imposition of criminal penalties solely because a person suffers from an illness is inappropriate and counterproductive. Criminal prosecution of chemically dependent women will have the overall result of deterring such women from seeking both prenatal care and chemical dependency treatment, thereby increasing, rather than preventing, harm to children and to society as a whole.[7]

The National Association for Perinatal Addiction Research and Education further warns that:

> The prospect of criminal prosecutions . . . places health care practitioners in a conflict position, forcing them to choose between maintaining their patient's [sic] confidentiality or reporting them, ultimately to the police, a position many doctors and nurses find intolerable.
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> . . .
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> The key to intervention will be access to health care for high risk women, not the threat of criminal prosecution.[8]

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methods, prevention, intervention, and treatment alternatives rather than punitive actions to ameliorate the problems related to perinatal exposure to drugs and alcohol.").

[7] American Soc'y of Addiction Med., Bd. of Directors, Public Policy Statement on Chemically Dependent Women and Pregnancy (Sept. 25, 1989).

[8] National Ass'n for Perinatal Addiction Research and Educ., Policy Statement No. 1, Criminalization of Prenatal Drug Use: Punitive Measures Will Be Counter-Productive (1990).

Even the United States General Accounting Office concludes that "the threat of prosecution poses . . . [a] barrier to treatment for pregnant women . . . . These women are reluctant to seek treatment if there is a possibility of punishment . . . . [W]omen in need of treatment are well aware of the threat [of child abuse prosecutions]."[9]

In short, it is not mere speculation that the threat of criminal prosecution deters pregnant drug users from seeking both drug treatment and prenatal care: multiple studies and a wealth of clinical experience have shown this to be the case. It is therefore understandable that every leading public health and medical organization to have considered the subject has opposed prosecuting pregnant women for using drugs.[10]

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[9] US General Accounting Office, ADMS Block Grant: Women's Set Aside Does Not Assure Drug Treatment for Pregnant Women 5, 20 (1991). See also Stephen Kandall, Substance and Shadow: Women and Addiction in the United States 278-79 (1996).

[10] See, e.g., National Council on Alcoholism and Drug Dependence, Women, Alcohol, Other Drugs and Pregnancy (1990) (A "punitive approach is fundamentally unfair to women suffering from addictive diseases and serves to drive them away from seeking both prenatal care and treatment for their alcoholism and other drug addictions. It thus works against the best interests of infants and children . . . ."); American College of Obstetricians and Gynecologists ("ACOG") Committee Opinion 55 (Oct. 1987) (resort to the courts "is almost never justified" in treating pregnant women); ACOG Technical Bulletin 195, Substance Abuse in Pregnancy 1 (1994) ("In some states, the legal requirements regarding reporting substance abuse threaten to interfere with patient confidentiality and the entire physician-patient relationship."); American Academy of Pediatrics, Comm. on Substance Abuse, Drug- Exposed Infants, 86 Pediatrics 639, 642 (1990) ("The public must be assured of nonpunitive access to comprehensive care which will meet the needs of the substance-abusing pregnant woman and her infant."); American Nurses Ass'n, Position Statement (Apr. 5, 1992) ("ANA . . . opposes any legislation that focuses on the criminal punishment of the mothers of drug-exposed infants . . . . The threat of criminal prosecution is counterproductive in that it prevents

D. The South Carolina Legislature Has Consistently Refused to Pass Laws Criminalizing Addiction During Pregnancy.

On eleven separate occasions the South Carolina Legislature has refused to enact laws criminalizing pregnant women for using drugs. In so doing, the state's legislators, like the Ferguson Court, have heeded the warnings of health professionals discussed above. Although the Whitner majority did not follow the Legislature's lead, this case affords the Court the opportunity to harmonize its jurisprudence with the judgment of the state Legislature. What is more, newly published medical data, discussed in the next section, firmly support the Legislature's stance, and provide this Court a compelling reason to re-visit the flawed assumptions on which the Whitner decision is premised.

II. Science Has Failed to Substantiate the Alleged Harms that Prompted the Prosecution of Ms. Peppers and Other Women.

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many women from seeking prenatal care and treatment for their alcohol and other drug problems."); California Medical Ass'n, Policy Position ("[T]o bring criminal charges against a pregnant woman for activities which may be harmful to her fetus is inappropriate. Such prosecution is counterproductive to the public interest as it may discourage a woman from seeking prenatal care or dissuade her from providing accurate information to health care providers out of fear of self-incrimination.") quoted in American Medical Ass'n, Legal Intervention During Pregnancy: Court-Ordered Medical Treatment and Legal Penalties for Potentially Harmful Behavior by Pregnant Women, 264 JAMA 2663, 2669 (1990). See also, State v. Luster, 419 S.E.2d 32, 35 n.2 (Ga. 1992) (listing medical and public health organizations opposing the prosecution of women for cocaine use during pregnancy); Marilyn L. Poland et al., Punishing Pregnant Drug Users: Enhancing the Flight From Care, 31 Drug and Alcohol Dependence 199 (1993).

Underlying the majority opinion in Whitner and the prosecution of Ms. Peppers is an assumption that cocaine ingested during pregnancy poses a unique danger to the developing fetus. Although this belief is consistent with the sensationalistic media accounts of the 1980s, it is without scientific and clinical support.[11] In so noting, Amici do not condone the use of illegal drugs. Furthermore, Amici in no way wish to downplay the harm that ingesting any substance could potentially cause to a fetus or child. Indeed, Amici share a professional dedication to avoiding and reducing any such

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[11] See generally Deborah Frank et al., Growth, Development, and Behavior in Early Childhood Following Prenatal Cocaine Exposure: A Systematic Review, 285 JAMA 1613 (2001). See also Albert J. Tuboku-Metzger et al., Cardiovascular Effects of Cocaine in Neonates Exposed Prenatally, 13 American J. of Perinatology 1 (1996) (study of chronic cocaine use among pregnant subjects finding no direct effects on the health or development of newborns); Bertis B. Little et al., Is There a Cocaine Syndrome? Dysmorphic and Anthropometric Assessment of Infants Exposed to Cocaine, 54 Teratology 145 (1996) (finding no recognizable constellation of dysmorphic features to distinguish between cocaine-exposed and non-exposed infants); Nancy Stewart Woods et al., Cocaine Use During Pregnancy: Maternal Depressive Symptoms and Infant Neurobehavior over the First Month, 16 Infant Behavior and Dev. 83, 92 (1993) (finding no differences in neurobehavioral performance of cocaine-exposed infants when compared to non-exposed infants); Claire D. Coles et al., Effects of Cocaine and Alcohol Use in Pregnancy on Neonatal Growth and Neurobehavioral Status, 14 Neurotoxicology and Teratology 23, 31-32 (1992) (finding prenatal cocaine exposure effects fetal growth but that cocaine-exposed infants do not appear otherwise impaired physically or behaviorally in the neonatal period); Barry M. Lester et al., Data Base of Studies of Prenatal Cocaine Exposure and Child Outcome, 27 J. of Drug Issues 487 (1997) (concluding that knowledge about the existence or extent of effects of prenatal cocaine exposure on child outcome is limited, scattered, and compromised by methodological shortcomings); Ellen Hutchins, Drug Use During Pregnancy, 27 J. of Drug Issues 463, 466 (1997). See also Laura E. Gomez, Misconceiving Mothers: Legislators, Prosecutors, and the Politics of Prenatal Drug Exposure 23-25 (1997) (discussing the failure of longitudinal studies to find statistically significant differences between cocaine-exposed children and non-exposed children).

dangers. Nonetheless, Amici are duty bound to inform this Court of the overwhelming scientific and medical evidence that contradicts the underlying premises of its Whitner decision.

The majority opinion in Whitner is predicated on the assumption that prenatal exposure to cocaine causes long-term, deleterious effects on fetal and child development different in scope, degree and kind from risks posed by maternal behavior or exposure to other substances, licit or illicit. For years scientific studies by and large failed to validate this assumption. But whatever lingering doubt may have been justified by the former state of the research, the latest and best entry in this field offers compelling evidence that it is wrong to single out maternal cocaine use for special opprobrium.

The Journal of the American Medical Association ("JAMA"), one of the most distinguished peer-reviewed medical journals in the United States, recently published a comprehensive, systematic, and authoritative analysis of all medical research assessing the relationship between maternal cocaine use during pregnancy and adverse developmental consequences for the fetus and child. See Deborah Frank et al., Growth, Development, and Behavior in Early Childhood Following Prenatal Cocaine Exposure: A Systematic Review, 285 JAMA 1613 (2001) [hereafter "A Systematic Review"]. The full text of the article is attached as Appendix D. This landmark report not

only exposes as erroneous and unfounded the assumptions that underlie a series of prosecutions of pregnant cocaine-dependent women in South Carolina, but also eviscerates the express rationale for the majority opinion in Whitner.

Using carefully developed selection criteria, the JAMA researchers identify all seventy-five English-language studies of the effects of in utero cocaine exposure. See A Systematic Review at 1614. They then undertake a detailed review of all the studies that complied with accepted scientific practices.[12] The researchers conclude that:

> [T]here is no convincing evidence that prenatal cocaine exposure is associated with any developmental toxicity difference in severity, scope, or kind from the sequelae of many other risk factors. Many findings once thought to be specific findings of in utero cocaine exposure can be explained in whole or in part by other factors, including prenatal exposure to tobacco, marijuana, or alcohol and the quality of the child's environment. [13]

Specifically, the JAMA researchers found that when studies were controlled for prenatal exposure to tobacco and alcohol, prenatal cocaine

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[12] "Detailed review was ... restricted to studies that ... met 3 criteria: (1) samples were prospectively recruited; (2) examiners of the children were masked to their cocaine exposure status; and (3) the cocaine-exposed cohort did not include a substantial proportion of children also exposed in utero to opiates, amphetamines, or phecyclidine, or whose mothers were known to be infected with the human immuniodeficiency virus (HIV)." Id. at 1613, 1614.

[13] Id. at 1621, 1624.

exposure is not associated with physical growth retardation, id. at 1613; there is little or no impact of prenatal cocaine exposure on children's scores on assessments of cognitive development, id.[14]; "[p]roblem-solving abilities [do] not differ between cocaine-exposed and unexposed preschoolers," id. at 1617; nor does cocaine exposure impact standardized language measures, id. at 1620. In fact, the oldest group of children studied to date registered no effect from in utero cocaine exposure on any IQ scales or academic achievement, id. at 1616 (citing Gale Richardson et al., Prenatal cocaine cocaine exposure: effect on the development of school age children 18 Neurotoxicol Teratol 627 (1996))[15]

Upon an exhaustive review of the medical research, the only effect of prenatal cocaine exposure that the JAMA researchers uncovered is the potential for decreased emotional expressiveness. A Systematic Review at 1620. And even this finding is tempered by the observation that "[f]ull-term

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[14] Amicus Curiae Ira Chasnoff, a physician on whose research this Court relied in reaching its decision in Whitner, authored a study finding "no incremental impact of cocaine use" on assessment tests of 6-month-old infants. See id. at 1615.

[15] See also Gail A. Wasserman et al., Prenatal Cocaine Exposure and School Age Intelligence, 50 Drug & Alcohol Dependence 203, 209 (1998) ("prenatal cocaine exposure does not seem to confer an additional risk for adverse developmental outcome"); Hallam Hurt et al., Children with In Utero Cocaine Exposure Do Not Differ from Control Subjects On Intelligence Testing, 151 Arch. Ped. Adolesc. Med. 1237 (1997).

cocaine-exposed infants show[] better arousal modulation than their unexposed counterparts." Id. at 1617.

In light of these findings, the JAMA researchers condemn as "irrational[]" policies that selectively "demonize" in utero cocaine exposure and that target pregnant cocaine users for special criminal sanction. Id. at 1621.

The Whitner majority's misplaced belief in the so-called "crack baby" phenomenon is particularly troubling given the greater magnitude of risk to fetal and child development posed by many licit substances and everyday circumstances. For example, as the JAMA researchers point out, prenatal exposure to tobacco is "the major predicator" of abnormalities in infant muscle tone at 6 weeks. Id. at 1616 (citing, Delia Dempsey et al., Tonal abnormalities are associated with maternal cigarette smoking during pregnancy in utero cocaine exposed infants 106 Pediatrics 79 (2000)). In fact, medical research connects tobacco use with a host of adverse outcomes for pregnancy.[16] The same can be said for alcohol[17], not to mention a wide

[16] Low birth weight, Sudden Infant Death Syndrome, spontaneous abortion, premature rupture of the membranes, and abnormal placentation are associated with maternal tobacco use. See, e.g., Lony C. Castro et al., Maternal Tobacco Use and Substance Abuse: Reported Prevalence Rates and Associations with the Delivery of Small for Gestational Age Neonates, 81 Obstetrics and Gynecology 396 (1993); Office on Smoking and Health, The Health Consequences of Smoking: Nicotine Addiction 602 (1988). The teratogenic effects of tobacco and alcohol are particularly relevant because women who ingest cocaine during pregnancy are more likely to use tobacco and alcohol than are non

range of commonly prescribed medications, including psychiatric medications, such as anticonvulsants,[18] lithium and other mood-stabilizers,[19] antipsychotics, and benzodiazepines (the class of medications which includes Valium, Librium and Xanax),[20] some antibacterials (especially

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cocaine-users. Margaret Bendersky et al., Characteristics of Pregnant Substance Abusers in Two Cities in the Northeast, 22 Am. J. Drug & Alcohol Abuse 349, 353 (1996).

[17] Fetal Alcohol Syndrome is the leading cause of mental retardation in the United States. Loretta P. Finnegan & Stephen R. Kandall, Maternal and Neonatal Effects of Alcohol and Drugs in Substance Abuse, A Comprehensive Textbook 513, 529 (J.H. Lowinson et al. eds., 1997) [hereafter "Comprehensive Textbook"].

[18] A leading scientific text notes that the teratogenic affects of anticonvulsants were identified in the 1960's, especially those caused by the drug Dilantin, commonly prescribed for epileptics and that "[n]o dose response curve has been demonstrated, nor has a "safe" dose been found below which there is no increased teratogenic risk." Kenneth L. Jones, Smith's Recognizable Patterns of Human Malformation 495 (5th ed. 1997) [hereafter "Smith's Recognizable Patterns of Human Malformation."]. Other anticonvulsants associated with facial malformations, mental deficiencies, speech disorders, and cardiovascular defects include trimethadione, paramethadione, valproic acid, and warfarin. Id. at 495-505. With respect to trimethadione in particular, it warns that "the frequency and severity of defects associated with maternal use of these drugs during pregnancy are high enough to warrant consideration of early elective termination of pregnancy." Id. at 500 (citing G.L. Feldman et al., The Fetal Trimethadione Syndrome, 131 Am. J. Dis. Child 1389 (1977)). Another standard medical text notes: "An association of fetal abnormalities with anticonvulsants is strengthened by increasing reports of cleft palate, cardiac abnormalities, craniofacial anomolies, nail and digit hypoplasia, visceral defects, and mental subnormality in children of epileptic mothers taking anticonvulsant drugs." The Merck Manual of Diagnosis and Therapy 1859 (R. Berkow ed., 16th ed. 1992) [hereafter "Merck Manual."].

[19] "Among psychotropic drugs, lithium has been more strongly associated with congenital anomolies than have other agents . . . . [N]umerous publications indicate an increased incidence of cardiovascular abnormalities, particularly an increase in Ebstein's anomoly in infants born of lithium-treated mothers." Jerrold G. Bernstein, Handbook of Drug Therapy in Psychiatry 415 (2d ed. 1988) (citing Gail E. Robinson et al., The Rational Use of Psychotropic Drugs in Pregnancy and Postpartum 31 Can J. Psychiatry 183 (1986)).

[20] Bernstein, infra, at 407 ("Lithium presents a significant risk to fetal development if taken during the first trimester . . . . Benzodiazepines and meprobomate have a significant risk of teratogenic effects. . . ."). The specific birth defects (or "anomalies")

Tetracyclines),[21] anticoagulants,[22] thyroid medications,[23] and antihypertensive drugs.[24] Even "[l]arge doses of aspirin may result in delayed onset of labor, premature closure of the fetal ductus arteriosus . . . or neonatal bleeding"[25] (emphasis added). Furthermore, there is long-standing scientific consensus that prenatal exposure to adverse environmental factors such as poor nutrition, substandard housing and a lack of social supports and services (all of which are associated with poverty) can also profoundly affect

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associated with these and other psychiatric medications taken during pregnancy include: growth retardation and oral clefts (barbiturates); cleft palates, neurologic depression and low Apgar scores (benzodiazepines); "severe anomalies in 12% of newborns" (meprobomate); respiratory distress (antidepressants); chromosomal gaps and breaks, congenital heart anomalies; reduced thyroid function; and external ear malformations (lithium carbonate and the other mood-stabilizing drugs). Id. at 407-421 (citing W.S. Barry and S.M. St. Clair, Exposure to Benzodiazepines in Utero 1 Lancet 1436 (1987)); M.J. Whittle and K.P. Hanretty, Prescribing in Pregnancy: Identifying Abnormalities, 293 Br. Med. J. 1485 (1986).

[21] Tetracycline has been associated with permanent discoloration of the teeth, enamel hypoplasia, and a lowered resistance to caries, as well as retarded bone growth, especially when taken during the latter part of the pregnancy. Merck Manual at 41.

[22] Certain anticoagulants can cause nasal abnormalities, bone stipling, bilateral optic atrophy, varying degrees of mental retardation, microcephaly, and occasionally fetal and maternal hemorrhage. Smith's Recognizable Patterns of Human Malformation at 504.

[23] Some thyroid medications taken during pregnancy can cause severe hypothyroidism, fetal goiter, or scalp defects. Merck Manual at 1859.

[24] Antihypertensive drugs may cause fetal respiratory depression, hypotension, paralytic ileus, bradycardia, hypoglycemia, and varying degrees of intrauterine growth retardation. Id. at 1861.

[25] Id. at 1859; see also Linda J. Van Marter et al., Persistent Pulmonary Hypertension of the Newborn and Smoking and Aspirin and Nonsteroidal Antiinflammatory Drug Consumption During Pregnancy 97 Pediatrics 658 (1996) (maternal consumption of aspirin during pregnancy found to be consistently associated with pulmonary hypertension of the newborn, an important cause of respiratory failure in neonates).

infant health,[26] as can a childhood spent in the care of adults who suffer from depression or other serious mental illness.[27]

In bringing these examples to the Court's attention, Amici Curiae do not mean to suggest that prosecutors or courts should extend South Carolina's criminal code to reach women who use tobacco, alcohol, or prescription medications while pregnant, or who carry children to term while living in poverty or suffering from major mood disorders. As Amici endeavor to show throughout this brief, such a move would hurt, not help, the health of women and fetuses. Rather, Amici wish to underscore that the Whitner decision invites excess and incoherence in its application by prosecutors and courts. The next section illustrates why this is so.

III. The Whitner Decision is Inherently Unclear and will Continue to Cause Widespread Confusion.

As noted above, the leading medical and health associations and various state courts have warned about the sweeping, arbitrary and deleterious consequences that can result when child endangerment laws are

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[26] Nora S. Gustavsson & Ann E. MacEachron, Criminalizing Women's Behavior, 27 J. of Drug Issues 673, 675-76 (1997).

[27] See, e.g., Jeir A. Doane, Family Interaction and Communication Deviance in Disturbed and Normal Families: A Review of Research, in Advances in Family Psychiatry - Vol. II 113 (J.G. Howells ed., 1980).

applied to maternal conduct during pregnancy. The fears of these commentators are confirmed by the South Carolina experience in the wake of the Whitner decision. As illustrated below, the result has been that Whitner provides "no clear analytical system for resolving" the question of what type of conduct undertaken during pregnancy will subject women to criminal liability or obligate health care professionals to report pregnant women to state law enforcement officials for investigation and possible arrest and charging. Holtzscheiter v. Thomson Newspapers, 506 S.E. 2d 497, 505 (1998) (Toal, J., concurring). Consequently, the law in this area "lacks consistency and predictability, and confounds the . . . bar [and] members of the general public." Id.

For example, in May 2000 the South Carolina State Department of Alcohol and Other Drug Abuse Services ("DAODAS") – a state agency whose primary function is to safeguard the health of state residents – designed, paid for and published 50,000 brochures for the general public warning that "[n]ot only is it dangerous for pregnant women to smoke, drink, use other drugs or engage in other activities that risk harming their babies, but [in light of the Whitner decision] it's also a crime in South Carolina." South Carolina Department of Alcohol and Drug Abuse

Services, Important Facts to Remember: A Special Delivery Should be Handled With Care, (May 2000).

The Department's straightforward reading of the scope of Whitner illuminates that decision's breath-taking expansion of the criminal code into the private lives of unsuspecting South Carolinians: smoking while pregnant may suddenly be a criminal act. Whereas prior to Whitner a pregnant woman suffering from a nicotine or other drug or alcohol addiction had a medical condition that could be treated by a health professional devoted to her well-being, after Whitner this woman is transformed into a would-be criminal, and her physician into a quasi-agent of law enforcement, required to report the pregnant patient's conduct to state authorities.

As it so happens, the chilling scenarios foreseen by appellate jurists and South Carolina health officials already have begun to play themselves out: at least one South Carolinian has been prosecuted under S.C. Code § 20-7-510 for consuming alcohol while pregnant. See Melissa Manware, Infant Born Drunk: Intoxicated Mom Is Facing Charges, The State (Columbia, S.C.), Sept. 24, 1998, at A1 (reporting the charging of a woman with unlawful conduct toward a child after delivering an "intoxicated" baby).

To be sure, the confusion resulting from the Whitner decision is underscored and even exacerbated by the various positions publicly taken by

the state's chief law enforcement official, Attorney General Charles M. Condon. For example, Mr. Condon has stated that he will not prosecute women for smoking tobacco while pregnant, while acknowledging that the Whitner decision might authorize such prosecutions. (In this vein, he ordered a recall of the DAODAS brochures). Nevertheless, as the case of the "infant born drunk" makes clear, the consumption of other licit substances, such as alcohol, can expose pregnant women to criminal charges.

A 1997 Attorney General Opinion only muddies the waters. The Opinion responds to a request by the Department of Social Services to clarify the scope and application of the Whitner decision. Specifically, the Department asked: "What level of restriction on the privacy rights of the mother would be justified when the activities affecting the fetus or potentially affecting the fetus are legal activities?" 1997 S.C. AG LEXIS 175 at 12. In response, General Condon notes that the Whitner decision "does not clearly draw a line on the basis of legal versus illegal conduct," Id. at 13, and that it is "capable of being read both broadly as well as narrowly." Id. at 21 (emphases added). The State's chief law enforcement officer refuses to provide an authoritative legal interpretation, and even appears willing to delegate the task of interpretation to the Department of Social

Services or the Legislature. See id. at 22 ("While the court in Whitner arguably has given DSS the go-ahead to apply the Children's Code to cases involving viable fetuses where the conduct itself is not illegal, we would advise the agency to tread lightly in this area"); id. (calling for further elucidation by the General Assembly).

The vagueness and inconsistency of these positions not only exacerbate the confusion wrought by the Whitner decision, but, more importantly, underscore the fact that, in the final analysis, the Whitner decision is unworkable. It is unworkable regardless of whether (to adopt General Condon's terminology) one chooses to read Whitner "broadly" or to read it "narrowly." Under a "broad" interpretation virtually any conduct or omission during a pregnancy could be deemed a risk to the fetus and therefore be the basis for criminal prosecution of a pregnant woman. Law enforcement are thus given free reign to intrude on every aspect of a pregnant women's life. Moreover, a wide variety of state officials and medical, public health and social services professionals would have imposed on them the sweeping and heretofore unimagined duty of reporting for investigation and possible prosecution all instances of potentially harmful conduct that come to their attention.

Under a "narrow" interpretation of Whitner, only conduct that is already illegal and that poses a danger to fetuses would be actionable under the state's child endangerment laws. While this narrow interpretation might clarify somewhat law enforcement's duties, the chief drawback to this interpretation is that it is intellectually, medically, and ethically unsound. If the goal is to protect fetal well-being, the distinction between legal and illegal conduct, or licit and illicit substances, is meaningless – or worse, absurd. The conduct that the law declares to be lawful or unlawful, or the drugs that the law deems to be licit or illicit, are not based on – and do not even loosely track – notions of fetal endangerment, as discussed above. The research contrasting the in utero effects of cocaine with the in utero effects of tobacco, malnutrition, and certain chemotherapies suggest as much. Furthermore, as discussed below, this narrow interpretation is deterring pregnant women who abuse illicit drugs from seeking or continuing prenatal care and/or substance abuse treatment for fear of being reported, arrested, prosecuted, convicted and imprisoned for their conduct. The adverse health consequences for women, fetuses and children of this deterrent effect are potentially devastating.

The incoherency of these "broad" and "narrow" interpretations helps explain the confusion wrought by the Whitner decision. It also serves to

make plain that, in the final analysis, the Whitner decision defies a principled or sensible application, not least because it eschews the essential teachings of medicine and public health. The final section of this brief elaborates on the harms caused by the Whitner decision to both treatment providers and their patients.

IV. The Whitner Decision Endangers Patient Health by Jeopardizing the Therapeutic Relationship Between Patients and their Treatment Providers.

In declaring a viable fetus to be a "child" within the meaning of the State Children's Code, this Court's decision in Whitner imposes upon physicians, substance abuse treatment providers, and social service professionals a heretofore unimaginable duty: to divulge to state authorities, for possible prosecution, the identities and medical information of pregnant women who engage in conduct or activities that may "adversely affect[]" the health or welfare of the fetus. S.C. Code § 20-7-510. Professionals who fail to disclose such information now themselves face criminal fines and imprisonment under state law. See S.C. Code § 20-7-560. Yet, as the preceding section illustrates, the potential scope of the Whitner ruling is immense. And as the brochure published by the Department of Alcohol and Other Drugs indicates, unless Whitner is overturned, health care and social

services providers will be saddled with duties of unknowable dimensions and sweeping breadth as they attempt to divine what actions or omissions by pregnant women might trigger their statutory reporting requirement.

A. The Whitner Decision Erodes Confidentiality Between Patients and their Health Care Providers.

A fundamental shortcoming of Whitner is its disregard for importance of the therapeutic relationship between patients and their treatment providers. The obligations of loyalty, confidentiality, and candor that characterize this relationship are ethical and fiduciary imperatives for treatment professionals. The American Medical Association's Code of Medical Ethics requires physicians to act in the best interest of individual patients, to "deal honestly with patients", and to "safeguard patient confidences". American Medical Ass'n, Current Opinions of the Council on Ethical and Judicial Affairs, E - Principles of Medical Ethics (Preamble). See also, id. at §10.01; 23 S.C. Code Ann. Regs. 81-60 (1976). Physicians are also duty-bound to protect and foster patients' free, uncoerced choices in pursuing treatment, to treat patients equally, and to advocate on the patient's behalf. Id.

Whitner eviscerates these ethical obligations. Instead, the decision encourages care providers to be dishonest in their dealings with patients and

to use promises (or assumptions) of non-disclosure as well as the trust inherent in their professional relationships to extract private and potentially inculpatory information. It short-circuits health providers' obligations to obtain suitable, individualized treatment for the patients who entrust their care to them. In fact, medical personnel have even been compelled to turn patients over to police after they had given birth with no apparent regard for the health consequences of jailing the mother of a newborn. Finally, with respect to the duty to treat patients equitably, the prosecutions brought pursuant to Whitner have largely targeted poor patients seeking care at public hospitals who have few, if any, other health care providers to turn to. In short, Whitner instructs South Carolina treatment professionals to ally themselves with the interests of law enforcement rather than with the interests of their patients and these patients' medical interests.[28]

The ethical obligations contravened by Whitner serve a critical, practical purpose in the effective delivery of health care. As the United States Supreme Court recognized in Jaffe v. Redmond, 518 U.S. 1 (1997), confidentiality and trust are not solely matters of principle: "the mere possibility of disclosure [of patients' confidences] may impede development

[28] Notably, some variation of each of these ethical breaches took place at the Medical University of South Carolina in Charleston at the urging of then Solicitor Condon. See Ferguson, 121 U.S. at 1285.

of the . . . relationship necessary for successful treatment." Id. at 10. The effective practice of medicine is impossible without these safeguards.

> To make diagnoses and treat patients effectively, the physician must obtain sensitive information about a patient. A patient must be willing to tell a physician, who is often a total stranger, about such matters as drug usage . . . and to allow the physician to examine intimate parts of his or her anatomy. The promise of confidentiality encourages patients to disclose sensitive subjects to a physician without fear that an embarrassing condition will be revealed to unauthorized people . . .

Robert Arnold et al., Medical Ethics and Doctor/Patient Communication, in The Medical Interview: Clinical Care, Education and Research 345, 365 (Mack Lipkin, Jr. et al., eds., 1995).

Patients' assumptions that their relationship with their health care providers is one of trust are fragile and cannot long survive breaches of confidentiality of the sort compelled by Whitner. Even the possibility that treatment professionals will share personal medical records and test results with police – let alone that they might perform such tests with the purpose of obtaining incriminating evidence – does lasting harm to the relationships necessary for medical care and is injurious to the broader public health. The United States Supreme Court recently discussed this danger in the Ferguson case, recognizing that an intrusion into the privacy between health care provider and patient "may deter patients from receiving needed medical

care." Ferguson, 121 S.Ct. at 1289, n 14. See also Whalen v. Roe, 429 U. S. 589, 599–600 (1977).

B. The Erosion of Patient Confidentiality Has Heightened Consequences for Pregnant Substance Abusers.

The prospect that confidentiality might be breached affects patient care in another important way. Not only are persons needing treatment deterred from seeking medical care, but those who do see physicians and nurses are less likely to provide the sort of candid disclosure that is often vital for effective medical treatment, particularly when doing so can result in filing of criminal charges.

Unsurprisingly, what is true about patients generally, applies with particular force to patients with substance abuse problems:

> It is quite clear that part of treating [a chemically dependent person] as a patient includes embracing all of the appropriate ethical constraints of health care delivery . . . . Possibly at the top of the list of ethical issues that are of very special and fundamental importance to this group of patients is the appropriate maintenance of confidentiality.

Mary Jeanne Kreek & Marc Reisinger, The Addict as a Patient, in Comprehensive Textbook at 826-27. Cf. 42 U.S.C. § 290dd-2 (prohibiting federally assisted drug-abuse treatment programs from divulging patient

identities and records); id. at § 9501(1)(H) (codifying patients' "right to confidentiality" of mental health records).

This is even more urgently the case when drug-dependent patients are pregnant. For nearly three decades researchers have tracked the special treatment needs of pregnant, drug-dependent women. Pregnant drug-dependent women suffer from depression at high rates and from low self-esteem, and many experience intense guilt and sadness about the fetal health consequences of their substance abuse. In all cases, their decision to seek prenatal care is itself a highly positive step. And because such patients are often dealing with a history of abuse, untreated post traumatic stress disorders, as well as barriers to care – including lack of child care, transportation, and safe housing – it is particularly critical that they form a strong "therapeutic alliance" with those helping them. See e.g., National Institute on Drug Abuse Capsules, Women and Drug Abuse (June 1994) (Among drug using women, 70% report having been abused sexually before the age of 16 and more than 80% had at least one parent addicted to alcohol or one or more illicit drugs); Marsha Rosenbaum, Women: Research and Policy, in Comprehensive Textbook 654, 654-665 (1997) ("Researchers have consistently found high levels of past and present abuse in the lives of

women drug users. Many have suggested that there is a relationship, if not absolutely causal, between violence experienced by women and drug use.").

Pregnant drug users, however, are particularly reticent to see physicians, and are especially reluctant to give accurate information concerning the nature and extent of their drug use. See Southern Regional Project on Infant Mortality, A Step Toward Recovery: Improving Access to Substance Abuse Treatment for Pregnant and Parenting Women 21 (1993). See also United States General Accounting Office, Report to the Chairman, Senate Comm. On Finance, HRD-90-138, at 9-10 (1990) ([S]ome drug-using women are now delivering their infants at home in order to prevent being reported to . . . authorities"); L.G. Tribble et al., Analysis of a Hospital Maternal Cocaine Testing Policy: In Association with Prenatal Care Utilization Patterns (Nat'l Perinatal Ass'n 1993) (finding that pregnant women were deterred from accessing prenatal care and obstetrical services at the Medical University of South Carolina because the hospital disclosed patients' confidential medical information to law enforcement officials).

Indeed, South Carolina's Department of Alcohol and Other Drug Abuse Services acknowledges on its state government website that "[u]nfortunately . . . there are women who do not seek treatment, primarily out of fear; fear of what others might say; fear of prosecution; fear of losing

their children; fear of losing their jobs; and fear of losing the support of their families." SC Department of Alcohol and Other Drug Abuse Services Website, http://www.daodas.state.sc.us/web/treatment.html#womenchildren at 5-6 (visited May 7, 2001).

The reluctance of pregnant substance abusers to seek medical treatment or confide fully in those providing treatment has serious adverse health consequences for the women and their fetuses – the very health interests the State wants to protect. Open communication with treatment providers regarding drug use is necessary to ensure optimum safety before, during and after deliveries. When substance abusing pregnant women feel secure in confiding in health professionals, the treatment providers can offer a number of proven interventions that substantially increase the health outcomes for children after delivery. One of the most effective weapons against infant mortality is early, high-quality, comprehensive prenatal care. See, e.g., Southern Regional Project, supra at 6. Indeed, prenatal care has been shown to markedly improve pregnancy outcomes among women with addictions: pregnant women who use cocaine, among other substances, but who have at least four prenatal care visits have been found to significantly reduce their chances of delivering low birth weight babies. Andrew Racine et al., The Association Between Prenatal Care and Birth Weight Among

Women Exposed to Cocaine in New York City, 270 JAMA 1581, 1585-86 (1993).

Even if the pregnant patient does not reduce or discontinue drug use, health risks associated with prenatal drug exposure can be mitigated substantially through prenatal care and counseling if the patient embraces the therapeutic relationship. Racine, supra, at 1585-86. Adequate parenting skills and a supportive environment also appear to help lessen the risk of serious harm. See, e.g., Loretta P. Finnegan & Stephen R. Kandall, Maternal and Neonatal Effects of Alcohol and Drugs in Comprehensive Textbook at 529. In sum, a climate of confidentiality is essential for the effective provision of treatment to substance abusing pregnant women. The Whitner decision, however, thwarts this goal.

C. Whitner Has Deterred Pregnant Women From Seeking Health Care in South Carolina.

The Whitner decision has produced real and devastating consequences for pregnant women in South Carolina, many of whom are now avoiding prenatal care and drug and alcohol treatment for fear that confiding their health problems to their physicians or counselors could lead to their arrest and imprisonment and the removal of their children from their care. After

the highly publicized prosecution of Cornelia Whitner and this Court's decision upholding her conviction and sentence on July 15, 1996, at least two substance abuse treatment programs in Columbia, South Carolina that give priority to pregnant women reported precipitous drops in admissions for pregnant women. The records of the Women's Community Residence, a halfway house for women substance abusers, show that admissions of pregnant women fell 80% (from 10% to 2% of the total number of women treated at the facility) between July 1, 1996 and June 30, 1997. See Statement of Interest of South Carolina Association of Alcoholism and Drug Abuse Counselors, Appendix to Brief as Amici Curiae in Support of Petition for Certiorari to the US Supreme Court, Whitner v. South Carolina, No. 97-1562 (filed April 8 1998) at i. See Appendix F. At the Women's Intensive Outpatient program, an intensive day program which provides child care, admissions of pregnant women declined 54% (from 13% to 6% of the total number of women treated at the facility) during roughly the same period. Id.

Yet more troubling, for the first time in a decade, the state recorded a significant increase in infant mortality. This increase coincided with the Whitner decision and the publicity surrounding it. Infant Mortality on Rise in '97, Post & Courier (Charleston, S.C.), Feb. 19, 1999, at B1. During

roughly the similar period of time, the number of abandoned babies in South Carolina increased twenty percent. Associated Press, Discarded Children Increasing, The Post & Courier (Charleston, S.C.), Apr. 19, 1999.

Meanwhile, South Carolina ranks last among the states in spending on programs that address the effects of alcohol and drug abuse. See Kim Baca, South Carolina spends the least on substance abuse prevention, Associated Press State and Local Wire, Jan 29, 2001 (noting that in 2000, the state was only "able to treat about 52,000 of 310,000 South Carolinians identified as having substance abuse problems."); Associated Press State and Local Wire (Jan 29, 2001) (citing National Center on Addiction and Substance Abuse, Shoveling Up: The Impact of Substance Abuse on State Budgets). Even the Attorney General admits that "a wide array of treatment services are desperately needed in every community in the state." Charles Condon, Attorney General, Whitner Implementation Plan, reprinted as Appendix A in, Lawrence J. Nelson & Mary Faith Marshall, Ethical and Legal Analysis of Three Coercive Policies Aimed at Substance Abuse by Pregnant Women, 185a, 9 (1998).

The state's "women, and pregnant women in particular, remain underserved . . . ." Drug Strategies, South Carolina Profile (1998) at 12. For many women, successful treatment requires comprehensive residential

programs that do not force mothers to be separated from their children. See e.g., Embry M. Howell et al., A Review of Recent Findings on Substance Abuse Treatment for Pregnant Women, 16 J. Subst. Abuse Treat. 195 (1999). Studies have found that "women who have their children with them during residential treatment are less likely to drop out and are more successful after treatment than women whose children are not with them during treatment." See e.g., Drug Strategies, Keeping Score: Women and Drugs: Looking at the Federal Drug Control Budget 17 (1998). According to DAODAS, South Carolina now has six women's long-term residential treatment programs. South Carolina DAODAS Website, http://www.daodas.state.sc.us/web/treatment.html#womenchildren at 6 (visited May 7, 2001). Each of these programs, however, sharply limit the number of children the mother may keep with her to one or two, and all impose strict age limits for those children, one program capping the child's age at one year, and two other programs at five years. Id. Thus, for many if not most women, these programs will require the women to be separated from some or all of their children as a condition of receiving treatment. In addition, each program has a limited number of total beds, for women and children, ranging from 10 beds to 24. Id. Even assuming that no women brought their children to treatment (thereby preserving all beds for women),

these long-term residential treatment programs can accommodate only about 100 women. See id.[29] Yet it is estimated that as many as 49,735 women of child-bearing age may need drug or alcohol treatment each year in South Carolina. Email from Ned Self, Research Analyst, DAODAS, to Wyndi Anderson of 4/24/01. See Appendix E.

While some of these statistics can perhaps be attributed to the fear and confusion generated by the Whitner decision, others of these numbers are clearly independent of it. But all of these facts help paint an important picture of the social context into which the Whitner decision was delivered and in which it continues to operate. If allowed to remain on the books, the Whitner decision will likely erect further obstacles to the access and adequate provision of prenatal care and drug treatment for a population that already faces myriad and significant barriers to health care in South Carolina.

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[29] One of the six residential women's programs may be forced to close its doors. See Ben Brazil, Rehab group on Navy base faces eviction, The Post and Courier, Jan 20, 2001 at B1 (describing how a "highly-successful, live-in drug treatment center" might be evicted from location next to environmental cleanup site on a former Navy base.); Ben Brazil, Step Ahead may have new home on old base, The Post and Courier, Feb. 19, 2001 at B1 (describing environmental ruling that the program must vacate current building, reporting that they may have new space but lack funding to make the site habitable, and how it will have to shut down if the funds are not obtained.); Ben Brazil, Gift proposal could save rehab home, The Post and Courier, March 31, 2001 at B1 (describing offer of matching grant by local philanthropist, the possibility that the City will not match the

CONCLUSION

Although substance abuse treatment may not be a field characterized by lockstep uniformity of professional judgment, medical and substance treatment professionals join together in proclaiming that the prosecution of women for exposing their fetuses in utero to cocaine or other drugs departs drastically from a basic, widely shared understanding of what is considered medically appropriate. Three decades of research confirm that punitive approaches to the problem of drug use during pregnancy are counterproductive to the health interests of women and their children. The recent publication of a meta-study in one of the leading medical journals calls into serious question the very premise of harm upon which the prosecution of Ms. Peppers -- and the decision of South Carolina v. Whitner -- are predicated.

Because the Whitner decision lacks grounding in the teachings of the medical and social sciences, the precedent it establishes, as evidenced by the inconsistent interpretations of two state agencies, is "hopelessly and irretrievably confused"; indeed, "nothing short of a fresh start can bring any sanity, and predictability, to this very important area of the law." Holtzscheiter 506 S.E. at 513 (Toal, J., concurring).

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grant, and how one of the program's relocation options conflicted with the city's long-

For the reasons state above, both the Whitner decision and Ms. Peppers' conviction should be overturned in the interests of justice, medicine and public health.

Respectfully Submitted,

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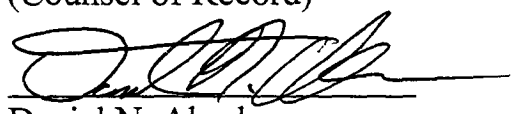
By: 
Daniel N. Abrahamson

May 8, 2001

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term redevelopment plan for the area).

APPENDIX A

Amicus Curiae American Public Health Association ("APHA") is a national organization devoted to the promotion and protection of personal and environmental health. Founded in 1872, APHA is the largest public health organization in the world, representing over 50,000 public health professionals. It represents all disciplines and specialties in public health, including maternal and child health and substance abuse. APHA strives to improve public health for everyone by proposing solutions based on research, helping to set public health practice standards, and working closely with national and international health agencies.

Amicus Curiae South Carolina Medical Association ("SCMA") is the primary professional association for individuals licensed to practice medicine in South Carolina. SCMA has over 5,500 members representing all medical specialties that provide medical services to the citizens of the state. SCMA's primary mission is to foster high ethical and clinical standards for the practice of medicine in South Carolina. To this end, SCMA opposes policies and practices that undermine patient confidentiality and weaken the trust between health care providers and patients that promotes positive treatment outcomes.

Amicus Curiae American Nurses Association ("ANA") is a professional organization representing this nation's over 2.2 million registered nurses. ANA is committed to ensuring the availability and accessibility of health care services. It believes that access to maternal-child health services is particularly critical to efforts to prevent disease and to provide early intervention for health care problems. Thus, it opposes all barriers to prenatal care. ANA is concerned that when health care providers divulge patient information to law enforcement officials, women in need of prenatal care and/or substance abuse treatment are deterred from seeking these essential services.

Amicus Curiae South Carolina Nurses Association ("SCNA") is a professional organization representing registered nurses in South Carolina. SCNA strongly supports health care for a number of vulnerable populations, and believes patients must be secure in the knowledge that their treatment providers are wholly devoted to treatment and are not doubling as the agents of law enforcement. In 1991, SCNA issued a position statement opposing

the criminal prosecution of women for drug use while pregnant. SCNA continues to believe that the breaching of patient confidentiality and the threat of criminal prosecution deters pregnant women who suffer from chemical dependence from seeking and obtaining prenatal care.

Amicus Curiae American Academy on Physician and Patient ("AAPP") is devoted to improving public health through research and education about the doctor-patient relationship, which lies at the core of effective health care. Since its founding in 1979, AAPP has developed, evaluated, and promulgated the leading model of medical education regarding the physician-patient relationship, and has trained over 3,000 physicians. The AAPP has shown that the therapeutic relationship between physician and patient depends on the assurance of confidentiality and physicians' unfettered ability to counsel and care for their patients. The AAPP, with a membership of more than 550 physicians from 10 countries, is devoted to strengthening the physician-patient relationship, and hence the quality of patient care, by promoting collaborative relationships between doctors and patients. The strength of the therapeutic relationship, in turn, affects the patient's willingness and ability to follow through with the treatment and the patient's response to the treatment. To compromise the doctor-patient relationship is to compromise care, and thereby to damage health, increase suffering, escalate medical costs, and decrease life expectancy. The AAPP believes that the decision of South Carolina v. Whitner, by re-writing South Carolina's reporting law to include fetal abuse, strikes at the core of the physician-patient bond, undermining the trust and confidence essential to the critical relationship between health care professionals and their pregnant patients.

Amicus Curiae American Academy of Addiction Psychiatry ("AAAP") is an international professional membership organization founded in 1985 with approximately 1,000 members in the United States and around the world. The membership consists of psychiatrists who work with addiction in their practices, faculty at various academic institutions, non-psychiatrist professionals who are making a contribution to the field of addiction psychiatry, residents and medical students.

Amicus Curiae Association of Maternal and Child Health Programs ("AMCHP") is a nonprofit organization that actively promotes and advances national and state programs and policies on behalf of maternal and child health needs and programs. AMCHP provides expert technical assistance on

reproductive health, adolescent and school health, teen pregnancy prevention, HIV, tobacco control and smoking cessation, immunization, children with special health care needs, perinatal and women's health, data and assessment, and service delivery and other health related issue. AMCHP represents state public health leaders and others working to improve the health of women of reproductive age, children and youth, including those with special health care needs, and their families.

Amicus Curiae Institute for Health and Recovery ("IHR") is a non-profit organization dedicated to developing a comprehensive continuum of care for families affected by substance abuse, especially women and their children. IHR focuses on the development of prevention, intervention, treatment services and the integration of gender-specific services within substance abuse prevention and treatment. IHR serves individual women and men, and families, with a continuing emphasis on pregnant and parenting women and their children. IHR members know firsthand the fears pregnant substances abusing women have regarding prosecution, causing them to be reluctant to seek prenatal care and substance abuse treatment. With over 10 years of experience in working with pregnant women who use drugs, IHR rejects policies such as those under which Brenda Peppers was prosecuted.

Amicus Curiae Ira J. Chasnoff, M.D., is President of the Children's Research Triangle and a Professor of Clinical Pediatrics at the University of Illinois College of Medicine in Chicago. The author of four books and numerous articles, as well as the principal investigator on more than two dozen federal grants to research the effects of drug use on pregnancy, Dr. Chasnoff is one of the leading researchers in the field. His research projects include multiple studies of the long-term cognitive, developmental, behavioral and educational effects of prenatal exposure to alcohol, cocaine, and other drugs; the effects on birth outcome of prenatal treatment and counseling for pregnant drug abusers; and the effectiveness of both outpatient and residential treatment programs for pregnant drug abusers. Dr. Chasnoff is a Fellow of the American Academy of Pediatrics and the recipient of many awards. As a researcher whose work was relied upon by the South Carolina Supreme Court in its decision in South Carolina v. Whitner, Dr. Chasnoff joins as an Amicus Curiae in this case based on his conviction that the research in the field does not justify policies that seek to punish women for drug use during pregnancy.

DON'T TURN DOCTORS INTO COPS

*An Open Letter to United States Surgeon General David Satcher, M.D.**

Dear Surgeon General Satcher:

As physicians, health care professionals and medical ethicists, we are greatly concerned about a United States Supreme Court case, *Ferguson v. City of Charleston*, to be heard on October 4. We fear the outcome of this case could require health care providers to serve as agents of law enforcement in the war on drugs—with devastating consequences for patients, health care and public health across the country.

The Ferguson case challenges a policy developed and instituted in 1989 by the Medical University Hospital in Charleston, South Carolina ("MUSC"). MUSC health care providers, working in collaboration with the police and prosecutor's office, instituted a policy of searching certain pregnant women and new mothers for evidence of cocaine use. The results were then turned over to police.

Patients who tested positive for cocaine were arrested. Some were shackled to their hospital beds; others were arrested shortly before or immediately after giving birth, often while still dressed in hospital gowns and bleeding from childbirth.

None of the proffered justifications for the Charleston policy have any solid foundation in medicine, science, or public health.

Drug addiction is a complex medical condition, not simply the product of a failure of individual willpower. The punitive policies at the core of today's war on drugs do not deter drug use. In fact, with respect to the Charleston policy, threat-based approaches have been shown to deter pregnant and parenting women not from using drugs, but from seeking health care. In short, the Charleston policy undermines rather than advances the interest in maternal, fetal, and child health by converting the physician's exam room into an interrogation chamber, and turning health care professionals into agents of the drug war.

Dr. Satcher, we urge you, as the country's top medical administrator, to protect the relationship between patients and their health care providers by condemning the failed Charleston experiment. The problem of drug dependence, particularly among pregnant women, is best addressed not by treating drug users as criminals, but by providing full access to a range of treatment programs appropriate for persons suffering from a medical condition.

Respectfully,

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*Letter edited for publication. For a full version and more information on *Ferguson v. City of Charleston* see

www.apha.org or www.drugpolicy.org

STATE OF SOUTH CAROLINA
IN THE SUPREME COURT

Appeal from Pickens County
Honorable Larry R. Patterson, Judge

CORNELIA WHITNER,

Respondent,

v.

STATE OF SOUTH CAROLINA,

Petitioner.

BRIEF OF AMICI CURIAE

AMERICAN MEDICAL ASSOCIATION AND

SOUTH CAROLINA MEDICAL ASSOCIATION

IN SUPPORT OF RESPONDENT

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INTEREST OF AMICI

The American Medical Association ("AMA") is a private, voluntary, non-profit organization of physicians. The AMA was founded in 1846 to promote the science and art of medicine and to improve the public health. It is the nation's largest professional medical organization with over 290,000 members who practice in all fields of medical specialization, including obstetrics, gynecology, neonatal-perinatal medicine, pediatrics, and addiction medicine. The AMA and its members are concerned about the negative health effects of prenatal drug exposure, but are also aware that both the incidence of prenatal drug exposure and the extent of harm to infants can be reduced with appropriate intervention. The AMA is concerned that state action be consistent with current medical knowledge to insure that harm to women and their infants is reduced or avoided to the greatest possible extent.

The South Carlina Medical Association ("SCMA") is a non-profit, professional association of more than 3,600 physicians practicing in the State of South Carolina. SCMA physicians practice in all of the medical specialties and comprise approximately two-thirds of the State's physicians. SCMA's primary purpose is to assist South Carolina physicians in enhancing the quality of health care for all patients in the State. SCMA and its members share the objective of promoting the most effective health care for women and children in South Carolina.

SUMMARY OF ARGUMENT

Medical facts indicate that the policy of prosecuting women who use drugs during pregnancy is irrational because it does not further the state's purpose of preventing harm

to infants. Moreover, the policy is counterproductive and dangerous since it will actually result in greater harm to infants.

Drug addiction is an illness which, like any illness, is not due simply to a failure of individual willpower. Criminal sanctions are therefore inappropriate for purposes of either punishment or deterrence. Overcoming drug addiction requires medical treatment. While it is arguable that the threat of sanctions might influence women to enter drug treatment programs, this response to sanctions is unlikely, because drug treatment for pregnant women is largely unavailable.

Even if sanctions could affect drug-using behavior, they do not create incentives beneficial to infant health and are, in fact, likely to result in greater harm. The fear of prosecution would not influence women to discontinue drug use early enough to reduce significant harm to infants. In addition, withdrawal may in some cases complicate pregnancy and threaten fetal health, and should not therefore be indiscriminately encouraged.

More importantly, women who cannot avoid drug use are likely to respond to sanctions by trying to avoid detection. Because of the need for physicians to participate in the state's policy of prosecution, women will be encouraged to avoid contact and communication with medical providers. This will greatly increase the harm to infants. First, the possibility of safe and timely withdrawal from drugs during pregnancy is increased if women are involved with medical providers. In addition, even if women continue their drug use, the effects of drug use and of other factors associated with drug use can be

greatly reduced through prenatal care and counseling. Finally, prenatal medical services can contribute to the health and development of the infant postnatally.

ARGUMENT

I. DRUG ADDICTION IS AN ILLNESS WHICH CANNOT GENERALLY BE OVERCOME WITHOUT TREATMENT. CRIMINAL SANCTIONS ARE THEREFORE INAPPROPRIATE FOR PURPOSES OF EITHER PUNISHMENT OR DETERRENCE.

The medical profession has long recognized that drug dependence is an illness which cannot generally be overcome without treatment. "Psychoactive Substance Dependence" is listed as a mental illness with specific diagnostic criteria in the Diagnostic and Statistical Manual of Mental Disorders (DSM-III-R), which is prepared by the American Psychiatric Association and used by psychiatrists to diagnose mental illness. The DSM-III-R describes substance dependence as follows:

> A cluster of cognitive, behavioral, and physiologic symptoms that indicate that the person has impaired control of psychoactive substance use and continues use of the substance despite adverse consequences. The symptoms of dependence syndrome include, but are not limited to, the physiologic symptoms of tolerance and withdrawal.[1]

The American Medical Association has examined the problem of drug dependence and issued a comprehensive analysis. According to the report,

> Treatment -- in the form of medical, psychological and psychiatric care -- is a necessary and appropriate response to drug abuse. Reluctance to provide such care

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[1]American Psychiatric Association, Diagnostic and Statistical Manual of Mental Disorders (DSM-III-R) 166 (3d ed. rev. 1987).

to drug abusers reflects unwarranted misconceptions about the nature of addiction. While there is much to be learned about drug dependency, it is clear that addiction is not simply the product of a failure of individual willpower. Instead, dependency is the product of complex hereditary and environmental factors. It is properly viewed as a disease, and one that physicians can help many individuals control and overcome.[2]

In addition to social and psychological causes, drug dependence, like other diseases, appears to be influenced by biologic or genetic factors.[3]

The case law has also recognized that drug addiction is an illness requiring medical treatment. As early as 1925, the Supreme Court stated that addicted persons are "diseased and proper subjects for [medical] treatment."[4] The Court reaffirmed this principle in Robinson v. California, when it found unconstitutional a law making the status of narcotic addiction a criminal offense."[5] The Court stated that "narcotic addiction is an illness ... which may be contracted innocently or involuntarily."[6] In his concurring opinion in

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[2]American Medical Association Board of Trustees, Drug Abuse in the United States: A Policy Report, in Proceedings of the House of Delegates: 137th Annual Meeting, 236, 241 (1988) [hereinafter "AMA 137th Meeting"].

[3]Id. at 247.

[4]Linder v. United States, 268 U.S. 5, 18 (1925).

[5]370 U.S. 660 (1962).

[6]Id. at 667.

Robinson, Justice Douglas noted that, "the addict is under compulsions not capable of management without outside help."[7]

Because addicted individuals are physically and psychologically dependent on the substance to which they are addicted, they are unable to stop using the drug without outside assistance. People addicted to illicit substances have impaired competence in making decisions about the use of those substances.[8] In fact, as described in DSM-III-R, one of the hallmarks of drug dependency is the inability to reduce or control substance abuse despite adverse consequences.[9]

II. DRUG TREATMENT, THE PRIMARY MEANS BY WHICH ADDICTED INDIVIDUALS CAN OVERCOME THEIR ILLNESS, IS LARGELY UNAVAILABLE TO PREGNANT WOMEN.

Because persons addicted to illegal substances are generally unable to overcome their addiction independently, the most that sanctions can be hoped to accomplish is to influence individuals to enter drug treatment. Women who seek help, however, are usually frustrated because drug treatment for pregnant women is largely unavailable.

Nationwide, drug treatment programs are unable to meet the demand for their services. Heroin and cocaine addicts face waiting lists of up to a year to enter treatment

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[7] Id. at 671.

[8] American Medical Association Board of Trustees, Legal Interventions During Pregnancy, 264 J.A.M.A. 2663, 2667 (1990).

[9] DSM-III-R, supra note 1 at 166. See also, American Medical Association Board of Trustees, Drug Abuse in the United States: The Next Generation, in Proceedings of the House of Delegates: 43rd Interim Meeting 95, 106 (1989) [hereinafter "AMA 43rd Meeting"] (stating that "alcoholism and drug dependence ... are diseases characterized by compulsive use in the face of adverse consequences").

programs in many areas.[10] Although thousands of addicts are currently on waiting lists, it is estimated that thousands more would probably be willing to enter treatment if it were available.[11] The length of waiting lists frequently extends beyond pregnant womens' due dates so that women are unable to receive treatment in time to prevent the passage of substances to their infants upon delivery.[12]

Treatment is even more scarce for women, especially if they are pregnant. Most drug treatment programs are not equipped to handle the needs of pregnant women. Treatment centers do not typically have prenatal or obstetrical services and therefore refuse to accept pregnant women. Providers fear that treatment for addiction not coordinated with prenatal care or obstetrical services may adversely affect fetuses and may thereby subject them to legal liability.[13] Treatment for pregnant women is therefore even more difficult to obtain than treatment generally. One study, which surveyed 95% of the drug treatment programs in New York City, found that 54% refused to treat any pregnant women, 67% would not accept pregnant women on Medicaid, and 87% had no services available to pregnant women who were addicted to crack cocaine.[14] Similarly, a study

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[10]AMA 137th Meeting, supra note 2 at 241.

[11]Id.

[12]McNulty, Pregnancy Police: The Health Policy and Legal Implications of Punishing Pregnant Women for Harm to Their Fetuses, 16 N.Y.U. Rev. L. & Soc. Change 277, 301-02 (1987-88).

[13]United States General Accounting Office, Drug-Exposed Infants, A Generation at Risk: Report to the Chairman, Committee on Finance, U.S. Senate 9 (1990 GAO/HRD-90-138) [hereinafter "GAO"].

[14]AMA 43rd Meeting, supra note 9, at 104.

conducted by the United States House of Representatives found that two-thirds of hospitals have no place to refer substance abusing pregnant women for treatment.[15]

Another problem for pregnant women is that most treatment centers are unable to provide child care services. Nationwide, ninety-two percent of treatment programs have no provisions for children.[16] Many drug-dependent pregnant women, however, already have children for whom they are the primary caretakers.[17] In order to enter a residential treatment program, these women would have to surrender their children to foster care.[18] According to the United States Government Accounting Office, lack of child care is a major barrier for drug-dependent pregnant women and prevents them from being able to take advantage of even the limited treatment resources that are available to pregnant women.[19]

The lack of sufficient drug treatment for pregnant women raises further questions about the appropriateness of criminal sanctions for purposes of either punishment or deterrence. It is clearly unreasonable to punish women for failure to receive treatment

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[15]Miller, Chairman, Select Committee on Children, Youth, and Families, U.S. House of Representatives, Addicted Infants and Their Mothers 9 Zero to Three: Bulletin of the National Center for Clinical Infant Programs 20 (1989).

[16]Butyniski, State Resources and Services Related to Alcohol and Drug Abuse Problems FY 1988, 30. (The National Association of State Alcohol and Drug Abuse Directors, Washington, D.C.).

[17]McNulty, supra note 12, at 301.

[18]Id.

[19]GAO, supra note 13, at 9. The AMA has also recognized this problem and has stated that "treatment centers are needed that are designed to accommodate the needs of women. Many women seeking residential drug treatment need child care services, yet such care is rarely available. The unavailability of child care not only prevents many women from getting treatment, but also postpones their children's transition into a drug-free home environment." AMA 137th Meeting, supra note 2, at 242.

when treatment is unavailable. Similarly, the goal of deterring drug-using behavior by pregnant women cannot be achieved in the absence of treatment resources.

III. POTENTIAL PROSECUTION DISCOURAGES CONTACT AND COMMUNICATION WITH MEDICAL PROVIDERS. A POLICY OF PROSECUTION THEREFORE INCREASES HARM TO INFANTS.

The state's policy of prosecuting women for passing illicit substances to their fetuses requires substantial participation of the medical community. Physicians must order toxicology tests when drug abuse is suspected and report positive results to state authorities. This obligation to the state supersedes physicians' obligations to patients. Physicians cannot insure that they will maintain their patients' confidentiality or act in their patients' best interests. This undermines the physician-patient relationship and seriously interferes with physicians' ability to provide pregnant women with the medical services that are crucial for the health of both the mother and her future child.

Women who cannot avoid using drugs will seek to prevent detection by avoiding contact with physicians. It has already been documented that women who fear prosecution are avoiding prenatal care.[20] Many of these women see physicians for the first time when they deliver.[21] Some women even avoid hospital delivery services and subject themselves and their infants to the dangers of unsupervised home births.[22] Just as significantly, women who do seek care are unlikely to discuss their drug use openly with physicians if

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[20]GAO, supra note 13, at 9-10.

[21]AMA 43rd Meeting, supra note 9, at 97.

[22]GAO, supra note 13, at 9-10.

physicians are obligated to report drug use to state authorities. The lack of contact and open communication with physicians increases harm to infants in several ways.

A. Safe and timely withdrawal from drugs requires contact and communication with medical providers.

Reducing harm to infants requires that drug use be discontinued early in pregnancy and that withdrawal be medically supervised. Neither of these can be accomplished if women are encouraged to avoid interaction with medical providers.

Moreover, even if women are in contact with physicians, their drug use is unlikely to be diagnosed and appropriately addressed if they are unwilling to discuss it openly. Drug use is one of the most commonly missed diagnoses in obstetric and pediatric medicine.[23] In most cases, a patient's drug use is not apparent if the patient does not disclose it. Because of their unreliability, drug tests alone cannot be relied upon to diagnose drug use.[24] It has been estimated, for example, that postnatal toxicology screens may miss up to 50% of infants exposed prenatally to drugs.[25]

An environment of communication and trust is therefore crucial for preventing or reducing harm to drug-exposed infants. When physicians and patients work together, with a shared goal of achieving the best possible outcome for mother and child, outcomes are improved. There is evidence that with appropriate prenatal counseling, women will be

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[23]Chasnoff, Drug Use in Pregnancy: Parameters of Risk, 35 The Pediatric Clinics of No. Am. 1043, 1410 (1988).

[24]AMA 43rd Meeting, supra note 9, at 102.

[25]Lockwood, What's Known and What's Not Known About Drug-Exposed Infants, 11 Youth Law News 15, 15 (1990), citing Halfon, "Born Hooked," testimony before the U.S. Select Committee on Children, Youth, and Families (April 1989).

motivated to reduce the impact of their addiction on their fetuses as much as is possible. One Philadelphia program, which treats pregnant heroin users with methadone maintenance, found that because of women's concern about the impact of methadone on their unborn fetuses, the women were able to reduce their methadone to relatively low doses.[26] Positive medical intervention is not possible if doctors are required to participate in potential punitive action against women.

B. Even if drug use is not discontinued, prenatal care can significantly reduce the risk of harm to infants.

It is also important not to deter pregnant women from seeking medical care because the negative health effects associated with prenatal drug exposure can be significantly reduced through adequate prenatal care and counseling, even if women do not discontinue their drug use. In fact, researchers are beginning to discover that many of the adverse outcomes seen in drug-exposed infants may be caused by other health problems associated with drug use rather than by drug use itself.[27] These associated problems include the use of licit substances such as alcohol and cigarettes,[28] poor nutrition,[29] and anemia.[30]

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[26]Finnegan, Connaughton, Emich & Wieland, Comprehensive Care of the Pregnant Addict and its Effecton Maternal and Infant Outcome, 1 Contemp. Drug Problems 795, 797 (1972).

[27]Zuckerman & Bresnahan, Developmental and Behavioral Consequences of Prenatal Drug and Alcohol Exposure, 38 Pediatric Clinics of No. Am. 1387 (1991); Chasnoff, supra note 23 at 1408-10; and Cherukuri, Minkoff, Feldman, Parekh & Glass, A Cohort Study of Alkaloidal Cocaine ("Crack") in Pregnancy, 72 Obstetrics and Gynecology 147, 150 (1988).

[28]The correlation has been widely documented. See, e.g., Frank, Zuckerman, et al., Cocaine Use During Pregnancy: Prevalence and Correlates, 82 Pediatrics 888, 892 (1988); Chasnoff, supra note 23, at 1408-10; Weston, Ivins, Zuckerman, Jones, Lopez, Drug Exposed Babies: Research and Clinical Issues, 9 Zero to Three: Bulletin of the National Center for Clinical Infant Programs 1, 4 (1989); AMA 137th Meeting, supra note 2, at 236, 248. AMA, Legal Interventions, supra note 8, at 2666; See also, Getting Straight, Overcoming Treatment

Other risk factors associated with drug use include co-existing maternal mental illness and infectious diseases such as AIDS and hepatitis.

Through prenatal care and counseling, women can come to understand the risk factors associated with drug use and be encouraged to reduce or avoid them. This would greatly reduce the risk of harm to infants. For example, low birth weight, a primary cause of infant mortality and disability as well as higher health care costs, is commonly associated with prenatal drug exposure.[31] One study has found, however, that while cocaine-exposed infants were on average 400 grams lighter at birth than non-exposed infants, only 25% of this difference was attributable to cocaine use itself. Among the factors responsible for

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Barriers for Addicted Women and Their Children: Hearing Before the Select Committee on Children, Youth, and Families, House of Representatives, 101st Cong. 2d Sess. (1990) (Fact Sheet at 7) [hereinafter "Fact Sheet, Hearing"].

Note that these facts raise questions about the rationality of a policy which prosecutes women for the use of illicit substances. From the point of view of fetal health, illicit substances are not more dangerous than licit substances and the singling out of illicit substances users is therefore not justifiable. The use of licit substances during pregnancy is even more widespread then the use of crack and other illicit drugs. 34 of 56 million American women of childbearing age (15-44) use alcohol. In 1988, 30,000 infants suffered birth defects attributable to alcohol. (AMA 43rd Meeting, supra note 9 at 95). As the California Medical Association has stated,

> A wide variety of acts or conditions on the part of the pregnant woman could pose some threat to her fetus, including failing to eat "well"; using nonprescription, prescription, or illegal drugs; exercising; not exercising; suffering physical harm due to accident or disease; working or living near possible toxic substances; smoking; drinking alcohol; engaging in sexual intercourse; ingesting caffeine; being overweight; being underweight; and residing at high altitudes. (Cited in English, Prenatal Drug Exposure: Grounds for Mandatory Child Abuse Reports?, 11 Youth Law News 3, 7 (1990)).

[29]Frank, supra note 28, at 892.

[30]Id.; AMA 43rd Meeting, supra note 9, at 97.

[31]GAO, supra note 13, at 38.

the other 75% of the deficit were poor maternal nutrition and cigarette smoking.[32] In accordance with this finding, adequate prenatal care has been shown to reduce the incidence of low birth weight among drug-exposed infants by 18 to 50 percent,[33] and significantly to reduce the incidence of perinatal morbidity among cocaine-exposed infants.[34]

As with drug use itself, detection of these problems requires contact and open communication with medical providers. Prenatal care must be offered in an environment of cooperation and trust. Physicians cannot detect potential problems and provide counseling on their prevention if women are not able to be completely open about their lifestyles. With appropriate counseling and assistance, many women would be able to avoid additional risks to their infants even if they are unable to stop using drugs. Pregnant women who participated in a smoking cessation program at a Michigan WIC [Women, Infants, and Children] clinic, for example, were 3.6 times more likely to quit smoking than were nonparticipants.[35] Through its policy of prosecution, which discourages contact and open communication with medical providers, the state is therefore contributing to the very outcomes it hopes to discourage.

Open communication with physicians regarding drug use is also necessary to insure safe deliveries. Narcotic analgesia and morphine are commonly administered to patients

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[32]Zuckerman et al., Effects of Maternal Marijuana and Cocaine Use on Fetal Growth, 320 New Engl. J. Med. 762, 767 (1989). See also Zuckerman, supra note 27.

[33]GAO, supra note 13, at 38.

[34]MacGregor, Keith, Bachicha & Chasnoff, Cocaine Abuse During Pregnancy: Correlation Between Prenatal Care and Perinatal Outcome 74 Obstetrics and Gynecology 882, 882 (1989).

[35]Fact Sheet, Hearing, supra note 28, at 6.

during labor and delivery. Women who abuse narcotics such as heroin or methadone are, therefore, at risk of overdose during labor and delivery if physicians are unaware of their drug use. If physicians are aware of maternal drug use, they can avoid these types of medication or carefully monitor their use during labor and delivery to prevent overdose.[36]

C. Positive contact with medical providers prenatally can contribute to postnatal infant health and development. Prosecution detracts from postnatal development.

Just as a variety of prenatal factors affect neonatal outcomes, postnatal factors affect the long-term developmental outcomes of drug-exposed infants. Like prenatal factors, postnatal factors may contribute to the harm associated with drug exposure. Research suggests that drug exposure and other prenatal risk factors create a "biologic vulnerability" which can be compensated for "by competent caretaking, but which renders the child more vulnerable to the effectsof poor caretaking."[37] Drug-exposed infants who experience adequate parenting and a supportive environment will have better developmental outcomes than drug-exposed infants who experience neglect and other stresses postnatally.[38] For example, prematurity, which is commonly associated with prenatal exposure to various substances, may cause neurologic immaturity and therefore lead to low IQ scores later in life. A study of neurologically immature infants, however, found that only those who had poor caretaking during their first two years had lower IQ scores.

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[36]Finnegan, supra note 26, at 798.

[37]Zuckerman, supra note 27.

[38]Chasnoff, supra note 23, at 1409-10. See also, Weston, supra note 28, at 4.

Neurologically immature infants who had responsive caretaking developed normal IQ scores.[39] Similarly, a study of opiate-exposed newborns found that postnatal environment was more important than the amount of maternal opiate use in determining developmental outcomes.[40]

Positive prenatal interaction with health care providers and the possibility it offers of bringing women into drug treatment is thus beneficial to the infant postnatally as well as prenatally. Even if drug treatment cannot be accomplished during pregnancy, the development of a positive alliance with health care providers makes it more likely that women can be brought into treatment later. Treatment experts concur that the motivation created by pregnancy offers a unique window of opportunity for positive intervention into the lives of drug-dependent women.[41] Maternal drug treatment, at whatever point possible, is necessary to the healthy development of her child because drug-dependent women may be unable to provide a supportive environment for their children's development unless they are able to overcome their addiction.[42] In addition, many drug-dependent women lack proper models for parenting and can be helped in their role as parents by positive intervention from the health care or social service community.[43] While successful

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[39]Zuckerman, supra note 27.

[40]Zuckerman, Drug Exposed Infants: Understanding the Medical Risk, 1 in The Future of Children 26, 34 (1991).

[41]AMA 43rd Meeting, supra note 9, at 102.

[42]Zuckerman, supra note 40, at 34; and Krondstadt, Complex Developmental Issues of Prenatal Drug Exposure, 1 The Future of Children 36, 45 (1991).

[43]Chasnoff, supra note 23, at 1409-10.

intervention strategies for vulnerable children and their families exist, these cannot be implemented in an environment that drives women away from health and social service providers.[44]

Bringing women into drug treatment whenever possible is critical for the women's other children as well. In a 1986 survey, members of the National Council of Juvenile and Family Court Judges estimated that substance abuse among adults was a significant factor in 60-90% of the cases referred to their courts.[45] The unique opportunity for positive intervention during pregnancy should not be lost.

CONCLUSION

Accordingly, amici respectfully request that this court affirm the lower court's ruling and grant Ms. Whitner's application for post-conviction relief.

Respectfully submitted,

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& American Medical Association

September 28, 1994

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[44]Krondstadt, supra note 42, at 45.

[45]Grimm, Drug Exposed Infants Pose New Problems for Juvenile Courts, 11 Youth Law News 9, 9 (1990).

THE STATE OF SOUTH CAROLINA

IN THE SUPREME COURT

Appeal from Pickens County
Honorable Larry R. Patterson, Judge

CORNELIA WHITNER,

Petitioner,

v.

STATE OF SOUTH CAROLINA

Respondent.

CERTIFICATE OF SERVICE

The undersigned attorney hereby certifies that a true copy of the brief of AMICI CURIAE in the above-titled case has been served on all counsel of record by mailing three (3) copies in an envelope properly addressed with postage prepaid this 28th day of September, 1994.

Stephen P. Williams

STEPHEN P. WILLIAMS

ATTORNEY FOR AMICI CURIAE

Sworn to before me this 28th
day of September, 1994

Gillian W. Cole

NOTARY PUBLIC FOR SOUTH CAROLINA
My Commission Expires: 6-18-97

Growth, Development, and Behavior in Early Childhood Following Prenatal Cocaine Exposure

A Systematic Review

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Context Despite recent studies that failed to show catastrophic effects of prenatal cocaine exposure, popular attitudes and public policies still reflect the belief that cocaine is a uniquely dangerous teratogen.

Objective To critically review outcomes in early childhood after prenatal cocaine exposure in 5 domains: physical growth; cognition; language skills; motor skills; and behavior, attention, affect, and neurophysiology.

Data Sources Search of MEDLINE and *Psychological Abstracts* from 1984 to October 2000.

Study Selection Studies selected for detailed review (1) were published in a peer-reviewed English-language journal; (2) included a comparison group; (3) recruited samples prospectively in the perinatal period; (4) used masked assessment; and (5) did not include a substantial proportion of subjects exposed in utero to opiates, amphetamines, phencyclidine, or maternal human immunodeficiency virus infection.

Data Extraction Thirty-six of 74 articles met criteria and were reviewed by 3 authors. Disagreements were resolved by consensus.

Data Synthesis After controlling for confounders, there was no consistent negative association between prenatal cocaine exposure and physical growth, developmental test scores, or receptive or expressive language. Less optimal motor scores have been found up to age 7 months but not thereafter, and may reflect heavy tobacco exposure. No independent cocaine effects have been shown on standardized parent and teacher reports of child behavior scored by accepted criteria. Experimental paradigms and novel statistical manipulations of standard instruments suggest an association between prenatal cocaine exposure and decreased attentiveness and emotional expressivity, as well as differences on neurophysiologic and attentional/affective findings.

Conclusions Among children aged 6 years or younger, there is no convincing evidence that prenatal cocaine exposure is associated with developmental toxic effects that are different in severity, scope, or kind from the sequelae of multiple other risk factors. Many findings once thought to be specific effects of in utero cocaine exposure are correlated with other factors, including prenatal exposure to tobacco, marijuana, or alcohol, and the quality of the child's environment. Further replication is required of preliminary neurologic findings.

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RECENTLY, THE US SUPREME Court considered *Ferguson et al v City of Charleston*, a Fourth Amendment case (unreasonable search and seizure).[1] This case addresses a policy of the Medical University of South Carolina whereby health professionals, in cooperation with the local prosecutor, selectively screened the urine of medically indigent obstetric patients for cocaine metabolites.[1-3] Medical personnel reported positive results to the police, who would then come to the hospital to arrest prenatal and postpartum patients for possession of an illegal drug, delivery of drugs to a minor, or child abuse.[3,4] In the popular press, *People* magazine reported on C.R.A.C.K. (Children Requiring a Caring Kommunity), a controversial charity that raises money to give mothers with a history of illegal drug use financial incentives to accept long-acting contraception, or, in most cases, sterilization.[5] This charity and the policies at issue in *Ferguson v City of Charleston* reflect popular belief that women who use cocaine while pregnant inflict severe, persistent, and unusual impairments on their unborn children, recently described by a newspaper columnist as "blighted by a chemical assault in the womb."[6]

See also p 1626.

Public expectations of "blighted" children fuel controversial punitive poli-

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cies directed toward addicted mothers.[7] Since 1985, more than 200 women in 30 states have faced criminal prosecution for using cocaine and other psychoactive substances during pregnancy.[7] Scholars and professional organizations have condemned efforts to sterilize or criminally prosecute addicted mothers as ethically and legally flawed, racially discriminatory, and an impediment to providing appropriate medical care to these women and their children.[3,4,7-9]

Recent reviews[10-15] and articles[16-18] show that most initial predictions of catastrophic effects of prenatal cocaine exposure upon newborns were exaggerated. After controlling for confounders, the most consistent effects of prenatal cocaine exposure are small but statistically significant decrements in 1 or more parameters of fetal growth for gestational age[12,13] and less optimal neonatal state regulation and motor performance.[10,11,14] Clinically silent findings on neonatal cranial ultrasounds following prenatal exposure have been found in some studies,[10,16] but not others.[17] Prenatal cocaine exposure without concurrent opiate exposure has not been shown to be an independent risk factor for sudden infant death syndrome.[15,18]

Despite the neonatal data, beliefs about cocaine's teratogenicity impose a stigma on cocaine-exposed infants[19,20] and children at school age.[21] Teachers fear that "crack kids" will be too developmentally delayed or disruptive to be taught in traditional classrooms.[22]

Given the current public concern, health professionals need a critical synthesis of studies of postneonatal outcomes of children exposed to cocaine in utero in 5 domains: (1) physical growth; (2) cognition; (3)language skills; (4) motor skills; and (5) behavior, attention, affect, and neurophysiology.

METHODS

Data Sources

MEDLINE and *Psychological Abstracts* were searched for all human studies published in English from 1984 until October 2000 that included the words *cocaine*, *crack/cocaine*, *crack*, *pregnancy*, *prenatal exposure*, *delayed effects*, *children*, and *related disorders*. Even if cited in MEDLINE, abstracts or nonreviewed proceedings of scientific meetings[23] were excluded. Seventy-four published articles were identified.[24-97]

Study Selection

We first applied selection criteria used by others[98]: all selected studies presented original research published in a refereed English-language journal, used human subjects, and used a control or comparison group. Detailed review was then restricted to studies that also met 3 criteria: (1) samples were prospectively recruited; (2) examiners of the children were masked to their cocaine exposure status; and (3) the cocaine-exposed cohort did not include a substantial proportion of children also exposed in utero to opiates, amphetamines, or phencyclidine, or whose mothers were known to be infected with the human immunodeficiency virus (HIV).

Justification of Selection Criteria

Studies were classified as prospectively recruited if the samples of cocaine-exposed and unexposed mother-infant dyads were identified and enrolled either during pregnancy or immediately after birth. Prospective recruitment obviates recall bias, when caregivers of a child who has experienced an adverse outcome are likely to recall prenatal exposure in greater detail, and selection bias, when caregivers are more likely to enroll children with already suspected developmental impairments. Such biases in retrospective samples can produce an overestimate of the risk of negative developmental outcomes.[99]

In behavioral research, examiners' bias may unconsciously distort measurement of developmental/behavioral outcomes.[99-101] Investigators have shown that evaluators were more likely to code children's videotaped behavior as abnormal if the children were labeled as "crack kids" than if they were not.[19,20]

Lower developmental test scores in infancy and less adaptive behavior at school age have been linked to prenatal opiate exposure.[102] In samples where most cocaine-exposed children are also opiate-exposed, the independent effect of cocaine on outcome cannot be clearly delineated. For the same reason, samples where cocaine exposure was largely confounded with exposure to methamphetamines or phencyclidine were also excluded. Exposure to HIV in utero is correlated with poor developmental outcome not only among infected infants, but also among those who seroreverted.[103] If most cocaine-exposed children in a sample are also offspring of HIV-infected mothers, it cannot be determined whether effects are due to cocaine or HIV exposure.

Procedures

Two developmental/behavioral pediatricians (D.A.F., M.A.) and a neuropsychologist (W.G.K.) reviewed all articles. After excluding 38 articles according to the above criteria, the same 3 authors abstracted the data from the remaining 36 articles in detail. If a single article covered outcomes in more than 1 domain (eg, cognitive test scores and behavior), each domain was addressed separately. If there was uncertainty, contact was made with the corresponding author of the article to clarify interpretation of data. Disagreements were resolved by consensus.

Of the excluded studies, 20* failed to mask investigators to children's cocaine exposure status. Seven[24,27,28,36,39,40,53] had no control group. Twenty-six† did not use prospective recruitment for some or all of their subjects. Thirteen‡ primarily recruited children with in utero exposure to opiates, methamphetamines, or phencyclidine. Two[32,44] reported samples predominantly composed of children of HIV-positive mothers.

Data Extraction

The conceptual framework for data extraction was provided by recent theoretical advances in human behavioral teratology[104,105] delineating the implications of various methods of characteriz-

*References 24, 27, 30, 31, 33-37, 41, 42, 48, 49, 52, 53, 55-57, 60, 61.
†References 24-27, 29, 30, 33-38, 40-44, 46-49, 51, 54, 58, 59, 61.
‡References 28, 30, 32, 34, 41, 42, 49, 50, 54, 55-57, 59.

ing exposure to possible toxicants and of controlling for potential confounders. Many cocaine-exposed newborns are clinically indistinguishable from their unexposed peers,[18,106] so identification of exposed infants depends on maternal report or measurement of cocaine metabolites in biological matrices. Dose response is a critical issue in the study of all potential teratogens[105] but is difficult to ascertain for cocaine in human studies. Recently, infants' meconium and maternal hair have emerged as useful biological markers for estimating the dose of prenatal cocaine exposure.[97,107-111] However, at the time most cohorts available for study in the postneonatal period were recruited, assays of urine from mother or infant for benzoylecognine were the only biological indicators readily available. Urine assays do not reflect cumulative fetal drug exposure. Thus, researchers who address dose response rely on maternal interviews to classify levels of prenatal cocaine exposure, usually classifying 2 or more days a week during pregnancy as "heavier use."[63,66,85] For this review, we classified levels of prenatal cocaine exposure as heavier/lighter or as exposed/unexposed.

Even when their mothers do not use opiates, amphetamines, or phencyclidine, most cocaine-exposed infants are also exposed in utero to varying combinations of tobacco, alcohol, and marijuana.[112] The heaviest prenatal cocaine users are often the heaviest users of these other substances.[109] If prenatal exposure to tobacco, alcohol, and marijuana is not analytically controlled, their effects on neurodevelopment[74,84,113] may be misattributed to cocaine. If these substances are statistically controlled for without regard to the level of use, residual confounding may occur because of overaggregation of light and heavy exposure.[104,114] For this review, we considered whether prenatal tobacco, alcohol, and marijuana exposure are reported or not, are controlled analytically as dichotomous variables (exposed/not exposed), or are statistically controlled in a dose-related manner. However, statistical control in a dose-controlled manner offers the greatest assurance that effects of heavy tobacco, marijuana, or alcohol exposure will not be spuriously attributed to cocaine.

Interpreting cocaine effects is further complicated because the samples studied are, with a few exceptions,[77,90,93,97] drawn from economically disadvantaged, medically at-risk populations, whose characteristics are associated with high developmental risk without any psychoactive substance exposure. The number of environmental and medical variables, the accuracy of their measurement, and their distribution within the sample may influence the estimation of cocaine effects.[104]

The data were derived from 17 independent cohorts from 14 cities. Some cohorts were the subject of multiple articles, either at different ages or with differing analyses of the same data from a single age. Mutually exclusive samples were identified by author and city. For each article, a number of parameters were coded, including number of cocaine unexposed and exposed subjects and the number at varying levels of cocaine exposure if such data were available; how pregnancy exposure to tobacco, alcohol, and marijuana was addressed analytically and whether this exposure was significantly related to outcomes; what other covariates were matched, used as selection criteria, or controlled for statistically; which of these covariates influenced outcomes; and what, if any, statistically significant ($P<.05$, 2-tailed unless otherwise specified) cocaine effects were identified. Of the included articles, 4 do not report attrition.[66,77,78,87] In the others, sample retention from birth to the oldest age reported for the cohort ranges from 39%[70] to 94%.[62] Of these, 14 articles* from 11 cohorts document the characteristics of those retained compared with those lost to follow-up.

RESULTS

Physical Growth

If level of exposure to other substances is not controlled, prenatal cocaine exposure appears to be associated in 2 cohorts with postneonatal decrements in weight or occipitofrontal head circumference,[64,70,78,79] but not in another[89] (TABLE 1). However, in 2 cohorts that did control for dose of prenatal exposure to tobacco and alcohol[84,93] no negative cocaine effect was noted on the children's weight, length, or head circumference. In 1 cohort, full-term unexposed children were longer than exposed or unexposed preterm children and their exposed full-term counterparts.[71]

Standardized Cognitive Assessment

There is little impact of prenatal cocaine exposure on children's scores on nationally normed assessments of cognitive development (TABLE 2). Findings of cocaine effects depend on contextual factors, such as the child's history of prematurity, age at time of assessment, and the effects of prenatal exposure to other substances. Of the 9 studies evaluating prenatal cocaine effects on developmental test scores in infants, 5 found no effect,[71,77,79,85,89] including 1 that classified infants according to level of prenatal exposure to cocaine, tobacco, and alcohol.[85] Chasnoff et al[70] found that the 6-month-old infants whose mothers used cocaine, alcohol, and marijuana attained mean scores lower than infants of controls, but identical to those of infants whose mothers had used alcohol/marijuana without cocaine, suggesting no incremental impact of cocaine use. Mayes et al[91] reported bivariate association of lower psychomotor scores at 3 months with prenatal cocaine exposure, but not after statistical control for potential confounders. Alessandri et al[63] found no main effects of level of prenatal cocaine exposure on test scores at 8 or 18 months, but on post hoc comparisons children with the highest level of cocaine exposure in pregnancy (2 or more days a week) obtained significantly lower mental development scores at age 18 months than unexposed infants.

In very low-birth-weight infants, Singer et al[96] reported a negative association between prenatal cocaine exposure and developmental scores at 16 months corrected age, but in utero ex-

*References 64, 65, 67, 73, 74, 81, 83, 85, 89, 91-93, 96, 97.

posure to other psychoactive substances was not analytically controlled.

Six reports from 4 cohorts evaluated the association of prenatal cocaine exposure with cognitive test scores in children between the ages of 3 and 6 years.[64,78,82,83,89,93] Two articles presented results in a single cohort of 3-year-olds. In one, Azuma and Chasnoff[64] reported that children whose mothers only used alcohol and marijuana during pregnancy achieved mean IQ scores that were identical to those of children whose mothers had also used cocaine. In a second report of post hoc comparisons from the same cohort, Griffith et al[78] found that children exposed to cocaine in addition to other substances scored significantly lower than unexposed controls on a verbal reasoning scale of the IQ test. However, these scores were not lower than the scores of children who had been exposed to the other substances but not cocaine and were not statistically controlled for tobacco exposure. Another study found no cocaine effect on IQ.[89] In the cohort studied by Hurt et al[82,83] there was no impact of prenatal cocaine exposure on children's cognitive test scores at 48 months. In the oldest prospectively recruited cohort studied to date, Richardson et al[93] found no effect of prenatal cocaine exposure on any IQ scales at age 6 years, including verbal reasoning, and no association with children's academic skills.

The literature on prenatal exposure to cocaine has not shown consistent effects on cognitive or psychomotor development. However, 7 studies show that environmental factors such as caregiver (biological mothers vs kinship care or foster parents),[79,89] whether or not that caregiver received case management or home visiting services,[78,89] quality of the home environment,[63,64,78,83] and maternal IQ[77] were statistically significant correlates of test scores.

Language Skills

Three studies of toddlers[69,81,89] showed no association between prenatal cocaine exposure and receptive or expressive language scores on standardized measures (TABLE 3). Using a naturalistic language sample, Bland-Stewart et al[69] found that cocaine-exposed children produced different semantic categories than matched unexposed children. However, there were too few subjects to permit confounder control.

Motor Skills

Of 6 studies, 3 from 2 cohorts found less optimal motor scores in the first 7 months of life following prenatal cocaine exposure (TABLE 4).[75,76,97] No prospective study has identified a cocaine effect on motor development after age 7 months.[75,76,89] Dempsey et al[74] found mothers' prenatal tobacco use (quantified by urine assays of cotinine rather than by self-report), but not cocaine use (quantified by benzoylecognine levels in meconium), was the major predictor of abnormalities in infant muscle tone at 6 weeks. No other prospective study of motor outcome[75,76,79,89,97] following cocaine exposure used biological markers to measure tobacco exposure. It is not yet clear whether previously reported positive associations between prenatal cocaine exposure and less optimal early motor development may be a misattribution of tobacco effects.

Behavior, Attention, Affect, and Neurophysiology

Heterogeneous techniques used to evaluate behavior, attention, affect, and neurophysiology following prenatal cocaine exposure are not readily comparable across studies (TABLE 5). In the first year of life, visual habituation (an

Table 1. Physical Growth*

Study	No.	Cocaine Effect	Outcome Measures	Assessment Ages	Tobacco Use
Azuma and Chasnoff,[64] 1993	92 + 25 poly 45 –	Both cocaine and polydrug exposed groups had lower OFC	Weight, height, OFC	3 years	R
Chasnoff et al,[70] 1992	106 + 45 poly 81 –	Both cocaine and polydrug exposed had lower OFC than unexposed at all ages measured	Weight, height, OFC	3, 6, 12, 18, and 24 months	R
Coles et al,[71] 1999	25 preterm + 32 full term + 22 preterm – 26 full term –	Full-term negatives longer; otherwise, no cocaine effect	Weight, length, OFC	8 weeks corrected for prematurity	R
Hurt et al,[79] 1995	101 + 118 –	Cocaine associated with lower weight and OFC at all ages	Weight, OFC	6, 12, 18, 24, and 30 months	R
Jacobson et al,[84] 1994	86H 48L 330 –	Cocaine exposure associated with faster postnatal weight gain in first 13 months, no effect on length or OFC	Weight, length, OFC	6.5 and 13 months	DC Correlated with faster postnatal weight gain
Kilbride et al,[89] 2000	111 + 41 –	No cocaine effect	Weight, length, OFC	2, 12, 24, 36 months	C
Richardson et al,[93] 1996	28 + 523 –	No cocaine effect	Weight, height, OFC	6 years	DC

*Across tables, abbreviations are explained at first mention only. Plus (+) indicates exposed to cocaine; poly, exposed to multiple drugs; minus (–), not exposed to cocaine: OFC, occipitofrontal head circumference; R, reported; C, controlled; IVH, intraventricular hemorrhage; H, heavier; L, lighter; DC, dose controlled; and NICU, neonatal intensive care unit.

indicator of recognition memory and learning) was negatively associated with higher levels of cocaine exposure in 1 cohort[85] but not in 3 others.[63,88,91] No cocaine effect was found on toddler play[80] or on observations of behavioral style during an infant motor assessment.[68] Problem-solving abilities did not differ between cocaine-exposed and unexposed preschoolers.[67]

Differences in affective expression have been correlated with prenatal exposure to cocaine in 4 studies from 3 cohorts of infants younger than age 2 years. Alessandri et al[62] found that 4- to 8-month-old cocaine-exposed children showed less arousal, interest, joy, or sadness during the learning task. In the same cohort, Bendersky and Lewis[66] reported no differences in maternal behaviors, but less joy and more negativity among 4-month-old infants with heavy cocaine exposure following a perturbation of the face-to-face interaction between mother and infant. Roumell et al[94] reported a bivariate association between prenatal cocaine exposure and decreased facial emotion after immunization, uncontrolled for other prenatal exposures. In studies of face-to-face interaction between mothers and infants, Mayes et al[92] found heavy prenatal cocaine use correlated with less optimal maternal behavior and with decreased readiness for interaction among infants at age 6 months but not 3 months.

Diverse techniques have been used to assess neurophysiology in cocaine-exposed and unexposed infants aged 13 months and younger. Cocaine-exposed infants showed lower basal cortisol levels, but normal cortisol increase in response to the stress of venipuncture and no difference in amount of observed crying.[86] On electroencephalographic sleep studies at 12 months, cocaine-exposed children did not differ from unexposed children in sleep architecture, but infants whose mothers continued to use cocaine into the third trimester showed subtle reductions in spectral energies.[95] In 2 reports from a single cohort, assessments of heart and respiratory response to auditory, visual, and social stimulation at age 8 weeks found that cocaine-exposed children showed increased heart rate to social stimulation and a higher baseline respiratory rate, but were not more dysregulated in arousal modulation or observed behavioral state.[65,71] Full-term cocaine-exposed infants showed better arousal modulation than their unexposed counterparts.[65]

Prenatal cocaine exposure, independent of exposure to alcohol, has not been found to be associated with levels of behavioral disturbances detectable by standard scoring of epidemiologic and clinical report measures by parents and teachers.[64,72,73,77,78,87,93] However, 2 studies in 1 cohort (1 study using a study-specific measure[72] and the other[73] using a new and as-yet unreplicated method of scoring the Teacher Report Form of the Child Behavior Problem Checklist[115]) found less-optimal scores among cocaine-exposed children. Another research group[90,93] found, after covariate control, an association between prenatal cocaine exposure and increased errors of omission, but not commission, on a continuous performance task.

COMMENT

Before summarizing our findings, we must acknowledge the limitations of our approach. Studies that meet our methodologic criteria may still lead to overestimation or underestimation of cocaine's impact. Prospective studies may yield biased results if there is differential attrition.[99] Less dysfunctional caregivers may be more likely to sustain study participation, creating differential retention of children with more

Alcohol Use	Marijuana Use	Selection/Matching Criteria	Controlled Variables	Other Effects
C Analyzed as single category		All drug users in prenatal care by 15 weeks and in drug treatment		
C Analyzed as single category		All drug users in prenatal care by 15 weeks and in drug treatment	Sex, gestational age	
R	R	Maternal age ≥19, English speaking, singleton or first-born twin, no O_2 >28 days, no seizures, no grade III or IV IVH, not breastfed		
R	R	Medicaid, all >34 weeks' gestation		
DC Correlated with both shorter stature and slower postnatal weight gain if mother aged >30	DC	All black, low socioeconomic status, at least 2 prenatal visits, >32 weeks' gestation	Maternal age, welfare, education, parity, prepregnancy weight, birth weight, height, breastfed, prenatal visits, infant age, sex, gestational age	Breastfeeding associated with faster postpartum growth
C	R	All from same ZIP code, 36 weeks' gestation, no NICU care, women referred for drug treatment excluded	Placement, gestational age, maternal age and education, OFC at birth, birth weight	
DC	DC	All in prenatal care by 5 months of pregnancy	Age, sex, height, ethnicity, current drug/alcohol use	

favorable outcomes. Alternatively, caregivers of children with obvious impairments may be more willing to return for repeated assessments, leading to an overestimation of risk for poor outcomes.

Reliance on interviews alone to classify exposure, which was the state of the art when the cohorts reported here were recruited, entails unavoidable imprecision.[14] In the absence of cumulative biological markers some cocaine-exposed children may have been misclassified as unexposed. Conversely, women who do admit cocaine use in interviews tend to be heavier users than those who deny use but whose use is detected by hair assays.[111] Generalization from atypical cases at the highest levels of exposure will lead to overestimation of the impact of prenatal cocaine exposure in the broader population of users. However, if a sample contains very few infants heavily exposed to cocaine,[77,93] possible effects of heavier use may be statistically "diluted" by over-aggregation of various levels of exposure into a single category.[114]

Table 2. Standardized Cognitive Assessments*

Study	No.	Cocaine Effect	Outcome Measures	Assessment Ages	Tobacco Use
Alessandri et al,[63] 1998	15H 19L 78 –	No cocaine dose effect on PDI, no cocaine main effect on MDI, but interaction of heavy cocaine with age associated with lower MDI	BSID-II	8 and 18 months	DC
Azuma and Chasnoff,[64] 1993	92 + 25 poly 45 –	No cocaine effect	SBIS	3 years	R
Chasnoff et al,[70] 1992	106 + 45 poly 81 –	Cocaine exposed not different from other drugs, but lower on MDI and PDI at 6 months than unexposed	BSID	3, 6, 12, 18, and 24 months	R
Coles et al,[71] 1999	25 preterm + 32 full-term + 22 preterm – 26 full-term –	No cocaine effect	BSID	8 weeks corrected for prematurity	R
Graham et al,[77] 1992	30 + 20 poly 30 –	No cocaine effect	BSID	19.7 months	R
Griffith et al,[78] 1994	93 + 24 poly 25 –	Cocaine-exposed lower than controls on verbal reasoning	SBIS	3 years	R
Hurt et al,[79] 1995	101 + 118 –	No cocaine effect	BSID	6, 12, 18, 24, and 30 months	C
Hurt et al,[82] 1997	71 + 78 –	No cocaine effect	WPPSI-R	4 years	C Negative association with performance IQ
Hurt et al,[83] 1998	72 + 78 –	Neither prenatal nor concurrent maternal cocaine use associated with full-scale IQ ≤90	WPPSI-R	4 years	C
Jacobson et al,[85] 1996	86H 48L 330 –	No cocaine effect	BSID	13 months	DC
Kilbride et al,[89] 2000	111+ 41 –	No cocaine effect	BSID, SBIS	6, 12, and 24 months (BSID); 36 months (SBIS)	C
Mayes et al,[91] 1995	61 + 47 –	Cocaine univariately associated with PDI, but not after multivariate control	BSID	3 months	C
Richardson et al,[93] 1996	28 + 523 –	No cocaine effect	SBIS, WRAT-R	6 years	DC
Singer et al,[95] 1994	41 + 41 –	Lower MDI and PDI among cocaine exposed	BSID	16 months corrected for prematurity	R

*PDI indicates Psychomotor Development Index; MDI, Mental Development Index; BSID-II, Bayley Scales of Infant Development, 2nd ed; SBIS, Stanford Binet Intelligence Scale; HSQ, Home Screening Questionnaire; CBCL, Child Behavior Checklist; BSID, Bayley Scales of Infant Development; WPPSI-R, Wechsler Preschool and Primary Scale of Intelligence-Revised; HOME, Home Observation for Measurement of the Environment; PCIS, Parent Caregiver Involvement Scale; OCS, Obstetrical Complication Scale; WRAT-R, Wide Range Achievement Test-Revised; AFDC, Aid for Families of Dependent Children; BPD, bronchopulmonary dysplasia; and VLBW, very low birth weight.

Four studies with positive[69,75,76,94] and 1 with negative[68] findings have small sample sizes and must be interpreted with particular caution since they may overestimate cocaine effects due to the impact of a few outliers or underestimate effects because of insufficient power or sampling variation.

While acknowledging these limitations, we conclude that after control for exposure to tobacco and alcohol, effects of prenatal cocaine on physical growth are not shown.[64,70,71,79,84,89,93] Researchers have not found a negative association of prenatal cocaine exposure, independent of environmental risk and exposure to other psychoactive substances, with developmental scores from infancy to age 6 years.* However, sufficient information is not available to elucidate whether there are specific cocaine effects on developmental scores in the context of prematurity.[96]

Prospective data in the language and motor domains are only available for

*References 63, 64, 70, 71, 77-79, 82, 83, 85, 89, 91, 93.

Alcohol Use	Marijuana Use	Selection/Matching Criteria	Controlled Variables	Other Effects
DC	DC	All with biological mothers	Environmental risk, neonatal medical risk, sex	Among lightly exposed, increased environmental risk associated with decreased MDI
C Analyzed as single category		All drug users in prenatal care by 15 weeks and in drug treatment	OFC, HSQ, perseverance, CBCL	Poor HSQ and poor perseverance associated with lower IQ
C Analyzed as single category		All drug users in prenatal care by 15 weeks and in drug treatment	Sex, OFC	Smaller OFC correlated with MDI at 12, 18, and 24 months, OFC at birth associated with PDI at 6 months and MDI at 24 months
R	R	Maternal age ≥19, English speaking, singleton or first-born twin, no O_2 >28 days, no seizures, no grade III or IV IVH, not breastfed		
R	C	Tobacco, marital status, obstetric history, ethnicity, self-referred to Mother Risk Counseling	Maternal IQ	Maternal IQ associated with MDI
C Analyzed as single category; associated with decreased abstract reasoning		All drug users in prenatal care by 15 weeks and in drug treatment	Caregiver, child's sex, OFC, CBCL, and Summative Attention Scale of SBIS	Drug-free environment associated with better scores on verbal reasoning among cocaine-exposed
C	C	Medicaid, all >34 weeks' gestation, cocaine use in at least 2 trimesters	Congenital syphilis, maternal age and education, foster care	Foster care associated with lower MDI at 18 months
C	C	Medicaid	Maternal age and education, gravidity, parity, prenatal care, sex, foster care	
C	C	Medicaid	HOME, PCIS, sex, child age, foster care, day care/Head Start attendance, parental education, gravidity, parity, prenatal care, current cocaine use	Higher HOME scores and better PCIS associated with full-scale IQs above 90
DC	R	All black, all received prenatal care	Maternal age, depression, prenatal visits, HOME, parity, examiner, sex, age at test, continued maternal drug use	
C	R	All from same ZIP code, 36 weeks' gestation, no NICU care, women referred for drug treatment excluded	Placement, gestational age, maternal age and education, OFC at birth, birth weight	Birth weight associated with MDI at 12 months; with case management, children cared for by biological mothers have higher SBIS verbal scores; children in care of relatives have highest overall scores
C	C	All with biological mothers	Maternal age and education, OCS, prenatal care, birth weight, birth length, and OFC at birth	
DC	DC	All in prenatal care by 5 months	Maternal ethnicity, IQ, current maternal alcohol/drug use, self-esteem, HSQ, child's grade	
R	R	All black, all receiving AFDC, severity of BPD, all VLBW	Chronological age at testing, IVH, foster placement	

children up to age 3 years.[69,74-76,78,79,81] No effects on standardized language measures have been shown. Less-optimal motor development before age 7 months but not thereafter has been found by some investigators[75,76,97] but not others.[74-79,89] Recent research suggests that motor findings attributed to cocaine may in fact reflect heavy prenatal tobacco exposure.[74]

Except for the work of 1 investigator,[72,73] prenatal cocaine exposure independent of exposure to alcohol has not yet been found to be associated with levels of behavioral disturbance that are readily detected by standard scoring of epidemiologic and clinical report measures from parents and teachers.[64,72,77,78,87,93] However, sophisticated experimental and physiological paradigms of uncertain clinical importance have detected possible effects of prenatal cocaine exposure. Of these, only the finding of decreased emotional expressiveness has been replicated in more than 1 study.[62,66,92,94]

The differences between our conclusions and those of others show how methodologic rigor influences understanding of prenatal cocaine exposure. For instance, a respected research group recently concluded from a meta-analysis of 6 studies that prenatal cocaine exposure is associated with decreased competence in expressive and receptive language.[98] However, 5 of these studies[29,37,43,46,51] were retrospective; 2 did not use masked assessors.[37,57] In 2 samples, the majority of cocaine-exposed children were also exposed to opiates and methamphetamines.[37,57] Furthermore, none of these studies analytically controlled for the possible effects of prenatal tobacco exposure, an established correlate of language impairment.[113] Nevertheless, newspaper articles used the conclusions of the meta-analysis to declare that "because of cocaine-related receptive language impairments," "crack babies" would cost taxpayers an additional $42 to $352 million per year in special education services.[116]

When prenatal cocaine and tobacco exposure are compared dispassionately, it becomes clear how sociopolitical forces shape discrepant interpretations of similar scientific data. The mechanisms of nicotine and cocaine effects on the developing brain are similar, involving vasoconstriction, hypoxia, and perturbations of neurotransmitter networks.[117] Prenatal tobacco exposure has been associated with in-

Table 3. Language Skills*

Study	No.	Cocaine Effect	Outcome Measures	Assessment Ages	Tobacco Use	Alcohol Use	Marijuana Use
Bland-Stewart et al,[89] 1998	11 + 11 –	Delays in early semantic development, no effect on SICD-R score	SICD-R language sample	24 months	NR	NR	NR
Hurt et al,[81] 1997	76 + 81 –	No cocaine effect	PLS	2.5 years	NR	NR	NR
Kilbride et al,[89] 2000	111 + 41 –	No cocaine effect	REEL, SICD-R	6, 12, 24 months (REEL), 36 months (SICD-R)	C	C	R

*SICD-R indicates Sequenced Inventory of Communicative Development-Revised; NR, not reported; PLS, preschool language; and REEL, Receptive Expressive Emergent Language Scale.

Table 4. Motor Skills

Study	No.	Cocaine Effect	Outcome Measures	Assessment Ages	Tobacco Use
Dempsey et al,[74] 2000	40 + 56 –	No cocaine effect	Neurologic examination	6 weeks	DC High doses associated with hypertonia
Fetters and Tronick,[75] 1996	28 + 22 –	Higher total risk on the MAI at 7 months, lower mean percentile on AIMS at 7 months	AIMS, MAI, PDMS	1, 4, 7, and 15 months	C
Fetters and Tronick,[76] 1998	28 + 22 –	No difference on PDMS, significant differences on prone and standing subscores of AIMS and primitive reflex score of MAI at 7 months	AIMS, MAI, PDMS	1, 4, 7, and 15 months	C
Hurt et al,[79] 1995	101 + 118 –	No cocaine effect	Tone and reflexes	6 and 12 months	C
Kilbride et al,[89] 2000	111 + 41 –	No cocaine effect	PDMS	6, 12, 24, and 36 months	C
Swanson et al,[97] 1999	48 + COC3 72 + COC12 186 –	Higher full-scale MAI total risk, COC3 associated with less optimal volitional movement than COC12, COC3 at higher risk for neuromotor dysfunction than unexposed but COC12 is not	MAI	4 months	DC

*MAI indicates Movement Assessment of Infants; AIMS, Alberta Infant Motor Scales; PDMS, Peabody Development Motor Scales; COC3, cocaine use in third trimester; and COC12, discontinued cocaine use before third trimester.

fant mortality,[118] moderate impairment of cognitive functioning,[119] and a range of behavioral problems (which, unlike those associated with cocaine exposure, are detectable on relatively insensitive epidemiologic measures).[120] It has been calculated that low birth weight attributable to maternal smoking annually costs $263 million (1995 dollars) in excess direct medical costs for neonatal care alone.[121] Despite increased health care costs imposed by their tobacco use, there are no sterilization campaigns for mothers who use tobacco. No pregnant women have been charged with child abuse for tobacco use in pregnancy. Teachers do not dread having a "tobacco kid" assigned to their class.

We have focused on cocaine as a suspected behavioral teratogen, since exaggerated views of its teratogenicity have provided the rationale for selectively targeting pregnant women who use cocaine for sanctions even more punitive than those imposed on women who use other illicit substances.[3,8,122] Our focus omits 2 important considerations beyond the scope of this review. First, even if cocaine were as hazardous to a child's development as some claim, established teratogenicity (eg, that of heavy alcohol use) does not justify policies that violate the usual canons of medical ethics and civil liberties.[3] Second, health providers should not ignore that cocaine use in pregnancy is often a marker for a mother-child dyad at risk for poor health and impaired caregiving due to factors ranging from infectious diseases to domestic violence. Addiction to any intoxicant may so impair parents that they abuse or neglect a child.[123] However, presumptive punitive sanctions imposed in pregnancy or at birth do not reduce these risks to the child. On the contrary, fear of prosecution may discourage pregnant and parenting women from seeking prenatal care and drug treatment,[8,124] which have been shown to optimize infant outcome.[125] Stigma and negative expectations generalized from mothers to their children may in themselves impede the children's academic progress.[101] Care of families affected by substance abuse should be comprehensive and not irrationally shaped by social prejudices that demonize some drugs and drug users and not others.[123]

Much is still unknown about the effects of prenatal cocaine exposure. Research on prenatal marijuana and tobacco exposure suggests that, even if no drug effects are found between the ages of 6 months and 6 years, the increasing cognitive demands and social expectations of school or puberty may unmask sequelae of exposure not previously identified.[126,127] Cumulative environmental risk and protective factors may also exacerbate or moderate negative cognitive and behavioral outcomes as children mature.[128] However, among children up to 6 years of age, there is no convincing evidence that prenatal cocaine exposure is associated with any

Selection/Matching Criteria	Controlled Variables	Other Effects
Age, sex, foster care, maternal age and education		
Medicaid		
All from same ZIP code, 36 weeks' gestation, no NICU care, women referred for drug treatment excluded	Placement, gestational age, maternal age and education, OFC at birth, birth weight	Case management of children cared for by biological mothers associated with higher SICD-R scores

Alcohol Use	Marijuana Use	Selection/Matching Criteria	Controlled Variables	Other Effects
C	C	Birth weight >2000 g, English speaking, maternal age >18, no NICU care	Ethnicity, adequacy of prenatal care, OFC, gestational age, homelessness	
C	R	Maternal education, maternal age >18, health insurance, ethnicity, birth weight >2000 g, no NICU care	Hobel score, cumulative risk index, child hospitalization and poor health, maternal education, ethnicity	
C	R	Maternal education, maternal age >18, health insurance, ethnicity, birth weight >2000 g, no NICU care		
C	C	Medicaid, all >34 weeks' gestation, cocaine use in at least 2 trimesters	Congenital syphilis, maternal age and education, foster care	
C	R	All from same ZIP code, 36 weeks' gestation, no NICU care, women referred for drug treatment excluded	Placement, gestational age, maternal age and education, OFC at birth, birth weight	
DC	DC	Maternal age >17, gestational age ≥37 weeks	Prenatal visits, infant sex and age, parity, ethnicity, maternal age and education, marital status, income	Prenatal care decreased association between cocaine exposure and primitive reflexes and volitional movement to nonsignificant

Table 5. Behavior, Attention, Affect, Neurophysiology*

Study	No.	Cocaine Effect	Outcome Measures	Assessment Ages	Tobacco Use
Alessandri et al,[62] 1993	36 + 36 –	Cocaine associated with fewer positive emotions, less arousal, and less instrumental responding	Instrumental responses and facial expressions during learning	4, 6, or 8 months	R
Alessandri et al,[63] 1998	37H 30L 169 –	No cocaine effect	Habituation	8 months	DC
Azuma and Chasnoff,[64] 1993	92+ 25 poly 45 –	No cocaine effect	CBCL externalizing scale	3 years	R
Bard et al,[65] 2000	27 preterm + 39 full-term + 23 preterm – 29 full-term –	None on behavioral state or heart rate; higher baseline respiratory rate and better arousal modulation in full-term infants, and poorer arousal modulation in preterm infants; preterm exposed are no more dysregulated than full-term unexposed	Arousal and arousal modulation in heart rate and respiratory rate	8 weeks corrected for prematurity	DC Associated with arousal modulation of heart rate
Bendersky and Lewis,[66] 1998	24H 17L 66 –	Heavily exposed showed less joy and more negative expressions during reengagement	Still face paradigm	4 months	DC
Betancourt et al,[67] 1999	7 + 81 –	No cocaine effect	Goodman Lockbox	3.5 and 4.5 years	C
Blanchard et al,[68] 1998	26 + 23 –	No cocaine effect	Qualitative behavioral ratings during motor testing	1, 4, and 7 months	C
Coles et al,[71] 1999	25 preterm + 32 full-term + 22 preterm – 26 full-term –	Increased heart rate to social stimulation	Heart rate response to auditory, visual, and social stimulation	8 weeks corrected for prematurity	C
Delaney-Black et al,[72] 1998	27 + 75 –	1-Tailed cocaine effect on problem behaviors and daydreaming, but no effect on Conners Scale total	Conners Teachers Rating Scale and Problem Behavior Scale	72-90 months (6-7.5 years)	C
Delaney-Black et al,[73] 2000	201 + 270 –	None with standard scoring method, but higher Externalizing-Internalizing Difference Score in cocaine exposed	Teacher Report Form of CBCL	6 years	DC
Graham et al,[77] 1992	30 + 20 marijuana 30 –	No cocaine effect	Vineland Social Maturity	18 months	R
Griffith et al,[78] 1994	93 + 24 poly 25 –	Similar to polydrug effects, but both show more aggressive and destructive behavior	CBCL	3 years	R
Hurt et al,[80] 1996	83 + 93 –	No cocaine effect	Free play	18 and 24 months	C
Jacobson et al,[85] 1996	86H 48L 330 –	Heavy cocaine exposure associated with poor visual memory on Fagan Test at 6 and 12 months and faster responsiveness on Visual Expectancy at 6 months	Fagan Test of Infant Intelligence; Visual Expectancy Paradigm	6 and 12 months	DC
Jacobson et al,[86] 1999	29 + 57 –	Cocaine exposed had lower basal cortisol prestress, but not poststress level	Cortisol levels before and after venipuncture	13 months	DC
Johnson et al,[87] 1999	53 + 37 –	No cocaine effect	CBCL	24 months	NR
Karmel et al,[88] 1996	46 + 147 – 162 – with CNS injury	No cocaine effect	Arousal modulated visual attention	4 months corrected for prematurity	NR
Leech et al,[90] 1999	26 + 582 –	Cocaine associated with increased errors of omission	CPT	6 years	DC Associated with more errors of omission
Mayes et al,[91] 1995	61 + 47 –	No effect on visual habituation, more cocaine-exposed too irritable to start procedure	Visual habituation	3 months	C
Mayes et al,[92] 1997	43 + 17 poly 21 –	Less readiness for interaction at 6 months	Face-to-face interaction	3 and 6 months	C
Richardson et al,[93] 1996	28 + 523 –	No cocaine effect	Teacher Report Form of CBCL	6 years	DC
Roumeli et al,[94] 1997	14 + 16 –	Cocaine associated with less facial emotion	Facial expression coding after inoculation	18 months	R
Scher et al,[95] 2000	37 + 34 –	Third-trimester exposure associated with reduced spectral θ energies; no sleep effects	Quantitative EEG	Day 2, 1 year	DC increased indeterminate sleep, increased arousal

*CNS indicates central nervous system; BAER, brainstem auditory evoked responses; CPT, Continuous Performance Test; EEG, electroencephalogram; and REM, rapid eye movement.

Alcohol Use	Marijuana Use	Selection/Matching Criteria	Controlled Variables	Other Effects
R	NR	Sex, birth order, maternal age, all with biological mothers, all receiving AFDC, all black, all with ≤high school	Beck Depression Inventory and Life Events Survey	
DC	DC	All with biological mothers		
C	C	All drug users in prenatal care by 15 weeks and in drug treatment		Smaller OFC associated with more externalizing behavior
DC	DC	Maternal age ≥19, English speaking, singleton or first-born twin, no O_2 >28 days, no seizures, no grade III or IV IVH, not breastfed	Quality of caregiving, maternal psychosocial resources, term status	Term status associated with higher arousal and with arousal modulation of respiratory rate and arousal of heart rate
DC	DC	All with biological mothers	Maternal vocalization, maternal sensitivity, Environmental Risk Score, Contingent Responsivity Score, neonatal medical complications	Maternal sensitivity associated with both joy and negative expression; neonatal medical risk and maternal vocalization associated with joy
C	C	Medicaid, all >34 weeks' gestation	Gestational age, birth weight, IQ, preschool experience	
C	C	Maternal education, maternal age >18, health insurance, ethnicity, birth weight >2000 g, no NICU care	Maternal age, parity	Child age associated with examiner's persistence and maternal parity with interruptions
C	C	Maternal age ≥19, English speaking, singleton or first-born twin, no O_2 >28 days, no seizures, no grade III or IV IVH, not breastfed	Caregiving potential, quality of caregiveing	Caregiving instability explained more variance than cocaine exposure, preterm drug-exposed had least optimal response
DC	NR	All black	Child's sex	
DC Associated with higher total score, increased attention problems, more delinquent behavior	C	All black, all with prenatal care, children with mental retardation excluded	Child's sex, custody changes, exposure to violence, current lead level, current caregiver drug use, socioeconomic status, marital status	Child's sex male, current lead level, exposure to violence, older age, custody change, caregiver marital status, and current caregiver drug use associated with less optimal scores
R	C	Marital status, obstetric history, ethnicity, self-referred to Mother Risk Counseling	Maternal IQ	
C Analyzed as single category, associated with aggression		All drug users in prenatal care by 15 weeks and in drug treatment	Child's sex, drug-free caregiver	
C	C	Medicaid	NICU admission, age at testing, foster care	
DC	R	All black, all received prenatal care	Maternal age, depression, prenatal visits, HOME, parity, examiner, infant's sex, age at test	
DC Related to higher basal cortisol, heavy exposure to poststress elevation	DC	All black, all received prenatal care	Milk, teething, pacifier, birth size, maternal verbal ability, age at test, postpartum drug use, ego maturity, caregiver depression	New teeth, maternal depression, AFDC associated with higher basal cortisol; age at visit, maternal verbal ability with poststress cortisol
NR	NR	All Hispanic or black	Ethnicity, maternal stress and social support, maternal depression, child's sex	Maternal stress and social support associated with total internalizing and externalizing behavior; depression with externalizing behavior problems
NR	NR	Cocaine-exposed had normal BAER and cranial ultrasounds	Arousal condition	CNS injury associated with neonatal pattern of attention
DC	DC Associated with more errors of commission, fewer of omission	All in prenatal care by 5 months	Ethnicity, child's sex, illnesses, hospitalizations, SBIS IQ, HSQ, maternal work status, life events, hostility, maternal age, male in household, current caregiver alcohol/drug use	Omission predicted by lower child SBIS IQ and age, and mother more hostile and not working; commission predicted by child's male sex, male in household, and lower SBIS IQ
C	C	All with biological mothers	Maternal age, education, OCS, prenatal care, birth weight, length, OFC	
C	C	All with biological mothers	Maternal age and education, infant's sex, OCS, infant size at birth	
DC	DC	All in prenatal care by 5 months	Ethnicity, child's IQ and grade, current maternal alcohol/drug use	
R	R	Hospital payment, maternal education, all black		
DC Decreased indeterminate sleep and δ energies, increased REM and spectral correlation	DC Increased arousal, decreased β energies	Full-term, Apgar score >5, mother in prenatal care by 5 months, no general anesthesia	Child's sex and age, ethnicity, number of hospitalizations, maternal age	

developmental toxicity different in severity, scope, or kind from the sequelae of many other risk factors. Many findings once thought to be specific effects of in utero cocaine exposure can be explained in whole or in part by other factors, including prenatal exposure to tobacco, marijuana, or alcohol* and the quality of the child's environment.†

References 64, 65, 70, 74, 78, 84, 86, 90, 95
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From: "Self, Ned" <NSelf@daodas.state.sc.us>
To: <wyndimarie@earthlink.net>
Cc: "Long, Frankie" <FLong@daodas.state.sc.us>
Sent: Tuesday, April 24, 2001 3:58 PM
Subject: Data Request

To: Wyndi Anderson
From: Ned Self, DAODAS
Re: Data Request Concerning Drug Use By Females

The following estimate was made using the data file from a set of Treatment Needs Assessment Surveys conducted for SC DAODAS in the period
1995-1996. The studies were conducted by the Survey Research Laboratory of the Institute of Public Affairs, University of South Carolina.

Estimates are for the percentage of females age18 - 35 in the household population who reported use of marijuana, cocaine, hallucinogens or heroin or other opiates in the year prior to the survey. The estimates do not include the homeless population, or residents of institutions such as health care or correctional facilities, or dormitories.
It does include a statistical adjustment to reflect use by persons arrested in the prior 12 months.

Estimated percentage of female population age 18 - 35 who reported use of specified drugs in the prior year - 9.5%

Estimated female population age 18 - 35 (estimate as of July 1, 1998) 523,528

Estimated female population age 18 - 35 who used specified drugs in prior year 49,735

Let me know if you need additional information.

No. 97-1562

In the Supreme Court of the United States
October Term, 1997

Cornelia Whitner,
Petitioner,
vs.
The State of South Carolina,
Respondent.

On Petition for Writ of Certiorari to the Supreme Court of South Carolina

MOTION FOR LEAVE TO FILE BRIEF AS AMICI CURIAE IN SUPPORT OF THE PETITION FOR CERTIORARI AND BRIEF IN SUPPORT OF THE PETITION FOR CERTIORARI OF THE NATIONAL ASSOCIATION OF ALCOHOLISM AND DRUG ABUSE COUNSELORS, SOUTH CAROLINA ASSOCIATION OF ALCOHOLISM AND DRUG ABUSE COUNSELORS, INC., AMERICAN COLLEGE OF OBSTETRICIANS AND GYNECOLOGISTS, NATIONAL ASSOCIATION OF SOCIAL WORKERS, AMERICAN NURSES ASSOCIATION, SOUTH CAROLINA NURSES ASSOCIATION, AMERICAN MEDICAL WOMEN'S ASSOCIATION, NATIONAL ASSOCIATION FOR FAMILIES AND ADDICTION RESEARCH AND EDUCATION, ASSOCIATION FOR MEDICAL EDUCATION AND RESEARCH IN SUBSTANCE ABUSE, AMERICAN ACADEMY ON PHYSICIAN AND PATIENT, SOCIETY OF GENERAL INTERNAL MEDICINE, NATIONAL COUNCIL ON ALCOHOLISM AND DRUG DEPENDENCE, INC., NATIONAL CENTER FOR YOUTH LAW, LEGAL SERVICES FOR PRISONERS WITH CHILDREN, COALITION ON ADDICTION, PREGNANCY AND PARENTING, NOW LEGAL DEFENSE AND EDUCATION FUND, LEGAL ACTION CENTER, WOMEN'S LAW PROJECT, DRUG POLICY FOUNDATION, AND ALLIANCE FOR SOUTH CAROLINA'S CHILDREN

CAROL E. TRACY
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APPENDIX

Amicus Curiae National Association of Alcoholism and Drug Abuse Counselors ("NAADAC") is the largest national organization of alcohol and drug counselors, with 17,000 members. Founded in 1972, NAADAC is committed to increasing general awareness regarding the problems associated with alcoholism and substance abuse and to enhancing the care of individual patients through treatment, public education, and outreach programs aimed at prevention. As an organization that certifies alcoholism and drug abuse counselors, NAADAC promotes and monitors adherence to ethical standards throughout the nation. NAADAC promotes quality treatment services for addicted individuals as the cornerstone of an effective national substance abuse policy. To be effective, however, alcohol and drug treatment requires the trust of the patient, a basic building block of which is the assurance of patient confidentiality. Under the ethical guidelines promulgated by NAADAC for its members, alcohol and drug treatment counselors are required to protect patients' confidences. NAADAC Code of Ethics, Principle 8(a). However, South Carolina alcohol and drug counselors now risk arrest if they fail to report any conduct that may endanger a fetus. The counselors do not know which actions or omissions of their pregnant clients trigger the newly expanded reporting requirements, as the legislature has never enacted a law addressing fetal abuse. The patients also face arrest and prosecution if their treatment provider discloses their identities to authorities. NAADAC is deeply concerned that the confusion and fear that the Whitner decision is causing will undermine the provision and quality of care administered by South Carolina substance abuse professionals to pregnant patients, and the willingness of women to seek these essential services.

Amicus Curiae South Carolina Association of Alcoholism and Drug Abuse Counselors ("SCAADAC") is the South Carolina state affiliate of NAADAC. Founded in 1988, SCAADAC currently has 495 members. Members of SCAADAC are employed as alcohol and drug counselors throughout the state in both the public and private sectors. SCAADAC members have reason to believe that pregnant women who require alcohol and/or drug treatment are being deterred from seeking treatment for fear of prosecution in the wake of the Whitner decision. Since the highly publicized prosecution of Cornelia Whitner and the South Carolina Supreme Court's July 15, 1996, decision upholding her conviction and sentence, at least two treatment programs in the Columbia area that give priority to pregnant women have already experienced precipitous drops in admissions for pregnant women. The Women's Community Residence is a 24-bed halfway house for women substance abusers. The facility accepts applications from an average of 237 women per year, admitting approximately 133 women. The facility's admission records show that admissions of pregnant women fell 80% (from 10% to 2% of the total number of women treated at the facility) between July 1, 1996 and June 30, 1997. The Women's Intensive Outpatient program is an intensive day program which additionally provides child care. It treats an average of 95 women per year. During approximately the same period, admissions of pregnant women to this program declined 54% (from 13% to 6% of the total number of women treated at the facility). In light of these and other observations, SCAADAC is deeply concerned that pregnant women who require alcohol and/or drug treatment are being deterred from seeking treatment for fear of prosecution. SCAADAC also shares the concerns of NAADAC regarding the serious legal and ethical dilemmas facing its membership as a result of the Whitner decision below.