

C. Polowy

**THE STATE OF SOUTH CAROLINA  
IN THE COURT OF APPEALS**

---

REGINA MCKNIGHT,  
Appellant,

v.

STATE OF SOUTH CAROLINA,  
Respondent.

Case No. 00-GS-26-0432

---

**Appeal from Horry County**

**Court of General Sessions**

**James E. Brodgon, Jr., Circuit Court Judge**

---

**BRIEF AS AMICI CURIAE IN SUPPORT OF APPELLANT, REGINA  
MCKNIGHT  
SUBMITTED BY**

**SOUTH CAROLINA MEDICAL ASSOCIATION, SOUTH CAROLINA  
ASSOCIATION OF ALCOHOLISM AND DRUG ABUSE COUNSELORS,  
AMERICAN NURSES ASSOCIATION, NATIONAL ASSOCIATION OF SOCIAL  
WORKERS, ASSOCIATION OF MATERNAL AND CHILD HEALTH  
PROGRAMS, INSTITUTE FOR HEALTH AND RECOVERY**

---

\*SUSAN DUNN (#1798)  
171 Church Street, Suite 160  
Charleston, SC 29401  
(803) 722-6337

JUDITH K. APPEL  
DANIEL ABRAHAMSON  
ADAM BRAVERMAN  
The Lindesmith Center  
717 Washington Street  
Oakland, CA 94607  
(510) 208-7711

Attorneys for Amici Curiae  
\*(Counsel of Record)

## TABLE OF CONTENTS

<b>TABLE OF AUTHORITIES</b> .....	i
<b>INTRODUCTION</b> .....	1
<b>INTEREST OF AMICI CURIAE</b> .....	1
<b>STATEMENT OF THE ISSUES ON APPEAL</b> .....	1
<b>STATEMENT OF THE CASE</b> .....	2
<b>SUMMARY OF ARGUMENT</b> .....	2
<b>ARGUMENT</b> .....	3
<b>I. Ms. McKnight’s Conviction and Sentence Are Not Supported By the Pathologists’ Findings or By Current Scientific Knowledge About Prenatal Drug Use</b> .....	3
<b>A. The Pathologists Findings Do Not Support The Conclusion That Ms. McKnight’s Cocaine Use Resulted In Stillbirth</b> .....	6
1. Determining the Cause of Stillbirths is Often a Complex and Difficult Task.....	6
2. The State Ignored the Absence of Traditional Medical Indicia of Stillbirth Associated with Cocaine Ingestion .....	9
3. The State Failed to Rule Out Common Causes of Fetal Demise, or to Investigate Obvious Clues Pointing to Alternative Explanations .....	11
4. The Claim that Cocaine Caused Ms. McKnight’s Stillbirth Is Belied by South Carolina Medical Research Studies.....	18
<b>B. Medical Research Does Not Support the Conclusion That Prenatal Cocaine Use Causes Stillbirth</b> .....	20

II.	Upholding the Conviction of Ms. McKnight Endangers Public Health, By Jeopardizing the Therapeutic Relationships Between Women and Their Care Providers and Deterring Access to Important Services.....	24
A.	The Prosecution of Ms. McKnight Will Erode the Fundamental Trust Between Patients and their Health Care Providers That Is Critical to Quality Health Care.....	25
B.	Prosecuting Women for Using Drugs While Pregnant, Particularly With Threats of Long Terms of Incarceration, Is An Ineffective Means Of Protecting Fetal Health.....	29
C.	Upholding Ms. McKnight’s Conviction Will Exacerbate the Post- <u>Whitner</u> Trend of Deterring Pregnant Women From Seeking Health Care in South Carolina.....	34
III.	To Punish Ms. McKnight For Suffering From the Disease of Drug Addiction Serves No Legitimate Purpose.....	37
	<b>CONCLUSION.....</b>	<b>40</b>

**APPENDICES**

## TABLE OF AUTHORITIES

### Cases

<u>Commonwealth v. Welch</u> , 864 S.W.2d 280 (Ky. 1995).....	33
<u>Ferguson v. City of Charleston, South Carolina</u> , 121 S.Ct. 1281 (2001) .....	33, 34
<u>Jaffee v. Redmond</u> , 518 U.S. 1 (1997).....	26, 27
<u>Linder v. U.S.</u> , 268 U.S. 5 (1925).....	37
<u>National Treasury Employees Union v. Von Raab</u> , 489 U.S. 656 (1989).....	38
<u>Nevada v. Encoe</u> , 885 P.2d 596 (Nev. 1994).....	33
<u>Reinesto v. Superior Court</u> , 894 P.2d 733 (Ariz. App. Div. 1 1995).....	33
<u>Robinson v. California</u> , 370 U.S. 660 (1962) .....	37
<u>South Carolina v. Whitner</u> , 429 S.E.2d 777 (S.C. 1997) <u>cert. denied</u> , 118 S.Ct. 1857 (1998) .....	passim
<u>State v. Luster</u> , 419 S.E.2d 32 (Ga. 1992) .....	32

### Other Authorities

Acker, D. et al., <u>Abruptio Placentae Associated with Cocaine Use</u> , 146 Am. J. Obstetrics & Gynecology 220 (1983).....	10
Addis, A. et al., <u>Fetal Effects of Cocaine: An Updated Meta-Analysis</u> , 15 Reproductive Toxicology 341 (2001) .....	4, 9, 22
American Academy of Pediatrics, Comm. on Substance Abuse, <u>Drug-Exposed Infants</u> , 86 Pediatrics 639 (1990).....	31
American College of Obstetricians and Gynecologists, <u>Diagnosis and Management of Fetal Death</u> , 176 ACOG Technical Bulletin 1 (1993).....	6, 10, 11, 12
American College of Obstetricians and Gynecologists, <u>Substance Abuse in Pregnancy</u> 195 ACOG Technical Bulletin (1994).....	31
American Medical Ass'n, <u>Legal Intervention During Pregnancy</u> , 264 JAMA 2663 (1990) .....	31

<u>American Medical Association Encyclopedia of Medicine 42 (C.B. Clayman ed., 1989)</u> .....	7
American Medical Association, <u>Proceedings of the House of Delegates: 137<sup>th</sup> Annual Meeting, Board of Trustees Report NNN (June 26-30, 1988)</u> .....	38, 39
American Nurses Ass'n, <u>Position Statement (Apr. 5, 1992)</u> .....	32
American Psychiatric Ass'n, <u>The Diagnostic and Statistical Manual of Mental Disorders – 4<sup>th</sup> Edition (1994)</u> .....	38, 39
American Soc'y of Addiction Med., Bd. of Directors, <u>Public Policy Statement on Chemically Dependent Women and Pregnancy (Sept. 25, 1989)</u> .....	31
Anatomical Pathology Results .....	10, 11
Annas, G., <u>Protecting the Liberty of Pregnant Patients</u> , 316 New Eng. J. Med. 1213 (1987) .....	33
Arnold, R. et al., <u>Medical Ethics and Doctor/Patient Communication, in The Medical Interview: Clinical Care, Education and Research</u> 345 (M. Lipkin, Jr. et al. eds., 1995).....	27, 28
Atkins, P. et al., <u>Drug Therapy for Hyperthyroidism in Pregnancy: Safety Issues for Mother and Fetus</u> , 23 Drug Safety: An International Journal of Medical Toxicology and Drug Experience 229 (2000) .....	14
Baca, K., <u>South Carolina Spends the Least on Substance Abuse Prevention</u> , Associated Press State and Local Wire, Jan 29, 2001.....	36
Bendersky, M. et al., <u>Characteristics of Pregnant Substance Abusers in Two Cities in the Northeast</u> , 22 Am. J. Drug & Alcohol Abuse 349 (1996).....	16
Bernstein, J.G., <u>Handbook of Drug Therapy in Psychiatry (2d ed. 1988)</u> .....	16, 17
Bove, K.E. & the Autopsy Committee of the College of American Pathologists, <u>Practice Guidelines for Autopsy Pathology</u> , 121 Arch. Pathol. Lab. Med. 368 (1997).....	7, 8, 11
Brazil, B., <u>Rehab Group on Navy Base Faces Eviction</u> , Post & Courier, Jan. 20, 2001 ..	37
Brazil, B., <u>Step Ahead May Have New Home on Old Base</u> , Post & Courier, Feb. 19, 2001 .....	37
Campbell, T.A. & Collins, K.A., <u>Pediatric Toxicologic Deaths: A 10 Year Retrospective Study</u> , 22 Am. J. Forensic Med. & Pathology 184 (2001) .....	18

Castro, L.C. et al., <u>Maternal Tobacco Use and Substance Abuse: Reported Prevalence Rates and Associations with the Delivery of Small for Gestational Age Neonates</u> , 81 <i>Obstetrics &amp; Gynecology</i> 396 (1993).....	15
Center for the Future of Children, <u>Recommendations</u> , <i>The Future of Children</i> (1991) ...	32
Centers for Disease Control and Prevention, National Center for Health Statistics, <u>Fetal Deaths</u> (Nov. 19, 2001) < <a href="http://www.cdc.gov/nchs/about/major/fetaldth/abfetal.htm">http://www.cdc.gov/nchs/about/major/fetaldth/abfetal.htm</a> > .....	6
Charles Condon, Attorney General, <u>Whitner Implementation Plan</u> , reprinted as Appendix A in L.J. Nelson & M.F. Marshall, <u>Ethical and Legal Analysis of Three Coercive Policies Aimed at Substance Abuse by Pregnant Women</u> (1998).....	36
Chasnoff, I., <u>Drug Use in Pregnancy: Parameters of Risk</u> , 35 <i>Pediatric Clinics N. Am.</i> 1403 (1988) .....	21, 27
Curry, C. & Honoré, L.H., <u>A Protocol for the Investigation of Pregnancy Loss</u> , 17 <i>Clinics in Perinatology</i> 723 (1990).....	7, 8, 11, 14
DiFranza, J. & Lew, R., <u>Effect of Maternal Cigarette Smoking on Pregnancy Complications and Sudden Infant Death Syndrome</u> , 40 <i>J. Fam. Prac.</i> 385 (1995).....	15
<u>Discarded Children Increasing</u> , <i>Post &amp; Courier</i> , Apr. 19, 1999 .....	35
Drug Strategies, <u>Keeping Score: Women and Drugs: Looking at the Federal Drug Control Budget</u> (1998).....	36
Drug Strategies, <u>South Carolina Profile</u> 12 (1998).....	36
Finnegan, L.P. & Kandall, S.R., <u>Maternal and Neonatal Effects of Alcohol and Drugs in Substance Abuse</u> , <i>A Comprehensive Textbook</i> 513 (J.H. Lowinson et al. eds., 1997).....	16, 32
Frank, D. et al., <u>Growth, Development, and Behavior in Early Childhood Following Prenatal Cocaine Exposure: A Systematic Review</u> , 285 <i>JAMA</i> 1613 (2001) .....	10, 20, 21, 22
Frank, D. et al., <u>Maternal Cocaine Use: Impact on Child Health and Development</u> , 40 <i>Advances in Pediatrics</i> 65 (1993).....	23
Gail A. Wasserman et al., <u>Prenatal Cocaine Exposure and School Age Intelligence</u> , 50 <i>Drug &amp; Alcohol Dependence</i> 203 (1998) .....	21
Genc, M. & Ledger, W.J., <u>Syphilis in pregnancy</u> . 76 <i>Sexually Transmitted Infections</i> 73 (Apr. 2000) .....	13

Goldberg, M.E., <u>Substance-abusing Women: False Stereotypes and Real Needs</u> , 40 Social Work 789 (1995) .....	29
Gomez, L.E., <u>Misconceiving Mothers: Legislators, Prosecutors, and the Politics of Prenatal Drug Exposure</u> (1997) .....	20
<u>Guidelines for Perinatal Care</u> (American Academy of Pediatrics & American College of Obstetricians and Gynecologists eds., 4 <sup>th</sup> ed. 1997).....	8, 11, 12
Gustavsson, N.S. & MacEachron, A.E., <u>Criminalizing Women's Behavior</u> , 27 J. Drug Issues 673 (1997).....	14
Held, J. et al., <u>The Effect of Prenatal Cocaine Exposure on Neurobehavioral Outcomes: a Meta-Analysis</u> , 21 Neurotoxicology & Teratology 619 (1999) .....	23
Houck, J.A. et al., <u>Thyroid-Stimulating Immunoglobulin as a Cause of Recurrent Intrauterine Fetal Death</u> , 71 Obstetrics & Gynecology 1018 (1988). ....	14
Howell, E.M. et al., <u>A Review of Recent Findings on Substance Abuse Treatment for Pregnant Women</u> , 16 J. Substance Abuse Treatment 195 (1999) .....	36
Hurt, H. et al., <u>Children with In Utero Cocaine Exposure Do Not Differ from Control Subjects On Intelligence Testing</u> , 151 Archives Pediatric & Adolescent Med. 1237 (1997) .....	22
Hutchins, E., <u>Drug Use During Pregnancy</u> , 27 J. Drug Issues 463 (1997).....	23
JAMA, Sexually Transmitted Disease Information Center, <u>Syphilis Fact Sheet</u> (Jan. 2000) < <a href="http://www.ama-assn.org/special/std/support/educate/stdsyph.htm">http://www.ama-assn.org/special/std/support/educate/stdsyph.htm</a> > .....	13
Jones, K.L., <u>Smith's Recognizable Patterns of Human Malformation</u> 495 (J. Fletcher ed., 5 <sup>th</sup> ed. 1997) .....	16, 17
Karch, S., <u>The Pathology of Drug Abuse</u> (2 <sup>nd</sup> ed. 1996) .....	24
Lazare, A., <u>Shame, Humiliation, and Stigma in the Medical Interview</u> , in <u>The Medical Interview: Clinical Care, Education and Research</u> 333 (M. Lipkin, Jr. et al. eds., 1995).....	27, 28
March of Dimes, <u>Statement on Maternal Drug Abuse</u> (Dec. 1990) .....	31
Mayes, L.C. et al., <u>The Problem of Prenatal Cocaine Exposure: A Rush to Judgment</u> , 267 JAMA 406 (1992).....	23
Miller, D. & Thalen, M., <u>Knowledge &amp; Belief About Confidentiality in Psychotherapy</u> , 17 Prof. Psychol. Res. & Prac. 15 (1986).....	27

Morgan, J. & Zimmer, L., <u>The Social Pharmacology of Smokeable Cocaine: Not All It's Cracked Up to Be in Crack in America: Demon Drugs and Social Justice</u> 149 (C. Reinerman & H.G. Levine eds. 1997) .....	20
Morild, I. & Stajc, M., <u>Cocaine and Fetal Death</u> , 47 Forensic Sci. Int'l 181 (1990).....	24
N. Bingol et al., <u>Teratogenicity of Cocaine in Humans</u> , 110 J. Pediatrics 93 (1987).....	10
National Association of Public Child Welfare Administrators, <u>Guiding Principles for Working with Substance-Abusing Families and Drug-Exposed Children: The Child Welfare Response</u> (Jan. 1991) .....	31
National Council on Alcoholism and Drug Dependence, <u>Women, Alcohol, Other Drugs and Pregnancy</u> (1990) .....	32
Nelson, L.J. & Milliken, N., <u>Compelled Treatment of Pregnant Women</u> , 259 JAMA 1060 (1988) .....	39
Office on Smoking and Health, <u>The Health Consequences of Smoking: Nicotine Addiction</u> 602 (1988) .....	15
Portenoy, R.K. & Payne, R., <u>Acute and Chronic Pain, in Substance Abuse, A Comprehensive Textbook</u> 563 (J.H. Lowinson et al. eds., 1997) .....	38
Racine, A. et al., <u>The Association Between Prenatal Care and Birth Weight Among Women Exposed to Cocaine in New York City</u> , 270 JAMA 1581 (1993) .....	33
Rawstron, S.A. et al., <u>Congenital Syphilis: Detection of <i>Treponema Pallidum</i> in Stillborns</u> . 24 Clinical Infectious Diseases 24 (1997) .....	13
Rogers, C. et al., <u>Findings in Newborns of Cocaine-Abusing Mothers</u> , 36 J. Forensic Sci. 1074 (1991) .....	24
Ned Self, Research Analyst, DAODAS, email to Wyndi Anderson of 4/24/01 .....	37
SHARE Pregnancy & Infant Loss Support, Inc., <u>Report on Stillbirth Workshop at the National Institute of Health</u> (Apr. 2001) < <a href="http://www.nationalshareoffice.com/SBWkspReport.html">http://www.nationalshareoffice.com/SBWkspReport.html</a> > .....	6
Sherif, I.H. et al., <u>Treatment of Hyperthyroidism in Pregnancy</u> , 70 Acta Obstetrica et Gynecologica Scandinavica 461 (1991) .....	14
Sims, M.A. & Collins, K.A., <u>Fetal Death: A 10-Year Retrospective Study</u> , 22 Am. J. Forensic Med. & Pathology 261 (2001) .....	6, 14, 16, 19
South Carolina Department of Alcohol and Other Drug Abuse Services ("DAODAS"), <u>Prevention, Intervention &amp; Treatment: Treatment Services</u> (May 7, 2001) < <a href="http://www.daodas.state.sc.us/web/treatment.html">http://www.daodas.state.sc.us/web/treatment.html</a> > .....	30, 36

<u>Southern Regional Project on Infant Mortality, A Step Toward Recovery: Improving Access to Substance Abuse Treatment for Pregnant and Parenting Women</u> (1993) .....	30, 32
T.A. Slotkin, <u>Fetal Nicotine or Cocaine Exposure: Which One is Worse?</u> , 285 J. Pharmacology & Experimental Therapeutics 931 (1998) .....	15, 16
<u>The Merck Manual of Diagnosis and Therapy</u> (R. Berkow ed., 16 <sup>th</sup> ed. 1992).....	16, 17
United States General Accounting Office, <u>ADMS Block Grant: Women’s Set Aside Does Not Assure Drug Treatment for Pregnant Women</u> (1991). .....	31
<u>Update on Cocaine: Part I</u> , 10 Harv. Mental Health Letter 3 (Aug. 1993).....	23
Van Marter, L.J. et al., <u>Persistent Pulmonary Hypertension of the Newborn and Smoking and Aspirin and Nonsteroidal Antiinflammatory Drug Consumption During Pregnancy</u> , 97 Pediatrics 658 (1996).....	17
Wallen, J., <u>A Comparison of Male and Female Clients in Substance Abuse Treatment</u> , 9 J. Substance Abuse Treatment 243 (1992) .....	28, 38
Whittle, M.J. & Hanretty, K.P., <u>Prescribing in Pregnancy: Identifying Abnormalities</u> , 293 Br. Med. J. 1485 (1986).....	17
<u>Williams Obstetrics</u> (F.G. Cunningham et al. eds., 21 <sup>st</sup> ed. 2001).....	6, 7, 11, 12
Wisborg, K. et al., <u>Exposure to Tobacco Smoke in Utero and the Risk of Stillbirth and Death in the First Year of Life</u> , 154 Am. J. Epidemiology 322 (2001).....	15
Young, S. & Crocker, D., <u>Occult Congenital Syphilis in Macerated Stillborn Fetuses</u> , 118 Archives Pathology & Laboratory Med. 44 (1994).....	13



## INTRODUCTION

Amici curiae wish to bring to the Court's attention the troubling and unwarranted departure from scientific understanding and established medical practice occasioned by South Carolina v. McKnight. The prosecution, conviction and sentencing for homicide by child abuse of Regina McKnight for the stillbirth of her child contradict the clear weight of medical evidence, violate fundamental precepts of public health, threaten to undermine the physician-patient relationship, and ignore the longstanding recognition of courts and the medical community that addiction is a disease, not a crime, just as stillbirths and miscarriages are the medical sequelae of pregnancy and likewise not a crime. For the reasons explained below, principles of scientific integrity and the health and well-being of South Carolina children require the conviction of Ms. McKnight to be set aside.

## INTEREST OF AMICI

Amici include South Carolina and national physicians, nurses, counselors, social workers, public health practitioners, and their professional associations<sup>1</sup>. These individuals and organizations have recognized expertise and longstanding concern in the areas of maternal and neonatal health and in the understanding of the effects of drugs and other substances on users, their families and society, and the ways those effects can best be minimized.

## STATEMENT OF THE ISSUES ON APPEAL

Amicus curiae adopt the Statement of Issues on Appeal set forth by Appellant McKnight.

---

<sup>1</sup> Descriptions of the amici are set forth in Appendix A of this brief.

## STATEMENT OF THE CASE

Amicus curiae adopt the Statement of Facts set forth by Appellant McKnight.

## SUMMARY OF ARGUMENT

The prosecution, conviction and sentencing of Ms. McKnight cannot be reconciled with the clear weight of scientific consensus regarding the effects of prenatal ingestion of cocaine. As a matter of science, the evidence presented at trial does not even plausibly suggest – much less prove beyond a reasonable doubt -- that Ms. McKnight's ingestion of cocaine caused the stillbirth of her fetus. Because the prosecution of Ms. McKnight is devoid of scientific underpinning, her conviction cannot be reconciled with the teachings of medicine and the requirements of law.

The verdict also stands to cause real and devastating consequences for many pregnant South Carolina women who will, at the very least, refuse to disclose information about drug use to health care providers – information critical to high quality prenatal care -- out of fear that a later miscarriage or stillbirth will lead to their arrest and imprisonment. Or, out of the same fear, women will avoid prenatal care and drug and alcohol treatment altogether. Preliminary data indicates that, since the decision in Whitner in 1997, South Carolina's women have been discouraged from seeking prenatal care and drug treatment. Should Ms. McKnight's conviction be upheld, the increased refusal of pregnant women to seek prenatal, obstetrical or postpartum care for fear of criminal justice consequences will have negative repercussions for the health of these many women and their fetuses. Finally, the prosecution, conviction and sentencing of Ms. McKnight for her addiction to cocaine vitiate the longstanding recognition by the courts and the medical community that

addiction is a disease, not a crime.

Accordingly, amici curiae respectfully urge this Court to dismiss the conviction of homicide by child abuse against Ms. McKnight.

## ARGUMENT

### **I. Ms. McKnight's Conviction and Sentence Are Not Supported By the Pathologists' Findings or By Current Scientific Knowledge About Prenatal Drug Use**

At the outset it must be noted that each and every amicus curiae is committed to reducing potential drug-related harms at every reasonable opportunity. Thus, amici do not endorse the non-medical use of drugs – including alcohol or tobacco – during pregnancy, by either parent. Nor do amici contend that there are no health risks associated with cocaine (or other drug or alcohol) use during pregnancy. Just as the medical literature fails to support the State's assertion that prenatal cocaine exposure resulted in the stillbirth of Ms. McKnight's fetus, neither does it indicate that cocaine is entirely benign for mother and fetus (although, as explained below, while the extent of cocaine's health risks for fetal development are not fully known, such risks fall far short of the misconception of extreme harm typified by the "crack baby" myth). Nonetheless, it is entirely consistent with amici's public health and ethical mandates to bring to this Court's attention the medical and scientific information that is relevant to the case at hand. It is the amici's firm and considered position that the factual record and current state of medical science belie the State's claim that Ms. McKnight's stillbirth was caused by her ingestion of cocaine.

Stillbirths affect thousands of women in the United States each year. The causes of stillbirth are multiple and varied and, to a large extent, not fully understood. It is

believed that stillbirths can result from chromosomal abnormalities, bacterial and viral infections, external insults and trauma, exposure to teratogens, and/or poor maternal health – conditions which can be exacerbated by malnutrition and stress associated with poverty, particularly the grinding poverty of homelessness like that experienced by Ms. McKnight. The factors that give rise to any particular stillbirth can be difficult to identify with certainty and it is often impossible to declare with any degree of confidence whether a single factor – or which single factor – causes a stillbirth. Indeed, at least ten percent of all stillbirths go entirely unexplained. As a result, extending criminal liability for homicide to the conduct of a pregnant woman for “causing” her stillbirth is a precarious exercise, fraught with medical conjecture and constitutional ramifications.

On the facts of this case, the inferential leap from stillbirth to the charge of homicide is not merely tenuous as a matter of science -- a finding which itself would warrant overturning a conviction that by law must rest on proof beyond a reasonable doubt – but it is also wholly unfounded. The scientific literature reveals two clinical conditions linked to cocaine ingestion during pregnancy that could result in miscarriage or stillbirth: placental abruption and ruptured membranes. See A. Addis et al., Fetal Effects of Cocaine: An updated Meta-Analysis, 15 Reproductive Toxicology 341, 348-49, 354 (2001) [hereinafter Fetal Effects]. Neither condition was present in Ms. McKnight’s case. In the medical context as in the realm of law, it is central to the role of the fact finder, be it medical examiner, jury or judge, to distinguish between the coexistence of two events and the cause for those events. Thus, even were placental abruption and/or ruptured membrane present in this case (which they were not) the medical evidence would still have to connect those conditions to their cause, be it

maternal ingestion of cocaine or other factors. The record, however, is completely silent as to any evidence of causality. Instead, the State simply infers causality from the coexistence of two factors, namely the presence of cocaine metabolites and the stillbirth. Such an inference does not withstand scientific scrutiny.

What is more, in order to show that cocaine use *could* have caused the stillbirth, a forensic exam would have been necessary that first addressed the presence or absence of other plausible and likely factors, and then eliminated these other possibilities. Such an exam was not done. At Ms. McKnight's trial the testifying pathologists failed to rule out a host of more common and reasonable alternatives for the cause of the fetal demise not associated with cocaine, notwithstanding clear indicia and major clues pointing to these alternatives. Specifically, the pathologists failed to investigate possible conditions (such as genetic defects), other compromising medical diseases (such as hypothyroidism and syphilis) from which Ms. McKnight was known to suffer, the impact on fetal health of other substances (such as tobacco) which Ms. McKnight is known to have regularly ingested, and the possible affects of her poverty and homelessness on her and her fetus' health. The absence of forensic evidence of clinical conditions connected with cocaine-associated stillbirth and the failure of the State's pathologists to rule out far more likely alternatives further undermines the medical validity of the State's assertion and the jury's verdict that prenatal cocaine use caused Ms. McKnight's stillbirth.

**A. The Pathologists Findings Do Not Support The Conclusion That Ms. McKnight's Cocaine Use Resulted In Stillbirth**

**1. Determining the Cause of Stillbirths is Often a Complex and Difficult Task**

More than 26,500 women suffer from stillbirths each year.<sup>2</sup> While the rate of fetal death of 20 weeks or more gestation (commonly known as “stillbirth”) has declined over the last few decades, its rate (per 1000 live births plus fetal deaths) as of 1998 in the United States among all races was 6.7. White mothers suffered this tragedy at a slightly lower rate of 5.7 per 1000 live births, while the rate for black mothers was 12.3 per 1000 live births.<sup>3</sup> Further, because fetal deaths are much more common with decreasing gestational age<sup>4</sup> (“miscarriage” is the term typically used for fetal death occurring prior to 20 weeks), and reporting is often not required in these cases,<sup>5</sup> the actual number of fetal deaths is likely much higher than the statistics indicate.

Investigation into the cause of a stillbirth will often fail to yield its cause or causes. Even after careful assessment of maternal clinical history, thorough autopsy of the fresh stillborn and a full battery of appropriate laboratory analyses, at least ten percent of all fetal deaths remain entirely unexplained.<sup>6</sup> Without careful clinical review by a team of clinicians, the percentage of unexplained stillbirths will be significantly higher –

---

<sup>2</sup> SHARE Pregnancy & Infant Loss Support, Inc., Report on Stillbirth Workshop at the National Institute of Health (Apr. 2001) <<http://www.nationalshareoffice.com/SBWkspReport.html>>.

<sup>3</sup> Centers for Disease Control and Prevention, National Center for Health Statistics, Fetal Deaths (Nov. 19, 2001) <<http://www.cdc.gov/nchs/about/major/fetaldeath/abfetal.htm>>

<sup>4</sup> Williams Obstetrics 1073 (F.G. Cunningham et al. eds., 21<sup>st</sup> ed. 2001).

<sup>5</sup> American College of Obstetricians and Gynecologists, Diagnosis and Management of Fetal Death, 176 ACOG Technical Bulletin 1 (1993).

<sup>6</sup> Williams Obstetrics, *supra*, at 1075. See also M.A. Sims & K.A. Collins, Fetal Death: A 10-Year Retrospective Study, 22 Am. J. Forensic Med. & Pathology 261 (2001) (“Despite efforts to identify the etiologic factors contributing to fetal death, a substantial portion of fetal deaths are still classified as unexplained intrauterine fetal demise.”) Experts at a March 26, 2001 National Institute of Health Workshop discussed the possibility that the cause of death for up to 50 percent of stillbirths is undetermined. SHARE Pregnancy & Loss Support, Inc., *supra*.

in fact, 25 to 35 percent of all fetal deaths during the 1980's went unexplained.<sup>7</sup> As the guidelines for the College of American Pathologists state, "although many conditions can be ruled out, it may be impossible to determine the actual cause of death in a fairly large number of cases."<sup>8</sup> The State's pathologist Dr. Proctor acknowledged as much at trial. Tr. 171:9-10.

When explanations for fetal demise can be found, the causes are typically traced back to one or more of three origins: fetal abnormalities, placental defects, and maternal illness.<sup>9</sup> Fetal abnormalities account for 25 – 40 percent of fetal demise,<sup>10</sup> and include birth defects, chromosomal abnormalities, nonimmune hydrops and various fetal infections (bacterial, viral and other).<sup>11</sup> Chromosomal abnormalities are discovered in approximately eight percent of all stillbirths<sup>12</sup> and can be identified by karyotype analysis.<sup>13, 14</sup> Placental defects constitute 25 – 35 percent of fetal demise, include placental abruption (the separation of the placenta from the uterus), fetal-maternal hemorrhage, cord accidents, intrapartum asphyxia, and choriomnionitis.<sup>15</sup> Maternal illness accounts for between five and ten percent of fetal demise and encompasses such conditions as trauma, sepsis, hypertensive disorders, syphilis, diabetes, lupus anticoagulant, anticardiolipin antibodies, and hereditary thrombophilia.<sup>16</sup> Most of these

---

<sup>7</sup> Williams Obstetrics, *supra*, at 1074 (referring to Cunningham & Hollier (1997)).

<sup>8</sup> K.E. Bove & the Autopsy Committee of the College of American Pathologists, Practice Guidelines for Autopsy Pathology, 121 Arch. Pathol. Lab. Med. 368, 373 (1997).

<sup>9</sup> See Williams Obstetrics, *supra*, at 1074.

<sup>10</sup> Id. at 1074 (referring to Cunningham and Hollier (1997)).

<sup>11</sup> Id. at 1073.

<sup>12</sup> Id. at 1076.

<sup>13</sup> Karyotype analysis is "a preparation of the chromosomes suitable for identifying chromosomal abnormalities" The American Medical Association Encyclopedia of Medicine 42 (C.B. Clayman ed., 1989).

<sup>14</sup> See C. Curry & L.H. Honoré, A Protocol for the Investigation of Pregnancy Loss, 17 Clinics in Perinatology 723, 736 (1990).

<sup>15</sup> Williams Obstetrics, *supra*, at 1073.

<sup>16</sup> Id. at 1074-75.

causes can be identified by specific pathological factors. For instance, different types of infection are associated with distinctive maternal and fetal pathologic characteristics (fetal infection may be indicated, for example, by aspirated maternal polymorphs in the trachea)<sup>17</sup> and at least certain forms of infections, such as infections caused by listeriosis, can be specifically identified by examination.

It is text-book medical practice that diagnosing the cause of fetal death requires a multi-layered clinical approach – examination of the fetus, the placenta and the mother -- to evaluate all known possible explanations. One of the most important tools is the autopsy. A proper fetal autopsy should consist of both gross and microscopic evaluation of the stillborn and of the cord, membranes and placenta,<sup>18</sup> including standard measurements such as crown-rump length, foot length and body weight.<sup>19</sup> It should also include laboratory and diagnostic examinations to determine the existence of infections, or maternal conditions that could have resulted in the stillbirth (as discussed below). In addition to the autopsy, skeletal radiographs or xeroradiography are commonly used diagnostic tools.<sup>20</sup> Thirdly, and in accordance with guidelines promulgated by the American College of Obstetricians and Gynecologists, obstetric history should be reviewed, as well as family history, and pertinent information in the maternal and paternal pedigree should be documented and investigated.<sup>21</sup> In light of the diverse clinical specialties implicated by a fetal death, diagnosis and appropriate counseling of

---

<sup>17</sup> See Curry & Honoré, *supra*, at 729.

<sup>18</sup> Guidelines for Perinatal Care 202 (American Academy of Pediatrics & American College of Obstetricians and Gynecologists eds., 4<sup>th</sup> ed. 1997).

<sup>19</sup> Bove et al., *supra*, at 373.

<sup>20</sup> Curry & Honoré, *supra*, at 726.

<sup>21</sup> Guidelines for Perinatal Care, *supra*, at 202.

the mother should be conducted by an interdisciplinary team comprising obstetricians, neonatologists, pathologists, and geneticists.<sup>22</sup>

Isolating the cause(s) for any given stillbirth from the wide variety of possible origins thus requires the administration of a broad array of scientific tests and psychosocial interviews. If the results of this examination fail to point conclusively to a specific cause, physicians may attempt to make a more difficult “presumptive diagnosis,” i.e., a diagnosis of exclusion based on the elimination of alternative causes. When such a diagnosis of exclusion is also untenable – because reasonable alternative explanations cannot be discounted – then the cause of the stillbirth is properly classified as unknown. As amici demonstrate below, these standard procedures were not followed with respect to the examination of Ms. McKnight’s stillbirth.

## **2. The State Ignored the Absence of Traditional Medical Indicia of Stillbirth Associated with Cocaine Ingestion**

In the case of Ms. McKnight, except for a positive toxicology for cocaine, the overwhelming weight of the scientific evidence *contraindicated* cocaine as the cause of Ms. McKnight’s stillbirth. A recent meta-analysis has demonstrated that the only pregnancy complications uniquely *associated* with cocaine use during pregnancy that can result in stillbirth are placental abruption and premature rupture of membrane. See, e.g., Fetal Effects, at 348-49, 354. The autopsy report in Ms. McKnight’s case made no mention of placental abruption, and both of the State’s two pathologist witnesses testified that Ms. McKnight did not experience a placental abruption Tr. 172:13, 343:9. Nor did the pathologists, the medical records, or the autopsy report mention premature rupture of

---

<sup>22</sup> Id.

membranes. Other factors that some past researchers have found associated with in utero cocaine exposure, such as reduced birth weight and congenital defects<sup>23</sup> -- which current research has determined cannot be isolated from other factors (such as tobacco, alcohol and poverty) -- were absent in this case.<sup>24</sup> See Fetal Effects, supra, at 341; and D. Frank et al., Growth, Development, and Behavior in Early Childhood Following Prenatal Cocaine Exposure: A Systematic Review, 285 JAMA 1613 (2001). In other words, the full weight of the medical evidence in this case points to a cause or causes *other than* cocaine for the demise of Ms. McKnight's fetus.

Given the absence of recognized indicia for cocaine-associated fetal demise, the pathologists' determination that Ms. McKnight's cocaine use *caused* her stillbirth constituted a presumptive diagnosis.<sup>25</sup> This is particularly poignant, given that the autopsy report identified two other causes of fetal demise (chorioamnionitis and funisitis) in addition to the cocaine consumption.<sup>26</sup> The presumptive diagnosis must be called into question in light of the pathologists' failure to exclude other common causes of death suggested by the factual record.<sup>27</sup> For whatever reason -- be it the condition of the fetus

---

<sup>23</sup> See, e.g., N. Bingol et al., Teratogenicity of Cocaine in Humans, 110 J. Pediatrics 93, 94 (1987) (finding that all stillbirths associated with cocaine use were related to abruptio placentae, and that cocaine use by pregnant women was also associated with reduced birth weight and an increased congenital malformation rate) and D. Acker et al., Abruptio Placentae Associated with Cocaine Use, 146 Am. J. Obstetrics & Gynecology 220 (1983).

<sup>24</sup> The State's pathologists also stated that the organs of the fetus were normal, Tr. 176-77, 328:17-18, 340:14-15, and that its development proceeded as expected, Tr. 325:9-10. According to the autopsy report: "Complete morphologic examination reveals no evidence of external or internal defects or deformities." Anatomical Pathology Results at 2.

<sup>25</sup> See, e.g., Diagnosis and Management of Fetal Death, supra, at 1 (noting that a certain diagnosis constitutes a presumptive diagnosis, is difficult to prove and is made only after other causes have been excluded).

<sup>26</sup> Dr. Proctor and Dr. Woodard disagreed on the role played by chorioamnionitis, and a related infection, funisitis, in the fetal demise. Dr. Proctor, the pathologist who actually conducted the autopsy, listed these infections, along with cocaine, as cause of death ("Intrauterine fetal demise secondary to chorioamnionitis, funisitis and cocaine consumption") (Anatomical Pathology Results at 1). Only Dr. Woodard, after reviewing the autopsy report, rejected these infections as a possible cause of death (Tr. 341:14-15).

<sup>27</sup> While the State did purport to exclude a small number of possible alternative causes, such as congenital

at the time of autopsy,<sup>28</sup> lack of resources to conduct a more complete battery of laboratory tests, or another explanation – there is simply insufficient information on this record to make conclusive findings as to the cause of Ms. McKnight’s stillbirth.<sup>29</sup>

**3. The State Failed to Rule Out Common Causes of Fetal Demise, or to Investigate Obvious Clues Pointing to Alternative Explanations for Ms. McKnight’s Stillbirth**

The State’s pathologists failed to adequately investigate the possible causes of fetal death, and therefore overlooked many plausible – indeed, likely – explanations for Ms. McKnight’s stillbirth. Although a significant percentage of all stillbirths have chromosomal abnormalities,<sup>30</sup> the State did not solicit, the pathologists did not indicate, and the medical records do not reflect that chromosomal analysis by karyotype study were performed.<sup>31</sup> And while chromosomal abnormalities are more likely to be present early on in gestation, karyotyping studies are specifically recommended for fetuses which are macerated (decomposed)<sup>32</sup> like that of Ms. McKnight. Fetal-maternal hemorrhage

---

abnormalities, as amicj explain here, the evaluation failed to address the majority of possible and likely causes of death.

<sup>28</sup> Autolysis, the degeneration of the fetus in the womb, had deteriorated the physical exterior of the fetus, Anatomical Pathology Results at 3, making it difficult for pathologists to gather evidence of clinical signs, see Tr. 351: 17-18 (“Again, when the body is autolyzed it becomes more difficult to determine the cause”) (Woodard); Bove et al., supra, at 373 (determining the cause of death may be particularly difficult in macerated stillborns delivered close to term gestation like Ms. McKnight’s stillbirth at 34 weeks. Dr. Conradi, another testifying pathologist, pointed out that there may not have been enough blood in the fetus to conduct standard diagnostic tests as well as the toxicology tests. Tr. 401:3-5.

<sup>29</sup> Dr. Woodard was quite frank about this, testifying that “The exact mechanism by which [cocaine] killed the child [sic] is not clear but the mechanisms through cardiac functions, placental functions are seen as most probable.” Tr. 343:20-22. This fails to stand up under scientific scrutiny – first, because there is no medical indication that abnormal “cardiac functions” is linked to maternal cocaine ingestion, and second, neither Proctor, Tr. 176:23-24, nor Woodard, Tr. 346:13-14 uncovered any abnormal development of the heart. Further, as noted earlier, there was no indication of a placental abruption, the only “placental function” that has been linked to cocaine use and stillbirth.

<sup>30</sup> Williams Obstetrics, supra, at 1076 (reporting chromosomal abnormalities underlie that as many as eight percent of stillbirths).

<sup>31</sup> Such studies may be indicated where no other explanation for the loss is found (See id.). See also Guidelines for Perinatal Care, supra, at 202; Diagnosis and Management of Fetal Death, supra, at 3 (“The potential value of chromosomal studies should be considered in all cases of fetal death.”)

<sup>32</sup> Curry & Honoré, supra, at 736.

may also cause fetal death and has been reported in 10-15 percent of otherwise unexplained fetal deaths and in 3-5 percent of all fetal deaths.<sup>33</sup> Nevertheless, the record indicates that the pathologists did not conduct the standard medical test, called Kleihauer –Betke staining,<sup>34</sup> to rule out this condition.

In addition, numerous other medical conditions are also known to cause stillbirth, including hypertensive disorders, diabetes (these two disorders alone are associated with 5 to 8 percent of stillborn infants<sup>35</sup>), lupus anticoagulant and anticardiolipin antibodies, hereditary thrombophilia,<sup>36</sup> infections<sup>37</sup> such as sepsis, cytomegalovirus and listeriosis, and inborn errors of metabolism. The presence of these etiologies can often be confirmed or excluded by the administration of standard and widely used tests. For instance, listeriosis, an infection often asymptomatic in adults, can be diagnosed by stains and cultures of the placenta,<sup>38</sup> the existence of other infections can be determined by simple blood test, and inborn errors of metabolism can be diagnosed through tests on frozen sections of the liver.<sup>39</sup> The State, however, did not require, the pathologists did not testify, and the record does not reflect that adequate tests were performed to rule out these more plausible causes.<sup>40</sup>

Moreover, in addition to these more plausible, even likely, but nonetheless uninvestigated explanations for fetal demise, Ms. McKnight did in fact suffer from several conditions that medical research has shown to significantly jeopardize fetal health

---

<sup>33</sup> Diagnosis and Management of Fetal Death, *supra*, at 7

<sup>34</sup> Id.

<sup>35</sup> Williams Obstetrics, *supra*, at 1075

<sup>36</sup> Id.

<sup>37</sup> Id.

<sup>38</sup> Diagnosis and Management of Fetal Death, *supra*, at 7

<sup>39</sup> Guidelines for Perinatal Care, *supra*, at 202.

<sup>40</sup> Dr. Conradi testified that the failure to perform tests on cultures of fetal blood – a procedure routinely done by hospitals – meant that sepsis could not be ruled out as the cause of death. (Tr. 400:15-16).

and well-being: syphilis, hypothyroidism, poverty, including homelessness, and alcohol and tobacco use. Twenty five percent of all pregnancies of women with untreated active syphilis result in stillbirth.<sup>41</sup> Even with appropriate treatment, 14 percent still result in fetal death or syphilis infection.<sup>42</sup> Pathologist Woodard indicated that he ruled out syphilis as the cause of death based on the lack of anatomic changes associated with syphilis, Tr. 341:19-20, yet the scientific literature indicates that morphological signs are often masked.<sup>43</sup> Particularly in a macerated or autolyzed fetus -- like the fetus here -- classic indicators for syphilis-related death can be exceedingly difficult to detect for several reasons, including the inability to determine the presence of growth retardation and inflammation.<sup>44</sup> Thus, more detailed diagnostic tests, such as immunofluorescent antigen testing, are often required to detect syphilis in stillborns when blood tests (which can result in false-negatives<sup>45</sup>), or morphological exams are inconclusive.<sup>46</sup> Importantly, the medical literature reports that both chorioamnionitis and funisitis, both of which were present in Ms. McKnight's case, are diagnostic markers for syphilis that indicate the need for additional investigation, beyond a morphological exam.<sup>47</sup> Yet these tests were never conducted on Ms. McKnight's stillborn fetus.

---

<sup>41</sup> JAMA, Sexually Transmitted Disease Information Center, Syphilis Fact Sheet ¶14 (Jan. 2000) <<http://www.ama-assn.org/special/std/support/educate/stdsyph.htm>>.

<sup>42</sup> M. Genc & W.J. Ledger, Syphilis in pregnancy, 76 *Sexually Transmitted Infections* 73 (Apr. 2000).

<sup>43</sup> S. Young & D. Crocker, Occult Congenital Syphilis in Macerated Stillborn Fetuses, 118 *Archives Pathology & Laboratory Med.* 44, 46 (1994).. ("Severe autolysis...provide no morphologic clue to the presence of infection since little or no inflammation is evident.")

<sup>44</sup> Young & Crocker, *supra*, at 46.

<sup>45</sup> Syphilis Fact Sheet, *supra*, at ¶10.

<sup>46</sup> S.A. Rawstron et al., Congenital Syphilis: Detection of *Treponema Pallidum* in Stillborns, 24 *Clinical Infectious Diseases* 24 (1997) showing that positive silver stains or morphological findings alone detected only 9 of 17 cases of stillborn syphilis, while further tests enabled a diagnosis in 16 of 17 cases.

<sup>47</sup> Young & Crocker, *supra*, at 44 (presence of chorioamnionitis and funisitis can be indicia of need to perform a silver stain test to diagnosis syphilis).

Ms. McKnight suffered from hypothyroidism, a medical condition that increases the risk of miscarriage and pre-term delivery.<sup>48</sup> Accordingly, pathology guidelines expressly instruct medical professionals to investigate the presence of hypothyroidism when searching for the causes of a pregnancy loss. The coincidence of stillbirth and intrauterine thyrotoxicosis have been well documented, particularly in patients who are not able to obtain thyroid hormone therapy during pregnancy.<sup>49</sup> For example, one study found fetal loss in 17 percent of the participating hyperthyroid women, all of whom (unlike Ms. McKnight) were receiving regular treatment for their thyroid conditions.<sup>50</sup> In short, the State's pathologists should have investigated Ms. McKnight's hypothyroidism as a possible cause of her stillbirth. Their failure to do so undermines the reliability of the State's case.

Prenatal exposure to adverse environmental factors most commonly associated with poverty, such as poor nutrition, substandard housing and a lack of social supports and services, can also profoundly affect infant health.<sup>51</sup> Researchers from the Medical University of South Carolina ("MUSC") emphasize as much, stating: "Low socioeconomic status . . . increases the risk for unexplained fetal death, even after controlling for factors such as prepregnancy weight and smoking."<sup>52</sup> But again, this widely recognized and highly plausible explanation was never addressed.

---

<sup>48</sup> See Curry & Honoré, *supra*, at 732; J.A. Houck et al., Thyroid-Stimulating Immunoglobulin as a Cause of Recurrent Intrauterine Fetal Death, 71 *Obstetrics & Gynecology* 1018 (1988).

<sup>49</sup> P. Atkins, et al., Drug Therapy for Hyperthyroidism in Pregnancy: Safety Issues for Mother and Fetus, 23 *Drug Safety: An International Journal of Medical Toxicology and Drug Experience* 229 (2000).

<sup>50</sup> I.H. Sherif et al., Treatment of Hyperthyroidism in Pregnancy, 70 *Acta Obstetrica et Gynecologica Scandinavica* 461 (1991).

<sup>51</sup> N.S. Gustavsson & A.E. MacEachron, Criminalizing Women's Behavior, 27 *J. Drug Issues* 673, 675-76 (1997).

<sup>52</sup> Sims & Collins, *supra*, at 264.

Significantly, alcohol and tobacco, do not appear to have been tested for, but could well have been present in Ms. McKnight's system. This investigatory oversight is noteworthy, given the record in this case and the wealth of scientific research demonstrating that these two licit substances are among the leading causes of serious, irreversible harm to the developing fetus. The failure of the State's pathologists to address the potential impact of tobacco on the death of Ms. McKnight's fetus deserves special mention as Ms. McKnight told the trial court's competency examiner that she smoked at least one packet of cigarettes every day since the age of sixteen. Tr. 105:8-19. Low birth weight, sudden infant death syndrome, spontaneous abortion, premature rupture of the membranes, and abnormal placentation are all well-established consequences associated with prenatal tobacco exposure,<sup>53, 54</sup> and it is widely accepted by medical researchers that smoking during pregnancy substantially increases the risk of stillbirth.<sup>55</sup> By contrast, cocaine – while not benign -- does not cause “the frank damage

---

<sup>53</sup> See, e.g., L.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 & Gynecology* 396 (1993); Office on Smoking and Health, The Health Consequences of Smoking: Nicotine Addiction 602 (1988).

<sup>54</sup> A national medical analysis on cigarette effects indicates that “Each year the use of tobacco products by women results in the deaths of 19,000 – 141,000 fetuses . . .” J. DiFranza & R. Lew, Effect of Maternal Cigarette Smoking on Pregnancy Complications and Sudden Infant Death Syndrome, 40 *J. Fam. Prac.* 385 (1995).

<sup>55</sup> See, e.g., T.A. Slotkin, Fetal Nicotine or Cocaine Exposure: Which One is Worse?, 285 *J. Pharmacology & Experimental Therapeutics* 931, 937 (1998) [hereinafter Fetal Nicotine or Cocaine Exposure] (“The conclusion is inescapable that smoking itself . . . is responsible for tens of thousands of perinatal deaths and for like numbers of infants whose debilities may range from outright brain damage to subtle cognitive defects.”) and K. Wisborg et al., Exposure to Tobacco Smoke in Utero and the Risk of Stillbirth and Death in the First Year of Life, 154 *Am. J. Epidemiology* 322, 323 (2001) (finding that, in a controlled study of 25,102 women, smokers had about twice the risk of stillbirth and infant death as compared to nonsmokers and that approximately 25 percent of all stillbirths and 20 percent of all infant deaths could be avoided if all pregnant smokers stopped smoking by the sixteenth week in a population with 30 percent pregnant smokers).

found with nicotine or smoking.”<sup>56</sup> Nonetheless, this avenue was also ignored by investigators.

Alcohol, like tobacco, is another known teratogen<sup>57</sup> with potentially devastating consequences for fetal health<sup>58</sup>. The potential effects of alcohol cannot be discounted in this case because of the well-documented fact that women (like Ms. McKnight) who are addicted to cocaine during pregnancy are more likely to use alcohol than women who abstain from cocaine.<sup>59</sup> Tr. 105. Yet, despite the deleterious effects of alcohol use during pregnancy, the State fails to mention, much less rule out, this most prominent of teratogens as a possible cause of Ms. McKnight’s stillbirth. Research has found that paternal smoking is associated with an elevated risk of fetal death.<sup>60</sup>

Finally, there are a variety of prescription medications, tests for which are not indicated in the pathology report, that have also been found to impact a developing fetus: psychiatric medications, such as anticonvulsants,<sup>61</sup> Lithium and other mood-stabilizers,<sup>62</sup> antipsychotics, and benzodiazepines (the class of medications which includes Valium,

---

<sup>56</sup> Fetal Nicotine or Cocaine Exposure, *supra*, at 939.

<sup>57</sup> See L.P. Finnegan & S.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).

<sup>58</sup> Fetal Alcohol Syndrome is the leading cause of mental retardation in the United States. *Id.*

<sup>59</sup> M. Bendersky et al., Characteristics of Pregnant Substance Abusers in Two Cities in the Northeast, 22 *Am. J. Drug & Alcohol Abuse* 349, 353 (1996).

<sup>60</sup> Sims & Collins, *supra*, at 264 (citing J. Zhang & W. Cai, Risk Factors with Antepartum Fetal Death, 28 *Early Hum. Dev.* 193 (1992))

<sup>61</sup> A leading scientific text describes the teratogenic affects of anticonvulsants 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.” K.L. Jones, Smith’s Recognizable Patterns of Human Malformation 495 (J. Fletcher ed., 5<sup>th</sup> ed. 1997). See also The Merck Manual of Diagnosis and Therapy 1859 (R. Berkow ed., 16<sup>th</sup> ed. 1992) [hereinafter “Merck Manual.”].

<sup>62</sup> “Among psychotropic drugs, lithium has been more strongly associated with congenital anomalies than have other agents . . . . [N]umerous publications indicate an increased incidence of cardiovascular abnormalities, particularly an increase in Ebstein’s anomaly in infants born of lithium-treated mothers.” J.G. Bernstein, Handbook of Drug Therapy in Psychiatry 415 (2d ed. 1988) (citing G.E. Robinson et al., The Rational Use of Psychotropic Drugs in Pregnancy and Postpartum 31 *Can. J. Psychiatry* 183 (1986)).

Librium and Xanax),<sup>63</sup> as well as some antibacterials (especially Tetracyclines),<sup>64</sup> anticoagulants,<sup>65</sup> thyroid medications,<sup>66</sup> and antihypertensive drugs.<sup>67</sup> Even “[l]arge doses of aspirin may result in delayed onset of labor, premature closure of the fetal ductus arteriosus . . . or neonatal bleeding.”<sup>68</sup> While the record is silent as to whether Ms. McKnight was taking any of these medications, the record does not indicate that the State’s pathologists ruled out this possibility, injecting still further doubt into the causal inquiry.

In bringing these examples to the Court’s attention, amici curiae do not mean to suggest that Ms. McKnight should have been prosecuted (or convicted) for her use of tobacco, alcohol, prescription medications, or her poverty. As amici demonstrate below, such a prosecution would hurt, not help, the health of women and fetuses. Rather, amici simply observe that the State did not take basic, appropriate and routine steps consistent with the proper exercise of forensic duties to identify or exclude far more likely causes of fetal demise strongly suggested by the facts of this case. Instead, the State advanced a theory of fetal demise predicated on scant forensic evidence and medical assumptions

---

<sup>63</sup> Bernstein, supra, at 407-421 (citing W.S. Barry & S.M. St. Clair, Exposure to Benzodiazepines in Utero 1 Lancet 1436 (1987)); M.J. Whittle & K.P. Hanretty, Prescribing in Pregnancy: Identifying Abnormalities, 293 Br. Med. J. 1485 (1986).

<sup>64</sup> 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, supra, at 41.

<sup>65</sup> Certain anticoagulants can cause nasal abnormalities, bone stipling, bilateral optic atrophy, varying degrees of mental retardation, microcephaly, and occasionally fetal and maternal hemorrhage. Jones, supra, at 504.

<sup>66</sup> Some thyroid medications taken during pregnancy can cause severe hypothyroidism, fetal goiter, or scalp defects. Merck Manual, supra, at 1859.

<sup>67</sup> These drugs may cause fetal respiratory depression, hypotension, paralytic ileus, bradycardia, hypoglycemia, and varying degrees of intrauterine growth retardation. Id. at 1861.

<sup>68</sup> Id. at 1859; see also L.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).

that are contradicted by a well-established body of scientific literature. The State's evidence falls far short of proving, beyond a reasonable doubt, that cocaine had any effect at all on the fetus, much less caused its death.

#### **4. The Claim that Cocaine Caused Ms. McKnight's Stillbirth Is Belied by South Carolina Medical Research Studies**

Had an adequate investigation been conducted and other likely causes of death ruled out, the conclusion that cocaine could be identified as the primary cause of death would still be at odds not only with national medical practice but also with South Carolina's established standards of care. Two studies of autopsies performed at the Medical University of South Carolina ("MUSC") shed light not only on the difficult nature of determining the cause of a stillbirth, but also on the near impossibility of concluding that cocaine is the sole cause of a stillbirth. The first study is a ten-year retrospective of pediatric toxicological deaths that were performed at MUSC from January 1989 to December 1998. See T.A. Campbell & K.A. Collins, *Pediatric Toxicologic Deaths: A 10 Year Retrospective Study*, 22 Am. J. Forensic Med. & Pathology 184 (2001). During that ten-year time period, out of 709 pediatric forensic autopsies performed on children younger than 18 years of age (including stillborn fetuses), a total of only eight (1.1%) neonatal and fetal deaths were *associated* with prenatal cocaine abuse, of which five tested positive during postmortem screening for cocaine and its metabolites. Despite this association, cocaine was not listed as the sole cause of death in *any* of the fetal deaths. The causes of death were listed as placental abruption, intrauterine fetal demise, pneumonia, intracranial hemorrhage, and

chorioamnionitis, with “cocaine use listed as contributory in five of the cases.”<sup>69</sup>

Moreover, unlike the autopsy of Ms. McKnight’s fetus, homicide was not identified as the manner of death in *any* of these cases. Instead, the manner of death was ruled to be either natural or undetermined. *Id.* at 186. The authors of the study conclude that the *cause and effect relation of cocaine and fetal demise is not clear and requires additional research.* *Id.* at 187.

The second South Carolina study focused on the 42 fetal deaths referred for autopsy to the Forensic Section of MUSC over the ten year period from 1990-1999. *See* M.A. Sims & K.A. Collins, Fetal Death: A 10-Year Retrospective Study, 22 Am. J. Forensic Med. & Pathology 261 (2001). Twenty-seven of the 42 fetal autopsies had toxicologic analysis performed and seven were positive for cocaine and/or benzoylecgonine. *Id.* at 262. As with the other study, no cocaine-positive toxicological cases were classified as homicide. Instead, the cocaine-associated deaths were designated as “natural” or “undetermined.” *Id.* at 263. Significantly, of the cases that tested positive for toxicological analysis, only one case had the cause of death described as secondary to cocaine toxicity. *Id.* The authors of the study note that “the direct toxic effect of cocaine on the fetus is not well known,” indicating that it is scientifically inappropriate to declare fetal cocaine exposure to be the sole or even primary cause of fetal death. *Id.* at 264.

Indeed, forensic pathologists at the Medical University of South Carolina have *never* identified cocaine, even where present, to be the primary cause of death, and only on one occasion have they deemed it to be a possible secondary factor. As will be shown

---

<sup>69</sup> *Id.* at 187.

below, the conclusions of current research fully support the refusal of MUSC pathologists to causally connect cocaine to fetal deaths where cocaine is present. Although the popular press of the late 1980's fueled what one scientist called a "mythology of severe risk" of fetal harm from cocaine use, these press accounts rested upon a handful of early studies, now more than a decade old,<sup>70</sup> that have since been debunked.

**B. Medical Research Does Not Support the Conclusion That Prenatal Cocaine Use Causes Stillbirth**

Medical science does not support the conviction of Ms. McKnight for homicide by child abuse of her fetus. 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 D. 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 B.] This report exposes as erroneous and unfounded the assumptions that underlie the prosecution and conviction of Ms. McKnight.

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

---

<sup>70</sup> See generally J. Morgan & L. Zimmer, The Social Pharmacology of Smokeable Cocaine: Not All It's Cracked Up to Be in Crack in America: Demon Drugs and Social Justice 149-54 (C. Reinerman & H.G. Levine eds. 1997) (virtually all adverse outcomes found in fetal studies involving cocaine use were reported as mass evidence that crack *causes* damage even though no study has convincingly shown that to be so); L.E. Gomez, Misconceiving Mothers: Legislators, Prosecutors, and the Politics of Prenatal Drug Exposure 11-26 (1997) (same).

Systematic Review at 1614. They then undertook a detailed review of all the studies that complied with accepted scientific practices.<sup>71</sup> 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.<sup>72</sup>

Specifically, the JAMA researchers found that when studies are controlled for prenatal exposure to tobacco and alcohol, prenatal cocaine 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.<sup>73</sup>; "[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 on academic achievement, id. at 1616 (citing G. Richardson et al., Prenatal cocaine exposure: effect on the development of school age children 18 Neurotoxicol Teratology 627 (1996)).<sup>74</sup>

Upon an exhaustive review of the medical research, the only effect of prenatal

---

<sup>71</sup> "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 phencyclidine, or whose mothers were known to be infected with the human immunodeficiency virus (HIV)." A Systematic Review, supra, at 1613, 1614.

<sup>72</sup> Id. at 1621, 1624.

<sup>73</sup> Ira Chasnoff, a physician on whose research the South Carolina Supreme Court relied in its decision in South Carolina v. Whitner, 429 S.E.2d 777 (S.C. 1997), authored a study finding "no incremental impact of cocaine use" on assessment tests of 6-month-old infants. See A Systematic Review, supra, at 1615.

<sup>74</sup> See also G.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"); H. Hurt et al., Children with In Utero Cocaine Exposure Do Not Differ from Control Subjects On Intelligence Testing, 151 Archives Pediatric & Adolescent Med. 1237

cocaine exposure that the JAMA researchers uncovered is the potential for decreased emotional expressiveness. A Systematic Review, supra, at 1620. And even this finding is tempered by the observation that “[f]ull-term 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.

New research also sheds light on cocaine’s impact on adverse perinatal effects such as rate of malformation, birth weight, prematurity, and the like. The authors of Fetal Effects analyzed all studies employing methodologies suitable for proving cause and effect relationships between cocaine and adverse pregnancy outcomes.<sup>75</sup> Fetal Effects concludes that only two effects – rates of placental abruption and premature rupture of membranes – were associated with cocaine use alone. Fetal Effects, supra, at 354. Where rates of developmental effects were found to be higher in children of polydrug users than in those of non-drug using women, the adverse effects were nullified when cocaine exposed children were compared to children exposed to other drugs but not cocaine. Id. at 343. This, in turn, suggests “. . . that the various confounders, also occurring in polydrug/no cocaine users, are responsible for this effect.” Id. at 354.

These recent reviews of scientific and medical studies – all of which had been concluded in 1999 by the time Ms. McKnight suffered her stillbirth -- confirm that

---

(1997)

<sup>75</sup> Studies were excluded based on several criteria: because they were case reports, editorials, letters, reviews or commentaries, studies without fetal or pregnancy outcomes, in vitro studies or placenta profusion, studies with outcomes not within the scope of the meta-analysis, studies without a control group and studies where cocaine users had not been separated from users of other drugs. Fetal Effects, supra, at 342.

medical science does not support the media hysteria of the 1980's and 90's regarding the alleged negative impact of prenatal cocaine exposure. As early as January 1992, an article appearing in JAMA reported that:

review of the current literature on the subject [of the adverse effects in infants born to cocaine-using mothers] indicates that available evidence from the newborn period is far too slim and fragmented to allow any clear predictions about the effects of intrauterine exposure to cocaine on the course and outcome of child growth and development. . . . Findings about neurobehavioral effects in the newborn period have been inconsistent or contradictory. Significantly, no prospective study of unique long-term consequences of intrauterine cocaine, non-opiate exposure has been published in the peer-review literature.<sup>76</sup>

A standard pediatrics textbook published the following year reached a similar conclusion, observing that “[t]o date no hypothesized or demonstrated effect of in utero cocaine exposure has been found to be specific to that drug. No studies have shown that prenatal cocaine exposure causes unique developmental dysfunction.”<sup>77</sup> In 1997, scientists continued to urge a suspension of judgment, stating that “[k]nowledge concerning the biological effects of cocaine exposure on the newborn is inconclusive at present.”<sup>78</sup> And in 1999, the year Ms. McKnight was indicted, the general consensus among scientists remained the same.<sup>79</sup>

It is thus not surprising that no methodologically sound studies prove that prenatal cocaine exposure significantly increases the risk of stillbirth. To be sure, certain early

---

<sup>76</sup> L.C. Mayes et al., The Problem of Prenatal Cocaine Exposure: A Rush to Judgment, 267 JAMA 406 (1992) (internal citations omitted).

<sup>77</sup> D.A. Frank et al., Maternal Cocaine Use: Impact on Child Health and Development, 40 *Advances in Pediatrics* 65, 92 (1993). Also, in 1993, a publication of Harvard Medical School reported that a “1991 combined analysis of 20 studies on cocaine and pregnancy found few effects that could be specifically attributed to cocaine.” Update on Cocaine: Part I, 10 *Harv. Mental Health Letter* 3 (Aug. 1993).

<sup>78</sup> E. Hutchins, Drug Use During Pregnancy, 27 *J. Drug Issues* 463, 465 (1997) (emphasis added).

<sup>79</sup> J. Held et al., The Effect of Prenatal Cocaine Exposure on Neurobehavioral Outcomes: a Meta-Analysis, 21 *Neurotoxicology & Teratology* 619, 624 (1999) (noting “general consensus among researchers that the

studies of autopsy reports do show an *association* between cocaine use and stillbirth,<sup>80</sup> but these studies do not purport to demonstrate that cocaine caused the stillbirths in question. As one forensic pathologist notes, “The mere fact that cocaine is present does not prove that was the cause of death, or even of toxicity.”<sup>81</sup>

## **II. Upholding the Conviction of Ms. McKnight Endangers Public Health, By Jeopardizing the Therapeutic Relationships Between Women and Their Care Providers and Deterring Access to Important Services**

Amici also oppose prosecutions like those of Ms. McKnight for reasons wholly unrelated to evidentiary problems. As amici explain below, medical and public health professionals uniformly object to the prosecution of women for their behavior during pregnancy because such prosecutions have been shown to erode women's willingness to seek health care or to confide in their health care providers if they do seek such care. This in turn results in a deterioration of health for both the woman and the fetus. Indeed, these negative effects have already been felt in South Carolina in the wake of the Supreme Court's decision in Whitner.<sup>82</sup> For these reasons, amici urge the Court to decline to dramatically expand the homicide by child abuse statute to cover the facts of this case.

---

reproductive effects of cocaine appear to be minimal” and finding that “the effect of prenatal exposure to cocaine on neurobehavior appears to be only marginal and transitory”).

<sup>80</sup> See, e.g., C. Rogers et al., Findings in Newborns of Cocaine-Abusing Mothers, 36 J. Forensic Sci. 1074 (1991) (noting that cocaine was present in 40 percent of fetuses who were stillborn or had died within 2 days of birth whose death was not otherwise explained by autopsy, but not asserting the cocaine *caused* the stillbirths or fetal deaths) and I. Morild & M. Stajc, Cocaine and Fetal Death, 47 Forensic Sci. Int'l 181 (1990).

<sup>81</sup> See S. Karch, The Pathology of Drug Abuse, 171-75 (2<sup>nd</sup> ed. 1996).

<sup>82</sup> In South Carolina v. Whitner, 492 S.E.2d 777 (S.C. 1997), cert. denied, 118 S.Ct. 1857 (1998), the South Carolina Supreme Court ruled that Section 20-7-50 of the South Carolina Code could be read to permit the prosecution of women for child abuse who abused cocaine while pregnant. In her brief, Appellant explains the legal rationale for not expanding the homicide by child abuse statute to include the prosecution of women who suffer stillbirths. Amici will discuss the medical, bio-ethical, and public health justifications for not doing so, and how by setting aside the conviction below, South Carolina can avoid extending the ill effects brought about by the Whitner decision.

Amici are firmly convinced that the choice to prosecute Ms. McKnight for homicide by child abuse will undermine the quality and accessibility of health care for pregnant women and women recovering from delivery, miscarriage or stillbirth, who have substance abuse problems. The trust and confidence that lie at the core of every doctor-, nurse-, or counselor-patient relationship, and that is critical in ensuring that patients speak with their care providers in an open and candid manner, is corroded by the prosecution and conviction of women such as Ms. McKnight. Likewise it will have a chilling effect on the communication between patients like Ms. McKnight, who are hospitalized after a stillbirth or other pregnancy-related trauma, and the health care professionals charged both with their care and with the task of determining the cause of a stillborn fetus' demise. Additionally, as amici can attest, and clinical experience confirms, the prosecution of pregnant substance abusers deters pregnant women from seeking or obtaining important obstetrical care. In fact, some indicators point to such a correlation in South Carolina in the post-Whitner era, suggesting that some pregnant women are afraid to access prenatal care because of potential criminal prosecution and that fetal health suffers as a result. In sum, the purported goal of this prosecution – the health and well-being of pregnant women and their future children – is put at greater, not lesser, risk by the State's actions in this case.

**A. The Prosecution of Ms. McKnight Will Erode the Fundamental Trust Between Patients and their Health Care Providers That Is Critical to Quality Health Care**

If prosecutions and convictions for homicide after stillbirth, like that of Ms. McKnight, are permitted to stand, the care provider-patient relationship will

inevitably be compromised. The State's case against Ms. McKnight rested in large part upon the use by criminal justice officials of medical tests administered by health care professionals in the course of both providing medical services and trying to determine the cause of fetal demise. Although, as we have shown, the medical professionals failed to conduct all the tests necessary to deduce the actual cause of Ms. McKnight's stillbirth, Ms. McKnight believed the tests that were performed on her and her fetus to assist in the discovery of medical information that could benefit her, not to aid the State in prosecuting her for homicide. In fact, nothing in the record indicates that when nurse McBride asked Ms. McKnight to sign the consent form for the urine test that would eventually lead to her arrest, Ms. McKnight -- still hospitalized and suffering the trauma of her childbirth -- had any reason to believe that this test was being conducted for any other than the medical or forensic purposes implied by Ms. McBride's nurses uniform. Tr. 211-215

Patients like Ms. McKnight consent to the administration of intrusive, sometimes painful medical tests because they believe that the information obtained will be handled with the strictest confidence by care providers and will be used for the treatment, not punishment. Because complete and accurate patient information is essential for the delivery of proper medical care, health care professionals across all disciplines are taught and expected to uphold the duty of medical confidentiality. See Jaffee v. Redmond, 518 U.S. 1, 12 (1997).

Medical and public health professionals and the courts have long recognized that the obligation of confidentiality is not solely a matter of principle: it is a necessary precondition of every relationship between a patient and a physician, nurse

or substance abuse counselor. See Jaffee, 518 U.S. at 10 (“the mere possibility of disclosure may impede development of the confidential relationship necessary for successful treatment”). Thus, not only does “[v]iolation of confidentiality . . . show[] disrespect to the patient as a human being,”<sup>83</sup> it substantially impairs the ability of medical providers to do their jobs:

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.<sup>84</sup>

When the substance dependent patient is pregnant, an environment of communication and trust is paramount if potential harm to the fetus is to be reduced or prevented and optimum safety for pregnant woman and child are to be ensured before, during and after delivery. Fear of conviction for homicide by child abuse should a pregnant woman suffer a stillbirth is likely to chill her willingness to speak openly with her care provider during prenatal care visits or hospitalization.

For several reasons, a pregnant, recently delivered or miscarried patient’s reluctance to confide fully in care providers can endanger her health. First, drug use is one of the most commonly missed diagnoses in obstetric and pediatric medicine;<sup>85</sup> in most cases, a patient’s drug use is not readily apparent if the patient does not

---

<sup>83</sup> R. Arnold et al., Medical Ethics and Doctor/Patient Communication, in The Medical Interview: Clinical Care, Education and Research 345, 365 (M. Lipkin, Jr. et al. eds., 1995); See also A. Lazare, Shame, Humiliation, and Stigma in the Medical Interview, in The Medical Interview: Clinical Care, Education and Research 333 (M. Lipkin, Jr. et al. eds., 1995); D. Miller & M. Thalen, Knowledge & Belief About Confidentiality in Psychotherapy, 17 Prof. Psychol. Res. & Prac. 15, 18 (1986) (“[P]atients view confidentiality as an all-encompassing, superordinate mandate for the profession of psychology.”).

<sup>84</sup> Id.

<sup>85</sup> I. Chasnoff, Drug Use in Pregnancy: Parameters of Risk, 35 Pediatric Clinics N. Am. 1403, 1410 (1988).

disclose it. Additionally, health care workers must be able to discuss fully with pregnant women many sensitive matters to protect both maternal and fetal health. Among these are whether she and the fetus are at risk of HIV, Hepatitis C, or herpes infection due to unprotected sex or intravenous drug use. Important medical benefits accrue when treatment providers permit patients to feel sufficiently comfortable to divulge highly personal, often stigmatizing, and sometimes incriminating information.<sup>86</sup>

Further, for nearly three decades -- and thus for many years before Ms. McKnight's prosecution took place -- researchers have tracked the special treatment needs of pregnant, drug-dependent and parenting women. Pregnant drug-dependent women suffer from depression at high rates and from low self-esteem. In all cases, their decision to seek medical care is itself a highly positive step. And because such patients often lack the self-esteem that is important for completing treatment, it is particularly critical that they form a strong "therapeutic alliance" with care providers. Also, important differences have been found among the populations of men and women with substance abuse problems, indicating distinctive treatment approaches are often in order. For example, large numbers of drug-dependent women have been victims of sexual or other physical abuse, see, J. Wallen, A Comparison of Male and Female Clients in Substance Abuse Treatment, 9 J. Substance Abuse Treatment 243 (1992), and women with substance abuse problems are far more likely than their male counterparts to have child care responsibilities. For women with children, studies have shown that treatment outcomes improve substantially when treatment programs take into account patients'

---

<sup>86</sup> See Arnold, supra, at 345; Lazare, supra, at 333.

needs for transportation to appointments, job training, primary medical care, education, child care, and medical care for infants and children. M.E. Goldberg, Substance-abusing Women: False Stereotypes and Real Needs, 40 Social Work 789 (1995). A health care provider cannot assist in appropriate placement into treatment if the avenues of communication are blocked off by fear of criminal sanctions.

Thus, there are many reasons to take steps to enhance the confidentiality of the health care provider-patient dialogue concerning all health risks, including the illegal use of drugs, rather than replace it with threats of prosecution. A climate of confidentiality is essential if patients are to disclose drug use and/or seek continued care and counseling from health professionals in order to reduce the potential harms caused by substance use during and after pregnancy. Accordingly, the disclosure to law enforcement authorities of medical information gathered in the course of treatment should not be countenanced.

**B. Prosecuting Women for Using Drugs While Pregnant, Particularly With Threats of Long Terms of Incarceration, Is An Ineffective Means Of Protecting Fetal Health**

As amici can attest and a compelling body of clinical experience confirms, law enforcement's intrusion on the delivery of prenatal care is counterproductive to the health and well-being of both woman and fetus, particularly when the mother suffers from a substance abuse problem. Even the suggestion that seeking health care could lead to criminal sanctions – a real possibility in South Carolina after the Whitner decision -- deters pregnant women from getting the prenatal care critical to the health of both mother and child. The added threat that a woman's tragic stillbirth could result in a *homicide* conviction (carrying a possible sentence of lifetime

imprisonment) is likely to exacerbate women's fears and further deter them from seeking health care services.

Numerous expert bodies and authoritative commissions have found that the intrusion of the criminal justice system on health care practices increases the already strong reluctance of pregnant substance abusers to seek medical attention and treatment. After a comprehensive three-year study of perinatal substance abuse in southern states, the Southern Regional Project on Infant Mortality, an initiative of the Southern Governors' Association and the Southern Legislative Conference, concluded: "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." Southern Regional Project on Infant Mortality, A Step Toward Recovery: Improving Access to Substance Abuse Treatment for Pregnant and Parenting Women 21 (1993). 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." South Carolina Department of Alcohol and Other Drug Abuse Services ("DAODAS"), Prevention, Intervention & Treatment: Treatment Services (May 7, 2001) <<http://www.daodas.state.sc.us/web/treatment.html>>.

Similarly, the Board of Trustees of the American Medical Association determined that where the criminal justice systems are 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.”<sup>87</sup> The American Society of Addiction Medicine, comprised of the leading specialists in the field of substance abuse treatment and prevention, declared that “criminal prosecution of chemically dependent women will have the overall result . . . of increasing, rather than preventing, harm to children and to society as a whole.”<sup>88</sup> Even a study by the United States General Accounting Office concluded that “the threat of prosecution poses . . . [a] barrier to treatment for pregnant women.”<sup>89</sup>

Amici and every other prominent public health and medical organization to have given the subject serious consideration agree that a punitive approach to drug use during pregnancy will worsen rather than resolve the problem. These organizations include the American College of Obstetricians and Gynecologists,<sup>90</sup> the American Academy of Pediatrics,<sup>91</sup> the March of Dimes,<sup>92</sup> the National Association of Public Child Welfare Administrators,<sup>93</sup> the National Council on

---

<sup>87</sup> American Medical Ass’n, Legal Intervention During Pregnancy, 264 JAMA 2663, 2667 (1990). See also id. at 2670 (reporting AMA resolution that “[c]riminal sanctions or civil liability for harmful behavior by the pregnant woman toward her fetus are inappropriate”).

<sup>88</sup> American Soc’y of Addiction Med., Bd. of Directors, Public Policy Statement on Chemically Dependent Women and Pregnancy (Sept. 25, 1989).

<sup>89</sup> United States General Accounting Office, ADMS Block Grant: Women’s Set Aside Does Not Assure Drug Treatment for Pregnant Women 5, 20 (1991).

<sup>90</sup> American College of Obstetricians and Gynecologists, Substance Abuse in Pregnancy 195 ACOG Technical Bulletin 1 (1994) (“In some states, the legal requirements regarding reporting substance abuse threaten to interfere with patient confidentiality and the entire physician-patient relationship.”)

<sup>91</sup> 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.”).

<sup>92</sup> March of Dimes, Statement on Maternal Drug Abuse 1 (Dec. 1990).

<sup>93</sup> National Association of Public Child Welfare Administrators, Guiding Principles for Working with Substance-Abusing Families and Drug-Exposed Children: The Child Welfare Response (Jan. 1991)

Alcoholism and Drug Dependence,<sup>94</sup> the American Nurses Association<sup>95</sup> and the Center for the Future of Children<sup>96</sup> 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).

By contrast, and as discussed above, when treatment providers can establish a trusting relationship with pregnant substance abusers, they can offer ongoing support and interventions that substantially improve health outcomes for their patients. When a pregnant patient is persuaded of the undivided loyalty of her health care provider she will be far more likely to seek out and complete drug treatment and avail herself of early, comprehensive prenatal care. See S.R. Kandall, Substance and Shadow: Women and Addiction in the United States 278-79 (1996).<sup>97</sup> Early, high-quality, comprehensive prenatal care is one of the most effective weapons against infant mortality.<sup>98</sup> Prenatal care improves pregnancy outcomes even among women with addictions. For example, pregnant women who use cocaine but who

---

("Laws, regulations, or policies that respond to addiction in a primarily punitive nature, requiring human service workers and physicians to function as law enforcement agents, are inappropriate.")

<sup>94</sup> 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 interest of infants and children . . .")

<sup>95</sup> 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 many women from seeking prenatal care and treatment for their alcohol and other drug problems.")

<sup>96</sup> Center for the Future of Children, Recommendations, 1 The Future of Children 8 (1991) ("A woman who uses illegal drugs during pregnancy should not be subject to special criminal prosecutions of the basis of allegations that her illegal drug use harms the fetus. Nor should states adopt special civil commitment provisions for pregnant women who use drugs")

<sup>97</sup> In addition, negative health effects associated with prenatal drug exposure can be mitigated through intensive counseling and training in parenting skills. See, e.g., Finnegan & Kandall, supra, at 529.

<sup>98</sup> Southern Regional Project on Infant Mortality, supra, at 6.

have at least four prenatal care visits significantly reduce their chances of delivering low birth weight babies.<sup>99</sup>

In sum, as one public health expert observed more than a decade ago in the New England Journal of Medicine:

[M]arriage of the state and medicine is likely to harm more fetuses than it helps, since many women will quite reasonably avoid physicians altogether during pregnancy if failure to follow medical advice can result in . . . involuntary confinement, or criminal charges. By protecting . . . the integrity of a voluntary doctor-patient relationship, we not only promote autonomy; we also promote the well-being of the vast majority of fetuses.<sup>100</sup>

In partial recognition of this medical fact, the vast majority of courts to address the criminalization of substance dependence during pregnancy have struck down attempted prosecutions.<sup>101</sup> The United States Supreme Court recently questioned the underlying policy rationale of extending criminal statutes to include prenatal conduct similar to that of Ms. McKnight. In Ferguson v. City of Charleston, South Carolina, 121 S.Ct. 1281 (2001), the Court concluded 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. Though the Ferguson Court did not directly address the lawfulness of prosecuting pregnant drug users for homicide by child abuse, the Court's analysis casts doubt on the

---

<sup>99</sup> A. 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).

<sup>100</sup> G. Annas, Protecting the Liberty of Pregnant Patients, 316 New Eng. J. Med. 1213, 1214 (1987).

<sup>101</sup> See, e.g., Nevada v. Encoe, 885 P.2d 596 (Nev. 1994); Commonwealth v. Welch, 864 S.W.2d 280 (Ky. 1995); Reinesto v. Superior Court, 894 P.2d 733 (Ariz. App. Div. 1 1995).

assumption that the prosecution of pregnant women is a valid way to protect fetuses.

As the Court observed,

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. The same analysis applies to the prosecution for homicide of substance using women who suffer stillbirths.

Because the prosecution of women like Ms. McKnight sends a perilous message to pregnant addicts *not* to seek prenatal care or drug treatment, *not* to confide their addiction to health care professionals, and *not* to give birth in hospitals – or not to carry the fetus to term – such prosecutions fail to serve any legitimate purpose, and in fact undermine the State’s objectives of promoting maternal and fetal health. Instead of saving lives, Ms. McKnight’s prosecution is likely to endanger them.

**C. Upholding Ms. McKnight’s Conviction Will Exacerbate the Post-Whitner Trend of Deterring Pregnant Women From Seeking Health Care in South Carolina**

South Carolina is already witnessing the devastating impact that a criminal justice approach to substance abuse during pregnancy can have on public health. The Whitner decision is producing real and dire consequences for pregnant women in South Carolina, many of whom now avoid 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. Expanding the homicide by child abuse statute to apply to the demise of an unborn fetus, as the trial

court has improperly done here, will greatly exacerbate the devastating consequences on public health seen since Whitner was decided.

After the highly publicized prosecution of Cornelia Whitner and the South Carolina Supreme 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 80percent (from 10 percent to 2 percent 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 A at i-ii. 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.

Even more troubling is that South Carolina recorded its most significant increase in infant mortality in a decade in 1997.<sup>102</sup> This increase coincided with the Whitner decision and the publicity surrounding it. During roughly the similar period of time, the number of abandoned babies in South Carolina increased twenty percent. Discarded Children Increasing, Post & Courier, 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 K. Baca, South Carolina spends the least on substance abuse prevention, Associated Press State and Local Wire, Jan 29,

---

<sup>102</sup> Annie E. Casey Foundation, 2001 Kids Count Data Book 112 -113 (2001).

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.”) (citing National Center on Addiction and Substance Abuse, Shoveling Up: The Impact of Substance Abuse on State Budgets). Even the state’s 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 L.J. Nelson & M.F. Marshall, Ethical and Legal Analysis of Three Coercive Policies Aimed at Substance Abuse by Pregnant Women, 185a, 9 (1998).

South Carolina’s “women, and pregnant women in particular, remain underserved” Drug Strategies, South Carolina Profile (1998). For many women, successful treatment requires comprehensive residential programs that do not separate mothers from their children. See e.g., E.M. Howell et al., A Review of Recent Findings on Substance Abuse Treatment for Pregnant Women, 16 J. Substance Abuse Treatment 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, supra, at 6. Each of these programs, however, limit the number of children the mother may keep with her to one or two, and all impose age restrictions 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 them to be separated from some or all of their

children as a condition of receiving treatment. In addition, each program has only between 10 and 24 beds for women and children. Id. Even assuming that no women brought their children to treatment (thereby preserving all beds for women), the state's long-term residential treatment programs can accommodate only about 100 women. See id.<sup>103</sup> It is estimated, however, that as many as 49,735 women of child-bearing age may need drug or alcohol treatment each year in South Carolina. Ned Self, Research Analyst, DAODAS, email to Wyndi Anderson of 4/24/01. See Appendix C.

These statistics elucidate the social and medical contexts into which the women most impacted by Ms. McKnight's prosecution are thrust. If this court upholds Ms. McKnight's conviction, women in South Carolina will face even more significant barriers to the adequate provision of prenatal care, drug treatment, and other health services.

### **III. To Punish Ms. McKnight For Suffering From the Disease of Drug Addiction Serves No Legitimate Purpose**

As long ago as 1925, the United States Supreme Court observed that drug dependent persons "are diseased and proper subjects for [medical] treatment." Linder v. U.S., 268 U.S. 5, 18 (1925). The Supreme Court reaffirmed this principle nearly four decades later in Robinson v. California, 370 U.S. 660, 667 n.8 (1962), when it found unconstitutional a law making the status of narcotic addiction a criminal offense. The Court stated that "narcotic addiction is an illness ... which may be contracted innocently or involuntarily." Id. In his concurring opinion,

---

<sup>103</sup> One of the six residential women's programs may be forced to close its doors. See B. Brazil, Rehab group on Navy base faces eviction, Post & 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.); B. Brazil, Step Ahead may have new home on old base, Post & Courier, Feb. 19, 2001, at B1.

Justice Douglas notes that, “the addict is under compulsions not capable of management without outside help.” *Id.* at 671.

The medical profession has long recognized that drug dependence is an illness that cannot generally be overcome without treatment. “Psychoactive Substance Dependence” is listed as a mental illness with specific diagnostic criteria in the American Psychiatric Ass’n, The Diagnostic and Statistical Manual of Mental Disorders – 4<sup>th</sup> Edition (1994) (hereinafter “DSM-IV”), used by psychiatrists to diagnose mental illness. Indeed, the DSM-IV assigns separate categories for cocaine-dependence (304.20), cocaine-abuse (305.60), amphetamine dependence (304.40), and amphetamine abuse (305.70).<sup>104</sup> In the words of the American Medical Association:

Treatment – in the form of medical, psychological and psychiatric care – is a necessary and appropriate response to drug abuse. Reluctance to provide such care 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.<sup>105</sup>

The disease is often further complicated with poor, pregnant and drug-dependent women, many of whose addiction is compounded by depression and low self-esteem, and/or disorders associated with sexual or other physical abuse.<sup>106</sup>

---

<sup>104</sup> DSM-IV, *supra*.

<sup>105</sup> American Medical Association, Proceedings of the House of Delegates: 137<sup>th</sup> Annual Meeting, Board of Trustees Report NNN 236, 241, 247 (June 26-30, 1988). See also R. K. Portenoy & R. Payne, Acute and Chronic Pain, in Substance Abuse, A Comprehensive Textbook 563, 582-84 (J.H. Lowinson et al. eds., 1997) (citing AMA task force). See also National Treasury Employees Union v. Von Raab, 489 U.S. 656, 676 (1989) (“[A]ddicts may be unable to abstain even for a limited period of time.”); 21 U.S.C. § 802(1) (“The term ‘addict’ means any individual who habitually uses any narcotic drug so as to endanger the public morals, health, safety, or welfare, or who is so far addicted to the use of narcotic as to have lost the power of self-control with reference to his addiction.”).

<sup>106</sup> See Wallen, *supra*, at 243.

Because addicted individuals are physically and psychologically dependent on the substance to which they are addicted, and their addiction may well have biologic and genetic underpinnings, they are often unable to stop using the drug without outside assistance. Indeed, as described in the DSM-IV, one of the hallmarks of drug dependency is the inability to reduce or control substance abuse *despite adverse consequences*.<sup>107</sup> As the Board of Trustees of the American Medical Association points out, punishing people for substance abuse “[i]gnores the impaired capacity of substance-abusing individuals to make decisions for themselves. In all but a few cases, taking a harmful substance such as cocaine is not meant to harm the fetus but to satisfy an acute psychological and physical need for that particular substance.”<sup>108</sup>

More importantly, because of the compulsive nature of drug dependency, criminal sanctions are unlikely to achieve the goal of deterring drug use among pregnant women, but instead will only act to further demonize them. Physicians are generally impressed with the amount of personal health risk and voluntary self-restraint exhibited by pregnant women for the sake of their fetus’ health.<sup>109</sup> At the same time, pregnant women who are not deterred by existing penalties are unlikely to be affected by additional sanctions, even if those sanctions are as severe as the 12 years of incarceration now faced by Ms. McKnight.

---

<sup>107</sup> DSM-IV, *supra*, at 179.

<sup>108</sup> American Medical Association, *supra*, 267.

<sup>109</sup> L.J. Nelson & N. Milliken, Compelled Treatment of Pregnant Women, 259 JAMA 1060, 1065 (1988).

Here, South Carolina has targeted for prosecution the precise addictive behavior that the Supreme Court and the international medical community have long held should be treated as an illness. To declare Ms. McKnight to be a criminal for exhibiting the tell-tale signs and behaviors of her debilitating disease – especially in light of the lack of evidence connecting that behavior to the demise of her fetus -- flouts both Supreme Court precedent and a firmly established body of medical knowledge.

### CONCLUSION

To uphold the conviction of Regina McKnight for homicide by child abuse is unsupported as a matter of science, inappropriate as a matter of public health, and unfounded as a matter of law. Amici curiae thus respectfully request that the conviction against Ms. McKnight be set aside and the charges against her be dismissed.

Respectfully submitted,



SUSAN K. DUNN  
171 Church Street, Suite 160  
Charleston, South Carolina 29401  
(843) 722-6337  
SC Bar #1798

JUDITH K. APPEL  
DANIEL N. ABRAHAMSON  
ADAM BRAVERMAN  
The Lindesmith Center  
717 Washington Street  
Oakland, CA 94607  
(510) 208-7711

Attorneys for Amici Curiae

## APPENDIX A

Amicus Curiae South Carolina Medical Association (“SCMA”) is the primary professional association for individuals licensed to practice medicine in South Carolina. The SCMA has over 5500 members representing all medical specialties that provide medical services to the citizens of the state. The SCMA’s primary mission is to foster high ethical and clinical standards for the practice of medicine in South Carolina.

Amicus Curiae South Carolina Association of Alcoholism and Drug Abuse Counselors (“SCAADAC”) is the association of alcohol and drug abuse counselors who are employed throughout South Carolina in both the public and private sectors. Founded in 1988, SCAADAC currently has over 500 members. SCAADAC is concerned with the welfare of persons who are chemically dependent and provides public education concerning addictive illnesses and the treatment and prevention thereof. 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.

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 laws, policies and practices that erect barriers to prenatal care.

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 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. 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 issues. 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. With over 10 years of experience in working with pregnant women who use drugs, IHR members know firsthand the fears pregnant women who use drugs have regarding prosecution, causing them to be reluctant to seek prenatal care and substance abuse treatment.