Pregnancy and Substance Use: Alcohol, Crack Cocaine, and Opioids in Medicine, Culture, and Women's Lives

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Abstract
This paper aims to contextualize the phenomenon of pregnant opioid use in the current epidemic by examining it in conversation with past moments of awareness and scrutiny over pregnant substance use: the discovery of fetal alcohol syndrome in 1973, the crack epidemic of the eighties and nineties and concomitant fears about "crack mothers" and "crack babies." Women's substance use in various forms has for centuries been of great medical and social concern, as women's unique role in reproduction has been seen to grant them greater control and responsibility over the health of their children, and thus greater risk of harm through substance use. These past cases in the recent history of pregnant substance use illuminate continuities and disjunctures to the present opioid epidemic, and this essay seeks to identify these to better understand the medical, social, and experiential discourses around pregnant opioid use and resulting neonatal abstinence syndrome. I argue that social forces shape medical knowledge produced about pregnant substance use and that stigma heavily influences depictions of substance using women, the medical conceptions of pregnant substance use, and the experiences of people who use substances while pregnant. While this history has almost exclusively centered women as pregnant people, it is important to acknowledge that these two categories are not so closely aligned in the present day, and my use of the term "pregnant women" is primarily an actors' term and does not reflect the reality that people of any gender can experience pregnancy.

Biography
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A blonde woman crouching on an immaculate carpet in the corner of a wood-paneled room hides behind a curtain of shiny hair as she clutches her baby, adorable in a tutu and pink tights. In another photo, still obscured, she reaches across a bed holding a bottle filled with a mysterious pink liquid while her baby drinks, staring intently at her mother. Another woman holds her toddler's hands, her sparkly stiletto manicure visible and contrasting with her plain t-shirt and unmade up face, staring at the camera defiantly. These are images accompanying Jennifer Egan's May 2018 *New York Times Magazine* article "Children of the Opioid Epidemic," which chronicles the experiences of several women in the American Northeast who used opioids—mostly prescription painkillers—and discovered they were pregnant. The article's language is at times humanizing, talking about a woman's experience with anxiety and writing that she "prickles with intelligent awareness and self-scrutiny."[1] The article's pictures are difficult to read, and evoke disparate responses and interpretations in different viewers. Are the women being normalized through the classic portrait motif of mother and child? Or stigmatized as emblems of fallen whiteness? The pictures are arguably beautiful in form, and powerful in content. What you cannot deny is that the pictures depict women, as people and as mothers, and the writing tells their stories. The article does not defer to medical expertise, Egan does not scrutinize the children for signs they have been marked by their mothers' actions, and the author frequently inserts the women's own words.

Prestige journalism has clearly been grappling with the present opioid epidemic in visible ways. Articles in *The New Yorker* like "The Addicts Next Door" and *The Atlantic* on "How White Users Made Heroin a Public Health Problem," in conversation with Egan's article and others in *The Times* offer accounts of opioid use as a white, rural and suburban problem. The history of drug

[1] Jennifer Egan, "Children of the Opioid Epidemic - The New York Times," May 9, 2018, 3, https://www.nytimes.com/2018/05/09/magazine/children-of-the-opioid-epidemic.html?mtrref=undefined&gwh=823352084239736735DCB14AC86D56&gwt=pay.

use and concomitant public policy responses in the United States illuminates the reasons some may be taken aback by the demographics of contemporary opioid use. Drug use has long been seen as an urban problem, and the nature of the crack-cocaine epidemic of the 1980s and nineties as an "inner city" phenomenon reinforced this idea. Egan's article examines the geography, race, and class of the epidemic through a critically important lens: gender and motherhood.

Understanding substance use in the United States requires taking into account the experiences of women who use—experiences that are often seen within public, legal, and medical discourses through women's ability to become pregnant and bear children. Pregnancy and motherhood have always marked women who use substances in unique ways because they are seen as uniquely responsible for reproducing the social order.[2] In the present opioid epidemic, this plays out in medical and social attention to pregnant opioid use and the resulting risk of neonatal abstinence syndrome, the medical term for prenatal opioid exposure resulting in withdrawal symptoms upon birth, after the cessation of opioid delivery across the placenta. Women who use opioids also encounter medical attention when they seek prenatal care, where the standard is methadone or buprenorphine therapy, so-called maintenance assisted treatments that replace opioids in a safer form and/or simultaneously work to counteract their effect in the brain, preventing highs but staving off withdrawal.

The present opioid epidemic is still, like Paula Triechler wrote of AIDS, "an epidemic of signification" about many things simultaneously: class, race, medicine, geography, and gender. Teasing apart these threads of meaning around the fact that people are using opioids and dying at horrifically high rates in the United States since the turn of the 21st century is essential work for historians and social scientists attempting to address the present problem in the interest of saving lives and easing human suffering. Understanding the unique position of women is a critical

[2] Nancy Duff Campbell, *Using Women : Gender, Drug Policy, and Social Justice* (New York, 2000).

component of this larger project, and this essay seeks to understand present responses to women and mothers who use opioids through the longer history of pregnant substance abuse.

Changing conceptions of pregnancy have brought women increasingly under the medical gaze since the creation of obstetrics in the 18th century, and various technologies have allowed doctors to monitor pregnancies and newborns with increasing scrutiny since the invention of the ultrasound in the mid 20th century.[3] These changes allowed doctors to move from a conception of heredity based in maternal and paternal influences from a broad range of environmental (and genetic) factors to pinpointing the harms of specific substances on the fetus in utero.[4] This paper will contextualize the status of pregnant women in the current opioid epidemic through an analysis of women's experiences, medical literature, and popular news media coverage of past moments of broad social awareness of the risks certain substances confer to pregnant users.[5]

Medical discourse in the opioid epidemic carries the legacy of past moments of discovery or crisis over the impact of maternal substance use on the fetus, such as fetal alcohol syndrome (FAS) and prenatal cocaine exposure (PCE, sometimes derogatorily referred to as "crack babies"), while popular discourse forms another important site of meaning-making around these phenomena. Interspersed from the last quarter of the 20th century, the episodes of the discovery of FAS in 1973 and medical and social panic over PCE during the crack-cocaine epidemic of the eighties and nineties each serve as a case study to illuminate present concerns over pregnant

[3] Valerie Hartouni, *Cultural Conceptions :On Reproductive Technologies and the Remaking of Life* (Minneapolis, 1997).; Sara Dubow, *Ourselves Unborn : A History of the Fetus in Modern America* (Oxford, 2011).

[4] Charles Rosenberg, "The Bitter Fruit: Heredity, Disease, and Social Thought in Nineteenth-Century America," *Perspectives in American History* 8 (1974): 189.Elizabeth M. Armstrong, *Conceiving Risk, Bearing Responsibility : Fetal Alcohol Syndrome & the Diagnosis of Moral Disorder* (Baltimore, 2003).

[5] In the interest of scope, I have limited my analysis to the very porous category of pregnant women, which often includes mothers when extended through time, and not the affected infants. For an excellent analysis of the history of prenatally drug-exposed infants, see Shayla Bernard Partridge, "Indecent Exposure: The Social and Medical Meanings of Substance-Exposed Newborns in the Twentieth Century" (BA Thesis, Harvard University, 2018).

opioid use and neonatal abstinence syndrome, as they make visible changes and continuities over time in medical and public perceptions of maternal substance use. These cases were chosen not because they are typical of pregnant substance use—indeed, many people use multiple substances at once, making causality difficult to determine—but because they are prominent and widely recognizable moments of pathologization in recent American history.[6] Continuities and disjunctures between these three moments offer historical explanatory power over an unwieldy, diverse, and sprawling social and medical problem in the present day.

After a brief review of literature on cultural conceptions of pregnancy and pregnant substance use at various moments in US history and a short reflection on the longer history of opiate use in pregnant women, I will introduce the cases of fetal alcohol syndrome, prenatal cocaine exposure, and neonatal abstinence syndrome (which has been on the rise since the beginning of the present opioid crisis). Through examining news media, pregnant women's and mothers' own descriptions of their experience (often featured in news media) and medical literature on these conditions, the co-constitution of these discourses becomes apparent, as medical conceptions alter both one's experience under the medical gaze, as well as how outside social actors like journalists frame phenomena, just as medicine responds to social conditions and incorporates these and people's experiences into its knowledge-making practices.

To compare these similar yet strikingly disparate cases across more than four decades, I pay particular attention to a few themes that allow me to keep many moving parts together: *the social nature of medical knowledge*, *stigmatization of maternal substance use*, and consequent of the former, *how social, cultural, and medical forces shape the experience of substance using pregnant women*. Though its impacts on the fetus and child are now largely understood through a

[6] From Uptodate clinical database, Uptodate. Waltham, Ma: Uptodate Inc. (Accessed December 10, 2018).

medical framework, the social meanings of drug-exposed newborns outstrip medicine's power to diagnose and treat these conditions, and this social meaning in excess of medical power is part of what impacts the stigmatization and experience of pregnant substance users. These cases bring to light historical continuities between these events, and also help us understand what is different between them, to both explain the status of pregnant substance use in the current epidemic and show how this marks a departure from past moments of concern over pregnant substance use.

Literature Review

My essay will be joining secondary literature on the history of opioid use with histories of maternal substance use writ large, as well as writing from feminist science studies on how historically contingent conceptions of the fetus change lived realities for pregnant women and mothers. All these works examine how women's role as reproducers of the social order uniquely impact their experiences with pregnancy and substance use.

Charles Rosenberg's "The Bitter Fruit: Heredity, Disease, and Social Thought in Nineteenth Century America" frames my discussion of early instances of obstetric opioid use at a time when opioids were widespread in American medicine and pharmacies. Doctors saw them as a cure-all for a host of ailments they had previously been powerless to ameliorate, and their use in pregnancy was widespread prior to the passage of the Harrison Narcotic Act in 1914.[7] Rosenberg details how, from the second half of the 19th century onward, Americans had a wide-ranging conception of heredity regarding illness, temperament, and dysfunction wherein both parents had responsibility to maintain their own health and decorum for the sake of their offspring, reflecting social mores about the role of the mother and ideals of temperance. Hereditarian explanations of both medical and social problems gained strength and prominence around this time, and these

[7] David T. Courtwright, *Dark Paradise: A History of Opiate Addiction in America*, Enl. ed. (Cambridge, Mass., 2001).

same notions would later come to mark the offspring of pregnant substance users later in the 20th century, notably in the crack epidemic.

Nancy Campbell's *Using Women: Gender, Drug Policy, and Social Justice* examines how ideas about women and femininity have shaped drug policy and impacted social justice in America. She argues that women are a crucial aspect of American drug policy and their fate in the criminal and legal system must be understood through broader cultural norms about gender, and that feminism and social justice must inform policy and its analysis. Women's status as reproducers of children and thus the social order is integral to efforts to control pregnant substance use. Though Campbell's focus is policy more than medical/popular/experiential conceptions, her analysis is critical for grounding mine through the ways she considers the social stakes of pregnant substance use through the 20th century, attending to fears of heredity, maternal control, and the intersections of race, class, and gender. She argues that race was critical for framing drug use as a social problem, and its introduction in the 1960s as a "salient analytic category through which social scientists, policy-makers, and the public comprehended the social patterns of drug use."[8] Additionally, Campbell frames female drug use in social theoretical terms around the "failure" of using women to live up to their proper roles as mothers, with heterosexual, maritally-determined sexualities and an interest in self-improvement (versus degeneration) and delayed gratification (apparently anathema to drug users). The absence of maternal instinct, "eroded by illicit drug use" is seen as a foundation of the social order and civilization.[9] Throughout the twentieth century, regardless of what model of addiction psychologists and doctors used, "women's responsibility for social reproduction place[d] them in fundamentally causal roles."[10] Each model blamed addiction

[8] Campbell, *Using Women : Gender, Drug Policy, and Social Justice*, 148.
[9] Campbell, 161.
[10] Campbell, 165.

on motherhood in particular, while totally obscuring relevant social contexts that disproportionately harm women, through economic or physical, systemic violence.[11]

In *Ourselves Unborn*, Sara Dubow traces the history of the fetus in America as actors from doctors to politicians to mothers have crafted cultural and moral meaning around it, arguing that the fetus must be understood within a broader body politic to understand what happens to mothers who make choices against the best interest of themselves and their unborn children. Dubow identifies drug epidemics, specifically the crack epidemic, as historical moments of contestation over the meaning and status of the fetus, as they bring into contact medical authority, social taboos, agency, and responsibility. She also explicitly locates conceptions of the fetus in "social values and political circumstances" more than science or religious belief, bringing pregnant substance use into those social and political domains as well.[12] Early 20th century hereditarian discourse took up eugenics and went from a belief in the malleability of offspring based on a variety of environmental and biological parental influences to a rigid genetic view of human nature. In the second half of the century, the discourse took on the idea of maternal-fetal conflict, with mother and offspring framed as separate entities whose needs—and therefore rights—could differ, necessitating legal or medical intervention into the relationship in new ways, like drug testing, forced C-sections, and prosecutions for child abuse or "fetal neglect."[13] Dubow's work allows me to trace the history of pregnant substance use alongside the intrinsically constitutive history of the fetus, with attention to the dialogue between popular, medical, and policy discourses.

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[11] Campbell discusses three models: the family configuration model, the contagious disease model, and a feminist "sex-role socialization model," which represent changes in both medical and feminist thinking over the middle of the twentieth century.

[12] Dubow, *Ourselves Unborn : A History of the Fetus in Modern America*, 3.

[13] Dubow, 135.

Elizabeth Armstrong writes about fetal alcohol syndrome in *Conceiving Risk, Bearing Responsibility*, analyzing how medical knowledge operates in society and its political ramifications. Our present reality of widespread awareness of the potential dangers of alcohol consumption during pregnancy and the ubiquity of medical warnings against it was not an inevitable consequence of the discovery of fetal alcohol syndrome in 1973. Rather, the social order is built in to medical thinking about illness, diagnostic categories, and interventions (therapeutic or otherwise), which in turn reflect back on society through medical authority. Prior to the discovery of FAS, doctors did not see a harmful connection between alcohol and pregnancy, and in fact prescribed it on occasion to stop the onset of preterm labor.[14]

Simultaneously, birth defects were coming under the medical radar with the thalidomide disaster in Europe, so the identification of a set of common signs, including certain facial features and mental disabilities, in children of alcoholic mothers in a Seattle hospital occurred against this context of increasing awareness of the potential of substances to impact fetal development. Armstrong's argument, however, is that FAS is underdetermined by medical evidence, reflecting the lack of a biological marker of the disease, and its connection to alcohol (drinking in general, rather than alcoholism in particular) in the popular imagination elides the fact that not all women who drink heavily during pregnancy give birth to children with FAS. It is correlated with a host of other factors, including smoking, malnutrition, maternal age, and trauma or stress. Thus, there is a discrepancy between the medical problem and the social policy, which can be seen in the surgeon general's warning on every bottle of alcohol's label, reading "The Surgeon General advises women who are pregnant (or considering pregnancy) to not drink alcoholic beverages and

[14] Gynecologists often recommended a glass of wine to patients and themselves used it to halt their own signs of early labor, as women were increasingly common in the specialty at this time. Doctors even administered IVs with ethyl alcohol because, though it made patients drunk and belligerent and resulted in unpleasant working conditions for the nurses, they had a poor understanding of the causes of preterm labor and the treatment was effective.

to be aware of the alcoholic content of foods and drugs."[15] The concept of maternal-fetal conflict arises here as well, as FAS has been framed in connection to a "harsh intrauterine environment," where environment reduces the mother to a de-personified landscape, and her choice to drink during pregnancy marks her lack of maternal instinct.[16] The medicalization of FAS has not universally reduced the stigma around drinking during pregnancy, rather it has shifted the responsibility to individual mothers, ignoring ways that structural inequality impacts some women more than others. As Armstrong writes, "risk is not randomly distributed throughout the population."[17] FAS does not occur for all people who drink (heavily or not) during pregnancy; it is correlated highly with many other factors such as smoking and stress, which themselves are correlated with poverty and other structural inequalities. Medical assessments of risk during pregnancy also may reflect social rather than medical factors, such as the differential warnings and stigma associated with smoking versus drinking during pregnancy. This book bolsters my argument through both the historical context it provides on FAS and its analysis of the social determinants of medical knowledge.

Leslie Reagan's *Dangerous Pregnancies* further illuminates the complex history and politics of pregnancy in America. The book addresses the impact the 1964-5 German measles outbreak had on widespread notions of risk to mothers and infants during pregnancy, the ethics of abortion, and reproductive justice more broadly. Crucially, the white, middle-class character of the epidemic gave those political issues a legitimate, protectionist slant and effectively de-politicized them, in contrast to poor, nonwhite women's pregnancies and medical justice. The epidemic also marked a new level of responsibility mothers had over their children's health; mothers are have

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[15] Armstrong, *Conceiving Risk, Bearing Responsibility : Fetal Alcohol Syndrome & the Diagnosis of Moral Disorder*, 90.

[16] Armstrong, 103. (Quoting H. F. Krous, "Fetal Alcohol Syndrome: A Dilemma of Maternal Alcoholism," *Pathology Annual* 16 Pt 1 (1981): 306.)

[17] Armstrong, *Conceiving Risk, Bearing Responsibility : Fetal Alcohol Syndrome & the Diagnosis of Moral Disorder*, 217.

historically expected to put their future children's health before their own but measles represented a new dimension of knowledge, awareness, and responsibility over fetal heatlh, and, Reagan writes, "women have received more health care and have attended more closely to their own health in order to protect and improve the health of their offspring."[18]

Finally, Kelly Ray Knight's *addicted.pregnant.poor* is an ethnography of drug using women who are sex workers living in a daily-rent hotel in San Francisco's rapidly gentrifying Mission District. These women experience multiple levels of stigma, and their "addicted pregnancies" require them to navigate their drug use in a new context, where state and medical intervention are a given and "a vital politics of viability is always at play."[19] Knight uses ethnography to examine the ways the women's own experiences of pregnancy differ from mainstream representations in the media and advocacy programs, taking into account how changing historical events around pregnant substance use like new medical and legal practices have changed these experiences as well. My attention to drug using women's own words is indebted to Knight's approach, and the understanding that women's own experiences are central to the discourse around pregnant substance use is an invaluable insight for producing justice-oriented knowledge on the subject.

This comparison across my historical case studies is aided by Paula Treichler's *How to Have Theory in an Epidemic*, about the AIDS crisis, which categorizes it as an epidemic of signification as much as viral disease, and argues that understanding the discourses around it is essential work to both understand the epidemic overall and also advance justice projects and promote health for those affected. Discourses around gender, race, and class circulate around pregnant bodies, fetuses, and newborns in ways that mark them, framing both medical, popular,

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[18] Leslie J Reagan, *Dangerous Pregnancies : Mothers, Disabilities, and Abortion in Modern America*, Mothers, Disabilities, and Abortion in Modern America (Berkeley, 2010), 14.

[19] Kelly Ray Knight, *Addicted.Pregnant.Poor* (Durham, 2015), 6, 30.

and self-understandings of the people involved. Simultaneously, discursive formulations of epidemics can obscure the realities of drug use and pregnant drug use outside common narratives. Maternal drug use in the present opioid epidemic often encompasses polysubstance use, for example. This essay seeks to understand the *signification* around pregnant substance use alongside an analysis of the historical contours of these various moments where it features prominently.

I am building on these previous scholars' work on this topic by bringing it in conversation with the present opioid epidemic, which is a unique medical and historical case of drug use affecting pregnant women and mothers and should therefore be situated within this broader history. As the opioid crisis unfolds in the present, one source of answers for how to respond and ameliorate suffering is in the past, where we can now identify moments of crisis and their corresponding media and medical responses, judging with hindsight what helped and what harmed mothers, women, and infants.

Early 20th Century uses of Opioids in Obstetrics

There is a separate long history of maternal opioid use before the passage of the Harrison Narcotic act of 1914, which made opioids illegal and curtailing their prescription within the medical profession, when doctors used opiates like morphine in obstetric contexts as a means of combating pain in childbirth, morning sickness, puerperal eclampsia, allowing pregnancies to be brought to term, and terminating ectopic pregnancies.[20] This historical trajectory illuminates the

[20] ARNOLD, H. D. "Puerperal Eclampsia: A Report of Three Cases." *The Boston Medical and Surgical Journal* 131, no. 2 (July 12, 1894): 32–37. https://doi.org/10.1056/NEJM189407121310204.; "Cæsarean Operation Performed Three Times with Success on the Same Woman." *The Boston Medical and Surgical Journal* 12, no. 21 (July 1, 1835): 330–33. https://doi.org/10.1056/NEJM183507010122102.; Campbell, William H. "A Case of Fatal Narcotism." *The Boston Medical and Surgical Journal* 87, no. 7 (August 15, 1872): 116–116. https://doi.org/10.1056/NEJM187208150870702.; CARSTENS JH. "Extrauterine Pregnancy: Cases of Unusual Type." *Journal of the American Medical Association* XLV, no. 19 (November 4, 1905): 1379–81. https://doi.org/10.1001/jama.1905.52510190015001b.; DeLEE JB. "The Indispensable Uses of Narcotics: In Obstetrics and Gynecology." *Journal of the American Medical Association* 96, no. 13 (March 28, 1931): 1007–8. https://doi.org/10.1001/jama.1931.27220390001007.; DUNN, WILLIAM A. "Report of 1168 Cases of Labor in Private Practice." *The Boston Medical and Surgical Journal* 124, no. 19 (May 7, 1891): 451–53. https://doi.org/10.1056/NEJM189105071241903.; Gay, George W. "Puerperal Convulsions

stark contrast between medical conceptions of opioids past and present. Opiates were widely used by doctors and laypeople alike to treat many different ailments prior to their criminalization, from home remedies covertly (or openly) containing morphine, laudanum, and heroin (first used as a cough suppressant), to intravenous shots administered by doctors aided by the invention of the IV syringe.[21] This "prehistory" of opioid use specifically within obstetrics from the mid 19th century through the turn of the 20th century was not uniform, with doctors occasionally remarking upon opioids as dangerous to the fetus.[22] Nonetheless, opioids were remarkably effective treatments that obstetricians clearly appreciated in a time when authority over childbirth had not fully moved from pregnant women and midwives to male doctors.

Charles Rosenberg's writing on 19th century American notions of heredity also helps explain the prevalence of this practice, as anxieties over parental transmission of weakness

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and Albuminuria." *The Boston Medical and Surgical Journal* 90, no. 24 (June 11, 1874): 565–70. https://doi.org/10.1056/NEJM187406110902401.; Homans, John. "Cases of Puerperal Disease." *The Boston Medical and Surgical Journal* 5, no. 15 (November 22, 1831): 235–39. https://doi.org/10.1056/NEJM183111220051504.; "M Morphine and Menstruation." *The Boston Medical and Surgical Journal* 150, no. 6 (February 11, 1904): 167–167. https://doi.org/10.1056/NEJM190402111500612.; MURPHY JC. "Abdominal Pregnancy." *Journal of the American Medical Association* XLIX, no. 11 (September 14, 1907): 943–943. https://doi.org/10.1001/jama.1907.25320110055003d.; "Obstetrics for Nurses." *Journal of the American Medical Association* LXIX, no. 20 (November 17, 1917): 1730–1730. https://doi.org/10.1001/jama.1917.02590470070029.; "On New Analgesic Medicaments." *The Boston Medical and Surgical Journal* 113, no. 26 (December 24, 1885): 605–9. https://doi.org/10.1056/NEJM188512241132601.; "Reports of Medical Societies." *The Boston Medical and Surgical Journal* 78, no. 16 (May 21, 1868): 251–55. https://doi.org/10.1056/NEJM186805210781603.; "Reports of Societies." *The Boston Medical and Surgical Journal* 124, no. 2 (January 8, 1891): 36–42. https://doi.org/10.1056/NEJM189101081240207.; SULLIVAN, J. L. "Treatment of Abortion, with Cases." *The Boston Medical and Surgical Journal* 113, no. 10 (September 3, 1885): 222–24. https://doi.org/10.1056/NEJM188509031131003.; TOWNSEND, CHARLES W. "Recent Progress in Obstetrics." *The Boston Medical and Surgical Journal* 139, no. 13 (September 29, 1898): 315–18. https://doi.org/10.1056/NEJM189809291391305.; Williams, Stephen W. "Puerperal Convulsions, with the Details of an Interesting Case from over-Distension of the Uterus." *The Boston Medical and Surgical Journal* 33, no. 23 (January 7, 1846): 449–53. https://doi.org/10.1056/NEJM184601070332301.; WORCESTER, A. "Cases of Extra-Uterine Pregnancy." *The Boston Medical and Surgical Journal* 128, no. 4 (January 26, 1893): 83–85. https://doi.org/10.1056/NEJM189301261280404.

[21] David T. Courtwright, *Dark Paradise : A History of Opiate Addiction in America*. Enl. ed. (Cambridge, Harvard University Press, 2001).

[22] William H. Campbell, "A Case of Fatal Narcotism," *The Boston Medical and Surgical Journal* 87, no. 7 (August 15, 1872): 116–116, https://doi.org/10.1056/NEJM187208150870702.

coalesced around temperance movements and new biological modes of thinking to suggest a dangerous connection between substance use by *both* fathers and mothers and impairment in their offspring. These arguments were broader in scope, however, than just parental substance use, and necessarily contextualized in many environmental factors like urban poverty, lack of sanitation and hygiene, and dangerous industrial jobs. It's possible that the women privileged enough to have a doctor visit their home during childbirth were not seen to pose a danger to their offspring through opiate use (especially late in a pregnancy, considering the popularity of theories of parental imprinting at the moment of conception).[23]

Pregnant Drinking and Fetal Alcohol Syndrome

Fetal alcohol syndrome was first labeled by Christy Ulleland, a Seattle pediatrician who described it in a paper entitled "The Offspring of Alcoholic Mothers" in 1972 and became widely known in the medical community the next year with a paper by Jones, Ulleland, and several other Seattle dysmorphologists entitled "Pattern of malformation in offspring of chronic alcoholic mothers."[24] What followed was a rapid proliferation of medical interest in the effects of alcohol consumption on the developing fetus. The syndrome is characterized by "nervous system anomalies"—including neurological impairment, mental retardation, and impaired fine motor skills—and a set of distinctive facial morphologies, called facies, including drooping eyes, "flattened midface," thin upper lip, and a "flat or indistinct philtrum" all of which contribute to a dramatic phenotype and readily apparent marker of difference.[25]

What is less widely recognized, Armstrong argues, is that fetal alcohol syndrome is not exactly correlated with maternal drinking writ large. It is caused by "a pattern of excessive alcohol

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[23] Rosenberg, "The Bitter Fruit: Heredity, Disease, and Social Thought in Nineteenth-Century America," 191.

[24] Dysmorphology is the study of birth defects, so these doctors were well positioned disciplinarily to notice such effects.

[25] Armstrong, *Conceiving Risk, Bearing Responsibility : Fetal Alcohol Syndrome & the Diagnosis of Moral Disorder*, 3.

intake" but not all alcoholics who drink during pregnancy have children with FAS.[26] It is correlated with a multitude of social, environmental, and medical factors including stress, smoking, high parity (the number of children a person has given birth to), malnutrition, and advanced maternal age. Today, FAS is called fetal alcohol spectrum disorder, assuming a spectrum of effects (and often a spectrum of causality in terms of drinking during pregnancy). But lower levels of exposure haven't been proven to cause more moderate effects, as Armstrong writes (in 2003), so "there is a discordance between evidence and imagination."[27]

Armstrong's focus on the medicalization of maternal alcoholism through its effects on offspring is a case of medical knowledge's interaction with social life. She does not wish to argue that the medical knowledge is untrue as a result of this interaction, but rather that the widespread stigma against drinking during pregnancy, reinforced by the surgeon general's warning in bars and on alcohol bottles across the country, has been shaped by uncertain medical knowledge, and this stigma has reflexively shaped the production of medical knowledge in turn.

Crack Cocaine: Use During Pregnancy and Prenatal Cocaine Exposure

In the 1980s, a global glut of cocaine production lead traffickers and dealers to convert powder cocaine into crack, a smokable and highly profitable form of the product.[28] It was also cheaper and could be sold in smaller amounts, making it more accessible to lower socioeconomic classes. It became enormously prevalent in American inner cities where manufacturing, and thus employment, were in decline, and subsequently became associated with the African American communities in cities like Detroit and New York.[29]

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[26] Armstrong, 3.

[27] Armstrong, *Conceiving Risk,* 6.

[28] "Crack Epidemic | United States History [1980s]," Encyclopedia Britannica, accessed December 2, 2018, https://www.britannica.com/topic/crack-epidemic.

[29] "Crack Epidemic | United States History [1980s]."

Much has already been written about pregnant cocaine use as a "moral panic," resulting from racist fears of cocaine's impact on (predominantly black and brown) children's empathy and a belief that addiction destroyed mothering instincts.[30] It justified the continued War on Drugs and harsh legal consequences for women who used during pregnancy, including persecution for crimes commonly associated with child abuse or drug trafficking or dealing.[31] Women were also subject to surreptitious surveillance through drug testing while in the hospital to give birth, and Congress held hearings with dramatic names like "Born Hooked" to investigate the threat prenatal cocaine exposure held for society as a whole.[32] Against the rich backdrop of secondary literature on the ways cocaine use by pregnant women has been medicalized, stigmatized, and criminalized, I will analyze news media and medical literature to situate 1980s and nineties thinking about pregnant cocaine use within my case studies of alcohol and opioid use, as this critical moment in the history of drugs in America provides a touchstone between the two other cases.

One of the most shocking things about pregnant cocaine use is that the long-term, devastating neurological effects of prenatal exposure never materialized. For all the fears of children with debilitating mental and developmental disabilities straining state resources and becoming inner-city "super predators," babies exposed to cocaine in utero seemed to develop normally and their supposed symptoms looked similar to other babies who were (also) born

[30] See Dorothy E. Roberts, *Killing the Black Body : Race, Reproduction, and the Meaning of Liberty*, 1st ed. (New York, 1997).; Sara Dubow *Ourselves Unborn : A History of the Fetus in Modern America*. Oxford: Oxford University Press, 2011, and 1990 *Rolling Stone* article "Childhood's End" for a sensationalized depiction. (Ellen Hopkins and Ellen Hopkins, "Childhood's End: What Life Is Like for Crack Babies," *Rolling Stone* (blog), October 18, 1990, https://www.rollingstone.com/culture/culture-news/childhoods-end-what-life-is-like-for-crack-babies-188557/.)

[31] Jan Hoffman, "Pregnant, Addicted - and Guilty?(Magazine Desk)," *The New York Times Magazine*, 1990.

[32] Dubow, *Ourselves Unborn : A History of the Fetus in Modern America*; Campbell, *Using Women : Gender, Drug Policy, and Social Justice*.

prematurely, a phenomenon correlated with maternal stress, poverty, and malnutrition.[33] A 1992 commentary in JAMA analyzed some of the scientific issues with the titular "rush to judgement" they saw in the medical community, including a publishing bias towards studies that showed debility from prenatal cocaine exposure versus studies that did not.[34] In recent years, a number of studies from University of Pennsylvania Medical School neonatologist Hallam Hurt, including longitudinal studies from the late 1980s, have shown minimal or no differences between exposed and unexposed subjects on a mental, behavioral, and physical level.[35]

So, with hindsight, it is easy to condemn much of the medical research showing great harm from pregnant cocaine use and the journalism responding to this with sensationalized stories of those effects. It is a necessary justice project to counter these discourses with the knowledge we have in the present showing the minimal harm prenatal cocaine exposure entails compared to what was predicted in the eighties and nineties, but in looking at medical and journalistic sources contemporary with the crack epidemic we can hopefully gain insight into the medical and popular discourses circulating in the present opioid epidemic, where we do not yet have access to hindsight.

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[33] Susan Okie, "Crack Babies: The Epidemic That Wasn't," *The New York Times*, January 26, 2009, sec. Health, https://www.nytimes.com/2009/01/27/health/27coca.html.

[34] Mayes LC et al., "The Problem of Prenatal Cocaine Exposure: A Rush to Judgment," *JAMA* 267, no. 3 (January 15, 1992): 406–8, https://doi.org/10.1001/jama.1992.03480030084043.

[35] Hallam Hurt et al., "Are There Neurologic Correlates of in Utero Cocaine Exposure at Age 6 Years?," *The Journal of Pediatrics* 138, no. 6 (June 1, 2001): 911–13, https://doi.org/10.1067/mpd.2001.113709.; Hallam Hurt et al., "A Prospective Evaluation of Early Language Development in Children with in Utero Cocaine Exposure and in Control Subjects," *The Journal of Pediatrics* 130, no. 2 (February 1, 1997): 310–12, https://doi.org/10.1016/S0022-3476(97)70361-5.; Hallam Hurt et al., "Children With In Utero Cocaine Exposure Do Not Differ From Control Subjects on Intelligence Testing," *Archives of Pediatrics & Adolescent Medicine* 151, no. 12 (December 1, 1997): 1237–41, https://doi.org/10.1001/archpedi.1997.02170490063011.; Hallam Hurt et al., "Functional Magnetic Resonance Imaging and Working Memory in Adolescents with Gestational Cocaine Exposure," *The Journal of Pediatrics* 152, no. 3 (March 1, 2008): 371–77, https://doi.org/10.1016/j.jpeds.2007.08.006.

Opioid Use During Pregnancy and Neonatal Abstinence Syndrome

Opioid use during pregnancy has a long history, from sanctioned use by obstetricians for a number of reasons, to "heroin mothers" discussed both in Nancy Campbell's *Using Women* and in eighties and nineties news media about the crack epidemic as a comparative case of pregnant substance use. In the present day as the opioid epidemic continues to affect millions of Americans, women are a particular focus of both medical and news media attention for their reproductive capacity and the danger of bearing children with neonatal opioid withdrawal syndrome, the medical term for opioid withdrawal in newborns. NOWS is one of two terms used to describe infants born to people using opiates, the other being neonatal abstinence syndrome, which encompasses polysubstance exposure, including opioids and isn't preferred as the term "abstinence" conveys a high degree of stigma.[36] NAS, while associated with opioid exposure, is also connected to several other substances, including cigarettes, benzodiazepines, and SSRIs.[37] Symptomatology is imprecise but includes irritability and a high-pitched cry, difficulty sleeping and feeding, hypertonicity, and failure to thrive. Treatments usually involve placing the newborn in the NICU and administering morphine orally to allow sleeping and feeding while gradually lowering the dose given, but a new form of treatment is gaining popularity and involves rooming mother and infant together and following an "eat, sleep, be consoled" approach (discussed below).

Maternal opioid use and subsequent NAS incidence are predictably on the rise in the current crisis, with an increase in NAS from 1.2 to 5.8 per 1000 hospital births per year from 2000

[36] Lori Devlin and Jonathan Davis, "A Practical Approach to Neonatal Opiate Withdrawal Syndrome" 35, no. 04 (2018): 324–330, https://doi.org/10.1055/s-0037-1608630.

[37] Clinical information all from Uptodate, a resource for healthcare providers to see the latest information on diagnosis, care, and treatment. Uptodate. Waltham, MA: Uptodate Inc. http://www.uptodate.com (Accessed December 10, 2018).

to 2012[38,39] Treating opioid use disorder during pregnancy entails methadone or buprenorphine therapy, which prevents withdrawal symptoms that can harm the fetus. This treatment is highly effective for opioid use in general and so is recommended even though infants may be born with NAS, with some evidence that buprenorphine therapy results in lower incidences of NAS than methadone.[40] Interventions prior to giving birth emphasize both pharmacological and social needs of the pregnant woman, entailing substance use counseling and/or psychotherapy in addition to medication assisted treatment. This highlights the medical consensus that substance use is a social problem as much as a neurological one and an awareness that the social factors of drug use can often compound the medical risks that pregnant opioid use confers to both mother and infant. Medical demands for total abstinence during pregnancy can often lead to relapse post-birth.

The Social Nature of Medical Knowledge: Comparing across cases

Because there is no biological marker for FAS (like a gene mutation or chromosomal abnormality) its diagnosis is inherently subjective and depends on the doctor's ability to recognize the signs of FAS in each case. Thus, as with many diseases, the existence of the disease category is owed to consensus. This gives doctors broad authority over both the definition and prevention of fetal alcohol syndrome, and as a result, over the behavior of pregnant women. The U.S. surgeon

[38] S W Patrick et al., "Increasing Incidence and Geographic Distribution of Neonatal Abstinence Syndrome: United States 2009 to 2012," *Journal of Perinatology* 35, no. 8 (2015): 650–55, https://doi.org/10.1038/jp.2015.63.

[39] Other analyses give the following rate increases: "An analysis of the State Inpatient Databases of the Healthcare Cost and Utilization Project from 28 states confirmed the rise of NAS from 1999 to 2013, with an increased incidence from 1.5 to 6.0 per 1000 hospital births. In addition, over a study period from 2004 to 2013, the admission rate to 299 neonatal intensive care units (NICUs) rose from 7 to 27 cases per 1000 admissions in the United States with an increase in the median length of stay from 13 to 19 days" (From Ko JY, Patrick SW, Tong VT, et al. Incidence of Neonatal Abstinence Syndrome - 28 States, 1999-2013. MMWR Morb Mortal Wkly Rep 2016; 65:799.; Tolia VN, Patrick SW, Bennett MM, et al. Increasing incidence of the neonatal abstinence syndrome in U.S. neonatal ICUs. N Engl J Med 2015; 372:2118.)

[40] Kakko J, Heilig M, Sarman I. Buprenorphine and methadone treatment of opiate dependence during pregnancy: comparison of fetal growth and neonatal outcomes in two consecutive case series. Drug Alcohol Depend 2008; 96:69.

general's warning about the dangers of drinking during pregnancy warns not that excessive drinking during pregnancy is dangerous, but that any amount of alcohol might be teratogenic. The spectrum of fetal alcohol effects codified in name today but suggested by doctors from the outset makes the surgeon general's assertion more medically legitimate. When the result of pregnant women's drinking is assumed to cause a widespread spectrum of disability, it is seen as a social problem where doctors can intervene out of a "medical, social, and moral imperative."[41] Overdetermined framings of the risk of FAS are one way in which pregnant drinking becomes pathologized.

The historical emergence of FAS and the medicalization of pregnant drinking came after increased attention to the risk of exposure to external teratogens, especially thalidomide and German measles and simultaneous medical advances in obstetrics like home pregnancy tests and the ultrasound, giving doctors authority over earlier stages of pregnancy than ever before.[42] Seeing the fetus through an ultrasound renders the mother invisible, or reduces her to an "environment," in contrast to earlier understandings of the two as one inseparable entity. This seperable, dyadic conception helped promote the idea of maternal-fetal conflict, wherein maternal and fetal health outcomes and welfares were not linked and could easily be at odds. Against this historical background, medical literature especially (and news media to a lesser extent) illustrates the inherent concatenation of the social and the medical in diagnosing and treating FAS. "The Fetal Alcohol Syndrome," a 1978 article in the *New England Journal of Medicine* begins with the statement that "the potential teratogenic effects of alcohol have been suspected for centuries," which Armstrong views as contributing to a false logic of rediscovery, as medical awareness of

[41] Armstrong, *Conceiving Risk, Bearing Responsibility : Fetal Alcohol Syndrome & the Diagnosis of Moral Disorder*, 90.

[42] Sunday Times of London, *Suffer the Children: The Story of Thalidomide* (New York: Viking Press, 1979). Andrea Tone, "Medicalizing Reproduction: The Pill and Home Pregnancy Tests," *Journal of Sex Research* 49, no. 4 (2012): 319–27, https://doi.org/10.1080/00224499.2012.688226.

these effects was truly only a recent phenomenon, as the use of ethyl alcohol IVs to stop preterm labor clearly shows.[43] Clarren and Smith's speculation that "the variability of phenotype probably results from the variable dose exposure" and that "no absolutely safe level of ethanol consumption has yet been established," though representative of sound medical uncertainty, nonetheless broadens the perceived risk of pregnant drinking and thus allows for increased medical surveillance of pregnant women's choices. The authors are also aware of the subjectivity of FAS classification and diagnosis and locate the difficulty partially in how inexpert doctors are "not able to describe their observations accurately and generally do not record them."[44] Here, social factors like lack of standardized measures and reliance on a diffuse network of doctors inform the uncertainty around FAS.

A decade later doctors had the discovery of FAS fresh in their minds and began to notice a pattern of signs in babies exposed to cocaine in utero, including tremors, rigidity of limbs, and aversion to sensory stimuli.[45] These are common in premature babies, which many of these infants were, but doctors began classifying them by their mothers' drug use, coining the term prenatal cocaine exposure to describe the effects. The historical context of both increased awareness of the teratogenic effects of various licit, illicit, and even therapeutic substances, and the War on Drugs' mid-eighties-onward characterization of inner-city crack use as an epidemic provided a social impetus for the formation of medical knowledge about pregnant cocaine use. The resulting moral panic, with drastic social, legal, and personal effects on pregnant cocaine users, was a direct response to doctors sounding the alarm about the harms of cocaine on the fetus. This medical fact provided a rationale for intervention into pregnant women's bodies and control over their habits in

[43] S K Clarren and D W Smith, "The Fetal Alcohol Syndrome," *The New England Journal of Medicine* 298, no. 19 (1978): 1063, https://doi.org/10.1056/NEJM197805112981906.

[44] Clarren and Smith, 1066.

[45] "Crack Babies: A Tale From the Drug Wars | Retro Report | The New York Times - YouTube," accessed December 10, 2018, https://www.youtube.com/watch?v=cWtLAfw1Ses.

the interest of protecting the health of their unborn children. A *New York Times Magazine* article from 1990, "Pregnant, Addicted—and Guilty?" shows an example of this, describing how a woman in Michigan was charged with delivering drugs to her unborn child, and to get around debates about fetal personhood, the district attorney asserted that the cocaine was delivered through the umbilical cord after the child was born and before it was clamped because she had smoked crack prior to giving birth.[46] A doctor is quoted in the article arguing that this isn't even a medically established mode of transmission. Here, the social and legal goals of punishing and preventing pregnant cocaine use outrun the medical knowledge.

In the case of the opioid epidemic doctors have the cumulative decades of medical experience with and knowledge about pregnant substance use on which to draw when attempting to address pregnant opioid use and neonatal abstinence syndrome. Some of this connection is literal, wherein doctors who have studied the experiences of pregnant women during the crack epidemic continue to study pregnant and maternal substance use, now focused on opioids, reflecting epidemiological trends and current patterns of pregnant substance use.[47] The Finnegan Neonatal Abstinence Syndrome Scoring System, one way doctors and nurses assess the severity of opioid withdrawal in newborns, is named for Loretta Finnegan, who also wrote extensively about prenatal cocaine exposure from the nineties to now.[48]

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[46] Hoffman, "Pregnant, Addicted - and Guilty?(Magazine Desk)."

[47] See Kaltenbach and Finnegan's various articles on opioids and pregnant women. Hendrée Jones, Loretta Finnegan, and Karol Kaltenbach, "Methadone and Buprenorphine for the Management of Opioid Dependence in Pregnancy," *Drugs* 72, no. 6 (2012): 747–757, https://doi.org/10.2165/11632820-000000000-00000. John J. Mccarthy et al., "Opioid Dependence and Pregnancy: Minimizing Stress on the Fetal Brain," *American Journal of Obstetrics and Gynecology* 216, no. 3 (2017): 226–231, https://doi.org/10.1016/j.ajog.2016.10.003.Enrique Gomez - Pomar and Loretta P. Finnegan, "The Epidemic of Neonatal Abstinence Syndrome, Historical References of Its' Origins, Assessment, and Management.(Report)," *Frontiers in Pediatrics* 6 (2018): 33, https://doi.org/10.3389/fped.2018.00033.

[48] K Kaltenbach and L Finnegan, "Prevention and Treatment Issues for Pregnant Cocaine-Dependent Women and Their Infants," *Cocaine: Effects On The Developing Brain* 846 (1998): 329–34.; Charles R. Bauer et al., "Acute Neonatal Effects of Cocaine Exposure During Pregnancy," *Archives of Pediatrics & Adolescent Medicine* 159, no. 9 (2005): 824–834, https://doi.org/10.1001/archpedi.159.9.824.; S. Bada et

Medical knowledge also assimilates the social factors impinging on women, both from a gendered and patriarchal society and especially along lines of difference like race and class. A 1978 paper titled "Fetal Alcohol Syndrome: Behavioral Teratology" in the *Psychological Bulletin* devotes a small section to "Female Consumption Patterns."[49] Reflecting contemporary perceptions of female drinking in general, the author writes "Although the increasing use of alcohol by women is disturbing, even more disturbing is the number of pregnant women who are consuming large amounts of alcohol."[50] Changing social patterns reflect changing medical concern over pregnant drinking. This increase in drinking is also importantly described as variable on a number of different social categories: "higher rates of consumption during pregnancy are reported for women in the lower social classes. In a study of poor, primarily nonwhite females, 13% were estimated to be heavy drinkers."[51] Attention to class and race informed medical thinking and research on pregnant drinking in the years after FAS's discovery. (In 1973, in contrast, the discoverers of FAS and news media coverage of the discovery emphasized its cross-ethnic incidence, which made the connection between alcohol and birth defects more universalized.[52]) Abel also describes the correlation between poverty and FAS, writing that "substandard housing and working on physically tiring jobs during pregnancy is statistically correlated with birth defects."[53]

Awareness of social determinants of medical outcomes also pervades the medical and popular literature on pregnant cocaine use. First, there is general awareness that pregnant substance use often leads to women avoiding prenatal medical care out of fear of state and/or legal

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al., "Gestational Cocaine Exposure and Intrauterine Growth: Maternal Lifestyle Study," *Obstetrics & Gynecology* 100, no. 5, Part 1 (2002): 916–924, https://doi.org/10.1016/S0029-7844(02)02199-3.

[49] Ernest L. Abel, "Fetal Alcohol Syndrome: Behavioral Teratology," *Psychological Bulletin* 87, no. 1 (January 1980): 30, https://doi.org/10.1037/0033-2909.87.1.29.

[50] Abel, 30.

[51] This 13% is compared to "2% of middle-class pregnant woman [consuming] about 2 drinks per day." Abel, 30.

[52] Jane E. Brody, "Doctors Find Pattern of Birth Defects Among Children of Alcoholic Mothers," *New York Times (1923-Current File)*, 1973, 6.

[53] Abel, "Fetal Alcohol Syndrome," 35.

intervention, or because substance use is correlated with other social factors like poverty that make access to care difficult.[54] Second, even studies attempting to show a direct biological link between cocaine exposure in utero and harm to the fetus or child acknowledge numerous concomitant social factors like poor nutrition, smoking, histories of abuse and trauma, which were seen either to confound the connection or help explain health outcomes of cocaine-using pregnant women and their infants.[55] The existence of a commentary article urging caution about hastily drawing a connection between pregnant cocaine use and developmental defects in offspring is a sign of heterogeneous medical opinion even in the context of a broader moral panic.[56] In it, Mayes and colleagues warned not only that medical evidence wasn't conclusive on the issue, but that significant social determinants of poor health outcomes for infants were being ignored. Sound medical knowledge would presumably incorporate these social factors to fully understand what risk cocaine exposure posed to a fetus.

Social perceptions of pregnant substance use are also incorporated into medical knowledge through the rise in rooming-in strategies for dealing with NAS, a recent phenomenon in response to dramatic increases in babies born to opioid using mothers. The practice of keeping mothers and newborns in the same room and allowing contact and sometimes breastfeeding instead of placing babies in the NICU improves outcomes for infants and mothers and also saves hospitals and Medicaid money. A *New York Times* article from July 2017 reports on the increasing number of doctors and hospitals espousing this approach from both a social and medical angle. When women in rural hospitals deliver babies with NAS, they have previously been whisked away

[54] Kaltenbach and Finnegan, "Prevention and Treatment Issues for Pregnant Cocaine-Dependent Women and Their Infants."Mayes LC et al., "The Problem of Prenatal Cocaine Exposure: A Rush to Judgment"; Joseph M. Miller and Martha C. Boudreaux, "A Study of Antenatal Cocaine Use -- Chaos in Action.(Report)," *American Journal of Obstetrics and Gynecology* 180, no. 6 (1999): 1427.; Volpe, "Effect of Cocaine Use on the Fetus."

[55] Volpe, "Effect of Cocaine Use on the Fetus."

[56] Mayes LC et al., "The Problem of Prenatal Cocaine Exposure: A Rush to Judgment."

to urban medical centers to receive treatment, whereupon the women, often "poor and still struggling with addiction, cannot find transportation or the resources to visit."[57] Rooming-in and the "Eat-Sleep-and-Be-Consoled" system are solutions to this problem—the medical issue of expensive or counterproductive treatment in the NICU and through morphine medication—and also benefit mothers psychologically, helping them "bond with babies from birth" according to many of the doctors and scientists cited in the article.[58,59] A professor of pediatrics is quoted saying that "separation may impair [the mother's] attachment to her baby, increase the guilt she feels about the impact her addiction has on her baby and diminish her perception of her own mothering capacity—all of which can increase her risk of relapse."[60] Not only is the woman's connection with her newborn imperiled, then, but so is her own recovery.

This approach contrasts sharply with past histories of pregnant substance users' criminalization and loss of custody that occurred during the crack epidemic. However, this history has certainly not been left in the past, and while the article discusses these advances in care, it also tells one woman's experience losing custody of her child for taking buprenorphine, an opioid replacement therapy which, along with methadone, is regarded as the standard of care for pregnant women with opioid use disorder.[61] A 2018 article in the Lancet on "Treatment modalities for pregnant women with opioid use disorder" makes reference to this history as an ongoing facet of medical care, saying "women who pursue treatment can risk stigmatization, criminalization,

[57] "A Tide of Opioid-Dependent Newborns Forces Doctors to Rethink Treatment - The New York Times," accessed December 3, 2018, https://www.nytimes.com/2017/07/13/health/opioid-addiction-babies.html.

[58] NICU treatment may be counterproductive not only because it separates mother and baby but because the bright lights and loud noises are extremely stressful for a baby in withdrawal.

[59] "A Tide of Opioid-Dependent Newborns Forces Doctors to Rethink Treatment - The New York Times," 6.

[60] "A Tide of Opioid-Dependent Newborns Forces Doctors to Rethink Treatment - The New York Times," 6.

[61] "Children of the Opioid Epidemic" also makes reference to the "crazy quilt of punitive approaches to pregnant women with drug problems." Egan, 24.

and potential loss of child custody."[62] Another Lancet article from the same year deals more generally with women using opioids but nonetheless emphasizes women's role as mothers, designating the social consequences of both opioid use and seeking treatment for it as unique to women.[63]

The Stigmatization of Maternal Substance Use

Armstrong writes in *Conceiving Risk, Bearing Responsibility* that "the very language used in much of the early literature on fetal alcohol syndrome…betrays the moral orientation of the writers."[64] Doctors may attempt to use neutral, medical and scientific language in describing the syndrome, but nonetheless perpetuate stigmas through phrases like "harsh intrauterine environment" and a general focus on the problem of maternal drinking.[65] Says Armstrong, "in the eyes of these writers, such women have clearly failed to fulfill their roles as nurturers"[66] Both Clarren and Smith's "The Fetal Alcohol Syndrome" and Able's "Fetal Alcohol Syndrome: Behavioral Teratology" reiterate that no safe level of alcohol consumption has been shown for pregnant women, reinforcing the stigma against pregnant drinking, though most women who drink during pregnancy will not give birth to children with FAS. In writing about the affected offspring, however, Clarren and Smith aren't straightforwardly stigmatizing the condition. In a rather whimsical turn of phrase, they write that "affected youngsters seem to fly about the examining room."[67] In what could be called genuinely neutral medical language, they describe the "rather

[62] Laura E Gressler, Doris Titus-Glover, and Fadia Tohme Shaya, "Treatment Modalities for Pregnant Women with Opioid Use Disorder," *The Lancet* 392, no. 10147 (August 18, 2018): 551, https://doi.org/10.1016/S0140-6736(18)31471-5.

[63] Carolyn M Mazure and David A Fiellin, "Women and Opioids: Something Different Is Happening Here," *The Lancet* 392, no. 10141 (July 7, 2018): 9–11, https://doi.org/10.1016/S0140-6736(18)31203-0.

[64] Armstrong, *Conceiving Risk*, 102.

[65] Henry F. Krous, "Fetal Alcohol Syndrome: a dilemma of maternal alcoholism," *Pathology Annual* 16, no. 1 (1981): 306.

[66] Armstrong, *Conceiving Risk*, 103.

[67] Clarren and Smith, "The Fetal Alcohol Syndrome," 1065.

typical facial appearance" in affected people.[68] Their language nonetheless does not challenge the intense social stigmas of disability, and the effects those stigmas may have on pregnant drinking. In Brody's *New York Times* article, she perhaps unintentionally reinforces this stigma through reporting the uncertainty around how much drinking was safe for the fetus, implying the potential for extremely widespread incidence and thus social burden of the syndrome.

The increasing awareness of the stigmatizing power of language seems to have affected how doctors and medical researchers speak about pregnant substance use in our present moment. The use of person-first language like "person with a substance use disorder" is becoming the norm and avoiding terms like "clean" or "hooked" is much more common in medical literature.[69] By and large, long-form journalism about the experience of pregnant women in the opioid epidemic seems aimed at countering stigmas of pregnant drug use by providing in-depth accounts of women's experiences. It is not clear whether they succeed in doing this; after all, simply describing a person's life won't necessarily make them relatable and remove the perceived distance between those with substance use disorders and those without. It is striking to read in Jennifer Egan's "Children of the Opioid Epidemic" about a woman who "prickles with intelligent awareness and self-scrutiny" and is simultaneously "immersed in a demimonde of chronically ill and disabled people who supported their own addictions by selling a portion of the pills their doctors prescribed."[70] This approach is repeated throughout the article and nearly gives the reader whiplash between empathizing with these women and acutely feeling their otherness through terms like "demimonde" and "in the grip of addiction."[71]

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[68] Clarren and Smith, "The Fetal Alcohol Syndrome," 1065.

[69] In popular literature, these terms can still persist, however. In "A Tide of Opioid-Dependent Newborns" the writer describes the articles subject as having been "hooked on oxycodone."

[70] Egan, "Children of the Opioid Epidemic - The New York Times."

[71] Egan, 6.

With the crack epidemic of the eighties and nineties, stigmatization of pregnant substance use reached a fever pitch. Descriptions of crack's ability to destroy the maternal instinct built on the existing discourse of maternal substance use as a failure of womanhood (also seen in fetal alcohol syndrome) and positioned crack as a new evil threatening the family structure, and thus the social order.[72] In a 1988 *New York Times* article, a Stamford, Connecticut doctor said that "For a cocaine addict, the least of their concerns is the affect [*sic*] of cocaine on their babies. They're more worried about where their next fix is coming from."[73] Further, the doctor reported that even widespread awareness of the supposed harms of prenatal cocaine exposure wasn't enough to deter these women from using. A 1998 article aimed at understanding how to support prevention and treatment of cocaine use in "pregnant and parenting" women discussed the many social and structural barriers or challenges to treatment the women face, but simultaneously mentioned their "poor compliance" with prenatal care, a move emphasizing individual responsibility and thus subtly shifting blame onto pregnant drug users for failing to receive proper treatment.[74] A 1999 article entitled "A study in antenatal cocaine use—Chaos in action" attempted to understand the "behaviors and conditions associated with cocaine use among prenatal patients" and concluded that their lives were "disorganized and chaotic" resulting in a "failure…to utilize prenatal care."[75] Though the authors are trying to tease out the social dimensions of pregnant cocaine use, such language risks stigmatizing the women further by giving medical depth to terms like chaos (they even invent two separate acronyms of the word to denote the various social factors).[76] A 1986

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[72] Campbell, *Using Women : Gender, Drug Policy, and Social Justice*.

[73] By The Associated Press, "More Pregnant Women Using Drugs," CN11.

[74] Kaltenbach and Finnegan, "Prevention and Treatment Issues for Pregnant Cocaine-Dependent Women and Their Infants."

[75] Miller and Boudreaux, "A Study of Antenatal Cocaine Use -- Chaos in Action.(Report)" 1427.

[76] Their study nonetheless showed that social chaos more than cocaine influenced outcomes like low birth weight or preterm delivery. It is perhaps reflective of the later (late nineties) dates of Miller and Boudreaux's and Kaltenbach and Finnegan's studies that they take a more even-handed view towards the risk of prenatal cocaine exposure, though their language nonetheless marks mothers as particularly responsible for adverse outcomes for their offspring.

Guardian article about a home for prenatally cocaine-exposed newborns in Harlem presented a drastically more sensationalized account of cocaine's effect on pregnant users, writing that "the crack mother is so addicted that she is beyond caring for her baby."[77]

The stigma of pregnant cocaine use arose also through both the medical power of labeling cocaine-exposed infants as disabled, and through the ability of the state to take legal action against pregnant users, which has occurred with much greater frequency than with pregnant drinking since the discovery of FAS. Mayes et. al addressed the latter concern in their warning article, explicitly linking the scientific and the social. Infants exposed to cocaine in utero were being labeled as "irremediably damaged" by scientists and doctors, an action they argued promotes a number of biases against the children in a medical setting including the danger of a self-fulfilling prophecy, a tendency to only publish positive research showing damage from prenatal cocaine exposure, and "condemning these children with labels of permanent handicap and failure."[78] The bias also specifically affects and targets pregnant women, as Mayes et al reported that "given equivalent extent of use of illegal drugs by pregnant women, physicians and clinics are more likely to report to law-enforcement agencies black women or women on welfare that white or middle-class women."[79] Here inequality was compounded and assigning the stigmatizing category of prenatal cocaine exposure to infants directly harmed some women worse than others. This connection with law enforcement and resulting criminal action against pregnant cocaine users is the subject of "Pregnant, Addicted—and Guilty?," the aforementioned *New York Times Magazine* article from 1990. Though both Armstrong and Dubow mention the criminalization of pregnant

[77] Taft, Alma. "Crack Babies." *The Guardian (1959-2003),* Dec 16, 1986. http://search.proquest.com.ezp-prod1.hul.harvard.edu/docview/186676624?accountid=11311. 20

[78] Mayes LC et al., "The Problem of Prenatal Cocaine Exposure: A Rush to Judgment," 407.

[79] Mayes, 407.

drinking after the discovery of FAS, the article's author reports that charges much more frequently involve illegal drug use, and especially crack cocaine during the crack epidemic.

While it remains to be seen if pregnant opioid use creates an enduring stigma for mothers and their offspring in the current epidemic, the connection between race and class and the stigma of pregnant substance use persists. Egan discusses how the epidemic is seen as an "epidemic" largely because of its perceived whiteness, allowing medical legitimacy through that terminology (rather than, for example, a "crisis,") though the crack epidemic was nonetheless also described as such in the eighties.[80] One difference between the stigma of pregnant crack use and that of opioid use is that while both are now known to have only transitory effects on newborns, at the height of the crack epidemic this was not recognized, and thus the fear of lifetime impairment stigmatized prenatally cocaine exposed newborns. While stigmas around parental opioid use persist and are a site of legal, medical, and social contestation over the rights of parents and the appropriateness of intervention and custody loss, the effects of NOWS are short lasting, and so children may be subject to less stigmatization than parents who continue to use after giving birth.[81]

Experience of Pregnant Substance Use

The absence of women's reflections on their experience with pregnant drinking is conspicuous in news media about the discovery of fetal alcohol syndrome. There could be a number of reasons for this, including the medical focus on the striking effects of the new syndrome, the prevalence of alcohol in American culture, making drinking during pregnancy stigmatized but nonetheless normalized enough to not warrant the level of scrutiny seen with cocaine and opioid use, or the inverse of this argument, wherein pregnant drinking is so stigmatized that the perspectives of pregnant non-drinkers are considered before those of pregnant

[80] By The Associated Press, "More Pregnant Women Using Drugs."

[81] Margaret Talbot, "The Addicts Next Door.(Opioid Epidemic in West Virginia)," *The New Yorker* 93, no. 16 (2017): 74.

drinkers.[82] It could also be that the "epidemic" classification of past crack use and present opioid use provoke a deeper level of journalistic engagement as a result of widespread interest in these crises. Nonetheless, Armstrong shows how impactful the discovery of FAS has been for all pregnant people, whether they drink during pregnancy or not. FAS raises the question of what good motherhood is, and "symbolizes a disordered role—a mother…who is not maternal."[83] She further argues that "because pregnancy happens only to women, constructions of it are profoundly gendered," a statement which does not hold true to today's gender landscape, but highlights that the experience of pregnant drinking is necessarily understood through the gender of the pregnant woman, as the dismay at the rise in women drinking in general (noted in the Abel article above) evinces.[84, 85]

The particular experiences of pregnant women who used cocaine during the crack epidemic of the eighties and nineties can be found in journalistic accounts that pair this experiential, human interest angle with a policy or medical angle on the epidemic. An early news article titled "Crack Babies" in *The Guardian* presents a bleak picture of pregnant women's agency when they used crack. Lurid descriptions of the "crack mother" as "beyond caring for her baby" and monomaniacally focused on acquiring drugs ("they'll rob, steal, even kill, sell their bodies—anything for more crack") do not allow for any nuance or agency in the mothers' experience of substance use.[86] Two years later, the *New York Times* article "More Pregnant Women Using

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[82] There are plenty of articles from the perspective of pregnant women frustrated at being widely surveilled and policed about their consumption choices, or confusion about how fanatical they must be in avoiding any potentially teratogenic or otherwise dangerous substances which are found in countless everyday items. See Alice Lake and Jane Ciabattari, "Alcoholism Suddenly It's a Young Woman's Problem: What Research Shows About Drinking and Pregnancy," *Redbook; New York*, June 1982.; Amy Sunshine-Genova, "Fetal Alcohol Syndrome," *Parents; Des Moines*, June 1992.; Gina Kolata, "Pregnancy Warnings: Have We Gone Too Far?: WHOSE PREGNANCY IS IT, ANYWAY?," *Redbook; New York*, September 1997.

[83] Armstrong, *Conceiving Risk, Bearing Responsibility : Fetal Alcohol Syndrome & the Diagnosis of Moral Disorder*, 18.

[84] Armstrong, 19.

[85] Abel, "Fetal Alcohol Syndrome: Behavioral Teratology."

[86] Alma Taft, "Crack Babies," *The Guardian (1959-2003)*, 1986, 20.

Drugs" presents a similar flattening of pregnant women's experience, describing the women's experience of motherhood as insufficiently compelling to stop their drug use, with one doctor reporting that the effects of cocaine exposure in utero are "the least of their concerns…[because] they're more worried about where their next fix is coming from."[87] One neonatologist quoted in the article reflects that "it's no different than why certain women have always done things against the best interest of their fetuses…there's a lack of appreciation for long-term consequences."[88] Who those certain women are is not elaborated, but the doctors words diminish the women's knowledge by attributing their drug use to a lack of "appreciation" for consequences, invoking again the trope of responsibility.

In contrast and a couple years later, the *New York Times Magazine* article "Pregnant, Addicted—and Guilty?" paints a deeper, more nuanced picture of pregnant cocaine use through the experiences of Kim Hardy and Lynn Bremer, the first two women in Muskegon County, Michigan to be charged with delivering drugs to their infants by using while pregnant. While Hardy was black and poor, Bremer was white and a lawyer, but both women were screened for drugs while in the hospital giving birth, and both were charged to send a message about the consequences of pregnant cocaine use in Muskegon County.[89] Both women entered residential treatment programs after losing their children to state custody, and their experience since being charged differed substantially. Though Bremer returned to her job, she reported feeling demoralized, saying "my reputation is gone, and I still don't have my daughter with me. This whole thing has turned making a baby into a tragic event."[90] In contrast, Hardy's life underwent a "turnaround" after being charged and entering treatment, having not used cocaine for months at

[87] By The Associated Press, "More Pregnant Women Using Drugs." CN11

[88] Associated Press, CN11

[89] It is interesting that their experiences differed in perhaps an unexpected way given their respective races and socioeconomic statuses. The possibility cannot be discounted that the story was presented in this way to destigmatize black mothers who used cocaine.

[90] Hoffman, "Pregnant, Addicted - and Guilty?(Magazine Desk)," 10.

the time the article was written and laughingly describing her new life as "a lot simpler now…it's a lot cheaper without drugs."[91] All three of her kids were set to be returned to her care and she had just rented a "modest three-bedroom house in a predominantly white neighborhood of Muskegon."[92] Despite this redemptive trajectory (she eventually was cleared of the charge related to using cocaine while pregnant), she still felt marked by the experience. She said she couldn't find a job "because she [was] recognized as a drug mother" and that "some people look at me like I'm an infection."[93] Surprisingly, however, she said she was grateful for the experience, regarding her legal battle as the cause for stopping her drug use, and felt that allowing personal agency in a woman's choice to enter treatment was necessary for it to work. "It's a disease—just like alcoholism—and women are not going to stop until they're ready," she said, invoking a historically specific continuum of pregnant substance use and marking the choice to stop drug use as up to individuals, not the legal system or government. Or, in the present day, access to prescription therapies for substance use.

This idea persists in media depictions of pregnant substance users in the current epidemic of pregnancy as a time for turning one's life around. One woman profiled in Egan's article began receiving treatment at a methadone clinic, saying "as long as I could be involved with something that kept the baby safe, that was all I wanted to do." She found a doctor to work with the clinic and after informing him of her previous drug use (itself a surprising move in light of justified fears of criminalization from just a few decades ago) felt extremely anxious to have medical insight into how she may have harmed her fetus: "It was causing me tons of panic attacks: I was thinking, what

[91] Hoffman, 10.
[92] Hoffman, 10.
[93] Hoffman, 10.

did I do to the baby already?"[94] Here we can see that even more tolerant medical care compared to the past can still negatively impact someone's experience during pregnancy.

Alicia also experienced her pregnancy prominently through the fear (and stigma) of opioid use and relapse. While on methadone, she avoided the urge to see if she could still get high from pills, saying "If I wasn't pregnant, I would be the first one to say, 'Hey, let's see if this still works,'…but I can't do that, and I don't want do to it, but I've thought about it a million times." Ultimately, Alicia is able to stop using, and she says, "I'll never fall for the tricks of the disease…It'll have to fight my willpower with all it's got to knock me down again." Her story and that of the many other women's in the article is one of triumph over adversity through the life-changing effects of motherhood. This narrative trope features often in news accounts of pregnant substance use, tied to ideas about control over one's behavior, responsibility over health, and triumph over negative habits.

In stark contrast to the characterization of cocaine using women presented in "More Pregnant Women using Drugs" as unwilling to see past their own substance use for the benefit of their unborn children, a doctor in Egan's article characterizes pregnancy as "a rare opportunity to intervene constructively in a woman's addiction."[95] Dr. Lauren Jansson, the "director of pediatrics at the Center for Addiction and Pregnancy at Johns Hopkins" is quoted saying "Sometimes a pregnancy is when women see past their own traumas to have that clarity to move forward…Treatment works, and especially for this population. They have a lot to gain."[96,97] This

[94] Egan, "Children of the Opioid Epidemic - The New York Times," 9.
[95] Egan, 8.
[96] Egan, 8.
[97] The existence of the Center for Addiction and Pregnancy in Baltimore, as well as the similar Bridge Clinic at Massachusetts General Hospital in Boston speaks to the present state of medical care for pregnant women with substance use disorders. Though clinics like these are more the exception than the rule, the growing prevalence of supportive, multidisciplinary, nonjudgmental medical care speaks to the trend towards less punitive approaches to pregnant substance use. The Bridge Clinic features co-located, multidisciplinary staff for all aspects of medical care that pregnant women with substance use disorders need, including a recovery coach. The care also extends well beyond the typical six weeks of obstetric care

view is paralleled in the words of doctors in "A Tide of Opioid-Dependent Newborns," with one reflecting that the experience of rooming-in with newborns benefits new mothers, "helping them bond with babies from birth."[98]

Not every woman's experience in recovering from opioid use is as positive as the stories in Egan's article; "A Tide of Opioid-Dependent Newborns" prominently focuses on the struggles of Jamie Clay, whose daughter was born with NAS and her unexpected loss of custody despite receiving buprenorphine therapy. Clay missed the opportunity to access rooming-in care because the hospital set it up after her child was born, but she is nonetheless "proud that [her daughter] Jay'la Cy-anne's treatment for withdrawal was shorter than that of her firstborn daughter, who was exposed to oxycodone."[99] Clearly, Clay's perspective as a loving mother is being represented here, especially in describing how she quit buprenorphine cold turkey after she lost custody in an attempt to ensure she would get her daughter back. Despite the incidence of unfairly punitive approaches to treating pregnant substance users, journalistic accounts still accord these women dignity and nuance in their experiences.

Conclusion

Out of this winding path through three pivotal moments in American medicine wherein new and old harms pregnant women can enact on their unborn children were recognized and disseminated through culture, we can see several continuities and disjunctures over time. The idea of teratogens posing newly recognizable harms to the developing fetus carried over from the discovery of fetal alcohol syndrome into the crack epidemic, while the racialization of crack users as African-American, low-income, inner-city residents replaced the more universal threat that

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most pregnant women receive, which is often a necessity for women trying to keep the momentum of recovery that pregnancy can bring.

[98] "A Tide of Opioid-Dependent Newborns Forces Doctors to Rethink Treatment - The New York Times," 6.

[99] "A Tide of Opioid-Dependent Newborns Forces Doctors to Rethink Treatment - The New York Times," 6.

maternal alcoholism (and overblown fears of any pregnant drinking at all) posed to the American public. The racial logics of the crack epidemic appear partially flipped in the present opioid epidemic as a white, rural epidemic, yet punishment and stigma still fall more heavily on the same groups of people associated with the crack epidemic. The ability of substances that women consume while pregnant to harm offspring in debilitating, long-lasting ways is different between alcohol, cocaine, and opioids, but this fear nonetheless permeates the discourses around each substance.

What lessons can we take from the past to understand the personal and medical experiences of pregnant opioid users? The prehistory of maternal opiate use and the case studies of pregnant alcohol and cocaine use illuminate how current anxieties about race, class, and motherhood are refracted through the opioid crisis, crystalizing around ideas of reproducing the social order, eugenic hopes of bettering the population and fear of regeneration, and medical ideas about risk and danger to fetuses and infants. The ability of actors from doctors to journalists to critically reflect on how the past, especially the crack epidemic and racist fears about "crack babies," shapes medicine and policy today is laudable and necessary work to address the opioid epidemic not just as a medical phenomenon but a social one. The medical effects of opioid use disorder and neonatal abstinence syndrome are porous, bleeding into social life and familial relations and shaping women's experiences of stigma and medical care even outside of hospitals, delivery rooms, and clinics. Intervention to effect justice is a necessarily multi-sited and interdisciplinary project in which we all have a role to play.

Bibliography

"(2) Crack Babies: A Tale From the Drug Wars | Retro Report | The New York Times - YouTube." Accessed December 10, 2018. https://www.youtube.com/watch?v=cWtLAfw1Ses.

"A Tide of Opioid-Dependent Newborns Forces Doctors to Rethink Treatment - The New York Times." Accessed December 3, 2018. https://www.nytimes.com/2017/07/13/health/opioid-addiction-babies.html.

Abel, Ernest L. "Fetal Alcohol Syndrome: Behavioral Teratology." *Psychological Bulletin* 87, no. 1 (January 1980): 29–50. https://doi.org/10.1037/0033-2909.87.1.29.

Armstrong, Elizabeth M. *Conceiving Risk, Bearing Responsibility : Fetal Alcohol Syndrome & the Diagnosis of Moral Disorder*. Baltimore, 2003.

Bada, S., R. Das, L. Bauer, L. Shankaran, P. Lester, L. Wright, L. Verter, L. Smeriglio, L. Finnegan, and L. Maza. "Gestational Cocaine Exposure and Intrauterine Growth: Maternal Lifestyle Study." *Obstetrics & Gynecology* 100, no. 5, Part 1 (2002): 916–924. https://doi.org/10.1016/S0029-7844(02)02199-3.

Bauer, Charles R., John C. Langer, Seetha Shankaran, Henrietta S. Bada, Barry Lester, Linda L. Wright, Heidi Krause-Steinrauf, et al. "Acute Neonatal Effects of Cocaine Exposure During Pregnancy." *Archives of Pediatrics & Adolescent Medicine* 159, no. 9 (2005): 824–834. https://doi.org/10.1001/archpedi.159.9.824.

By The Associated Press. "More Pregnant Women Using Drugs." *New York Times (1923-Current File)*, 1988, CN11.

Campbell, Nancy Duff. *Using Women : Gender, Drug Policy, and Social Justice*. New York, 2000.

Campbell, William H. "A Case of Fatal Narcotism." *The Boston Medical and Surgical Journal* 87, no. 7 (August 15, 1872): 116–116. https://doi.org/10.1056/NEJM187208150870702.

Clarren, S K, and D W Smith. "The Fetal Alcohol Syndrome." *The New England Journal of Medicine* 298, no. 19 (1978): 1063. https://doi.org/10.1056/NEJM197805112981906.

Courtwright, David T. *Dark Paradise : A History of Opiate Addiction in America*. Enl. ed. Cambridge, Mass., 2001.

"Crack Epidemic | United States History [1980s]." Encyclopedia Britannica. Accessed December 2, 2018. https://www.britannica.com/topic/crack-epidemic.

Devlin, Lori, and Jonathan Davis. "A Practical Approach to Neonatal Opiate Withdrawal Syndrome" 35, no. 04 (2018): 324–330. https://doi.org/10.1055/s-0037-1608630.

Dubow, Sara. *Ourselves Unborn : A History of the Fetus in Modern America*. Oxford, 2011.

Egan, Jennifer. "Children of the Opioid Epidemic - The New York Times," May 9, 2018. https://www.nytimes.com/2018/05/09/magazine/children-of-the-opioid-epidemic.html?mtrref=undefined&gwh=823352084239736735DCB14AC86D56&gwt=pay.

Gomez - Pomar, Enrique, and Loretta P. Finnegan. "The Epidemic of Neonatal Abstinence Syndrome, Historical References of Its' Origins, Assessment, and Management.(Report)." *Frontiers in Pediatrics* 6 (2018): 33. https://doi.org/10.3389/fped.2018.00033.

Gressler, Laura E, Doris Titus-Glover, and Fadia Tohme Shaya. "Treatment Modalities for Pregnant Women with Opioid Use Disorder." *The Lancet* 392, no. 10147 (August 18, 2018): 551. https://doi.org/10.1016/S0140-6736(18)31471-5.

Hartouni, Valerie. *Cultural Conceptions :On Reproductive Technologies and the Remaking of Life*. Minneapolis, 1997.

Hoffman, Jan. "Pregnant, Addicted - and Guilty?(Magazine Desk)." *The New York Times Magazine*, 1990.

Hopkins, Ellen, and Ellen Hopkins. "Childhood's End: What Life Is Like for Crack Babies." *Rolling Stone* (blog), October 18, 1990. https://www.rollingstone.com/culture/culture-news/childhoods-end-what-life-is-like-for-crack-babies-188557/.

Hurt, Hallam, Joan Giannetta, Nancy L. Brodsky, Elsa Malmud, and Trena Pelham. "Are There Neurologic Correlates of in Utero Cocaine Exposure at Age 6 Years?" *The Journal of Pediatrics* 138, no. 6 (June 1, 2001): 911–13. https://doi.org/10.1067/mpd.2001.113709.

Hurt, Hallam, Joan M. Giannetta, Marc Korczykowski, Angela Hoang, Kathy Z. Tang, Laura Betancourt, Nancy L. Brodsky, David M. Shera, Martha J. Farah, and John A. Detre. "Functional Magnetic Resonance Imaging and Working Memory in Adolescents with Gestational Cocaine Exposure." *The Journal of Pediatrics* 152, no. 3 (March 1, 2008): 371–77. https://doi.org/10.1016/j.jpeds.2007.08.006.

Hurt, Hallam, Elsa Malmud, Laura Betancourt, Leonard E. Braitman, Nancy L. Brodsky, and Joan Giannetta. "Children With In Utero Cocaine Exposure Do Not Differ From Control Subjects on Intelligence Testing." *Archives of Pediatrics & Adolescent Medicine* 151, no. 12 (December 1, 1997): 1237–41. https://doi.org/10.1001/archpedi.1997.02170490063011.

Hurt, Hallam, Elsa Malmud, Laura Betancourt, Nancy L. Brodsky, and Joan Giannetta. "A Prospective Evaluation of Early Language Development in Children with in Utero Cocaine Exposure and in Control Subjects." *The Journal of Pediatrics* 130, no. 2 (February 1, 1997): 310–12. https://doi.org/10.1016/S0022-3476(97)70361-5.

Jane E. Brody. "Doctors Find Pattern of Birth Defects Among Children of Alcoholic Mothers." *New York Times (1923-Current File)*. 1973.

Jones, Hendrée, Loretta Finnegan, and Karol Kaltenbach. "Methadone and Buprenorphine for the Management of Opioid Dependence in Pregnancy." *Drugs* 72, no. 6 (2012): 747–757. https://doi.org/10.2165/11632820-000000000-00000.

Kaltenbach, K, and L Finnegan. "Prevention and Treatment Issues for Pregnant Cocaine-Dependent Women and Their Infants." *Cocaine: Effects On The Developing Brain* 846 (1998): 329–34.

Knight, Kelly Ray. *Addicted.Pregnant.Poor*. Durham, 2015.

Kolata, Gina. "Pregnancy Warnings: Have We Gone Too Far?: WHOSE PREGNANCY IS IT, ANYWAY?" *Redbook; New York*, September 1997.

Krous, H. F. "Fetal Alcohol Syndrome: A Dilemma of Maternal Alcoholism." *Pathology Annual* 16 Pt 1 (1981): 295–311.

Lake, Alice, and Jane Ciabattari. "Alcoholism Suddenly It's a Young Woman's Problem: What Research Shows About Drinking and Pregnancy." *Redbook; New York*, June 1982.

Mayes LC, Granger RH, Bornstein MH, and Zuckerman B. "The Problem of Prenatal Cocaine Exposure: A Rush to Judgment." *JAMA* 267, no. 3 (January 15, 1992): 406–8. https://doi.org/10.1001/jama.1992.03480030084043.

Mazure, Carolyn M, and David A Fiellin. "Women and Opioids: Something Different Is Happening Here." *The Lancet* 392, no. 10141 (July 7, 2018): 9–11. https://doi.org/10.1016/S0140-6736(18)31203-0.

Mccarthy, John J., Martin H. Leamon, Loretta P. Finnegan, and Catherine Fassbender. "Opioid Dependence and Pregnancy: Minimizing Stress on the Fetal Brain." *American Journal of Obstetrics and Gynecology* 216, no. 3 (2017): 226–231. https://doi.org/10.1016/j.ajog.2016.10.003.

Miller, Joseph M., and Martha C. Boudreaux. "A Study of Antenatal Cocaine Use -- Chaos in Action.(Report)." *American Journal of Obstetrics and Gynecology* 180, no. 6 (1999): 1427.

Okie, Susan. "Crack Babies: The Epidemic That Wasn't." *The New York Times*, January 26, 2009, sec. Health. https://www.nytimes.com/2009/01/27/health/27coca.html.

Reagan, Leslie J. *Dangerous Pregnancies : Mothers, Disabilities, and Abortion in Modern America*. Mothers, Disabilities, and Abortion in Modern America. Berkeley, 2010.
Roberts, Dorothy E. *Killing the Black Body : Race, Reproduction, and the Meaning of Liberty*. 1st ed. New York, 1997.
Rosenberg, Charles. "The Bitter Fruit: Heredity, Disease, and Social Thought in Nineteenth-Century America." *Perspectives in American History* 8 (1974): 189.
S W Patrick, M M Davis, C U Lehman, and W O Cooper. "Increasing Incidence and Geographic Distribution of Neonatal Abstinence Syndrome: United States 2009 to 2012." *Journal of Perinatology* 35, no. 8 (2015): 650–55. https://doi.org/10.1038/jp.2015.63.
Sunday Times of London. *Suffer the Children: The Story of Thalidomide*. New York: Viking Press, 1979.
Sunshine-Genova, Amy. "Fetal Alcohol Syndrome." *Parents; Des Moines*, June 1992.
Taft, Alma. "Crack Babies." *The Guardian (1959-2003)*, 1986, 20.
Talbot, Margaret. "The Addicts Next Door.(Opioid Epidemic in West Virginia)." *The New Yorker* 93, no. 16 (2017): 74.
Tone, Andrea. "Medicalizing Reproduction: The Pill and Home Pregnancy Tests." *Journal of Sex Research* 49, no. 4 (2012): 319–27. https://doi.org/10.1080/00224499.2012.688226.
Volpe, Joseph J. "Effect of Cocaine Use on the Fetus." *The New England Journal of Medicine* 327, no. 6 (1992): 399–407. https://doi.org/10.1056/NEJM199208063270607.