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Fellowship Capstone | Policy Brief

Pesticide Exposure: A Proactive Approach in Improving Maternal Health

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I. Executive summary

Maternal healthcare disparities continue to disproportionately impact women in rural Indiana, a state consistently ranked the third worst in the United States for maternal health outcomes. While geographic isolation and provider shortages are well-documented, this policy brief explores an underexamined issue of: the elevated risks pregnant women in rural Indiana face due to chronic pesticide exposure. These exposures have been linked to shortened gestation, low birth weight, and potentially more severe postpartum health outcomes. The brief will also examine how systemic health inequities and environmental injustices increase these risks and are unaddressed in current maternal health policy frameworks.

II. Overview

Motherhood has been recently more shaped by geography, socioeconomic status, and racial disparities. One factor that remains overlooked today, however, is the environmental conditions shaping thousands of pregnancies. Rural women, particularly those with exposure to pesticides in their early pregnancy, are at greater risk of post-birth abnormalities. The impact of pesticides has long been addressed in general populations, but with the rapid increase in high-risk pesticide use, it is now critical to address their effects on pregnant women and unborn children. This brief argues that addressing exposure to pesticides in rural mothers is significant in reducing greater maternal healthcare disparities and creating a healthier next generation.

A. Relevance

States where agriculture is a central part of the economy make up a large portion of America, putting rural families at the risk of environmental harm. In these communities, the agricultural industry sustains local jobs and food systems, but it also introduces environmental risks. Pesticides mainly circulate in the air, but they also seep into water, soil, and even food taking over the resources that rural families rely on. Over time, this exposure becomes chronic, embedding itself into daily life with few safeguards in place. For expecting mothers, these conditions increase the likelihood of reproductive complications, while also threatening the health of the next generation.

This issue becomes particularly urgent for women of color, low-income mothers, and immigrant populations working in or living near agricultural zones. These groups already face disproportionate barriers in the healthcare system and may lack the information and legal protections to avoid environmental exposure. By integrating environmental health into maternal health policy, especially in rural and high-risk

areas, states like Indiana can take a step toward reducing preventable birth complications and addressing health inequities.

III. History

A. Current Stances

The relationship between environmental and maternal health policy is a facet of policy that is largely overlooked. Historically, maternal health has been more centered around access to providers, birth outcomes, and infant mortality without considering the role that environmental toxins play in shaping these factors. This is especially important in states, such as Indiana, where pesticide use has dramatically increased. According to an official USDA report on the chemical usage in Indiana, herbicide was used on 99% of our 5.7 million corn and soybean acres during the 2000s. After the adoption of industrial agricultural practices the use of synthetic herbicides such as glyphosate, which leads to miscarriage, shortened gestation, and low birth weight, has become commonly used in U.S agricultural practices. Despite multiple studies being done on linking pesticide exposure to reproductive harm these substances are not discussed as thoroughly as others in terms of pregnancy risk. Studies conducted by the Indiana University School of Medicine have detected glyphosate in over 90% of pregnant women tested in central Indiana alone. At the same time, inequities in healthcare access, especially for mothers who are women of color, low-income, and minority women, limit the opportunities for early prenatal intervention or environmental screenings to detect the harmful toxins. Yet, policy makers and leaders fail to address the environmental issues that directly connect to maternal health and reproduction. Further, many rural residents in Indiana rely on water sourced from private wells, which are not federally regulated and may contain pesticides from agricultural runoff. There has been no implementation of federal water testing or filtration services for pregnant women in high risk areas. This lack of regulation and integration of environmental health in maternal care policies leaves rural mothers, especially minorities, vulnerable to long term health complications that could be avoided with local or national policies.

IV. Policy Problem

A. Stakeholders

The key stakeholders are pregnant women living in Indiana, specifically those living in close proximity to agricultural land where pesticide use is heavy. Women of color or immigrant mothers are disproportionately affected, as they are less likely to be able to access healthcare providers or be employed in agricultural labor where pesticide drift is more common. For women who are low-income, uninsured, or undocumented, many can't afford specialized prenatal care, and in some counties, access to OB-GYNs is almost non-existent.

While the agricultural industry and large scale farms are major contributors to Indiana's economy, they are also stakeholders. Many of these businesses rely on significant amounts of pesticides as part of standard operations. Their use of chemicals plays a critical role in shaping the environmental safety for rural areas. Farm workers, industry owners, and agricultural businesses should be addressed when discussing any sustainable policy solution that prioritizes health without threatening their livelihoods and agricultural productivity.

B. Risks of Indifference

The risk of indifference to address the intersection of environmental exposure and maternal health could result in further neglect of mothers and long-term consequences.

First, chronic pesticide exposure has been linked to adverse birth outcomes that affect both the mother and child. These include low birth weight, preterm delivery, congenital anomalies, and increased infant and maternal mortality. These outcomes not only impact families' finances, but also local healthcare systems and the state's Medicaid program.

Second, ignoring this issue contributes to the persistence of racial and socioeconomic disparities, especially among Black, Latina, and immigrant mothers.

Third, from the perspective of environmental sustainability ignoring public health in favour of economic interest and gain, deters solutions for sustainable farming and healthcare.

C. Nonpartisan Reasoning

Because maternal health and environmental sustainability doesn't only affect individuals, but rather societies and communities themselves, it is imperative that nonpartisan intervention takes place. The benefits of such interventions include:

1) Economic Savings: Preventing preterm births and birth complications reduces neonatal intensive care costs and emergency Medicaid spending. Investments in prevention reduce the strain on state healthcare systems.

2) Agricultural Sustainability: Introducing policy that supports safer pesticide usage allows us to build towards future environmental responsibility goals. Further, it allows state farmers to practice agriculture without endangering their families or those living nearby.

3) Improved Public Health Outcomes: Environmental screenings or clean water initiatives enhance maternal health in states with high maternal and infant mortality rates. These services ensure healthier future generations and decrease the risk of disability and chronic illness.

V. Tried Policy

Several existing policies look into maternal and environmental health, but rarely at an intersection.

The Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) regulates pesticide usage nationally. However, it does not take into account chronic exposure of pesticides on pregnant women. The law allows many substances that have been directly linked to reproductive harm.

Indiana has also tried implementing various maternal health initiatives, such as My Healthy Baby Program, which connects pregnant women to local healthcare and social support. While helpful, these programs do not currently address environmental health risks, nor do they screen for pesticide exposure.

Some states have taken more active stances. For example, California's Proposition 65 mandates warning labels on products containing chemicals known to cause reproductive harm. However,

states like Indiana, rural families remain largely unaware of the potential dangers posed by the pesticides in their environments.

VI. Policy Options

Mandate Free Environmental Screening and Well Testing for Pregnant Women in Agricultural Zones

Indiana should implement a statewide initiative that provides free environmental screenings for pregnant women living in areas surrounded by farmland. This program should include, but is not limited to: water testing for families that rely on private well water, voluntary biomonitoring to detect commonly used pesticides, and follow up medical consultations.

This service can be built into programs already running, such as *My Healthy Baby*, or offered through local clinics and maternal health centers. It's also important that the outreach is done in multiple languages, especially in areas with high immigrant populations.

Expand Health Worker Training on Environmental Health in Maternal Care

Currently, most healthcare providers, especially those serving in rural and underserved communities receive little training in how to identify or respond to environmental risks during pregnancy. This gap can lead to missed diagnoses, insufficient counseling, and delays in care. The Indiana Department of Health should develop and mandate continuing education modules on environmental health in reproductive care.

Implementation can be achieved through partnerships with state medical boards and regional medical schools.

Sustainable Farming Practices Near Residential Areas

Indiana can support agricultural sustainability and public health by incentivizing the adoption of less harmful pesticide practices through financial and technical assistance. Specifically, the state could:

- Provide tax credits for farms that implement Integrated Pest Management (IPM) strategies, which reduce reliance on chemical pesticides.
- Fund the creation of pesticide-free buffer zones around sites such as schools, medical clinics, and residential neighborhoods.

This incentive would reduce harmful exposures for nearby populations while also supporting farmers in adopting more sustainable and less risk practices.

VII. Conclusions

In this paper, I have explored a plethora of topics underlying the maternal health crisis in rural Indiana and the intersection of environmental conditions shaping the lives of expectant mothers. However, out of these options, the one that is the most implementable in its scope is to expand provider training on environmental health in maternal care.

While expanding provider training is a crucial starting point, it should be paired with long-term goals too such as the implementation of environmental screenings. Integrating environmental health into maternal care policy is a public health imperative. By acknowledging and addressing this overlooked intersection of maternal health and environment, Indiana can lead the way in creating a more proactive approach to maternal care.

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