

# Preterm births more common in mothers who are cancer survivors

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For young women facing a new cancer diagnosis, fertility preservation can be an important consideration in treatment planning. Now a University of North Carolina Lineberger Comprehensive Cancer Center-led study has identified potential risks for mothers who are cancer survivors—risks for their newborns' health.

In a study published in the journal *JAMA Oncology*, researchers report that women diagnosed and treated for cancer during their childbearing years more commonly gave birth prematurely, and to babies whose weights were below normal. Cancer survivors also had a slightly higher rate of cesarean section deliveries.

"We found that women were more likely to deliver preterm if they've been treated for cancer overall, with greater risks for women who had chemotherapy," said the study's senior author Hazel B. Nichols, PhD, a UNC Lineberger member and assistant professor in the UNC Gillings School of Global Public Health. "While we believe these findings are something women should be aware of, we still have a lot of work to do to understand why this risk is becoming apparent, and whether or not the children who are born preterm to these women go on to develop any health concerns."

Research has shown that 60 percent of female adolescent and young adult survivors want the possibility of having children, researchers report. Yet few studies have focused on the impact of cancer treatment on children born to women diagnosed and treated for cancer during their

childbearing years.

Nichols and her colleagues developed their study by linking cancer diagnosis and birth certificate data for patients diagnosed with cancer between the ages of 15 and 39 in North Carolina from 2000 to 2013. They studied health outcomes for the first child women had after their cancer diagnosis, including information from more than 2,500 babies born to mothers who were cancer survivors.

"One of the things that's exciting about this work is we identified thousands of women who went on to have a child after they were diagnosed and treated for cancer," Nichols said. "We know that cancer treatment can have an impact on fertility, and it's only after puberty that some of the options exist to either freeze eggs or freeze embryos, or take other steps to protect fertility. So this is a time period when it's important to counsel women on what their reproductive risks are for cancer therapy, or what they can expect in the future."

The researchers found that cancer survivors had a greater risk for delivering a baby before 37 weeks. Cancer survivors also had a higher risk of having babies of a low birth weight and there was a small increase in cesarean deliveries.

Among cancer survivors, 13 percent of cancer survivors had a preterm birth (born before 37 weeks), compared to 9 percent of women who did not have cancer. Nichols said those are small differences, but preterm birth is a risk that women should be aware of. Babies born earlier than 37 weeks have a higher risk of complications. However, Nichols cautioned that not all babies born preterm experience these complications.

"It's a risk factor; it doesn't mean that someone who is born preterm is going to develop future health problems, but children who don't spend as

long in utero can have a higher incidence of breathing problems or infections," she said. "This is something for women and their providers to be aware of when a woman is reviewing her prenatal care, or talking about her medical history with her provider."

When the researchers broke the data down by cancer diagnosis, they found that risk for preterm birth for breast cancer survivors was nearly two times that of women who had not had cancer. They found a 60 percent higher risk of preterm birth in women with Hodgkin lymphoma, an increased risk of approximately two times in women with non-Hodgkin lymphoma, and a risk that was nearly three times higher for women with gynecologic cancers.

They also found the risk of preterm birth and low birth weight was highest for women diagnosed with cancer while pregnant. Nichols said women diagnosed during pregnancy may be delivering early in order to start their cancer treatment, but that may not be the only factor. They also detected an increased risk in women diagnosed with cancer before the start of pregnancy.

A review of prevalence of preterm birth by treatment type found women who had chemotherapy were more likely to have preterm deliveries, and, to a lesser extent, to have cesarean deliveries. Nichols said this is an area of possible future research for the group.

"We'd like to get better information about the types of chemotherapy women receive," she said. "Chemotherapy is a very broad category, and the agents have very different effects on the body. In the future, we'd like to get more detailed information on the types of drugs that were involved in treatment."

Nichols said the study contained positive findings as well as exposed risks for survivors.

"These are risks that are important to understand, but also should be considered in light of the fact that these women went on to start their families, or complete their families," she said. "So that's a very positive event."

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