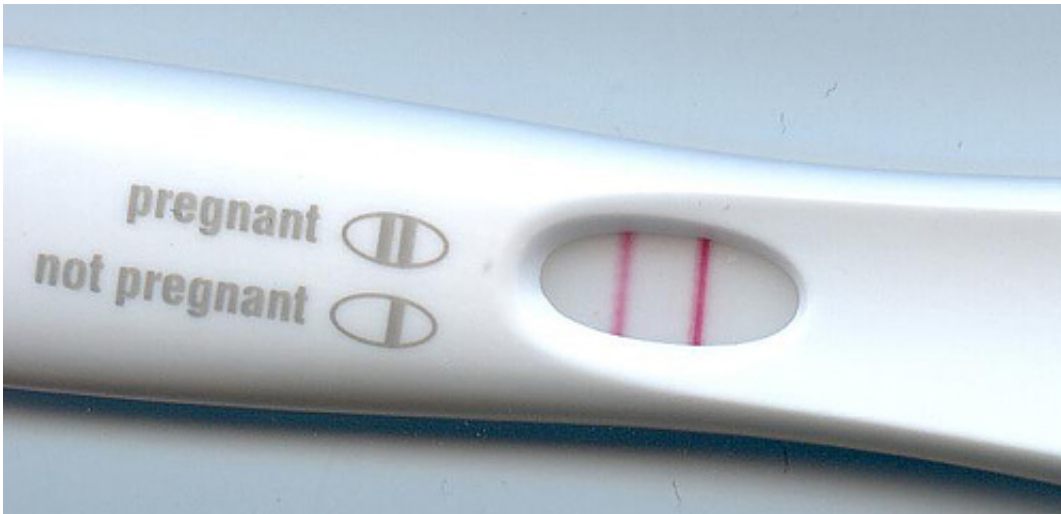


# Women with congenital heart disease have better shot at healthy pregnancies

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Pregnancy test. Credit: public domain

Congenital heart disease (CHD), a group of abnormalities in the heart that develop before birth - including holes in the heart, leaky or narrow valves, and incomplete or missing parts - affects nearly one percent of all babies born in the United States each year - upwards of 40,000 infants. Early in their lives these children often undergo multiple cardiovascular surgeries to repair their hearts, and have to be cared for by a cardiologist for the rest of their lives. In recent years treatments for these defects have saved the lives of thousands of children who once died in childhood. As more women with CHD survive into their childbearing years, new challenges have arisen: doctors must now assess their risk for

pregnancy-related complications and care for those issues throughout the pregnancy.

New research from the Perelman School of Medicine at the University of Pennsylvania reveals that women with CHD who are deemed high risk by conventional measures are more likely to have safe, healthy pregnancies than current risk-assessments suggest. Their findings will be presented at the American Heart Association Scientific Sessions 2016.

"Our findings are extremely promising for women with CHD who are entering their childrearing years, as we now know there is a better chance of a healthy, low-risk pregnancy," said the study's lead author, Yuli Kim, MD, director of the Philadelphia Adult Congenital Heart Center, a joint program between Penn Medicine and The Children's Hospital of Philadelphia, and an assistant professor of Medicine in the Perelman School of Medicine at the University of Pennsylvania. "With the tools currently used to evaluate risk, such as Pregnancy and Congenital Heart Disease (ZAHARA) and Cardiac Disease in Pregnancy (CARPREG) risk scores, clinicians have actually been over estimating the risk of complication for some of these women, which could be discouraging when making the decision to have children."

The researchers examined 186 women over 18 with CHD who had given birth between 1998 and 2014, and applied risk scores from CARPREG and ZAHARA, and assigned modified WHO criteria to each patient. Cardiac events, such as arrhythmia, heart failure, stroke, heart attack, cardiac arrest, or cardiac death, were assessed for up to six months after birth. There were 31 cardiac events - representing 17 percent of all pregnancies - but none of the women died. With the CARPREG model, the estimated risk versus observed adverse events differed greatly from 75 to 25 percent, and with ZAHARA, estimated risk was 70 percent and observed events were 38 percent.

The CARPREG study, a large prospective study across 13 centers in Canada, evaluated 599 pregnancies that ended in a live birth, to determine and validate a [risk score](#). One point was given to each of the five identified risk factors - including prior episodes of [heart](#) failure, stroke before pregnancy, or arrhythmias - and a cardiac event rate was calculated according to the total number accumulated. The other tool currently used, ZAHARA, comes from multicenter registry in the Netherlands and Belgium, which examined 1302 pregnancies in 714 women, which also ended in live birth. Eight [risk factors](#) were identified to predict cardiac complications during pregnancy, and ZAHARA assigned points from zero to 13 to each factor with a higher total equating to a higher risk of cardiac complication. Conversely, the modified WHO criteria assigned a risk score to the patient from one to four, based on the mother's level of underlying CHD, history of repair and clinical status.

"Risk assessment tools are very beneficial on a global scale, but the best way to evaluate patients and determine potential risk is to evaluate each patient on an individual level," Kim said. "The results from this study will certainly be helpful in reassuring woman with CHD that most patients in similar situations have successful pregnancy, especially if they are managed in a high-risk clinic."

She noted that additional research is needed in order to better identify higher risk patients, but that this data will be helpful in the clinical management of CHD patients who are navigating their pregnancy, allowing these women to follow a more standard care plan with their cardiologist and OB/GYN.

This study will be presented on Sunday, November 13, 2016 at 3:45 PM (CST) in the Science and Technology Hall-Special, Focus Section.

Provided by Perelman School of Medicine at the University of Pennsylvania

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