# [Planned vaginal delivery and cardiovascular morbidity in pregnant women with heart disease.](https://www.ncbi.nlm.nih.gov/pubmed/31310750)

Easter SR, Rouse CE, Duarte V, Hynes JS, Singh MN, Landzberg MJ, Valente AM, Economy KE.

Am J Obstet Gynecol. 2019 Jul 13. pii: S0002-9378(19)30903-2. doi: 10.1016/j.ajog.2019.07.019. [Epub ahead of print]

PMID: 31310750

[Similar articles](https://www.ncbi.nlm.nih.gov/pubmed?linkname=pubmed_pubmed&from_uid=31310750)

Select item 31302712

**Take Home Points:**

* There was no significant difference in cardiac complication rates in patients with planned Caesarean section versus planned vaginal delivery in pregnant women with heart disease.
* The highest risk patients (aortic stenosis, Marfan's) underwent planned Caesarean section or operative vaginal delivery.
* The complications rate was low across the board, so the study was statistically underpowered to detect a significant difference in cardiac complication rates between the two groups.



***Commentary from Dr. Helen Parry (Leeds UK), section editor of ACHD Journal Watch:*** It is generally accepted that Caesarean section in mothers with heart disease is usually only indicated for obstetric reasons. However, a third of mothers with cardiovascular disease end up having a Caesarean delivery. It is also unclear whether operative vaginal delivery, designed to reduce time spent performing the Valsalva manoeuvre, actually increases rather than reduces maternal morbidity.

This was a prospective study at a single centre in Boston where patents were categorised according to pathology: congenital heart disease, valvular heart disease, cardiomyopathy, connective tissue disorder or vascular disease. They were regarded as high risk if they had 1 or more of:

* NYHA>II
* resting saturation <90%
* left ventricular ejection fraction <40%
* peak gradient through LVOT >30mmHg
* sub-pulmonic ventricular ejection fraction <40%
* aortic conditions associated with connective tissue disease

Patients were looked after by a multi-disciplinary team. Vaginal delivery was generally encouraged and patients were divided according to planned delivery mode. The primary endpoint was the development of cardiovascular complications including congestive heart failure, sustained arrhythmia, stroke, worsening valve function, endocarditis, aortic dissection, need for cardiac intervention, cardiac arrest or death. This included complications occurring up to 6 weeks post-partum.

The study enrolled 276 expectant mothers who ultimately delivered a baby. 210 of these were planned vaginal deliveries (70% of these women had congenital heart disease), 66 planned Caesarean (these patients had a greater proportion of left ventricular outflow tract obstruction, 65% of these patients had congenital heart disease). Eighty-six per cent of the patients with planned vaginal delivery went on to deliver vaginally although 9.5% of those had operative vaginal deliveries as pushing was limited in these patients due to aortic stenosis or Marfan's. The remaining 14% of patients with planned vaginal delivery underwent Caesarean section for obstetric reasons. Rates of cardiac complications as defined above were similar between the 2 groups.

There were a number of study limitations including the small sample size of the planned Caesarean section group, the grouping together of all congenital heart disease and the single centre nature of the study raises questions about whether results are representative. The low cardiac complication rate in both groups means that the study was statistically under powered to detect a difference between the 2 groups.