



Children's Hospital Colorado

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Virtual Second Opinion

Specialist | Dr. Jeffrey Darst

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DR. JEFFREY DARST

Dr. Jeffrey Darst is double board certified in Pediatrics and Pediatric Cardiology with expertise in the treatment of congenital heart disease. He is widely respected for his experience with interventional heart catheterization and strives to support patients with somatic symptoms and health anxiety. Dr. Darst is trained in teaching self-hypnosis as a strategy to reduce pain and anxiety around real or perceived health conditions.

After receiving his medical degree from the University of Nebraska Medical Center, Dr. Darst completed an internship and a residency in Pediatrics at Oregon Health and Science University. He then completed a fellowship in Pediatric

Cardiology at the University of Colorado Health Sciences Center.

Currently, Dr. Darst serves as the Medical Director for three departments at Children's Hospital Colorado (CHCO), these include Outpatient Cardiology, Inpatient Cardiology Consult Service and the Heart Institute Wellness Program. He is an Associate Professor in the Department of Pediatrics-Cardiology at The University of Colorado School of Medicine.

Dr. Darst's research focuses on health anxiety, congenital heart disease, heart murmurs, palpitations, valve disease and pulmonary hypertension. He has studied and written several research publications and has been a part of many clinical trials relating to his specialty.

LANGUAGES SPOKEN	English
EDUCATION	MD, University of Nebraska Medical Center
RESIDENCIES	Pediatrics Oregon Health and Science University
FELLOWSHIPS	Pediatric Cardiology University of Colorado Health Sciences Center

MEDICAL HISTORY & CONSULT SUMMARY

Disclaimer: Be advised that this information is educational in nature only. Please speak with your treating provider prior to making any changes to your treatment plan. Below is a brief summary of our conversation.

Upon review of Cali Colorado's medical records, I agree that she has a patent ductus arteriosus (PDA). This is a normal blood vessel in a fetus that usually closes spontaneously. In some children it does not, and in her case that may be related to being born prematurely. At Cali's current age, there are four main considerations in evaluation of a PDA that help determine any effect on the heart. Those factors can help direct whether closure is required.

First is overall health. Cali Colorado seems to be doing quite well and without any obvious outward symptoms. She reportedly can keep up/surpass her peers and plays sports without difficulty. Her history of prematurity would get our attention for possible breathing issues, but since that seems well-controlled, it need not impact our decision-making today.

Second is the size of the PDA, which is small, based on the color Doppler on echo. Her local providers report that it is large enough to be heard (of which I cannot opine as I have not performed a physical assessment), which could suggest the size is not trivial however, the echo suggests a very narrowed PDA with a very small opening into the pulmonary artery.

Third and probably more important than the size is the pressure on the right side of the heart. Since the flow across the PDA is "restrictive" and there is a high velocity (>4 m/s) from the aorta to the pulmonary artery, we can tell that pressure on the right side of the heart is normal. The right heart muscle looks normal and cardiac function on the right is maintained in the normal range.

Fourth is the size of the left side of the heart. Cali Colorado's heart does not appear to be enlarged (I cannot measure it precisely, but the echocardiogram report also states the left heart measures normally). If there is enough flow through the PDA, which recycles through the left heart, the left heart may enlarge to accommodate all that extra flow. Since her heart is not enlarged on the left side, that suggests the flow through the PDA is modest, and that her heart "doesn't mind it" at all.

Determination of indication or timing of PDA closure involves a balance of risks. There is possible risk leaving the PDA alone. These includes low risk of endarteritis (infection of the blood vessels near the PDA) or the risk that the PDA has more effect on her heart than it seems (very unlikely) now or in the near future.

There is risk, though low in her age and size, to closing the PDA due to the need for sedation/anesthesia, along with insertion and manipulation of catheters inside her blood vessels which can cause injury. Infection is a very low risk. Movement/embolization of the device is a risk worth discussing, though this is also unlikely, and would be essentially impossible after the first few months following closure. I would put the overall risk of a procedure to close the PDA as equal to or slightly higher compared to the above risks given the consideration of the 4 factors listed above.

When considering all of these factors, I would be reluctant to recommend urgent surgical intervention. However, this should be followed over time as the current state may change. It is not unreasonable to consider transcatheter closure of the PDA, given her

prematurity history and risk of pulmonary hypertension due to a PDA, but I do not identify anything that would indicate an urgency to proceed, and there is no objective (or subjective) negative effect at this time that would require a procedure. If the decision with the local provider was made to move forward, they can speak with the local provider about waiting until a suitable time due to concerns about the timing.

If she undergoes the procedure, general recommendations are to protect the catheter entry site for about a week (no running, heavy lifting, etc). After that, she would likely not require any restrictions and would be allowed to exert herself fully but would be advised on by the local team. Some additional considerations to discuss with the local provider is that she would require antibiotics before dental work for 6 months following the procedure and should probably not get an elective MRI (no predictable reason to consider that one) for 6 months. Post closure follow-up should be discussed further with the local provider but generally, 1-2 years after PDA closure, if all is well, ongoing follow-up is not required in the absence of concerns.

Symptoms such as shortness of breath or activity intolerance would be worth prompt evaluation by the local provider. Fainting, palpitations, or chest pain with exercise (different from asthma symptoms) would be very unlikely but also worth a check-in with her providers.

Disclaimer: This educational consultation does not constitute a physician-patient relationship and is not intended as a solicitation of individuals to become patients or clients of the specialist. The Specialist may not be licensed to practice medicine in the family's state. No diagnosis, treatment, or prescription is being provided. The Specialist's information is not intended to suggest or recommend any particular diagnosis or form of treatment but to provide relevant information to be utilized with the family's treating care team about such family's diagnosis or treatment. The Specialist's recommended course of action may not be covered under your benefit plan. Please check benefit coverage with your healthcare provider before beginning care.

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If you would like to seek in person care, we'll help ensure a smooth transition of care. To schedule an in-person appointment at Children's Colorado, please contact your 2nd.MD nurse.

ABOUT CHILDREN'S HOSPITAL COLORADO

Children's Hospital Colorado is one of the nation's leading and most expansive nonprofit pediatric healthcare systems with a mission to improve the health of children through patient care, education, research, and advocacy. Founded in 1908 and recognized as a top 10 children's hospital by U.S. News & World Report, Children's Colorado has established itself as a pioneer in the discovery of innovative and groundbreaking treatments that are shaping the future of pediatric healthcare worldwide. Children's Colorado offers a full spectrum of family-centered care at its urgent, emergency and specialty care locations throughout Colorado, including an academic medical center on the Anschutz Medical Campus in Aurora, hospitals in Colorado Springs, Highlands Ranch and Broomfield, and outreach clinics across the region. For more information, visit www.childrenscolorado.org or connect with us on [Facebook](#), [Twitter](#), [Instagram](#) and [YouTube](#).



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