

## Pediatrics 2017 Annual Report – Division Highlights

### Cardiology

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#### DIVISION DESCRIPTION

The Division of Pediatric Cardiology and the Congenital Heart Program of the American Family Children's Hospital (AFCH) provide outstanding comprehensive care to children and adults with congenital disease throughout Wisconsin and the region.

Clinical specialties include diagnosis and management of pediatric and adult congenital heart disease, including care of fetuses and newborns with complex structural heart problems; noninvasive cardiac imaging; interventional catheterization; inherited arrhythmias and interventional electrophysiology; exercise physiology; and preventive cardiology. The division partners with pediatric cardiothoracic surgery and critical care services to provide complete surgical care for complex congenital heart disease.

National Institutes of Health-funded research investigates the biology of inherited cardiomyopathies and the use of newborn screening to identify congenital heart defects.

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#### 2017 HIGHLIGHTS

- In 2017, *U.S. News and World Report* ranked American Family Children's Hospital among the [top 50 children's hospitals for cardiology and heart surgery \(https://www.uwhealthkids.org/news-and-events/american-family-childrens-hospital-ranks-among-us-news-world-report-best-hospitals/51058\)](https://www.uwhealthkids.org/news-and-events/american-family-childrens-hospital-ranks-among-us-news-world-report-best-hospitals/51058).
- The Adult Congenital Heart Program, led by **Heather Bartlett, MD**, underwent review and site visit for pending accreditation by the Adult Congenital Heart Association.
- **Ann Dodge, APNP**, served as the chair of the American Heart Association Wisconsin Advocacy Committee. She helped to ensure that all 911 dispatchers can provide CPR guidance to callers, and training for all high school students in hands-only CPR.
- The first multidisciplinary pediatric pulmonary hypertension clinic at American Family Children's Hospital was launched by **Luke Lamers, MD**, and Vivek Balasubramaniam, MD.
- **Kathleen Maginot, MD**, was recognized with the department's Charles C. Lobeck Medical Education Award for Outstanding Teaching in Pediatrics.
- Division Chief **J. Carter Ralphe, MD**, received a [2017 UW Health Regional Services Physician Excellence Award \(link to YIR story on physician awards\)](#). Dr. Ralphe supported the growth of the regional clinical sites throughout Wisconsin and Illinois and has grown the division from six to 12 faculty.

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#### RECENT PUBLICATIONS

Barton GP, **de Lange WJ, Ralphe JC**, Aiken J, Diffie G. Linking metabolic and contractile dysfunction in aged cardiac myocytes. *Physiol Rep*. 2017 Nov;5(20). pii: e13485. doi: 10.14814/phy2.13485. Epub 2017 Oct 29. PubMed PMID: 29084842; PubMed Central PMCID: PMC5661240.

Chen X, Weber C, **Farrell ET**, Alvarado FJ, Zhao YT, Gómez AM, Valdivia HH. Sorcin ablation plus  $\beta$ -adrenergic stimulation generate an arrhythmogenic substrate in mouse ventricular myocytes. *J Mol Cell Cardiol*. 2017 Nov 22;114:199-210. doi: 10.1016/j.yjmcc.2017.11.017. [Epub ahead of print] PubMed PMID: 29174767. \*

DeSantes K, Dodge A, Eickhoff J, **Peterson AL**. Improving universal pediatric lipid screening. *J Pediatr*. 2017 Sep;188:87-90. doi: 10.1016/j.jpeds.2017.05.030. Epub 2017 Jun 5. PubMed PMID: 28595766.

Evans WN, Acherman RJ, Law IH, **Von Bergen NH**, Samson RA, Restrepo H. Neonatal complex arrhythmias possibly related to a TTN mutation. *J Neonatal Perinatal Med*. 2017;10(3):343-346. doi: 10.3233/NPM-16120. PubMed PMID: 28854511.

**Farrell ET**, Grimes AC, **de Lange WJ**, Armstrong AE, **Ralphe JC**. Increased postnatal cardiac hyperplasia precedes cardiomyocyte hypertrophy in a model of hypertrophic cardiomyopathy. *Front Physiol*. 2017 Jun 14;8:414. doi: 10.3389/fphys.2017.00414. eCollection 2017. PubMed PMID: 28659827; PubMed Central PMCID: PMC5470088.

**Hoyme DB**, Atkins DL. Implementing cardiopulmonary resuscitation training programs in high schools: Iowa's experience. *J Pediatr*. 2017 Feb;181:172-176.e3. doi: 10.1016/j.jpeds.2016.10.037. Epub 2016 Nov 14. PubMed PMID: 27852456; PubMed Central PMCID: PMC5462447.

**Hoyme DB**, Atkins DL. Reply. *J Pediatr*. 2017 Nov;190:292. doi: 10.1016/j.jpeds.2017.07.032. PubMed PMID: 29144262.

**Hoyme DB**, Patel SS, Samson RA, Raymond TT, Nadkarni VM, Gaies MG, Atkins DL; American Heart Association Get With the Guidelines–Resuscitation Investigators. Epinephrine dosing interval and survival outcomes during pediatric in-hospital cardiac arrest. *Resuscitation*. 2017 Aug;117:18-23. doi:10.1016/j.resuscitation.2017.05.023. Epub 2017 May 25. PubMed PMID: 28552658.

Lu JC, Bansal M, Behera SK, Boris JR, Cardis B, **Hokanson JS**, Kakavand B, Jedeikin R. Development of quality metrics for ambulatory pediatric cardiology: Chest pain. *Congenit Heart Dis*. 2017 Dec;12(6):751-755. doi: 10.1111/chd.12509. Epub 2017 Jun 27. Review. PubMed PMID: 28653469.

McClain MR, **Hokanson JS**, Grazel R, Van Naarden Braun K, Garg LF, Morris MR, Moline K, Urquhart K, Nance A, Randall H, Sontag MK. Critical congenital heart disease newborn screening implementation: Lessons learned. *Matern Child Health J*. 2017 Jun;21(6):1240-1249. doi: 10.1007/s10995-017-2273-4. Erratum in: *Matern Child Health J*. 2017 Jul;21(7):1590. PubMed PMID: 28092064.

Papagiannis J, Beissel DJ, Krause U, Cabrera M, Telishevska M, Seslar S, Johnsrude C, Anderson C, Tisma-Dupanovic S, Connelly D, Avramidis D, Carter C, Kornyei L, Law I, **Von Bergen N**, Janusek J, Silva J, Rosenthal E, Willcox M, Kubus P, Hessling G, Paul T; Pediatric and Congenital Electrophysiology Society. Atrioventricular nodal reentrant tachycardia in patients with congenital heart disease: Outcome after catheter ablation. *Circ Arrhythm Electrophysiol*. 2017 Jul;10(7). pii: e004869. doi: 10.1161/CIRCEP.116.004869. Epub 2017 Jul 7. PubMed PMID: 28687669.

Pierick AR, Law IH, Muldonado JR, **Von Bergen NH**. Junctional ectopic tachycardia localization and procedural approach using cryoablation. *Pacing Clin Electrophysiol*. 2017 Jun;40(6):655-660. doi: 10.1111/pace.13022. Epub 2017 Feb 14. PubMed PMID: 28097671.

Roston TM, Yuchi Z, Kannankeril PJ, Hathaway J, Vinocur JM, Etheridge SP, Potts JE, **Maginot KR**, Salerno JC, Cohen MI, Hamilton RM, Pflaumer A, Mohammed S, Kimlicka L, Kanter RJ, LaPage MJ, Collins KK, Gebauer RA, Temple JD, Batra AS, Erickson C, Miszczak-Knecht M, Kubuš P, Bar-Cohen Y, Kantoch M, Thomas VC, Hessling G, Anderson C, Young ML, Choi SHJ, Cabrera Ortega M, Lau YR, Johnsrude CL, Fournier A, Van Petegem F, Sanatani S. The clinical and genetic spectrum of catecholaminergic polymorphic ventricular tachycardia: findings from an international multicentre registry. *Europace*. 2017 Jan 31. doi: 10.1093/europace/euw389. [Epub ahead of print] PubMed PMID: 28158428. \*

Thomas MJ, **Bartlett HL**, Bassetti MF, Lubner SJ, Kirvassilis G, Anagnostopoulos PV, Maloney JD, Macke RA. Minimally invasive esophagectomy in a patient with Tetralogy of Fallot and right-sided aortic arch. *Ann Thorac Surg.* 2017 Jan;103(1):e77-e79. doi: 10.1016/j.athoracsur.2016.06.092. PubMed PMID: 28007281.

Van Aartsen A, Law IH, Maldonado JR, **Von Bergen NH**. Propagation mapping wave collision correlates to the site of successful ablation during voltage mapping in atrioventricular nodal reentry tachycardia. *J Innovat Cardiac Rhythm Manag.* 2017;8:2836-2842. doi: 10.19102/icrm.2017.080905.

Van Ert HA, McCune EC, Orland KM, **Maginot KR, Von Bergen NH**, January CT, Eckhardt LL. Flecainide treats a novel KCNJ2 mutation associated with Andersen-Tawil syndrome. *HeartRhythm Case Rep.* 2016 Dec 9;3(2):151-154. doi: 10.1016/j.hrcr.2016.11.009. eCollection 2017 Feb. PubMed PMID: 28491792; PubMed Central PMCID: PMC5420046.

Wightman A, **Bartlett HL**, Zhao Q, Smith JM. Prevalence and outcomes of heart transplantation in children with intellectual disability. *Pediatr Transplant.* 2017 Mar;21(2). doi: 10.1111/petr.12839. Epub 2016 Nov 1. PubMed PMID: 27801533. \*\*

*\*ePub only; no print citation available when report was compiled*

*\*\* Publication had previously appeared in 2016 report as an ePub*

## GRANT SUPPORT

Faculty/Role	Funding Agency	Title
Hokanson, John S (PI)	Wisconsin Dept of Health Services	SHINE
Lamers, Luke J (PI)	UWHC - Affiliation Agreement	Assessment of early vs. delayed catheter intervention for the management of pulmonary artery stenosis
Lamers, Luke J (co-I) with Eldridge, Marlowe (PI)	DHHS, PHS, National Institutes of Health	Right heart-pulmonary vascular interactions in bronchopulmonary dysplasia
Peterson, Amy L H (PI)	WPP	Improved diagnosis of pediatric familial hypercholesterolemia through the Wisconsin pediatric lipid consortium
Peterson, Amy L H (PI)	Duke University	The familial hypercholesterolemia foundation CASCADE-FH registry
Ralphe, John Carter (PI)	DHHS, PHS, National Institutes of Health	Murine 3D engineered tissue model of human MYBPC3 mutations
Ralphe, John Carter (PI)	DHHS, PHS, National Institutes of Health	The role of the C3 domain of myosin binding protein-C in the pathogenesis of hypertrophic cardiomyopathy
Srinivasan, Shardha (co-I) with Wakai, Ronald (PI)	DHHS, PHS, National Institutes of Health	Optimized measurement and signal processing of fetal MCG
Von Bergen, Nicholas H (PI)	Washington University	Recovery time and patient satisfaction in pediatric patients following implantable loop recorder implant: LINQ vs. REVEAL
Von Bergen, Nicholas H (PI)	Hospital for Sick Children	Defibrillation testing at the time of cardioverter defibrillation implantation in

		pediatric and congenital heart disease patients
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