

CURRICULUM VITAE

Joshua Kovach MD

Associate Professor
Department of Pediatrics
Division of Cardiology
Medical Director, Exercise Stress Lab and Cardiographics

OFFICE ADDRESS:

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EDUCATION:

09/1995 - 12/1999 BA, University of Minnesota - Morris, Morris, MN
08/2000 - 05/2004 MD, University of Minnesota, Minneapolis, MN

POSTGRADUATE TRAINING AND FELLOWSHIP APPOINTMENTS:

06/25/2004 - 06/31/2007 Resident, Pediatrics, Oregon Health & Science University, 3181 S.W. Sam Jackson Park Rd., Portland, OR 97239
07/01/2008 - 06/31/2011 Fellow, Pediatrics, Cardiology, Medical College of Wisconsin, 9000 W. Wisconsin Ave, MS 713, Milwaukee, WI 53226
07/01/2011 - 06/30/2012 Fellow, Cardiology, Electrophysiology, Boston Children's Hospital, 300 Longwood Ave, Boston, MA 02115

FACULTY APPOINTMENTS:

07/01/2007 - 06/31/2008 Instructor/Chief Resident, Pediatrics, Oregon Health & Science University, 3181 S.W. Sam Jackson Park Rd., Portland, OR 97239
08/11/2012 - Present Assistant Professor, Pediatrics, Cardiology, Medical College of Wisconsin, 9000 W. Wisconsin Ave, MS 713, Milwaukee, WI 53226

HOSPITAL AND CLINICAL ADMINISTRATIVE APPOINTMENTS:

11/2014 - Present Medical Director - Exercise Stress Lab and Cardiographics, Pediatrics, Cardiology, Children's Hospital of Wisconsin, 9000 W. Wisconsin Ave, MS 713, Milwaukee, WI 53226

HOSPITAL STAFF PRIVILEGES:

07/01/2007 - 06/30/2008 Instructor, Pediatrics, Pediatrics, Oregon Health & Science University, 3181 S.W. Sam Jackson Park Rd., Portland, OR 97239
11/01/2007 - 06/31/2008 Instructor, Pediatrics, Pediatrics, Legacy Emanuel Hospital, 2801 N Gantenbein Ave, Portland, OR 97227
08/01/2012 - Present Assistant Professor, Pediatrics, Cardiology, Froedtert and Medical College of Wisconsin, 9200 W Wisconsin Ave, Milwaukee, WI 53226
08/01/2012 - Present Assistant Professor, Pediatrics, Cardiology, Children's Hospital of Wisconsin, 9000 W. Wisconsin Ave, MS 713, Milwaukee, WI 53226

SPECIALTY BOARDS AND CERTIFICATION:

<u>Board Certified</u>	<u>Issue Date</u>	<u>Expiration</u>
Pediatrics	2007	2014
Pediatric Cardiology	2012	2022

Certified Electrophysiology 12/07/2016 12/31/2026
Specialist - Pediatric
Cardiology

<u>Certificates</u>	<u>Issued By</u>	<u>Issue Date</u>	<u>Expiration</u>
ACLS	American Heart Association	2017	2019
PALS	American Heart Association	2018	2020
BLS	American Heart Association	2018	2020

<u>Licensure</u>	<u>Number</u>	<u>Issue Date</u>	<u>Expiration</u>
Oregon Medical Board	MD27665	06/2004	07/01/2008
State of Wisconsin - MD	51919-20	07/01/2008	10/31/2019

AWARDS AND HONORS:

- 06/2015 Pediatric Cardiology Fellow Teaching Award, Children's Hospital of Wisconsin
- 06/2017 Outstanding Performance Child and Family Experience, Children's Hospital of Wisconsin
- 09/2009 Young Investigator Award, Astellas
- 06/2010 Outstanding Teacher Among the Pediatric Fellows, Children's Hospital of Wisconsin

MEMBERSHIPS IN HONORARY AND PROFESSIONAL SOCIETIES:

- 08/2002 - 12/2015 American Academy of Pediatrics (Fellow)
- 07/2008 - Present American College of Cardiology (Member)
- 09/2010 - Present Heart Rhythm Society (Member)
- 05/2011 - Present Pediatric and Congenital Electrophysiology Society (Member)
- 10/2016 - Present American Heart Association (Professional Member)

EDITORSHIPS/EDITORIAL BOARDS/JOURNAL REVIEWS:

- Journal Review
 - 08/2012 - Present Pediatric Cardiology
 - 08/2018 - Present Cardiology in the Young
- Ad-Hoc Reviewer
 - 11/2018 - Present Manuscript Review, Cellular and Molecular Life Sciences

LOCAL/REGIONAL APPOINTED LEADERSHIP AND COMMITTEE POSITIONS:

- 09/2014 - Present Chair, Advanced Review Team - SDY registry, Children's Health Alliance

NATIONAL ELECTED/APPOINTED LEADERSHIP AND COMMITTEE POSITIONS:

- 01/09/2014 - Present Member, Normal ECG Project Study Committee, Pediatric Heart Network
- 01/31/2017 - Present Member, Sudden Death Task Force, Pediatric and Congenital EP Society

INVITED LECTURES/WORKSHOPS/PRESENTATIONS:

Local

- Kovach, JR, Cardiology Board Review, Pediatric Board Review, Children's Hospital of Wisconsin, 2010 - 2016
- Kovach JR, Exercise Related Symptoms - Asthma or not?, Allergy and Immunology Grand Rounds, Children's Hospital of Wisconsin, Milwaukee, WI, - 07/27/2018

Regional

- Kovach, JR, Auscultation of Heart Murmurs, Best Practices in Pediatrics, Wisconsin Dells, 2013 - 2014
- Kovach, JR, Sell the Stroller - Encouraging safe physical activity in patients with congenital heart disease, Blank Children's Hospital Grand Rounds, Blank Children's Hospital, Des Moines, IA, - 11/08/2018

Kovach JR, Cardiac Syncope: When to Worry, Functional Autonomic Disorders Workshop Part II, Children's Hospital of Wisconsin, - 06/02/2017

National

Kovach JR, Steppin' It Up - A home exercise program for children with heart disease, Cincinnati Clinical Exercise Testing and Therapeutics Symposium 2018, Cincinnati, OH, 03/02/2018 - 03/03/2018

Kovach JR, Arrhythmia Manifestations and Management in Patients with ccTGA, The Heart Summit - Congenitally-corrected Transposition of the Great Arteries, Children's Hospital of Wisconsin, Milwaukee, WI, - 10/05/2017

PEER REVIEWED WORKSHOPS/PRESENTATIONS:

National

Wittekind SG, Kovach JR, Curran T, Mays WA, Exercise Testing, Physical Activity, and Cardiac Rehabilitation in Pediatric Heart Disease: A Moving Target, 33rd Annual American Association of Cardiovascular and Pulmonary Rehabilitation Meeting, Louisville, KY, 09/12/2018 - 09/15/2018

International

Kovach JR, Blume ED, Naftel DC, Pearce FB, Tresler-Foushee M, Edens RE, Shuhaiber JH, Fynn-Thompson F, Kirklin JK, Zangwill SD, Comparison of Risk Factors and Outcomes for Pediatric Patients Listed for Heart Transplantation after Bidirectional Glenn and after Fontan: A Multi- Institutional Study, International Society for Heart and Lung Transplantation Scientific Sessions 2010, Chicago, IL, 04/22/2010

Kovach JR, Alexander ME, Cecchin F, Triedman JK, Walsh EP, Outcomes of catheter ablation for anteroseptal and midseptal accessory pathways, Heart Rhythm Society Scientific Sessions 2012, Boston, MA, 05/10/2012

COMMITTEE SERVICE:

Medical College of Wisconsin

2014 - Present Member, Cardiology Fellow Clinical Competency Committee, Cardiology, Pediatrics, Medical College of Wisconsin

2014 - Present Member, Intern Selection Committee, Pediatrics, Pediatrics, Medical College of Wisconsin

MEDICAL COLLEGE TEACHING ACTIVITIES:

Medical Student Education

2016 - Present Pediatric Rotation H&P Reviewer

EXTRAMURAL TEACHING:

Community/Lay Public

2012 - Present Children's Hospital of Wisconsin, Lecture - Arrhythmias in the PICU, RN Orientation

2014 Children's Hospital of Wisconsin, Lecture - ECG Interpretation, RN Ed Day

2017 Children's Hospital of Wisconsin, Lecture - ST Segment Changes, RN Ed Day

- 05/26/2016 Children's Hospital of Wisconsin, Wisconsin Adult Congenital Heart Program Patient Education - Cardiac Implantable Devices in Adults with Congenital Heart Disease

Resident and Fellow Education

2011 - Present Children's Hospital of Wisconsin, Biannual Pediatric Resident Lecture - Acquired Heart Disease

2012 - Present Children's Hospital of Wisconsin, Cardiology Fellow EP Tea Rounds

2012 - Present Children's Hospital of Wisconsin, Cardiology Fellow EP Lecture Curriculum

2014 - Present Children's Hospital of Wisconsin, Biannual PICU Fellow Lecture - Antiarrhythmics in the PICU

2017 - Present Children's Hospital of Wisconsin, Annual NICU Fellow Lecture - Arrhythmia Management in the NICU

2017 - Present Pediatric Cardiology Fellow Exercise Cardiology Curriculum
2017 - Present Children's Hospital of Wisconsin, Biannual PICU Fellow Lecture - Electrophysiology Basics in the PICU

PROGRAMMATIC DEVELOPMENTS:

Clinical Programs

07/01/2015 - Present Steppin' It Up Cardiac Physical Activity and Rehab Program
11/01/2016 - Present Tetralogy of Fallot SCAMP Development
08/2018 - Present Exercise as a Vital Sign Quality Improvement Project

COMMUNITY SERVICE ACTIVITIES:

2013 - Present Project ADAM Board Member

BIBLIOGRAPHY

Refereed Journal Publications/Original Papers

1. Kovach J, Ibsen L, Womack M, Steusse D, Law YM. Treatment of refractory pulmonary arterial hypertension with inhaled epoprostenol in an infant with congenital heart disease. *Congenit Heart Dis.* 2007;2(3):194-8.
2. Kovach JR, Naftel DC, Pearce FB, Tresler MA, Edens RE, Shuhaiber JH, Blume ED, Fynn-Thompson F, Kirklin JK, Zangwill SD. Comparison of risk factors and outcomes for pediatric patients listed for heart transplantation after bidirectional Glenn and after Fontan: an analysis from the Pediatric Heart Transplant Study. *J Heart Lung Transplant.* 2012 Feb;31(2):133-9.
3. Loomba RS, Singh AK, Kovach J, Gudausky TM. Lacosamide-induced atrial tachycardia in a child with hypoplastic left-heart syndrome: the importance of assessing additional proarrhythmic risks. *Cardiol Young.* 2015 Apr;25(4):806-9.
4. Correa R, Sherwin ED, Kovach J, Mah DY, Alexander ME, Cecchin F, Walsh EP, Triedman JK, Abrams DJ. Mechanism and ablation of arrhythmia following total cavopulmonary connection. *Circ Arrhythm Electrophysiol.* 2015 Apr;8(2):318-25.
5. Loomba RS, Willes RJ, Kovach JR, Anderson RH. Chronic Arrhythmias in the Setting of Heterotaxy: Differences between Right and Left Isomerism. *Congenit Heart Dis.* 2016;11(1):7-18.
6. Dalal A, Czosek RJ, Kovach J, von Alvensleben JC, Valdes S, Etheridge SP, Ackerman MJ, Auld D, Huckaby J, McCracken C, Campbell R. Clinical Presentation of Pediatric Patients at Risk for Sudden Cardiac Arrest. *J Pediatr.* 2016 Aug 5
7. Loomba RS, Danduran M, Nielsen KG, Ring AM, Kovach J, Anderson RH. Cardiopulmonary Exercise Testing in Fontan Patients With and Without Isomerism (Heterotaxy) as Compared to Patients With Primary Ciliary Dyskinesia and Subjects With Structurally Normal Hearts. *Pediatr Cardiol.* 2017 Feb;38(2):410-417.
8. Loomba RS, Buelow MW, Aggarwal S, Arora RR, Kovach J, Ginde S. Arrhythmias in Adults with Congenital Heart Disease: What Are Risk Factors for Specific Arrhythmias? *Pacing Clin Electrophysiol.* 2017 Apr;40(4):353-361.
9. Hill GD, Kovach JR, Saudek DE, Singh AK, Wehrheim K, Frommelt MA. Transplacental treatment of fetal tachycardia: a systematic review and meta-analysis. *Prenat Diagn* 2017 Aug 22 PMID: 28833310 08/24/2017
10. Spearman AD, Loomba RS, Danduran M, Kovach J. Intrauterine growth restriction is not associated with decreased exercise capacity in adolescents with congenital heart disease. *Congenit Heart Dis.* 2018 May;13(3):369-376.
11. Birkey T, Dixon J, Jacobsen R, Ginde S, Nugent M, Yan K, Simpson P, Kovach J. Cardiopulmonary Exercise Testing for Surgical Risk Stratification in Adults with Congenital Heart Disease. *Pediatr Cardiol.* 2018 Oct;39(7):1468-1475.
12. Saarel EV, Granger S, Kaltman JR, Minich LL, Tristani-Firouzi M, Kim JJ, Ash K, Tsao SS, Berul CI,

Stephenson EA, Gamboa DG, Trachtenberg F, Fischbach P, Vetter VL, Czosek RJ, Johnson TR, Salerno JC, Cain NB, Pass RH, Zeltser I, Silver ES, Kovach JR, Alexander ME, Pediatric Heart Network Investigators*. Electrocardiograms in Healthy North American Children in the Digital Age. *Circ Arrhythm Electrophysiol*. 2018 Jul;11(7):e005808. PMID: PMC6034977

Books, Chapters, and Reviews

1. Kovach J, Berger S. Automated external defibrillators and secondary prevention of sudden cardiac death among children and adolescents. *Pediatr Cardiol*. 2012 Mar;33(3):402-6.
2. Kovach, J and Berger, S, 2013. Chapter 217: Assessment of the athlete for sports participation. *Pediatric and Congenital Cardiology, Cardiac Surgery and Intensive Care*. Springer-Vorlag, London.
3. JR Kovach, DW Benson. Conduction disorders and Nav1.5 Cardiac Electrophysiol Clin. 2014 6(4): 723-732
4. Singh NM, Loomba RS, Kovach JR, Kindel SJ. Chronotropic incompetence in paediatric heart transplant recipients with prior congenital heart disease. *Cardiol Young*. 2019 May;29(5):667-671.
5. Knight LM, Miller E, Kovach J, Arscott P, von Alvensleben JC, Bradley D, Valdes SO, Ware SM, Meyers L, Travers CD, Campbell RM, Etheridge SP. Genetic testing and cascade screening in pediatric long QT syndrome and hypertrophic cardiomyopathy. *Heart Rhythm*. 2020 Jan;17(1):106-112.
6. Kovach JR, Mah DY, Abrams DJ, Alexander ME, Cecchin F, Triedman JK, Walsh EP. Outcomes of catheter ablation of anteroseptal and midseptal accessory pathways in pediatric patients. *Heart Rhythm*. 2020 May;17(5 Pt A):759-767.
7. Samyn MM, Gudausky TM, Kovach JR, Woods RK. Cardiac arrest in a healthy child due to paradoxical embolus across a previously unrecognised sinus venosus defect. *BMJ Case Rep*. 2019 Dec 05;12(12). PMID: PMC6904181
8. Kovach J, Berger S. Assessment of the athlete for sports participation *Pediatric and Congenital Cardiology, Cardiac Surgery and Intensive Care*. 1 January 2014:327-338.
9. Bireley M, Kovach JR, Morton C, Cava JR, Pan AY, Nugent M, Samyn MM. Cardiac Magnetic Resonance Imaging (MRI) in Children is Safe with Most Pacemaker Systems, Including Those with Epicardial Leads. *Pediatr Cardiol*. 2020 Apr;41(4):801-808.
10. Friedman SD, Kovach JR, Thompson NE. Methadone's Effect on Cardiac Repolarization: Safety in the PICU. *Pediatr Crit Care Med*. 2020 Sep;21(9):e747-e751.
11. Kroll KH, Kovach JR, Ginde S, Jacobsen RM, Danduran M, Foster A, Brosig CL. Impact of a paediatric cardiac rehabilitation programme upon patient quality of life. *Cardiol Young*. 2021 May;31(5):804-811.
12. Pook C, Kuhn E, Singh A, Kovach J. Contact force ablation of accessory pathways in pediatric patients. *J Cardiovasc Electrophysiol*. 2021 Feb;32(2):370-375.
13. Kallas D, Roston TM, Franciosi S, Brett L, Lieve KVV, Kwok SY, Kannankeril PJ, Krahn AD, LaPage MJ, Etheridge S, Hill A, Johnsrude C, Perry J, Knight L, Fischbach P, Balaji S, Tisma-Dupanovic S, Law I, Atallah J, Backhoff D, Kamp A, Kubus P, Kean A, Aziz PF, Kovach J, Lau Y, Kron J, Clur SA, Sarquella-Brugada G, Wilde AAM, Sanatani S. Evaluation of age at symptom onset, proband status, and sex as predictors of disease severity in pediatric catecholaminergic polymorphic ventricular tachycardia. *Heart Rhythm*. 2021 Nov;18(11):1825-1832.

Abstracts

1. Knight L, Miller E, Ware S, Kovach J, Arscott P, von Alvensleben JC, Valdez S, Meyers L, Auld D, Huckaby J, Campbell R, Etheridge SP. Success and barriers to cascade screening for pediatric inherited cardiac disorders. *Heart Rhythm*, 2015; 12(5S): S90 (AB39-03)
2. Creighton SE, Kovach J, Danduran M, Moker A, Dixon J, Simpson P. Normative values for pediatric patients undergoing the Bruce protocol in the modern era. *J Am Coll Cardiol*. 2016;67(13_S):958
3. Singh NM, Kovach JR, Gudausky TM, Kouretas PC, Woods RK, Samyn MM. Cardiac magnetic resonance imaging aids diagnosis for cardiac arrest in a previously healthy child. Society of Cardiac Magnetic Resonance 20th Annual Scientific Sessions, February, 2017
4. Jacobsen RM, Danduran M, Ginde S, Brosig C, Shields A, Dixon J, Moker A, Hill G, Kovach J. Outcomes of a multidisciplinary physical activity clinic for children and adolescents with congenital heart disease. *Cardiology 2017:20th Annual Update on Pediatric and Congenital Cardiovascular Disease*. February, 2017
5. Birkey TL, Dixon JE, Jacobsen R, Simpson P, Nugent M, Yan K, Ginde S, Kovach J. Cardiopulmonary Exercise Testing for Surgical Risk Stratification in Adults With Congenital Heart Disease. American College of Cardiology 66th Annual Scientific Sessions, March 2017

6. Pook CN, Singh AK, Kovach JR. Contact force for catheter ablation of accessory pathways in pediatric patients. Midwest Pediatric Cardiology Society Annual Meeting, September, 2018
7. Bireley M, Kovach JR, Morton CS, Pan AY, Nugent M, Samyn MM. Are pacemakers altered by magnetic resonance imagin? Midwest Pediatric Cardiology Society Annual Meeting, September, 2018