

CURRICULUM VITAE

ANTONIOS P VLAHOS, MD, PhD
Pediatric Cardiologist

*Associate Professor in Pediatric Cardiology
University of Ioannina*

June 2018

I. PERSONAL INFORMATION

NAME: ANTONIOS
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PLACE-YEAR OF BIRTH: IOANNINA, 1969
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II. MEDICAL EDUCATION

1. Graduate training

UNIVERSITY OF IOANNINA

December 1993: Graduation “Excellent” (ie with Honors)

2. Postgraduate training

March 1994 - May 1995: Military Service (mandatory). During military service I was occupied at the 406 General Military Hospital with full clinical responsibilities including on call service.

November 1995 – January 1997: “Rural” Medical Service. I was functioning as primary care physician in a rural area of Kefalovriso with participation at the on call rotation at the Delvinaki Medical Center from 11/1995 to 1/1997. During that time I was also occupied at the rotation of the Nephrology Inpatient Ward of the “Hatzikosta” General Hospital of Ioannina including the on call shedule.

3. Residency training

July 1997 – June 2000: Pediatric Residency training at Beth Israel Medical Center, Albert Einstein School of Medicine, New York, USA. After passing the USMLE Step1 and Step 2 administered by the ECFMG I held a full position as a Pediatric Resident at the above mentioned hospital and training program. Because of my special interest I followed an elective in Pediatric Cardiology at the Mount Sinai Medical Center since it was one of referral centers for congenital heart diseases.

4. Fellowship training

July 2000 – June 2003: Fellowship in Pediatric Cardiology, Boston Children’s Hospital, Harvard Medical School, Boston, USA.

The specific program is well know as one of the best in the world and a major international referral center. The program offers high level training a. Echocardiography-Cardiac Imaging Lab. During this rotation I participated in the performance and interpretation of transthoracic, transesophageal, fetal and 3D imaging studies. I also participated at the interpretation of cardiac mangetic resonance imaging, b. Cardiac catheterization lab where I was trained in diagnostic and interventional catheterization in children and adults with congenital heart disease, c) Clinical Pediatric Cardiology where I was trained in providing assessment and consultation in children with congenital heart disease. As part of the wards rotation I

had the chance to provide care in inpatients and postoperative pediatric patients, d. Electrophysiology Lab where I was trained in invasive and noninvasive management of simple as well as complex heart rhythm abnormalities in children and young adults with congenital heart disease. Part of this training was also Holter readings, tilt test assessment, transesophageal pacing, antiarrhythmic medications and ablation techniques, e. Cardiac Intensive Card Unit where I was trained in the assessment and management of patients with various cardiac abnormalities, postoperative patient, use of ECMO and bedside cardiac pacing f. Adult Congenital Heart Disease where as an elective I participated in the care of adults with congenital heart disease in conjunction with the team at the Brigham and Women's Hospital, g. Cardiac Transplantation Program where I had the chance to follow the assessment and care of pre-transplant and post-transplant patients, h. Fetal Interventions where I had the chance to follow with the team the first fetal cardiac interventions

June 2003 – June 2004: Senior Fellowship (advance training) in Pediatric Cardiology Imaging: Echocardiography, Cardiac MRI, Lucile Packard Children's Hospital, Stanford Medical School, Palo Alto, California, USA. As a Senior Fellow I had the chance to perform and interpret high level imaging studies with the latest technology. During my Senior Fellowship I continued to participate at the clinical pediatric cardiology service in cardiology wards and Cardiac ICU services. I also had the chance to participate in the Pulmonary Hypertension Program with specific interest in noninvasive assessment.

III. DIPLOMAS - CERTIFICATES

December 1993: Medical School Diploma, «Cum Laude»

January 1994: Medical License, Ioannina Medical Association

June 2000: Certificate of successful training completion in Pediatrics, Beth Israel Medical Center, Albert Einstein University.

July 2000: Limited license to practice medicine, Massachusetts Medical Board.

June 2003: Certificate of successful completion of training in Pediatric Cardiology, Boston Children's Hospital, Harvard University.

September 2003: Unlimited Certificate from ECFMG after successful completion of USMLE Step 3.

September 2003: Full unrestricted license to practice medicine, California Medical Board.

October 2003: Diploma, American Board of Pediatrics

September 2004: Diploma in Pediatrics, Greece

March 2005: PhD, «Cum Laude»

IV. MEDICAL ASSOCIATION MEMBERSHIP

2000 Member, American College of Cardiology.

2005 Member Hellenic Cardiological Society

2009 Member Hellenic Atherosclerosis Society

2010 Member Hellenic Society of Pulmonary Hypertension

2014 Member European Association for Pediatric Cardiology

V. CLINICAL WORK - ORGANIZATION

1. Before Specialty Training

March 1994 – May 1995: Military Service

November 1995 – January 1997: Rural Medical Service.

2. After Specialty Training

November 2004 – September 2006: Special Pediatric Associate and Associate Lecturer, Pediatric and Cardiology Services, University Hospital of Ioannina, Greece. During that time I was providing consultations regarding pediatric cardiology and was performing cardiac imaging in inpatient and outpatient pediatrics and at the Neonatal Intensive Care Unit. I was also actively participating in the performance of tilt table test in children and adolescents.

October 2006: Elected as a Lecturer in Pediatric Cardiology, University of Ioannina

September 2007: Appointed as Lecturer in Pediatric Cardiology, University of Ioannina

As a Lecturer I started the organization and application of specialized clinical services in pediatric cardiology. The following sections were developed: 1) Pediatric Cardiology Outpatient Clinic where an appropriate echocardiography machine was acquired. With the capability apart from clinical evaluation to perform full echocardiographic assessments for neonates to young adults a total of 6500 patients were assessed during that time. 2) an electronic pediatric cardiology Registry was

organized. The Registry started as a project at the Michaelidion Cardiological Center, University of Ioannina and continued at the Pediatric Cardiology Service 3) Development of noninvasive pediatric electrophysiology lab. In close collaboration with Professor Kolettis (Cardiology) tilt table test with or without pharmacological augmentation, Holter monitoring, late potentials, and pharmacologic provocation tests were developed in children. Genetic testing for specific conditions is also available. 4) A specialized Preventive Pediatric Cardiology – Lipid Clinic is available since 1/2/2009 as a separate Service. This was organized in collaboration with Associate Professor Milionis (Internal Medicine). A comprehensive evaluation and intervention is offered in children and their families with significant lipid abnormalities and increased cardiovascular risk. Pediatric patients are started on medications when indicated and monitored closely. Genetic testing is offered in these children and their families. An electronic Registry was developed 5) Fetal cardiology. With the acquisition of the appropriated transducer fetal cardiology program was initiated in collaboration with the Obstetrics and Gynecology Department. 6) with the acquisition of a second echocardiographic machine a full bedside assessment is provided in the Neonatal Intensive Care Unit.

March 2012: Elected Assistant Professor in Pediatric Cardiology, University of Ioannina

April 2012 to present: Since April 2012 after appointed as an Assistant Professro all previous services where further enhanced.

1) Cardiac Imaging. A new echocardiographic machine of the latest technology was acquired. This was a kind donation from the Greek American Community in Boston, Massachusetts and Hellenic Cardiac Fund. This allows a high-quality imaging in the whole spectrum of ages and somatic habitus. Furthermore, it is now available to perform 3D cardiac imaging (full volume και live 3D) for the complete assessment of the cardiac structures. It also provides functional information in challenging structures such as the right ventricle or the postoperative congenital heart disease. A special transducer provides the ability to perform fetal echocardiography and prenatal diagnosis of congenital heart disease not only at the usual gestational age but also as an early prenatal diagnosis. Another special transducer was also acquired with the ability to perform vascular imaging and endothelial assessment. Endothelial anatomical and functional indices are used as surrogate markers for cardiovascular risk assessment in specific pediatric populations. The inpatient bedside assessment

was further enhanced with the acquisition of an updated echocardiographic machine for neonatal use. **2)** The Registry was further organized and enhanced reaching now 15000 patients. Since the University of Ioannina is a referral center for the evaluation of the greater NW area of Greece a good epidemiological assessment of the whole area is expected **3)** Non-invasive electrophysiology service. It continues to provide full assessment of children with loss of consciousness, near-syncope or episodes of dizziness. Tilt table testing, Holter monitoring, late potentials, pharmacological provocation studies and consultation is offered. The service is in close collaboration with Professor Kolettis (Cardiology) **4)** The Preventive Cardiology-Lipid Clinic continues to offer services in children and their families with increased cardiovascular risk. Apart from pharmacological management and monitoring as well as genetic testing the Clinic has now the ability to provide endothelial assessment (anatomical and functional) as a surrogate marker of risk assessment. The service is in close collaboration with Associate Professor Milionis (Internal Medicine) **5)** The fetal cardiology program is now fully developed and prenatal diagnosis is offered even in early pregnancy as mentioned above. The service is in collaboration with the Obstetrics and Gynecology Department.

VI. EDUCATIONAL ACTIVITIES

July 1997 – June 2000: Resident in Pediatrics, Beth Israel Medical Center, New York. Teaching in theory and practical procedures to junior colleagues and medical students.

July 2000 – June 2003: Fellow in Pediatric Cardiology, Children's Hospital, Boston, Harvard Medical School. Teaching to junior colleagues and medical students as well as medical student visitors. Teaching and training in mock codes for mastering advances resuscitation techniques.

July 2003 – June 2004: Senior Fellow in Pediatric Cardiology, Lucile Packard Children's Hospital, Palo Alto, Stanford Medical School. Teaching in advanced cardiac imaging in junior pediatric cardiology Fellows.

November 2004 – August 2007: Teaching Pediatrics and Pediatric Cardiology to medical student and pediatric residents of the University of Ioannina, Greece

September 2007 to present: Teaching as Staff of University of Ioannina in Pediatric Cardiology to medical students and pediatric and cardiology residents.

Special teaching course – ERASMUS

I was elected as a teaching Professor in PCIP (for Pediatric Cardiac Auscultation in Congenital Heart Disease) with European medical student participation. During the course there was an intense 2 week course in pediatric cardiology with accreditation testing at the completion of the course. The program was sponsored after evaluation for the European Union.

I also participated as an invited speaker in many conferences and presented lectures or posters. The lectures were in the fields of Pediatrics, Cardiology, Fetal Cardiology, Cardiac Imaging, Cardiac Surgery, Pulmonary Hypertension and Experimental-Laboratory Cardiology.

PhD Committees:

Member of the PhD of Mrs Elaine Domouzoglou entitled “Fibroblast Growth Factors in Cardiovascular Disease: The Emerging Role of FGF2”

VII. RESEARCH INTERESTS

1. Clinical research

I: Cardiac assessment by imaging and appropriate decision making.

- a) fetal assessment of HLHS (respective publication)
- b) pediatric valvar aortic stenosis (respective publications)
- c) bicuspid aortic valve (respective publication)
- d) echocardiographic assessment of pulmonary hypertension (respective publications)
- e) Vascular endothelial assessment in specific populations – pediatric patients with JIA (respective publications), pediatric population with dyslipidemia (respective publication)

II. Noninvasive electrophysiology

- a) The use of tilt table testing in the pediatric population (respective publications)
- b) Assessment of the autonomic nervous system using a «package» of noninvasive tests. Protocol in progress.

III. Registry in congenital heart disease.

Pediatrics: Work in progress with over 15000 recordings.

Adults: Participation in “CHALLENGE” Registry, Hellenic Cardiological Society.

2. Basic research

- I. Development of rat models with pulmonary hypertension. Experimental use of new medical agents and pathophysiological insights (respective publications)Στο
- II. Assessment of growth factors and biological scaffolding after acute myocardial infarction creation in rats.
- III. Right ventricular function after pressure or volume overload in rats.
- IV. Experimental model in ARVC – EP evaluation

VIII. HONORS - AWARDS

1993 Medical School Diploma «Cum Laude»

2005 PhD «with Honors» The PhD was in collaboration with Harvard University, USA.

2007 Educational Grant from Procter & Gamble for the protocol: «Early cardiovascular risk assessment in patients with Juvenile Idiopathic Arthritis: the impact of chronic inflammation and the results of anti-inflammatory therapy in vascular function».

2011 Matsaniotis Award for the best clinical research entitled: «Changes in vascular and endothelial indices assessment in children with Juvenile Idiopathic Arthritis»

IX. PUBLICATIONS

1. Vlahos AP, Lock JE, McElhinney DB, van der Velde ME. Hypoplastic left heart syndrome with intact or highly restrictive atrial septum: outcome after neonatal transcatheter atrial septostomy. *Circulation* 2004;109:2326-2330

2. Morphology and function of the bicuspid aortic valve with and without coarctation of the aorta in the young.

Ciotti GR, **Vlahos AP**, Silverman NH.

Am J Cardiol. 2006;98:1096-102

3. Provocation of neurocardiogenic syncope during head-up tilt testing in children: comparison between isoproterenol and nitroglycerin.

Vlahos AP, Tzoufi M, Katsouras CS, Barka T, Sionti I, Michalis LK, Siamopoulou A, Kolettis TM.

Pediatrics. 2007;119:e419-25

4. Congenitally corrected transposition of the great arteries: surgical repair in adulthood.

Mitropoulos FA, Kanakis M, **Vlachos AP**, Lathridou P, Tsaoussis G, Georgiou G, Goudevenos JA.

Ann Thorac Surg. 2007;83:672-4.

5. Characterization of a rat model of pulmonary arterial hypertension.

Kolettis T, **Vlahos AP**, Louka M, Hatzistergos KE, Baltogiannis GG, Agelaki MM, Mitsi A, Malamou-Mitsi V.

Hellenic J Cardiol. 2007;48:206-10.

6. Comparative effects of acute vs. chronic oral amiodarone treatment during acute myocardial infarction in rats.

Kolettis TM, Agelaki MG, Baltogiannis GG, **Vlahos AP**, Mourouzis I, Fotopoulos A, Pantos C.

Europace. 2007;9:1099-104.

7. Family history of children and adolescents with neurocardiogenic syncope.

Vlahos AP, Kolettis TM.

Pediatr Cardiol. 2008;29:227.

8. Clinical utility of Doppler echocardiography in assessing aortic stenosis severity and predicting need for intervention in children.

Vlahos AP, Marx GR, McElhinney D, Oneill S, Goudevenos I, Colan SD.

Pediatr Cardiol. 2008;29:507-14.

Article published according to my PhD research.

Followed by editorial

9. Extension of Doppler-derived echocardiographic measures of pulmonary vascular resistance to patients with moderate or severe pulmonary vascular disease.

Vlahos AP, Feinstein JA, Schiller NB, Silverman NH.

J Am Soc Echocardiogr. 2008;21:711-4.

10. Selection and presentation of imaging figures in the medical literature.

Siontis GC, Patsopoulos NA, **Vlahos AP**, Ioannidis JP.

PLoS One. 2010;5:e10888.

11. Acute febrile neutrophilic dermatosis (Sweet's syndrome) in a child, associated with a rotavirus infection: a case report.

Makis A, Stavrou S, Chaliasos N, Zioga A, **Vlahos AP**, Gaitanis G, Siamopoulou A, Bassukas ID.

J Med Case Reports. 2010;4:281.

12. Serum adipocytokine and vascular inflammation marker levels in Beta-thalassaemia major patients.

Chaliasos N, Challa A, Hatzimichael E, Koutsouka F, Bourantas DK, **Vlahos AP**, Siamopoulou A, Bourantas KL, Makis A.

Acta Haematol. 2010;124:191-6.

13. Transforming growth factor- β inhibition attenuates pulmonary arterial hypertension in rats.

Megalou AJ, Glava C, Oikonomidis DL, Vilaeti A, Agelaki MG, Baltogiannis GG, Papalois A, **Vlahos AP**, Kolettis TM.

Int J Clin Exp Med. 2010;3:332-40.

14. Changes in Vascular Function and Structure in Juvenile Idiopathic Arthritis.

Vlahos AP, Theocharis P, Bechlioulis A, Naka KK, Vakalis K, Papamichael ND, Alfantaki S, Gartzonika K, Mavridis A, Michalis LK, Siamopoulou A.

Arthritis Care Res (Hoboken). 2011 Sep 8. doi: 10.1002/acr.20613. [Epub ahead of print]

Publications from Procter & Gamble educational grant.

Matsaniotis award for the best research.

15. Increased vascular inflammation in early menopausal women is associated with hot flush severity.

Bechlioulis A, Naka KK, Kalantaridou SN, Kaponis A, Papanikolaou O, Vezyraki P, Kolettis TM, **Vlahos AP**, Gartzonika K, Mavridis A, Michalis LK.

J Clin Endocrinol Metab. 2012 May;97(5):E760-4. doi: 10.1210/jc.2011-3151. Epub 2012 Mar 7.

16. Determinants of pulmonary hypertension in patients with Beta-thalassemia major and normal ventricular function.

Vlahos AP, Koutsouka FP, Papamichael ND, Makis A, Baltogiannis GG, Athanasiou E, Chaliasos N, Bourantas KL, Kolettis TM. *Acta Haematol.* 2012;128(2):124-9. doi: 10.1159/000338825. Epub 2012 Jul 27.

17. Depressive symptoms and neurocardiogenic syncope in children: a 2-year prospective study.

Hyphantis TN, Pappas AI, **Vlahos AP**, Carvalho AF, Levenson JL, Kolettis TM.

Pediatrics. 2012 Nov;130(5):906-13. doi: 10.1542/peds.2012-1379. Epub 2012 Oct 1.

18. Transforming growth factor- β inhibition and endothelin receptor blockade in rats with monocrotaline-induced pulmonary hypertension.

Megalou AJ, Glava C, Vilaeti AD, Oikonomidis DL, Baltogiannis GG, Papalois A, **Vlahos AP**, Kolettis TM.

19. Endothelial dysfunction, but not structural atherosclerosis, is evident early in children with heterozygous familial hypercholesterolemia.

Vlahos AP, Naka KK, Bechlioulis A, Theoharis P, Vakalis K, Moutzouri E, Miltiadous G, Michalis LK, Siamopoulou-Mavridou A, Elisaf M, Milionis HJ.

Pediatr Cardiol. 2014 Jan;35(1):63-70. doi: 10.1007/s00246-013-0742-0. Epub 2013 Jul 3.

20. Noninvasive assessment of pulmonary vascular resistance by Doppler echocardiography.

Abbas AE, Franey LM, Marwick T, Maeder MT, Kaye DM, **Vlahos AP**, Serra W, Al-Azizi K, Schiller NB, Lester SJ.

J Am Soc Echocardiogr. 2013 Oct;26(10):1170-7. doi: 10.1016/j.echo.2013.06.003. Epub 2013 Jul 13.

21. Arterial hypertension during treatment with triptorelin in a child with Williams-Beuren syndrome.

Siomou E, Kosmeri C, Pavlou M, **Vlahos AP**, Argyropoulou MI, Siamopoulou A.

Pediatr Nephrol. 2014 Sep;29(9):1633-6. doi: 10.1007/s00467-014-2795-6. Epub 2014 Mar 7.

22. Fibroblast growth factors in cardiovascular disease: The emerging role of FGF21.

Domouzoglou EM, Naka KK, **Vlahos AP**, Papafaklis MI, Michalis LK, Tsatsoulis A, Maratos-Flier E. Am J Physiol Heart Circ Physiol. 2015 Sep 15;309(6):H1029-38. doi: 10.1152/ajpheart.00527.2015. Epub 2015 Jul 31

23. Electrocardiographic abnormalities and arrhythmic risk markers in adult patients with beta thalassemia major. Kolios M, Korantzopoulos P, **Vlahos AP**, Kapsali E, Briasoulis E, Goudevenos JA. Int J Cardiol. 2016 Oct 15;221:932-6. doi: 10.1016/j.ijcard.2016.07.037. Epub 2016 Jul 5.

24. Intra-myocardial growth hormone administration ameliorates arrhythmogenesis during ischemia-reperfusion in rats.

Kontonika M, Barka E, Roumpi M, Vilaeti AD, Baltogiannis GG, **Vlahos AP**, Agathopoulos S, Kolettis TM. *J Electrocardiol.* 2017 Mar - Apr;50(2):207-210. doi: 10.1016/j.jelectrocard.2016.10.004. Epub 2016 Oct 18.

25. Prolonged intra-myocardial growth hormone administration ameliorates post-infarction electrophysiologic remodeling in rats.

Kontonika M, Barka E, Roumpi M, La Rocca V, Lekkas P, Daskalopoulos EP, Vilaeti AD, Baltogiannis GG, **Vlahos AP**, Agathopoulos S, Kolettis TM. *Growth Factors.* 2017 Feb;35(1):1-11. doi: 10.1080/08977194.2017.1297432. Epub 2017 Mar 6.

26. Local conduction during acute myocardial infarction in rats: Interplay between central sympathetic activation and endothelin.

Kolettis TM, Kontonika M, La Rocca V, **Vlahos AP**, Baltogiannis GG, Kyriakides ZS.

J Arrhythm. 2017 Apr;33(2):144-146. doi: 10.1016/j.joa.2016.07.010. Epub 2016 Aug 31.

Autonomic responses during acute myocardial infarction in the rat model: implications for arrhythmogenesis.

Kolettis TM, Kontonika M, Lekkas P, Vlahos AP, Baltogiannis GG, Gatzoulis KA, Chrousos GP. *J Basic Clin Physiol Pharmacol.* 2018 Apr 10. pii: /j/jbcpp.ahead-of-print/jbcpp-2017-0202/jbcpp-2017-0202.xml. doi: 10.1515/jbcpp-2017-0202. [Epub ahead of print]

X. ABSTRACTS PUBLISHED

1. Utility of echocardiographic gradient for evaluating and predicting need for intervention in children with valvar aortic stenosis. *Vlahos A, Marx G, McElhinney D, Goudevenos I, Colan S, J Am Coll Cardiol 2004;43:388A-388A Suppl.*

2. Vlahos AP, Silverman NH, Chan FP. *Effectiveness of Cardiac-Gated MDCT for the Diagnosis of Congenital Heart Disease in Small Children with High Heart Rates.* 90th Scientific Assembly and Annual Meeting of the Radiological Society of North America 2004.

3. Early Cardiovascular Risk Assessment in Patients with Juvenile Idiopathic Arthritis. 15TH Paediatric Rheumatology European Society Congress PReS 2008. AP Vlahos, S Alfantaki, A Bechlioulis, K Vakalis, LK Michalis, A Siamopoulou

4. Vascular and Cardiac Diastolic Function in Children with Juvenile Idiopathic Arthritis. Vlahos AP, Theocharis P, Naka KK, Bechlioulis A, Vakalis K, Papamichael ND, Michalis LK, Alfantaki S, Siamopoulou A. 17TH Paediatric Rheumatology European Society Congress, PReS 2010.

5. Case 12497. The value of fetal brain MRI on the diagnostic pathway of tuberous sclerosis complex presenting with cardiac rhabdomyomas. I Lukacs, A Andrianopoulou, A Zikou, A Vlachos, V Xydis, M. I. Argyropoulou
Section: Paediatric Radiology, Published: 2015, Mar. 17

XI. CLINICAL TRIAL

1. Observational clinical study (phase IV) on the quality of life in patients with congenital heart disease related pulmonary hypertension receiving bosentan

XII. PUBLICATIONS IN GREEK JOURNALS

A. Vlahos. «The role of the Pediatric Cardiology Outpatient Clinic in current pediatric practice». *Νέα Παιδιατρικά Χρονικά* 2009.

XIII. REVIEWER IN JOURNALS

Indicative journals:

1. Heart, BMJ Group
2. Pediatrics, American Academy of Pediatrics
3. Paediatrici, Hellenic Pediatric Association
4. Open Journal of Pediatrics
5. Journal of the Saudi Heart Association
6. Arthritis Research & Therapy

XIV. BOOKS

Co-author in Kalipos for the electronic book “Pediatric Cardiology” (2015).