

**“A humanitarian Physician-  
Scientist, makes the world a better  
place”**



Professor Fadi Bitar

American University of Beirut,  
Lebanon





# Background



Fadi Bitar, MD  
Director, Children's Heart Center  
Professor of Pediatrics and Adolescent Medicine  
Professor of Biochemistry and Molecular Genetics  
Executive Director, External Medical Affairs  
American University of Beirut

Co-founder, Brave Heart Fund  
President, Pan Arab Congenital Heart Disease Association (PACHDA)



# Fadi Bitar, MD

Earned medical degree from the American University of Beirut



Specialized training at the Children's Hospital of Philadelphia

State University of New York, Health Science Center at Syracuse

Specialized training at Boston Children's Hospital, Harvard Medical School






**A pioneering Physician with  
a Vision and Innovation, a  
Leader in his Field**





Dr. Bitar established the **Children's Heart Center** (CHC) at AUBMC, a **“Beacon of Hope”**, for children with Congenital Heart Disease.

The CHC is a world class center of excellence with outcome measures comparable to the benchmarks of the best centers in the World



Children's Heart Center:  
Celebrating 20 years and three thousand  
little hearts, one surgery at a time.

[www.aubmc.org](http://www.aubmc.org)



AUBMC  
AMERICAN UNIVERSITY OF BEIRUT MEDICAL CENTER  
المركز الطبي في الجامعة الأمريكية في بيروت  
Our lives are dedicated to yours

AUBMC

Children's Heart Center (CHC) at AUBMC Celebrates 20 Years of  
Breakthroughs and Innovations

Posted on 9/21/2015



The Children's Heart Center has a **multi disciplinary team** of more than **50 physicians**, nurses and allied health care providers.



Dr. Bitar establishment educational and clinical programs which resulted in improvements towards the **Care of Thousands of Children** with Congenital Heart Disease



Dr. Bitar earns worldwide recognition as one of the leading Pediatric Cardiologists in Lebanon, the region and beyond.

Dr. Bitar performed several **First of their Kind Procedures in the World.**

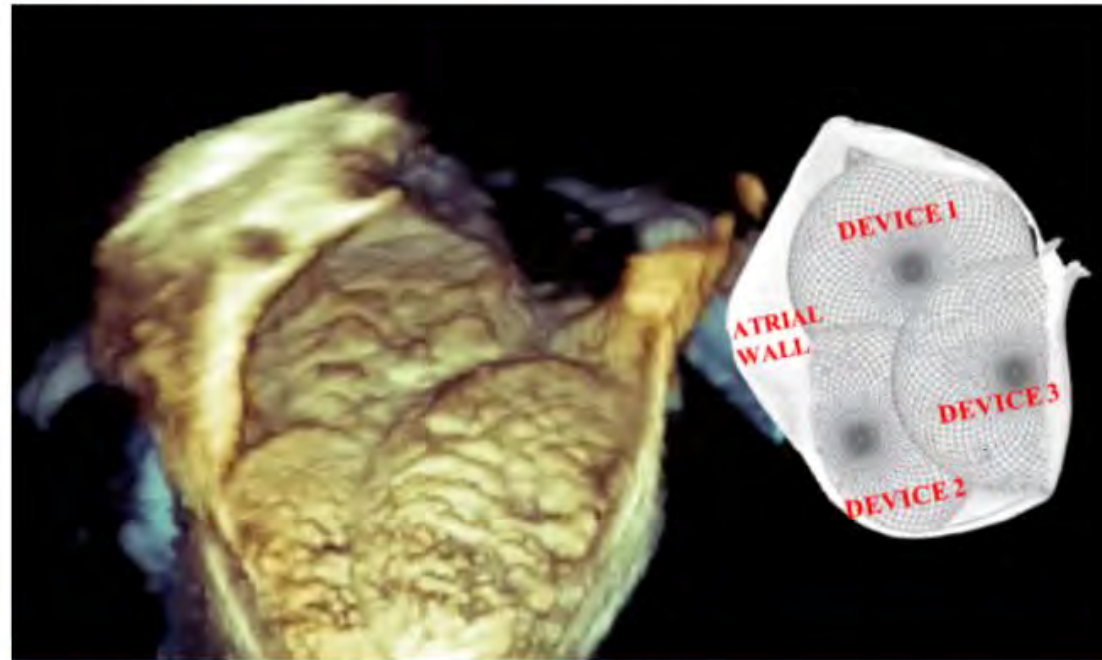


# First of its kind procedure in the world

AUBMC

For the First Time in the World, the Children's Heart Center Team at the American University of Beirut Medical Center Implants Three Umbrella-like "Occlutech" Devices to Close Holes in a Child's Heart

Posted on 3/15/2018



3D Echo showing three ASD devices implanted in the Child's Heart





# Dr. Bitar Co-led a team that performed the **First Pediatric Heart Transplant** in Lebanon and the Levant area.

AUBMC

The Children's Heart Center at AUBMC Makes History by Performing The First Successful Heart Transplant in Lebanon in the Pediatric Age Group.

Posted on 6/23/2017




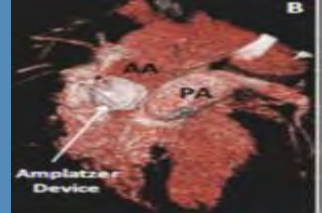
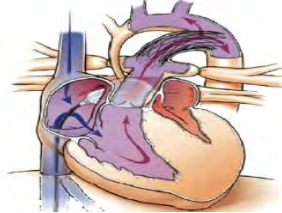

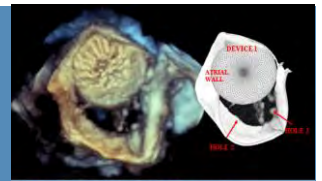



On June 14, 2017, the Children's Heart Center (CHC) at the American University of Beirut Medical Center (AUBMC) joined the elite heart centers in the world by performing its first successful heart transplant for a pediatric patient in Lebanon. The child was 5 years of age. A few days later, the patient was successfully taken off the breathing machine. The child, in good condition, smiled at his mother, held her arm, and asked for a cup of water.



# Dr. Bitar introduced new modalities and techniques for the treatment of heart diseases

A vertical timeline with a central grey line and blue circular markers for each year. Horizontal blue lines connect the years to their corresponding descriptions and images.

- 1995**: Coil embolization of a patent ductus arteriosus for the first time in the Eastern Mediterranean Region.
 
- 2001**: A novel treatment for rheumatic fever utilizing IVQQ, the first report of its kind worldwide.
 
- 2004**: Performing the first Lebanese closure of a VSD utilizing Amplatzer device. Only few centers in the world were eligible to perform this procedure.
 
- 2012**: A first of its kind in the world, the closure of a rupture in a child's aorta without resorting to surgery, using umbrella-like device.
 
- 2013**: The Implementation of the Hybrid Norwood's Heart Surgery for the first time in Lebanon and the region.
 
- 2015**: The First Lebanese percutaneous implantation of a pulmonary valve "Melody".
 
- 2017**: For the First Time in the World, the Children's Heart Center Team Implants Three Umbrella-like "Occlutech" Devices to Close Holes in a Child's Heart.
 

3D Echo showing one ASD device implanted in the Child's Heart
- 2018**: Performed the First Successful Heart Transplant in Lebanon in the Pediatric Age Group.
 







**A Humanitarian Physician  
Caring for the  
Underprivileged and those  
in Need**



**Dr. Bitar is the Co-Founder of the “Brave Heart Fund”,** the charitable fundraising initiative established to provide financial and humanitarian assistance to needy children and families suffering from Congenital Heart Disease, with fund raising amounting to **\$18 Million.**



“No child should die of heart disease because of a lack of funds”



Dr. Bitar Led a humanitarian team that provided treatment for **3,500 underprivileged** children with CHD; highlighting the commitment to serve those in need.



Arab Women's Council Honors AUB Professor Fadi Bitar for his Humanitarian Contributions in the Medical Field

10/13/2016



# The Children's Heart Center Giving:

## The Brave Heart Fund Enjoys National, Regional and International recognition





**A teacher, mentor and  
educator who built  
educational programs to  
train the physicians of the  
future**

# Dr. Bitar founded the **first Pediatric Cardiology Fellowship Program** in Lebanon which contributes to the training of physicians from all over the Arab world.

Dr. Mohammad Abutaqa, graduate of Children's Heart Center, is now the Chief of Pediatric Cardiology at Al-Makassed Hospital in Palestine

The Program graduates are practicing in KSA, Palestine, Lebanon, Germany and Australia



Dr. Bitar supervised and co-advised the education and training of **21 graduate students** for their **Master of Science theses**, **11 MDs/research physicians** as postdoctoral fellows, in addition he supervised and advised **36 medical students/residents** regarding research activities in Pediatric Cardiology.

Dr. Bitar is a mentor for more than **15 fellows** who are currently pursuing an excellent careers in **biomedical sciences** in top notch institutions in the United States.



# Testimony of Akl Fahed MD, **Physician-Scientist at Harvard University**, former student of Dr. Bitar

Summer 2013 Vol. 21 No. 4



**MainGate**  
American University of Beirut Quarterly Magazine



**LIFE  
CHANGERS**



## FADI BITAR

(BS '82, MD '86) Has taught pediatrics and adolescent medicine (cardiology), biochemistry since 1995.



## GEORGES NEMER

(BS '92) PhD University of Montreal. Has taught biochemistry since 2003.

I would not be [at Harvard Medical School today] were it not for **Dr. Fadi Bitar** and **Dr. Georges Nemer**. This duo has served as true mentors for more than ten generations of medical and graduate students, inspiring them to become successful scientists by instilling in them a magical scientific curiosity and going out of their way to provide them with every possible opportunity to achieve their goals. I can count more than 15 colleagues who are currently pursuing excellent careers in biomedical science in top-notch institutions in the United States who were mentored by Drs. Bitar and Nemer. I believe their mentorship is a great example to the AUBite community worldwide.

*Akl Fahed (BS '06, MD '10)*





# **Administrative Leadership**



# Dr. Bitar is the current **Executive Director** and the former **Associate Dean** of the **External Medical Affairs** Office at AUBMC and a member of the **leadership team** at AUBMC

The EMA vision is to communicate, collaborate, and conduct academic and medical exchanges with universities, hospitals, organizations from the region and throughout the world.

EMA is charged with advancing the AUBMC mission of research, teaching, and patient care. EMA assists and represents AUBMC in evaluating and assessing new partnerships, affiliations, associations, and vital linkages with other public and private healthcare institutions and programs that share its vision and values, in Lebanon, the region and worldwide.

- > HOME
- > ABOUT US +
- > SERVICES
- > OUR ASSOCIATES/PROJECTS +
- > CONTACT US

## > Services



## > International Projects



## > Regional Projects



## > National Projects



## > Request Concerning EMA Services



## > Request Concerning Training Services



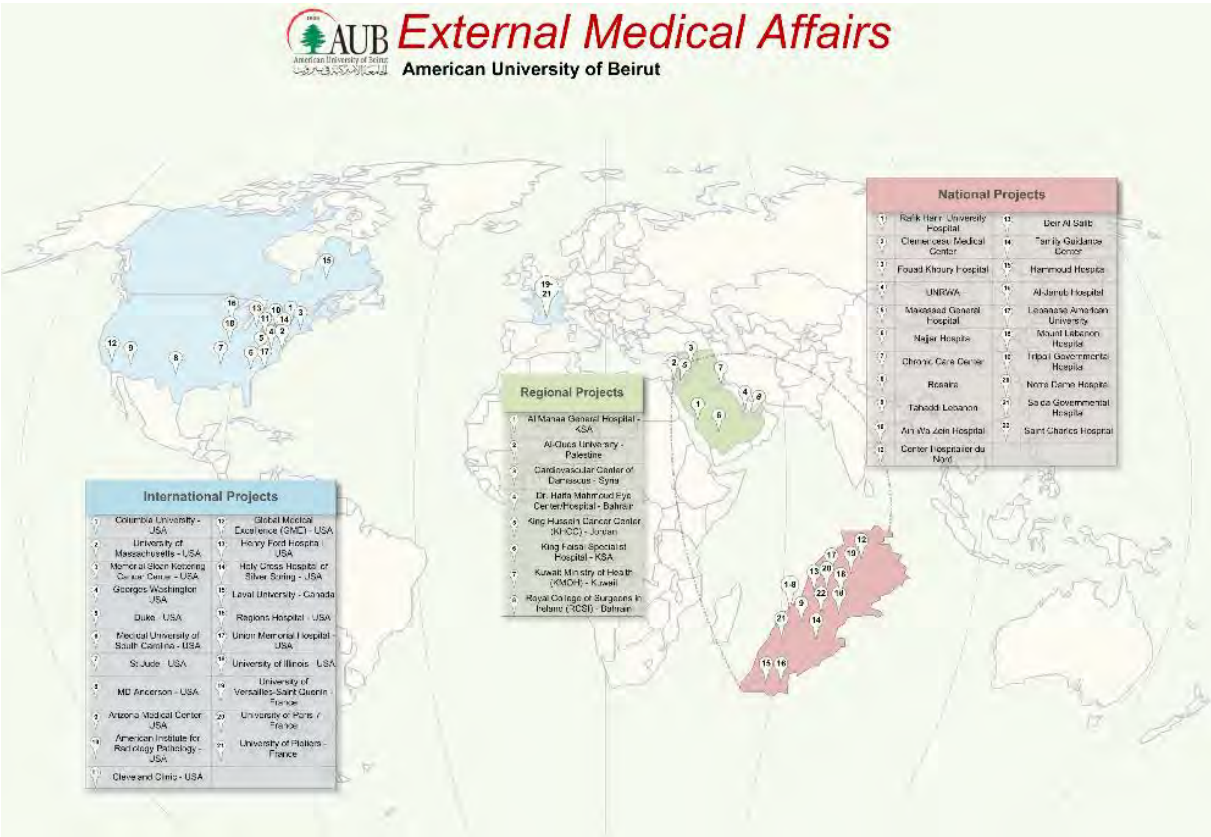
## Executive Director's Message

Since its re-structuring in 2009, the Office of External Medical Affairs (EMA) at the Faculty of Medicine/American University of Beirut Medical Center (FM/AUBMC) has initiated major projects and entrepreneurial ideas to support the AUBMC 2020 vision. EMA, the consulting arm of FM/AUBMC, is now a major player supporting AUBMC to improve the health of the community in Lebanon and the region through the establishment of strategic partnerships with other local, regional and international academic and/or medical institutions, governments and organizations in the fields of patient centered care, healthcare delivery, education, and research.

With the new era of globalization, changes in the medical market demands and technological advances, FM/AUBMC, like all institutions of higher education, is preparing to face its share of challenges and opportunities. It is planning to expand and grow to better serve the peoples of the Middle East and beyond. To do this, it looks for association with various health care organizations that share its vision and values. These values include: integrity in all of its endeavors, commitment to innovation and excellence and diversity and accountability to our communities and to the public.



Dr. Bitar have overseen, spearheaded and coordinated **more than 100 agreements** between the AUBMC/FM and national, regional and international medical schools/organizations/universities in *Lebanon, Syria, Iraq, Jordan, UAE, Saudi Arabia, Palestine, Kuwait, Bahrain, Europe and the United States.*



## Recent EMA Activities published on AUBMC Website



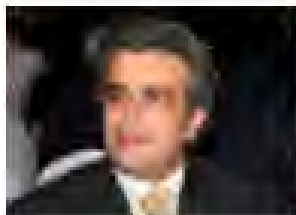
AUBMC has finalized a significant agreement with the Ministry of Health in Kurdistan

11/6/2013



AUBMC/FM partner with Yaduna to promote women's heart health in Lebanon

3/22/2013



The Association of Academic Health Centers (AAHC) Hosts AUBMC Associate Dean for External Medical Affairs for a Worldwide Webcast Presentation

8/12/2015



AUBMC and Medrar Medical Center Collaborate to Change Healthcare Delivery in the South of Lebanon

2/10/2015



Dr. Bitar received the Leadership, Innovation and Strategy Certificate  
by GE Crotonville

Dr. Bitar was an Invited speaker and Panelist at the C3 Saudi-US  
Healthcare Summit in 2015 and at the C3 US-Arab Healthcare Summit  
at Union League Club in NY in 2015.





# **A Physician-Scientist, Researcher and Innovator**



Dr. Bitar enjoys a **research record**, that was **achieved entirely at his mother institute**, with a high caliber productivity at the clinical and basic research levels.

**Dr. Bitar pioneered innovative research in the field of Pediatric Cardiology.**





# Clinical Research



Dr. Bitar established the **first Cardiac Registry Center** in Lebanon and studied the **epidemiology** of CHD and role of **consanguinity** in patients with CHD

American Journal of Medical Genetics 116A:342–347 (2003)



Children's Cardiac Registry Center  
(CCRC)



Supported by  
The Lebanese National Council for Scientific Research

## Parental Consanguinity and Congenital Heart Malformations in a Developing Country

Mona M. Nabulsi,<sup>1\*</sup> Hala Tamim,<sup>2</sup> Maha Sabbagh,<sup>1</sup> Mounir Y. Obeid,<sup>3</sup> Khaled A. Yunis,<sup>1</sup> and Fadi F. Bitar<sup>1\*</sup>

American Journal of Medical Genetics 140(14):1524-30 (2006)

## Consanguineous marriage and congenital heart disease : A case control study in the neonatal period.

Yunis KA , Mumtaz G, Bitar FF, Chamseddine F, Kassar M, Rashkidi J, Makhoul G, Tamim H

*Cardiac diseases in children in Lebanon: The AUB-MC Children's Cardiac Registry experience. J Med Liban. 2001; 49 (6):304-310 by Bitar et al.*



Dr. Bitar published data regarding **Rheumatic Fever** and **Bacterial endocarditis** (one of the largest pediatric series in the world), addressing acquired heart diseases that affect children.

Acta Pædiatr 89: 427–30. 2000

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## Paediatric infective endocarditis: 19-year experience at a tertiary care hospital in a developing country

FF Bitar<sup>1</sup>, RA Jawdi<sup>1</sup>, GS Dbaibo<sup>1</sup>, KA Yunis<sup>1</sup>, W Gharzeddine<sup>2</sup> and M Obeid<sup>3</sup>

*Department of Pediatrics<sup>1</sup>, Medicine<sup>2</sup> and Surgery<sup>3</sup>, American University of Beirut, Lebanon*

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PAGE 4 AUGUST 2005

INTERNATIONAL EDITION

**CONGENITAL CARDIOLOGY TODAY**

### **HIGHLIGHTS FROM THE EASTERN MEDITERRANEAN REGIONAL MEETING ON ESTABLISHING GUIDELINES ON RHEUMATIC FEVER PREVENTION AND CARE, ORGANIZED BY WHO IN YEMEN, MAY 2005**

*By Oussama Khatib, MD, PhD and Fadi Bitar, MD*

Just over 20 regional experts in the field of rheumatic fever were invited to the meeting. The aim of the meeting was to

most frequently among children and adolescents between 5 and 18 years, coinciding with the age distribution of the

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Pediatr Cardiol 21:119–122, 2000  
DOI: 10.1007/s002469910017

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**Pediatric  
Cardiology**

© Springer-Verlag New York Inc. 2000

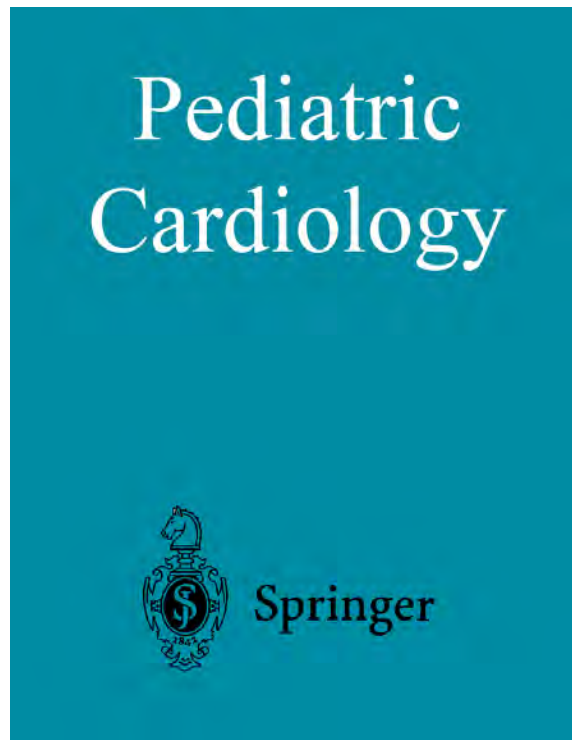
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**Rheumatic Fever in Children: A 15-Year Experience in a Developing Country**

F.F. Bitar,<sup>1</sup> P. Hayek,<sup>1</sup> M. Obeid,<sup>3</sup> W. Gharzeddine,<sup>2</sup> M. Mikati,<sup>1</sup> G.S. Dbaibo<sup>1</sup>



Dr. Bitar is considered as one of the **leading and most prominent researchers** in the field of Pediatric Cardiology in Lebanon and the region.



Pediatr Cardiol (2013) 34:375–382  
DOI 10.1007/s00246-012-0466-6

ORIGINAL ARTICLE

## **Research in Congenital Heart Disease: A Comparative Bibliometric Analysis Between Developing and Developed Countries**

Theresa Farhat · Zahi Abdul-Sater · Mounir Obeid ·  
Mariam Arabi · Karim Diab · Samer Masri ·  
Zohair Al Haless · Georges Nemer · Fadi Bitar



Dr. Bitar was **the first in the world** to report the use of IVQG in the treatment of children with Rheumatic Fever

Cardiol Young; 2001 Sep;11(5):565-7.

**Treatment of rheumatic carditis with intravenous gammaglobulin: is there a beneficial effect?**

Diab KA<sup>1</sup>, Timani MA, Bitar FF.

⊕ Author information




Dr. Bitar was part of a **multicenter clinical research trial, a phase 2 study** to evaluate the safety, tolerability, pharmacokinetics of (Numax) against Respiratory Syncytial Virus (RSV), in children with hemodynamically significant Congenital Heart Disease, developed by MedImmune, Inc. in 2005 and 2007.

Dr. Bitar managed to enroll the largest number of patients in this worldwide study, which included a **grant of \$350,000**.



Dr. Bitar reported **a novel technique** for objective assessment of amplatzer duct occluder II device protrusion into the descending aorta in a large series of 50 children, who underwent percutaneous closure of PDA using AOD II; this helped in the management and follow up of this population

CATHETERIZATION  
&  
CARDIOVASCULAR INTERVENTIONS

E-Only: Pediatric and Congenital Heart Disease |  Full Access

## Percutaneous closure of patent ductus arteriosus in children using amplatzer duct occluder II: Relationship between PDA type and risk of device protrusion into the descending aorta

Samer Masri MD | Issam El Rassi MD | Mariam Arabi MD | Anas Tabbakh MD | Fadi Bitar MD

First published: 29 May 2015 | <https://doi.org/10.1002/ccd.25940>

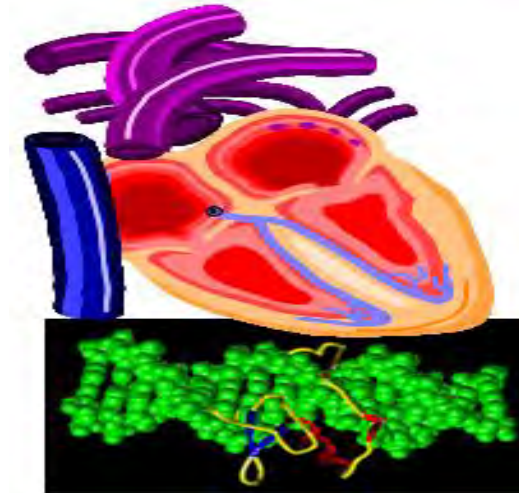




# **Basic Science Research**



Dr. Bitar Co-established and co-directed a pioneering **CHD Genetic Research Program** at AUBMC which include **2,000 patients**.



Dr. Bitar reported **worldwide discoveries regarding the genetic causes** of CHD in collaboration with Dr. G. Nemer.

شؤون وشجون القلب: 30 صفحة عن اعراضه وامراضه وعلاجه

**المستشفى العربي**  
THE ARAB HOSPITAL

مستشفى الملك فهد  
1500  
عملية جراحية للقلب  
في سبع سنوات

مستشفى  
رفيق الحريري الجامعي  
544 سريراً  
و14 غرفة عمليات

العلوم في الإسلام  
تقنيات القلب  
عند ابن سينا  
تستلهم  
الطب الحديث

بينان بالأرقام  
400 طبيب قلب  
وشرائين

سرعون طبيبة  
في العالم العربي

ول عملية  
جراحية كاملة  
جرىها ROBOT

د. فادي بيطار د. جورج نمر  
يفضكان نغز  
**تشوهات  
القلب  
لدى الأطفال**

750  
مرضا وراثيا  
في العالم العربي

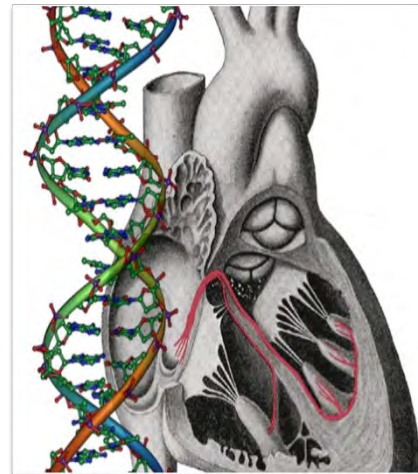
تقنيات الرنين  
المغناطيسي  
والجيني والتوي

قسطرة الشرايين في مستشفى دبي الأول على مستوى الدولة والعاشر على مستوى العالم



انجاز طبي  
بتوقيع لبناني  
في الجامعة الاميركية

طبيبان يكتشفان الخلل  
في العامل الوراثي  
**GATA4**  
المسبب لتشوهات  
قلوب الاطفال



# Dr. Bitar reported and Co-led Initiatives with Pioneering Discoveries



Discovery of a novel mutation in the GATA4 gene in patients with Tetralogy of Fallot. This discovery was reported worldwide.

2003

Received more than 25 national and international research grants, including the Dubai-Harvard Foundation Collaborative Research Award.



2006

Discovery of the role of "NFATC1" gene which causes defects in the human heart valves, the first discovery of its kind in the field.

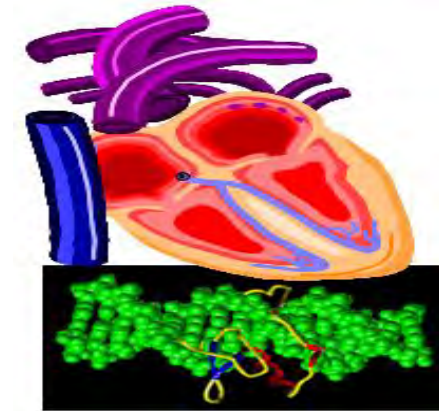


2012



# Dr. Bitar Co-led the CHD Genetic Research Program-AUBMC

The CHDGP	Number
DNA Samples (Patients + Parents)	(596+1073)
Cardiac Biopsies	19
Journal Articles	32
Book Chapters	6
Abstracts	49
MSc Students (directed by Drs. Nemer and Bitar)	34
Current PhD Students	2
Post- Docs (MD)	22



# Dr. Bitar developed an **Animal Model of chronic hypoxia** Mimicking Cyanotic Congenital Heart Disease



Prostaglandins & other Lipid Mediators 72 (2003) 155–163

PROSTAGLANDINS  
& other  
LIPID MEDIATORS

Tissue-specific ceramide response in the chronically hypoxic rat model mimicking cyanotic heart disease

Fadi F. Bitar<sup>a,\*</sup>, Salman Mroueh<sup>a</sup>, Mohamad El Khatib<sup>a</sup>, Hala Bitar<sup>b</sup>, Mohammed Tarrabain<sup>b</sup>, Marwan El Sabban<sup>c</sup>, Mounir Obeid<sup>d</sup>, Michel Nasser<sup>b,e</sup>, Ghassan S. Dbaibo<sup>a,f</sup>



BRAIN INJURY, 2002, VOL. 16, NO. 10, 891–900

Taylor & Francis  
healthsciences

Lack of apoptosis in the hypoxic brain of a rat model mimicking cyanotic heart disease

FADI F. BITAR<sup>†</sup>, MARWAN EL SABBAN<sup>‡</sup>, HALA BITAR<sup>§</sup>, KARIM DIAB<sup>†</sup>, SALMAN MROUEH<sup>†</sup>, MICHEL NASSER<sup>§¶</sup>, MOHAMMAD MIKATI<sup>†#</sup> and GHASSAN S. DBAIBO<sup>†#</sup>

DNA Cell Biol. 2013 Jun; 32(6): 310–319.

PMCID: PMC366

doi: [10.1089/dna.2013.1993](https://doi.org/10.1089/dna.2013.1993)

## Regulation of *De Novo* Ceramide Synthesis: The Role of Dihydroceramide Desaturase and Transcriptional Factors NFATC and Hand2 in the Hypoxic Mouse Heart

[Raed Azzam](#),<sup>1,\*</sup> [Fadi Hariri](#),<sup>2,†</sup> [Nehmé El-Hachem](#),<sup>2</sup> [Amina Kamar](#),<sup>2</sup> [Ghassan Dbaibo](#),<sup>1,2</sup> [Georges Nemer](#),<sup>2</sup> and [Fadi Bitar](#)<sup>1,2</sup>

0031-3998/02/3102-0144  
PEDIATRIC RESEARCH  
Copyright © 2002 International Pediatric Research Foundation, Inc.

Vol. 51, No. 2, 2002  
Printed in U.S.A.

### Modulation of Ceramide Content and Lack of Apoptosis in the Chronically Hypoxic Neonatal Rat Heart

FADI F. BITAR, HALA BITAR, MARWAN EL SABBAN, MICHAEL NASSER, KHALID A. YUNIS, AYMAN TAWIL, AND GHASSAN S. DBAIBO

EXPERIMENTAL CARDIOLOGY

### Cardiac growth patterns in response to chronic hypoxia in a neonatal rat model mimicking cyanotic heart disease

Nabil Azar MD<sup>1</sup>, Michel Nasser MD<sup>2,3</sup>, Marwan El Sabban PhD<sup>4</sup>, Hala Bitar MS<sup>2</sup>, Mounir Obeid MD<sup>2</sup>, Ghassan S Dbaibo MD<sup>1,5</sup>, Fadi F Bitar MD<sup>1</sup>



# Dr. Bitar and team provided new Insights into the **Developmental Biology** of Congenital Heart Disease and described **Novel Genetic Causes** in Cases of Cardiomyopathies

*Clin Genet* 2007; 72: 59–62  
Printed in Singapore. All rights reserved

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Journal compilation © 2007 Blackwell Munksgaard  
CLINICAL GENETICS  
doi: 10.1111/j.1399-0004.2007.00814.x

## Letter to the Editor

### Exclusive cardiac dysfunction in familial primary carnitine deficiency cases: a genotype–phenotype correlation


Abir A. Yamak, Fadi Bitar, Pascale Karam, and Georges Nemer

*Am J Med Genet A*. 2008 Apr 1;146(7):937-9.

### Absence of NOTCH2 and Hey2 mutations in a familial Alagille syndrome case with a novel frameshift mutation in JAG1.

El-Rassy I, Bou-Abdallah J, Al-Ghadban S, Bitar F, Nemer G.

Department of Biochemistry, American University of Beirut, Beirut, Lebanon.



**OPEN** NKX2-5 Mutations in an Inbred Consanguineous Population: Genetic and Phenotypic Diversity

SUBJECT AREAS:  
CONSANGUINITY  
DISEASE GENETICS

Received  
17 October 2014

Accepted  
14 January 2015

Published  
6 March 2015

Ossama K. Abou Hassan<sup>1,2\*</sup>, Ali C. Fahed<sup>1,3\*</sup>, Maral Bahrawi<sup>1</sup>, Marwan Arabi<sup>1</sup>, Marwan M. Refaai<sup>1,4</sup>, Steven R. DePalma<sup>2</sup>, J. G. Seidman<sup>1</sup>, Christine E. Seidman<sup>1</sup>, Fadi F. Bitar<sup>1,4</sup> & Georges M. Nemer<sup>1</sup>

<sup>1</sup>Department of Biochemistry and Molecular Genetics, American University of Beirut, Beirut, Lebanon, <sup>2</sup>Department of Genetics, Harvard Medical School, Boston, MA, <sup>3</sup>Department of Medicine, Massachusetts General Hospital, Boston, MA, <sup>4</sup>Department of Pediatrics and Adolescent Medicine, American University of Beirut, Beirut, Lebanon, <sup>5</sup>Department of Internal Medicine, American University of Beirut, Beirut, Lebanon, <sup>6</sup>Howard Hughes Medical Institute and Division of Cardiology, Brigham and Women's Hospital, Boston, MA.



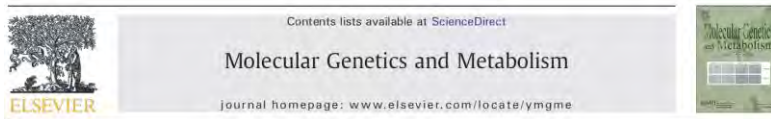
# Dr. Bitar co-led teams that studied **several Cardiovascular diseases in Lebanon** and contributed to improving our Understanding of the **Genotype and Phenotype** of Familial Hypercholesterolemia

Hindawi  
Cholesterol  
Volume 2017, Article ID 3685265, 7 pages  
<https://doi.org/10.1155/2017/3685265>

Research Article

## Premature Valvular Heart Disease in Homozygous Familial Hypercholesterolemia

Akl C. Fahed,<sup>1</sup> Kamel Shabbani,<sup>2</sup> Rabih R. Andary,<sup>2</sup> Mariam T. Arabi,<sup>2</sup> Robert H. Habib,<sup>3</sup> Denis D. Nguyen,<sup>4</sup> Fady F. Haddad,<sup>5</sup> Elie Moubarak,<sup>6</sup> Georges Nemer,<sup>7</sup> Sami T. Azar,<sup>8</sup> and Fadi F. Bitar<sup>2,7</sup>



Homozygous familial hypercholesterolemia in Lebanon: A genotype/phenotype correlation

Akl C. Fahed <sup>a,1</sup>, Raya M. Safa <sup>a,1</sup>, Fadi F. Haddad <sup>b</sup>, Fadi F. Bitar <sup>a,d</sup>, Rabih R. Andary <sup>a</sup>, Mariam T. Arabi <sup>d</sup>, Sami T. Azar <sup>c,e</sup>, Georges Nemer <sup>a,\*</sup>

*Ann Vasc Surg* 2014; 28: 421–426

## Low-Density Lipoprotein Levels and Not Mutation Status Predict Intima-Media Thickness in Familial Hypercholesterolemia

Akl C. Fahed,<sup>1,2</sup> Robert H. Habib,<sup>3</sup> Georges M. Nemer,<sup>2</sup> Sami T. Azar,<sup>3</sup> Rabih R. Andary,<sup>4</sup> Mariam T. Arabi,<sup>4</sup> Elie M. Moubarak,<sup>5</sup> Fadi F. Bitar<sup>\*,4</sup> and Fady F. Haddad<sup>\*,6</sup> Boston, Massachusetts, and Beirut and Dahr el Bashek, Lebanon

*Mol Genet Genomic Med.* 2016 May; 4(3): 283–291.

Published online 2016 Feb 24. doi: [10.1002/mgg3.203](https://doi.org/10.1002/mgg3.203)

PMCID: PMC4867562

PMID: [27247956](https://pubmed.ncbi.nlm.nih.gov/27247956/)

## Variable expressivity and co-occurrence of LDLR and LDLRAP1 mutations in familial hypercholesterolemia: failure of the dominant and recessive dichotomy

Akl C. Fahed, <sup>1,2</sup> Ruby Khalaf, <sup>1</sup> Rony Salloum, <sup>1</sup> Rabih R. Andary, <sup>1</sup> Raya Safa, <sup>1</sup> Inaam El-Rassy, <sup>1</sup> Elie Moubarak, <sup>3</sup> Sami T. Azar, <sup>4</sup> Fadi F. Bitar, <sup>5</sup> and Georges Nemer <sup>1</sup>



These discoveries improved the care of children with cardiac diseases and are historical landmarks for the country and the region in the field of Pediatric Cardiology .



Dr. Bitar Co-led the **first 3D printing program for complex CHD lesions** in Lebanon and the region including the development of research tools to introduce 3D printing of cardiac valves utilizing echocardiographic images.

AUBMC

The 3D Printing in Complex Congenital Heart Disease: A New Groundbreaking Achievement for AUBMC/AUB in Lebanon and the Region

Posted on 9/4/2015



Dr. Bitar **designed** with Dr. K. Khalaf and her team an **intelligent hypoxia chamber controller** for in vivo and in vitro **biomedical experimentation**. The device is a combination of DAQ (Data Acquisition Box), PLC (Programmable Logic Controller), and a Data Logger. Clinical conditions that can be mimicked, utilizing the device, include chronic hypoxia (Cyanotic heart disease, chronic lung disease), Hyperoxia, sleep-apnea like conditions and others.



Dr. Bitar established **partnerships and networks** at the national, regional and international levels that played a pivotal role in creating a research model for CHD in the Region

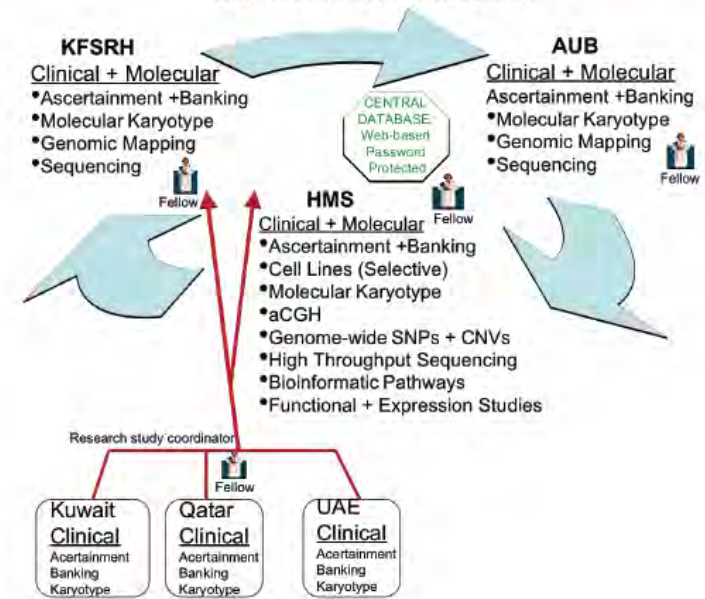
**Mutation of IGFBP7 Causes Up regulation of BRAF/MEK/ERK Pathway and Familial Retinal Arterial Macroaneurysms.**

Abu-Safieh L, Abboud EB, Alkuraya H, Shamseldin H, Al-Enzi S, Al-Abdi L, Hashem M, Colak D, Jarallah A, Ahmad H, Bobis S, Nemer G, Bitar F, Alkuraya FS.

Am J Hum Genet. 2011 Aug 12;89(2):313-9.



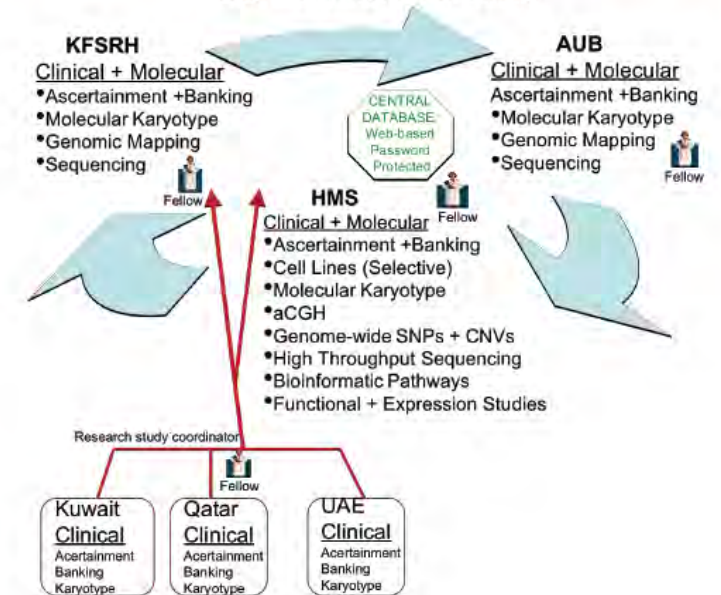
**DHFMR Collaborative Center for the Genetic Analysis of Congenital Anomalies**  
Site Work Flow / Personnel



Dr. Bitar established international networking with the laboratory of Drs. **Seidman at Harvard Medical School**, which resulted in the advancement of research at the CHC Genetic Research Program at AUBMC



DHFMR Collaborative Center for the Genetic Analysis of Congenital Anomalies  
Site Work Flow / Personnel



**A Novel Role for Tbx5 in Coarctation of the Aorta**

Akl C Fahed, Georges Nemer, Fadi F Bitar, Raya M Safa, Mei Zhu,  
Jonathan G Seidman, Christine E Seidman

*Congenital Heart Disease Genetic Program, American University of Beirut  
Medical Center, Beirut, Lebanon*

*Department of Genetics, Harvard Medical School, Boston, Massachusetts*



Dr. Bitar established a **CHD Research program** that was the **prototype** to follow in **developing countries** and was presented in several regional and international Meetings

**TOP TEN Pearls in Establishing Research Program in Developing Countries**

Fadi Bitar, MD  
Professor of Pediatrics and Adolescent Medicine  
and Biochemistry and Molecular Genetics  
Director- Children's Heart Center  
Co-Director-The CHD Research Genetic Program  
Associate Dean for External Medical Affairs  
American University of Beirut, Lebanon

President – Pan Arab CHD Association  
Co-Founder Brave Heart Fund



7<sup>th</sup> EMIRATES CARDIAC SOCIETY CONGRESS  
in conjunction with  
THE 5<sup>th</sup> SCIENTIFIC MEETING OF THE WORLD SOCIETY  
FOR PEDIATRIC AND CONGENITAL HEART SURGERY

American University of Beirut  
children's heart center

1902  
**AUBMC**  
AMERICAN UNIVERSITY of BEIRUT MEDICAL CENTER  
المركز الطبي في الجامعة الأميركية في بيروت

Developing a Research Program in The Arab World

The AUBMC – Children's Heart Center Model



Research in Pediatric Cardiology in the Arab World

Lessons Learned



## Publications of Dr. Fadi Bitar



Published 160 articles, book chapters and abstracts



Dr. Bitar received **Intramural and extramural** research **funding** amounting to about **\$2 million**.



Recipient of 32 national/  
international research  
grants, including the  
Dubai-Harvard  
Foundation Research  
Grant





# **Conferences and Media**



# Dr. Bitar Chaired and Organized Several Regional and International Meetings

## The International PedCard Beirut 2012

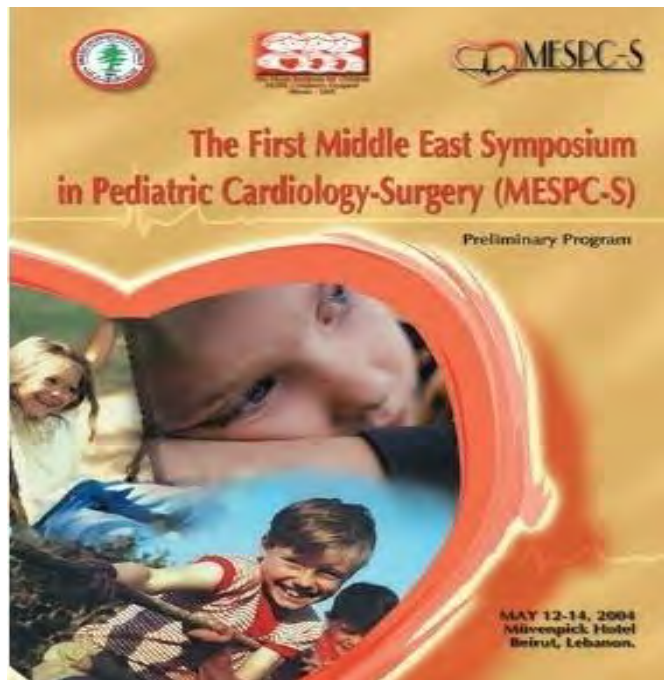


# Dr. Bitar Chaired and Organized Several International Meetings

First Middle East Symposium in Pediatric Cardiology - Surgery, 2005

Thinking in 3D whilst in Congenital Heart Disease, 2009

PACHDA symposium at the 7<sup>th</sup> World Congress of Pediatric Cardiology & Cardiac Surgery in Barcelona, 2017



Pan Arab Congenital  
Heart Disease Association



Dr. Bitar organized, moderated, chaired, and was an invited speaker to more than **140 national and international conferences** in Syria, Jordan, Saudi Arabia, Egypt, UAE, Yemen, Morocco, Turkey, Oman, Malaysia, Indonesia, USA, Switzerland, UK, Italy, South Africa, Spain, and Lebanon.

Dr. Bitar was involved in **hundreds of appearances** on national and international **newspapers, televised** programs and documentaries addressing the status of Congenital Heart Disease, Healthcare System, and Brave Heart Fund.





# **Medals, Awards and Recognitions**



# President Pan Arab Congenital Heart Disease Association

## The Pan Arab Congenital Heart Disease Association (PACHDA) Elects AUB Professor Fadi Bitar as its President



18-5-2016-The Pan Arab Congenital Heart Disease Association (PACHDA) elected Dr. Fadi Bitar, Professor and Director of AUBMC Children's Heart Center (CHC) and Associate Dean for EMA as its President in May 2016. The PACHDA is a scientific non-profit-making organization, founded in 2002, in Alexandria, Egypt. It aims at promoting the study of Congenital Heart Disease (CHD) in the Arab World and encompasses under its umbrella cardiologists, cardiac surgeons, intensivists, anesthesiologist, researchers and others whose primary interest is in the practice or research in CHD.



The Pan Arab Congenital Heart Disease Association (PACHDA) Elects AUB Professor Fadi Bitar as its President

5/17/2016



# Dr. Bitar enjoys the following

- Member of the Alpha Omega Alpha Honor Medical Society
- Member to the America's Registry of Top Physicians and Outstanding Professionals.
- Adviser for the World Health Organization
- Invited International Expert for "The Global Forum on Humanitarian Medicine" in Geneva.
- Recipient of the America's Top Physicians Award in 2004.



Dr. Bitar is the recipient of the "**Distinguished Golden Shield of Excellence**" for his outstanding Humanitarian contributions in the medical field, by the **Arab Women's Council** in 2016



Arab Women's Council Honors Dr. Fadi Bitar for his Humanitarian Contributions in the Medical Field, in 2016



Dr. Bitar is the recipient of the **Paul Harris distinguished model** for his outstanding contributions to the community and the Humanitarian Recognition Award for **“Service Above Self”**, presented by “Rotary International Clubs and Gift of Life Project” in USA



Dr. Fadi Bitar receives the Paul Harris Distinguished Model for outstanding contributions to the Community by GOLI and Rotary , in 2016



Dr. Bitar was awarded by the Kingdom of Saudi Arabia Embassy in Lebanon in 2017 a **Shield of Excellence and Token of Appreciation** for his innovative and creative contributions in the medical sector.



The Saudi Embassy in Lebanon honors Dr. Fadi Bitar for his innovative ,social and humanitarian contributions, in 2017



Dr. Bitar was the recipient of The **First Lebanese Pediatric Society Award**, A Token of Gratitude and Appreciation, April, 2018.





# **Testimonies**

**( Samples from colleagues,  
MOP, students, patients)**

# Testimony of Akl Fahed MD, Physician-Scientist at Harvard University, former student of Dr. Bitar

Summer 2013 Vol. 21 No. 4



**MainGate**  
American University of Beirut Quarterly Magazine



**LIFE  
CHANGERS**



## FADI BITAR

(BS '82, MD '86) Has taught pediatrics and adolescent medicine (cardiology), biochemistry since 1995.



## GEORGES NEMER

(BS '92) PhD University of Montreal. Has taught biochemistry since 2003.

I would not be [at Harvard Medical School today] were it not for **Dr. Fadi Bitar** and **Dr. Georges Nemer**. This duo has served as true mentors for more than ten generations of medical and graduate students, inspiring them to become successful scientists by instilling in them a magical scientific curiosity and going out of their way to provide them with every possible opportunity to achieve their goals. I can count more than 15 colleagues who are currently pursuing excellent careers in biomedical science in top-notch institutions in the United States who were mentored by Drs. Bitar and Nemer. I believe their mentorship is a great example to the AUBite community worldwide.

*Akl Fahed (BS '06, MD '10)*



# The First Patient to undergo percutaneous VSD Closure in Lebanon by Dr. Bitar 13 years ago has now graduated as Medical Doctor

## Letter of Dr. R. Hafez

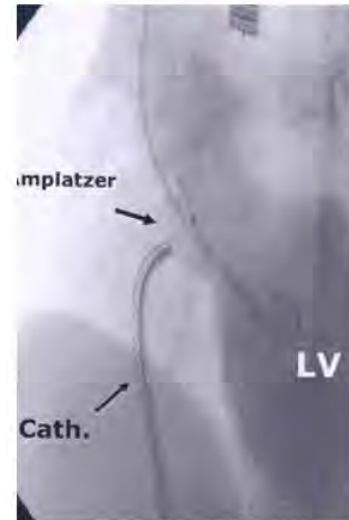
Goodmorning everyone,  
Our lives are full of hardships over which we have no control. Think of the many obstacles you were doomed to face without having a say, and yet you struggle and overcome to live an autonomous tomorrow, what if the obstacle was born with you and destined to accompany you through out your life? Would you still have a hope in an autonomous tomorrow?  
Being a patient with a congenital heart disease, I can confidently say yes! My presence here today as I am leading a healthy and normal life is the proof. I couldn't have made it without being surrounded by a great support system: ~~standing~~ My family who always supports and pushes forward, ~~the~~ Children's heart center and Dr. Bitar.  
Aside from receiving a successful cardiac intervention which was the first of its kind in the region 12 years ago by Dr. Bitar, I strongly believe that being at Children's heart Center at that time was of great impact. I can still remember the flood of care, respect, and empathy I received during that period. I really can't but mention that I still have the center's support up till now. My experience with this center taught me that medicine surpasses interventions, surgeries, and medical therapies. Medicine in CHC is an art of life. Seeing how doctors devote their time and energy to help patients in the best way possible, made me choose medicine in the hope that I would give something back one day.  
Congenital heart diseases were one day a nightmare. However, the success stories of Children's Heart center made of this nightmare an easily defeatable impediment after which life is normally resumed. These success stories were the leading medical achievements in the region through which the center proved to make rather than follow history.  
Thank you.

## A first for AUBMC and Lebanon: VSD Closed by Cardiac Catheterization without Open Surgery

2/4/2005

AUBMC News, December 2004, Office of Information and Public Relations | | [cmii@aub.edu.lb](mailto:cmii@aub.edu.lb) |

[Share](#) 0 [Tweet](#) 0 [Share](#) 0 [Share](#) New [Like](#) 0



Shows the Amplatzer device closing the defect between the 2 ventricles

For the first time at AUBMC and in Lebanon a ventricular septal defect (VSD) is closed by cardiac catheterization without the need for open surgery.

This October the American University of Beirut Medical Center (AUBMC) became the first hospital in the country to introduce a new device for closing defects involving the perimembranous ventricular septum. Only seven centers in the United States are participating in a phase-one clinical trial to use this new device and, as of July 2004, 30 devices had been implanted in the United States.

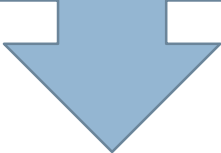
Dr. Fadi Bitar, director of Pediatric Cardiology at AUBMC, with the help of Dr. Ziad Hijazi, director of the Pediatric Cardiology Department at the University of Chicago, implanted Lebanon's first Amplatzer perimembranous VSD occluders. Dr. Samir Amaout, cardiologist and Drs. Fayek Louis and Samar Taha, anesthesiologists participated in the operation.

Testimony of Dr. R. Hafez. Dr. R. Hafez underwent closure of her VSD percutaneously and using an Amplatzer device about 15 years ago, this was the first case to be done in Lebanon and ahead of most centers in the United states. Dr. R. Hafez decided to become a medical doctor since then and she graduated this year. Forth herein was her speech during the CHC 20<sup>th</sup> Anniversary.



# Testimony of Dr. K. Salaymeh, a leading Pediatric Cardiologist in Jordan and the Arab World----- A Reflection of the status of Dr. Bitar in the Region

If the Arabs have more alike of Dr. Fadi Bitar, they would have been among the developed nations.....Dr. K. Salaymeh, *Leading Ped. Cardiologist, Jordan*



Message by Dr. Khaled Salaymeh, a leading Pediatric Cardiologist in Amman, Jordan and the Arab World

لازم احكي بالعربي عشان يطلم كلامي من اللي  
اشرك اخي الحبيب فادي علي استجابتك السريعه لايملي بخصوص الدكتور كمال  
هو في لو العرب عندهم زي الدكتور فادي بيطار كثير كان محلنا بين الدول المتقدمه.  
اخوكم المحب كمال



Khaled Salaymeh <kal\_salaymeh@hotmail.com>  
Re: salamat from Amman; and Fellowship candidate



Comment of MOP, in regard to the First-of-its-kind procedure in the World that Dr. Bitar performed during the critical situation in Lebanon---

----- A reflection of Dr. Bitar's impact on his community

During the darkness that is surrounding us, there is hope in another place, reflected by the exceptional achievement of Dr. Fadi Bitar ,....., and which reflect the real face of Lebanon during these difficult times..... HE Mr. W. Joumlatt, 2013

انجاز طبي لبناني في عملية قلب

وطنية - ادلى رئيس "جبهة النضال الوطني" النائب وليد جنبلاط بموقفه الاسبوعي لجريدة "الانباء" الالكترونية، وقال

ولكن مع كل هذه الظلمة، تلوح بارقة أمل في مكان آخر، وهي ذلك الانجاز الطبي الهام الذي حققه الدكتور فادي بيطار والذي يضاف الى سلسلة من الانجازات  
التي حققها اسلافه في المجال العلمي والطبي في لبنان والخارج، وهي تعكس الوجه الحقيقي، البشري الذي يشرفنا من يوم من خلال الانقسامات  
السياسية التي لا تنتهي والحسابات الفتوية الضيقة التي تكاد تضرب كل الايجابيات وتهجر الطاقات والكفاءات من هذا البلد الذي لطالما تميز بموارده  
البشرية الاستثنائية في العديد من الاختصاصات والقطاعات.





# Conclusion

Our achievements are because of the **trust bestowed** upon us by our **patients and their families**



# We Accomplish Because We Function as One Team



# We Succeed Because of The Love of Our Families



**“Professor Fadi Bitar, A humanitarian Physician-Scientist,  
makes the world a better place ”**

