

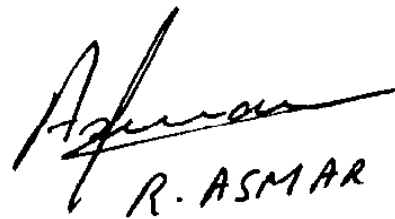


Foundation – Medical Research Institutes

Activities Report 2018

F-MRI®

Pr. Roland Asmar
Chairman



R. ASMAR

Date: January 21th, 2019

Signature

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Foundation – Medical Research Institutes

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Summary

Research, especially in the health area, represents a major issue in the health organization. All actors involved in the healthcare system meet interests in the research development: patients, universities, hospitals, researchers and industries.

The Foundation - Medical Research Institutes (F-MRI®), established since 2009 as public utility non-for-profit organization in Geneva (Switzerland), has the objective to develop the Academic Medical Research and Continuing Medical Education (CME). The F-MRI® initiated its research activities in the Middle-East since 2010 with the establishment of the Lebanese F-MRI® unit. In 2016, the F-MRI® decided to reduce its activities in the Middle East to extend and develop them in Europe.

The previous annual “Activities Reports” reported the main activities undertaken by the Foundation till 2017. The corresponding projects realized were subjects of mutual conventions between the F-MRI® Geneva (the initiator and promoter), and the F-MRI® Beirut (Executor). The other European projects were realized directly by the F-MRI® Geneva in collaboration with several European scientific societies & Institutions. In 2017, the F-MRI® developed its activities in Europe by initiating several research and academic projects. The present “Activities Report” reports the main activities conducted by the F-MRI® in 2018.

Overall, the activities undertaken during 2018 were significant in Europe. The F-MRI® has set up an “academic international scientific committee” and initiated other European activities such as an “European clinical study” involving digital health technology. Moreover, during 2018, the F-MRI® initiated a collaborative project with the World Health Organisation (WHO, Geneva) and Biospeedia-Institut Pasteur (Paris) to be performed in Africa.

The future perspectives for 2019 are also described.

Main Issues- Administration

The Foundation - Medical Research Institutes (F-MRI): Governance*

The Foundation - Medical Research Institutes (F-MRI®, Geneva Switzerland), is a [public utility non-for-profit organization registered in Geneva, regulated by the Swiss law](#). This organization chaired by its founder, Prof Roland Asmar has been established in 2009 and officially recognised in 2010. It is registered with the trade and placed under the control of the supervisory authority of the Federal Department of Home Affairs in Bern, Switzerland.

Headquarter: The Foundation's headquarters location is: Place Saint Gervais 1, Po Box 2049, 1211 Geneva 1, Switzerland. Tel: +41 22 909 89 00. Fax: +41 22 909 89 39.
Email: contact@f-mri.org ; Web: www.f-mri.org

Main Projects:

1- Development in the Middle-East

The project « **Development of Academic Medical Research in the Middle-East** » has been described in a specific brochure. Briefly, the main objective of the project is to develop the research activities in medical science in the Middle-East region.

Establishing of Lebanese local F-MRI Entity: To operate in the Middle-East, the Foundation has established a local independent legal office in Beirut, Lebanon as a public utility, non-for-profit organization registered in Beirut and regulated by the Lebanese law. This entity chaired by Prof Roland Asmar has been established in 2010 and officially recognised in 2011. It is registered under the control of the supervisory authority of the Ministry of Interior, Lebanon.

Various important activities have been initiated, most of them have been completed in 2018. Decision has been taken to reduce the F-MRI® activities in Lebanon to develop its activities through Europe.

2- Development in Europe

In 2017, decision has been taken to develop the F-MRI® activities, in terms of Medical Research, Digital Health technology and Continuous Medical Education (CME), in Europe. These activities are being developed since 2017 in collaboration with scientific societies, institutions, and key-opinion leaders across western and eastern European countries.

3- Establishment of an International Scientific committee

To initiate its activities at European and International level, the Foundation has established in 2017 a scientific committee which includes European experts. These recognized experts include:

- Prof Bernard Waeber, Lausanne Switzerland
- Prof Michel Burnier, Lausanne Switzerland
- Prof Daniel Hayoz, Fribourg Switzerland
- Prof Massimo Volpe, Rome Italy
- Prof Luis Ruilope, Madrid Spain
- Prof Roland Asmar, Paris France

the first meeting of the international scientific committee took place (June 2018) in Barcelona during the European Society of Hypertension congress.

Education in Medical Research

Education in medical research is crucial and must be provided to all the actors in this field.

The project to provide high level university education in medical research was initiated in collaboration with the Lebanese University. In this project, the F-MRI® Geneva, the initiator and promoter, delegates to F-MRI® Beirut the task of their local achievements. This specific education was organized at two education levels:

- A university diploma (UD) proposed to post-doctorate students, the objective of which is to introduce future investigators in research fundamentals, related regulatory and technical requirements.
- A professional Clinical Research Associate (CRA) education recognized by a university certificate, proposed to students having achieved their baccalaureate + three years of higher education, who are interested in becoming CRAs.

These two university educational levels, initiated at the Lebanese University in 2010, welcomed students from various Lebanese universities (Lebanese University, University St Joseph, American University of Beirut, Lebanese International University, Beirut Arab University, Saint-Esprit Kaslik University). These diplomas were achieved till 2017 when decision was taken to stop them and transform the research education to other form.

The University Diploma (UD): “Principles of Medical Research”

The organization of this university diploma involved a collaborative participation of local and international experts, with the participation of experts from Beirut (Lebanon) but also from Toulouse, Nancy and Paris VI Universities (France), as well as Basel (Switzerland) and Cambridge (United Kingdom).

Since 2010, 7 academic years took place with 7 distinct classes. Two hundred students took benefits from this university education.

University Diploma “Principles of Medical Research”		
Academic Year	Class	Number of students
2010-2011	“Galien”	35
2011-2012	“Pasteur”	31
2012-2013	“Pierre & Marie Curie”	16
2013-2014	“Claude Bernard”	23
2014-2015	“René Descartes”	29
2015-2016	“Galileo”	27
2016-2017	“Inna Iljin”	39
TOTAL		200

The Certificate of “Clinical Research Associate” (CRA)

The certificate of CRA was proposed to students who are interested in becoming clinical research associate (CRA). Like the post Doc University diploma, the organisation of this certificate involves experts from local and international universities.

Since its establishment in 2010, 7 distinct classes were performed. More than 110 students took benefits from this university education.

Certificate of “Clinical research Associate”		
Academic Year	Class	Number of students
2010-2011	“Galien”	8
2011-2012	“Pasteur”	16
2012-2013	“Pierre & Marie Curie”	13
2013-2014	“Claude Bernard”	24

2014-2015	<i>"René Descartes"</i>	15
2015-2016	<i>"Galileo"</i>	18
2016-2017	<i>"Inna Iljin"</i>	17
TOTAL		111

Decision was taken in 2017 to stop the achievement of this university education after the academic class 2016-2017. Other form of teaching the principles of Medical research are discussed and maybe performed in the future.

Research

1- Clinical Research Units (CRUs)

Clinical Research Units (CRUs) are units created within academic hospitals; they are meant to promote the development of clinical research and improve the conditions of clinical study realization.

The F-MRI® initiated the implementation of 2 distinct CRUs in 2 academic hospitals:

A- Mount Lebanon Hospital (MLH): This hospital is in Beirut and affiliated to the Faculty of Medicine of the Lebanese University. This multidisciplinary hospital has several excellence centres mainly in oncology, medical imaging, and endocrinology. The CRU established in October 2011 and has become totally independent in 2016. No action has been taken by the F-MRI® since its independency.

B- Lebanese Hospital Geitawi: This hospital is in Beirut and affiliated to the Faculty of Medicine of the Lebanese University. The set-up of the CRU at Geitawi hospital was operational in 2014 and become totally independent in 2017. No action has been taken by the F-MRI® since its independency.

The F-MRI® contributed also in establishing Ethical committee and Institutional Review Board (IRB) at these hospitals.

2- Basic Science Research

The F-MRI® initiated a basic science research unit within the Faculty of Medicine at the Lebanese University under the direction of Pr M. Chahine.

A first project, entitled "[Tissue regulation of telomeres' length - Simultaneous study on telomeres' length in different tissue types](#)", was initiated with the collaboration of the CHU de Nancy, France (Prof. Athanase Benetos) and the University of New Jersey, USA (Prof. Abraham Aviv).

The study was performed in the CRU of the Lebanese Hospital Geitawi. All DNA extraction has been totally performed at the Lebanese university and sent for telomere's length measurement at the CHU of Nancy (France) and New Jersey University (USA).

The results of this study have been presented as 2 poster presentations (in France Nice Sept 2017; Paris Nov 2017) and one oral presentation (Canada April 2018):

- S. Toupence, I. Tzanetakou, M. Chahine, P. Konstantopoulos, S. Gautier, M. Korou, C. Lakomy, I. Doulamis, C. Labat, A. Gkogkos, R. Asmar, D. Perrea, A. Benetos. Longueur des télomères et attrition télomérique dans les contextes de stress oxydant et d'inflammation chroniques. Presented during the 37eme journée annuelles de la société Française de Gériatrie et Gérontologie, Paris, France from 27 to 29 Novembre 2017, L'Année Gérontologique, 2017 ; 31 :3 (01-1).
- S. Toupence, I. Tzanetakou, M. Chahine, P. Konstantopoulos, S. Gautier, M. Korou, C. Lakomy, I. Doulamis, C. Labat, A. Gkogkos, N. Settembre, T. Moussallem, K. Perreas, L. Frimat, P. Yared, E. Menenakos, J. Hubert, M. Vasiloglou, S. Malikov, R. Asmar, D. Perrea, A. Benetos. Telomere length and telomere attrition in chronic oxidative stress and inflammation. Presented during the EUGMS in Nice, France from 20 to 22 September 2017, European Geriatric Medicine 8S1:S40-S247.
- Chahine M, Toupance S, El-Hakim S, Labat C, Gautier S, Moussallem T, Yared P, Asmar R, Benetos A. Telomere Length and Age-dependent Telomere Attrition the Blood-and-Muscle Model". Winnipeg, Canada, April 2018.

Part of these results has been submitted for publication to international peer-reviewed journals in 2018:

- Chahine M, Toupance S, El-Hakim S, Labat C, Gautier S, Moussallem T, Yared P, Asmar R, Benetos A. Telomere Length and Age-dependent Telomere Attrition the Blood-and-Muscle Model". Submitted for publication.

3- Epidemiological research

This project has been submitted to the head-office F-MRI® Geneva by the Lebanese F-MRI® unit. After its approval, it has been the subject of a mutual convention between the F-MRI® Geneva and the F-MRI® Beirut. The F-MRI® initiated [two Epidemiological projects on the “Prevalence” and the “Management” of Cardiovascular Diseases overall Lebanon.](#)

○ **The “Prevalence” project:**

The objectives of the prevalence study were to evaluate major Cardiovascular (CV) risk factors and to assess the prevalence of Cardiovascular Diseases (CVD) in the adult Lebanese population. For details C.F the previous activities Reports.

Data collection and analysis have been performed.

[Three PhD candidates](#) who participated among others to the data collection were registered in “co-tutelle” with the Lebanese University and 3 French universities; all students obtained successfully their PhD Diploma from both the Lebanese and the French Universities:

- 1- Rouba Karen Zeidan: Lebanese University & Toulouse III University / Co-supervisor: Pr Atul Pathak/ Pr Pascale Salameh.
- 2- Rita Farah: Lebanese University & Paris-Est University Créteil/ Co-supervisor: Pr Hassan Hosseini / Pr Pascale Salameh.
- 3- Michelle Cherfan: Lebanese University & Paris VI / Co-supervisor: Pr Jacques Blacher / Pr Pascale Salameh.

To date, this study has delivered several publications in international journals and others are in process:

1. Salameh P, Zeidan RK, Hallit S, Farah R, Chahine M, Asmar R, Hosseini H. Cardiovascular Diseases and Long-term Self-reported Exposure to Pollution: Results of a National Epidemiological Study in Lebanon. *J cardio Pulm Rehabil Prev.* 2019; 39 (1):43-49.
2. Cherfan M, Blacher J, Asmar R, Chahine M, Zeidan R, Farah R, Salameh P. Prevalence and risk factors for hypertension: a nationwide cross-sectional study in Lebanon. *J Clin Hypertens* 2018; 20:867-879.
3. Pascale Salameh, Mirna Chahine, Souheil Hallit, Rita Farah, Rouba Karen Zeidan, Roland Asmar, Hassan Hosseini. Hypertension prevalence and living conditions related to air pollution: results of a national epidemiological study in Lebanon. *Environ Sci Poll Res Int.* 2018; 25 (12):11716-11728.
4. Salameh P, Farah R, Zeidan K, Chahine MN, Asmar R, Hosseini H. Self-reported history of stroke and long-term living conditions near air pollution sources: results of a national epidemiological study in Lebanon. *Environ Monit Assess.* 2018; 190:153-164.
5. Rouba Karen Zeidan, Rita Farah, Mirna N Chahine, Roland Asmar, Pascale Salameh, and Atul Pathak. (2016) Prevalence and Correlates of Coronary Heart Disease: First Population-based Study in Lebanon *Vascular Health and Risk Management* 2016; 12:75–84.
6. Rita Farah, Rouba Karen Zeidan, Mirna N. Chahine, Roland Asmar, Ramez Chahine, Pascale Salameh, and Hassan Hosseini. (2016) Predictors of uncontrolled blood pressure in treated hypertensive individuals: First population-based study in Lebanon. *J Clin Hypertens.* 2016;1–7.
7. Rita Farah, Rouba Karen Zeidan, Mirna N. Chahine, Roland Asmar, Ramez Chahine, Pascale Salameh, and Hassan Hosseini. (2015) Prevalence of Stroke Symptoms in among stroke-free residents: First National Data from Lebanon. *Int J Stroke.* 2015;10 (Suppl A100): 83-88.

○ **The “Management” project:**

The objectives of this study were to assess the management of the major cardiovascular risk factors in the Lebanese adult population versus clinical practice guidelines and to evaluate the quality of the management of each of the major cardiovascular risk factors versus clinical practice guidelines,

Data collection and statistical analysis have been finalized. The results have been presented in several Thesis at the Lebanese Faculty of medicine to obtain the diploma as Doctor in General Medicine. Part of these results are submitted for publication in international peer review journal.

4- Public Health Research

These projects are the subject of an agreement and mutual convention in which the F-MRI® Geneva, the initiator and promoter, delegates to F-MRI® Beirut the task of their local achievements.

[A- Management of hypertension and diabetes in patients with Target Organ Damages and/or previous cardiovascular diseases in multicentric academic hospitals of Beirut and Mount-Lebanon. Where do we stand with respect to international guidelines?](#)

The objectives of this study is to assess the Lebanese doctor's management of hypertension and diabetes in patients with target organ damages and/or previous cardiovascular diseases in primary health care centers.

Data collection has been finalized in 2017; statistical analysis and results have been presented in 2018 in a thesis at the faculty of medical sciences of the Lebanese University:

- Abi Abdallah M, Challita R, Kekedjian J. Management of hypertension ad diabetes in patients with target organ damages and/or previous cardiovascular diseases in multicentric hospitals. Where do we stand with respect to International guidelines? Thesis to obtain the Diploma of Medical Doctor. 2018.

The results have been submitted for publication

[B- Evaluation of potential drug-drug interactions \(DDIs\) in patients with cardio-metabolic diseases in multi-centric academic hospitals of Beirut and Mount -Lebanon.](#)

The objectives of this study is to determine the prevalence of potential drug-drug interactions (DDIs) in the prescriptions given to in and out-patients with cardiometabolic diseases and to evaluate the effectiveness of prescriptions in terms of posology and indications.

Data collection and their analysis in collaboration with pharmacologist have been finalized and presented in 2018 in a thesis at the faculty of medical sciences of the Lebanese University:

- El Houwayek E, Jabbour E, Matar M. Prevalence of potential drug interactions in doctors' prescriptions for patients with cardiometabolic diseases. A multicentric retrospective study from Beirut and Mount-Lebanon hospitals. Thesis to obtain the Diploma of Medical Doctor. 2018.

The results have been submitted for publication.

5- Other Research: Devices

[Assessment of the accuracy of the blood pressure measurements using 3 various methods in 4 special populations \(obese, pregnant, elderly, arrhythmic patients\), according to the European Society of Hypertension \(ESH\) Protocol:](#)

The primary objective of the study is to assess the accuracy of automatic oscillometric BP devices: the Microlife WatchBP O3® (at the brachial level) and the OMRON RS6® (at the wrist level) in special populations, the elderly subject, the pregnant woman, the obese subject, and the arrhythmic patient according to the ESH protocol.

Study in obese subjects: This project has been finalized and published

- Azaki A, Diab R, Harb A, Asmar R, Chahine MN. Questionable accuracy of home blood pressure measurements in the obese population – Validation of the Microlife WatchBP O3® and Omron RS6® devices according to the European Society of Hypertension-International Protocol. *Vascular Health and Risk Management*. 2017; 13:61-69.

Study in the elderly and arrhythmic populations: This project has been finalized and presented in 2018 in a thesis at the faculty of medical sciences of the Lebanese University.

- Abi Doumeth S, Chedid T, Dagher Ch. Accuracy of the Microlife WatchBP O3® and the Omron RS6® blood pressure devices in the elderly and the arrhythmic populations. Thesis to obtain the Diploma of Medical Doctor. 2018.

The results have been submitted for publication.

[Clinical accuracy of the Omron M3 Comfort® and the Omron Evolv® for self-blood pressure measurements in pregnancy and pre-eclampsia - validation according to the Universal Standard Protocol.](#)

The objective of the study is to assess the accuracy of automatic oscillometric BP devices, the OMRON M3 Comfort® and the Omron Evolv® (at the brachial level) in pregnancy and pre-eclampsia according to the ESH/AAMI/ISO “Universal” validation protocol.

The study was performed with data collection and analysis in 2018. The results have been published:

- Topouchian J, Hakobyan Z, Asmar J, Gurgonian S, Zelveian P, Asmar R. Clinical accuracy of the Omron M3 Comfort® and the Omron Evolv® for self-blood pressure measurements in pregnancy and pre-eclampsia - validation according to the Universal Standard Protocol. Vasc Health Risk Manag. 2018 ; 14 :189-197.

[Reproducibility of the European Society of Hypertension Protocol for validation of blood pressure measuring devices – Application to the OMRON RS7® \(HEM-6232T-E\) in obese patients.](#)

The objective of this study is to analyze the inter-center reproducibility of the European Society of Hypertension -International protocol (ESH-IP) in patents with large arm circumference ≥ 32 cm or obesity while assessing the accuracy of the OMRON RS7® (HEM-6232T-E) wrist device.

The study was performed with data collection and analysis in 2018; Results are submitted for publication:

Tasic D, Topouchian J, Dragisic D, Tasic N, Hakobyan Z, Vatinian S, Zelveian P, Asmar R. Reproducibility of the European Society of Hypertension Protocol for validation of blood pressure measuring devices – Application to the OMRON RS7® (HEM-6232T-E) in obese patients. Submitted for publication.

6- Collaboration with the CNRS (Centre National de la Recherche Scientifique)

The F-MRI® has developed the research in collaboration with recognized national institutions such as the CNRS. In this regard, our project entitled:” Validation of the Microlife WatchBP O3® & the OMRON RS6® in arrhythmic patients, elderly subjects, pregnant women, and obese patients according to the European Society of Hypertension International Protocol (ESH-IP)”, has been agreed by the CNRS.

7- Collaboration with The World Health Organization (WHO - Geneva) and Biospeedia - Institut Pasteur (Paris)

Rapid diagnostic tests for the detection of bacterial meningitis

Meningitis continues to affect sub-Saharan Africa causing the death of thousands of people every year. In 2017, Nigeria, Niger and Togo were particularly affected, but all the 26 African countries in the so-called “meningitis area” regularly experiences terrible episodes as well. [The detection and rapid identification of meningitis is crucial for triggering epidemic response, including vaccination and treatment.](#) To reduce the diagnostic time, tests that can provide diagnosis within a few minutes are of crucial importance. New tests, developed by BioSpeedia - Institut Pasteur (Paris France) seem promising. The WHO in collaboration with the Pasteur Institute of Paris and the national authorities initiated the study in Burkina Faso and Niger. The Foundation-Medical Research Institutes (F-MRI®) contributes and supports this important project. The study was initiated in April 2018. Up to December 2018, 103 patients were included.

During the study committee meeting (Paris, Dec 17th, 2018) WHO presented the preliminary results from 103 patients:

- Observers training and education were performed by the WHO and Biospeedia-Institut Pasteur teams since May 2018.
- Feasibility of the test is satisfactory and qualified as “good”.
- Preliminary results are in favor of good sensitivity of the test

Recommendations were given to continue the study and to achieve the recruitment of needed patients (n=461).

Specific preliminary report established by the WHO is available upon request.

8- Collaboration with The International Society of Vascular Health (ISVH®)

Mobility Hypertension Management Project

The International society of Vascular Health (ISVH®) in collaboration with the Foundation-Medical Research Institutes (F-MRI®) initiated an European study entitled: “Mobility Hypertension management”.

This prospective study aims to assess the efficacy of using the telehealth solution “Hypertension Monitor” in patients with hypertension by comparison to the standard care. This is a multicentre, international, prospective study, planned to be performed in about 20 centres from 16 European countries.

INTENDED PARTICIPATING COUNTRIES & CENTERS

COUNTRIES	CENTRES	COUNTRIES	CENTRES
• ARMENIA	2	• POLAND	2
• BELGIUM	1	• PORTUGAL	1
• BULGARIA	1	• THE NETHERLANDS	1
• CROATIA	1	• ROMANIA	1
• CZECH REPUBLIC	1	• RUSSIA	2
• FRANCE	1	• SERBIA	1
• HUNGARY	1	• SPAIN	1
• ITALY	1	• SWEDEN	1
• LATVIA	1	• UKRAINE	2

The study was setup in 2018 and will start gradually according to the country by Q4, 2018.

9- Publications - 2018

Publications in international peer-reviewed journals in 2018:

1. Salameh P, Zeidan R, Hallit S, Farah R, Chahine M, Asmar R, Hosseini H. Cardiovascular Diseases and Long-term Self-reported Exposure to Pollution: Results of a National Epidemiological Study in Lebanon. *J cardio Pulm Rehabil Prev.* 2019; 39 (1):43-49.
2. Cherfan M, Blacher J, Asmar R, Chahine M, Zeidan. R, Farah R, Salameh P. Prevalence and risk factors for hypertension: a nationwide cross-sectional study in Lebanon. *J Clin Hypertens* 2018; 20:867-879.
3. Topouchian J, Hakobyan Z, Asmar J, Gurgonian S, Zelveian P, Asmar R. Clinical accuracy of the Omron M3 Comfort® and the Omron Evolv® for self-blood pressure measurements in pregnancy and pre-eclampsia - validation according to the Universal Standard Protocol. *Vasc Health Risk Manag.* 2018; 14 :189-197.
4. Stergiou GS, Palatini P, Asmar R, Bilo G, de la Sierra A, Head G, Kario K, Mihailidou A, Wang J, Mancia G, O'Brien E, Parati G. Blood pressure monitoring: theory and practice. European Society of Hypertension Working Group on Blood Pressure Monitoring and Cardiovascular Variability Teaching Course Proceedings. *Blood Press Monit.* 2018; 23(1):1-8.
5. Safar ME, Asmar R, Benetos A, Blacher J, Boutouyrie P, Lacolley P, Laurent S, London G, Pannier B, Protogerou A, Regnault V; French Study Group on Arterial Stiffness. Interaction Between Hypertension and Arterial Stiffness. *Hypertension.* 2018; 72(4):796-805.
6. Palatini P, Asmar R. Cuff challenges in blood pressure measurement. *J Clin Hypertens.* 2018 20(7):1100-1103.
7. Myers MG, Asmar R, Staessen JA. Office blood pressure measurement in the 21st century. *J Clin Hypertens.* 2018 ;20(7):1104-1107..
8. Stergiou G, Palatini P, Asmar R, de la Sierra A, Myers M, Shennan A, Wang J, O'Brien E, Parati G. Blood Pressure Measurement and Hypertension Diagnosis in the 2017 US Guidelines: First Things First. *Hypertension.* 2018; 71(6):963-965.
9. Pascale Salameh, Mirna Chahine, Souheil Hallit, Rita Farah, Rouba Karen Zeidan, Roland Asmar, Hassan Hosseini. Hypertension prevalence and living conditions related to air pollution: results of a national epidemiological study in Lebanon. *Environ Sci Pollut Res Int.* 2018; 25(12):11716-11728.
10. Stergiou GS, Alpert B, Mieke S, Asmar R, Atkins N, Eckert S, Frick G, & al. A Universal Standard for the Validation of Blood Pressure Measuring Devices: Association for the Advancement of Medical Instrumentation/European Society of Hypertension/International Organization for Standardization (AAMI/ESH/ISO) Collaboration Statement. *Hypertension.* 2018; 71(3):368-374.
11. Stergiou GS, Asmar R, Myers M, Palatini P, Parati G, Shennan & al. Improving the accuracy of blood pressure measurement: the influence of the European Society of Hypertension International Protocol (ESH-IP) for the validation of blood pressure measuring devices and future perspectives. *J Hypertens.* 2018; 36 (3):479-487.
12. Stergiou GS, Alpert B, Mieke S, Asmar R, Atkins N, Eckert S &al. A universal standard for the validation of blood pressure measuring devices: Association for the Advancement of Medical Instrumentation/European Society of Hypertension/International Organization for Standardization (AAMI/ESH/ISO) Collaboration Statement. *J Hypertens.* 2018; 36 (3):472-478.
13. Salameh P, Farah R, Zeidan K, Chahine MN, Asmar R, Hosseini H. Self-reported history of stroke and long-term living conditions near air pollution sources: results of a national epidemiological study in Lebanon. *Environ Monit Assess.* 2018; 190:153-164.
14. Topouchian J, Labat C, Gautier S, Bäck M, Achimastos A, Blacher J, Asmar R & al. Effects of metabolic syndrome on arterial function in different age groups: The Advanced Approach to Arterial Stiffness study. *J Hypertens.* 2018; 36(4):824-833.

Continuous Medical Education

Continuous Medical Education (CME) is one of the major objectives of the F-MRI®. To develop recognised and accredited CME activities, [the Foundation has entered in 2011 an agreement with the “International Society of Vascular Health”](#). Moreover, most of the CME activities initiated by the F-MRI are [accredited by the European authorities \(EBAC\)](#).

To develop its European CME activities in Europe, the F-MRI® decided in 2016 to limit the CME activities in the Middle-East and to favour those initiated in Europe in collaboration with national or international European scientific societies.

In 2018, the F-MRI® organized in collaboration with the International Society of vascular Health (ISVH) and the “Hypertension, Infarction, Stroke Prevention Association” (HISPA), under the patronage of the Ministry of Health, an outstanding meeting with national and International speakers:

[“Personalized Approach to Cardiovascular Prevention and Therapy”](#)

During this meeting, the F-MRI® was involved particularly in the organisation of the symposium entitled: [“Achieving Reliable Blood Pressure Measurements in Clinical Practice- Meet the Challenges”](#). The meeting took place oct 26-28, 2018 in Belgrade Serbia. More than 500 participants attended the meeting.

Future Perspectives

The F-MRI® will continue in 2019 to develop its activities in Europe while maintaining moderate activities in the Middle-East.

1- Education

- **Seminars on medical research**
The foundation is willing to develop specific modulus and seminars. These seminars will be organised as “[Master classes](#)” and will take place at the end of the week for 2 to 3 days.
- **MD Thesis:** The F-MRI® will continue to welcome and [support resident students](#) from the Lebanese University Faculty of Medicine to help them define the subjects of their thesis and realize the corresponding studies.
- **PhD Thesis:** The F-MRI® will continue to support students from the Lebanese University Faculty of Medicine to help them define the subjects of their PhD thesis in collaboration or by co-tutelle with European universities.

2- Research

- **Epidemiological & Public Health Studies**

F-MRI® is willing to continue exploring in 2019 the results of this large national evaluation study entitled: “*The Cardiovascular Prevalence and Management Lebanese Project*”.

- **Validation of Medical devices**

F-MRI® will continue to develop its research on the accuracy assessment of medical devices, particularly on devices for blood pressure measurements.

The F-MRI® (Pr R Asmar) is collaborating with several international authorities, for the development of a unique standard, namely the “Universal” validation protocol for blood pressure measurement devices.

3- Continuous Medical education (CME)

- The F-MRI® will continue to develop the regional CME activities in collaboration with the International Society of Vascular Health (ISVH®), national and International other scientific societies.