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Cardiac Surgery in Iran

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Conflict and disclosure

NO

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Italy & Iran Roman & Persian Empires



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Iran Demographic characteristics

- Iran's population : 79.9 million (2016)
 - Rural ~ 20 million (26%)

31 provinces

- GDP per capita: 16,000 \$
- Fertility Rate: 1.9%

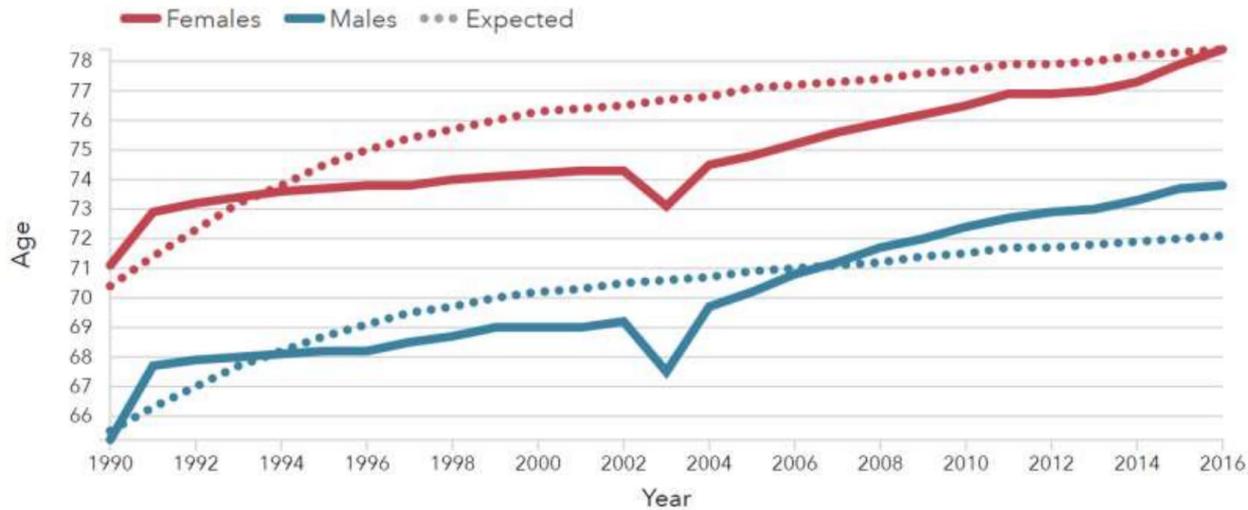


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Life expectancy at birth from 1990 to 2016



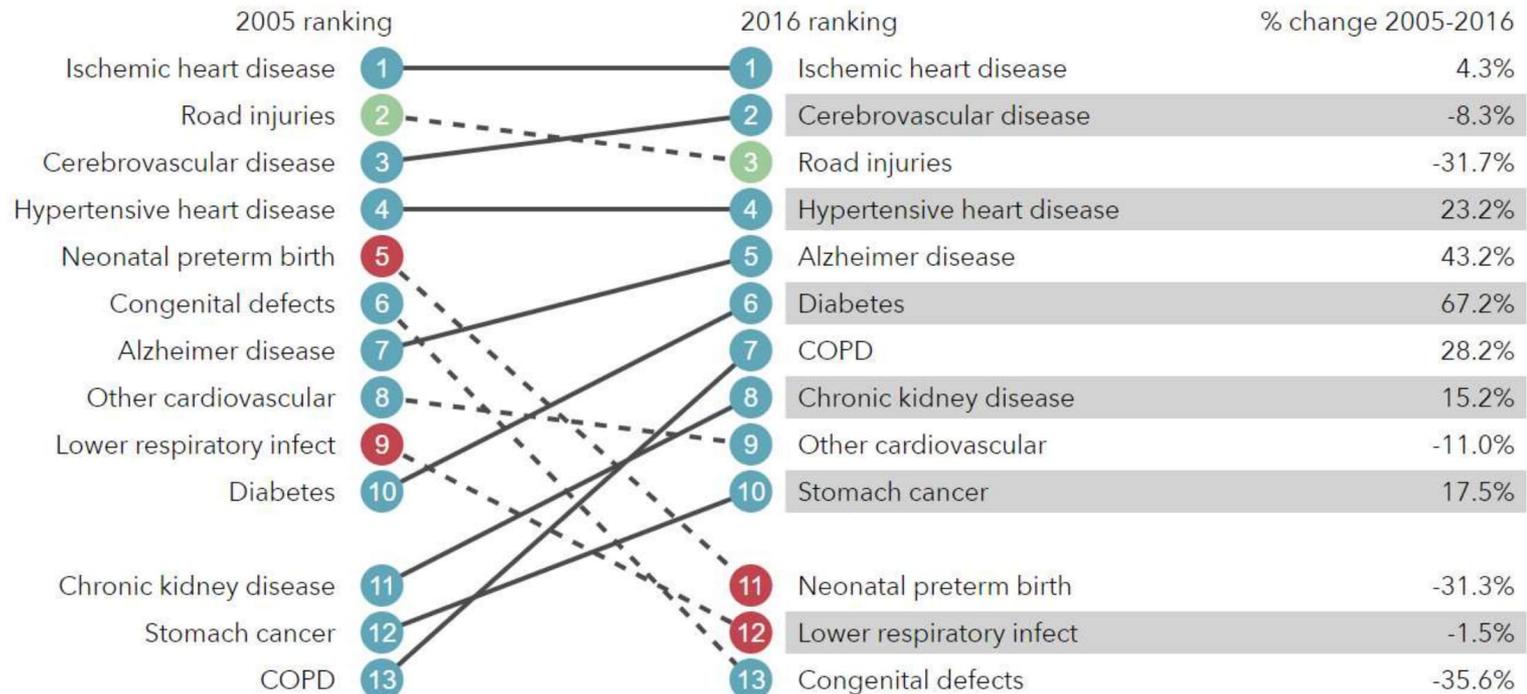
	Expected		Observed	
	1990	2016	1990	2016
Females	70.4	78.4	71.1	78.4
Males	65.5	72.1	65.2	73.8

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Top 10 Causes of Death in Iran



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Burden of Cardiovascular Diseases in the Eastern Mediterranean Region, 1990–2015

Iran's Epidemiological Status of CVDs

- One of the highest regional prevalence rates: >9,000 /100,000
- A 5.9% prevalence rate of CAD
- Relatively low age-standardized death rate of CVDs
- Rheumatic heart disease (2.1% of all CVDs)

- ✓ World Health Organization. *The Global Burden of Disease: 2004 Update* (WHO, 2008).
- ✓ Karam Turk-Adawi, Nizal Sarrafzadegan et al, Cardiovascular disease in the Eastern Mediterranean region: epidemiology and risk factor burden, NATURE REVIEWS | CARDIOLOGY, doi:10.1038/nrcardio.2017.138 Published online 21 Sep 2017
- Ali H. Mokdad, et al, Burden of cardiovascular diseases in the Eastern Mediterranean Region, 1990–2015: findings from the Global Burden of Disease 2015 study, Int J Public Health, DOI 10.1007/s00038-017-1012-3
- ✓ Roth et al. Global Burden of Cardiovascular Diseases 2015, JACC VOL. 70, NO. 1, 2017 JULY 4, 2017: 1–25 Global Burden of Cardiovascular Diseases 2015

Iranian Ministry of Health's RF Project (1990-1991)

**Total number of the survey:
7,209,099 students**

RHD : 0.58/1000

RF+RHD: 0.78/1000

26% of them had RF without RHD.

CHD : 1.48/1000

CHD+MR : 1.94/1000

Survey Structural Heart Diseases In 15000 students in Tehran 2017-2018

By Echocardiography

Echo findings , Preliminary results

- There were **(0.3%)** children who met the criteria for susceptible RHD cases based on WHO criteria.
- There were **(0.3%)** children with cardiomyopathy.
The amounts of LVEF were 35% and 50%
- There were **(1.5%)** children with CHD

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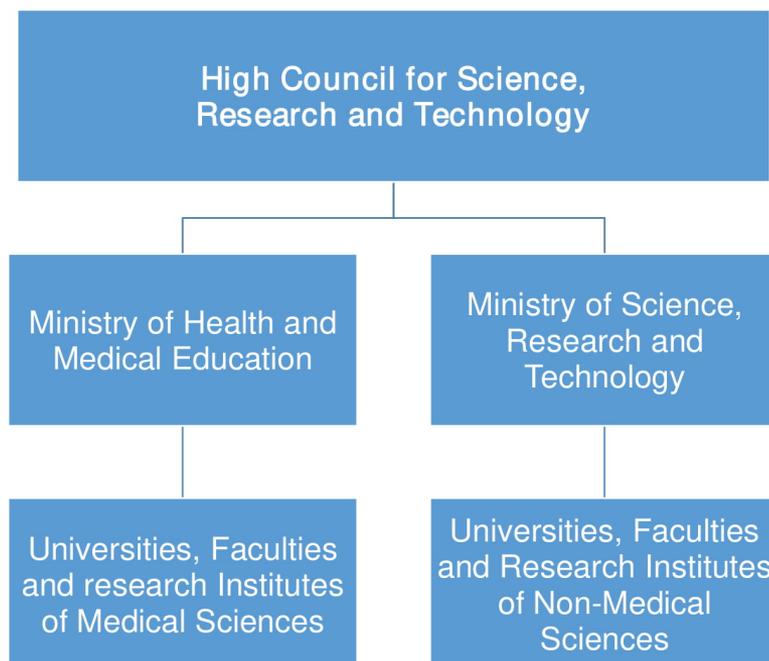
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Science and Technology Structure in IR Iran



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Modern Higher Education in Iran, Timeline

1849

Establishment of *Dar-ol-Fonoon School* as the First Modern College of Higher Education in Iran

1851

Establishment of Dar ol-Fonoon
Department of Medicine

1918

Establishment of the *College of Medicine* as a Separate Independent School under the Supervision of the
Ministry of Science



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Modern Higher Education in Iran, Timeline

1934

Establishment of the *University of Tehran*, the School of Medicine and then the Schools of Law, Political Sciences, Science, Engineering, and Theology

1985

Dividing Medical Education and Related Disciplines from the Ministry of Science and the Establishment of the *Ministry of Health and Medical Education*



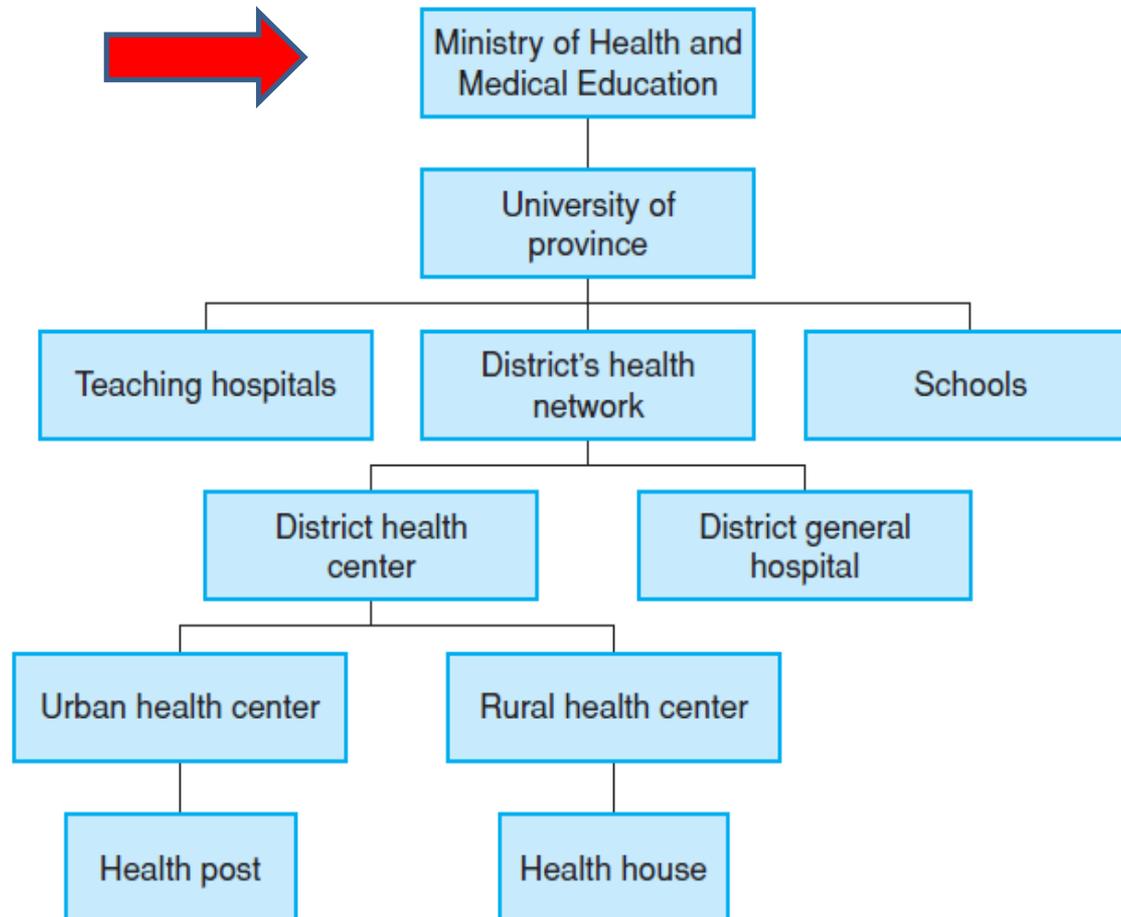
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Health System of Iran from 1993

Integration



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Integration of Medical Education, Research and Healthcare Delivery

- Integration of medical education and healthcare delivery is the main policy in Iran Health system.
- Medical universities and faculty staffs are responsible for health services as well as their educational responsibilities.



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Medical Sciences Universities in Iran

- There is at least **1** “University of Medical Sciences and Health Services” in each province
- In some provinces, there are more than **1** , but in separate cities
- In Tehran: **3** medical universities
- Medical Schools Affiliated to MOHME: **46**
- Faculty Members: More than **18000**
- Annual medical student admission rate:
~6500

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Medical Universities in Iran

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Health and Bio-Medical Research **Centres** and **Journals**

- 736 Research Centers
- 42 Research Institutes



- 388 Peer-review Journals
 - 72 indexed in MEDLINE
 - 47 indexed in Web of Science
 - 81 indexed in Scopus

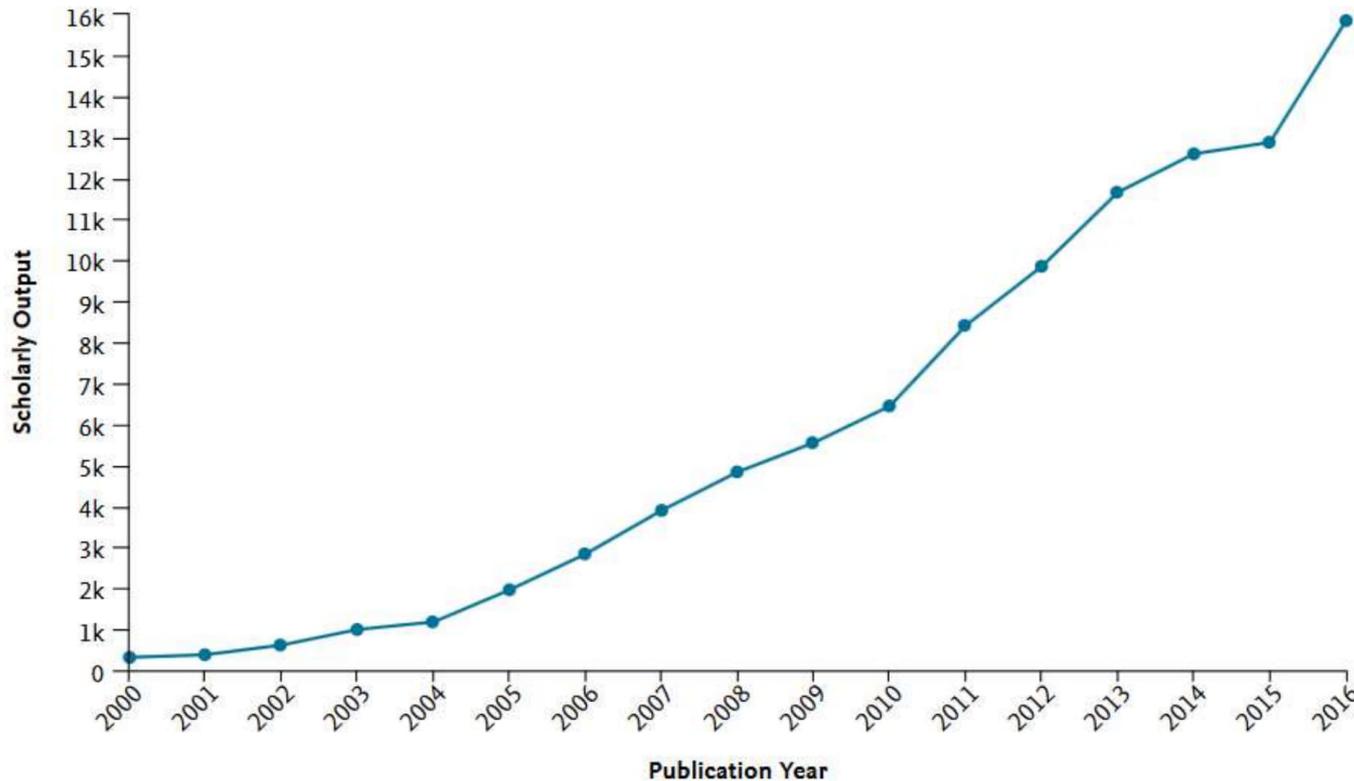


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Iran Ministry of Health Universities Publications Trend



Based on **Scopus** Papers

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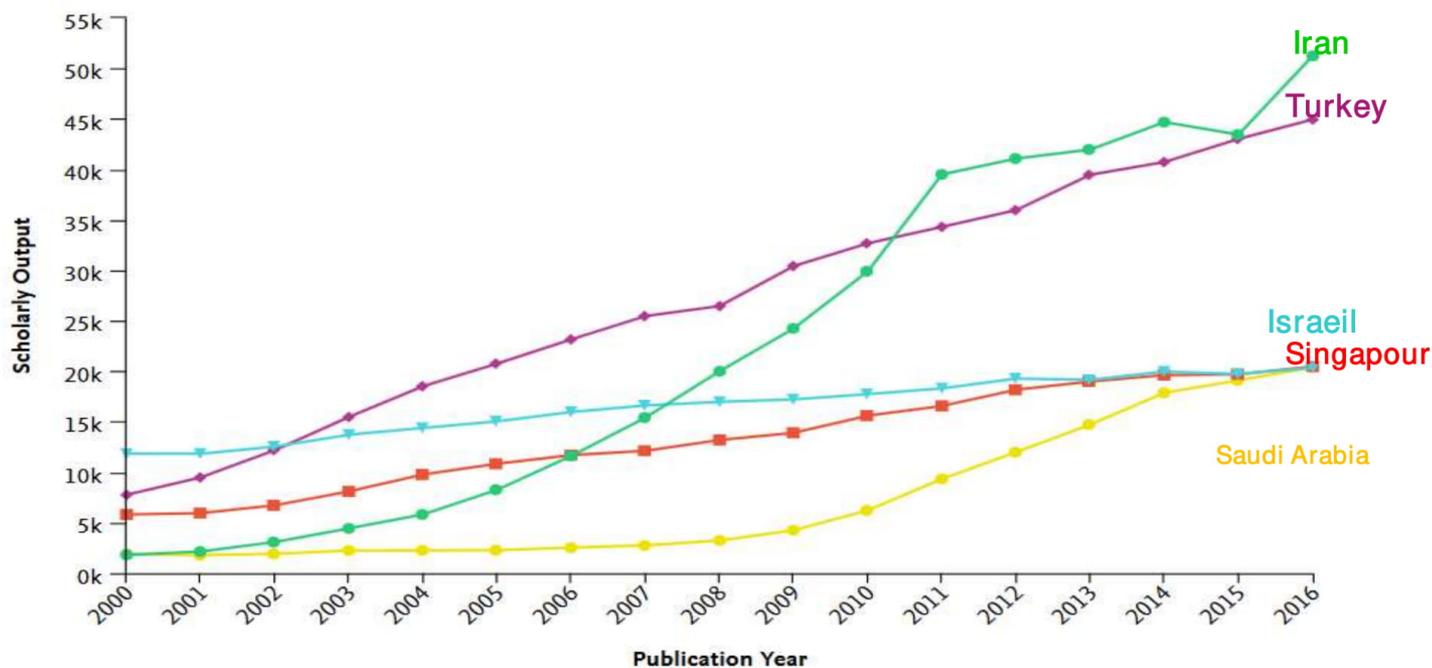
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Number of Published Papers in Scopus



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Cardiac Surgeons - IRAN

- Active cardiac surgeons: **242**
- 1 cardiac surgeon per 330,000 people
- Pure adult cardiac surgeons: 211
- Pure congenital cardiac surgeons: 11
- Both: 20

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Training system is a subspecialty program

After finishing general medicine,

4-5 years of general surgery residency (specialty),

3 years of cardiac surgery residency (subspecialty)

15 cardiac surgery residency positions per year; 2-4 occupied

Subspecialty 7-8 Years	Specialty 4-5 Years
Cardiac Surgery	General Surgery
Thoracic surgery	Urology
Plastic Surgery	Neurosurgery
Pediatric Surgery	Orthopedy

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Cardiac Surgery in Iran

- 105 cardiac surgery departments
- Tehran (capital):
 - Population: 13,267,637
 - 30 cardiac surgery departments
- 38,000 adult OHS / year
- 4,000 pediatric OHS /year

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Iran Cardiac Surgery Units: 105

All provinces have at least one cardiac surgery departments except 1.

Public: 66
Private: 39
total : 105

8 Cardiovascular Center



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Heart Centers in Iran

- Rajaei Cardiovascular Center: Tehran
- Tehran Heart Centers: Tehran
- Maadani Heart Center: Tabriz
- Chamran Heart Center : Esfahan
- Kerman Heart Center: Kerman
- Heshmat Heart Center: Rasht
- Emam Ali Heart Center: Kermanshah
- Kowsar Hospital: Shiraz

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Patient Payment

- GDP per capita (PPP) : 16,010.10 \$
- GDP percentage for health : 8.9-10%
- For all Iranians, 3-10% franchise payment for public hospitalization and in-hospital procedures cost
- For cardiac surgery (CABG, valve, and CHS):
 - in private hospitals :5,000-10,000 \$
 - in public hospitals : ~ 200 \$
- Physician salary payment: Fee for Services

There is currently a budget constraint in the health system, and the future is unclear.

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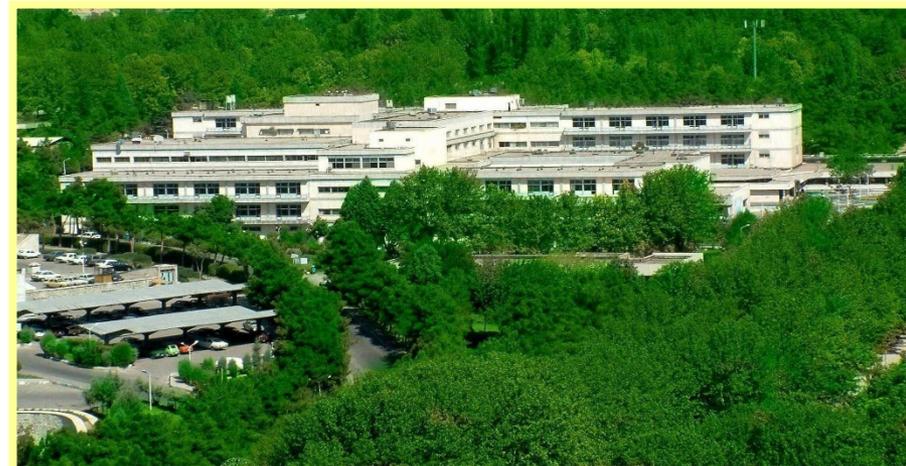


Rajaei Cardiovascular, Medical and Research Center, Center of Excellency for care of Cardiovascular Diseases

- A University Center (Hospital)
- Directly affiliated to the Ministry of Health & Medical Education
- 600 beds, to care Cardiovascular Diseases
 - Pediatric Cardiology
 - Adult Cardiology
 - Cardiac Surgery
 - Cardiovascular Imaging
 - At least one physician in the field of Medicine Subspecialty: Nephrologist.
Pulmonologist, Endocrinologist,....



Our New
Project:
Construction of
a New Building
for
1000 Beds



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Rajaei Cardiovascular, Medical and Research Center Yearly Education Program

Adult Cardiology:

Resident of Cardiology: Specialty, 4 Years (35+3)

Fellowship Course: 18 months

- interventional Cardiology (12)
- Electrophysiology(6)
- Echocardiology (10)
- Heart Failure (4)
- Adult Cardiology (2)
- Cardiac Imaging (2)



Cardiac Anesthesia: 18 Months (3)

Cardiac Surgery Subspecialty Residency: 3 Years (4)

Pediatric Cardiology Subspecialty Residency: 3 Years (4)

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- Rajaei Cardiovascular, Medical and Research Center

Cardiac Surgery Data:

Tertiary, Referral Cardiac Surgery Department

14 Operation Rooms

20-25 cardiac surgery per(during) day

Operations	CABG	Valve	CABG+ VALVE	Heart Transpl	Congenital	Aortic	Other	Total
Number	1695	1230	482	48	1250	170	355	5230

Cardiac Surgery Planning for Near Future

- Entrance after finishing Medical School
 - 5 Years
 - 1 year of General Surgery
 - 4 Years of cardiac surgery

Then Possible 18 months Fellowship course:

- Congenital Cardiac Surgery
- Minimally Invasive Cardiac Surgery
- Heart Failure Cardiac Surgery
- Interventional and Aortic Surgery

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2018 ESC/EACTS Guidelines on myocardial revascularization

The Task Force on myocardial revascularization of the European Society of Cardiology (ESC) and European Association for Cardio-Thoracic Surgery (EACTS)

ESC/EACTS
GUIDELINES

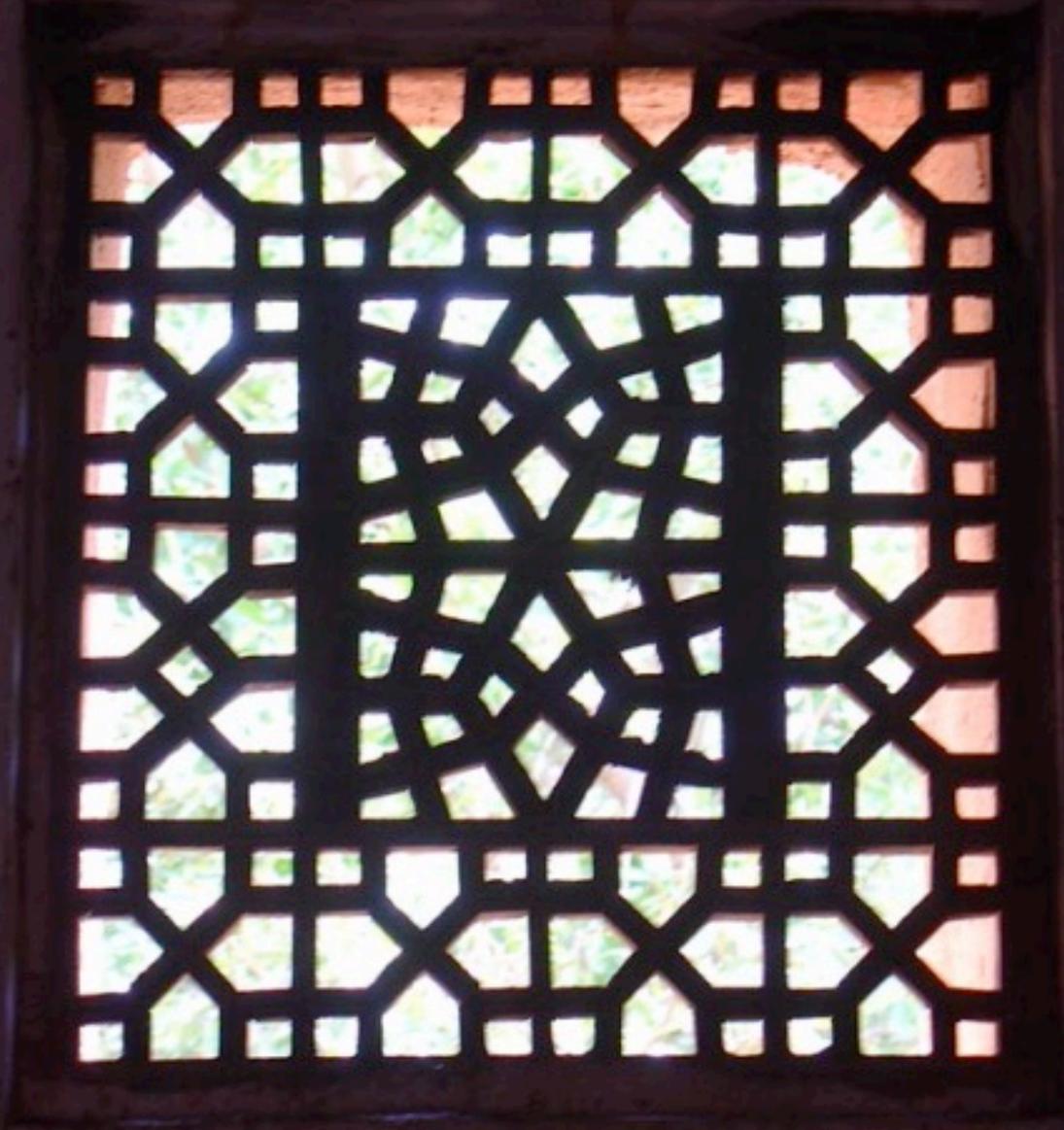
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Recommendations for operator/institutional volume in myocardial revascularization

Recommendations	Class ^a	Level ^b
CABG		
It should be considered that CABG be performed at institutions with annual institutional volumes of >200 CABG cases.	IIa	C
PCI		
It should be considered that PCI for ACS be performed by trained operators with annual volumes of ≥75 procedures at institutions performing ≥400 PCIs per year with an established 24 h/7 day service for the treatment of patients with ACS.	IIa	C
It should be considered that PCI for SCAD be performed by trained operators with annual volumes of ≥75 procedures at institutions performing ≥200 PCIs per year.	IIa	C
It should be considered that institutions with annual volumes of <400 PCIs collaborate in networks with higher-volume institutions (>400 PCIs per year), with shared written protocols and exchange of operators and support staff.	IIa	C
It should be considered that PCI for LM be performed by trained operators with an annual volume of ≥25 LM PCI cases per year.	IIa	C
It should be considered that non-emergency high-risk PCI procedures—such as for LM disease, single remaining patent coronary artery, and complex chronic total occlusions—are only performed by adequately experienced operators at centres that have access to circulatory support and intensive care treatment.	IIa	C

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In the name of God



6th IRANIAN JOINT Cardiovascular congress



23rd
Congress of
The Iranian Heart Association



12th
Congress of
The Iranian Society of Cardiac
Surgeons



10th
Congress of
The Iranian Society of
Echocardiography



11th
Congress of
The Iranian Society of
Cardiac Anesthesia



1st
Congress of
The Iranian Heart Rhythm Society



1st
Congress of
The Iranian Society of Heart Failure



6th
Congress of
The Iranian Cardiac Nurses Society



10th
Congress of
The Iranian Society of
Extracorporeal Technology



10th
Congress of
The Iranian Physical therapy
Association
(Cardiopulmonary Branch)

۸ تا ۱۱ اسفند ۱۳۹۶

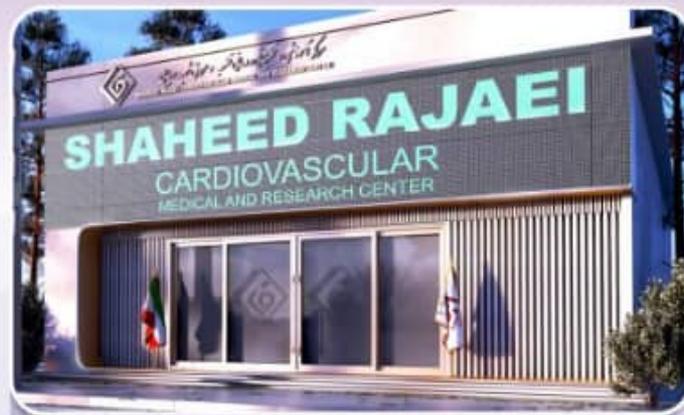
27Feb-2March,2018

Rajaie Conference Center, Tehran

www.2018ijcc.iha.org.ir

همراه با امتیاز باز آموزشی

مركز همايشهاي قلب و عروق شهيد راجايي





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7th IRANIAN JOINT Cardiovascular Congress



۸ تا ۱۰ اسفندماه ۱۳۹۷
27Feb 1March 2019
Rajaie Conference Center, Tehran, Iran
www.2019ijcc.iscs.org.ir
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13rd Congress of Iranian Society of Cardiac Surgeons



24th Congress of Iranian Society of Heart Association



11th Congress of Iranian Society of Echocardiography



12th Congress of Iranian Society of Cardiac Anesthesia



7rd Congress of Iranian Society of pediatric Cardiology



7th Congress of Iranian Society of Interventional Cardiology



2nd Congress of Iranian Society of Heart Failure



2nd Congress of Iranian Heart Rhythm Society



7th Congress of Iranian Cardiac Nurses Society



11th Congress of Iranian Society of Extra corporeal Technology



11th Congress of Iranian Physical Therapy Association (Cardiopulmonary Branch)





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Iran Cardiac Surgery Related Topics to be share:

- Demographic data
- Diseases situations
- Medical Education
- Cardiac Surgery Education
- Cardiac Surgeons
- Cardiac Surgeries
- Cardiac centers
- Rajaei Heart Center