

Country report Egypt – October 2014



Report by Prof Ihab Attia, National CVD Prevention Coordinator for Egypt, *et al.*
Prepared for the EACPR "Country of the Month" initiative
Contact: [email](#)

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[Health Care](#) | [Risk factors](#) | [Prevention methods](#) | [prevention activities](#) | [Cardiac Rehabilitation](#) | [future](#)

I. Structure of Health Care in Egypt

Basic information

Egypt is one of the oldest countries that demonstrated a very rich history among ancient civilisations for humanity. The remaining old Egyptian precious monuments are explaining a unique administrative system that progressed across decades, where health was an integral part of it. Egypt is considered as a lower middle-income country as defined by the World Bank. About 43.5% of the population is living in urban areas.

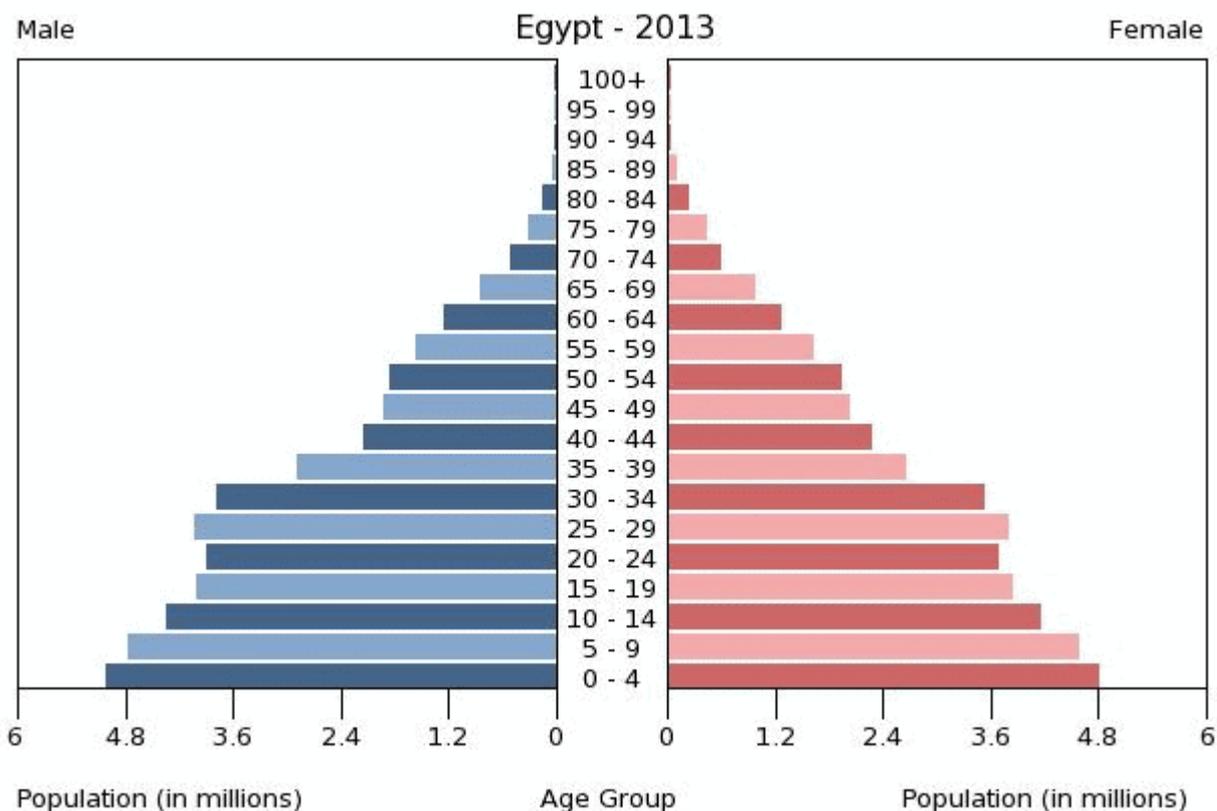
The main sources of income for the country are the Suez Canal, tourism, gas and oil. The most important current national project is the expansion of the Suez Canal. Modern Egyptians are working in all jobs like anywhere, but mainly in real estate and construction, tourism industry, teaching, aid work, IT and engineering. On the other hand, ancient Egyptians were farmers, labourers, workmen and craftsmen. Also, a considerable sector of population is working in agriculture and production.

Although Egypt still is facing many political difficulties there is hope: after the second wave of revolution a political roadmap was agreed upon and started firstly by voting for the constitution, secondly presidential election and thirdly preparing for parliament elections for building up of a new civil democratic country.

Egypt has made significant progress towards achieving the "Education for All" and the "Millennium Development Goals" (MDGs), particularly in expanding access to basic education, and closing the gap between boys' and girls' enrolment. According to 2012 statistics, it is 73.9% for total population with rates of 81.7% and 65.8% for males and females respectively.

Structure of health care

The population pyramid of Egypt is typical for developing countries. The total expenditure on health was 5% of the general domestic product in 2012 (2).



Source: <http://www.worldpopulationstatistics.com/egypt-population-2013/>

Inequalities in provision of health services present a great problem due to diversities in geographic, demographic and socioeconomic distribution of population across the country. Also, this is reflected on discrepancies in epidemiologic data about the different health problems especially cardiovascular diseases (1).

The majority of citizens are free to select the site and level of health care they prefer according to available resources. A great part of population is covered by health insurance including school age. Governmental hospitals, public health centres and university hospitals (18 faculties of medicine across the country) are the major sources for health care services with reduced fees. Private sector is covering a considerable part of health care. In many instances, government is paying for those who couldn't afford to pay expenses of medical care through a special system to support social welfare.

Primary health care services include free access to mother and child health care (MCH) centres providing prenatal, natal and postnatal care, vaccinations for communicable disease prevention and early detection of non-communicable diseases. These services are carried out through primary health care centres located both in rural and urban areas. General practitioners (GP's) are caring for these activities, and provide referral for specialist when indicated, but there is no formal cardiac primary prevention program, no computerised risk charts, etc. Advice on healthy lifestyle, as well as detection and control of risk factors is given as an elective sporadic activity by GP's and other specialised physicians. Cardiologists are interested mainly in secondary prevention and some of them accept to participate in primary prevention as well. In rural areas, some

experienced GP's are providing management of risk factors either as primary or secondary prevention activities.

A basic of preventive cardiology as well as fundamentals of preventive medicine in general, is a part of the medical school curriculum and/or cardiology residencies. In some medical schools in Egypt with credit hours programs, preventive cardiology is available as an elective course.

Cardiologists receive special training through internship and they should register for a postgraduate program of diploma or master degree at universities. Consultant cardiologists should have a doctor degree or equivalent national or international fellowship. For preventive strategies, the community-based efforts by government, as well as the individual-based efforts by physicians are directed towards promotion of healthy lifestyle. There are special antismoking programs strongly supported by the government (1). Secondary prevention of cardiovascular disease is carried out by specialists. The Egyptian Society of Cardiology which is collaborating effectively with both the European Society and American College of Cardiology has a great impact on updating and promoting the standard scientific practice of clinical and preventive cardiology among physicians.

There are increasing numbers of percutaneous coronary intervention (PCI) capable centres especially in Cairo, Alexandria and other big cities across Upper and Lower Egypt. Egypt has also participated in the "Stent for Life" project, and greatly increased the frequency of primary PCI.

References:

1. WHO country page: <http://www.who.int/countries/egy/en/>
2. The World Bank: Fairness and accountability: Engaging in Health systems in the Middle East and North Africa, Strategy for MENA (2013-2018), www.worldbank.org/mena/health-strategy

II. Risk factor statistics

CVD Mortality

Similar to other Arab countries, ischemic heart disease and stroke are the second and fourth common cause of death in 1990 but in 2010 they shifted to be the first and second cause respectively (1). Cardiovascular disease (CVD) mortality accounts for 46% of total deaths, all ages and both sexes, according to WHO (2014). Trends in CVD mortality in the last few years show a minor reduction due to preventive efforts especially against smoking, an operational action plan to reduce the burden of tobacco use.

Also, there are great improvements in the guidelines of management of CVD especially emergencies requiring interventions through primary care approach. However, the probability of premature death (age 30 - 70 years) due to common non-communicable diseases including CVD is still 25% (2). National mortality data require improvements in documentation standards.

Major cardiovascular (CV) risk factors

The most recent study for CV disease risk factors was the Egypt STEPwise survey conducted by the Ministry of Health and Population (Epidemiology & Surveillance unit/preventive sector) in collaboration with the WHO office in Egypt in the years 2011-12. It is a representative household survey on persons aged 15-65 years (5080 participants) in 2011-2012 (3).

The reported prevalence of hypertension in this study was 38.7% for men and 40.8% for women, in comparison to the reported prevalence in the National Hypertension Project 1995 among Egyptian adults aged 25 years and more which was 25.7% and 26.9% for men and women respectively (4).

The current profile of risk factors is changing expressing a national epidemiologic transition phase towards relative increase in non-communicable diseases which is strongly linked with unhealthy lifestyle (5).

It should be noted that the survey was conducted during the Egyptian revolution time where mobilisation of population from their original residential areas was high, and the overall severe community stress at that time was considerable. These results as well as the very high prevalence of hypertension in this relatively young age group (15-65 years) require reappraisal in the coming 2016 survey repetition. It is very important to test these alarming findings, whether due to biases, temporary community response especially among young aged who were involved mainly in the revolution events, or a permanent change in the risk factor profile of the country.

Table 1: Prevalence of CV risk factors (15-65 years) according to STEPwise Survey 2011-2012 (3)

Risk Factors	Men %	Women %	Total %
Hypertension	38.7	40.8	39.7
Raised blood glucose	20.7	13.3	17.0
High serum cholesterol	37.1	36.4	36.8
Raised fasting triglycerides	10.9	9.4	10.2
Current tobacco smoking	46.0	0.4	24.4
Low physical activity	23.3	42.0	32.1
Obesity	22.4	41.6	31.3
Eating <5 servings of fruits and vegetables per day	94.6	96.7	95.6
Having 3 or more of the above risk factors	53.2	48.5	51.1

Source: WHO and ARE-Ministry of Health & Population: Egypt National STEPwise Survey of Non Communicable Diseases Risk Factors 2011-2012

Complete definitions of risk factors are available at:

<http://www.who.int/chp/steps/GPAQ/en/>

Another approach for screening cardiovascular risk factors was possible through the Egypt demographic and health survey 2008 (6). It should be noted that tobacco consumption is a major risk factor for adults aged 15-59 years, especially men, but also increasingly for young women. In Egypt alone, according to estimates, a comprehensive and effective tobacco control program could prevent about 11% of premature excess deaths a year, amounting to 621,960 lives saved over a period of 20 years (World Bank 2010) (7).

Table 2: Prevalence of cardiovascular risk factors (15-59 years) according to Demographic and Health Survey 2008 (6)

Risk Factor	Men	Women	Total
Tobacco Consumption	43.9	0.7	21.3
Cigarette Smoking	34.7	0.4	16.8
History of Diabetes Mellitus (Type II)	2.3	3.6	3.1
History of Coronary Attack	1.0	0.8	0.9
History of Stroke	1.0	0.8	0.9
History of Hypertension	5.6	12.5	9.2

Source: El-Zanaty F., Ann Way: Egypt Demographic and Health Survey 2008.

The discrepancies in reported data by history taking versus standardised measurements reflect the gap in awareness and control of the disease. In the context of appraisal of risk

factors, air pollution should be considered especially concentration of ambient particulate matter, since Cairo is considered as one of the most polluted cities all over the world (8). Occupational stress was also raised as a possible risk factor among some categories of Egyptian working sectors (9).

References

1. Abdul Rahim H.F., Sibai A., Khader Y., et al : Health in the Arab world: a view from within 2 Non-communicable diseases in the Arab world; The Lancet – January, 2014: 34-45.
2. WHO country page: <http://www.who.int/countries/egy/en/>
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9. Fahmy F.C.: study of the relationship between occupational mental stress and cardiovascular disorders. Doctor Thesis. HIPH, Alex Univ, Egypt. 1995.

III. Prevention methods and main actors

The **Egyptian Society of Cardiology (EgSC)** is the largest non-governmental specialised medical association uniting cardiologists, cardiology interested physicians and scientists of cardiology related activities www.cardioegypt.com . The EgSC is hosting a specialised working group on preventive cardiology, that is promoting prevention through formulating requirements for both individual as well as community based strategies.

Individually based approach is applied mainly in secondary prevention and carried out by cardiologists and other physicians. The working group provides the latest guidelines for keeping patients at target control levels of the different risk factors by adopting healthy lifestyle modifications and prescribing the required evidence-based medications. The annual official conference of the EgSC in February and the summer meeting of Cardio-Alex in June with about 5000 attendees for each are the most important events for continuous medical education (CME) of cardiologists, specialised physicians and general practitioners. As a leading community in cardiology, participants are mainly Egyptian but with some Arab and African doctors meeting the National and International experts. Another yearly special meeting in December dedicated for prevention of cardiovascular disease is held, attended by about 500 doctors, addressing the different required preventive actions. Regular education programs for small groups are of parallel importance.

Community based approach is supported by the EgSC and mainly aimed for primary prevention through harmonised activities shared by doctors, nurses, scientifically oriented media and the government by promoting:

- Healthy lifestyle, including smoking cessation, physical activity, weight control, stress coping, salt restriction and healthy diet. The country anti-smoking efforts are officially appreciated as effective interventions.
- Early detection and management of risk factors which are mostly symptomatically silent such as hypertension and dyslipidemia through dissemination of the culture of health promotion and medical check-up.

Public Health care and activities: Monitoring of risk factors in the community is a recent ongoing activity by the integrated efforts of public health professionals at two levels:

- **Academic research** by the High Institute of Public Health (HIPH) and the related university departments is a corner stone to define the magnitude of the problem of cardiovascular risk factors in the different localities of Egypt, upper versus lower, and rural versus urban. The department of occupational health at HIPH is a WHO collaborating center working mainly to prevent hazards and promote health of workers, the productive sector of the community.
 - <http://www.hiph.alexu.edu.eg/index.php/en/>
 - www.who.int/occupational_health/final_4_Jan_cc_report.pdf

- **Governmental actors** through the preventive section of the Ministry of Health with its offices in the local municipal authorities of the 28 Governorates of Egypt. A central team for planning required needs to control the impending epidemic of cardiovascular disease is currently working on national level.
- **Insurance agencies:** Egypt has two main insurance providers that operate under government supervision but with independent administration and financing, the Health Insurance Organization (HIO) and the Curative Care Organization (CCO). Access to medical care in general and preventive care in particular through this system is free of cost. Medications such as statins and blood pressure medications are provided for free, but as generic preparations, not brands.

IV. Main prevention activities

CVD preventive management is provided in primary care facilities, hospitals and private institutions conducting mainly secondary prevention but even primary prevention whenever possible. The National Heart Institute, Cardiac Academy and some specialised private institutions in cardiology are working mainly with interventions and management of cardiovascular emergencies and urgencies; however, side activities for some preventive programs are implemented as well. There is no dedicated center for CV prevention.

Guidance: Most of the physicians are aware of both European and American guidelines with their updates for prevention and management of the different CV risk factors. The EgSC developed special guidelines for clinical practice considering the local health conditions, socioeconomic burden of the disease and the available resources. These guidelines are closely following the European guidelines after adaptation to the national conditions.

All guidelines are available in English and disseminated to physicians through their specific websites and printed materials during the different meetings of the EgSC. Education of medical students includes teaching of the fundamentals of CV prevention guidelines.

Risk stratification based on European Score charts or risk score equations is not applied in common preventive practice because of lack of follow-up CVD morbidity and mortality data relevant to base-line risk status. Also, such an approach is time consuming and requires training for nurses and other staff in preventive cardiology.

Quality control: The current main tools for quality control of the overall CV preventive activities are the crude national morbidity and mortality data. The governmental health insurance records for disease and disability are showing higher rates of CVD reflecting considerable increase in the disease burden in the last years (1). The increasing application of common basis of European and American guidelines would improve quality control practices in prevention of heart disease (2).

Effective preventive interventions are urgently needed with close monitoring of the outcome of these programs by regular epidemiological studies for the different target groups. The success rates of single risk factor control versus global risk management in population based primary prevention programs are under appraisal. Development of national CV morbidity and mortality registers is an urgent challenge in this respect.

Campaigns and projects: Egypt passed a smoke-free law for public places, public transport, educational and health facilities in 2007. The law is not comprehensive and does not apply to restaurants or bars. In 2010, the government announced that it would launch an anti-smoking campaign that would include raising taxes and going totally smoke-free in phases, city by city, over a four year period. Alexandria was scheduled to make indoor public places smoke-free in September 2010. Cardiologists have been engaged in anti-smoking campaigns amongst others in a "train the trainer workshop on smoking cessation for cardiologists" 2013 in Hurghada.

Furthermore Egyptian cardiologist with an interest in preventive cardiology have been engaged in several other activities, such as education campaigns involving sporting clubs, elementary schools as well university students: in a school campaign for healthy eating and exercise. 80 students aged 7 were screened for obesity and BP were checked. Another successful health education effort was conducted for medical students focussing on cardiovascular disease especially hypertension and lifestyle factors in November 2012. This group proved to be very active with a remarkable event in the hall of the faculty: checking body mass index and blood pressure of other students!

References

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3. www.no-smoke.org/goingsmokefree.php?id=703

V. Cardiac Rehabilitation

As any developing country, poor education and living standards are significant barriers to patient's education, as well as risk factor modification and adherence to medications. However such patients are in great need of a rehabilitation service to help them return to their activities and/or guidance to safe exertion levels. Cardiac Rehabilitation (CR), being part of the care continuum and a highly cost- effective intervention, is so far not well applied. Lack of governmental funding is one of the main causes. Only one well-designed program is available:

The El Demerdash programme: The first well-structured program was established at the Ain Shams (El Demerdash) University hospital in collaboration with non-governmental organisations (NGOs) (as a funding source). The cardiology department is one of the largest units. It serves annually around 6000 patients. It has a 27- bed coronary care unit (CCU) and a 72 in-patients bed capacity being one of the main providers of tertiary health care services in Egypt.

The program commenced in 2008 as an educational program that focused on delivering information about cardiac disease in an easy and comfortable setting. Printed material as well as audiovisual material were prepared in colloquial Arabic, containing information on coronary artery disease (CAD), risk factor modification (including shisha smoking which is quite common in Egypt), diet changes, the importance of physical activity, adherence to medications, and encouraging patients to seek psycho-social support.

In 2011 physical training was introduced and soon became the core of the program but it continued to focus on educating about risk factors and motivating to achieve optimal control. Special priority was given to smoking cessation, life style modification, psychological counselling and sexual rehabilitation. Patients with CAD (including post myocardial infarction [MI], post percutaneous coronary intervention [PCI] and post coronary artery bypass graft [CABG] patients) are referred after discharge from the cardiology in-patient department or the CCU. At present even heart failure patients are enrolled in a specially adapted program.

The El Demerdash CR program is a non-profit project. Initially, it was delivered at no cost to the patient, financed through individual and corporate contributions, but as from January 2013, the program was recognised as an official hospital service by the university hospital management and the service was priced. Patients pay a small contribution out of pocket.

The CR team includes 5 cardiologists, a consultant of physical medicine and exercise, a dietitian, 2 psychiatrists, a psychologist, a consultant of Andrology and sexual medicine and 2 trained nurses. The team collaborates with the business school at the American University in Cairo in order to monitor and improve service quality.

Program design: Phase I (In-patient) includes early ambulation, education and brief counseling and provision of a discharge plan. Phase II (Ambulatory out-patient) (3 months duration) includes:

- Education: Both on an individual basis and in group classes including educational and motivational videos aiming at correcting misconceptions and muddled beliefs about heart disease and fostering healthy behaviors.
- Physical training: In general, patients are exercised twice weekly for 12 weeks according to their initial clinical evaluation as well as pre-exercise testing. Exercise sessions are monitored by Borg scale, ECG, heart rate, and blood pressure responses. Furthermore domestic, occupational and recreational physical activity is evaluated with respect to age, gender, and cardiac condition.
- Nutrition: Estimates of total daily caloric intake and dietary content of saturated fat, cholesterol, sodium, and nutrients are also obtained, group nutrition classes and individual counseling as needed.
- Medical follow-up: risk factor management according to the latest published ESC Guidelines.
- Psychosocial support: Patients receive support in the form of motivational interviewing, cognitive behavioral therapy to enhance life style changes and gradual social integration. They are screened and if needed treated for post traumatic stress disorder, anxiety and depression.
- Other support: Telephonic follow up is an essential component especially for those living in remote areas. The program also gives special attention to the patients' families and care-givers to educate them and screen them for CAD. Screening of organic erectile dysfunction is an auxiliary service to improve quality of life, especially heart failure patients. A sexual consultant communicates with the psychiatrist and the cardiologist to provide professional support whenever needed.

Program outcome is measured according to the degree of improvement in smoking cessation, optimal control of blood pressure, blood glucose, lipids and weight management, symptoms (according to the New York Heart Association / Canadian Cardiovascular Society [NYHA/CCS]), quality of life and wellbeing, adherence to medications, work resumption as well as clinical events. The preliminary results show a reduction in resting heart rate, improved heart rate reserve, and an increase in exercise tolerance increased as well as improved awareness of the CV risk factor and increased adherence to medications vs those who do not attend the program. There is also a higher rate of patients' enrollment as well as adherence and completion of the program, with comparable drop-out rates. Despite the political and economical unrest in Egypt all efforts were made to keep the program running and provide the service to cardiac patients who need it.

The CR program has several challenges: The working group of cardiac prevention and cardiac rehabilitation (EgSC) works to spread awareness about cardiac rehabilitation through presentations and workshops in national congresses but there is a lack of physician and patient awareness of CR programs. Cooperation between different disciplines (cardiology, nutrition, psychology) is needed to set up similar programs throughout the country.

Furthermore, government funding is lacking to start and run CR programs. This is discouraging for similar university centers and it leaves very few and scattered centers in the private sector which operate programs. Here, financing depends on patients' payment out of pocket, but even a lack of referral remains a substantial barrier. Possibly partnership with the "plural sector" (the non-state sector) e.g. NGOs may be an option for financing. However, this remains uncertain: following the revolution, the government seeks to review and regulate their operations, structure their roles and responsibilities.

VI. The future

- The current socio-political momentum in Egypt creates a perfect “window of opportunity” that can be taken to structure cardiac prevention and rehabilitation services within the health care continuum. Increasing health financing, setting institutional SOPs and improving coordination between governmental bodies remain significant challenges.
- It is highly desirable that governmental health policies officially adopt and endorse cardiac rehabilitation (CR) programs as part of the strategic plan for preventive cardiology.
- Increasing the awareness of the importance of cardiac rehabilitation among cardiac patients as well as among treating physicians to increase referral and participation of eligible patients in specialised CR programs. Expansion of the Ain Shams university CR unit to achieve an expansion capacity of 1000-1500 patients per year.

"We envision a healthcare system where cardiac preventive and rehabilitation services are effective components of the health care continuum, thus, reducing disease burden and unloading hospitals."