The Association for Research in Vision and Ophthalmology
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ARVO International Advocacy Toolkit: Egypt

Introduction

Egypt is a good model for developing countries, due to geographic, demographic, economic and even political factors. Egypt with a population approaching 100 million is at the junction between Africa and Asia, in the center of the Middle East, North Africa (MENA) region. It is at the heart of Arab Islamic world with an influential Christian minority and can be described as a model for religious co-existence despite challenges. Research, advocacy and funding in Egypt is—as in most developing countries—non-harmonious. Scientific research is mainly performed at universities (governmental and private) but also in governmental ministerial institutions and private sector institutions. The Egyptian Higher education system is composed of 44 universities, 7.5% of them are accredited. 31% of all Egyptians between the ages of 18-22 years are enrolled in university. There is a 13.6% growth rate in the number of published research articles from Egypt in international peer reviewed journals.

1. Which organization/s are significant sources of research funding? (e.g., national/local governments; private funding/foundations/charity groups; large non-governmental organizations (NGOs); industry/pharmaceutical companies)

Private sector:

In a developing country like Egypt, research always faces a series of challenges, particularly in the relatively expensive field of ophthalmology and health care. Many factors can be attributed to these challenges, yet the major ones are funding, training and networking. In the past, the private sector has played a very limited role in ophthalmic research in Egypt. The private sector has been primarily focused on revenue generation through providing higher quality health care services than governmental institutions. Dominating disciplines that are not provided by the governmental sector such as advanced laser and surgical refractive surgeries are provided by the private sector to a limited number of patients. Most health care services are provided to the population by the governmental sector.

In the past few years, many authorities in private ophthalmic institutions have recognized the importance of contributing to scientific research in Egypt. The importance of advocating for research through demonstration of recent advances in different surgical and investigative disciplines. This has translated into a major growth in the number of ophthalmic scientific meetings led by the private sector to reach a record, showcasing the early research production from these institutions.

With regards to the regulatory aspect of the private sector in research, several institutions and hospitals have started to create their own research and development centers and departments directed by experienced researchers. These centers set local

research agendas, directed to validate their practice patterns in surgical techniques such as femtosecond laser use in ophthalmology, premium intraocular lens optical quality testing or advanced techniques in keratoconus management. Imaging modalities are also a major part of these new research and development departments in areas such as OCT angiography, and multi-modality imaging in retinal diseases. Most of these advanced technologies are limited to the private sector, due to the high cost of setup and implementation.

Networking — it was the private sector which tackled the problem of networking, by creating an ARVO international affiliate chapter in 2013: ARVO-Egypt, with the aim of improving the networking between different research authorities in Egypt, not only in private sector, but also amongst governmental and academic institutions. ARVO-Egypt was able to provide some elements of support to the research community networking efforts through 5 annual regional meetings, with an average of 700 attendances every year, as well as dozens of international experts, including fellows of ARVO, which provided investigators a chance to exchange experiences, ideas and have a glimpse of international research methodologies.

Training — Research training has evolved greatly in the past couple of years, as a number of multi-national pharmaceutical and industry enterprises in Egypt have totally shifted these educational support to sponsoring national meetings and diabetic training workshops for local doctors This has led to a number of excellent training opportunities for ophthalmologists, especially young ophthalmologists, on diverse aspects of standardized research methodologies, including clinical trials, research advocacy, animal and stem cells research and ethical consideration of investigative activities. This has provided ophthalmologists with the adequate tools to start up their research projects, which is leading to a major increase in the size of research production by private sector researchers and clinicians, especially those with no academic affiliation.

Funding — Out of the three major difficulties facing research work in private sector, funding is the most critical. Governmental research funds are directed to government and academic centers, with no opportunities for the private sector. Grant application may be rejected if a private center is involved for fear of a conflict of interest. In contrast, international grants, for the same private institutions are limited by other factors, as the international grant provider usually require an established research portfolio of both the investigator and the mentor, and most grants are directed towards basic science, both of which are limited in the Egyptian ophthalmology sector. For most investigative projects in the private sector, there are two options. The first is self-funding by the investigator or the institution which always limits the number of patients or the investigative modalities used in the project due to cost. The second option is industry/pharmaceutical sponsorship whereby grant funds are directed to certain areas of interest set by the companies. These usually focus on clinical trials, validating certain products in the market, with little focus on research and development in the private institution. Also, companies mostly will target experienced eminent ophthalmologists as investigators, to strengthen the clinical trial and increase the market share of the investigated object of interest. This provides little opportunity for the involvement of younger generations of ophthalmologists.

Private sector funding decision making authorities, are mostly the board members and research and development directors of individual centers, which would set a plan annually to allocate the limited research funds to different small projects, to give the chance to different researchers as well as to increase the publication volume by supporting a number of projects, rather than one major project. The drawback of this not having themed institutional research domain. Only a very limited centers will have peer review involvement in the funding decision process.

Government:

The Egyptian ministry of health and population (MOHP) has provided great support to these research and development academic centers and departments by passing a law through the Egyptian parliament, entitling these centers the opportunity to be accredited as registered clinical research centers at the MOHP, which will give them the authority to conduct interventional clinical trials under strict ethical and regulatory monitoring. This has led to improved collaboration with the private sector and multinational pharmaceutical companies that need this high level of research capability.

Nongovernmental Organizations (NGOs)/Charity Groups:

Nongovernmental Organizations (NGOs), such as the World Health Organization (WHO), and several major charities in Egypt serving ophthalmic care, focus on preventing and treating blindness, through surgical and medical management, as part of the VISION2020 project or similar projects. VISION 2020 is a global initiative for the elimination of avoidable blindness by the World Health Organization (WHO) and the International Agency for the Prevention of Blindness (IAPB) https://www.iapb.org/vision-2020/. However, these projects have very limited research activities directed to epidemiological study of blindness and visual impairment in Egypt.
Patient advocacy is mainly directed by the NGOs and scientific societies, in the form of national campaigns of awareness of ophthalmic problems and blindness. However, these are still very limited efforts in advocacy and outreach directed toward patient oriented research. ARVO-Egypt has launched an initiative towards bringing awareness of the importance of research advocacy in ophthalmology which includes inviting organizational decision makers to visit institutions and setting a new online resource for public discussion on how to empower ophthalmology research through increasing funding.

Though the challenges facing the private sector to be involved in ophthalmology research in Egypt may seem overwhelming, the outstanding achievements to overcome these challenges by this sector in such a short time, is very encouraging. Soon, the private and NGOs contributions will be a great addition to the already established effort by the academic and governmental entities.

2. What does the normal science funding/policy decision-making process look like?

Research funding in Egyptian universities and other governmental institutions is provided mainly by the Ministry of Higher Education which is funded from the general budgets' programs laid by cabinet of ministers.

Science funding/policy decision-making process:

1. The Egyptian constitution article 23 is named "Scientific Research". It states: The state grants the freedom of scientific research and encourages its institutions to achieving national sovereignty and building a knowledge economy. The state sponsors researchers and inventors and allocates a percentage of government expenditures that is no less than 1% of Gross National Product to scientific research. It will gradually increase until it reaches global rates. The state commits to provide effective means of contribution for the private and public sectors and the contribution of expatriate Egyptians to the development of scientific research.
2. The World Bank published a report on research and development expenditure showing that the Egyptian government spending on research and development expenditure has risen from 0.27% of GDP in the year 2008 to 0.72% in the year 2015. The percentage is still way below the global average, yet the tide is picking up momentum.
3. The decision in the science funding/policy decision-making process in Egyptian universities is highly centralized. The supreme council of the Egyptian universities, the minister for higher education and then each university president and the university board of trustees are responsible for setting up and modifying that process.
4. The criteria upon which every Egyptian university bases its decision for funding scientific research are not clear and not peer reviewed. Such decision is guided and recently supported by the Egyptian constitution in the year 2014. This has led to the emergence of a national vision called (Egypt 2030). Egypt 2030 included six strategic goals related to scientific research and its funding.
5. The six strategic goals in Egypt 2030 are:

    1. Increase the percentage of the role of knowledge economy of knowledge in General Domestic Product (GDP).
    2. Increase the percentage of budget as regards scientific research financing to the General Domestic Product (GDP).
    3. Improve the international ranking of Egypt as regards innovation.
    4. Improve governmental efficiency towards the usage of modern technology.
    5. Increase number of registered patents both at the national and international level.
    6. Boosting the culture of research in the field of science, technology and future sciences.

3. Which patient advocacy groups, if any, are active in the area?

The culture of having patient advocacy groups is still immature. There are no patient advocacy groups, except for a few scattered and disorganized non-governmental societies. These societies do not partner with researchers at all.

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4. Are there existing national/regional organizations that work towards improving research funding/policy (advocating for increased research funding/better policies)?

There are several national and regional non-governmental academic societies. These societies are basically concerned with spreading the scientific message among colleagues. They do have any role to improve research funding policy.

5. How do scientists currently contribute to the existing funding/policymaking/advocacy process, if at all?

Scientists do not contribute to existing funding/policy-making process, they are merely considered as end users.

6. When are science funding/policy decisions made?

The science funding/policy decisions emerge from the cabinet of ministers on an annual basis.

7. What kinds of opportunities exist for scientists to interact with funders and policymakers?

Egypt, as well as many developing countries, is in the stage of enlightenment with regards to its interest and valuation of scientific research. This is clearly observed in its constitution as well as its master and strategic plans. Pushing top level principles and plans down to the operational level requires an active approach. This means that there is an opportunity for scientists to interact with policy makers and funders to implement and convert the strategic goals to operational ones. The political environment as regards scientific research is friendly. Politician usually welcome and respond to any invitation from scientists especially those working in universities. Egyptian universities have a great amount of respect as regards their role in scientific research in the hearts and minds of all political leaders.

The following 3 step approach or methodology is suggested:

1. Approach top leaders: The highest ranking as possible with a ready-made action plan or project. Do not forget to include:
   - Suggestions for funding: preferably suggesting extra-governmental sources.
   - Point clearly to what *exactly* you want from them as top managers and politicians.
   - Show as much as possible the short-term wins, and how much they coincide with the national strategic plans.
2. Approach national funders: Brainstorm then prioritize for the crucial few. Show them all facilitations you managed to get from the politicians.
3. Approach international UN agencies: such as UNDP, WHO, IMF, and ILO. Most of them have funding to boost advocacy for science and research. They are working in most developing countries. They represent a potentially significant source of funding.

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