

A VISION FOR OCCUPATIONAL MEDICINE IN EGYPT, EVALUATION AND RECOMMENDATIONS (REVIEW)

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Abstract

In Egypt occupational medicine (OM) continues to be one of medicine's smallest specialties facing challenges both in terms of demand for consultants and trainees in occupational medicine, occupational health and safety practice. The decline in the number of occupational physicians is surprising when occupational health is such an important aspect of health. Occupational injuries and illnesses are among the five leading causes of morbidity and mortality worldwide.

Future vision for occupational medicine in Egypt needs multilevel and multisystem cooperation. Evaluation of the current situation of the discipline as a scientific specialty is needed. Indeed the legal and health systems reforming are a corner stone in development of the discipline, especially that "occupational diseases" is more a legal definition than scientific. The Labor Law (12/ 2003) introduces some quite important changes. However, the enforcement of labor legislations in Egypt has always been rather weak. It is recommended to redefine and assess the competencies of occupational physicians. Education, training and information mechanisms and institutions play a vital role in the progressive construction of a national Occupational Safety and Health (OSH) system. As part from the general research fields, the research in occupational medicine generally faces the same challenges that faces other specialties with some difficulties related to the unique nature of the discipline. Safety culture promotion, and revitalization of the Supreme Advisory Council on OSH are also needed. Occupational rehabilitation and therapy are part of the discipline that should be focused on. In addition, Egypt being a country where micro and small and medium sized enterprises, together with agriculture, employ the majority of labor force, identification of priorities for the development of a national OSH action program for this category of industrial activity is crucial.

Key words: Occupational medicine, Egypt's labor laws, Occupational Health and Safety (OHS) in Egypt, Future of Occupational Medicine, Occupational Safety Health profile and Workers' compensation.

Introduction

In Egypt occupational medicine continues to be one of medicine's smallest specialties as regards number of occupational medicine professionals. This situation is not better in other countries. In USA occupational physicians represent 1%, and those who are board certified represent about 0.2% of American physicians. Applicants for board certification peaked at 331 in 1996. Less than half that number applied for board certification in 2004. The decline in the number of occupational physicians is surprising when occupational health is such an important aspect of public health (La Dou, 2002).

Occupational physicians customarily practice as company doctors employed by corporations, as consultants, as private practitioners, or few as faculty staff. More than any other medical specialty, occupational medicine is vulnerable to pressures to manage patient care to promote the financial well-being of third parties.

The flow of patients to occupational physicians comes from employers, who want their injured workers back at work as soon as possible— both to maintain productivity and to avoid hikes in their workers' compensation insurance rates. The workers' compensation insurance companies also have a keen interest in both limiting the time that injured workers are away from their jobs and holding down the costs of the care they receive. Occupational physicians whose practices are not consonant with these biases will soon find themselves without patients. The field of occupational medicine confers on its practitioners a major conflict of interest: skillful recognition of occupational illness may be incompatible with further employment or referral of patients (Morton, 2002).

Public perception of company doctors as "poorly qualified and in the back pocket of management" is not without merit. Rising pressure on private practitioners as well as company doctors forces them to comply with managers' directives, which often

conflict with employees' interests and preventive health practices (Draper, 2003).

Some aspects for evaluation and recommended actions

1. Legal system reforming

1.1 Critical comments

Occupational physicians practice within the framework of a seriously flawed workers' compensation system. Enormous political and economic pressures from employers, insurers, and business organizations have made the workers' compensation system malfunction. Despite the magnitude of the expenditures involved, the system is inefficient and inequitable, frequently a barrier rather than an aid to the delivery of medical care to workers.

Occupational physicians are caught up in this social catastrophe. Their role in the workers' compensation system's failure to report and to compensate the majority of occupational illnesses and injuries is one likely explanation of the specialty's struggle to thrive.

Workers' compensation should be drastically revamped to restore its integrity. To save the integrity of the

specialty of occupational medicine, it must be done soon.

The Labor Law (12/ 2003) introduces some quite important changes. It was drafted by a committee composed of representatives of Egyptian Trade Union Federation (ETUF), business organizations, Ministry of manpower and migration (MOMM), and the local legal community. The International Labor Organization (ILO) was in charge of ensuring that the new legislation would not contradict Egypt's participation in international agreements (Pripstein, 2002).

However, the enforcement of labor legislation in Egypt has always been rather weak. To avoid stringent rules, many employers developed a practice according to which workers had to sign a resignation letter before being regularly hired. Moreover, the rules described above did not apply to individuals recruited by a micro-enterprise. National legislation provided no protection to this category of workers.

The Egyptian labor market legislation appears as rather flexible. Despite the lack of specific mention in the Labor Law (12/ 2003) of types of

labor contracts, such as part-time and temporary agency work, the unlimited and free use of fixed-term contracts grants employers considerable power and freedom in shaping the size and employment modalities of their labor force at different moments, production cycles and economic circumstances. A high degree of flexibility normally requires a decent level of protection for workers whose basic rights risk otherwise to be abused. Indeed there are numerous instances where the position of workers is extremely weak and unprotected in Egypt. The existence of well-functioning social dialogue and of strong employers' and workers' organizations usually helps conciliate labor market flexibility with workers' protection and employment security. In Egypt the effectiveness of social dialogue needs reinforcement. The establishment and proper functioning of social dialogue institutions can help to achieve this objective (El-Ehwany and El Laithy, 2001).

A poor protection system for workers should be compensated by the provision of solid technical assistance through training and employment

services, as well as through various labor market measures. Employment services in Egypt need to be overhauled. Their efficiency and effectiveness must be substantially upgraded so they can provide workers with quality services both when they enter the labor market for the first time and when they need to find jobs after the termination of previous employment relationships (El-Ehwany and El Laithy, 2001).

1.2 Recommendations

Although there is a fair degree of integration and competence among the different legislations and decrees concerning occupational and environmental medicine issues, there are still many deficiencies opposing the compliance and enforcement of such:

- Biomarkers are crucial in the diagnosis of occupational diseases and surprisingly they are mentioned in a broad sense and to include almost any measurement reflecting an interaction between biological systems and an occupational / environmental agent. Action levels or plan are not appropriately covered.

- No single decree is regulating the “Risk assessment” plan of action in different economic activities. Evaluating the risk allows the most economic decision to be made regarding controls. It also allows a solution to be tailored to suit the workers and the work operation. It is worth remembering that workers may be exposed to more than one hazard at a time. Evaluations need to consider all possible hazards and the ways they may affect workers.

A typical regulatory risk assessment can be pared down to the following essentials:

- Hazard identification to confirm that the hazard is capable, subject to appropriate circumstances, of causing an adverse effect in humans
- Dose response assessment: to establish the quantitative relationship between dose and effect in humans
- Exposure assessment to identify and define an exposure or an anticipated exposure to occur.
- Threshold limit values (TLV) urgently need to be considered and periodically reevaluated. As an example the steady state noise TLV is still 90 dBA which should be reduced to 80 or even 85 dBA as in developed and many developing countries. The mixed hearing loss may be occupationally induced. Ototoxins as quinine, aspirin, streptomycin, rifampicin, neomycin and others are occupationally exposed to in the pharmaceutical industry and the hearing loss resulting from such exposures should be considered.
- Periodic medical examination of exposed workers is the responsibility of the Health Insurance Organization (HIO), which at the same time does not have the full data concerning the occupational hazards or the number of industrial establishments whose workers are legible for periodic medical examination. Article 9 of the Ministerial Decree No. 111 for 1966 authorized the industrial safety inspector to verify the complete performance of periodic medical examination, while the Ministerial Order No. 218 for 1977 cancelled this legibility. This ended in the

escape of many establishments from notifying their exposed workers for periodic medical examination. We recommend here that greater power to be offered for the occupational medicine physician at the HIO regarding a form of sanctions in case of failure of the industrial establishment to comply with periodic medical examination. Also stronger and more direct relation to be set between the labor office which is responsible for inspection of the workplace and the HIO, regarding notification of new establishments and those which don't comply with examination.

- The majority of legislations admit punishments in various forms and degrees: imprisonment and penalties against violations. Incentives on the other hand may be a better motivation for obeying the laws especially in such situations as the labor legislations. Indeed the only law that offered some form of incentives is Environmental Protection Law [No. 4 for 1994], and these were in the form of reduction of taxes, grants and

soft loans for implementing the environmentally sound projects e.g treatment facilities.

- Work injuries reported for the years 2010, 2011, 2012 were very close in number and severity. Those injuries resulting in death ranged between 1.08% in 2010 to 1.3% in 2011 and full disability 0.34% in 2011 to 0.13% in 2010 and 2012. This reflects the failure of the legislative system in affording "Safe Work" environment. This is already mentioned not due to lack of competent legislations but due to resilient administrative and enforcement system. Indeed the inspection administration in the MOMM is in need for more powerful role and this may be achieved through increased manpower and more severe sanctions on employers who do not comply with the legislations.
- By law there is no role for the Health Insurance Organization (HIO) or the National Authority for Social Insurance (NASI) in the prevention of occupational injuries or diseases. Indeed the fees for insurance

against work injuries are offered to the NASI and the money is largely directed to periodic examination, treatment and rehabilitation of injured workers, there is actually lack in the motivation to cooperate in the prevention role. Considering legislations for participation of these two institutions in the health and safety efforts in industrial establishments will definitely make a change.

- It is recommended to consider legislations concerning a stronger and more efficient role for occupational medicine physicians in the prevention of occupational diseases and health promotion in the workplaces. For example, facilities with more than 500 workers should assign an occupational medicine physician for full or part time, HIO should also assign occupational medicine physicians for periodic medical examination of exposed workers. Indeed the committees for disability evaluation for work injuries and diseases should include an occupational medicine physician as a permanent member.
- There are redundancies in inspection activities and potential areas of overlaps and duplication of efforts. It is clear that there is an overlap between the inspection conducted by the Occupational Safety and Health (OSH) department in MOMM and Egyptian Environmental Affairs Agency (EEAA). Both agencies are authorized to enter establishments and take measurements concerning the work environment. Selected inspectors from both agencies have been assigned as judicial officers and take legal actions against violators. The reason for this overlap is that both Law 4/1994 (Decree 338/1995) and Law 137/1981 (Decree 55/1983) and their executive regulations have identified the work environment as an area for inspection. The duplication in both laws, despite the fact that they are not conflicting in the required standards, caused both agencies to conduct the same type of activity on the same establishments. Moreover health inspectors and EEAA inspectors have an area of overlap regarding hazardous substances and wastes from health care facilities. Despite the big

number of inspectors and offices, they cannot practically cover all the establishments listed in their annual inspection plan. This is an area where both agencies can coordinate their activities. The other two agencies, which conduct inspections are the Ministry of Health and The General Organization for Sanitary Drainage (GOSD). GOSD role is clearly identified by Law 93/1962 and Decree 44/2000 where it is responsible for sampling and analysis as well as taking administrative and legal actions if violations to standards occur. EEAA inspectors currently take samples and make analysis of wastewater, then duplication of roles exists. The representatives of Ministry of Health also conduct sampling and analysis of wastewater, which overlaps with the GOSDs current activities and EEAA activities (in case they conducting sampling and analysis).

In order to achieve more effective and efficient inspection, a study done by Genena (2002) on the gaps and overlaps in inspection for industrial facilities in Egypt recommends the following:

- Conducting a workshop that gathers representatives from the main government authorities conducting environmentally related inspection. Those are: MOMM, Ministry of Health, GOSD, Local Authorities and EEAA. The purpose of the workshop would be a presentation of the results of this study and finding out more information from each authority on how inspection should be coordinated
- Unified inspection forms between all agencies was one of the ideas welcomed by most of the interviewees of the study.
- Joint planning of annual inspection should take place, especially between MOMM and EEAA.
- Joint sector coverage or geographical coverage might be one good example for coordination of activities.
- Clarification of responsibilities is important, based on legal reviews, however, human capacity and resources should be utilized whenever possible. Protocols of coordination can occur regarding

specific inspections (such as in the case of hazardous wastes from health care facilities).

- EEAA and GOSDs should consider coordinated inspection plans and protocols to recognize each other's sampling and analysis of wastewater samples.
- Finally, it is recommended that EEAA should take the lead to invite other government authorities for coordination of inspection activities. EEAA has the legal mandate to act as a coordinating body and it also has the human and technical capacity to carry out such a coordination effort.

2. Occupational Diseases' List

2.1. Overview

What is an occupational disease?¹

Definitions of occupational diseases are diverse and vary according to jurisdiction. After all, 'occupational disease' is a more legal rather than a medical term. In the broader sense, occupational diseases can be defined as diseases caused by exposure to factors associated with work, a trade or

an occupation. Other more restrictive definitions characterize occupational diseases as such chronic ailments known to occur in a given body of workers in a given industry, and at a rate significantly higher than occur in the general population. This also includes diseases that are only known to occur among workers in a given industry and nowhere else. In these cases, where work-related factors are the only cause of a disease, its acceptance as an occupational disease generally does not cause any problem (Rom and Markowitz, 2007).

Even more complex than the definition are possible causes of occupational diseases. In many cases (and increasingly so), work-related factors increase the risk of a disease, together with other non-work-related factors. Work-related factors also often aggravate an already established disease. It is this complex multi-causality of occupational diseases which makes them not only difficult to recognize and record, but also highly difficult to prevent and insure against.

Legal definition of an occupational disease is that which is included in the

(1) Information notices on occupational diseases: a guide to diagnosis Luxembourg: Office for Official Publications of the European Communities; 2009:227–261. Available at <http://europa.eu>

international or national occupational disease list and is usually compensable by national workers compensation schemes and is recordable under reporting system (Zimmer and Hoffer, 2009).

Various countries are currently adopting lists of occupational diseases. This has the benefit of organizing medical care and rehabilitation, provide economic and other types of compensation, and afford social justice and harmonizing the development of policies regarding occupational diseases with promotion of health and prevention efforts at both the national and international levels (ILO, 2010).

In Egypt, workers' rights towards workplace health risks was recognized for the first time in 1936 upon issuing the "The Trade and Industrial workers social benefits law." In 1944, the first group of occupational diseases was issued and that included: lead, mercury, anthrax and silicosis. Two years later, a list of 21 occupational diseases was amended to the Law 279/1946. In 1959, the social insurance Act No. 92 added three occupational diseases to the schedule: glanders, tuberculosis, and

infectious fevers. In May, 1960, Egypt ratified the ILO convention No. 18 (C18) on "Workman's Compensation due to Occupational Diseases". In 1964, the social insurance Law No. 63 added three more occupational diseases: beryllium poisoning, selenium poisoning and Caisson's disease. In 1966, Caisson's disease was modified to compression and decompression sickness by the presidential decree No. 2704 which also added diseases and pathological manifestations due to hormones and their derivatives as the 28th occupational disease. In 1968 occupational deafness was added as the 29th disease and followed in 1981 flax was added as one of the causes of pneumoconiosis. A presidential decree No. 167 for 1983 added talcosis and laboratory workers and hospital workers to the compensable infectious diseases category (Abdel Latif, 1991 and Emara et al., 1991). In January 2004, the Social Affairs Ministers Decree No. 11 added 6 more occupational diseases to the list: Cadmium, non- ionizing radiation, poisoning with alcohols/ glycols/ ketones, pesticide poisoning, poisoning with nitrites /nitrates and nitroglycerine, musculoskeletal manifestations due

to segmental body vibration (Social insurance Minister's Decree No. 1/ 2004).

The criteria for inclusion of a disease in the occupational disease list include: a causal relationship with a specific agent/ exposure or work process, occurrence in connection with a specific work environment and / or in specific occupations, occurrence among groups of workers in a frequency that exceeds the average incidence within the rest of the population; there is scientific evidence of a clearly defined pattern of disease following exposure and plausibility of cause (ILO, 2013).

In May 2013, the Egyptian government has agreed to add 17 new occupational diseases to the list to be covered under Egypt's social health insurance law 79/ 1975 (Social Insurance Ministers Decree No. 54 for 2013). This modified list presenting the current occupational disease list covers 48 items.

2.2. Recommendations and critical evaluation:

- The schedule comprises a definite number of diseases no matter how

many and refers, opposite each disease, to definite exposures and situations in which the disease is compensable. Although new diseases or exposures can always be added, yet, at any given time there are always diseases, occupational or work related, which are not included in the schedule; and the occupational physician may find himself facing a situation in which he scientifically believes the patient is really complaining of an occupational disease but nothing can be done since this particular disease has not been added to the schedule.

- Although the current list of occupational diseases is much modified yet we hope that the list will be further extended to adopt the ILO list as well as its future amendments.
- Reformatting the list in such a way that it is divided into three categories as the ILO list: diseases caused by agents (chemical, biological, physical), disease of target organ/ system affection (respiratory, cardiovascular, endocrinal,

liver, kidney ...etc.) and finally occupational cancer.

- In order that a worker complaining of an occupational disease may be compensated for the disability resulting from the disease and consequently treated and rehabilitated according to the system adopted in the country there are three alternatives.
 - First there is a schedule for occupational diseases which represents the railway for the compensation system, any schedule attains the flexibility that modifications may be done as needed. However in such situation there is the disadvantage that occasional cases that deserve compensation as they are occupational diseases but not included in the schedule of the country will be denied.
 - The second situation is that there is no schedule and any worker has to apply to court to claim for compensation and cases under this system are decided each on its own merits. The claimant has to prove to court the case is work related and the management or the

workmen's compensation fund (the whoever has to pay) attempts to prove the contrary. The workers compensation funding bodies are always the wealthier and competent lawyers and experts are to be hired by this side. The claims may remain in courts for years until the decision is made and the benefits if any will be much lessened by the sharing lawyers.

- Finally a combination of both, a schedule is present and the appealing to court when the disease is not in the schedule.

In Egypt, we have only the schedule. The worker who was denied a compensation for a disease in the schedule can appeal to a committee of referees [The committee membership and procedures are organized according to Ministerial Decree 215 (1997)] which gives an irrevocable final decision. One major disadvantage of this system is that the committee of referees is not at the needed level of experience and technical competence when compared to the initial committee that made the first decision.

Our future vision for the remedy of this faulty system that denies a major part of the workers' rights in compensation and needless to say inaccurate results:

1. A schedule that covers the majority of occupational diseases and potential workplace hazards and at the same time periodic modifications to be done on the schedule which attains a dynamic potential.
2. A committee of referees that a worker who is denied at the initial stage of compensation can claim to so that his situation may be reevaluated. This committee should be at the highest levels of technical and professional competence and experience, and should include occupational medicine specialists of sufficient credibility and scientific experience.
3. The way should always be open for court appeals for conditions that are denied by the referee committee such that a second expert committee is assigned by court for reevaluation especially for those conditions that are not in the schedule. This system has the advantage of offering

the worker a second chance in evaluating his disease state and compensation deserve, but at the same time the committee of expertise that is assigned by court if not competent enough will result in faulty decisions, needless to say that a court decision sets a precedent that can be used by future claimants to facilitate their cases.

- The list by itself is of limited usefulness unless accompanied by a series of guidelines and codes of practice for screening of exposed workers and evidence based action plan for various exposures with detailed required procedures. This will definitely aid occupational physicians in their work for early detection of occupational diseases and facilitate adoption of basic occupational health services.
- The screening tests that are recommended for the periodic medical examination of exposed workers should be evidence based and applicable. The health insurance authority can't offer all the tests and accordingly it made contracts with external governmental or private

centers for the fulfilment of the tests. However in many situations especially in investigations for cancer, genetic screening, asthma, or immunological tests, the investigations are not carried completely and efficiently which results in a biased decision before referral to committees for evaluation of occupational diseases.

- Diseases added to the schedule that are multifactorial as cancer, asthma or musculoskeletal disorders will remain nuisance in the sense that a complete occupational history and investigations with competent occupational medicine professionals for evaluation and determination of the cause effect relationship.
- The difficulties relating to reporting and recording occupational diseases, especially those with long latency periods, remain an unsolved problem. This problem is complicated by certain new or emerging (so-called ‘contentious’) diseases which are difficult to attribute to the workplace (like work-related mental disorders).
- Aggravated by economic

globalization, another challenge is posed by the attempt to expand the scope of coverage of social (in particular accident) insurance to risks formerly left uncovered in the ‘informal’ sector. How can workers in the informal economy (in many cases the vast majority of the national workforce) be included in the system? How can these workers be granted access to occupational medical checkups, primary occupational health care, rehabilitation and compensation in case of a disease? This problem also has a flip side: in the case of successfully expanding the coverage, how can a system prepare for future claims by formerly uncovered workers without straining its financial resources? Claims, especially for diseases with long latency periods, might build up a large financial burden for accident insurers in the so distant future.

3. Framing National Health Policy

3.1. Health sector reforming

In late nineties, Egypt initiated a comprehensive health sector reform program building on the substantial

progress made over previous years. The program was built to take into account the strengths and weaknesses of the existing health system, as well as, the social, economic, institutional, and political realities facing the country at the time.

The national health policy process will need to take into account the general socio-economic situation. It will need to balance peoples' aspirations with the limits defined by the country's macroeconomic and structural realities. However, it will also actively guide and reflect whole-government and societal dialogues to meet around these aspirations, notably by proposing pathways to increase the fiscal space for health. The objectives of the national policy process need to be both ambitious and realistic: Ambitious because a large gap exists today between what is invested in health from public funds and what is actually needed. Ambitious also because the current health challenges in Egypt are growing, not diminishing. But realistic because many, if not all, of the challenges will take time to solve and the national health policy process will need to rely on a long term vision

that can be realized progressively and with sustainable funding (Grun and Ayala, 2006).

There is a wide understanding that one of the main challenges within the health sector in Egypt is health system fragmentation. One of the areas where this fragmentation is most apparent and problematic relates to the legal framework. This consists of intertwined legal texts that create a complex and un-harmonized environment that render the day-to-day running of the health system extremely challenging. The Minister of Health and Population (MOHP), for example, covers functions of provision, financing and regulation; this multiplication of functions has been seen as one major cause of inefficiencies and bottlenecks in the system (Murray et al., 2001).

3.2. *The Health Insurance Organization (HIO)*

The Health Insurance Organization was established in 1964 as the institution in Egypt responsible for social health insurance, providing compulsory health insurance to workers in the formal sector. The HIO is an independent government organization

under the supervision of the MOHP. It finances health care services through a combination of payroll and other taxes. It delivers health care services through its own network of hospitals, clinics, and pharmacies, as well as through contracting private sector providers.

The headquarters in Cairo works under the direction of the chairman of the board. The HIO first started operating in the governorate of Alexandria. From the beginning, the intention was to expand social health insurance to the entire population, but for various reasons, this did not happen. Instead, coverage has been extended to three major groups of beneficiaries under different legislations: Government employees (Law 32, enacted in 1975), Government, public and private sector employees, pensioners and widows (Law 79, enacted in 1975), School children (Law 99, enacted in 1992).

Many problems and opportunities can be identified in the Health Insurance Organization (HIO) operations and finances that point the way to a reform strategy. A reform strategy for the HIO was formulated based on the following principles that underlie a future vision for the organization:

1. **Universality:** All Egyptians should be assured coverage for a basic set of primary care services.
2. **Equity:** The financial burden of providing the covered services should be shared fairly. No one should be denied covered services for want of ability to pay.
3. **Efficiency:** Services should be provided in a cost-effective way in keeping with the principles of universality and quality.
4. **Quality:** Covered services should be provided according to accepted standards of scientific and clinical practice and at a level that will be perceived as adequate by the beneficiaries.
5. **Sustainability:** There should be enough resources to adequately finance the basic set of services in the short and long term (Abd El Fattah et al., 1997 and Carrin and James, 2005).

3.2.1 Recommendations for HIO reforming

- ✓ Human Resource Development should be extended to include staffing mechanisms:

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- √ Occupational medicine physicians should be the front line staff in occupational medicine clinics and in the pre-employment and periodic medical examination. Indeed, highly qualified occupational medicine professionals should be in charge of the committees responsible for the evaluation of occupational diseases and disability evaluation, and in the committee of referees for the appealing process.
 - √ In the primary health care centers, general practitioners should gain a basic occupational and environmental health training which can be organized between MOMM and Ministry of Health. It may be an option to award a few national merit scholarships to medical students and nurses with the condition that they do their internships and their residency in Upper Egypt especially in rural areas with marked shortage of staffing.
 - √ Quality Supervision could be strengthened locally through empowering citizens
 - √ Quality Supervision is an integral component of the health system reforming program. Indeed a higher accreditation score is linked to higher customer satisfaction and higher utilization. In this condition workers satisfaction of the preventive curative and rehabilitative services that they are offered.
 - √ More money for Health (new constitution) and More Health for the money (efficiency)
 - √ The current low level of investment in health in general and occupational health and safety in particular has led to high levels of out-of-pocket health expenditure and has reinforced domination of market forces through the increased involvement of the private sector and a general commercialization of health services. This has aggravated market failures that are reflected in quality and safety problems, through inequities in access to services (as markets tend to rely on ability to pay) and through an inadequate focus on prevention and promotion. Article 18 of the Constitution sets a measurable target for health sector investment

of increasing government health expenditure to at least 3% of gross domestic product (GDP). Reaching this goal will be crucial in order to counteract the effects of many years of underinvestment.

- √ Revitalization of the Supreme Consultancy Council for Insuring a Healthy Vocational Working Environment.

4. Occupational Medicine as a Specialty

4.1. The Specialty of Occupational Medicine: What Do We Add?

Occupational medicine includes original goal of preventive medicine teaching and moreover links individual care to population-based services and measures. Well-trained occupational physicians bring unique and irreplaceable clinical competence to occupational medicine, and well-trained occupational medicine scientists bring a needed perspective to clinical care. Their skills and service to workers and to the public's health in general justify and illuminate the existence of our discipline (Harber et al., 2010).

Occupational medicine practitioners have a defined role in the health care and prevention of disease in workplaces and other potentially unhealthy environments. They also bring expertise in benefits, etiologic causation, and disability determination to insurance. Occupational medicine designates unique competencies in early hazard recognition, early diagnosis of environmental disease, and effective hazard mitigation or specific treatment of outcomes of exposure. It has firm identities (La Dou, 2005).

A diverse job market attracts trained occupational physicians, and general preventionists who find opportunities in managing workplace health. It also attracts a variety of generalists and specialists from other disciplines within organized medicine, who practice some aspects of occupational medicine part-time or full-time. Some of these doctors, aware that their practice features specialty care for which they are neither trained nor certified, desire the opportunity to obtain occupational medicine training. This goal is sometimes articulated in the context that it could be achieved during full-time (Harber et al., 2013).

4.2. *The department of Occupational and Environmental Medicine, Faculty of Medicine Cairo University* is the only department specialized in occupational medicine in Egypt which definitely puts this department in a leader position for the development of the specialty. Other departments are integrated within the Public Health/ Community Medicine departments.

The Department of Occupational and Environmental Medicine (OEM) was established in 1960. It was founded in response to the industrial renaissance at this era that resulted in increased number of employees at the industrial sector and hence increased responsibility for providing specialized healthcare to those workers. Moreover to provide a professional and academic body empowered to develop and maintain high standards of training, competence and professional integrity in occupational medicine. The department was first established as a unit branching from the Department of Internal Medicine. In 1964, the department became the first and, till now, the only independent OEM department in Egypt. The department

depended first on its outpatient clinic but, later on, an inpatient department (1990) and several attached units were established.

4.3. Challenges:

1. Occupational medicine is facing challenges both in terms of demand for consultants and trainees in occupational medicine and occupational health and safety practice.
2. Redefining the competencies: the discipline coverage is constantly expanding in such a way that the emphasis on occupational diseases diagnosis and management had extended to include further core aspects of the specialty : risk assessment, risk management, rehabilitation, legal competence, administration, emergency and intensive care management, disaster preparedness.
3. Assessment of competencies of occupational physicians
4. As part from the general research fields, the research in occupational medicine generally faces the same challenges that faces other

specialties from lack of a definite research plan, funding difficulties, publication...etc. but added to these are the difficulties faced by candidates in collecting samples (access to factories and industrial facilities), and the environmental assessment tools.

5. Safety culture
6. The need for health system reforming and legislative reforming (above sections)

4.4 Recommendations (The way forward).

4.4.1 Redefine competencies: The changing definition of occupational medicine has led to greater importance of health promotion and a reduction in the emphasis on occupational disease. In 1998, the American College of Occupational and Environmental Medicine (ACOEM) recognized the need for defining important competencies for occupational and environmental medicine (OEM) physicians and published its original set of OEM Competencies (ACOEM, 1998) which were updated in 2008 (ACOEM, 2008). However the evolving health

care systems, along with published research on how OEM physicians actually practice medicine, (Harber et al., 2010, 2012, 2013), the increasing globalization of the workplace, and changes in the way medical residency programs define clinical competency, all contributed to the need for a fresh look at OEM Competencies. ACOEM has identified these 10 core competencies for occupational and environmental medicine (OEM).

1. Clinical Occupational and Environmental Medicine
2. OEM Related Law and Regulations
3. Environmental Health
4. Work Fitness and Disability Management
5. Toxicology
6. Hazard Recognition, Evaluation, and Control
7. Disaster Preparedness and Emergency Management
8. Health and Productivity
9. Public Health, Surveillance, and Disease Prevention
10. OEM Related Management and Administration (ACOEM, 2014).

4.4.2 Identify the requirements of social partners: In all cases, these curricula have been developed by medical professionals and therefore represent their perceptions of the health requirements of working populations. The views of the social partners—employers and employees—of these competencies have not been tested. The requirement to take into account the needs of the customer when planning occupational health services is well established.

4.4.3 Deliver the competencies: Those designing and delivering courses for trainee occupational physicians must ensure that there is appropriate emphasis on the competencies required in the workplace as well as those perceived to be important from an academic viewpoint.

A- Training: More than 100 Occupational Safety and Health Administration (OSHA) standards for hazard control in the workplace contain requirements for training aimed at reducing risk factors for injury or disease; others limit certain jobs to persons deemed competent by virtue of special training

Occupational Medicine remains unusual in that a minority of practitioners is officially certified in the specialty. Also, the pool of well-qualified applicants is limited. Many physicians enter the discipline laterally after practice in other areas of medicine. Second career applicants represent the largest potential training pool. There are very few trained occupational health and safety professionals in developing countries. Their absence creates a major obstacle to implementation of regulations and policies and to the provision of occupational health services. Because of the shortage of formally trained occupational physicians, workers suffering from occupational diseases often remain unrecognized (Castorina and Rosenstock, 1990). Thus, the rate of compensation for occupational diseases is one-tenth that of the developed countries, and a large majority of occupational injury cases do not receive rehabilitation or appropriate care to return to work (Wang et al., 2002).

Future OSH Workforce and Training Expected changes in the workforce and in the nature and organization of work in the coming

years will result in workplaces that will be quite different from the large fixed-site manufacturing plants in which OSH professionals have previously made their greatest contributions. The delivery of OSH services will become more complicated, and additional types of OSH personnel and different types of training than have been relied upon to date will be needed. Simply increasing the numbers or modifying the training of occupational health professionals will not be sufficient, since the primary difficulty will be to provide training to underserved workers and underserved workplaces. Traditional OSH programs must be supplemented by a new model that focuses on these workers and work sites (ACOEM, 2014).

Residency training requirements adequately emphasize clinical competence, including mastery of patient care and of the systems that support patient care. Occupational medicine residency graduates enter a robust and diverse employment market, requiring clinical and organizational skills for many entry-level jobs. Nevertheless, the Department of Occupational Medicine has recommended re-examination of the

structure and needs of existing training programs in occupational medicine.

Recommendations

1. Add a new training initiative focused on prevention of occupational injuries.
2. Extend existing training programs to support of individual M.D. candidates.
3. Encourage distance learning and other alternatives to traditional education and training programs.
4. Re-examine current pathways to certification in occupational medicine.
5. Solicit large-scale demonstration projects that target training in small and mid-sized workplaces.
6. Evaluate current worker training and establish minimum quality standards.
7. Solicit demonstration projects to create model worker training programs for occupational safety and health trainers.
8. Increase attention to special needs of older, female, and ethnic/cultural minority workers.
9. Examine current accreditation criteria and standards.
10. Broaden graduate training support to include behavioral health science programs (Castorina, and Rosenstock, 1990).

B-Research

Challenges:

1. The concern to identify research priorities in occupational medicine has been born out of necessity.
2. The deficiency in identifying suitable research topics
3. “lack of flair” on the part of researchers,
4. Reluctance of industry to generate or clearly identify research questions
5. The absence of a national comprehensive early detection system for occupational health problems.
6. The limited value of available information on research in progress,
7. Insufficient resources for research
8. Poor “inter-institutional” networking for collaborative projects.
9. Source of funding. Critical challenge which requires new strategies to supply unconventional methods for encouraging the Egyptian private sectors to fund research and push scientific development forward.
10. The selection and training of doctors who work in industry and from whose ranks are chosen the professional representatives and policy advisers to government and other bodies. Many doctors in industry are in general practice, few have had substantive academic experience, and very few have any background in research. This process has contributed to the neglect of a role for academic occupational medicine research in the workplace.
11. Changing the Egyptian scientific research administration and rebuild its infrastructure.

Today the field of occupational and environmental medicine is at a crucial juncture in its development, as the need for exposure-related research is expanding throughout the world. However, the resources and funding required to support the science are still inadequate when compared with resources provided for the other components of health sciences.

Nevertheless, the discussion over occupational medicine research is in danger of becoming a circular argument

along the following lines: The research base for occupational medicine is weak. The academic departments need more money; money for what? Research; research into what? Who sets the priorities? Academe or industry? Who needs the results? Industry. Who needs to pay? Industry. What research does industry need? Industry seems unsure and pays little to academe (Lioy, 2010).

Recommended solutions: Some practical solutions of scientific research problems in Egypt [of which occupational medicine is one entity] were presented and discussed along six axes in 17th annual meeting of The Egyptian's Dermatologic Society on November 5 - 6, 2008 at the Guest House, Ain Shams University² :

1. The implementation of a national strategy:

- Presenting a strategic plan defining priorities according to social needs
- The public dissemination of a national research strategy.

-Integration of research facilities within the structure of societal decision-making policies

2. Restructuring scientific research matrix:

- Establishing unique independent research centers committed to academia.

- Development of standards of excellence for research centers which undergo regular internal and external auditing.

- Accreditation of distinguished research centers pertaining to research and development.

- The university is the nucleus of a scientific research. Hence, emerges the inevitability of transforming universities into consultant centers offering expertise in all possible domains.

- Forming specialized research teams according to current plans and future needs

- Attraction of 'migrating minds' in science and technology by establishing a real partnership with them. Hence, bringing them back to their homeland.

(2) The meeting included a cultural symposium titled «The Practical Solutions of Scientific Research Problems in Egypt». The the head committee were Professor Ahmed Zaki Badr, President of Ain Shams University, Professor Hany El-Nazer, President of National Research Centre and Professor Mahmoud El Tayeb, Vice President of Ain Shams University for Postgraduate Studies and Research

3. *Funding:*

- Search for unconventional funding
- Cooperation between the public and private sectors in the domain of research funding; responsibilities and rights for each party clarified.

- Development of scientific research management and training personnel so as to be able to follow up and respond to funding organizations.

- Training researchers to compose competitive scientific projects submitted to different funding organizations

- Establishing a database of scientific research funding organizations both local and abroad.

4. *Enhancing research innovation:*

- Putting into action a 'talent-finder' mechanism

- Coming up with original ideas that solve real problems endangering society and the environment.

- Developing creativity- enhancing curricula.

- Developing academic research ethics code.

- Encouraging researchers to pursue

international publishing and patent inventions, to renowned measures of scientific research in both Europe and USA.

5. *Boosting information technology (IT) and communication:*

- Offering 'digital-library literacy' training courses to researchers.

- Establishing an intra and extramural human and financial resources database.

- Internationalizing Egyptian journals and linking them with the Academy of Scientific Research.

6. *Quality control and institutional evaluation system (Badr et al., 2009)*

4.4.4 Performance must be monitored:

The dynamic nature of the specialty obliges the need to regularly review and update acquired competencies both technical and behavioral aspects. Of these facets, the latter is more difficult to assess since it would include communication skills, leadership, team participation and customer satisfaction.

✓ We recommend specific hours of Continuous Medical Education

- (CME) during the lecturer and assistant professor period [10 years] for faculty staff and consultants outside the faculty which includes active participation in specialty conferences, seminars, workshops and training courses in the core competencies and skills, and Continuing Professional Development (CPD) for the professors in occupational medicine for reevaluation of acquired competencies and for upgrading skills.
- √ Creation of an “Occupational Medicine Specialty Auditing Committee “ which will be specialized in assessment of competencies, setting standards for acquired skills and required training for faculty staff and trainers. This committee is responsible for the auditing system for occupational medicine physicians particularly faculty staff. The committee members include professors in occupational medicine representative to the various universities to be recommended by their corresponding departments.
 - √ Economic costs of these activities have to be addressed as a political/ structured issue in medical practice. Training in the skills to operate these processes is needed and would be easier if practice was standardized.
 - √ A code of ethics for occupational medicine physicians, who have a unique role with a split of client groups, with a potential for conflicts of interest which have to be bridged by careful observance of the niceties of good professional practice. These client groups comprise workers and employers, as well as the wider society in which they live. Teaching of occupational medicine need to be very close to reality: it has to be of relevance to real current day practice. Thus a problem based approach might well be developed with most training being “on the job” and theoretical aspects being attended to mainly by processes such as distance learning rather than more traditional methods.
 - √ Investing in developing new skills by focusing on new entrants to the specialty, whilst maintaining and enhancing the skills of existing specialists

√ Developing enhanced communication skills to better influence and interact with both stakeholders and colleagues in allied disciplines.

Conclusion

A future vision for occupational medicine in Egypt is urgently needed; priorities and targets should be set and put into a policy and procedures action plan for both the specialty and occupational health and safety system.

Conflict of interests

The author declared that there is no conflict of interest exists.

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