**Public Occupational Medicine in Israel - Past, Present and Future**

**Abstract:**

Public occupational medicine in Israel is unique in that it was originally established purely as a public service that would be equally accessible to all employees and employers. They would not be required to pay for the service, which was enshrined in extensive legislation. However, the legislative changes that led to the severe budget cuts in the area, having released employers from the obligation to finance occupational health services to employees from the taxes they pay, pose a risk to the future provision of public services and jeopardize the key principles of the service. This process has intensified over the past two decades.

 In this article, we’ll review the historical processes that led to the current structure of the service, some of which go back a century, and others extend all the way back to biblical times. Representative case studies from the field will be used to illustrate its scope of practice and working principles, which include integrating disabled employees, ensuring accessibility for disadvantaged populations, and encouraging a return to work of sick or impaired workers. Finally, we’ll discuss future aspects of the desired development vectors, and make recommendations for policy making, in order to preserve the structure of this service and all of the benefits it offers.

# Preface

Israeli statesman Yigal Alon wrote the following: “A nation that is ignorant of its past will have a meager present, and its future will be shrouded in uncertainty”‎1. Although the State of Israel is relatively young, an advanced public occupational medicine system was established over the years, which championed values such as equality, equal access and integration. Relevant legislation is keen on enshrining the health and well-being of employees in law. Τhe foundations of the principles that guided the establishment of occupational medicine services in Israel and the legislation that enshrined the provision of such services are deeply rooted in the history of the Jewish people and the Land of Israel. Insights gleaned from the historical and social background and the process by which the occupational system has developed will guide into the future, in terms of how to preserve and enhance this system, and in doing so, preserve and enhance workers’ health.

# Past

Currently in Israel, occupational health services are provided as an integral part of general health services. All Israeli citizens, without any discrimination, possess mandatory public health insurance as part of their basic rights, and they are eligible to receive these services at any of the four HMOs that provide those services, which are funded by the government and the progressive health tax deducted from employees’ salaries. In this article, we’ll demonstrate how these two public systems have been integrated since their inception. To understand the current social context, in which occupational medicine is equally accessible to all workers in Israel, we need to backtrack about a hundred years of history, and go back the time before the State of Israel was established. It was then, at the end of the period of Ottoman rule and at the beginning of the British mandate over Palestine, that the Israeli health care system was founded. To document the legal basis for workers’ health in Israel, we’ll need to go back 3,000 years in time, to the days of the Bible, as we’ll see later in this paper.

## The History of Public Health in Israel:

Public health in Israel developed through a process that was essentially the reverse of what occurred in most countries, where health services were originally private, and were only later nationalized and made into a public service by the government. Health care in Israel was public at its inception, very early on in the history of the emergence of Jewish communities in the country. The first HMO, Clalit Health Services, was established in 1911 to provide medical services to workers, many of whom had immigrated to the British Mandatory Palestine at that time‎2. The trigger for its establishment is strongly linked to occupational health and safety. It was founded after a work accident in which a worker had lost his hand while working in an orchard. Clalit Health Services operated in accordance with the principles of the model set out by Otto von Bismarck, the German chancellor, who, in 1981, initiated the world’s first health insurance law, originally designed to benefit the working class, and financed through the levying of a progressive tax‎33.

At first, the HMO operated as an insurance firm, which mediated between the worker and health services. It financed doctors, medications, and hospitalization, and its members were committed to performing overnight duty and helping sick workers. Later, however, the organization itself began providing medical assistance services, including clinics, medical staff, bulk medications, and later, hospitals. Clalit Health Services’ ideology was based on the principle of equality and mutual aid, which meant that it had a general budget. Workers from the larger branches contributed to the financing of medical assistance to workers in villages and small agricultural settlements, and they all paid a membership tax based on their income. Another principle hinged on the idea that medical services need to come to the worker, and not vice versa. Consequently, physicians regularly visited the peripheral regions of the country, seeing workers in the settlements and in the employment sites of that time, which were called “workers’ camps”‎4 4 . These principles left a mark on the entire Israeli health care system for many years, and their influence is still felt in modern-day Israel. The system of neighborhood community clinics and periphery settlement clinics is still rather commonplace in Israel, and Israeli occupational medicine is still making available medical supervision services in the workplace.

Other key figures who spearheaded the development of health services in pre-state Israel and established clinics and hospitals were the Rothschild family and an organization founded by Jewish communities in the United States, in collaboration with the American Jewish Joint Distribution Committee (the JDC) and the Women's Zionist Organization of America‎5. This organization, which began operating mainly after the first World War, and was later renamed the “Hadassa Medical Association”, was the first to establish preventive health services, inter alia, at workplaces. The services included nutritional services, immunizations and hygiene in workers’ camps, and it was also responsible for Mother and Child Centers, hygiene education and medical supervision at schools, and transit camps for new immigrants, where its members would administer vaccinations and provide training on hygiene and nutrition. It also established a nursing school for nurses who would provide these preventive health services‎4. Payment to Hadassah was collected in accordance with each patient’s financial situation, and sometimes, services were provided free of charge.

Patients at both Clalit Health Services and the Hadassa medical facilities enjoyed equal opportunities to see medical personnel dispatched to various places in Israel regardless of their financial or social status, but they could not choose their treating physician. Over the years, other HMOs were established, which used a model that allowed their members to purchase services from private, individual physicians and other health care providers, by paying uniform membership dues, and their members were given the freedom to choose their physicians‎3. Once the State of Israel was established, in 1948, about half of its residents had health insurance coverage, and most were members of Clalit Health Services5. In 1995, about 95% of Israelis had health insurance coverage from one of the HMOs, funded through one of the following methods: 1. Membership dues payed by employees (which, at times, were included in the membership dues paid to workers’ associations that the health fund was a member of), 2) Employer contributions to employee health insurance fees (the “parallel tax”), and government funding. In 1995, the National Health Insurance Law was enacted, which mandated compulsory health insurance for all citizen at a health fund of their choosing, regardless of the workers’ association they were affiliated with. This insurance was financed through a progressive tax that was based on the employee’s income. However, this law cancelled the employer’s contribution to their workers’ health insurance[6](#_ENREF_6" \o ", 1994 #9).

The historical foundations for workers’ health care legislation in Israel

Like all other health services in the State of Israel, occupational medicine services are public and socialized, and the concern for workers and the health and well-being are enshrined in Israeli legislation. The inspiration for modern labor legislation in Israel is drawn from Hebraic law, with its sources in the bible and other texts dating back over 3000 years [7](#_ENREF_7" \o "Vigoda, 2005 #18). One exemplary case of a social law based on Jewish sources is the idea of the Sabbath as a weekly day of rest, when employers and employees are equally required to avoid any productive activity. This includes disadvantaged populations like slaves and foreign workers (Deuteronomy 5:14, Exodus 23:12). The idea of limiting daily work hours to “nightfall” is mentioned in the Book of Psalms, and is also discussed by Jewish sages (Psalms 104:23, and Talmudic exegesis on the meaning of this verse in Tractate Baba Metzi’ah 93b). The implementation of safety principles, such as the obligation to install a bannister on the roof a house when constructed, stresses an individual’s obligation to ensure the safety of people in his home, whether or not they are his workers (Deuteronomy 22:8). Jewish literature pre-dating the year 200 of the common era contains the story of a work accident that occurred in the Land of Israel, in which a porter was hurt because he was made to carry too much weight. The Talmudic debate over the issue demonstrates that employers are required to take precautions and compensate workers for damages causes as a result of an employer’s negligence. These sages also determine the maximum weight that a porter CAN bear. This TLV documentation is 2,000 years old (Tosefta Bava Metzi’ah 7:10). Surprisingly, workplace incidents that are only now coming into public awareness were already discussed in Jewish literature from 1,000 years ago, when Maimonides, a Spanish-Jewish 12th-century physician and philosopher who lived in Egypt during the Middle Ages, determined that sisyphean labor, purely entitled to occupy the worker, or tasks with no predetermined deadline, amount to precarious employment [7](#_ENREF_7" \o "Vigoda, 2005 #18). In the 17th century, various Jewish communities set regulations on the minimum employment age for boys aged 13 to 17, and penalties and sanctions were determined to enforce these norms .

More recently, the British civil administration in Palestine, which operated from 1920 until 1948, laid an important modern legal framework, which would eventually form the underpinnings of the State of Israel’s labor legislation. This development was roughly concurrent with the emergence of modern labor legislation in the United Kingdom. The most important labor legislation during this period was passed toward the end of the mandate. The “Ordinance on Occupational Accidents and Diseases (1946)” requires that any on-the-job accident or occupational diseases be reported, and these provisions are still in force, albeit slightly amended. Regulations pertaining to setting work conditions to preserve the health of women and children formed the basis for Israeli legislation after the establishment of the state. The crowning achievement of British mandatory legislation was the “The Factories Ordinance (1946)”, which set out to determine physical work conditions, ensuring that arrangements are made to ensure safety and health in the workplace. This law, along with amendments and updates to the text from the 1950’s until the 1980’s, forms the basis for the primary legislation on occupational health and safety in Israel.

Present

Current The statutory context for workers’ health in the State of Israel

Over the years, since the establishment of the State of Israel in 1948, the authorities have enacted laws and regulations designed to guarantee that employers will preserve proper conditions in the workplace, in order to preserve the health of their workers, and guarantee the provision of occupational health services to all of the country’s workers, without any discrimination. The basic assumption is that concern for workers’ health is part of the overall health care system, and that all employed Israeli citizens are eligible to receive occupational health services, just as they are eligible to receive the security and education services the state provides its citizens.

As a result, occupational medicine is a unique field of medicine, supported and anchored in countless laws and regulations on various aspects of the field, such as:

“The Labour Inspection (Organisation) Law (1954) - the “law of who”. This determines state regulations on inspection and enforcement, and the responsibilities of the regulator with regard to ordering for physicals to be performed on workers, inter alia. It also sets the control mechanisms that an employer must put in place within the factory.

 “The Work Safety Ordinance (1970)” - this law is based on Mandatory legislation, and constitutes the “law of what”. It lists the regulations and elaborates on what employees and employers are required to do to ensure a safe and health-conducive work environment.

The statutes enacted on the basis of these framework laws translate the “what” part of the law into the “how” part of it. Over the years, dozens of statutes were passed, which specify the employer’s obligations concerning the maintenance of occupational health, and it elaborates on the various tools and services used to oversee the health of workers, such as periodic environmental monitoring, medical inspection, and permissible levels of exposure. In this regard, there are dedicated statutes designed to protect workers exposed to specific physical or chemical hazards, or specific professions. These constitute the legal framework for the performance of periodic medical inspections by occupational physicians. These include medical oversight of crane operators and workers exposed to hazardous powders, ionizing radiation and certain metals, etc. These statutes set out which workers are exposed, and the extent and frequency of mandatory and optional inspections. Today, there are 16 statutes, the last of which was legislated sometime in 1994, despite the fact that considerable knowledge has accumulated since then on workplace risk factors. Without this legislation, employers would not be required to monitor or conduct training, employees would not be required to wear protective gear, public medical oversight would not be provided, and there would be no way of keeping workers away from safety hazards based on the decisions of a medical professional.

Other labor laws pertaining to occupational medicine include laws that regulate work performed by women and children and professions such as pilots and seamen, laws tied to the The National Insurance Institute pertaining to compensation for occupational diseases and work accidents”, the “Hours of Work and Rest Law”, the “Sick Pay Law”, the “Equal Rights for Persons with Disabilities Law”, and more. The requirement to report occupational illnesses, which is originally based on British mandatory law, is currently implemented nearly exclusively by occupational physicians, and reporting is often the only action performed. Consequently, the number of overall work illnesses reported to the work illness registrar, set up in 2011 as a passive registrar under the auspices of the Ministry of Health and the Ministry of Labor, are underestimated, so it’s still difficult to establish the true scope of work morbidity trends in Israel. Therefore, efforts are being made to increase reporting among physicians who are not occupational physicians, as well.

The “Parallel Tax Statutes (1973)” provided a good framework for financing and regularizing the scope of the occupational medicine services provided by HMOs.The law obligated employers to participate in covering their workers’ health insurance costs through a tax equivalent to a certain percentage of each worker’s salary. The HMOs were also required to provide occupational medicine services and conduct studies on occupational medicine. A dedicated budget taken from taxes levied on each worker was earmarked for occupational medicine in the framework of the parallel tax regime. Beginning in 1995, after the “National Health Insurance Law” was passed, the medical component of the ordinance, namely the provision of health services to workers, was added to the new law, but under this law, the workers themselves would need to cover the costs of these services through the payment of a progressive health tax levied on **each worker in the country**, at an amount relative to the worker’s salary, along with a contribution from the state. Furthermore, the law determined that workers’ health services would be provided at the same extent as they were provided before the law went into force, and any updates to the law would require further deliberation and a special budget. While the workers’ health budget was commensurate with the number of workers for which the tax had been paid under the parallel tax regime, under the “National Health Insurance Law”, the situation remained unchanged until 1994. Thus, despite the increase in the total number of workers in the country, no additional budget was earmarked for increased services. Likewise, the budgetary shortage meant that no new services could be introduced, which explains why no new statutes obligating the HMOs to increase the number of occupational medicine physicals were legislated .

Occupational Medicine in Modern-Day Israel

The structure of occupational medicine services in Israel: Occupational medical services are public and available to all workers in the country. Neither workers nor employers are required to make any additional payments through the four HMOs in Israel: Clalit Health Services, Maccabi Health Care Services, Meuhedet Health Services, and Leumit Health FundOccupational medical services are equally available not only to Israeli citizens, but also to residents of the Palestinian Authority employed by Israeli employers Occupational medical services are provided in the community clinics operated by the HMOs the worker is a member of, and in occupational clinics located in the vicinity of the workplace, both in the center of the country and in the periphery. This system of regional clinics responsible for servicing a wide range of factories and workplaces leads to occupational physicians with a deeper familiarity with the types of industries and work processes, a familiarity developed over the course of the work process through self-study and conducting tours of these workplaces. Public services are given to all factories and workplaces, large or small, public or private, and to both employees and self-employed workers without discrimination. The staff of these clinics includes occupational physicians, occupational nurses, medical secretaries, and sometimes, a social worker. Today, and as of 2018, about 120 specialist occupational physicians service the 3,880,000 workers in the State of Israel. Most of these physicians work for the various HMOs in the field of public health care, but some work in occupational medicine clinics available only to employees at specific workplaces (such as national security services and hospitals) or at private institutes.The ratios of one physician for every 33,000 workers, and one physician for every 48,000 workers (when taking into account the physicians accessible solely to the HMOs’ public health care system) are lower than those in most European countries, where the average ratio is somewhere around 1 physician per 4,000 workers . The ratio is even lower for the smaller HMOs. The low ratio is due to the fact that public occupational medicine standardization has not been updated to account for the increase in the total number of workers, and the growing demand for work competence assessments (see below). This leads wealthier employers to purchasing private occupational medicine services, sometimes at a greater extent than the services provided under public occupational health services. Thus, while compensation is given for the reduction of the workers’ public health budget, this reduces the incentive to update the relevant public budget, and leads to inequity in the health services provided to disadvantaged employees in the industrial sector . Moreover, the scarcity of physicians makes it difficult for HMOs, particularly the smaller ones, to provide services to workers in the factories themselves, and this makes inspections more complicated and leads to a loss of valuable work hours.

Specializing in occupational medicine: The specialization program for occupational medicine in Israel, which was accredited in 1990, is rather comprehensive17[18](#_ENREF_17" \o "Cashman, 2005 #34). It is a 4.5 year program, and is financed primarily by the HMOs. The program is conducted within their occupational medicine departments. Like other medical specialties in Israel, this specialty requires passing the written board exams (theoretical knowledge) and oral board exams (case management), and is supervised by the Scientific Council of the Israel Medical Association. Unlike other medical specialties, candidates must meet the academic requirements for a master’s degree in public health (MPH/M.Occ.H), which includes specific content on occupational medicine in the following fields: occupational epidemiology and pathophysiology, environmental and occupational toxicology, occupational safety and hygiene, risk assessment, ergonomics, health promotion, behavioral and social factors affecting workers’ health (such as organizational behavior and occupational stress), and familiarization/implementation of occupational medicine research tools . Aside from clinical training in the occupational medicine department, residents receive hands-on training by performing clinical rotations in other medical professions, such as internal medicine, orthopedics, and a number of elective fields (such as pulmonology, allergy and immunology, ENT, dermatology, physiatry, epidemiology, environmental sciences, and more).

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* “The Work Safety Ordinance (1970)” - this law is based on Mandatory legislation and constitutes the “law of what”. It lists the regulations and elaborates on what employees and employers are required to do to ensure a safe and health-conducive work environment[[1]](#endnote-1). Statutes enacted on the basis of these framework laws translate the “what” part of the law into the “how” part of it.
* Over the years, dozens of statutes were passed, which specify the employer’s obligations concerning the maintenance of occupational health, and it elaborates on the various tools and services used to oversee the health of workers, such as periodic environmental monitoring, medical inspection, and permissible levels of exposure. In this regard, there are dedicated statutes designed to protect workers exposed to specific physical or chemical hazards, or specific professions. These constitute the legal framework for the performance of periodic medical inspections by occupational physicians. These include medical oversight of crane operators and workers exposed to hazardous powders, ionizing radiation and certain metals, etc. These statutes set out which workers are exposed, and the extent and frequency of mandatory and optional inspections. Without this legislation, employers would not be required to monitor or conduct training, employees would not be required to wear protective gear, public medical oversight would not be provided, and there would be no way of keeping workers away from safety hazards based on the decisions of a medical professional. Other labor laws pertaining to occupational medicine include laws that regulate work performed by women and children and professions such as pilots and seamen, laws tied to the National Insurance Institute pertaining to compensation for occupational diseases and work accidents, the “Hours of Work and Rest Law”, the “Sick Pay Law”, the “Equal Rights for Persons with Disabilities Law”, and more‎10. The requirement to report occupational illnesses, which is originally based on British mandatory law, is currently implemented nearly exclusively by occupational physicians, and reporting is often the only action performed. Consequently, the number of overall work illnesses reported to the work illness registrar, set up in 2011 as a passive registrar under the auspices of the Ministry of Health and the Ministry of Labor, are underestimated, so it’s still difficult to establish the true scope of work morbidity trends in Israel. Therefore, efforts are being made to increase reporting among physicians who are not occupational physicians, as well.
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During their residency, residents specialized not only in clinical medicine, but also in a broad range of occupational safety and hygiene fields. Residents needed to conduct visits to factories in which a range of industrial processes were being conducted, and draw up inspection reports that include a risk assessment component and recommendations for surveying these risks, based on an analysis of environmental and hygienic monitoring. These reports are part of the requirements for passing the exams and achieving familiarity with the specialty‎20. This comprehensive residency program ensures that occupational medicine residents will become physicians with comprehensive knowledge on all areas of workers’ health and on epidemiological approaches to the study of morbidity in the workplace, and that they will be familiar with Israeli legislation and standardization, and clinically experienced in occupational medicine and related medical fields.

Research and continuous education in occupational medicine:

Research on occupational medicine in Israel is currently scant. Research institutes as well as vocational rehabilitation and preventative health centers have been operating in Israel from the mid-1970s until 2004. The National Institute for Occupational and Environmental Health, which was the result of the 1999 merger of the two institutes that had existed until then, and became affiliated with Tel Aviv University, served as the national research institute until 2004, as well as a center for instruction and applied medical, hygienic and academic instruction and development center. At its peak, the institute had about 100 employees, including researchers, epidemiologists, ergonomists, health promoters, laboratory staff, and occupational physicians. A variety of subjects were researched at the institute, such as mapping industries and exposures at large factories and in light industry, molecular epidemiology, occupational cancer, and stress and burnout. It ran a unit for developing and implementing health promotion programs in factories. The institute served as a platform for academic research training for occupational medicine residents, and provided continuous education for specialist physicians. The institute was closed in 2004 because its budget couldn’t support its operations. Contrary to the norm in most Western countries, there is no state-run occupational or public health institute in Israel that focuses on environmental and occupational health.

In the absence of a central, professional organization serving as a platform for research and continuous education and as a source of knowledge for determining professional standards based on evidence-based medicine, responsibility has been transferred to the heads of the occupational medicine departments in the HMOs. If there were to be no agency in each of the HMOs responsible for creating and updating operating procedures and overseeing the extent and quality of services, the training of new personnel, and continuous education for specialists, inequity and discrimination in the provision of workers’ health services by the different HMOs, and even by different physicians of the same HMO, could result.

The Israeli Society for Occupational Medicine was established in 1990, and currently has about 150 occupational medicine as members, including active and retired physicians, specialists and residents, employed in both private and public health care, as well as hygienists and occupational nurses. The organization conducts continuous education by organizing conferences, seminars and posting relevant updates from the medical literature on its website. It also takes a position on professional issues and health care policy, interactions with other medical associations, and the training of occupational medicine residents.

Changes and trends in the character of employment in Israeli industry and elsewhere in the Israeli economy

In the early 1990’s, the Israeli economy, like the economies of many developed nations, began shifting gears. Agriculture and industry moved backstage due to the substantial growth of the public service sector (including health and education services), as well as business and financial services (information technology, computers, telecommunication, and R&D)‎21. During this period, a change occurred in the distribution of workers that coincided with a growth in the number of workers employed in hi-tech industries (such as electronic components, telecommunications equipment, aircraft and spacecraft, medical instruments and pharmaceuticals, etc.) This came at the expense of traditional industries (such as food, textiles, clothing and footwear, etc.), a result of globalization and opening up the Israeli economy to competition‎22. These events are related to the growth of academic, scientific, technical, and managerial professions, alongside a decrease of some blue-collar sectors, as well as advancements in production technology and an across-the-board increase in educational levels: about half of all industrial workers have studied beyond high school‎21. As of 2014, about three-quarters of Israeli factories are classified as small industry, employing less than 20 workers‎22. These changes in the prevalence of different professions in Israel brought about a reduction in the proportion of workers’ health inspections and a significant rise in the proportion of pre-employment evaluations, which will be illustrated later in this paper.

Medical services for workers in Israel:

Occupational medicine services in Israel, which are provided by HMOs in their public clinics, are mandated by law. Employers are required by law to have any of their exposed workers examined in order to comply with the medical surveillance mandated by the law, and the remaining services are essentially a right accorded by the law‎15 ‎19 ‎23. Other than the main roles that I will enumerate in the case studies below, public occupational medicine supplies first aid equipment to factories, provides preventive medical services such as immunizations, trains workers on subjects tied to maintaining their health at work when exposed to various safety hazards, assists in implementing health promotion programs (such as the cessation of smoking and exercise), and serves as an expert consultant to employers, workers, and the family doctors and specialist physicians who treat them.

We will now mention a sampling of the main occupational medicine inspections conducted through representative case studies which we, occupational physicians practicing in Israel, come across daily in our work at clinics and factories.

1. Occupational health surveillance and the diagnosis of professional disease.

After an unusual presence of silica was discovered in a sample collected through environmental monitoring and sent to the occupational clinic, the staff of the clinic contacted the employer, and began a process of surveillance inspections of the factory workers. This environmental monitoring was conducted at a factory for the production of artificial stone in the framework of a project designed to map out small factories. A worker in his late 30s, who had been working at the factory for the past two years or so, was examined to monitor for a hazardous powder. Previously, the worker had worked for about ten years at various stone processing plants. He had been using a dusk mask for six years, and wet processing methods had only recently been introduced. The worker had also been smoking a box of cigarettes a day for the past 15 years, and had contracted lupus three years earlier, which resulted in joint pain and positive serology, and could only be kept under control through the administration of large doses of steroids. For about three years, the subject had been suffering from shortness of breath on exertion, which had been getting worse over time, from nocturnal hyperhidrosis and from weight loss. Around the time his symptoms began presenting, he was first sent to be examined for the effects of hazardous powders by his previous employer. At the time, the occupational physician discovered he had restrictive pulmonary function with an abnormality in the chest x-ray. The physician ordered that the worker be temporarily kept away from exposure at work, and sent the worker for additional pulmonary tests, which the worker did not complete. A warning letter was sent to the worker’s previous employer, which was never answered, because during that time, the worker stopped working at the previous employer’s factory, and began working at the stone factory he is currently employed at. Under the current surveillance regime, a physical examination was performed, which revealed decreased air intake into the lungs with coarse ronchi. Pulmonary function displayed a severe restrictive disorder with obstructive elements, and a B reader detected pathological radiological changes in the upper lobes upon examining the x-ray. The worker was sent for a CT scan, which demonstrated emphysematous changes, multiple bilateral lung nodules, and egg-shell calcifications on the mediastinal lymph nodes. The worker was diagnosed with silicosis with immunological arthritis and sent to a pulmonologist for ongoing follow-up treatment. The occupational physician ordered that the worker be permanently kept away from silica as per the provisions of the Work Safety Statutes, and sent a report to the Ministry of Labor, the worker’s supervisor, and the Professional Disease Registrar. The worker was sent to the National Health Insurance offices to receive recognition and to have a disability evaluation performed so that he could be compensated. Over time, another worker with an earlier stage of silicosis was identified through OSH monitoring, and was likewise kept away from the hazardous substance.

1. Pre-employment evaluations

An employer in the building materials industry referred a new worker to an occupational clinic for a pre-employment evaluation, before starting to work as a janitor on the production floor. In the past few years, in the absence of statutory risk factors, pre-employment evaluations in Israel have been conducted by assessing questionnaires containing declarations made by workers, along with the workers’ computerized medical files, and workers are called in for inspections when the need arises for additional tests or information. The evaluation revealed that the worker, who was in his thirties, had regularly been receiving medications, for years, to treat an active epileptic condition, with symptoms including seizures, loss of consciousness, and no aura. The worker is currently in the process of having his driver’s license reissued after it was revoked due to his illness. The occupational physical deemed it necessary to visit the worker’s workplace to get a feeling for the where the worker would be working, to map out the risks, given the worker’s medical situation, and to determine whether the work requirements may endanger the worker or those around him. During this visit, the janitorial staff was observed on site, and the employer specified the job requirements, which included crawling in order to clean below conveyor belts and production lines while they were in operation, using a sledgehammer to pulverize large chunks of raw material, entering a hot furnace to perform repairs, (secured) work at high altitudes to clean the rooftop area, which did not have a guardrail, working within an enclosed area, in vats, in order to clean their interiors, and working in rotating shifts of 12 hours per shift. In a discussion with the medical staff, the employer and the worker were told the safety risks of losing consciousness in an environment with rotating industrial machines, working in an enclosed space, or working at high altitudes, and that this type of work could put the worker at the risk of a serious work accident, and endanger his fellow workers who may try to extricate him. Moreover, the strict shift system, which included working at night, could deprive the worker of sleep and provoke a seizure. The occupational physician decided that the worker was limited with respect to most aspects of the proposed job, and that therefore, the job was not suitable for him. After touring the factory along with the employer, a suitable alternate job that could be performed despite the worker’s limitations could not be found. The worker was advised to seek vocational rehabilitation.

1. Evaluation of fitness to work and return to work (RTW)

A worker in his fifties, who had immigrated to Israel about ten years ago, has been employed at a plant producing metal profiles for about a year and a half as an aluminum profile cutting line operator. He was sent by his employer to an occupational clinic after cardiac bypass surgery which led to an infection in his leg. Blood vessels were taken from the leg to create the bypass, and this required a long hospitalization period in which intravenous antibiotic treatment was administered. During his examination, and as a result of the stress test he was asked to perform, the occupational physician got a sense of the worker’s ability to perform moderate exertion, and of the swelling in his leg. The worker complained of exhaustion and shortness of breath when performing activities involving greater exertion, and found it difficult to walk quickly or over extended periods of time. A visit was made to the factory in order to decide whether the worker was suitable for this job, and what adjustments might be required.

The visit revealed that the work environment included a vast, noisy, and hot production floor, due to the steamrollers and foundry located nearby. The cutting stations included long conveyor belts (which were about 100 meters long), positioned at a height of about a meter above the floor. Other than working at a computer terminal, the worker would need to mount the conveyor belt and run along it in order to roll metal cages laden with cut profiles, and replace them with empty cages, as well as manually separate profiles that had become entangled. The weight of each profile could reach about 20 kg. After being asked to demonstrate, the worker found it difficult to mount the conveyor belt because of the injury to his foot. It seemed that he would not be able to keep up with the pace required to reach the end of the assembly line, and would find it hard to cope with the required physical exertion. The physician therefore concluded that the worker was not suitable for the requirements of the job at the station he used to man, and that in his current condition, he would not be able to man the station again.

Alternate stations throughout the factory were assessed in coordination with the employer.

* + A foundry that the worker had worked in, in the distant past: this work involved working in front of a furnace kept at a temperature of several hundred degrees, and required the use of respiratory protection. At this station, the two details that came to the occupational physician’s mind were the shortness of breath the worker suffered from upon exertion, which would make it difficult for him to use personal respiratory protection gear, as well as the exposure to high temperatures, which could cause his coronary veins, which carry blood to the heart, to dilate, leading to a decrease in cardiac perfusion.
	+ A paint booth – including a glazing station with open vats using ceiling-mounted cranes, which does not require too much exertion. However, one of the vats contained methylene chloride. This station was ruled out, because methylene chloride releases carbon monoxide, which could exacerbate the cardiac ischemia.
	+ The processing department – machining work using open CNC millers and lathes, saws with built-in pumping mechanisms, and extruders for manual piercing. The operator can alternate between sitting and standing, and will have to lift objects weighing up to 5 kilograms.

After discussing the matter with the employer’s representatives, the occupational physician recommended trying to assign the worker to an alternate workstation that does not involving lifting objects weighing more than 10 kilograms, excessive running or walking, or working in front of hot furnaces, and the alternate workstation must allow the worker to take breaks and sit, as with the machining workstation. The first month was to be a trial period for returning to work on a half-time basis, after which the worker would visit the occupational clinic, arriving with the employer’s assessment of his performance. The trial worked, thanks to the cooperation with the employer and the worker’s high motivation. Eventually, the worker’s job extended to six hours a day, and later, to eight hours a day, and within three months, he resumed working full-time, including two weekly shifts with overtime in the machining department. The worker is maintaining contact with the occupational clinic, which performs surveillance of workers exposed to harmful noises. Both the worker and the employer are satisfied and neither have not voiced any complaints.

The case studies in the last two sections illustrate the occupational physician’s role and considerations involved in determining work capacity in cases of pre-placement, RTW and integration of a worker with a disability. The purpose of the fitness to work evaluations is to assess the extent to which an employee’s functional capacity, in light of the employee’s medical condition, is suitable for the job requirements‎24. These can be conducted when an applicant is being considered for employment (pre-placement evaluation, as specified above) or after an illness or injury, which may or may not be related to the workplace. Fitness for duty evaluations have developed into a major field, and one of the main roles of the occupational physicians in Israel today is to perform these evaluations. This contrasts with many European countries and U.S. states, where the responsibility for evaluating fitness to return to work following an event leading to a disability is often devolved to family physicians and general practitioners (GPs), especially in cases where the occupational medical system is not accessible to all workers‎25-‎27.

There are several advantages to having occupational physicians carry out these assessments. Occupational physicians have the education, training and resources to determine disability management strategies in the workplace‎12. They are also well-versed in work processes, exposures and working conditions, as well as the clinical consequences of morbidity, and have an open channel of communication with employers, enabling them to complete the return to work process efficiently and in a timely manner. Their ability to conduct workplace visits allows them to define the requirements and risks associated with a given job, conduct a job analysis, and assist in the assignment or reassignment of a disabled worker to a modified role suited to his or her capabilities, when indicated‎28. All this leads to successful vocational rehabilitation and keeps as many workers as possible working, rather than being caught up in an unending cycle of allowances and unemployment.

# Summary and Future Prospects

The State of Israel, in its modern version, is still quite young, yet it has managed to develop a sophisticated system to maintain its workers’ health, a system established well before it gained independence, at approximately the time that similar systems emerged in other developed countries in the world. The occupational medicine system, part of Israel’s general health care system, was originally created as a public service, in accordance with the principles of equity and mutual assistance, and making medical services geographically accessible in the periphery of the country, bringing them directly to factories or their environs. Service was provided to all work sectors and employees in the Israeli economy regardless of who they were, with an emphasis placed on vocational rehabilitation and integration that wouldn’t pose a risk to workers’ health, even if the worker is limited for medical reasons. All of this was provided as part of a system funded by tax revenue, and didn’t require any additional payments from workers or employers. The scope of the public services provided met the many needs of the workers and the employers, and covered a range a fields tied to workers’ health. They are provided by very professional occupational physicians who undergo comprehensive training during their residency. To preserve the character of its occupational health system, the State of Israel wisely chose to enshrine it in laws and statutes that both guarantied financial support and allowed it to flourish and develop over many years, in aspects that included academic study and research. The legislation designed to maintain the health and well-being of workers drew its inspiration from ancient Hebraic law, from norms and laws that had, in part, emerged in Ancient Israel, and date back 3,000 years.

However, legislative changes that have led to severe budget cuts in the area, having released employers from the obligation to finance occupational health service to employees from the taxes they pay, pose a risk to the continued provision of accessible and equitable public services to every worker in the future. This process, which has intensified over the past two decades, could lead to several things:

* + An increase in occupational morbidity among workers exposed to modern risk factors that hadn’t been identified because there is no legislation establishing medical oversight.
	+ Greater inequity in the health services provided to workers from disadvantaged populations, such as minorities, immigrants, contracted workers and Palestinian workers, since those who can afford to will buy private occupational medicine services in light of the low availability of public services.
	+ A reduction of services such as clinic staff involvement in health promotion initiatives and employee training in the workplace, reduced availability of routine medical inspections at the production floors of factories, lower quality of time-consuming services, such as reporting and documenting occupational morbidity, due to a backlog, in light of the fact that the standards for occupational clinic staff and physicians have not been updated.
	+ Impaired academization and professionalism of occupational specialists due to the closure of the National Institute for Workers’ Health, and the lack of an academic platform for conducting studies. This may result in further difficulties in attracting talented young people to this specialty. Morbidity will not be mapped out, intervention programs will not be launched, new risk factors in Israel will not be identified, and guidelines and professional evidence-based standards will not be developed. Consequently, there will be less uniformity in the everyday tasks performed by occupational physicians and clinics.
	+ Family doctors will be adversely affected, since the onus for performing these tasks will fall on a health care system that is already overburdened and is not skilled at vocational rehabilitation. Employers will be adversely affected since many of their workers will remain incapacitated for extended periods of time. These workers will become a burden on insurance companies, as conditions give rise to increased claims for allowances due to the loss of working capacity. All of this can be linked to a gradually reduced availability of occupational physicians and growing waiting lists for work capacity assessment inspections, which are becoming the bread and butter of occupational medicine in Israel.

To restore the situation to its former state of glory and strengthen public occupational medicine along with its noble historical principles, the issue of workers’ health and well-being must reassume a prominent place in public discourse, since workers spend most of the day at work.

Objectives for the future of occupational medicine in Israel:

1. Occupational medicine needs to be adapted to the modern zeitgeist and contend with “modern” risk factors appearing in Israel (and more generally, in the Western world). These include occupational stress and job burnout, long work hours, psychosocial risk factors, work-family conflict, job insecurity, workplace bullying, work in shifts, risks and exposure in the hi-tech and biotech industries, ergonomic risk factors involved in working with computers, and improving the health of disadvantaged populations and workers in the light industry sector. In recent years in Israel, a demand has emerged for clinical professionalism in the field of environmental medicine as well. Today, public health care clinics cannot respond to this need, and neither can the vast knowledge possessed by occupational physician. The field should expand to include environmental medicine in training and clinical practice.
2. Updated statutes for medical surveillance of workers need to be passed. These statutes would reflect the scientific advances in the field and adapt to evolving work conditions and new exposures. This type of public health legislation would allow for comprehensive medical surveillance of workers in all work sectors on an equal basis, and avert a situation in which wealthier employers make these inspections available to their workers privately. Legislation and the type of services should be adapted to the changing nature of employment in Israel, as well as the reduced relative weight of traditional industry and blue-collar workers, and the increased prevalence of hi-tech industries and white-collar workers.
3. One recommendation is to promptly find budgetary solutions that will allow renewed legislation and an update of staffing standards for research and projects concerning workers’ health in factories, and so on, to safeguard workers’ health and adapt to changing types of exposures, as well as safeguard the egalitarian character of the occupational medicine system in Israel. One possible budgetary solution could be achieved by refunding the employers’ contributions to the funding of public occupational medicine, or by having them pay for medical inspections stemming from old or new statutes that had been legislated[15](#_ENREF_15" \o "Moshe, 2017 #3). Alternatively, they could make a relative contribution based on the rate of work-place accidents and occupational illnesses, a widely accepted practice implemented by insurance companies‎29. Another option is to increase the government’s contribution with a budget earmarked for occupational medicine.
4. HMOs need to attach a higher priority to occupational medicine and adjust the staffing plans of occupational clinics to accommodate for the growing number of insured workers and their shifting needs.
5. Nowadays, there are still skilled and professional occupational medicine practitioners, most of which are employed in public occupational medicine and believe in the system. They are able to preserve what already exists, while minimizing the harm to workers and employers. By rebuilding and adequately budgeting the National Institute for Workers’ Health, which would serve as a professional research, knowledge and implementation center, the professional competence of the existing nucleus of occupational health specialists would be improved, through professional development and multidisciplinary collaboration. This will lay the foundations for adapting the clinic into a platform for applied programs designed to promote workers’ health. This type of knowledge center will allow for the professional and academic training of future practitioners, including residents, which will fill the ranks, infuse new blood into the system, and boost the field of workers’ health.

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