

Editorial in Occupational Health

Return-on-Investment of Workplace Health Promotion programs: New Total Worker Health® strategies in the framework of the “One Health” approach

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Measuring health, a crucial value, might sound odd. Someone might say that the goal of medicine, people’s health, cannot be limited to something quantifiable like all other things, and this would be considered an unethical attempt by some. However, evidence of the relationship between health and economics also comes from philosophy. In the mid-1800s, Ralph Wando Emerson, an exponent of American transcendentalism, theorized the principle of ‘the first wealth is health’. He reminded us that good health is the foundation upon which one can build a life, a community, and an economy. Therefore, society needs to raise awareness of the essential value of health. This philosopher is frequently referred to as ‘the father of health economics’, a field of economics created to dispel popular beliefs and help governments allocate resources toward health issues in society. The challenging and dynamic goal of health economics is to demonstrate the efficiency and

effectiveness of investment in the production and consumption of health and healthcare, which inevitably impacts medicine, sociology, ecology, and politics. Studying how healthcare systems function and how people's behaviours affect their health (e.g., lifestyle choices, smoking, vaccinations) helps identify a specific area in which health measurement can help attract funding to work on improving people's health. Under this perspective, occupational health (OH) can use health economics to obtain persuading financial validation in the eyes of employers. An economic evaluation of Workplace Health Promotion (WHP) initiatives is a recently emerged line of research focusing on the return on investment and productivity [1,2].

OH is involved in the 'One Health' model, which is "an integrated, unifying approach to balance and optimize the health of people, animals, and the environment" to prevent and respond to global health threats such as the COVID-19 pandemic [3].

International organizations recognize global health as being based on the principle that human health, animal health, and ecosystem health are closely linked and interdependent [1]. The goal of integrating and unifying approach to health is to optimally and sustainably balance the health of people, animals, plants, and the environment they share. The full spectrum of disease control, from prevention to detection, preparedness, response, and management, as well the complexity of health challenges, such as pandemic and new infectious diseases, antibiotic resistance, chronic diseases, and mental health, are addressed through communication, collaboration, and coordination across sectors and disciplines [1,4–7]. Regarding co-benefits, risks, trade-offs, and chances to advance fair and comprehensive solutions, 'One Health' has been described as a critical priority that can implement a successful multidisciplinary strategy across all sectors.

The importance of good health in society was addressed in Ottawa in 1986 when 200 participants from 38 countries gathered to exchange experiences and share knowledge on health promotion. The common goal of 'Health for all by the year 2000' was pursued, as was the 'health gap' within and between social classes. In the open dialogue among all stakeholders (including politicians, academics, and representatives of governments, voluntary and community organizations), health and its maintenance were already labelled as a 'major social investment and challenge' [8]. Health promotion is "the process of enabling people to increase control over, and to improve, their health" [9]. It lies in the daily choices of food, leisure time, physical exercise, meditation, alcohol consumption, personal hygiene, and sleeping habits [10,11]. In the context of workplaces, health promotion is about "the combined efforts of employers, employees, and society to improve the health and well-being of people at work", as stated by the European Network for WHP (ENWHP) established in 1996 [12]. The network's slogan is 'healthy employees in healthy organizations', reflecting that improving health and well-being at work requires the combined efforts of all stakeholders. The US National Institute recently took a further step forward for Occupational Safety and Health, which in 2011 coined the term Total Worker Health® (TWH®) to define the collection of company policies, programs, and practices aimed at integrating protection from occupational safety hazards with the promotion of workers' health, in support of the continued advancement of organizational well-being and productivity [13,14].

WHP is of particular public health importance because the concentration of large numbers of workers in a single place and the availability of efficient occupational health services make it possible to implement such programs at low-cost [15,16]. Workers obtain undoubted health benefits from these programs, but companies also derive profits in terms of productivity improvement, reduction of absenteeism, and presenteeism [17]. For this reason, many companies have developed health promotion actions [18,19]. In current practice, occupational health services (OHSs) in the workplace benefit from ongoing collaborations with various professionals, including economists and labour lawyers. Both bring a different perspective to issues affecting workers, fostering a process of integration of expertise with considerable benefit to the organization.

For example, several health promotion interventions have been implemented by the OHS of the *Bambino Gesù Children's Hospital* in Rome, Italy. For implementing these programs, they relied on the collaboration of the *Università Cattolica del Sacro Cuore (UCSC)* of Rome, which provided the necessary

expertise in Labour Law on the liability of occupational health physicians and in health economics [20,21]. The Postgraduate School in Occupational Health of the UCSC collaborated with the research, transferring the principles applied in numerous actions of this type that it had conducted in the past [22–30] and supplying the specializing doctors who participated in the projects.

The *Summer School*, an annual appointment that the *Bambino Gesù Children's Hospital* organizes with the collaboration of the UCSC and numerous Specialization Schools, the *National Institute for Insurance against Accidents at Work (INAIL)*, and the *Italian Society of Occupational Medicine*, was this year the opportunity to point out these health promotion strategies [7].

The basic concept is the POP System – Parametric (h)Olistic Profitable System – graphically depicted as a three-branched tree (where the main branches are ergonomics, mental health, and WHP) having roots and fruits (Figure 1).

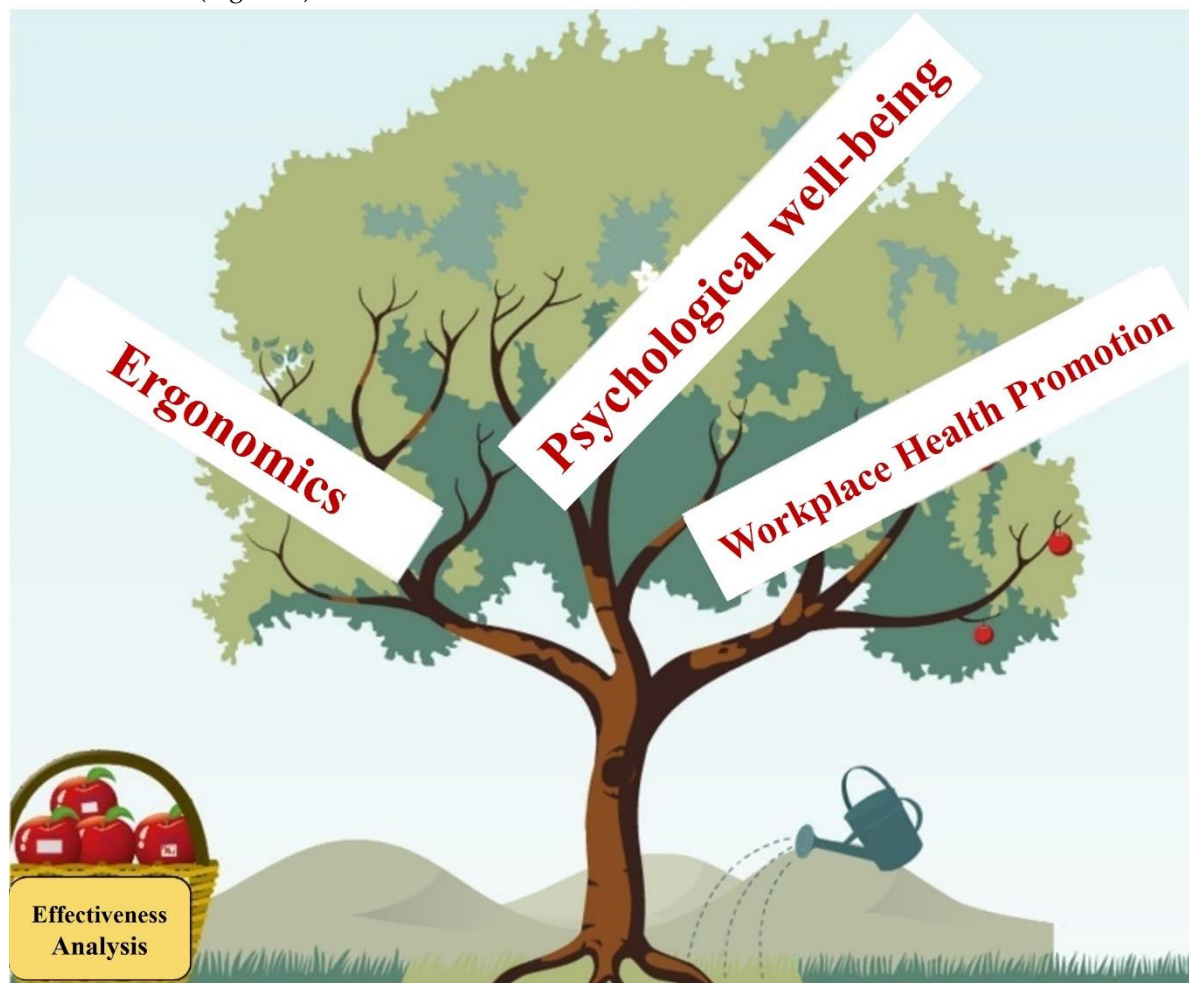


Figure 1. The tree of occupational medicine in the *Bambino Gesù Children Hospital* has three main branches: ergonomics, psychological well-being, and Workplace Health Promotion.

Roots can be found in the epidemiological context and the effective integration of occupational medicine in the hospital's Health Direction, allowing the creation of a parametric system composed of several organizational well-being indicators. The empirical observation of typical escalation behaviour enacted by a worker in distress was fundamental for constructing the parametric model: in-depth, they can be summed up into three subsequent steps. A worker suffering from persistent discomfort at work first tries to recover by taking time off work. Next, if the recovery time is insufficient, they will seek help from the occupational physician, who will try to match their needs with those of the organization. Finally, if the critical issues persist or worsen, they may choose to get out of the disabling circumstances by submitting a transfer request to another operational unit (or, in the end, they will resign from work). Therefore, the three key indicators of organizational well-being

are the absenteeism rate, the number of requests for visits to occupational physicians, and the number of requests for transfer to the Human Resource Department. The number of limitations on fitness-to-work and the frequency of occupational injuries and illnesses are additional measures for success.

The second characteristic of the POP System is its holistic quality, which is primarily explained by the occupational activities and the WHP branch, which addresses the entire workforce. Many workers participate annually in a wide range of WHP initiatives, which in our view, constitute the pillars of the temple of health promotion (Figure 2).



Figure 2. The temple of health promotion in the *Bambino Gesù Children’s Hospital* is related to Workplace Health Promotion initiatives for hospital workers.

These initiatives include the promotion of physical activity (e.g., back school at work, men’s, and women’s football teams), nutrition education (personal dietitian programs), mental health empowerment (individual pathways of psychological support, professional group meetings, meditation programs, anti-assault protocol against health personnel), disability management program, and anti-smoking program. The temple grows from the stylobate, represented by the occupational safety and health system, and rises by developing the pillars of WHP initiatives toward

the timing of health promotion. The cross-cutting program of ‘Disability Management’ – the management of emerging disabilities – represents the architrave that holds the columns together. In contrast, the two columns of the front frame of the WHP temple focus on lifestyle and mental well-being, respectively.

The POP System is recognized for its profitability, which is clearly stated by the econometric evaluation carried out for some of the WHP activities, based on the estimated Return on Investment (ROI) for the organization. ROI – defined as the ratio of the net profit generated by the activity (namely, the difference between gross profit and invested capital) to the invested capital required to start and maintain the activity – is a widely used financial metric to measure the likelihood of making a profit from the use of a sum of money in a specific operation [31]. In other words, it is necessary to understand whether the invested capital has low or high profitability. Sick leave days (SAD) were chosen among the organizational indicators to be monitored before and after the implementation of WHP initiatives to calculate ROI. As previously mentioned, absenteeism is the first altered indicator in the process of behavioural escalation enacted by a distressed worker, the so-called ‘sentinel event’. In addition, previous evidence related to the same work population has shown that vaccination could also be considered a cost-effective measure to improve care, as was the case with the days of influenza loss recorded in unvaccinated health workers in the 2016/2017 and 2017/2018 epidemic seasons [32].

The first explored WHP program focuses on the area of lifestyle, which includes all behaviours that individuals engage in their daily life that significantly affect health, the quality of life and perceived well-being – “health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity”, as stated by the World Health Organization [33]. It refers to personal, environmental, social, cultural, and economic choices that make up our lives, such as smoking. This widespread habit endangers not only our bodies and minds but also the environment because the production of tobacco products causes the pollution of ecosystems [34]. An anti-smoking program – called ‘Stop Smoking’ – has been active in the hospital since 2018, involving more than fifty staff members. It is addressed to tobacco users who ask for help to quit smoking. They attend a half-day course taught by an external expert in tobacco cessation. Preliminary data showed a success rate that gradually decreased over time but remained at 37.5% after more than two years. Initial econometric analyses revealed a significant gain for the hospital organization, with an ROI of 1.89. In other words, every euro invested turned into 1.89 euros for the company.

Psychological well-being, the right-hand pillar of the WHP temple, is addressed by the ‘*Help Point*’ program, an individual psychological support aimed at catching work-related discomfort before it manifests clinically. A pilot study in the hospital in 2016-2019 involved 35 healthcare workers. The program is currently held by a multidisciplinary team composed of occupational physicians, members of the *Human Resource Direction* and the *Health Direction*, and a psychologist. Each participant has followed a personalized path designed to overcome individual psychological frailties (frequently based on an acute distress syndrome). The program includes a protocol divided into 5 phases. The analysis of the worker’s application is first carried out by the occupational physician (who periodically sees the worker for legally required workplace medical examinations) to ascertain their motivational drive. Subsequently, the underlying criticalities are outlined through a psychological diagnostic interview and a customized on-site workplace inspection conducted by the psychologist and occupational physicians. After thoroughly investigating all personal and contextual factors, the psychological support phase begins, carried out independently by the psychologist in the form of weekly individual meetings. After an average period of two to three months, a post-intervention evaluation phase is held to highlight the goals achieved and next steps, which are followed up over the next six months (by the psychologist and the occupational physician, independently). During the second and the fourth phases, participants completed two self-administered questionnaires concerning minor psychiatric disorders (“*General Health Questionnaire-12*”, GHQ-12) and general health (“*Short Form-36 Health Survey*”, SF-36) to validate clinical outcomes. The comparative evaluation of the program’s clinical effectiveness was demonstrated by the statistically significant improvement in the questionnaires’ scores. Econometric analysis based on

absenteeism showed an ROI of 2.73 [35]. The need for mental health intervention has recently emerged due to the COVID-19 pandemic, especially among healthcare workers (HCWs), as indicated in the hospital workforce [36].

As we ascend the WHP temple, we come across the ‘Disability Management’ initiative, which demonstrated how collaboration between occupational physicians, *Health Directorate*, and the *Nursing Service* is a valuable and cost-effective partnership to pursue in hospitals. The purpose is to promote the reintegration of the HCWs after the onset of a disabling situation. The working group conducts a comprehensive factor analysis, including a participatory discussion between workers and supervisors to choose the most suitable and customized improvement action. In the two years of 2017-2019, 131 cases were examined, referring mainly to workers with musculoskeletal or oncological diseases (secondarily from psychological distress). Most improvement initiatives mostly concerned internal restructuring of work duties, adjustments of work destinations, or preventative measures involving ergonomic, structural, and technological factors. The reduction in absenteeism rate considered in the year before and after the intervention computed an ROI of 26.66 [20], the highest value among the WHP initiatives considered. Table 1 shows the ROI values related to the three WHP programs examined.

Table 1. Values of ROI for the three WHP programs examined (in descending order).

WHP program	ROI
“Stop Smoking”	1.89
“Help Point”	2.73
“Disability Management”	27.66

Note: ROI: return on investment.

This great profit can be explained by the ergonomic principle of OH– engaging each person in the right place at work – which remains the fundamental mission of occupational medicine, remembering that decent work represents the ‘driver of sustainable development’ in the 17 goals of the international Sustainable Development Agenda for 2030 [37,38]. In the POP System, clinical and economic effectiveness – achieved by workers and the organization – represents the fruits of the educational process in OH.

Moreover, the fundamentals of the POP System, as well as the principles of the TWH®, will be presented in the first edition of the master entitled “Total Worker Health®: the new dimensions of protecting people in the workplace” at the *Alta Scuola di Economia e Management dei Sistemi Sanitari* (ALTEMS) – Università Cattolica del Sacro Cuore [39]. The master’s program will highlight how the multiple collaborations between occupational physicians and other professional figures, such as economists and labour legal experts, can effectively embrace all aspects of the world of work.

In conclusion, in the concept of holistic and inclusive public health, OH plays a new and insightful role in helping society achieve higher levels of health. In this regard, WHP programs offer an invaluable and inclusive chance to support workers and a cost-saving prospect for employers. The inherent economic benefit is a crucial test for introducing employers to the temple of WHP. In the meantime, there is a need for evolution on behalf of occupational physicians, who embody the figure of the health manager who can convince employers of an important common goal, acting for the good of the workforce. Return on investment contributes to this impactful communication underlying the role of occupational medicine in transforming health into wealth.

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