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## Original Article

# How to Define the Content of a Job-Specific Worker's Health Surveillance for Hospital Physicians?



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## ABSTRACT

**Background:** A job-specific Worker's Health Surveillance (WHS) for hospital physicians is a preventive occupational health strategy aiming at early detection of their diminished work-related health in order to improve or maintain physician's health and quality of care. This study addresses what steps should be taken to determine the content of a job-specific WHS for hospital physicians and outlines that content.

**Methods:** Based on four questions, decision trees were developed for physical and psychological job demands and for biological, chemical, and physical exposures to decide whether or not to include work-related health effects related to occupational exposures or aspects of health reflecting insufficient job requirements. Information was gathered locally through self-reporting and systematic observations at the workplace and from evidence in international publications.

**Results:** Information from the decision trees on the prevalence and impact of the health- or work-functioning effect led to inclusion of occupational exposures (e.g., biological agents, emotionally demanding situations), job requirements (e.g., sufficient vision, judging ability), or health effects (e.g., depressive symptoms, neck complaints). Additionally, following the Dutch guideline for occupational physicians and based on specific job demands, screening for cardiovascular diseases, work ability, drug use, and alcohol consumption was included. Targeted interventions were selected when a health or work functioning problem existed and were chosen based on evidence for effectiveness.

**Conclusion:** The process of developing a job-specific WHS for hospital physicians was described and the content presented, which might serve as an example for other jobs. Before implementation, it must first be tested for feasibility and acceptability.

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## 1. Introduction

Hospital physicians are exposed to several occupational risk factors that can lead to work-related health complaints. Occupational exposure to biological or chemical substances [1,2], to physical job demands like adopting uncomfortable and exhausting working postures [3], or to psychological job demands such as experiencing violence [4], or the death of a patient [5] are common in the work of hospital physicians. Work-related health complaints that have previously been associated with occupational exposures in the work of hospital physicians are, among others, complaints in the neck [6,7] and lower back [3,7] region and symptoms of stress [8] and burnout [8,9]. A reduced health status of hospital physicians

in relation to work is associated with reduced work ability [8], threatening quality of care, and potentially putting patients' safety at risk [10]. Focusing on prevention or early detection of diminished health might not only increase the well-being of hospital physicians, but could also maintain or improve quality of care and secure patients' safety better.

One of several preventive occupational health strategies that can be offered to employees to maintain or improve work-related health is a periodic Workers' Health Surveillance (WHS) [11]. In the Netherlands, an employer is required by legislation to periodically offer a WHS to its employees. In a collective agreement the employer and a labor-union can make additional agreements on the frequency and timing of offering a WHS. While the employer is

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responsible for financing the WHS, an independent occupational health service is primarily responsible for the content and organization of the WHS, which also includes keeping records of the data. Participation of the employee is voluntary.

The central purpose of the WHS targets prevention of occupational and work-related diseases and injuries [12]. Internationally, WHS aims at detecting unhealthy occupational exposures and/or the prevention or early detection of health complaints that can be related to occupational risk factors [12]. In the Netherlands, WHS encompasses inviting employees to perform medical examinations, followed by an individual consultation with the occupational physician where individual feedback is followed by advice on targeted interventions when applicable [13]. Follow-up consultations are planned with the occupational physician to register to what extent the advice or intervention is followed and/or the work-related health or work-functioning of the employee has improved. On a group level, results of the medical examinations can be reported to the employer together with advice or recommendations on an organizational level.

In the case of work consisting of specific job demands, interventions to prevent work-related health problems might be directed towards increasing personal abilities to deal with these job demands. Specific job demands are defined as job demands with a risk of work-related health problems or diminished safety that cannot be reduced by adjusting working procedures and that exceed exposure safety levels or average human capacity to meet such demands on a daily basis [14]. To that end, by taking a more health-centered approach, the WHS monitors and promotes an individual's health in relation to work. It focuses particularly on the question of whether worker's health is sufficient to meet the demands of the job [13].

These purposes of the WHS imply a job-specific approach rather than a general one. Following the International Labor Organization (ILO) guidelines, WHS should take into account the occupational hazards in the workplace and the health requirements of the work, to make sure the surveillance of worker's health is appropriate to the occupational risks of the job [12]. The ILO considers investigating occupational risk factors as part of the WHS; in the Netherlands this is regulated differently and is done prior to the WHS in a so-called structured risk assessment and evaluation. This job-specific approach of a WHS is necessary because in the case of work-related health complaints, attention should be directed at finding the exact mismatch between job demands and the individual's abilities to meet these demands [15]. Furthermore, not only does a job-specific approach of a WHS allow for interventions that best fit with the occupation of interest—therefore increasing the likelihood of effective interventions to increase work functioning—but workers should also be protected from an abundance of screening tests and assessments that do not forecast how well they perform their job [16].

In conclusion, to maintain and improve the work-related health of hospital physicians, which will positively affect the quality of care and help secure patient safety, a job-specific WHS for hospital physicians should be developed. Because we have observed that a culture is lacking in Dutch hospitals of focusing on preventing work-related health problems, we developed a job-specific WHS for hospital physicians. In this study, the questions of what steps should be taken to arrive at a job-specific WHS and what the content of a job-specific WHS for hospital physicians should be are addressed.

## 2. Materials and methods

To determine the content of the job-specific WHS for hospital physicians, a decision tree was developed based on answers to four

questions (Fig. 1). Subdecision trees were developed for the different type of job demands and occupational exposures. Irrespective of the type of demands or occupational exposures, all decision trees were designed to establish whether or not to include work-related health effects known to be related to job demands, or whether or not to include aspects of health that reflect insufficient job requirements of the individual hospital physician to meet the demands of the job.

Before question 1 of the decision tree could be answered (Fig. 1), occupational exposures and job demands in the work of hospital physicians needed to be identified. Information regarding physical job demands was gathered in two ways: through self-reporting or direct observations of hospital physicians of one Academic Medical Center in the Netherlands [8,17]. Direct observations, to gather data in terms of duration, frequency, and intensity, and data regarding mean and peak energetic load, were performed during the work of 126 hospital physicians [3,17]. To account for the differences in tasks and activities between several medical specialties, the physical job demands were reported, when possible, for three clusters of medical specialties. The clusters of medical specialties were: (1) observational medical specialties (e.g., Internal Medicine); (2) supportive (e.g., Radiology), and (3) surgical (e.g., General Surgery). Psychological job demands and biological exposures were obtained from evidence-based information from international studies, and locally through self-reporting [8]. Insight into chemical and physical exposure was obtained through international evidence [17]. Once the occupational physical exposures and job demands were identified, they were compared with the guidelines of occupational exposures and job demands, e.g., with Dutch guidelines of occupational exposures and job demands (Fig. 1, question 1) [18]. When the occupational physical exposures and job demands did not exceed these guidelines, but a considerable proportion of hospital physicians felt bothered by the physical job demand (Fig. 1, question 1B), it was still considered a potential threat to good health and work-functioning. Question 1PsEx served to gather information regarding the prevalence of emotionally demanding situations, thereby contributing to the evidence base of the WHS. A cut-off of 10% was established beforehand, because this cut-off was used in the final process of deciding on inclusion or exclusion in the WHS. Data that were needed to answer questions 1B and 1PsEx (Fig. 1) of the decision tree were obtained locally through self-reporting by 900 hospital physicians and medical residents and through evidence-based information from international literature [8,17].

Regarding the second and third questions of the decision tree (Fig. 1), identifying health- and work-functioning problems that could either be related to the occupational exposures or reflect a lack of resources on the part of the hospital physicians to cope with the job demands, and the prevalence of these health effects among hospital physicians was evaluated by looking for international evidence, and locally through self-reporting by 900 hospital physicians and medical residents [8,17]. With respect to question three, our expert group of researchers decided to label the prevalence of health effects as 'high' when exceeding a prevalence rate of 10% or when this was higher among hospital physicians compared with the general population.

To answer the fourth research question (Fig. 1), our expert group of researchers identified three aspects to decide upon the impact of the specific health- or work functioning problem: (1) whether it bothered the individual worker; (2) whether it led to restrictions in daily work functioning; and (3) whether it posed a potential risk for others. When hardly bothering the individual, hardly restricting daily work function and posing no risk for others, the impact was considered small. The impact was labeled as medium when the health effect was bothering the individual in some way, but was not restrictive in daily work functioning or posing a risk for others.

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