Taking care of hospital physicians: Development and implementation of a job-specific workers' health surveillance
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CHAPTER 7

General discussion
General Discussion

This thesis focusses on the development and implementation of a job-specific workers’ health surveillance (WHS) for hospital physicians (medical specialists and medical residents). Its objectives were to provide an evidence base for a job-specific WHS for hospital physicians and to evaluate whether this job-specific WHS is feasible and acceptable.

The following research questions were formulated:

1. What are the occupational demands and work-related health effects, and resulting work functioning effects of hospital physicians?
2. What are the steps necessary to create the content of the job-specific WHS?
3. Is the new job-specific WHS feasible and acceptable?
4. What are the care needs of future hospital physicians?

In this chapter, the main findings are presented, followed by methodological considerations and the implications of findings. Finally, recommendations for research and practice are made.

Main findings

1. What are the occupational demands and work-related health effects, and resulting work functioning effects of hospital physicians?
   Findings from the self-report questionnaires, systematic observations at the workplace and a systematic literature review provide an evidence base for the occupational demands, work-related health effects, and resulting work functioning effects of hospital physicians (as described in Chapter 2, Chapter 3 and in the Appendix of Chapter 4). Hazardous occupational demands of hospital physicians include physical work demands, psychosocial work demands, exposure to biological and chemical substances, exposure to emotionally demanding situations, and exposure to noise and radiation. Hospital physicians experience physical health complaints, mainly in the upper extremity region, of which a considerable proportion is framed as being work-related and is said to impair their work functioning. Psychological health complaints are also prevalent among hospital physicians with prevalence rates varying from 6% for burnout to 42% for work-related fatigue. Hospital physicians with psychological health complaints may be affected in their work functioning as it increases the odds of reporting insufficient work ability.

2. What are the steps necessary to create the content of the job-specific WHS?
   After having provided an evidence base for the hazardous occupational demands, work-related health effects, and resulting work functioning effects of hospital physicians, the following step consisted of developing decision trees for the different types of occupational demands to establish whether the related health effects should be considered for inclusion in the WHS (Chapter 4). In the next step, a-priori decision
rules were followed that took into account the prevalence and impact of the health- or work functioning effect. The prevalence of emotionally demanding situations was also included. To complete the content of the job-specific WHS, targeted advice and/or interventions were selected from guidelines and literature.

The final content of the job-specific WHS for hospital physicians consists of the assessment of the following physical and psychological requirements: no impairments due to musculoskeletal disorders, sufficient vision, sufficient hearing, recent exposure to hazardous substances (with effects on skin or respiratory tract), recent exposure to bodily material of patients to check taken procedures, alertness and judging ability (which includes recent exposure to emotionally demanding situations (like violence or abusive behaviour), psychological health complaints, drug use, alcohol consumption, sleepiness and work-related fatigue), self-reported work ability, and risk for cardiovascular diseases.

3. Is the new job-specific WHS feasible and acceptable?
The findings of the pilot implementation of the WHS among hospital physicians of three medical specialties and the process evaluation with all stakeholders involved indicated that the new job-specific WHS for hospital physicians is feasible and acceptable. The hospital physicians of three different medical specialties have participated in the study and medical directors have indicated being satisfied with the organisation and communication of the WHS. In addition, a considerable proportion of the hospital physicians of these medical specialties followed the WHS. Almost all of the participating hospital physicians reported appreciating the organisation of the WHS and perceives the WHS to be beneficial for their own health, work functioning and long-term work ability. Finally, the occupational health service was able to deliver the WHS as it was planned and proposed.

4. What are the care needs of future hospital physicians?
Current and future care needs have been assessed for three groups of future hospital physicians: medical students, medical students who are clinically active, and recently graduated hospital physicians. Despite the fact that relatively few future hospital physicians express having serious worries about their current health status, a larger proportion expressed that they currently need care for their own psychological or physical health problems. The majority of future hospital physicians indicated they would follow a WHS if offered in the future, while a minority of future hospital physicians would not participate in a future WHS. If offered a WHS in the future, feedback on the results is mostly preferred via email or through a face-to-face feedback consultation with an occupational physician, and preferably in their own teaching hospital or at a professional’s practice outside the hospital.

Methodological considerations
The development of the job-specific WHS for hospital physicians was based on a stepwise approach, the first step of which consisted of providing an evidence base by gathering knowledge on occupational demands and health effects. In addition to the fact that this evidence base has not been provided for hospital physicians until now, it
is considered a particular strength of this thesis that several different research methodologies were used to provide the required information on occupational demands, preferably described in terms of duration, frequency and intensity, and health effects. A range of methods has been identified to gather these data, which can be summarized and categorized in order of increasing precision of data gathered from, and increasing invasiveness to, the workers being assessed: self-reports, observational methods and direct measurements. The use of an online self-report questionnaire and performing systematic observations at the workplace provided up to date information on a wide variety of occupational demands and health effects across all medical specialties, which are considered as being representative of the working conditions in which hospital physicians are currently performing. The self-report questionnaire enabled a large number of hospital physicians to be surveyed so that representative data could be gathered, at the expense of being less precise or reliable, while real-time observations enabled the required data on the frequency and duration of occupational demands during actual work to be collected. Prior to the development of the self-report questionnaire and the systematic observations, semi-structured interviews were held with hospital physicians of different medical specialties to explore the occupational demands and health effects that should be addressed. Using semi-structured interviews is thought to have great value in a wider and more thorough exploration of specific, possibly sensitive, matters. Input from these interviews also served to develop a measurement strategy for the systematic observations that considered the potential variation in tasks and activities. A measurement strategy was developed that took into account the variation in tasks and activities due to the type of patients and the type of internship of the hospital physician, reflected in the activities they were engaged in during a workday. When also considering the fact that half of all the hospital physicians of one University Medical Center completed the self-report questionnaire, the data obtained from the two observational studies are considered a true and reliable reflection of the occupational demands and health effects of hospital physicians. In addition to these observational studies, performing a systematic literature review provided additional aggregated international evidence on occupational demands and health effects in the work of hospital physicians. A systematic literature review has proved to be a useful addition in gaining knowledge of occupational demands and health effects within a specific occupation. Although the evidence base of knowledge on occupational demands and health effects in the work of hospital physicians is strong and reliable, it is important to keep in mind that occupational demands and health effects can be subject to change over time. Especially when considering an occupation that is constantly changing, for example due to changes in techniques or working procedures, these changes can occur over time but they can also be applicable for hospital physicians working in general hospitals. However, these changes will take some time and would only result in slight adjustments of the solid evidence-based job-specific WHS for hospital physicians developed in this thesis.

After gathering knowledge on occupational demands and health effects, the next phase consisted of determining the necessary steps to arrive at the content of the job-specific WHS for hospital physicians. Although a job-specific approach of a WHS is much preferred over a general approach, and has already been developed for other
high-demand jobs such as fire fighters, ambulance workers, construction workers and nurses, the process of arriving at a job-specific WHS has not been described in the international literature. As a result, clear guidance on how to decide which occupational demands or health effects to include was lacking and therefore some of the decisions have been expert-based and lack an evidence-based foundation. Compared to evidence-based decisions, expert-based decisions are considered to be of limited value because of the introduction of subjectivity into a scientific process and inducing the risk that decisions deviate from what could be considered as ‘best practice’ based on high-quality evidence. However, considering the fact that no evidence was available to guide the decision process, expert knowledge and expert-based guidelines had to be used. The starting point that guided the decision process was targeting the aims of the WHS as described in the Dutch guideline: to prevent work-related health complaints and to maintain or improve the health and work ability of hospital physicians. The guideline, describing the steps to arrive at these goals, served as an aid, and it was required to give the exact interpretation of each of the steps for the specific occupational demands and health effects of hospital physicians. For example, the described steps of the guideline included a comparison of the occupational exposures compared with evidence-based guidelines and investigation of the negative work functioning effects that might result from different health effects. However, decision rules needed to be established by the expert group of researchers to finally decide which occupational exposures or health effects were to be included in the WHS, which was done by keeping the aims of the WHS in mind. Whereas creating the content of the WHS is regarded as a complex process in which the overall value of evidence-based knowledge might decrease, the use of expert-based knowledge in creating the content of the job-specific WHS was necessary. As a result, this thesis describes a stepwise process that can serve as a good example of how to develop a job-specific WHS in other (high-demand) jobs.

Implications of findings

Hospital physicians’ health as a quality indicator

Healthcare organisations and their employees have one priority: delivering the best possible quality of care. Measures have been taken to improve quality of care and secure patient safety, such as developing a pre-operation checklist to reduce surgical complications and investigating how the management of hospitals is best organised in order to manage and improve quality of care. Additionally, the importance of measuring the quality of care seems to be growing as is reflected in an increased need for transparency and monitoring of performance indicators in healthcare. Specific consideration is given to measuring and improving the performance and quality of care delivered by hospital physicians as a quality indicator of care.

Assessing the performance of hospital physicians can serve to provide additional support for underperforming hospital physicians and/or to provide them with feedback about gaps in their knowledge. Measuring the performance of hospital physicians has been found to be complicated, as a discrepancy exists between how physicians
perform in controlled situations and their behaviour in real-time settings. However, of several methods that have been proposed to measure hospital physicians’ performance, like peer assessment, the use of simulation patients or video-observation, the use of multisource feedback has been found to be a reliable and valid way of assessment. It can serve as an instrument to measure performance indicators such as the quality of interaction with patients. Another way to assess the performance of hospital physicians is to investigate general measures of work performance, such as the concept of work functioning. This concept refers to the work-related health capacities of an employee to meet the responsibilities of the job and is measured by assessing the capacity to work, the quality of work performance, the quantity of work, and the abilities for recovery after work.

Findings among healthcare personnel have revealed that work functioning can be negatively affected by a reduced health status, thus reflecting a reduced quality of performance. The occupational health of hospital physicians affects patient satisfaction, patient adherence to treatment, interpersonal aspects of patient care and the quality of overall care processes. The gathered knowledge in this thesis provides additional evidence to existing knowledge that hospital physicians are exposed to occupational risks, that sometimes cannot be prevented, and that can result in negative work-related health effects that can negatively affect their work functioning. Thus, hospital physician’s occupational well-being is vital for the provision of high-quality care. Therefore, when quality of care really is the main priority of healthcare services, the work-related health of hospital physicians must also be taken into account as a quality indicator. In addition, this thesis revealed that already a significant proportion of the working hospital physicians experience physical and psychological health effects that can reduce work functioning, thus addressing the work-related health must occur on a periodical and preventive basis to ensure prevention or early detection of reduced health and work functioning to maintain high quality of care. This thesis has found that the evidence-based job-specific WHS for hospital physicians is a feasible and acceptable instrument to address this need for periodical and preventive screening of the work-related health and work functioning of hospital physicians.

Taking care of context-specific demands when implementing the WHS
Implementation of occupational health service activities that are considered complex, like the job-specific WHS for hospital physicians, can be time-consuming and involves great challenges of communication. Because of the number of different stakeholders involved, and the interaction necessary, the number of complex actions required by the occupational health service and the hospital physicians, the high degree of flexibility required to match the needs of the individual hospital physician and other practical constraints for implementing the job-specific WHS, considerable time needs to be invested to understand and meet the demands of the specific context. Considering the complexity of implementing the WHS, performing a feasibility study is preferred above an effectiveness study to examine to what extent the WHS would be feasible and acceptable as an occupational health strategy in the specific target group.
Investigating and understanding the context is an important factor in determining the acceptability and is crucial to determining to what extent the job-specific WHS might also be considered feasible and acceptable in another setting.\textsuperscript{32} Considering the specific cultural attitudes of hospital physicians towards taking care of their own health, reflected in a general tendency to delay or avoid seeking care\textsuperscript{35}, priority was given to investigating the opinions and attitudes regarding the WHS of all stakeholders (hospital physicians, medical directors and the occupational health service). Would medical directors support the WHS and would hospital physicians actually take part in the WHS? After all, the relatively high number of hospital physicians that participated in the WHS, the organisation and communication of the WHS being labelled as success factors by all stakeholders and the good adherence of the occupational health services to the protocol indicate that the WHS was well developed around the specific context of the target group and is considered feasible and acceptable.

These positive findings not only indicate that the WHS as an occupational health strategy was well received by an apparently reserved target group, but they also stress that, when implementing the WHS on a larger scale or in a different context, time and effort should be invested in examining the context-specific characteristics before implementation. For example, contexts are likely to differ between medical specialties and/or between hospitals with respect to the characteristics of the population and the culture among hospital physicians. In addition, while hospital physicians in University Medical Centers are being employed, this is not the case in other hospitals where hospital physicians work together in partnerships or for general practitioners. As a consequence, this latter group might experience more difficulties finding access to an occupational health service, which is likely to have implications for the proximity and flexibility of the occupational health service, and thus for the feasibility and acceptability of the WHS.

The organisation and communication of the WHS must be investigated and adjusted to a different context when necessary to be acceptable and feasible.\textsuperscript{36}

**Implementation of the WHS needed as preventive measure**

The purpose of the feasibility study was to implement and evaluate the WHS to investigate whether it would be accepted by the target group and establish to what extent the WHS was executed by the occupational health service as planned. The findings of the feasibility study have indicated that the WHS is ready to be implemented. The occupational health service followed the protocol as planned and suggested an intervention or gave advice when needed based on the individual results. The hospital physicians greatly valued the WHS as they perceived it to contribute to their general health, work functioning and long-term work ability. However, the medical directors, despite appreciating the communication and organisation of the WHS, indicated that they were dubious about implementing the WHS in the future as they were not convinced about the long-term effectiveness of the WHS. On the one hand, establishing the effectiveness of the WHS on work-related health and work functioning is desirable and helps to increase the acceptability of the WHS among medical directors. Although the interventions that are included in the WHS have been chosen based on their evidence-based effects, investigating what the effects of these interventions are on a hospital physicians’ work functioning, and thus on quality of care and patient safety,
is a way forward to establish the effectiveness of the WHS.\textsuperscript{31} On the other hand, a comparison between a regular health surveillance and a job-specific WHS among construction workers has shown that the number of preventive actions undertaken by the employees increases when following a job-specific WHS.\textsuperscript{37} In addition, simply devoting attention to the topic of work-related health would appear to lead to an increase in preventive actions to maintain good health and work functioning.\textsuperscript{38} Taking into account the high need of preventive actions regarding work-related health, reflected by the fact that a relatively high number of hospital physicians continue to work when sick, thereby jeopardizing the quality of care delivered, implementation of the WHS is likely to increase the awareness of the risk of a reduced health status. It also contributes to the number of preventive actions taken to maintain good health and work functioning and thereby indirectly helps to secure patient safety. As the job-specific WHS also complies with the legal obligation of employers to provide a WHS to their employees\textsuperscript{39}, implementation of the WHS is recommended and medical directors and the board of directors of hospitals should discuss the options with their occupational health service.

**Changes in cultural health care attitudes needed for the WHS to be effective**

Although the job-specific WHS can serve as an occupational health strategy that aims at maintaining or improving the quality of care by taking care of the work-related health and work functioning of hospital physicians, reduced work functioning with a resultant poorer performance is thought to occur in an interplay between the individual hospital physician and the professional context.\textsuperscript{31,40} An important aspect of this professional context that needs to be addressed to effectively take care of the work-related health of hospital physicians relates to their health culture.

Culture is defined as ‘the set of shared, taken-for-granted implicit assumptions that a group holds and that determines how it perceives, thinks about and reacts to its various environments’.\textsuperscript{41} Perceptions, thoughts and behaviours contributing to the onset and continuation of diminished health and reduced work functioning are deeply embedded in the system of clinical practice and the healthcare profession.\textsuperscript{42,43} Hospital physicians have the tendency to delay or avoid seeking help by neglecting their symptoms or trivializing the potential negative effects.\textsuperscript{35} Furthermore, they might turn to self-prescription or continue to work when sick.\textsuperscript{35,44} Whereas norms and beliefs are formed around the way one reacts to critical incidents, the behaviour of hospital physicians when suffering from health complaints then becomes the norm.\textsuperscript{45}

In order to change the way in which hospital physicians take care of their occupational demands and work-related health, a shift in the culture of care and wellness of physicians is necessary. Because these cultural attitudes and behaviours are the result of values that have persisted throughout time and are therefore taken for granted, a culture arises in which this topic is no longer discussed. As was also concluded in this thesis (Chapter 6), a necessary first step in changing the healthcare culture is to start discussing the topic. An increased awareness among hospital physicians and their employers of the importance of good work-related health, and the potential negative consequences of reduced health for work functioning and quality of care is needed.\textsuperscript{31} If they do not understand the importance of healthy physicians and the underlying
assumptions responsible for the current healthcare behaviour, it is unreasonable to expect this behaviour to change. Therefore, it is important to address work-related health and work functioning also on a system level rather than solely as an individual issue.\textsuperscript{50}

**Possible measures to change cultural aspects of healthcare behaviour**

Because culture is affirmed and reproduces itself through the socialisation process of new members entering the group\textsuperscript{45}, one of the possibilities at a system level to change the culture among hospital physicians is to focus on the new generation of hospital physicians. Educating medical students about the potential negative effects of the occupational demands they will encounter, and stressing the importance of good health by educating them concerning how a reduced health status negatively affects the quality of their performance and jeopardizes patient safety helps to change the culture by increasing awareness of the importance of good health. Consequently, during medical school and medical residency, more attention should be given to the topic of occupational health. Results of a preventive programme among junior doctors in the UK, consisting of only 1.5 hours of education in total during the first two years of the educational programme, suggest that simply pointing out to junior doctors the potential negative effects of reduced health might be sufficient to increase their awareness.\textsuperscript{46}

The socialisation process occurs for a large part through education of the new generation of hospital physicians by the cultural-related behaviour of the current generation of (teaching) hospital physicians, who are often unaware that they are projecting their own norms and values onto these new group members.\textsuperscript{45,47} The current generation of hospital physicians act as role models, which is believed to be an important teaching method in shaping the values, attitudes and behaviours of residents.\textsuperscript{48,49} Young hospital physicians acquire their knowledge and attitudes for a large part from observing current hospital physicians, and displaying a good professional attitude towards younger hospital physicians especially seems to have a great impact on the younger physician.\textsuperscript{48,49} In addition, the overall teaching performance also influences being seen as a role model.\textsuperscript{50} Therefore, the current generation of hospital physicians should be aware of their influence on the attitudes of their younger colleagues and display behaviour that reflects an honest attitude towards their own work-related health and work functioning. A measure at a system level to affect the cultural attitudes and healthcare-related behaviour of hospital physicians, which indirectly contributes to maintaining or improving the quality of care, should therefore be directed at the current generation of hospital physicians. These measures could consist of refresher courses to increase the awareness of the potential negative effects of diminished work-related health, and of the effects of their displayed behaviour towards medical students. Guidelines of competencies\textsuperscript{51,52} could be translated into practice to guide their professional behaviour and enhance specific domains of teaching performance, which could also lead to hospital physicians more actively participating in quality improvement actions, thereby helping to improve the quality of care.\textsuperscript{50,53}
Organisational attention to the health of hospital physicians

As implementation of the job-specific WHS is recommended as an occupational health strategy to maintain good health and work functioning of hospital physicians, the question could be asked as to who should take responsibility for the organisation and implementation of this intervention. As the national government provides regulations that state that an employer is required to make WHS periodically available for all workers, the board of directors, who employ hospital physicians, are primarily responsible for initiating the WHS. Although in practice the (in-house) occupational health service will usually play an active role in advising the board and in organising and executing the WHS, the medical directors and board of directors are thought to play a crucial role in their responsibility of keeping hospital physicians healthy on the job. First of all, they are considered to be primarily accountable for the norms and beliefs held by the population regarding the importance of taking care of one’s own work-related health. Thus, any attempts to change the cultural healthcare attitudes among hospital physicians have greater chances of succeeding when initiated, or at least supported, by medical directors and the board of directors. In addition, their knowledge regarding the norms and beliefs among hospital physicians is required to be able to optimize the organisation and communication of the WHS to maintain or improve its acceptability.

In this thesis, discussing the optimal way of organisation and communication of the WHS with several medical directors has been found to be of crucial importance in increasing the acceptability of the WHS. Furthermore, discussion at the management level of both the importance of healthy and well-functioning hospital physicians, as well as discussing measures for maintaining or improving them, is likely to affect the actual number of measures taken to take care of these matters. These worksite policies supporting a culture of health are important in helping employees adopt and maintain healthy behaviours.

However, motives of executives were often directed towards exerting control, and driven by financial arguments. If they assume the intervention will not be beneficial, they will not support the intervention. Although the effectiveness of the job-specific WHS remains to be investigated, previous findings have revealed that a worksite culture of health helps improve the effectiveness of any health promotion intervention, which then also leads to higher productivity. Actions to increase the effectiveness should be targeted at offering experiences that increase awareness, enhancing motivation to participate, and offering supportive measures that create a working environment that supports health-promoting behaviour.

Assessing the cost-benefit ratio might be difficult, since this ratio is likely to differ between stakeholders due to their different perspectives. When offering hospital physicians a WHS, all costs are most likely to be the hospital’s responsibility, while the benefits also have an impact on other stakeholders, such as patients and society as a whole. When considering the situation in which hospital physicians are working in a partnership, the employer does not offer or pay for a WHS, the national government in the Netherlands has provided a system that makes the health insurance companies the most likely stakeholders to be responsible for financing the WHS. In addition, while assessing the costs related to introducing the WHS might be straightforward, assessing
the benefits seems rather complex. A previous study investigating the cost-effectiveness of a WHS among nurses to promote mental health assessed the benefits by gains due to reduced absenteeism or losses due to reduced work functioning while working (presenteeism). They found that introduction of the WHS, compared to taking no action, led to a return on investment of €11 for every €1 invested. Even when the benefits were assessed by only looking at gains due to reduced absenteeism, the return on investment is still €5 for every €1 invested.

Overall then, instead of having concerns about the WHS being beneficial, either financially or productively, organisational attention by medical directors and/or the board of directors towards promoting health behaviour is encouraged as it is considered vital if the WHS is to be effective in maintaining or improving the work-related health and work functioning of hospital physicians and in having a chance to improve quality of care.

**Recommendations for practice and research**

**Implications and recommendations for the occupational physician:**
- Contact the hospital board of directors and the HR-department to take the initiative to implement the job-specific WHS.
- When the WHS is intended to be implemented, take sufficient time and effort to investigate the specific contextual demands. Slight adjustments in the communication and organisation of a developed job-specific WHS is thought to maximize the acceptability of the WHS.

**Implications and recommendations for medical directors and hospital boards of directors:**
- Implementation of the job-specific WHS as a preventive occupational health strategy is strongly recommended to take care of the work-related health and work functioning of hospital physicians, which is likely to positively affect the delivered quality of care, and helps secure patient safety.
- Integrate hospital physicians’ health and work functioning as a quality indicator of care, as a reduced health status can jeopardize patient safety.
- Implement strategies and methods, such as providing guidelines or refresher courses, to actively increase awareness among the current and new population of hospital physicians regarding the potential negative consequences of a reduced health status on work functioning and quality of care.
- Communicate the importance of good work-related health to contribute to an increased number of hospital physicians taking care of their own work-related health.
Implications and recommendations for medical education and medical residency:

- Make teaching hospital physicians aware of their influence as a role model in shaping the values, attitudes and behaviours of medical students and medical residents.
- Provide teaching hospital physicians with courses and guidelines to enhance their overall teaching performance and guide and shape their professional behaviour, as this positively affects their role model as a teacher and hospital physician.

Recommendations for research

- Evaluate the job-specific WHS when it is implemented on a larger scale. It is important to investigate whether the evidence-based interventions of the WHS maintain or improve the work-related health and work functioning of hospital physicians in the longer term.
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