

WORK-RELATED CARDIOVASCULAR DISEASE: DUTCH GUIDANCE ON PREVENTION AND RETURN TO WORK

Introduction

The Netherlands Society of Occupational Medicine (NVAB) has developed a set of guidelines to support occupational physicians in addressing health risks in the workplace, including cardiovascular risks. This case study will examine the *Ischaemic heart disease guidelines*, which stand out as directly addressing the prevention of work-related cardiovascular diseases (CVDs) and the rehabilitation of workers after cardiac events (NVAB, 2020a). However, other guidelines can also be indirectly related to addressing cardiovascular risks in the workplace, such as the *Nightwork and health guidelines* (NVAB, 2020b).

Developed through collaboration between various disciplines, the guidelines incorporate both scientific evidence and the practical experience of occupational physicians in the Netherlands. The following analysis reviews their content, objectives, implementation, outcomes and considerations for transferability within the European Union.

This case study is part of a research project that aims to provide an overview of regulations, policies, strategies, initiatives and programmes for the prevention of work-related CVDs.¹

Description of the case

The NVAB *Ischaemic heart disease guidelines* (2020) were developed by the Netherlands Society of Occupational Medicine (NVAB) to provide occupational physicians with structured, evidence-based guidance to manage workers following an episode of ischaemic heart disease (IHD). The guidelines support the assessment of work capacity, the planning of a safe and timely return to work and the prevention of recurrent cardiovascular events. It defines IHD broadly, including conditions such as short chest pain, or sudden reduced blood flow to the heart, and treatment modalities such as a non-surgical widening of the coronary artery (angioplasty, stenting) or a medical procedure to improve blood flow to the heart (bypass surgery).

The guidelines are embedded in the Dutch occupational health system, particularly through their connection to the Working Conditions Act (Arbowet), which requires employers to carry out a risk inventory and evaluation (RI&E), including those risks that could contribute to cardiovascular disease (Government of Netherlands, 2013). The interviewed stakeholders, who were responsible for the guideline development, consider that the adherence among occupational physicians and employers was high. Occupational physicians are expected to follow the recommendations unless there are well-documented reasons not to do so.

The recommendations integrate clinical, functional and occupational aspects, advising occupational physicians to assess residual symptoms, functional limitations, comorbidities and psychosocial factors influenced by work demands. The emphasis on both personal and work-related risk factors distinguishes these guidelines from traditional clinical approaches. Work-related determinants such as work-related psychosocial stress, shift work, long working hours, and exposure to heat, cold or airborne particles are included as relevant factors influencing recovery and prognosis, although musculoskeletal and ergonomic factors such as heavy physical work or prolonged standing were not considered.

Return to work is conceptualised not merely as a clinical outcome but as part of the rehabilitation process itself. The guidelines recommend that occupational physicians become involved early and often during the cardiac rehabilitation phase, to coordinate reintegration planning with cardiologists, rehabilitation specialists and employers. This early engagement allows for a phased or adjusted return to work based on individual capacity, with gradual increases in workload and clear evaluation milestones. The guidelines also underline the importance of long-term cardiovascular risk management,

¹ The full report — *Work-related cardiovascular disease prevention: regulations, policies, strategies and initiatives* —, is available at: <https://osha.europa.eu/en/publications/work-related-cardiovascular-disease-prevention-regulations-policies-strategies-and-initiatives>

encouraging occupational physicians to address smoking cessation, dietary patterns, physical activity, sleep hygiene and stress management as part of workplace interventions.

The development of the 2020 guidelines combined a systematic review of scientific evidence with professional consensus, applying the GRADE methodology² to evaluate the strength of recommendations. The 2020 guidelines update the older 2006 version by reorganising content, clarifying definitions and explicitly incorporating workplace factors that influence the course of IHD. The guidelines' structure ensures that occupational physicians can assess both medical and job-related constraints and draft integrated return-to-work strategies.

Aims

The NVAB *Ischaemic heart disease guidelines* aim to support occupational physicians in facilitating a safe, timely and sustainable return to work for workers recovering from ischaemic cardiac events. The guidelines provide a structured, evidence-based approach that integrates medical, psychological and occupational dimensions of recovery. It strengthens the role of occupational physicians as providing an essential link between clinical rehabilitation and workplace reintegration, ensuring that return-to-work planning begins early, ideally during cardiac rehabilitation, and proceeds in collaboration with treating specialists, employers and employees. This integrated approach recognises work as both a determinant of health and a key factor in long-term recovery and quality of life.

A secondary aim of the guidelines is to ensure that occupational physicians are equipped to systematically assess the interplay between health status and work demands. It promotes the careful evaluation of residual symptoms, physical capacity, psychosocial well-being and job-related exposures to determine appropriate work adaptations and progression plans. By aligning medical recovery with workplace realities, the guidelines seek to reduce unnecessary long-term absence and promote a gradual, monitored reintegration process. The approach reflects the principle that early engagement with work following cardiac events supports better physical and psychosocial outcomes.

The guidelines aim to embed secondary prevention of cardiovascular disease into occupational practice. The guidelines encourage occupational physicians to address work-related and non-work-related modifiable cardiovascular risk factors through counselling and workplace-based interventions that promote healthy behaviour and sustained adherence to treatment. This includes supporting workers in areas such as smoking cessation, nutrition, physical activity, weight management, sleep hygiene and stress reduction. The focus extends beyond the individual worker to include preventative strategies at the organisational level, where occupational physicians can advise employers on reducing psychosocial stressors, managing workload and improving shift scheduling within occupational risk management frameworks.

Finally, the guidelines aim to enhance professional quality, consistency and accountability in occupational healthcare. It provides a standardised set of procedures and evaluation criteria that encourage evidence-based decision-making and continuous quality improvement. The inclusion of measurable performance indicators allows occupational physicians to monitor adherence to good practices and evaluate the effectiveness of interventions over time.

What was done and how

The implementation of the NVAB guidelines followed a structured process that combined an evidence review, expert consensus, field testing and dissemination. The 2020 *Ischaemic heart disease guidelines* were an update of the 2006 version and are intended to provide occupational physicians with evidence-based, practical tools to support the prevention of cardiovascular risks and workers' rehabilitation following cardiac events.

The development process began with systematic literature reviews on the relationship between work and cardiovascular diseases, supplemented by expert knowledge. A multidisciplinary working group was established, which included occupational physicians, cardiologists and general practitioners. Further stakeholders included employers, workers, insurers and policymakers. The group held six structured meetings to review evidence, assess its practical applicability and draft the guidelines. The GRADE methodology and the Evidence to Decision framework (a rigorous methodology used to synthesise evidence gathered through systematic reviews) were used to develop the recommendations.

² GRADE (Grading of Recommendations Assessment, Development and Evaluation) is a framework used in healthcare to assess the certainty of research evidence and determine the strength of clinical practice guidelines and recommendations.

Particular attention was given to integrating occupational factors alongside clinical considerations, to ensure that the documents addressed the full scope of risks in the workplace.

Practising occupational physicians tested draft versions of the guidelines to evaluate their usability and applicability in everyday practice. Feedback from this pilot stage was incorporated into the final documents, refining the recommendations and tools provided. The development process lasted approximately 1.5 years.

Dissemination was carried out through the NVAB. All members could access the guidelines free of charge via the NVAB website, and they were accompanied by supplementary resources such as background documents, frequently asked questions and online tools. An app was also created to provide easier access to the guidelines, although it has not been regularly updated. Occupational physicians were offered training opportunities to support them in applying the recommendations.

What was achieved

In the Netherlands, the guidelines have provided occupational physicians with clear and authoritative tools to address cardiovascular risks at work. Anecdotal evidence given from practitioners to the interview subjects indicates that they are more confident in advising workers and employers, particularly in planning a safe and timely return to work. The documents also encourage proactive communication with cardiologists, which has improved coordination between clinical and occupational care. For example, the *Ischaemic heart disease guidelines* specifically advise occupational physicians to request rehabilitation information from cardiologists and to begin return-to-work planning early.

Although not focusing on the NVAB *Ischaemic heart disease guidelines*, studies on the general use of guidelines among occupational physicians show mixed results. Occupational physicians generally considered them relevant (van der Weide et al., 1998). However, a randomised controlled trial assessing their impact on workers' body-weight outcomes found no significant difference between the intervention and control groups (Verweij et al., 2013). In contrast, regular contact between occupational physicians and employers was linked to faster return to work (van Beurden et al., 2018).

Success factors and challenges

The NVAB *Ischaemic heart disease guidelines* have been successful largely because of their structured development process and integration within the Dutch occupational health framework. They were developed through a systematic approach that combined scientific evidence with expert consensus, ensuring that the recommendations were both evidence based and aligned with practical occupational health needs. The use of the GRADE methodology strengthened their scientific foundation, while the multidisciplinary involvement of occupational physicians, cardiologists, rehabilitation specialists and general practitioners ensured that the content reflected both clinical and workplace perspectives. This process resulted in guidance that could be applied across a range of occupational contexts while maintaining a focus on individual health and employability.

Another success factor is the practical orientation of the guidelines. Rather than remaining at the level of general principles, they provide concrete frameworks for action, including tables that map work-related risk factors. This focus on operational guidance supports occupational physicians in translating scientific evidence into decisions for individual workers and organisations. The guidelines also encourage stronger collaboration between clinical and occupational care, for example by recommending that occupational physicians proactively request information from cardiologists to support return-to-work planning.

Nevertheless, evaluations highlight significant challenges. A key limitation, emphasised through an interview with an occupational health consultant who worked on the guidelines, is that the guidelines have historically placed greater emphasis on treatment and return to work than on preventive measures. Developing and embedding prevention-orientated guidance remains a critical gap, particularly in addressing long-term occupational health risks. Moreover, while some evaluations demonstrated a generally high usefulness to occupational physicians, in practical terms, research found little effect on body-weight outcomes (Verweij et al., 2013). Instead, more consistent factors in promoting return to work were strong communication and regular contact between occupational physicians and employers (van Beurden et al., 2018). Finally, the current guidelines require updating to incorporate the latest evidence on the links between work and cardiovascular health, as well as on effective preventive interventions.

Transferability to other EU Member States

The NVAB guidelines illustrate how occupational health guidance can combine evidence-based recommendations, practical tools and integration with national legislation to support both prevention and return to work for workers with cardiovascular diseases. Their effectiveness in the Netherlands is closely linked to the legal framework established by the Working Conditions Act, which sets out the role of the occupational physicians and provides these professionals with the mandate to act at both individual and organisational levels.

This institutional context is an important factor for transferability. In the Dutch system, occupational physicians are supported by mandatory risk assessments, access to occupational health services and enforcement through the Employee Insurance Agency (UWV). These mechanisms ensure that the guidelines are applied in practice. In Member States where occupational physicians do not have a similarly formal role or where their authority is limited, the implementation of comparable guidance may be more challenging.

As noted during an interview with an occupational health consultant, the guidance could be applied in other European countries but its effectiveness would depend on the cooperation between occupational health professionals and clinical specialists, as well as on the adaptation to national structures. Tailoring interventions to the needs of individual workers remains essential, as standardised approaches are unlikely to be effective across different settings.

At the same time, the underlying principles of the Dutch guidelines – early reintegration, collaboration between occupational physicians and medical specialists, systematic consideration of workplace risk factors and tailored interventions – are broadly applicable and can inform occupational health policy and practice in other Member States.

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In this case study, interviews were carried out with the following key stakeholders:

- Advisor guideline development, Netherlands Society of Occupational Medicine (NVAB);
- Occupational medical doctor and project leader of NVAB Guidelines development;
- Occupational physician and co-lead of NVAB Guidelines development.

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