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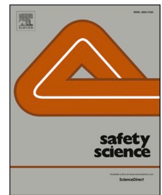

Review

Prevention services for occupational safety and health in the European Union: Anachronisms or supports for better practice?

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ABSTRACT

This paper reviews recent literature on prevention services for occupational safety and health (OSH) in the changing world of work found in the Member States of the European Union. Based on the findings of a wider review of the literature on support for securing compliance on OSH undertaken for EU-OSHA, it defines what is understood by 'prevention services', identifies various historical and current approaches to their operation and explores the regulatory and policy contexts in which they function in the EU. The review identifies a number of serious concerns about the coverage of these services, and their contribution to supporting prevention practice. It finds their marketisation in recent decades has contributed little to their development in these respects. The paper discusses the challenges confronting their future of role in support for good practice in OSH and concludes with a number of questions for policy and future research.

1. Introduction

The term 'prevention services' describes the range of professional support for occupational safety and health (OSH) available to employers from within or from outside their work organisations. As we discuss later in this paper, this term, which has been commonly used in European literature, for many year, refers to a wide range of institutional forms, ranging from large multidisciplinary services to single individuals. Article 7 of the EU Framework Directive 89/391 addresses requirements on prevention services in occupational safety and health (OSH) in Member States of the EU. Provisions requiring their use, and, in some cases, determining the competencies, were however part of the regulatory framework of many EU Member states prior to Directive. They are also occasionally referred to in EU strategy statements on OSH. Despite their prominence in regulation and policy, however, their contribution to preventing work-related harm is uncertain. The majority of workers in the EU are likely to have quite limited, and in many cases, non-existent contact with a prevention service. A review undertaken by the ETUI in 2014, for example, estimated that prevention services' coverage of workers in different EU Member States varied between 20% and 100%, and a significant proportion of the services did not have appropriate professional competencies (ETUI 2014; Rantanen et al., 2017) indicated that only a quarter of the employed population included in their study were covered by a prevention service. The same study questioned the comprehensiveness of services, including their capacity to address multiple risk factors, which the authors concluded resulted from a lack of infrastructure and shortage of multi-professional human resources in many countries.

These findings prompt some questions. What is the current profile of prevention services in the EU? How has their development supported OSH in the face of the changes that have taken place in the structure and organisation of work? How has state support for these services altered and with what effect? And is there currently a gap between policy and practice in the operation of prevention services?

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To address these questions prevention services were included in a recent review of support for achieving substantive compliance and better practice[1] on OSH in EU Member States, commissioned by the EU Occupational Safety and Health Agency (EU-OSHA, 2021, a, b and c). This paper draws on its findings. It begins with an outline of the methods used in the review, defines what is understood by 'prevention services' in the literature and in the EU regulatory framework for OSH. It outlines the evidence of their form and functions and the support they have provided for prevention practice, indicating the factors determining this contribution. It then examines the effects of recent trends in coverage, marketisation and in the growth of generalist approaches to professional practice and concludes with some reflections on their consequences.

2. Methods

The EU-OSHA study was a review of literature conducted according to standard procedures, supplemented by consultations with 30 or so key informants with specialist knowledge. Research questions were established for each of the areas studied. They framed the development of a set of terms guiding the literature search. At this stage we did not include terms relating to context that would have narrowed our focus and missed relevant material. That is, we did not use the full PICO methodology used in systematic reviews. Rather, using OR/AND combinations in Boolean logic, we searched for publications containing at least one term from each of the small number of categories identified by the research questions. In the case of prevention services, our research questions were:

- What are key regulatory and policy positions on prevention services in the EU?
- What is the experience in practice?
- What are identified as the key challenges for delivering this role?
- What is regarded as effective in addressing these challenges?

Six electronic databases were searched in the overall Review, but most of the material addressing prevention services was found in PubMed, with some additional papers identified by other data bases, notably ABI/Inform Collection and Science Direct. Searches were made in the Title/Abstract/Key words (as appropriate to the database). In line with the objective of reviewing recent literature we sought publications from January 2015 to date. However, in the case of prevention services, the search revealed relatively few recent robust sources, despite a comprehensive and deliberately open search. Employing a 'snowball method' led to cited sources supplementing the search quite extensively (Greenhalgh and Peacock 2005). We also identified a number of sources from the 'grey literature', including policy, government reports and professional commentary. The more significant of these are cited in the references along with those from the peer-reviewed scientific literature. We especially sought examples of approaches to addressing challenges of change. Broadly, these included reference to differences in national social, political and economic contexts, resourcing, professionalisation, and effects of changing work dimensions and risk consequences.

3. What are 'prevention services'?

As noted in the Introduction, in Europe, the term 'prevention or preventive services' is normally used to describe the qualified professional support, either internal or external to the establishment, provided to employers to enable them to address their OSH statutory duties. The term embraces private and public occupational health and hygiene services, services addressing ergonomic or safety engineering, services integrating these disciplines, group services, private consultancy services that support OSH management, and individual employees or consultants offering similar services. Sometimes in the literature, prevention services are described as also supporting rehabilitation, return to work, or absence management. Thus, while the literature's core focus is with professional practice in support of preventive OSH, other elements may be included in what are described as 'prevention services.'.

Within the EU, literature focuses on prevention services in which specialist professions predominate: That is, it is biased towards an understanding of prevention services in which occupational medicine, hygiene and related specialisms are present. To a lesser extent it also refers to services also featuring safety engineering, ergonomics, health promotion and occupational psychology. This may reflect its source in literature found largely in specialist journals addressing the interests of these professions. In most recent literature, these disciplines are discussed as specialisms ideally integrated in some way to address the practice of prevention and support for managing a range of OSH risks. Especially in relation to Europe, this integration of specialisms occurs in discussion of the predominant models of these services. Elsewhere, generalist approaches to providing competent advice on OSH management to duty-holders have become more important over the last several decades and, although little documented, this may be so within many of the Member States too.

'Prevention or preventive service' became a preferred term describing institutional support for OSH from the 1970 s, when it assumed an ascendancy over the older term 'occupational health service', which historically in most countries, reflected the predominance of occupational medical services. Reviews, over a long period, of the form, extent, role and effects of occupational health services establish several key points. They show that their development has been associated with industrialisation, particularly with large enterprises in heavy industry, mineral extraction and manufacturing, as well as with nationalised undertakings, the public sector and with the protection of the public (see for example Vogel, 1994; 1998; Weindling (ed), 1985; Elling, 1986; Melling, 2005). The determinants of this development varied according to the structure of the economies of different countries, their political orientations, the perceptions of risks associated with different occupational exposures, and the capacity of organised labour, employers and trade bodies to influence policies (Hämäläinen and Lehtinen, 2001; Abrams, 2001; Rantanen et al., 2017). They also reflect how support for occupational health has fared in public policies during the development of welfare capitalism and subsequently, and how wider policy and political orientations in labour market policies explain differences still seen in the character of national provisions (Walters, 1997).

Not only have occupational health services played roles in the institutional history of OSH, they also contributed to scientific, technical and engineering knowledge and the development of the professions associated with them (Quinlan, 1997). They helped identify the nature of occupational risks and their control, while these same risks helped define the character of the services themselves, which was further shaped by the relative power of their constituent professions. Thus, for example, the form taken by occupational health services in countries like France was particularly influenced by occupational medicine, while in others like Germany, a strong bifurcation between medical and engineering aspects was evident. In other places, a more technical approach sought expression through occupational hygiene, ergonomics and, sometimes, safety engineering and occupational psychology. By the last quarter of the 20th century, especially in Scandinavian countries, but also in countries such as the Netherlands, Italy and the UK, notions of integrating the functions of occupational health service were strongly

[1] In keeping with recent regulatory literature, 'substantive compliance' in the context in which it was used in the wider review, as well as in this paper means, achieving the collective goals of the regulatory scheme (e.g. ensuring the safety and health of workers), as distinct from 'rule compliance' which involves merely implementing the content of particular requirements (e.g. doing a risk assessment) (Morgan and Yeung 2007:152). This is a distinction of which many OSH professionals and researchers appear to be unaware.

evident in professional literature. The ideal model advocated was that multidisciplinary teams support a more holistic scientific understanding of the work environment. Although a medical approach might be involved, it was balanced by professional support for technical approaches such as exposure measurement and control, adjusting the workplaces to the worker to prevent MSDs, with safety engineering expertise advising on safe plant, place and processes, and support for psycho-social health and safety at the workplace.

Another way of comparing provision is from the perspective of legislative requirements. The traditional regulatory approach - which often originated in the post-war rebuilding of social welfare and health systems, with further revision during the 1970 s - usually focuses on ratios of medically qualified practitioners and safety engineers to numbers of workers, and on arrangements determining their competencies. In Germany, France, Italy and Spain, among others, legislative requirements address the qualifications and training of the staff of prevention services, ratios of qualified practitioners to workers and so on. Also, while not developed as extensively as in Germany, there are examples of insurance-based structures, such as the *CRAMs* in France, *Mutuas* in Spain and *INAIL* in Italy, also supporting prevention initiatives aimed at smaller firms (PREVENT, 2006).

Another historical variation in the form and function of prevention services is found in the role of the public health authorities in Italy where, until relatively recently, local health units made a strong contribution to public preventive services. They provided a network of support for preventive OSH across a range of sectors and regions, with legally mandated multidisciplinary preventive functions and enforcement powers. They were especially active in Northern Italy following the National Health Reform Law in 1978 (Law No. 833), which reformed Italy's health services and included occupational health services in hundreds of these local health units (*Unità Sanitaria Locale, USL*) (Bodini, 2005). In 2008 further reforms aimed to achieve greater alignment with the Framework Directive, placing responsibility upon employers to organise internal or external services to undertake risk assessment and develop control measures. It is not clear, from the available literature, what the consequences of this have been for the former roles of the USL, but it seems that reduced public sector funding has led to a significant decline in their presence (Paoscia et al., 2018).

In the planned economies of Eastern European countries, the legacy of state provision of health services at the time of accession to the EU usually defined occupational health as a component of public health. Prevention services were therefore formerly part of the health care system, and included internal services, various forms of external services, including group services, while at secondary levels, regional health units sometimes included occupational health departments. In many of these Member States, the longer-term effects of such legacy are unclear, but it seems that the effects of marketisation have been felt, and that qualified personnel are in short supply (Cikrt et al., 2007).

What emerges most powerfully from this typology is the wider contextual influence on determining the form, function and presence of these services and the support they are able to provide for better OSH practice within enterprises. Aside from the acknowledged variation in their presence in different EU Member States, the extent to which they possess suitable competencies and capacities is determined by a mixture of resourcing and regulatory requirements. Both have varied enormously over time, and between Member States, but indications suggest recent developments have done little to enhance preventive capacities.

The development of prevention services has also been influenced by interchange with other sites of knowledge creation on OSH, such as universities, state research institutions, the health service and so on. The balance of theoretical and practical applications that evolved in this relationship also informed the growth of current understandings of work, health, safety and well-being (Abrams, 2001; Baker et al., 2020; Borys, 2014). The literature indicates that while the character of prevention services has been shaped by national and sector contexts, and by the power wielded by dominant professional groups, by the time the Framework Directive 89/391 was adopted in the EU, the idea of a service integrating the separate specialisms of OSH to address the multiplicity of workplace risks and prevent harm that had been first most prominent in the Scandinavian discourse, was well established in the EU more widely. However, as shown in the following sections, it also suggests that its use in practice is limited.

In short, a broad typology of prevention services has emerged, particularly in the Scandinavian literature (see, for example, Hasle et al., 2017; Molander et al., 2018). Several models have been identified, in terms of structural support, including state-based, insurance-based and market-based approaches, and a fourth approach, in which agreements between trade unions and employers and their organisations are an important feature. The present review found support for this typology, although it suggests that in most EU Member States the union/employer organisation model is not well-developed. It also notes the parallel development of more a generalist OSH professional field with a focus on advising the delivery of corporate responsibilities for OSH management. Its growth has been stimulated in part by new regulatory frameworks such as those of the Framework Directive, in which principle and process-based approaches widened OSH coverage and provided more universal requirements for risk management at work (Walters, 2007; Hasle et al., 2014; Hale, 2019; Hale and Ytrehus, 2004). These requirements, in turn, contributed to the growing body of legal and technical knowledge, practical solutions, best practice cases and so on, informing employers on how to meet, what for many, were relatively unfamiliar statutory duties. Employers' needs for support therefore extended far beyond large firms in high-risk sectors and those with responsibilities for public safety, in which specialist occupational health services were traditionally found, and stimulated a labour market for qualified generalists (Pryor et al., 2019). Variation in these developments makes measurement of the extent of the use of prevention services difficult to determine. The structure, organisation and control of work and employment has also changed markedly from the 1970 s onwards, making for further complications in measuring the role of prevention services.

4. Regulatory and policy contexts

Article 7 of the EU Framework Directive 89/391 requires employers to designate one or more workers to carry out activities related to the protection and prevention of occupational risks for the undertaking and/or establishment (7.1). If such measures cannot be organised for lack of competent personnel in the undertaking/establishment, Article 7.2 states that the employer shall enlist competent external services or persons. In all cases:

- The workers designated must have the necessary capabilities and the necessary means
- The external services or persons consulted must have the necessary aptitudes, personal and professional means
- The workers designated and the external services or persons consulted must be sufficient in number to organise protective and preventive measures, considering: the size of the enterprise, the hazards to which the workers are exposed and their distribution throughout the entire enterprise.

Arguably, prevention services were cornerstones of the participative, informed approach to assessing and managing risks that characterised the approach in EU policy towards OSH from the 1980 s onwards. In this approach, legal regulation imposes duties, usually on employers, to manage the risks of the activities for which they are responsible, with the aid of suitable expertise and in consultation with their workers. Article 7 indicates how employers should support the delivery of this expertise. At the time of their introduction more than thirty years ago, aspects of such a regulatory approach were already evident in some EU member states, such as in Denmark, Sweden, the UK and the Republic of Ireland,

although apart from Denmark, none of these countries had explicit legislative requirements on employers to use prevention services and it is further the case that the Framework Directive itself, does not prescribe details of the precise nature of the 'competencies' it requires of such services.

The intent of the Directive was to adopt, spread and harmonise this approach across all EU Member States. This remains EU policy, as is evident from the content of further directives and the strategy statements and frameworks promulgated periodically by the Commission.[2] For example, the 2002–2006 Strategy indicates:

> '….the new strategy, geared to the quality of work and well-being at work, will require thought to be given to which structures are best adapted to this global approach:
> – the prevention services should be genuinely multi-disciplinary, embracing
> social and psychological risks, and the gender factor;'

With a particular focus on SMEs, the 2007–2012 Strategy states that national strategies should ensure:

- 'better dissemination of information and better access to counselling services;
- access to *external prevention services* which are of a high quality and affordable'.

Variations in provision are also acknowledged in the same strategy statement:

> The implementation of Article 7 of framework Directive 89/391/EEC reveals considerable disparities with regard to the quality, coverage and accessibility of *prevention services*. This may be caused by the different ways in which the Member States define the skills and aptitudes required as well as by excessive outsourcing of prevention activities.
>
> It indicates that:
>
> After evaluating the situation at European level, the Commission will investigate whether a recommendation needs to be made which invites the Member States to take steps to facilitate access to good quality *prevention services*, where the requisite expertise is not available within the company; this is of particular relevance to SMEs.

There does not, however, appear to have been any further actions proposed. The 2014–2020 Strategic Framework makes no explicit reference to prevention services, while The Council of the European Union's announcement of a new Strategic Framework 2021–2027 does little more than repeat the invitations of previous statements to Member States to.

> …help SMEs and microenterprises, …… to appropriately protect their workers and to turn OSH measures into increases in performance and productivity [by among other things], supporting *external OSH service providers*, in accordance with national legislation, in developing and improving their services so as to enable them to provide specific, tailor-made solutions for SMEs.

In European Commission evaluations of the impact of Directives, the problem of coverage in relation to micro and small firms is acknowledged (EC, 2015). This is further reflected in the results of ESENER surveys, the latest of which (ESENER 3) reports that external services were used by 61 per cent of respondents, said to be 'associated positively with establishment size' and 'most frequent in the manufacturing sector' (EU-OSHA, 2019). European Court of Justice (ECJ) decisions interpreting the Commission's requirements from Member States in transposing Article 7 show the Commission to be seeking a balance between sustaining internal services, but requiring those who do not have them to access external protective and preventive services of similar quality. The Court also rejected the French argument that its arrangements for occupational medical services were an adequate transposition of the Framework Directive Article 7 — leading to significant changes in the French approach towards achieving more integrated services (Gregoire, 2014).

The existence of this regulatory and policy framework notwithstanding, it is evident from the literature that there have been several key drivers of trends in the organization and delivery of prevention services in the EU during the same period. The most prominent of these are discussed in the following sections.

5. Prevention in current practice – Market demands, structures and professional capacities

The most significant direct impact on prevention services identified in the literature is the marked shift in the ways in which they are resourced and the increased market orientation of service provision in recent decades. While there are references in the recent literature to links between health promotion and prevention of work-related harm, evident in concepts like 'Total Worker Health,'[3] analysis shows that a major determinant of both the practices of prevention services and their economic survival almost everywhere in the EU in recent years, has been their means of financial support. Withdrawal of the state, the reduced circumstances of trade unions and the reluctance of employers to fund schemes on a large scale — along with the market orientation of national political and economic policies — has driven marketisation of prevention services, which has been a powerful influence on their preventive activities.

The free-market orientations of most EU countries during the last several decades has also shaped huge changes in the structure and organisation and control of work. There has been a significant shift away from the Keynesian political and economic strategies of the post war consensus (during which the development and orientation of modern prevention services occurred), with profound consequences for OSH and the ways in which support for better practice may be best achieved. The literature indicates this to be no less so for prevention services than for any of the other elements involved (EU-OSHA, 2021b and c; Miller, 2002; Hale, 2019).

The marketisation of prevention services: While marketisation of prevention services is common in the EU, its effects are not always identical. Differences are best explained by differences in national histories and present-day contexts. In many EU Member States, resourcing OSH prevention services has always presented a challenge for policy-makers. Their place in the reform of health services in the post-war re-building of Western Europe was frequently uncertain. In many countries they were regarded as central to these services. In others, politicians and administrators saw them as something quite separate, associated with labour rather than health policies. In the UK, for example, they were not part of policy considerations that led to the post-war creation of the National Health Service. As a result, there was no 'national occupational health service', only a skeletal provision at the state level and part-time medical contract workers at workplace level, while the rest was in private hands. The precarious nature of such provision became evident with its decline, in parallel with the restructuring of the economy from the 1970 s onwards (Walters, 1997).[4]

[2] In the last 20 years there have been three such statements of strategy with a fourth anticipated in 2021. See European Commission 2002; European Commission 2007; European Commission 2014; and Council of the European Union 2019.

[3] See for example, Schill and Chosewood 2013; also Pronk et al 2021.

[4] But see Macdonald and Sanati (2010) for an interesting Scottish variation on this.

In contrast, in Germany the resourcing of compulsory employment insurance has helped ensure the sustainability and resilience of prevention services and allowed a greater balance in their marketisation in recent times (DGUV, 2016). There is also some evidence from German and Austrian sources that as result of their secure resource base, these services have also been able to support the needs of traditionally hard to reach firms, in particular small firms, as well as to responding effectively to utilising the influence of economic incentives.[5]

In Scandinavia much of the care provided by external prevention services—once supported as part of a public health service or funded through a 'tax on production' paid by employers with the agreement of the trade unions—has, as elsewhere, also become the commercial product of market-based systems. Prevention services were deregulated in Sweden in 1992 (Frick, 2005) and in Denmark in 2002 (Kabel et al., 2007), with significant reduction in provision and market-based services giving less preventive advice than formerly.

A similar trajectory is observed in the Netherlands (Weel and Plomp, 2007; Plomp, 2008). Marketisation of services' activities in such systems means that they are responsive to the perceived needs of the organisations that pay for them. Thus, the older literature on services in all these countries identified a common movement towards contributing to prevention through the provision of more integrated services (Kabel et al., 2007); but more recent accounts suggest that in countries such as the Netherlands, while these approaches still occur, their spread and continued existence may have been overtaken by other needs as public resourcing has reduced (Swuste et al., 2019). As already noted, the market basis of many services has led them to be increasingly involved in helping to address concerns of employers with managing absence and returning workers to work as soon as possible to reduce the costs of absence, or with promoting healthy behaviours among workers, in keeping with the general shift in labour market policies towards emphasis on the cost-benefits of supporting OSH (Plomp, 2008; ETUI, 2014; EU-OSHA, 2021b).

In countries in which forms of social and employment-based insurance play a significant role in national OSH systems, but are not as central to these systems as is the case in Germany, other influences on their development may be more obvious — such as the powerful influence of the medical profession in the history of prevention services in France, where the great majority of employers discharge their OSH obligations by joining an intercompany occupational health service (SSTI). These services are said to be responsible for health surveillance among 94% of the non-agricultural private sector working population, while a limited number of private companies, usually very large groups, have their own service. Altogether, the French discourse of reform is complex, taking place over a long period and involving change in legislation and professional practice to achieve more integrated provision (Paillereau, 2007). As already noted, some of the impetus for change were the requirements of the Framework Directive 89/391, which were at odds with the medically dominated French historical model. Under pressure from the EU, and eventually the ECJ, changes towards great multi-disciplinarity began in 2000, with occupational health services rebranded as "health and safety at work" services. According to Gregoire (2014), the idea was to deliver better primary risk prevention by supporting occupational doctors with other professionals, including occupational health nurses, occupational health assistants and specialists in other fields (ergonomists, toxicologists, psychologists, etc.) known by the acronym "IPRP" (*intervenants en prévention des risques professionnels* - occupational risk prevention operators). Such 'multidisciplinarity' has been beset by numerous difficulties. Further laws were passed in 2011, but the situation remains uncertain and, as elsewhere, practice is increasingly placed under commercial pressures by marketisation (Gregoire, 2014).

Marketisation creates further problems in the pricing of services and there is some evidence that suggest an increased use of minimum contracts between prevention services and their clients, especially in relation to arrangements to help smaller firms meet what they perceive to be statutory requirements. Emphasis on price therefore also creates competition between services based on costs, which has the potential to reduce the overall quality of what is provided and to undermine the independence of the service. Critics have regarded such changes as synonymous with a decline in the quality and extent of prevention advice offered by these services (ETUI, 2014). They also reduce capacities of prevention services to relate to the needs of hard to reach groups.

Consequences of reorganisation and restructuring of work: Modern prevention services are faced with a very different work-related risk profiles, compared with those when they were first conceived and which drove a large part of their historical development. While this profile is still in evidence in what remains of industrial production in EU Member States, the growth of a service-based economy, the application of new technologies, privatisation, outsourcing and the structural, organisational and productivity changes accompanying them, along with changes in the gender and age profiles of the workforce and its mobility, all represent substantial challenges for prevention services.

This growth of service-based economies and the consequent changes in work-related risks have influenced change in the composition of prevention services. Broadening and integrating competencies within prevention services was widely advocated to better address prevention needs resulting from these changes. This included better integrating psychological and ergonomic skills in prevention services to address the consequences of exposure to psycho-social and work organisational risks (Walters, 1997); and the inclusion of health promotion at work in the repertoire of support offered by some prevention services (see, for example, Auvinen et al., 2012; Palmgren et al., 2008).

Another related development was increased attention to determining fitness for work of employees and to managing absence. In the UK, for example, government strategies to ensure a healthy workforce blurred the distinction between health in relation to work and ill-health arising out of work (Palmer et al., 2007; Black, 2008). Notions of 'workability' in the working age population produced similar effects. While there are obvious positive elements for the role of prevention services in relation to health and work, such as with the design of suitable return to work arrangements, there was also a negative side, which raised concerns. Prevention services were viewed being too closely associated with support for employers' balance sheets on matters of human resources and social security, and less with a role in preventing work-related ill-health (Plomp, 2008).

There are also examples of successful responses by prevention services to the challenges of change. For instance, while small firms may access external prevention services, their will and capacity to do so, which is often both awareness- and cost-related, is often a barrier (EU-OSHA, 2018). Where prevention services are themselves financially secure, such as when part of insurance-based systems, low cost versions of their services may be available to these firms (Hasle and Limborg, 2006), as is the case in Germany, Austria (Jaeger, 2007), France and Italy (see EU-OSHA, 2017). Often the challenge is providing incentives to owners/managers of small firms to make use of services offered. Various interventions and initiatives have been developed to achieve this and researchers have further advocated a parallel need for training among prevention services personnel, whose professional skills are more traditionally orientated to larger organisations. Thus, training has been suggested to improve their marketing skills and to make them more aware of situations encountered in MSEs (Hasle and Limborg, 2011, EU-OSHA, 2016; EU-OSHA, 2018). Overall, as EU-OSHA's extensive study of support for micro and small firms showed, there are many good examples of interventions by prevention services in small firms, but little to suggest they are systematic, or sustainable on a larger scale (EU-OSHA, 2018). It remains unclear to what extent they contribute to significant increases in support for smaller firms overall.

[5] See, for example, Paridon et al 2007; Fischer and Ulmer 2017; Kirsch 2015; DGUV 2017..

Where external services are more market oriented, there are perhaps greater challenges for resourcing such support. It is well established in the literature that small firm owner/managers prefer simple and affordable support solutions. In economies with low levels of regulation of such matters, such as in the UK, perceived OSH requirements have caused many owner/managers of small firms to use unqualified 'consultants' for risk assessment and OSH policy matters, bringing about a proliferation of such businesses and calls for control. As a result, a register of qualified consultants has been introduced, but it is unclear how successful its contribution has been to ensuring appropriate support for the OSH needs of small firms (Crawford et al., 2016).

Another way to encourage smaller enterprises to use prevention services is to situate services in the vicinity of concentrations of smaller enterprises, minimising their cost to individual users. There have been numerous examples of such group practices both in relation to geographical location and sector although the financial support of such services is problematic (Rantanen and Fedotov, 2016). Other studies assess possibilities of addressing networks of small and medium sized firms (Limborg et al., 2014 ; MacDonald and Sanati, 2010). Studies have also examined inclusion of access to preventive services into agreements between the social partners, such as in the Dutch Arbo catalogues and in sector agreements in Denmark and Sweden (Plomp, 2008), but again, financial support of such services remains challenging and limits their spread.

Finally, the challenges of outsourcing and the increased significance of supply chains in promoting poor OSH conditions — especially in the small firms that frequently occupy their distal tiers — may indicate a role, not only for external prevention services, but also for support from the internal services of larger organisations. This is especially so in relation to disseminating and operationalising OSH requirements of organisations from the heads of supply chains to successive levels in the chains. Since it is well recognised that OSH problems of outsourcing tend to become increasingly magnified as they pass downwards through the supply chain, stronger support at the levels furthest removed from the heads of these chains could be provided by the prevention services of powerful business organisations higher up the supply chain. A key question here concerns leveraging motivation among such highly placed powerful organisations to resource such support. While such ideas are discussed in the literature, as Walters and James (2020) have pointed out, there remain relatively few examples of extensive practice in this respect.

6. Specialists and generalists — The emergence of a new paradigm?

In addition to the challenges of structural and organisational change, regulatory demands on employers and persons in control of business undertakings to assess and manage their OSH risks has required a reorientation of professional practice and has had consequences for form and function among prevention services and the way they support OSH.

Change in the nature of OSH professions, their orientations and practice: Nowadays, when a prevention service claims to integrate a range of competencies to support better OSH practice, this does not necessarily mean that it employs many specialists, each separately representing one or more of these professional competencies (Olsen, 2012). Indeed, this probably only occurs in a minority of prevention services. Many others are a lot less well-resourced and may have few, if any, appropriately qualified specialist staff. Even where qualified competencies are held, their range varies considerably. This is partly the result of the considerable variation in legal requirements, and partly because there are many different trajectories evident in the professional development of OSH practitioners (Hale and Ytrehus, 2004).

One example, previously noted, has been the increased professional status and power of the generalist OSH practitioner in some countries (Pryor and Sawyer, 2010). A little discussed consequence of changes accompanying the shift away from industrial production to service-based economies, are changes in the market for OSH competencies required by enterprises, small and large, public or private. In recent decades these competencies have tended to shift away from specialist understandings of the science, medicine and engineering to more generic approaches, across all sectors, to guide the management of OSH towards meeting regulatory obligations, and support them in areas like psycho-social risks associated with work in services (Borys et al., 2006). Thus, companies involved in service-based activities tend to use OSH practitioners and professionals with generalist competencies focused on knowledge of regulatory standards, human behaviour and OSH management, health promotion, human factors and organisation and so on, rather than competencies in the science, medicine or engineering behind industrial production. As a consequence, the number of safety engineers, occupational physicians, hygienists and the like has fallen and facilities for their specialist education and training have reduced in many EU-Member States (ETUI, 2014; EC, 2015).

Over the same period, the growing number of generalist OSH professionals in EU Member States and elsewhere have sought to promote the recognition and influence of their profession. In 2001, for example, several national general OSH practitioner bodies created the International Network of Safety and Health Professional Organisations (INSHPO) with the aim of becoming the global voice for the OSH profession and a forum for international collaboration among relevant professional organisations (Pryor, 2019). In the same year, a European Network (ENSHPO) was established with similar aims. The network seeks to support national professional bodies in the development of a generalist OSH profession by gaining recognition at national, European and global levels and providing evidence on what OSH specialists actually do. As previously indicated, in some instances, such as in France, they have been strongly contested, especially by previously dominant professional interests (Paillereau, 2007).

Nevertheless, there is an emergent body of knowledge that identifies a core set of generalist competencies as central to the professional identity of the OSH generalist. There are substantial differences in the way national regulations and national and international standards formulate requirements for appointing such OSH specialists, their tasks and the training they require. They reveal significant differences between EU Member States in how OSH specialist requirements and roles are defined by law, or through powers delegated to professional associations to set such standards (Hale, 2019), thus creating difficulties in achieving harmonisation and agreement over core competencies that could be shared among modern prevention services. As Le Coze (2019) has also noted in relation to discourse around safety culture in work organisations, these developments are themselves a function of wider changes in the economy, in economic policies nationally and globally, and in related management and professional practices and priorities. They cannot be properly understood without situating them in these contexts. Moreover, as with developments in understandings of 'safety culture' they have occurred in 'waves' rather than as step-wise change, which implies they exist alongside older and different practices rather than entirely replacing them.

7. Conclusions

It is important to acknowledge the limitations of the review presented in this paper. Resource constraints, combined with the wider purposes of the research project of which it was part (EU-OSHA, 2021 a, b and c), meant that although the relevant literature has been searched systematically, we have not undertaken a *systematic review*, which in research terms, has a quite specific meaning. It is acknowledged that there are inevitable gaps in the coverage of the paper as a consequence. Nevertheless, the paper has addressed a number of important issues concerning the role of prevention services in supporting safety and health at work and filled a gap in the recent literature in this respect. The project of which it was part aimed to identify issues for further policy development and research and the paper has contributed to this effort.

While the literature identifies examples of successful prevention services and their positive interventions in support of substantive compliance and better practices in OSH, only rarely does it find these to be systematic, sustained or integrated with other forms of support. There is frustratingly little reliable evidence of the real extent of the presence and use of services involving qualified practitioners in the EU. This is not new. Some fifteen years after the adoption of the Framework Directive, Brigitte Froneberg (2005) wrote:

> 'The tripartite European Council Framework Directive 89/ 391/EEC …. should have paved the way for equal occupational health services for all workers alike, independent of company size. …. [T]he goal has obviously been achieved, or nearly so, in only a minority of Member States. It may then be sensible to ask both why this is the case and where we should go from here.'

Sixteen years later it is difficult to argue that significant progress has been made in increasing the access of workers to prevention services. Froneberg's questions remain relevant, along with several others about how or in which direction prevention services might be usefully developed in the future.

In recent decades, the withdrawal of state resourcing, along with decline in the presence of large industrial concerns whose activities necessitated support from prevention services, has meant that prevention services must survive as independent businesses in an increasingly competitive market. This has had significant consequences for the role prevention services play in achieving better OSH practices. Firstly, a successful market mechanism is needed for the business of prevention. In Germany and other countries with strong social insurance systems, there is some evidence that these systems allow prevention services sufficient security to adapt to change while maintaining the quality and diversity of their provision. Elsewhere, formerly highly developed integrated services such as in the Netherlands and Sweden have been less successful. Other concerns exist about unqualified consultants offering inadequate services, especially to owner/managers in MSEs; the costs of prevention services resulting in minimal uptake; and an absence of attention to prevention, again especially among the services available to MSEs.

However, it remains the case that some OSH prevention services have found the means to secure their sustainability and to deliver advice and guidance on good practices in different sectors in all EU Member States. This suggests a need for better and more comparative research to understand how this has been achieved.

There is also a need to explore the synergies between prevention services and other forms of support for securing substantive compliance, since recent literature suggests that greater integration of prevention services with other forms of institutional support for OSH may be a useful future policy. Two such synergies stand out. One concerns the potential of prevention services operated by powerful buyers at the apexes of supply chains to support the OSH needs of suppliers situated at lower levels in the same chains. A second, is their role in the economic incentivisation of better OSH practices, such as seen in some of the activities undertaken by the Berufsgenossenschaften, in Germany. Further examples can be found in cases where the interventions of prevention services have been part of more orchestrated support for compliance in relation to MSEs. These examples could be usefully explored further in order to better understand how transferable and sustainable they are, and what factors support them.

The evolving role of OSH competencies in supporting better OSH practice would also benefit from further research. The literature identifies growth in the numbers and significance of 'generalist' OSH practitioners in recent decades, but there has been very little serious study of the consequences of this: in terms of its relevance to needs created by the changing structure organisation and control of work, for the balance of professionalism generally in OSH, or for the nature of support it may bring to improving OSH practice, or indeed, of the results of such support.

This review suggests that traditional models of prevention services provided valuable contributions to supporting preventive practices in some situations, but are less-suited to directly addressing large-scale OSH prevention needs in present-day economies. In increasingly destructured, fragmented and market-orientated economies, the future effectiveness of prevention services may require their development in other directions. There are some similarities here with the situation of regulatory inspection. Recognition that the effectiveness of inspection in achieving substantive compliance in increasingly hard-to-reach work scenarios, along with limitations in the resources to do so, has led regulators to seek more effective ways of securing compliance (see for example Blanc 2018). Regulatory agencies in some EU Member States are in the process of adopting innovative ways of doing this (EU-OSHA, 2021b). The same kind of approach may be relevant to the future of prevention services. Ways of delivering their support for better OSH practice in the disaggregated, fractured, fissured and remote forms of work organisation characteristic of current economic structure need to be found, along with means of ensuring their relevance to, and use by, persons responsible for these undertakings. While initiatives such as the NIOSH, Total Worker Health programme, are serious efforts to take a more holistic view of the relationship between work and health, their role in addressing challenges of supporting substantive compliance in the restructured world of work in EU member States remains uncertain. There is little in the European literature to indicate they have achieved a significant impact in this respect. Further research is required to explore these issues.

Finally, there are some lessons to be learned from the COVID-19 pandemic. Not least of these is the importance of promoting OSH knowledge in public health practice. Prevention services have made a huge contribution to knowledge concerning best practices in preventing workplace exposure to risk — including that of the transmission of infectious disease. Yet it has become increasingly clear that in many countries, efforts to contain the spread of transmission COVID-19 at work failed to make adequate use of this knowledge, or have not done so with sufficient foresight to prevent unnecessary work-related transmission during the pandemic (see for example, Walters, 2021). Such a tardy application of prior knowledge of prevention at the workplace suggests a need for greater prominence of occupational health practice in public health prevention strategies to mitigate the effects of possible future pandemics. Ways to achieve this, also need to be a focus for future research.

CRediT authorship contribution statement

David Walters: Conceptualization, Formal analysis, Methodology, Project administration, Supervision, Investigation, Writing – original draft, Writing – review & editing. **Richard Johnstone:** Writing – review & editing, Investigation, Conceptualization. **Elizabeth Bluff:** Investigation, Writing – review & editing, Methodology. **Hans Jørgen Limborg:** . **Ulrik Gensby:** Investigation.

Declaration of Competing Interest

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