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Evaluation of a pilot consultation for maternity protection at work in Switzerland

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Summary

STUDY AIMS: Switzerland's Labour Law and its Ordonnance on Maternity Protection aim to protect the health of pregnant employees and their unborn children while enabling them to continue to pursue their professional activities. Some companies encounter difficulties implementing the law's provisions. The Department of Occupational and Environmental Health, part of the Center for Primary Care and Public Health (Unisanté), has provided specialist occupational medicine consultations for pregnant employees since 2015. This study aimed to evaluate how well Swiss' maternity protection legislation is implemented by examining a list of relevant indicators measured during the occupational health consultation. The study also sought to investigate the consultation support provided to the relevant stakeholders and the adjustments made to pregnant employees' working conditions.

METHODS: Descriptive variables and indicators relative to the application of the Swiss maternity protection legislation for 83 pregnant employees were collected during the consultation's pilot phase (between 2015 and 2016). Descriptive statistics and cross-analyses of these indicators were made.

RESULTS: Most pregnant employees faced multiple exposures to occupational risks. Preventive risk analyses were rare. Few adjustments to workstations were proposed. We found a tendency for employees to leave their workstations early on in their pregnancies due to sick leave certificate prescriptions. Specialist consultation and collaboration with occupational health physicians to recommend interventions for pregnant employees can provide significant benefits and help some pregnant women to continue at their workstations with appropriate adjustments.

DISCUSSION: A specialised occupational health consultation is a useful instrument for identifying occupational hazards for both the pregnant woman and her unborn child. It is also an opportunity to explain employers' legal responsibilities and obligations to safeguard the health of their pregnant employees and to give specific advice for their company's situation. This consultation also enables employers to maintain their employees' valuable professional competencies in the workplace for as long as possible. Finally, occupational health consultation helps and supports healthcare providers who must, according to the law, make decisions about whether pregnant employees can continue working safely or not.

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Introduction

The proportion of working women in Switzerland aged 25 to 54 years old has grown significantly reaching 86.9% in 2020 [1], one of the highest participation rates in Europe [2]. Balancing pregnancy and employment is a medical issue but also an economic and public health issue. Work in itself is not a risk factor for pregnancy [3, 4]. However, recent meta-analyses [5–7] have shown that various occupational exposures or strenuous activities may affect pregnant employees' health, pregnancy outcomes and child development. The need to prevent these issues justifies the introduction of maternity protection legislation (hereafter MPL) in the majority of industrialised countries [8, 9]. The core of these public policies lies in the obligation for companies to evaluate the occupational risks for pregnancy by occupational health specialists and to take protective measures so that pregnant employees are no longer exposed to such risks.

Few studies have investigated the effectiveness of the MPLs. In Quebec, Croteau and Marcoux [10, 11] demonstrated that employees who benefitted from preventive leave or adjustments to their workstations less frequently gave birth to babies who were small for their gestational age. In Spain, Villar and Serra [12] showed that leave for "Pregnancy occupational risk" enabled pregnant employees to benefit from protection against occupational risks, notably physical, ergonomic and psychosocial risks. Some studies also show that implementing MPL may reduce rates of absenteeism during pregnancies [13–15].

Most international literature [16–18], however, focuses on shortcomings in the application of MPL: 1) a lack of

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knowledge about or an underestimation of the inherent occupational risks facing pregnant employees; 2) a lack of knowledge by all stakeholders about existing MPL; 3) an absence of risk analyses and appropriate adjustments to workstations; and 4) the use of sick leave instead of preventive leave.

Switzerland's legal framework for maternity protection at work

The Swiss Federal Labour Law [19] (LTr, sections 35, 35a, 35b) and its Federal Ordonnance on Maternity Protection (hereafter OProMa) [20] are the legal framework for the protection of the health of pregnant workers. These documents set out what constitutes dangerous and strenuous work (figure 1) and describe the processes that should be put in place to prevent such situations. According to the OProMa, any potential exposure to specific risks must be evaluated by an authorised professional.

Thus, if a company carries out activities that might be classified as dangerous or strenuous in case of pregnancy, the employer must have a risk analysis carried out by an occupational health specialist, make necessary adjustments to employees' workstations, and provide employees with in-

Figure 1: Switzerland's State Secretariat for Economic Affairs' (SECO) [39] table summarising work organisation and dangerous activities for pregnant employees. (Reproduction with the consent of SECO.)

Schweizerische Eidgenossenschaft
Confédération suisse
Confederazione Svizzera
Confederaziun svizra

Protection de la maternité - tableau synoptique

Département fédéral de l'économie, de la formation et de la recherche DEFR
Secrétariat d'Etat à l'économie SECO
Conditions de travail

LTr = Loi sur le travail
OLT = Ordonnance relative à la loi sur le travail
OProMa = Ordonnance sur la protection de la maternité

Article de loi			Mois de grossesse 0/1	2	3	4	5	6	7	8	9	Naissance	Semaines après la naissance (et allaitement) 8	16	52	Jusqu'à la fin de la période d'allaitement
LTr	art. 35	Femmes enceintes et mères qui allaitent	**L'occupation et les conditions de travail ne doivent pas compromettre la santé de l'enfant ni celle des femmes enceintes ou des mères qui allaitent. Les femmes enceintes et les mères qui allaitent ne pouvant être occupées à certains travaux ont droit à 80% de leur salaire lorsqu'aucun travail équivalent ne peut leur être proposé.**									Interdiction de travailler	**Cf. texte à gauche.**			
LTr	art. 35a	Consentement	**Occupation uniquement avec consentement: sur simple avis, les femmes enceintes peuvent se dispenser d'aller au travail.**										**Accouchées: cf. texte à gauche.**	**Mères qui allaitent: cf. texte à gauche.**		
LTr	art. 35a, al. 4 art. 35b	Travail de nuit	L'employeur est tenu de proposer aux femmes enceintes qui accomplissent un travail entre 20 heures et 6 heures un travail équivalent entre 6 heures et 20 heures.							Interdiction d'occupation entre 20 heures et 6 heures 8 semaines avant la naissance.			Cf. texte à gauche.			
LTr	art. 59, al. 1	Dispositions pénales	Est punissable l'employeur qui enfreint les prescriptions sur la protection spéciale des femmes, qu'il agisse intentionnellement ou par négligence.										Cf. texte à gauche.			
OLT 1	art. 60, al. 1	Heures supplémentaires	Pas d'heures supplémentaires et limite maximale de 9 heures de travail quotidien jusqu'à la fin de la période d'allaitement.										Mères qui allaitent: cf. texte à gauche.			
OLT 1	art. 60, al. 2	Allaitement											Mères qui allaitent: droit au temps nécessaire pour allaiter (annonce préalable au chef)			
													Temps de travail rémunéré dans les limites suivantes, pour une journée de travail : ≤ 4 heures = 30 min. > 4 heures = 60 min. > 7 heures = 90 min.			
OLT 1	art. 61	Activités exercées en station debout				Activités exercées en station debout: repos quotidien de 12 heures; 10 min. de pause supplémentaires toutes les 2 heures.										
								Activités exercées en station debout: max. 4 heures par jour.								
OLT 1	art. 62, 63	Activités dangereuses ou pénibles Analyse de risques	Selon l'OLT 1, il faut procéder à une analyse de risques pour les travaux dangereux ou pénibles (concrétisation dans l'OProMa)										Mères qui allaitent: cf. texte à gauche.			
OLT 1 OProMa	art. 62 art. 13	Tabagisme passif	Femmes enceintes dans les zones fumeurs: la législation sur la protection contre le tabagismes passif renvoie à la LTr >OProMa art.13 (excl.le monoxyde de carbone est une substance dangereuse) → interdiction d'occupation										Mères qui allaitent: cf. texte à gauche.			
OLT 1	art. 64, al. 1	Activités subjectivement pénibles	Dispense de travailler pour les activités subjectivement pénibles.										Mères qui allaitent: cf. texte à gauche.			
OLT 1	art. 64, al. 2	Réduction de la capacité de travail											En cas de réduction de la capacité de travail, adapter l'activité → certificat médical (les premiers mois après l'accouchement).			
OLT 3	art. 34	Protection des femmes enceintes et des mères allaitantes	Les femmes enceintes et les mères allaitantes doivent pouvoir s'allonger et se reposer dans des conditions adéquates.										Mères qui allaitent: cf. texte à gauche.			

Article de loi			Mois de grossesse 0/1	2	3	4	5	6	7	8	9	Naissance	Semaines après la naissance (et allaitement) 8	16	52	Jusqu'à la fin de la période d'allaitement
OLT 1 OPRoMa	art. 63 art. 1	Analyse de risques; information	**L'analyse de risques, qui précède l'entrée en service de femmes dans une entreprise, doit être faite par un spécialiste; les résultats sont consignés par écrit, de même que les mesures de protection préconisées. L'employeur veille à dispenser en temps utile aux femmes l'intégralité des informations et instructions appropriées.**									Interdiction de travailler	**Cf. texte à gauche.**			
OProMa	art. 2	Contrôle de mesures de protection	**Contrôle de l'état de santé et de l'efficacité des mesures de protection: incombe au médecin qui suit la travailleuse.**										**Cf. texte à gauche.**			
OProMa	art. 3	Certificat médical	**En cas d'activités dangereuses ou pénibles: certificat médical si poursuite de l'activité sans restriction ou sous certaines conditions ou encore si l'activité doit être interrompue (→ interdiction d'occupation).**										**Cf. texte à gauche.**			
OProMa	art.4	Prise en charge des frais	**L'employeur prend à sa charge les frais pour les dépenses visées aux art. 2 et 3 (OProMa)**										**Cf. texte à gauche.**			
OProMa	art. 7	Déplacement de charges lourdes	Déplacement régulier pas plus de 5 kg, déplacement occasionnel pas plus de 10 kg.								Pas plus de 5kg.					
OProMa	art. 8	Travaux exposant au froid, à la chaleur ou à l'humidité	Travailler par des températures ambiantes inférieures à -5°C ou supérieures à 28°C ou par forte humidité n'est pas autorisé; travaux par des températures situées entre 10°C et -5°C → tenue adaptée; travaux par des températures inférieures à 15°C → boissons chaudes.													
OProMa	art. 9	Mouvements et postures engendrant une fatigue précoce	Non admis : les mouvements et les postures engendrant une fatigue précoce; impact de chocs, secousses ou vibrations.										Cf. texte à gauche.			
OProMa	art. 10	Micro-organismes	Il faut s'assurer qu'une exposition de ce type n'entraîne aucun dommage pour la mère ni pour l'enfant. Analyse de risques liée aux micro-organismes compte tenu de l'activité, du statut immunitaire de la mère et des mesures de protection prises.										Mères qui allaitent: cf. texte à gauche.			
OProMa	art. 11	Activités exposant au bruit	Non admis: niveau de pression acoustique ≥ 85dB(A) (L_{EX} 8h).													
OProMa	art. 12	Radiations ionisantes et non ionisantes	Les femmes enceintes ne doivent pas être exposées à des doses équivalentes supérieures à ce que prévoit l'ordonnance sur la radioprotection. En cas d'exposition à un rayonnement non ionisant (champs électromagnétiques statiques et dynamiques dans tous les domaines de fréquence), les valeurs limites doivent être respectées.										Mères qui allaitent: pas d'activités avec des substances radioactives.			
OProMa	art. 13	Substances chimiques dangereuses	L'exposition à des substances dangereuses ne doit pas être préjudiciable à la mère ni à l'enfant. Porter une attention particulière aux substances particulièrement dangereuses pour l'employée et l'enfant.										Mères qui allaitent: cf. texte à gauche.			
OProMa	art. 14	Systèmes d'organisation du temps de travail contraignants	Pas de travail de nuit ou en équipes lorsqu'il s'agit d'activités particulièrement dangereuses au sens des art. 7 à 13. Pas de travail qui impose une rotation régulière en sens inverse. Pas plus de trois nuits de travail consécutives.										Mères qui allaitent: cf. texte à gauche.			
OProMa	art. 15	Travail à la pièce et travail cadencé	Le travail à la tâche ou le travail cadencé sont interdits si le rythme de travail ne peut pas être réglé par la travailleuse elle-même.													
OProMa	art. 16	Interdictions d'affectation particulières	Pas de travaux impliquant une surpression (chambre de compression, plongée). Interdiction de pénétrer dans les locaux à atmosphère appauvrie en oxygène.													
OProMa	art. 17	Spécialistes	Les spécialistes de la sécurité au travail (les médecins du travail, les hygiénistes du travail, les ergonomes) ainsi que d'autres spécialistes qui ont acquis les connaissances et l'expérience nécessaires pour couvrir tous les domaines spécifiques.													
OProMa	art. 18	Information	Accès à toutes les informations nécessaires à l'analyse de risques et à l'évaluation de la situation sur le lieu de travail. Garantir au médecin l'accès à toutes les informations qui lui sont nécessaires.										Mères qui allaitent: cf. texte à gauche.			

art. 5 et 6: lorsque les critères énoncés aux art. 7 à 13 sont remplis, il y a présomption de danger pour la mère et l'enfant. Pondération des critères selon le cumul, la fréquence et le danger de la charge.

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formation on the specific risks linked to their workstations as well as the protective measures prescribed. According to the law, these specialists could include, for example, occupational health physicians (OHPs), occupational hygienists, or specialists with the necessary knowledge and experience in risk assessment (Art. 63 LTO 1). Finally, the physicians monitoring the worker's pregnancy, usually their gynaecologist–obstetrician verify whether she is exposed to any occupational risks as detailed in the OProMa. In the absence of a risk analysis or if there is a suspicion of any danger, gynaecologists should write out a preventive leave certificate in accordance with the precautionary principle. A preventive leave certificate will result in the pregnant employee being able to vacate her workstation. The costs of the preventive leave are borne by the employer (i.e. paying the employee at least 80% of her salary) while a sick leave certificate is financed by the employer's loss of earning insurance which is not mandatory.

Shortcomings in the application of maternity protection measures in the workplace and the emergence of a specialised occupational medicine consultation for pregnant employees

The Federal Ordonnance on Maternity Protection (OProMa) aims to promote making adequate adjustments to pregnant employees' workstations, guided by an OHP or another authorised occupational safety specialist, so that pregnant employees are able to pursue their professional activities for as long as possible, and in the knowledge that their health and that of their unborn child is safe and secure. This also enables employers to keep experienced employees at their workstations for longer, thus maintaining the company's productivity and profitability and avoiding the disorganisation associated with staff absences. However, some exploratory studies in Switzerland [21, 22], together with the authors' clinical experiences, have revealed significant deficiencies in knowledge about Maternity Protection Legislation in the workplace and in its implementation. The most recent studies in the country have corroborated these findings [23–25].

In 2015, in order to better inform and support the different actors in the field of occupational health, including public authorities, and to propose some paths towards improving the OProMa's implementation in the workplace [26], the Center for Primary Care and Public Health's Department of Occupational and Environmental Health (DSTE) developed a specialised occupational medicine consultation for pregnant employees (figure 2).

This consultation is carried out by an OHP with the following goals:

- Identify potentially harmful tasks and estimate the pregnant employee's occupational risks;
- inform the pregnant employee about her legal rights in a focused way;
- inform and remind the employer about its legal obligations and guide them through the process of risk analysis and workplace adjustments;
- support and advise the employee's gynaecologist, who must make the final decision about whether she can still safely do her job at her workstation.

The present study aims to assess the OProMa's application through indicators measured during the pilot phase of the occupational medicine consultation for pregnant employees. The benefits of this consultation in reconciling work and pregnancy were also evaluated.

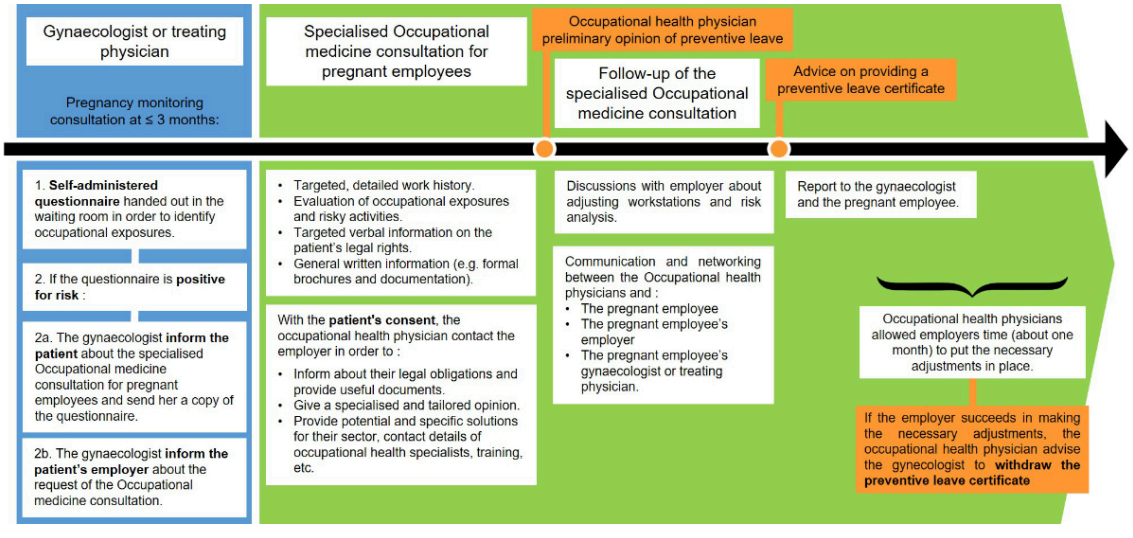
Methods

Study design and process based on the Specialised Occupational medicine Consultation for Pregnant Employees

The study design is a prospective observational study where the variables were defined a priori and then systematically assessed with a questionnaire filled in by the occupational physician following the specialised consultation. The data were collected during the pilot phase of the specialised consultation from 2015 to 2016.

In partnership with two gynaecologist–obstetricians, we developed a self-administered questionnaire (appendix 1) to be filled in by pregnant employees to identify any occupational exposure as defined by the OProMa. If these self-completed questionnaires revealed at least one risky expo-

Figure 2: Diagram describing the design of the specialised Occupational Medicine Consultation for pregnant employees.



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sures according to the OProMa, the gynaecologist would inform the patient of her entitlement to a specialised consultation with an OHP to discuss her employment circumstances. In cases where the patient had access to an in-house OHP in her company or institution, the gynaecologist–obstetrician was instructed to contact that specialist directly. If not, the gynaecologist could refer the pregnant patient to this consultation through a request form.

During the consultation, the OHP would produce a detailed work history to identify risky tasks in the patient's job description and estimate her occupational risks. They would also provide targeted oral information to the pregnant employee about her legal rights, the occupational risks associated with her workstation and the adjustments that would be necessary to prevent them.

OHPs asked pregnant employees for their consent to contact their employers. With consent given, they would contact the employer to inform them of their legal obligations, of the exposure to risks identified at the pregnant employee's workstation, how these would need to be remedied and the consequences of this. They also gave specialist, individualised advice to support employers in their implementation of necessary maternity workplace protection measures.

Following this exchange with the employer, the OHP made a preliminary judgement about whether the employee required a preventive leave certificate. (Until February 2016, preventive leave certificates were decided upon in common by the patient's gynaecologist-obstetrician and the occupational health physician who carried out the consultation. From March 2016, this way of doing things was no longer possible: occupational health physicians were consulted exclusively in their advisory capacity to gynaecologist-obstetricians, who became the sole signatories of preventive leave certificates.) If the workstation was judged to be at-risk, the OHP advised the gynaecologist to write a preventive leave certificate or write an extension if one had already been prescribed before the consultation. Employers were required to implement the necessary adjustments to workstations to ensure the protection of their pregnant employees.

OHPs allowed employers time (about one month) to put the necessary adjustments in place. If they did so, OHPs contacted the gynaecologist to advise them to withdraw the preventive leave certificate. A report was sent to the gynaecologist, with a copy to the general practitioner and the patient.

Criteria for selecting participants

The population of self-employed pregnant workers were excluded because they are not subject to Switzerland's Labour Law [27]. Non-working or unemployed future mothers were also excluded. For pregnant employees with two jobs, our analysis retained their workstation with the greatest exposure to occupational dangers according to the OProMa's definition. Employees who were on partial sick leave were considered to be working.

Variables explored and analysis

The indicators retained for analysis of this study were:

- The pregnant employee's work status: e.g., working, on sick leave and their reasons, on preventive leave;
- The mother's age and the child's gestational age;
- The workstation's characteristics, an overview of the exposure dangers as defined by the OProMa and the Federal Labour Law, and any eventual adjustments to be made to that workstation;
- Verification of whether the employee's workstation has undergone a risk analysis by contacting the employer (with the patient's agreement);
- The advice given to the patient's gynaecologist on whether her workstation is suitable and, potentially, orientation towards the labour inspectorate;
- Targeted and personalised oral and general written advice to the patient and employer;
- Provision of occupational health specialist contact details to the employer.

The OHPs systematically documented these indicators after every occupational medicine consultation. A coding tool designed for OHPs and medical secretaries was used to harmonise data collection and input.

Analyses were carried out using Stata 14 software.

We made a descriptive analysis of the indicators collected during the pilot phase of the occupational medicine consultation from January 2015 to December 2016.

Ethical considerations

The Human Research Ethics Committee of the Canton of Vaud authorised the present study (Req-2017-00165). The consent of the patients has been obtained orally after the consultation.

Results

Between 2015 and 2016, 87 pregnant workers attended the specialised occupational medicine consultation. The catchment area was all pregnant workers in French-speaking Switzerland. Due to the geographical location of the consultation, the canton of Vaud was over-represented. After excluding self-employed (n = 3), unemployed (n = 1) and non-working pregnant mothers, this population was reduced to 83 participants. Mean participant age was 29.4 ± 5.3 years old (min 19; max 45). Mean gestational age was 21 ± 7 weeks (5 ± 1.5 months). The majority of pregnancies (n = 77; 93%) were healthy. Participants mainly worked in the private sector (n = 81; 98%) and in companies with 10–250 employees (n = 27; 32%). The most represented economic sectors were those of human health and social work (n = 22; 26%), accommodation and catering (n = 15; 18%), and business and sales (n = 15; 18%) (appendix 2).

Frequency and types of exposures to occupational risk

Whatever the size of their company, the majority of the pregnant employees who attended the occupational medicine consultation were exposed to either a dangerous or a strenuous occupational risk as spell out in the OProMa and an organisational constraint as defined by the Federal Labour Law. After their consultations, 79 (96%) pregnant employees were noted as having workstations exposing

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them to risks as defined by the OProMa. Six (8%) pregnant workers had one OProMa exposure, 64 (81%) between 2 and 4, and 9 (11%) had 5 or more. Two employees were only exposed to an occupational risk according to the Federal Labour Law's definition, and two were not exposed to any occupational risks.

In descending order, the most common exposures to workplace risks were associated with the biomechanical and organisational constraints of strenuous postures and movements (n = 76; 92%), extended periods standing (n = 74; 89%), handling heavy loads (n = 69; 83%), no rest-periods on request (n = 55; 66%), exposure to chemical products (n = 37; 45%), working > 9 h/day and/or overtime (n = 36; 43%), working nights (n = 34; 41%), extremes of temperature (n = 21; 25%), exposure to micro-organisms (n = 19; 23%), exposure to excessive noise (n = 10; 12%) and high work rates (n = 9; 11%) (figure 3).

Preventive actions implemented by employers before the occupational medicine consultation

Among the 79 pregnant employees with a workstation exposing them to an occupational risk according to the OProMa, 27 workstations (34%) had been adjusted by the employers themselves, of which four were based on existing risk analyses (figure 4). Three employees (4%) were offered different workstations and job assignments by their employers, but none of these occurred after risk analysis. Three risk analyses resulted in neither workstation adjustments nor a different job assignment. For 49 (62%) of the employees exposed to an occupational risk as defined by the OProMa, no preventive measures seemed to have been implemented.

Among the 62 (75%) employees who consented to the OHP contacting their employer, 60 were subject to a risk at their workstation. Among the 60 employees whose work was at-risk, 54 (90%) reported that their employer had not carried out a risk analysis. Six (10%) employers declared that they had carried out a risk analysis before their employee's consultation. However, only one risk analysis had been carried out in line with the OProMa's guidelines. The 6 risks analysis were all carried out in companies with 250 employees or more.

Gynaecologists' interventions before the occupational medicine consultation

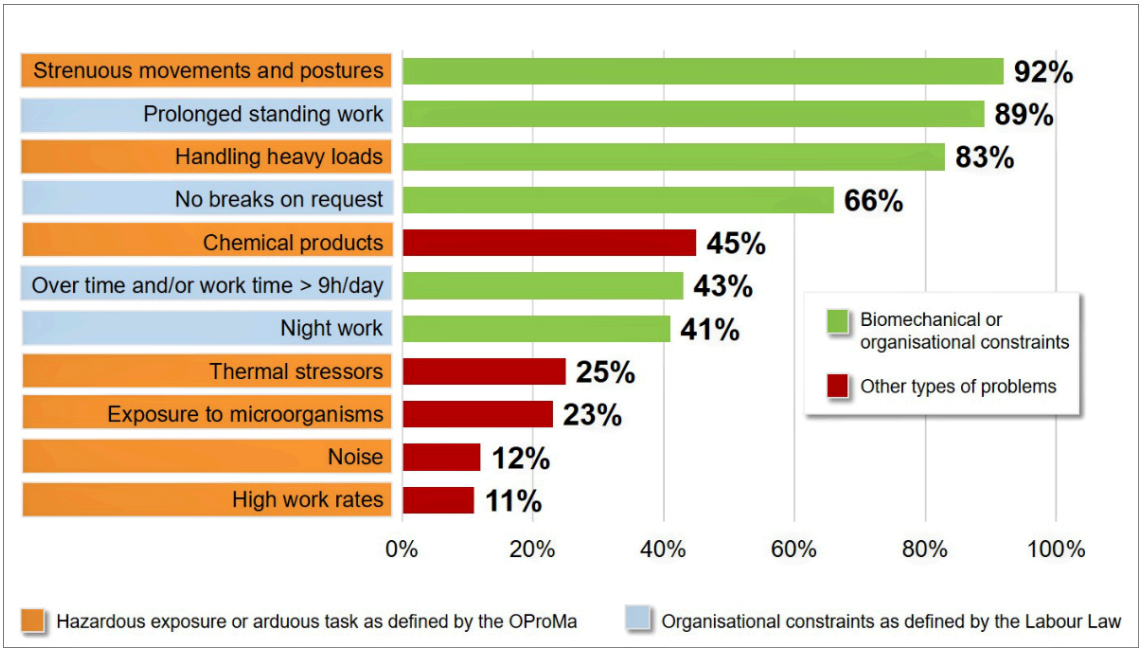
Women in Switzerland commonly have their pregnancies monitored by their gynaecologist [28]. In our study, 50 gynaecologists referred pregnant workers to occupational consultation between 2015 and 2016: 33 referred one pregnant worker (66%), 14 referred between 2 and 4 (28%), and 3 referred 5 or more patients.

Figure 5 presents the interventions carried out by gynaecologists before referring their patient to the occupational medicine consultation. Of the 79 pregnant employees exposed to at least one occupational risk according to the OProMa, 38 (48%) were prescribed leave by their gynaecologist; 25 (66%) were prescribed total sick leave, and 13 (34%) were prescribed preventive leave. However, 41 (52%) employees remained at their workstation, even though 13 (32%) were prescribed partial sick leave (reduced exposure time to danger).

At the time of the occupational medicine consultation, 38 (48%) pregnant employees of 79 were on partial or full sick leave, although the majority of them were experiencing a healthy pregnancy. Indeed, 17 (45%) were on sick leave for a pathology not linked to the pregnancy, 23 (61%) were linked to the patient's working conditions, and only 5 (13%) were for a self-limiting pregnancy-related pathology.

Two of the sick leave certificates prescribed by the pregnant employees' gynaecologist were contested by their employers' insurance providers for loss of earnings.

Figure 3: Percentages of pregnant employees faced with occupational exposures as defined by the OProMa and the Federal Labour Law.



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The contribution of the occupational medicine consultation for pregnant employees

Information for pregnant employees and their employers

During the occupational medicine consultation, OHPs provided all the pregnant employees with targeted verbal information on Switzerland's maternity protection legislation (i.e. the Federal Labour Law and the OProMa) depending on their work history, as well as more general written information on their legal rights using documentation from the State Secretariat for Economic Affairs (SECO) [27] and promotional materials on the topic from Breastfeeding Promotion Switzerland.

All the employers that OHPs were able to contact (n = 60) received written information on their legal obligations and verbal advice. Fifty-four employers (87%) received written advice (informational emails, documentation from the SECO, promotional materials from Breastfeeding Promotion Switzerland). OHPs gave personalised advice to the 46 employers contacted (74%), such as orienting them towards a network of OHPs and health and safety specialists authorised to carry out risk analysis or towards solutions that would work in their economic sector because a general risk analysis had already been carried out there.

Follow-up of the occupational medicine consultation after contacting employers

After the occupational medicine consultation 60 employers were contacted because they had pregnant employees exposed to occupational risk as per the OProMa. Some of them (n = 24) had taken preventive initiatives, such as workstation adjustments and job reassignment. However, in most cases, the OHPs did not consider those actions to be sufficient to avoid prescribing preventive leave for the employees.

Figure 4: Preventive actions put in place by employers before the occupational medicine consultation.

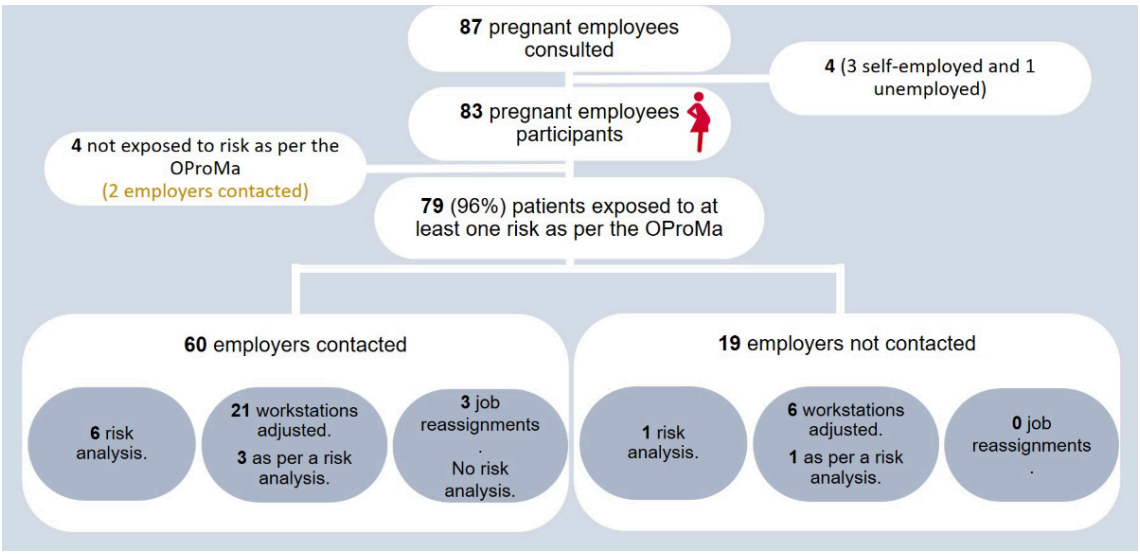
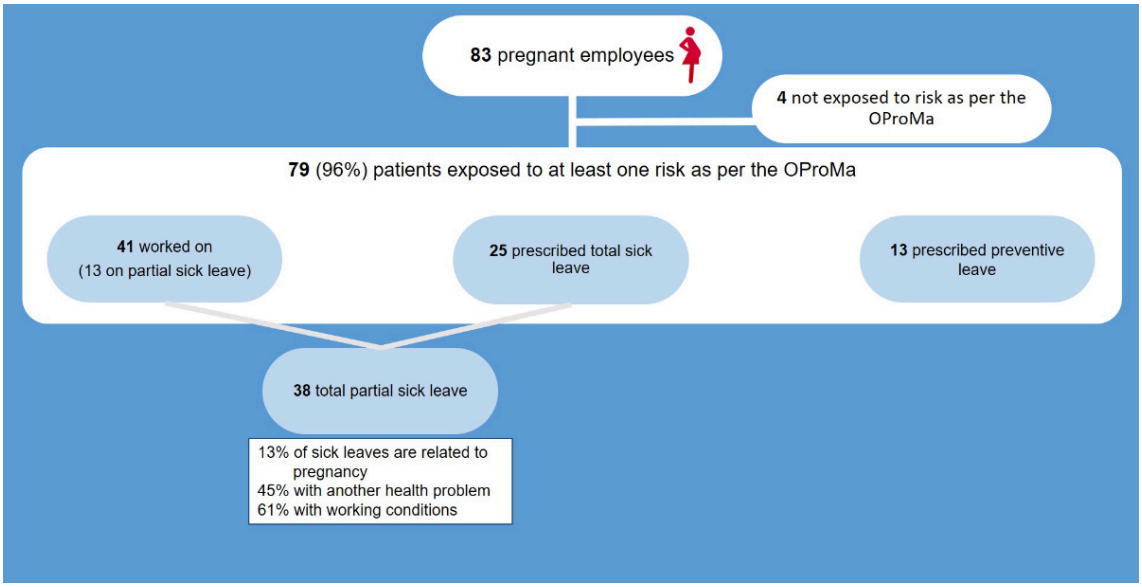


Figure 5: Gynaecologists' interventions before addressing their patient to the occupational medicine consultation.



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Following discussions with employers, the OHPs provided gynaecologists with their preliminary advice on preventive leave, which matched their initial opinions for 45 pregnant employees (59%). However, they also revised their preliminary opinions for 15 pregnant employees because of the workplaces adjustments implemented after the consultation. OHPs' secondary advice resulted in 11 more pregnant employees being allowed to return to work for employers who need more time to adjust the workstation.

In total, following either their initial or secondary advice, OHPs' interventions enabled 26 pregnant employees (43%) to safely return to work (figure 6).

Summary of the interventions carried out by OHPs throughout the occupational medicine consultation

For the 79 pregnant employees exposed to an occupational risk, OHPs made 76 recommendations for preventive leave to their gynaecologist. Among them, 16 pregnant employees did not want OHPs to contact their employers. Therefore, the OHPs did not make any active interventions for them. For the others (n = 60), OHPs made 15 recommendations to allow pregnant employees back to work in their first advice and 11 in their second advice. These returns to work were validated following OHPs' judgements that they would be safe thanks to employers' workstation adjustments (n = 20) and job reassignments (n = 6). In one case, the in-house OHP recently hired by the company had taken care of the pregnant employee's situation.

Risk analyses were used to carry out appropriate adjustments to 3 workstations and 5 adjustments were made by OHPs because of overly general or incomplete risk analysis. In 4 cases, OHPs' interventions encouraged employers to carry out risk analysis after the consultation.

Finally, 3 of the 79 patients exposed to an occupational risk as per the OProMa were referred to the Labour Inspectorate because of conflict with their employer for non-payment of 80% of salary after being prescribed preventive leave.

Discussion

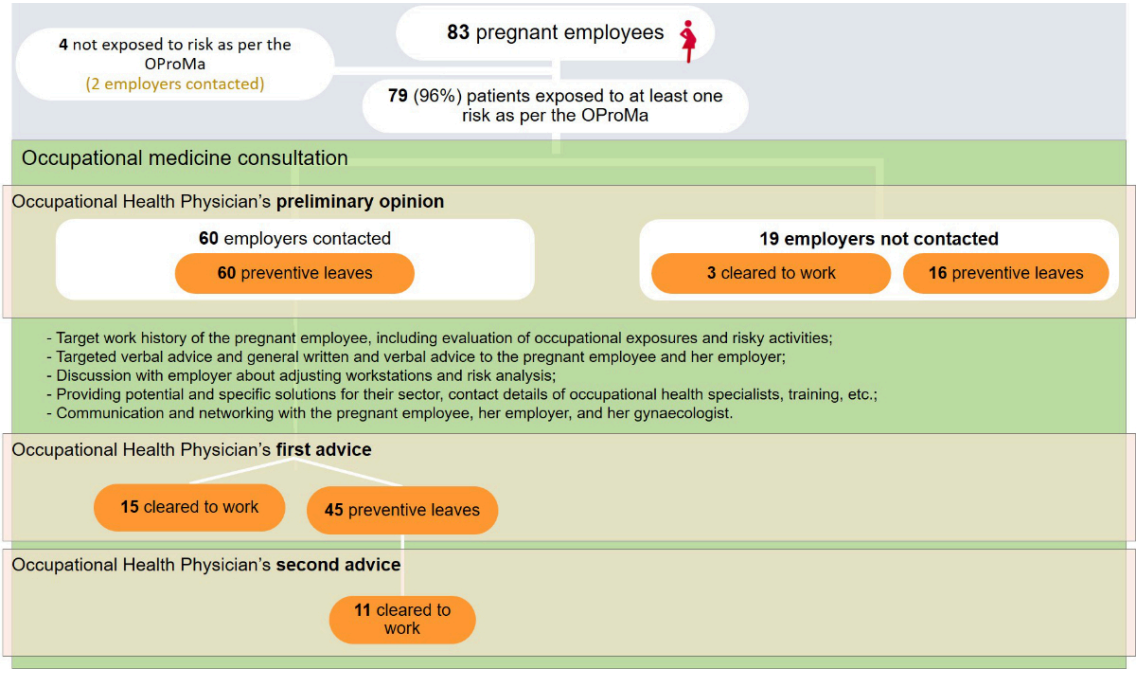
Pregnant employees' exposures to occupational risks and protective measures in place

The women who benefitted from a specialised Occupational Medicine Consultation were, in most cases, exposed to a cumulative risk involving several factors. The meta-analyses that investigated the impact of exposure to occupational risks on the health of pregnant women and of their future children mostly focused on individual exposures [29, 30], yet this often does not correspond to workers' day-to-day professional realities. Indeed, a study of 1,347 pregnant employees by Henrotin and Vaissiere [31] demonstrated that 43.1% of employees were exposed to at least three occupational risks that might affect pregnancy, with 27.7% being exposed to at least five risks. The effects of cumulative exposure risks are extremely difficult to analyse, and thus they may be a greater risk to pregnancies [32].

The literature [10, 11] reveals that targeted measures can prevent some of those negative effects. However, our study showed that OProMa's provisions were poorly implemented for the majority of pregnant employees.

Firstly, only a minority of employers had carried out risk analyses, and most of those had not been done in accordance with OProMa's regulations. Even in the companies that carried out risk analyses, pregnant employees had not been informed of their existence, nor their results. Further research is needed to examine whether this was due to the employer's lack of knowledge about the legislation or simply poor in-house communication. These results were in accordance with those of a study done by

Figure 6: Interventions carried out by the occupational health physician through the occupational medicine consultation and the benefits of this consultation in reconciling work and pregnancy.



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Switzerland's Bureau for Labour and Social Policy Studies involving 2,809 employees and 3,575 employers [23]. That study aimed to analyse the breaks in the employment of pregnant women before giving birth; it revealed that a very low number of companies (16%) carried out evaluations of the occupational risks facing pregnancies. Yet carrying out a risk analysis in anticipation of pregnancies may help employers to offer their pregnant employees preventive measures as soon as they announce their pregnancy, which results in fewer cases of preventive leave and thus less disorganisation and fewer negative impacts on company productivity.

Secondly, our study showed that few adjustments were made to pregnant employees' workstations and few job reassignments were offered to them. These findings are in line with existing literature [18, 25, 33].

The widespread shortcomings in the application of the Federal Labour Law and the OProMa revealed by our study make it clear that there is a need to provide companies and organisations with greater support. This support should include information, training, and advice for carrying out concrete preventive actions with the aid of authorised, specialist, occupational healthcare professionals.

The legal difficulties faced by gynaecologists

Some of the gynaecologists who referred their patients to the occupational medicine consultation seemed to hesitate before prescribing preventive leave for pregnant employees going through otherwise healthy pregnancies but exposed to an occupational risk for which no risk analysis had been carried out. One reason may be that gynaecologists know little about the contents of the OProMa. Some studies also highlighted that gynaecologists may find it difficult to interpret a patient's work history and hesitate to contact their employer. This could result in the doctors feeling ill-equipped to make a decision about whether their patient should be prescribed preventive leave [24, 34, 35].

The indicators collected during the occupational medicine consultation showed that, in cases involving difficult working conditions, the majority of gynaecologists prescribed full or partial sick leave. These findings are consistent with recent research in French-speaking Switzerland [24, 35] that showed that when gynaecologists perceive their patients as exposed to occupational risks, they are more likely to put them on sick leave than to prescribe them preventive leave to limit those risks. This leads us to believe that those gynaecologist-obstetricians do indeed have a good perception of what constitutes strenuous or dangerous activities for pregnant employees. Sick leave is a quick and easy means (and in some cases the only possible solution) of distancing a pregnant employee from exposure to a strenuous or dangerous occupational situation. Unfortunately, prescribing sick leave may just make potential exposures to occupational dangers or strenuous activities invisible. Not talking about occupational health problems openly and simply distancing pregnant employees from them will never solve their root causes. Indeed, this practice weakens the law's incentives for companies to anticipate problems and dangers and to develop preventive strategies against occupational risk. Situations become medicalised despite pregnancy not being an illness, and healthcare costs increase (e.g., higher loss-of-earnings insurance premiums). Should sick leave continue to be prescribed without more thought, we believe that Switzerland's public authorities will be even slower in realising that pregnancy should no longer be merely regarded as a private affair but that it is also an important societal one. Furthermore, the continued and frequent misplaced use of sick leave instead of preventive leave could encourage some loss-of-earnings insurers to refuse a pay-out because there is no obvious description of an illness. Indeed, our study noted two such cases. In future, insurers may analyse cases of sick leave involving pregnant employees far more closely and cease payments if they believe the employee's absence is due to her working conditions and not to an illness. Additionally, there could be a risk of administrative and penal sanctions for the physician.

The benefits of the occupational medicine consultation for pregnant employees

Our study found that following the occupational medicine consultation and employer interaction with the OHP, successful adjustments to pregnant employees' workstations were implemented and preventive leave could be withdrawn for just under half of the relevant cases. Measures improving occupational health deserve to be investigated more closely, and in raising awareness about this issue, the benefits they bring to the company and its pregnant employees should be highlighted rather than the costs they might impose. A Norwegian study by Kristensen and Nordhagen ([15], p. 565) indicated that adjusting workstations was associated with less absenteeism during pregnancies. When working conditions could be adjusted, absenteeism (>2 weeks) diminished by almost 11%, representing a good medium-to-long-term return on investment for companies. A qualitative study by Gravel and Malenfant [36] showed that the availability of a specialised professional or resource person in protecting occupational health and the participative management of workstation adjustments favoured the emergence of the most satisfactory solutions, both for the pregnant employee and for organisational performance [36]. We believe that in certain contexts, OHPs or other authorised occupational health specialists could fulfil the role of that resource person in Switzerland, through occupational medicine consultation or the presence of this specialist inside the company. There are currently insufficient OHPs in Switzerland, making it difficult to systematically integrate their expertise into decision-making on whether pregnant employees are able to continue working in complete safety.

Study strengths and limitations

Our population sample of 83 pregnant employees was extremely small compared to the 87,883 births recorded in Switzerland in 2016 [37]. We have a selection bias in these consultations since gynaecologists generally refer complex cases to the specialised consultation. Our sample is therefore not representative of the general population of pregnant workers in French-speaking Switzerland. We do not know how well the OProMa is applied across the whole country. Although the OProMa came into effect in 2001, occupational medicine consultation has only been available since 2015 and only in a very limited geographical area. It is probably still relatively little known.

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We may also suppose that some gynaecologists apply the OProMa without referring their patients to this consultation. Gynaecologists often only direct their patients to the Department of Occupational and Environmental Health when they encounter problems with patients' employers. Thus, we cannot exclude some negative selection bias in our study population.

To the best of our knowledge, this research was the first in Switzerland to analyse decisions within the framework of the country's Labour Law and the OProMa on whether pregnant employees could safely continue working or required a prescription of preventive or sick leave. Our study also evaluated the added value of consulting an OHP through an occupational medicine consultation for pregnant employees. This work shows the complexity of implementing Labour Laws and the OProMa in the face of years of habit—simply prescribing sick leave instead of preventive leave and very few instances of workstation risk analysis.

Future research might focus on pregnant employees' return to work to better understand pregnancy's impact on women's employment and career development and to understand which factors have the most significant influence on their return to work.

Conclusion

Maternity protection in the workplace sits at the crossroads of several fields that interest healthcare professionals, the general population and political decision-makers: the health protection and safety of unborn children and their future development [38]; women's place in society and the demands for gender equality in the world of work; and work–life balance for both parents (including questions about maternity, paternity and parental leave, the compatibility of work schedules and childcare).

In Switzerland, the values conveyed by paid employment are culturally very significant. Indeed, they may hide the fact that some working conditions can negatively affect employee health and even their unborn children—the next generation of workers. Pregnant employees can find themselves penalised and stigmatised. Some thought must be given to how preventing exposure to occupational risks during pregnancy can improve the prevention of occupational risks in general. By ceasing to set the interests of pregnant employees against those of their colleagues, pregnancy could act as the magnifying glass through which the dangers facing all workers might be made visible.

There is a clear need to determine why the stakeholders in maternity protection at work, including pregnant employees, adopt solutions other than those provided for in the legislation such as sick leave, not announcing one's pregnancy, continuing to perform dangerous and strenuous work, or making informal arrangements. The challenge is to create a framework that will enable all the different actors to make choices that afford pregnant employees better protection from exposure to occupational risks and preserve everybody's interests (employment, revenue, production, professional relationships, etc.). Multidisciplinary collaboration between healthcare professionals, company staff, OHPs and occupational health and safety specialists would be one path towards finding a solution for this system in collaboration with pregnant employees.

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Conflict of interest

The authors have no conflicts of interest to declare.

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Appendix 1

Questionnaire to identify occupational exposures in pregnant workers

Madam,

Monitoring your pregnancy is designed to protect your health and that of your unborn child. Certain professional activities should be avoided during pregnancy. **The Maternity Protection Ordinance (OProMa)** therefore aims to protect the health of pregnant women who are engaged in risky occupations, as well as that of their unborn child. The Ordinance also aims to protect the health of breastfeeding workers.

In order to determine the need for an additional medical consultation, OProMa, to analyse your professional activity with you and to determine whether the activities you are doing are suitable for you as a pregnant woman, we need to know more about them.

Of course, all information provided through this questionnaire is treated confidentially by the health professionals. No contact will be made with your employer without your consent.

We would be grateful if you could complete this questionnaire.

Fixed and mobile phones :
E-mail :

Patient label

Date: ..... /...../..... Date of delivery: ..... /..... /.....

Profession(s): .....

Are you currently engaged in any professional activity? □ **Yes** □ **No**

Usual activity rate: ..... %

Current activity rate (if different from usual): ..... % Reason: .....

Have you announced your pregnancy to your employer? □ **Yes** □ **No**

Do you have an occupational physician in your company? □ **Yes** □ **No** □ Don**'t know**

If you are professionally active, please fill in the questionnaire overleaf.

unisanté
Centre universitaire de médecine générale et santé publique · Lausanne

This questionnaire was carried out in partnership with the Occupational Health and Environment Department (OHED), Unisanté, Lausanne

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	In the course of your <u>current work</u>,	YES	NO
a	Are you self-employed?		
b	Do you work in a public transport company (plane, train, bus)		
c	Do you work in agriculture?		
d	Do you do any cleaning in private homes?		
e	Do you work from home? If yes, please specify as:.....		

1	Do you carry heavy loads (> 10kg occasionally, > 5kg regularly)?		
2	Do you work in cold conditions < -5°C or heat > 28°C or high humidity?		
3	Do you perform tasks involving awkward movements and postures, shocks, jolts or vibrations?		
4	Does your work expose you to microbes (viruses, bacteria, etc.)? *		
5	Do you use chemicals?		
6	Are you exposed to ionising radiation (handling of radioactive substances, sources...) or non-ionising radiation (induction plates, medical imaging...)?		
7	Do you engage in activities that expose you to significant noise?		
8	Do you work on an assembly line without being able to influence the pace?		
9	Do you carry out activities in oxygen-depleted rooms or rooms with excess pressure (pressure chamber)?		

N	Do you have night or shift work (3x8h, 2x12h, etc.)?		
	Do you work overtime?		
	Do you work more than 9 hours a day (not including breaks)?		
	Do you work more than 4 hours on your feet?		
	Do you have a daily rest period of 12 hours between two working days?		
	Do you have the possibility to have extra breaks at your request?		
	Do you have a place at work where you can lie down or rest if necessary?		

If you ticked 'yes' to any of the questions numbered 1 to 9, do you know whether your employer has carried out a **risk analysis of** your workstation in order to adapt it?

☐ **Yes** ☐ **No** ☐ Don**'t know**

What are the contact details of your company/employer (name, address, tel.)**?**

.....

.....

.....

Thank you for completing these questionnaires.

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Appendix 2

Companies size and sectors

Table S1: Company size in number of employees.					
Company size in number of employees	**<10**	**10-49**	**50-250**	**> 250**	**Total**
N	24	11	16	32	83
Percent	28.92	13.25	19.28	38.55	100.00
Cum.	28.92	42.17	61.45	100.00	

Table S2: Company sector of activity.			
Sector of activity	**N**	**Percent**	**Cum.**
Social work without accommodation	3	3.61	3.61
Real estate activity	1	1.20	4.82
Arts, entertainment and recreation	1	1.20	6.02
Financial service activities	1	1.20	7.23
Undifferentiated household activities	4	4.82	12.05
Human health activities	9	10.84	22.89
Veterinary activities	2	2.41	25.30
Other personal services	3	3.61	28.92
Retail trade	14	16.87	45.78
Wholesale trade	1	1.20	46.99
Building construction	2	2.41	49.40
Education	1	1.20	50.60
Accommodation	4	4.82	55.42
Medical and social accommodation	10	12.05	67.47
Printing	1	1.20	68.67
Food industry	8	9.64	78.31
Automotive industry	2	2.41	88.72
Chemical industries	1	1.20	81.93
Programming and broadcasting	1	1.20	83.13
Catering	11	13.25	96.39
Building services	1	1.20	97.59
Air transport	1	1.20	98.80
Land transport	1	1.20	100.00
Total	83	100.00	

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