

Purkayastha, Damini; Vanroelen, Christophe; Bircan, Tuba; Vantyghe, Marthe  
Andrea; Gantelet Adsera, Clara

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## Work, health and Covid-19: A literature review

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## Abstract

With work a key vector of Covid-19 transmission, this report examines why it is critical that occupational health and safety measures take centre stage in mitigation policies. Workers in sectors declared essential by state authorities have been mandated to continue working in physical settings during the pandemic. Several such sectors involve many face-to-face contacts with colleagues and clients, meaning that workers face a higher risk of exposure to Covid-19. Unregulated safety measures, a lack of personal protective equipment and crowded settings further increase the risk in these sectors. Persisting inequalities are exacerbated by the pandemic, as low-wage workers, workers from ethnic minorities, migrant workers and women are overrepresented in these sectors. They also face intersecting factors, including precarious contracts, job insecurity, inadequate paid sick leave, a lack of bargaining power and low socioeconomic status. The risks faced by (recent) migrants are compounded by the fact that their residence permits, access to healthcare and housing may be mediated by their employers. Studies show that there is also a gender dimension to the OSH implications of the pandemic, with women facing a higher exposure to the disease, a higher care burden and an increased risk of domestic violence. These patterns of inequality play a significant role in a health crisis, determining who is at greater risk of becoming infected, and whether or not they will have access to healthcare and self-isolation. Besides recognising Covid-19 as an occupational disease and providing adequate protection to workers across sectors, it is important for OSH measures to go beyond workplace exposure to the disease and to include the various factors increasing exposure because of work. Policy recommendations include better representation of workers at all levels of employment, sector-specific OSH measures, broader EU-wide policies and infrastructures, improved job security and sick leave policies, disaggregated data collection and inclusive messaging.

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# 1. Introduction

In December 2019, the World Health Organisation (WHO) rang the first alarm bells reporting the outbreak of SARS-CoV-2, a new strain of the coronavirus family in China. On 11 March 2020, after 100,000 cases had been reported worldwide, WHO declared the disease a pandemic, with countries around the world going into varying degrees of lockdown. Governments declared certain occupations as belonging to key/essential services necessary to keep society functioning. Worldwide, many 'key workers' (healthcare workers, transportation workers, first responders and food chain workers among others) continued to work in hazardous conditions even as infections peaked. In October 2020, several European Union countries faced a second wave of infections and, once again, lockdowns with varying degrees of severity were implemented to constrain the spread of infection. By January 2021, 103 million infections and 2.23 million deaths worldwide had been reported by the WHO.

The Covid-19 pandemic is an unfolding watershed moment in human experience. Besides the staggering death toll and the immediate economic and health impact, the pandemic has also exposed the fault lines of modern-day society, laying bare the disparities sustained within global economies (Yancy 2020). Over the course of the crisis, it has become evident that there is little symmetry between the workers necessary to sustain society and the safety and security (financial, social and health) offered to them. Emerging Covid-19 and labour market policies have focused on building resilience in terms of available labour, fighting unemployment and mitigating future economic shocks rather than on prioritising workplace safety. This is a critical error as it leaves society's most vulnerable workers most exposed to the virus and makes it difficult for economies to resume work without high human cost.

At the start of the pandemic, as the scientific community grappled with understanding the virus and put forward proposals for safety measures, guidelines from other respiratory illnesses formed the first set of measures implemented. Based on these insights, lockdown, social distancing and working-from-home measures were enforced overnight in several countries. Several sectors faced higher risks of exposure to the disease as these safety guidelines were not easy to implement in specific work settings. There was also a significant overlap between at-risk sectors and those declared 'key'<sup>1</sup> and ordered to continue working. Involving

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1. Workers from sectors declared 'essential'/'key'/'frontline' during the pandemic are referred to as 'key workers' in the document.



physical contact with colleagues, clients and customers, social distancing or working-from-home measures were often not possible in these sectors (Koh and Goh 2020; Windsor-Shellard and Butt 2020; Windsor-Shellard and Kaur 2020; Barbieri *et al.* 2020; Counil and Khlat 2020).

Besides healthcare workers, infections were reported among delivery workers, food store employees, sanitation workers and other frontline staff. Gig economy workers, short term/zero-hour contract workers and migrant workers employed by subcontractors were also left exposed. These outcomes highlight that physical settings and working conditions are not the only drivers of the disease, but that employment conditions and related socioeconomic vulnerabilities also exacerbate exposure to the infection and subsequent mortality (Bavel *et al.* 2020; Berger *et al.* 2020).

In the EU, infection outbreaks in factories, farms and industries throughout the summer also mainstreamed discussions on grim working conditions of workers, especially in settings where basic sanitation measures such as handwashing and maintaining a distance of two metres were difficult to implement. Low-wage workers have to live with precarious, short-term contracts, a lack of paid sick leave and healthcare. The overrepresentation of migrants and ethnic minorities among these workers has also made labour market and migration policies and employment discrimination a critical aspect of this discussion.

All in all, the pandemic has brought into focus three critical dimensions of occupational safety and health (OSH): (1) whether the work environment and conditions are safe for workers; (2) whether employment conditions incorporate the protection of workers' health; (3) and whether workers are empowered to safeguard their own health and that of their co-workers. In the context of Covid-19, these aspects of OSH are equally critical. Safe, healthy working conditions have been recognised as a fundamental workers' right (Nice European Council, 2000, Charter of Fundamental Rights of the European Union, Article 31). However, ambiguities and exceptions (for example, allowing sub-contracting and limited recognition of biothreats) make it difficult to guarantee them in every sector of work. Workplaces must be adapted according to scientific guidance in order to ensure that workers' exposure to Covid-19 is limited and that they feel safe. Robust legislation is also needed to ensure sick leave and insurance in case of sickness. The third – often forgotten – dimension is the possibility for workers to have a say in the measures taken for their own safety. In an open letter to the European Parliament in June 2020<sup>2</sup>, transnational EU trade union organisations argued that workers should be empowered to take part in policy discussions. 'Social dialogue in the workplace, including collective bargaining and worker involvement' should be central to measures being put in place regarding safety, working conditions and

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2. In May, several European union organisations wrote an open letter to the European Parliament demanding enhanced worker rights to counter the pandemic's growing impact on OSH. Participating trade unions were: European Trade Union Confederation (ETUC), IndustriAll, UNI-Europa, European Federation of Food, Agriculture and Trade (EFFAT), European Federation of Public Service Unions (EPSU), European Training Foundation (ETF) and the European Federation of Building and Woodworkers (EFBWW). <https://bit.ly/2Oe6f6o>

jobs in order to ensure the best possible outcomes for workers and the community. The benefit of workers' engagement – inter alia via their trade unions – has been demonstrated in earlier research (Ollé-Espluga *et al.* 2020).

Even though some countries have declared Covid-19 an occupational disease, policies around OSH do not address employment conditions, worker relations and socio-economic determinants directly impacting health and mortality rates. In the absence of global data on work-related infections and the tenuous trade-off between health and the economy, the discussion has largely focused on the availability of protective equipment for healthcare workers, occupations requiring physical contact, and on working-from-home and social distancing measures for other sectors. It is clear, however, that the scope of the problem is far broader.

This report aims to bring together the multiple and intertwined aspects of occupational health and safety and worker protection in the Covid-19 pandemic. Work on the report began in April 2020 as a collaborative project between the European Trade Union Institute and the Vrije Universiteit Brussel. It presents an overview of scientific research, surveys and policy reports addressing Covid-19 as an occupational disease and the various intersecting factors that exacerbate the health inequities related to Covid-19. It merges academic insights from different disciplines (ranging from more medical scientific studies to sociological and economic insights) with (news) reports and studies conducted by trade unions and NGOs.

As countries across the European Union look towards effective policies for reopening workplaces and ways to function efficiently despite the virus, we argue that the broad domain of occupational safety and health issues should be at the core of any decisions taken. In doing so, it is important to understand which occupations are at risk in terms of working conditions, what safety measures can minimise these risks, and what employment conditions exacerbate these threats. We also look at how improved employment conditions and stronger employment relations between workers, unions and employers and the state will ensure that the best possible safety measures are in place across workplaces. We believe that the conclusions of this review will also be important in the next phase of the pandemic when increasing vaccination levels will help open up additional sectors of the economy. Moreover, the insights documented in this study will remain relevant to post-Covid society to the extent that new OSH challenges will have to be overcome.

The report is structured as follows:

In **Section 2** we present studies on occupations and working conditions designed to assess links between occupations and Covid-19 risks early in the pandemic. These studies highlight the need for global data on occupational outcomes, especially on how the pandemic unfolded.

In **Section 3** we present a broad overview of some of the sectors with the highest incidence of infection and fatalities: the healthcare sector, elderly homes, services, mining, meat processing and agriculture. We explore how national policies specific to the pandemic, alongside existing systemic exclusions, have an implicit role to

play in the fallout faced by workers. Several case studies are also presented to better illustrate the scope of the problem.

**Section 4** forms the cornerstone of this report. Drawing on findings from real-world scenarios and academic studies, we argue that there are three critical dimensions to occupational safety and health: physical settings at work, employment conditions and sociological conditions created and sustained by employment. We start by looking at which working conditions make workers more susceptible to infection. We then go on to look at specific employment conditions and relations that make workers unable to follow or benefit from OSH protocols. Intersecting with existing socio-economic determinants such as class, gender, race and ethnicity, these factors serve to exacerbate the risk of exposure to Covid-19.

**Section 5** brings together our findings and expert commentary on the way forward with regard to occupational safety and health, both in the ongoing pandemic and in the event of future shocks. It is also intended to provide a starting point for discussions on rethinking occupational safety and health and shaping a more robust and all-inclusive response mechanism.

## 2. Tracking OSH and Covid-19 through existing data

There is no standardised global data available on the occupations of Covid-19 victims, nor on where they are likely to have been infected. However, patterns of work-related infection outbreaks have been observed throughout sectors. In October 2020, the International Council of Nurses<sup>3</sup> confirmed that 1,500 nurses had died from Covid-19 in 44 countries. Estimating that healthcare worker fatalities could be more than 20,000, they state that assessments are being hampered by a lack of data (ICN 2020).

Barring sporadic news reports and studies (explored in detail later), consistent and in-depth data on the exposure parameters and mitigation strategies remains lacking. Without this data, ‘we do not know the true cost of Covid-19 and that will make us less able to tackle other pandemics in the future’, said Howard Catton, ICN CEO, in a statement issued by the ICN in 2020.

Standardised and reliable data provides a starting point for studies, especially when it reveals which settings make workers more vulnerable, which countries have lower infection rates among certain occupations and why certain communities are more vulnerable than others. Unfortunately, this information is not currently collected in every country. It is also not being collected by the United Nations, the World Health Organisation or the International Labour Organisation.

Several studies have attempted to calculate the risk of exposure to Covid-19 based on existing information on occupations, their working conditions and labour force. Such assessments were particularly critical in the pandemic’s early stages, when the link between occupational settings and infection rates was not directly clear. These studies have also established the need to factor in more than physical workplace settings, also looking at such factors as income levels, job precarity and workers’ rights when discussing occupational safety.

In this section, we first look at analyses based on O\*Net data<sup>4</sup> from the US and labour force survey data from the UK and some other studies from around the world. We then go on to look at studies from European countries focused on estimating at-risk populations. The final part of the section argues that turning a

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3. The International Council of Nurses is a federation of 130 national nurses’ associations. It has been tracking infections and deaths among healthcare workers in the ongoing pandemic.

4. O\*Net is the database of the United States department of labour. It is updated with descriptions and characters of the world of work and the workforce.

blind eye to the link between occupations and Covid-19 exposure is problematic as it means that vulnerable populations will miss out on necessary safety measures – and that possible sources leading to a resurgence of the epidemic may remain unnoticed.

## 2.1 International statistical assessment of Covid-19 and specific occupations

At the start of the global pandemic, lessons from previous coronavirus outbreaks such as SARS (2002-2004) and MERS (2012 onwards)<sup>5</sup> fuelled discussions on safety protocols. Key lessons learned included the ‘recognition that working in healthcare settings can be hazardous to health’, and that ‘the disease poses both a public health as well as an occupational health threat’ (Koh and Goh 2020). In their analysis of the situation in Singapore (one of the earliest outbreaks of the disease outside China), authors found that 68% of cases first reported were ‘probably related to occupational exposure’ (ibid). including retail staff, domestic workers, tour guides, MNC staffers travelling abroad, security officers, drivers and construction workers.

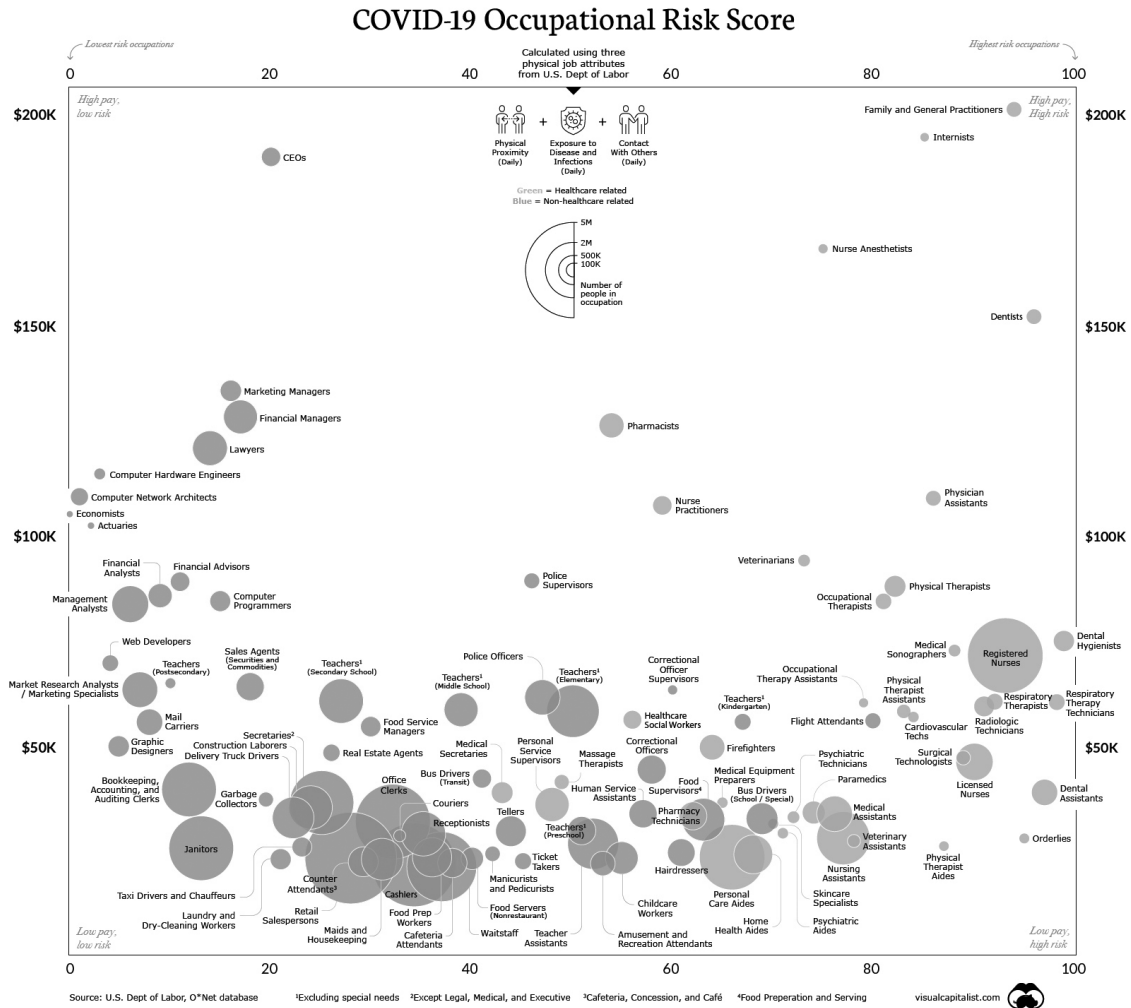
One of the earliest analyses of occupational data and exposure risks was conducted by the World Economic Forum and Visual Capitalist. They performed a risk assessment of occupations based on data from the US labour database O\*Net (Lu 2020). This database includes descriptors on nearly 1,000 occupations, with details on proximity and exposure to others. Occupations were evaluated based on three criteria: contact with others, physical proximity and exposure to disease and infection. These were further plotted along average income levels, highlighting how a large number of at-risk jobs were in a lower-income band. Besides healthcare workers with a risk assessment score of 90+ in most cases, teachers, food store staff, bus drivers and other key workers had a score of 60+, indicating that these are jobs with a higher prevalence of face-to-face contacts and thus with a higher likelihood of exposure to the disease. A large number of higher-risk workers are clustered in the lowest income levels (Fig. 1). They include teacher assistants, nursing assistants, orderlies, retail salespersons and bus drivers. This link between low pay and high risk alerts us to a critical dimension that we will explore further in later sections.

The UK Office for National Statistics (ONS) has also created an estimate of exposure on the basis of physical proximity. Besides healthcare workers, prison officers, teachers (special needs and primary), bus and coach drivers and retail staff were amongst those with high weekly levels of exposure to other people. In June, the ONS also analysed mortality rates by occupation (Windsor-Shellard and Butt 2020), finding that ‘men in elementary occupations had the highest rate of death involving Covid-19, with 39.7 deaths per 100,000 men’. Of these, security guards had the highest death rate. Men and women in social care work also had

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5. Both Severe Acute Respiratory Syndrome (SARS) and Middle Eastern Respiratory Syndrome (MERS) are caused by strains of coronavirus and can cause serious respiratory difficulties.

Figure 1 An analysis of occupations at the highest risk of exposure to Covid-19



Source: World Economic Forum and Visual Capitalist. [www.visualcapitalist.com/the-front-line-visualizing-the-occupations-with-the-highest-Covid-19-risk/](http://www.visualcapitalist.com/the-front-line-visualizing-the-occupations-with-the-highest-Covid-19-risk/)

higher death rates than in other occupations. Overall, 17 occupations were found to have higher numbers of Covid-19-related deaths – inter alia taxi drivers and chauffeurs, bus and coach drivers, chefs and sales and retail assistants. Of these occupations, 11 had statistically higher proportions of workers from BAME (Black and Asian Minority Ethnic) backgrounds (including nurses, care workers and home carers, shopkeepers and sales and retail assistants)<sup>6</sup>. The UK has instructed doctors to inform coroners if they suspect that a death might be due to certain

6. The occupations include: shopkeepers and proprietors, nurses, book-keepers, vehicle technicians, mechanics and electricians, chefs, nursing, care workers and home carers, sales and retail assistants, food, drink and tobacco process workers, van drivers, bus and coach drivers, taxi and cab drivers, elementary construction, postal workers, cleaners and domestic workers, security guards and related, and storage workers.

extraneous factors including ‘an injury or disease attributable to any employment held by the person...’; this then forms the basis for further investigation. Agius (2020) argues that this should also be done when doctors and medical personnel die during the pandemic. An updated report from January 2021 noted that 7,961 Covid-19 related deaths in the working age population were registered between March and December 2020: ‘Men who worked in elementary occupations (699) or caring, leisure and other service occupations had the highest rates of death.’

In an observation-based study of 103 possible work-related cases in six Asian countries (Hong Kong, Japan, Singapore, Taiwan, Thailand and Vietnam) Lan *et al.* 2020 noted that 22% were healthcare workers, 18% drivers and transport workers, 18% service and sales workers, 9% cleaning and domestic workers and 7% public safety workers.

## 2.2 At-risk occupations in the EU

The occupational fallout of the Covid-19 pandemic is multidimensional. Some sectors face economic consequences and job losses due to the lockdown, especially in jobs that cannot be done from home and those hit by a drop in demand. Sectors continuing to operate are subject to higher workplace exposure to the disease. In this section, we present some early studies which have attempted to estimate these outcomes based on existing labour market data at European or country level in order to help formulate mitigation strategies.

The EU Labour Force Survey collects data (among other things) on the characteristics of occupations, training and hours of work. Sanchez *et al.* (2020) used this data to learn which jobs were most exposed to Covid-19 risks. They found that higher-exposure jobs, unless declared essential, were more likely to be cut. They also found that 35% of jobs in the EU could be done from home, with the number higher in wealthier Northern European countries such as the Netherlands, Denmark, Switzerland and Sweden. This leaves a large part of the workforce vulnerable to unemployment or to facing Covid-19-related risks at work: ‘Especially young and poorly educated workers [who are] already employed in low-paying jobs, live in regions that are already lagging and are subject to a greater prevalence of temporary employment contracts’ (Sanchez *et al.* 2020:6).

According to an analysis by the French Institute for Demographic Studies (INED), the working classes (*classes populaires*) face a higher risk of exposure to infection at work (Counil and Khlal 2020). The authors analysed data from the French Ministry of Labour on 23 million salaried workers in the public and private sectors (excluding the self-employed), looking specifically at the high number of employees with face-to-face contact with the public. Cleaners, retail staff, domestic helpers, guards, hotel employees were among the occupations in the lowest income percentile, but with the highest exposure levels. ‘41% of the bottom quarter of earners belonged to the highly exposed group’ (Counil and Khlal 2020). This study also notes that exposure conditions have changed in the course of the pandemic depending on measures taken. In March 2020, at least 33% of those surveyed had not received gloves and over 39% had no masks – conditions likely

to have changed since. Another significant blind spot is that this study did not consider unsalaried/temporary workers.

Barbieri, Basso and Scicchitani (2020) performed a similar analysis of Italian occupations based on data from the Sample Survey on Occupations in Italy. Each occupation was assigned a degree of human proximity, workplace exposure and ability to work from home. Their findings were meant to guide policymakers on which sectors were to reopen first. While the health sector was found to be most at-risk, other sectors assessed to have a high risk of disease exposure included preschools, bars, recreational and sports services, phones, clothing and shoe stores. Finance, banking, insurance, public administration and professional services had the highest remote-work feasibility.

Since the start of the lockdown in Belgium, the University of Antwerp, UHasselt, KU Leuven and Université Libre de Bruxelles have been conducting *The big corona study – a survey to better understand the pandemic’s impact*. In May 2020, 192 respondents tested positive for Covid-19 were surveyed over two waves of the survey. 98 reported that they felt they had been infected at work; 59 reported working in healthcare. Other sectors mentioned were social services, manufacturing, retail, hotels and restaurants, and education<sup>7</sup>. In August, a Flemish newspaper interviewed leading epidemiologists on the pattern of the spread of Covid-19 infections in Belgium. The specialists noted that work and home had emerged as infection hotspots as per their cluster research. Meat processing factories and the catering industry were among the workplaces mentioned by them (Debusshere 2020). In the context of contact tracing in Flanders (Belgium), tracers ask Covid-19 patients where they think they were infected. Of the 40,904 people interviewed in December, 12% thought they had been infected at work – the second largest group after ‘at home’ (25.77%)<sup>8</sup>.

### 2.3 The importance of data for a better response

As seen in the previous sections, even with limited data, there is a clear need for occupational safety to be a critical vector for pandemic safety measures. A number of governments have recognised Covid-19 as an occupational risk/sickness/disease, albeit with caveats. For one, the onus is often on the worker to get a certificate proving the sickness and a positive test result, and, in some cases, they even have to ‘prove’ that they were infected at work. Furthermore, a number of cases were reported from sectors with a higher prevalence of informal (and even illegal) employment contracts and conditions. In these contexts, official policies have little impact on improving workers’ conditions. Regular, timely and standardised data on the occupations and occupational settings of Covid-19-positive patients is needed in order to come up with more effective policies. Such data will also be critical in ensuring that certain occupations are forced to follow

7. <https://corona-studie.shinyapps.io/corona-studie/>

8. <https://www.zorg-en-gdxsazezondheid.be/contactonderzoek-in-cijfers>



strict measures, and that workers can demand equitable working conditions, paid sick leave and compensation.

Vogel (2015) noted that occupational safety standards in the European Union are to a large extent dependent on the rights of workers and the needs of employers (with the latter often winning out). Furthermore, unprotected workers often have no rights. In light of weak legislation on biohazards and emerging diseases and given the economic impact of this disease, it is even more likely that workers will continue to work under high-risk conditions. It is thus important for individual countries and EU-level authorities to study the link between occupations and exposure to airborne diseases in greater detail, with a view to establishing stringent, pan-EU measures.

In the next section, we explore the impact of Covid-19 on specific sectors throughout the EU, assessing how and why existing OSH policies have been inadequate or ineffective.

### 3. Case studies: how Covid-19 impacts specific sectors

Over the course of 2020, it became clear that, despite its prevalence in the wider community, Covid-19 also had the hallmarks of an occupational disease. Major infection clusters around Europe were found to be directly related to the workplace or work-related exposure. These included incidents among healthcare workers and service sector workers, but also several outbreaks in sectors such as agriculture, mining and meat packaging.

These were partly related to physical working conditions. Control measures suggested to hinder the spread of Covid-19 include reducing face-to-face contacts, social distancing, proper ventilation, hand hygiene, the use of personal protective equipment (such as masks and gloves) and the quarantining or self-isolation of potentially infected people. These measures are challenging to implement in the routine work environments of certain sectors (Bellingheri *et al.* 2020; Koh and Goh 2020; Baker *et al.* 2020; Lan *et al.* 2020). In the absence of clear guidelines and well-funded health and safety infrastructures at national level (for instance, sufficient labour inspectors) in most EU countries, it is also difficult to ensure that the measures are implemented wherever possible<sup>9</sup>.

However, there are other factors that are equally critical but were not addressed immediately or equally – such as access to sick leave, healthcare or even bargaining rights. In the cases presented in this section, we see how precarious employment and working conditions intersect with physical conditions, increasing the risk of exposure to Covid-19. Based on news reports and emerging studies, the cases presented help set the context for an in-depth look at how intersecting vulnerabilities lead to extreme health inequalities. They highlight why a ‘whole-of-society’ approach is needed to prevent future outbreaks and ensure that workers benefit from a safe and secure working environment. It is critical to bear in mind that outbreaks are always possible wherever safety measures are inadequate.

This section is structured sector-wise, but we begin by explaining why workers in sectors declared essential during the pandemic were especially vulnerable. We go on to look at the impact of Covid-19 on the healthcare sector, the pandemic’s ‘frontline’ sector. We then consider some specific occupations within the service sector, such as caregivers, teachers, delivery workers, security guards and several other key workers, that reported difficult working conditions in the pandemic.

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9. <https://www.etuc.org/en/document/etuc-note-violations-osh-regulations-returning-workplace>

Cases from specific sectors highlight other exacerbating factors that are not obvious but need to be taken into account in any risk assessment (Watterson 2020); these factors include employment conditions, lack of paid sick leave and inadequate housing for workers. To this end, we present an overview of the impact of Covid-19 on agricultural workers, meat packaging workers and miners.

#### Box 1 Key workers in the labour force

Over the course of the pandemic, most countries set down a list of essential occupations instructed to stay operational during nation-wide lockdowns in order to keep society functioning. These included, among others, healthcare workers, agricultural workers, childcare workers, transport and sanitation workers. Fasani and Mazza (2020) assess that on average 31% of working-age individuals are key workers in the EU, though the figure varies from 40% in Denmark and France to 10% in Bulgaria and Slovenia. The five occupational categories with the most key workers are: teaching professionals (14.5%), skilled agricultural workers (11.9%), science and engineering associated professionals (11.1%), personal care workers (10.3%) and cleaners and helpers. Annex 1 provides a list of occupations declared essential by the Dutch government as a guideline on which workers were eligible for childcare. Most European countries had a similar classification, and we use this as a case in point. Key workers across sectors face a higher likelihood of exposure to Covid-19 than those able to work from home, as they come into contact with people to a relatively higher degree (Lu 2020). Several of these occupations also face exacerbating factors such as congregate settings, a lack of personal protective equipment (PPE) and the need to use public or community transport for commuting. Some might even have had no recourse to the safety measures (such as social distancing and self-quarantine) suggested by the World Health Organisation.

### 3.1 Healthcare sector

It was a challenge to estimate the number of healthcare workers who have tested positive and/or died from Covid-19 since the start of the pandemic, as not all countries collect data reflecting occupational categories. The WHO has been criticised for the lack of data on Covid-19-specific outcomes, especially regarding healthcare workers (ICN 2020).

Some studies indicate that infection rates among healthcare workers can be as high as 6% (or even more) in certain countries (ICN 2020). In fact, 29% of patients tested positive in Wuhan, China, were healthcare workers and it can be assumed they were infected at work (Wang *et al.* cited in Bielicki *et al.* 2020). Emerging diseases often have a significant impact on healthcare workers (Bielicki *et al.* 2020) as was seen in the previous SARS and MERS outbreaks. Given the lessons learned from previous outbreaks, it was assumed at the start of the pandemic that hospitals would have better occupational health standards, high-grade PPE and safety protocols in place (Koh and Goh 2020).

This was, however, not the case. By November, it was estimated that nearly 300,000 healthcare workers had been infected by Covid-19 (Haseltine 2020) worldwide. In January 2021, it was estimated that nearly 850 UK social care workers had died in England and Wales (Shone 2021). Looking at the high number of infections across the EU throughout 2020, infections among healthcare workers similarly remained high. In July, the European Federation of Public Service Unions (EPSU) reported that more than 3,400 health workers in Denmark, 13,400 in Germany, 28,000 in Italy and 52,400 in Spain had been infected<sup>10</sup>. In June 2020, the Dutch Public Health Institute RIVM reported nearly 17,000 infections among healthcare workers and 11 deaths. According to a study by Sciensano and the Institute of Tropical Medicine in Antwerp, 8.4% of all healthcare workers in Belgium had developed antibodies to the virus, implying that they had been exposed to the virus at some point (Desombere, Mortgat and Duysburg 2020). These tests were conducted on staff treating Covid and non-Covid patients.

The *working conditions* of healthcare workers are a critical determinant of their level of exposure. Though exposure to the disease while treating patients is unavoidable, the proper use of PPE and basic infection prevention and control (IPC) is found to be quite effective even for healthcare workers (Adams and Walls 2020; Bielicki *et al.* 2020). Unfortunately, at the start of the pandemic, healthcare systems worldwide reported concerns about a lack of protective equipment for healthcare workers (face masks, gloves, protective suits). Longer working hours and heightened stress were also seen as a factor increasing the risk of becoming infected with Covid-19. According to a UK report by Data Evaluation and Learning for Viral Epidemics on the risks and exposure of health and social workers, one in ten cases in England occurred among frontline health and social care staff (Torjesen 2020). The report cites a number of reasons for these high numbers, including:

‘Inconsistent use of masks and other personal protective equipment (PPE); lack of access to testing; lack of physical distancing between staff and patients, not just on wards but also in corridors, offices and canteens; environmental and hygiene problems, including disinfection of surfaces and ventilation; difficulties in avoiding mixing infected and uninfected patients; rotation of staff between different locations; and inadequate surveillance systems both to investigate individual infections and wider outbreaks’ (DELVE Report cited by Torjesen 2020: 370).

Similar situations were reported in Belgium and Italy. Besides doctors and practitioners dealing directly with Covid-19 patients, doctors in a general healthcare setting are also exposed to the disease (Adams and Walls 2020). Administrative staff, cafeteria workers and sanitation workers in hospital settings also had higher risks of contracting the disease (Spinazze, Cattaneo and Cavallo 2020). Berger *et al.* (2020) point out that burnout is a serious concern when it comes to healthcare workers (HCWs) and first responders. Ran *et al.* (2020) found long working hours and lack of sleep to be predisposing factors to Covid-19 in the case of healthcare workers.

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10. <https://www.epsu.org/article/health-workers-bear-brunt-covid-19-infections>

Employment conditions also play a significant role in determining the extent of exposure. In May 2020, doctors and nurses in Belgium protested against the government's lack of measures to help healthcare workers during the crisis. That same month, the Irish Nurses and Midwives Organisation reported that nurses who had signed up to help on the frontline as part of the national 'Be On Call For Ireland Campaign' not only had short-term contracts but were also not entitled to any sick leave (Holland 2020). In Germany, nursing is reportedly understaffed and underpaid compared to other occupations, with nurses earning on average about 1,000 euros per month less than the national median wage (Thurau 2020). According to a report by the World Economic Forum in association with Statista France, French nurses in the public sector are among the lowest paid in the EU in relative terms (The Local 2020; Gaudiaut 2020).

Socioeconomic factors also play a key role. Migrant care workers (especially women) account for a large share of healthcare and social care workers worldwide (Foley and Piper 2020). A prospective, observational cohort study in the UK and the USA studied self-reported data from the general population and front-line healthcare workers, finding that while frontline healthcare workers suffered a higher risk of exposure, PPE adequacy, clinical settings and ethnic backgrounds were critical factors as well (Nguyen *et al.* 2020). Surprisingly, over 90% of healthcare workers who died from Covid-19 in the UK (as of May) had BAME backgrounds (Daga *et al.* 2020). The authors conducted a survey among BAME doctors to ask about their specific vulnerabilities to Covid-19; doctors reported a lack of PPE and their inability to apply social distancing in clinical settings and to self-isolate in the case of symptoms.

*Workers in elderly care homes* face similar conditions. Across Europe, a high number of deaths were in elderly care homes. A percentage of these were care workers, with the British government estimating (in May) that 131 care staff had died of the virus. The ONS has reportedly also estimated that 'care staff are twice as likely to die compared to healthcare workers' (Holt and Butcher 2020).

According to an OECD report on long-term care workers and Covid-19, working conditions are difficult and safety protocols cannot be implemented. These conditions are exacerbated by a lack of training and understaffing, precarious contracts (including non-standard employment), job insecurity, low social protections and low wages (Scarpetta *et al.* 2020). 'The median hourly wage for long-term care-workers across 11 OECD countries was EUR 9 per hour in 2014, compared to EUR 14 for hospital workers in the same occupation. Low wages are one of the reasons for the high turnover in long-term care settings (Scarpetta *et al.* 2020). Statistically, 90% of long-term care workers are women, 70% are not qualified as nurses (they are hired as personal care workers and have low job entry requirements) and do not receive sufficient training. The BBC reported that care staff in the UK are often on zero-hour contracts or work via agencies and visit homes. In such cases, monitoring the use of scarce PPE becomes even more difficult (Holt and Butcher 2020). Similar circumstances have been reported in Sweden, with the Swedish government recently announcing plans for better training and permanent jobs (Savage 2020). In the Netherlands, a news report on the situation in care homes found that advice received from the RIVM lacked

clarity and was not backed by scientific evidence, especially with regard to the use of protective equipment while handling patients (Holdert and van Hest 2020).

### 3.2 Service sector occupations

A number of key service sector occupations (i.e. services that cater to a specific need) are also high-risk due to their settings. Examples include sanitation workers, domestic services, social services, first responders, police and educational professionals. These employees have continued working during the lockdown, even though safety guidelines could not always be respected. Below we look briefly at sectors featuring high infection levels, in many cases precarious employment conditions, and the subject of consistent reporting.

*Educational institutions and day care facilities* remained open in most EU countries for a major part of 2020. Initially it was only to ensure that key workers could leave their children in care. In subsequent months schools and day care centres opened with social distancing measures, ‘bubbles’ to limit contacts and regular testing for teachers (Dewan 2020). However, if multiple cases were reported among students and the staff, those specific schools were quarantined for a period. Teachers and other school staff are considered as at-risk populations, given their daily and largely face-to-face interaction with large numbers of people (Gaffney, Himmelstein and Woolhandler 2020). A study by the Bank of Italy and the National Institute for Public Policy Analysis worked with data and surveys on occupations to calculate risks on the basis of proximity, exposure and flexibility. The researchers noted that, besides the health sector, preschool workers and workers in bars were also at risk of exposure (Barbieri, Basso and Scicchitano 2020). Initial studies indicated that children were unlikely to be drivers of infection and that, with proper measures in place, preschools and schools could safely open (Ludvigsson 2020; Walger *et al.* 2020). However, studies based on the second wave of the pandemic in Europe indicate that children, especially teenagers (RIVM)<sup>11</sup>, might be infected just as often and therefore might be critical infection spreaders. By January 2021, with more infectious variants of the virus emerging, a number of European countries had adopted different policies: Austria, Denmark, Germany, Ireland and the Netherlands were among the countries that shut down schools, while France and Belgium were among those where they remained open (Bender 2020).

*Delivery workers and couriers* face a higher risk of contact with different people. According to a report based on cases in Sweden, taxi drivers were 4.8 times more likely to be infected by Covid-19 (Folkhälsomyndigheten 2020b). According to an investigative article by Politico in March, delivery workers and couriers in Italy and France often do not benefit from social protection. Typically employed as gig workers, they receive no sick leave and no benefits. Even though governments have extended social security coverage to a number of occupations during the pandemic, couriers tend to remain uncovered (Braun, Kayali and Tamma 2020).

11. <https://www.rivm.nl/en/novel-coronavirus-covid-19/children-and-covid-19>

Furthermore, workers reported that some platforms did not provide PPE or any safety measures for their employees. In some cases, multinational companies had different responses for different countries, the *Politico* report found. While Uber guaranteed sick leave up to 14 days for employees around the world, Bolt, another ridesharing platform, only gave sick leave to its London-based employees. In September, the OECD published a report on the measures taken by platforms to protect workers during the crisis: 745 respondents were surveyed, including platforms and workers. Two-thirds of delivery platforms reported encouraging contactless deliveries and adopting WHO or national guidelines. A quarter reported reimbursing the cost of PPE or sending PPE to workers' homes. Several companies reported offering financial support (such as sick leave, a percentage of hospital fees, reduced targets, etc) but most measures were accompanied by caveats. Around 35% of surveyed workers reported that their platforms had taken measures to assist them, while less than half (44%) said they were satisfied with these measures. 44% of the workers said they wanted more measures, including more work through the platform; a number of them reported that PPE was inadequate (just one bottle of sanitiser), of bad quality, or that they received just a one-time payment for one set of PPE (Scarpetta *et al.* 2020a).

*Retail workers* faced the brunt of growing demands during lockdown. At the peak of the lockdown in Europe, the only retail outlets allowed to open were grocery stores and supermarkets. Following the death of an employee of Belgian grocery chain Colruyt, labour unions demanded protective equipment and better health and safety standards. According to a report by the US-based United Food and Commercial Workers International Union, during the first 100 days of the pandemic, 82 grocery store workers died of Covid-19 and 11,507 were infected or exposed to the virus. In March, Wanat and Tamma (2020) interviewed workers and labour union representatives in Spain, Poland, Italy and France, finding that, despite promises, employees faced a lack of protective equipment, longer working hours and even, in some cases, unpaid overtime. Over the course of the past six months, plexiglass shields have been installed in most stores and employees have masks and gloves and even staggered shifts in some outlets.

*Waste workers* have been among the most vulnerable workers during the pandemic. In their study of infection patterns of the virus, Ngheim *et al.* (2020) found that household waste can qualify as clinical waste. With the Covid-19 virus surviving longer on certain materials, sanitation and wastewater workers need better protective gear, gloves and masks among other things. The Global Alliance of Waste Pickers and the Brazil-based Cuidar Project cite epidemiological data showing that waste pickers, who even under normal circumstances face higher health risks, have been subject to even higher risks during the pandemic. However, a report by the European Commission published in April noted that the European Centre for Diseases Prevention and Control had found no evidence that standard waste management procedures or picking of household waste was crucial in the transmission of the disease. They did, however, issue guidelines for worker safety

(adequate PPE etc.) and general advice on how medical waste from infected people should be handled by households<sup>12</sup>.

*Frontline law enforcement officers.* MacIntyre *et al.* (2020) studied how frontline law enforcement officers face a high risk of exposure, especially to invisible bio threats such as the coronavirus. Police officers often respond to situations where physical contact becomes necessary, yet without PPE and proper training for its use, they are equally vulnerable to the virus. Prisons and detainment centres are also high-risk settings due to the close proximity with and among detainees and limited sanitation (Rubin 2020). Figures released by the Belgian federal police showed that, in September and October 2020, nearly 2000 police officers had to self-isolate, with 282 testing positive for Covid-19. Trade unions called for the police to be made part of the priority and preventive testing groups (*The Brussels Times* 2020). In January, following an incident of a man (who had tested positive for Covid-19) spitting on a police officer, the mayor of Belgian city Aalst called for police officers, firefighters and ambulance drivers to be among those prioritised for vaccination (*The Brussels Times* 2021).

### 3.3 Mines under corona

As of June 2020, approximately 4000 mine workers from 18 countries had been affected by Covid-19 (Leahy 2020). That same month, workers from over 300 mining companies around the world signed a letter of solidarity with communities, indigenous people(s) and workers at risk from ‘mining pandemic profiteers’. Citing media sources, press releases and reports on mining in the context of Covid-19, the letter noted that several countries had categorised mining as an essential service while ignoring the substantial risks faced by the workers involved. ‘In doing so, they have become key vectors for the spread of coronavirus in their communities,’ (Mining Watch 2020a). According to a report on 69 mining operations around the world, put together by a group of related organisations, declaring mining to be an essential service has come at the cost of health and safety standards – especially in countries where there is relatively little testing (Mining Watch 2020b). In some cases, workers have carried the infection into smaller communities and indigenous neighbourhoods already at loggerheads with mining operations. In January 2021, 1,391 cases were reported in Poland’s coalmining region of Silesia, one of the country’s hardest hit regions. In June 2020, the largest outbreak in Silesia was reported among workers in private and state-owned mining companies (Radio Poland 2021). The cases (nearly 6000) accounted for 19.1% of Poland’s total infections. Polish Prime Minister Mateusz Morawiecki reportedly stated the virus was prevalent in the mining community due to cramped working conditions (Newman 2020). In Canada, 45 infected workers from a mine in Northern Alberta were traced to the spread of the virus in five Canadian provinces – and, despite an outbreak in an oilsands operation in mid-May, officials insisted that operations must remain open for the economy (Leahy 2020). Around mid-June, the small

<sup>12</sup>. European Commission [ec.europa.eu/info/sites/info/files/waste\\_management\\_guidance\\_dg-env.pdf](https://ec.europa.eu/info/sites/info/files/waste_management_guidance_dg-env.pdf)



### In focus **The Czech mining industry and Covid-19**

Over the course of 2020, Covid-19 cases continue to grow among coal miners in the Silesia Province in southern Poland and in the neighbouring Moravian-Silesian region, in the North-East of the Czechia. As of 16 June, Czechia had more than 10,000 cases and accounted for 330 deaths. While in proportion the country had more cases per hundred thousand inhabitants than Poland, its death rate was lower than that of its neighbour. The Moravian-Silesian region itself accounted for 1,817 cases, which represented 18% of total cases in a region that holds 11% of the total Czech population. The region, an important coal mining site, had 57 deaths as of 17 June and the Karviná border-district was most affected by the outbreak. Located in Karviná, the Darkov mine, operated by state-owned OKD with 1,800 people working directly there, emerged as a cluster of infection. By mid-May, it had recorded 495 positive cases since the beginning of the pandemic. The number included employees (65%) as well as their family members (32%), which shows the high probability that infected miners will contaminate their own family. As the number kept on rising however, it was decided to stop coal production at the Darko mine on 22 May. At the time, the workers were given 60% of their salary. Due to a lack of qualified miners in Czechia the mine also employs commuters from Poland, out of which at least 22 tested positive. The results raised concerns that contamination was becoming a cross-border issue between Poland and the Czech Republic.

Workers and their families have also had to face contradictory information from the authorities. On 12 June, the Czech Ministry of Health announced that Czechs and foreigners returning from Portugal, Sweden and the Silesian Voivodeship (Province) would have to 'prove themselves with a negative test upon their return'. The previous day, the Health Minister, Adam Vojtěch, stated that while significant clusters were developing, 'we are succeeding in [preventing them from spreading], also thanks to the early warning system, clever quarantine, local area testing and the excellent work of the hygienists and the army'. Similarly, the Regional Hygiene Station of the Moravian-Silesian region ordered on 15 June that all employees of OKD mines must be preventively tested by the end of the month. Just three days before, the same regional authority had declared that, in the Karviná district, 'events for more than 100 people and visits to medical and social facilities' were allowed again and municipal authorities did not have 'to carry out focal disinfection of public spaces' anymore.

According to Rostislav Palicka, president of the Czech Trade Unions of Miners, following a request from the mining unions when the number of cases began to rise in March, OKD put in place personal temperature measurements, banned selling meals in the premises of the mine as well as the soups the miners have before their work shift. The company carried out 'extensive disinfection' of all areas of the mine in June. The other three mines in the region were 'limited only by reducing working hours by one hour and changing the system from four-shift to three-shift so that the shifts do not meet each other'. Nevertheless, for the president of the Czech Trade Unions of Miners, the company is in 'a very difficult financial situation' and there is the 'expectation that these mines will stop their operation before 2030'. In his opinion, in these circumstances, 'trade unions or workers cannot do a lot for prevention of such before unknown and specific hazard'.

Source: [www.etui.org/news/covid-19-rising-cases-czech-mines](http://www.etui.org/news/covid-19-rising-cases-czech-mines)  
ECDC, Moravian-Silesian Region administration, Czech Ministry of Health, Deník

Swedish town of Gallivare became a Covid-19 hotspot, with the highest number of infections in Sweden. Local health authorities traced the infections back to the local mine operated by LKAB (Nilsen 2020).

Mining communities already face particularly difficult working conditions, as reflected by the higher incidence of respiratory problems reported among them. In a study on the medical needs of mining communities in the US, Sood *et al.* (2020) pointed out that miners faced a number of pre-existing disparities with access to care – especially given their high incidence of pulmonary cases. Care of these conditions was also being delayed due to the pandemic. Looking at Canada, Bernauer and Slowey (2020) wrote that ‘Covid-19 has significantly changed the discussion about extractive industries and public health, as transient workers are potential vectors through which the novel corona virus could be spread to remote communities. The industry response to the pandemic has thus far been uneven. While the province of Quebec has ordered mines to shut down to help halt the spread of the disease, other countries have categorised mines and other extractive industries as “essential services”, even allowing lower health and security standards.’ Gleason (2020) analysed a NIOSH survey of 115 mining workers in the US on their fears, apprehensions and awareness around the pandemic, finding that the fear factor was very high: 50% of the respondents were worried about being infected, while 77% felt confident about their own precautions. In September, the CEO of the International Council on Mining and Metals noted that vital protocols and health measures were in place, including testing, reduced shift sizes, temperature screening and social distancing in 50 countries. These measures were in keeping with ‘national and local guidance’ and that the sector was ‘building back better’.<sup>13</sup>

### 3.4 Meat-processing plants

The food industry is a risk to life, especially for vulnerable workers and households, argue Alkon *et al.* (2020). From supermarket employees, via meat packaging and processing workers, to farm employees, workers throughout the food chain are far more exposed to the disease – and perhaps none more so than those working in meat processing plants. The US-based United Food and Commercial Workers International Union noted that in the first 100 days of the pandemic 65 meat packaging workers had died and that 14,214 workers were infected or exposed in the US (UFCW 2020). The union also pointed out that, even during the pandemic, government bodies were still approving waivers allowing plants to increase their line speeds, putting workers closer together and thus increasing the risk of infection. Similar outbreaks were seen in meat processing plants across the European Union, especially in Germany (see Case Study II). Over the course of 2020, several plants in the Netherlands and France were also shut down when infection clusters were reported in poultry and beef processing plants.

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13. <https://www.weforum.org/agenda/2020/09/how-has-the-mining-industry-responded-to-covid-19/>

### In focus Slaughterhouses in Germany and subsequent policy changes

In June 2020, more than 1,500 workers at the Tönnies meat packaging plant in Gütersloh in North Rhine Westphalia (Germany) tested positive for Covid-19. Following this outbreak, some 600,000 people in the region were forced back into lockdown for several weeks. Workers in other meat processing plants also tested positive, with officials citing cramped staff housing as one of the key causes of the outbreak (Huet 2020). Scientists have also called out the poor ventilation systems in these workplaces, with the same air being recycled over and over again (Lee 2020).

The incident brought to light the plight of meat processing workers in Germany, many of whom are migrant workers from Bulgaria, Poland and Romania. They live in cramped housing conditions and are transported to work in crowded vehicles. In June, the BBC reported that 2,000 employees who lived in a village in Verl were fenced off from the world and quarantined, while local volunteers brought them food (Lee 2020). Euronews reported that a German official involved in the response measures called poverty the 'root of the problem' (Huet 2020). Many of these workers are employed through subcontractors so they can be paid low wages, have no sick leave and no job security. Wagner and Hassell (2016) studied how, despite otherwise strong social institutions, Germany has established conditions sustaining the systemic exploitation of mobile and migrant labour in the meat industry.

Following the outbreak, health authorities reportedly accused the plant of not complying with safety regulations, while politicians called for the company to be held accountable (Connolly 2020). In light of the cases and ensuing arguments however, the German government has moved to take action to improve OSH standards in the meat processing industry. At a press conference in July, German Labour Minister Hubertus Heil announced stricter measures to ensure the well-being of migrant workers (Grull 2020). From 2021 onwards, employers will no longer be able to resort to subcontractors, instead having to employ workers directly and thus also offering them better pay and social security. New standards for employee housing will also be put in place, including regular inspections to ensure that they are met. Working hours will also be recorded to ensure that workers are paid properly (Grull 2020).

Middleton, Reintjes and Lopes (2020) note that 'while the pandemic continues, meat processing plants will remain potential trigger points for a second wave'. In August, further outbreaks were reported in Belgium and Spain. 'Slaughterhouses and meat processing plants are favourable environments for SARS-CoV-2 transmission', write Middleton, Reintjes and Lopes (2020). Lower temperatures and higher humidity make it easy for the virus to thrive. Metal surfaces, dense aerosols, intense water use, speaking loudly (thus releasing more droplets), overcrowded workplaces and lack of social distancing were also key factors (Middleton, Reintjes and Lopes 2020: 1). In a report for the Centres for Disease Control and Prevention, Waltenburg *et al.* (2020) analysed infection outbreaks in 115 meat and poultry processing facilities in the US, finding that 16,233 workers in meat and poultry processing facilities in the US were infected with Covid-19 in April and May alone.

‘Distinctive factors that increase meat and poultry processing workers’ risk for exposure to SARS-CoV-2, the virus that causes Covid-19, include prolonged close workplace contact with coworkers (within 6 feet for  $\geq 15$  minutes) for long time periods (8–12 hour shifts), shared workspaces, shared transportation to and from the workplace, congregate housing, and frequent community contact with fellow workers’ (Waltenburg *et al.* 2020: 887).

Factors related to employment conditions were further causes of the high number of cases in these plants. Across Europe, a large percentage of workers employed in slaughterhouses are migrant workers on subcontracts and other precarious employment arrangements, often lacking sick leave and social benefits. In Ireland, the meat industry has claimed that 20% of its workforce is made up of migrant workers, while the European Federation of Food, Agriculture and Tourism Trade Unions (EFFAT) estimates that 80% of workers in Germany’s meat processing plants are Eastern European migrants. The UK-based Migrants Rights Centre estimates the percentage in the UK to be 58%. According to a survey conducted by the Centre among 68 workers, 90% said they had no sick leave and 40% they did not feel safe at work despite the measures taken. Contrary to self-isolating advice on noting symptoms, several plants even offered large bonuses to employees to keep working during the pandemic (Kinniburgh 2020).

Recommendations for meat processing plants include guaranteed access to sick leave, risk assessments, staggered shifts, Plexiglas shields between workers, outdoor breaks, reduced processing rates, regular screening, face masks, regular disinfection – and, most significantly, information made accessible in multiple languages, through multiple platforms and in culturally appropriate ways (Middleton, Reintjes and Lopes 2020; Waltenburg *et al.* 2020). As seen in the next case study on the spread of the virus in German meat processing plants, corrective measures were still an urgent matter in the summer of 2020. EFFAT is also calling for decent housing conditions and the regularisation of undocumented workers (EFFAT 2020).

### 3.5 Agricultural labour and disease exposure

In a study on jobs that can be done from home without a drop in productivity, Dingel and Neiman (2020) list the following as the bottom five occupations: transportation and warehousing; construction; retail; agriculture, forestry, fishing, hunting; accommodation and food services. As the harvest season coincided with the lockdown, a number of countries, including Germany, France and Italy, drafted agreements and arranged special flights to ensure the availability of migrant labourers on farms. Though such arrangements are not new, several relaxations were made to existing exemptions with regard to minimum wages, social security and occupational health and safety measures. Neef (2020) analysed government policies and outbreaks on farms, noting that the workers flown in during the first lockdowns benefited from no safety measures or health benefits, and often lived in substandard, cramped conditions. Interviews with farm workers and union leaders revealed that employees were not given adequate information regarding the virus and were even instructed not to tell their colleagues if they tested positive for the virus (Ho 2020).

In August, hundreds of migrant farm workers across Spain protested against their living and working conditions following a major outbreak. 400+ workers in the Castilla La Mancha region were forced into quarantine in an abandoned factory after 23 workers tested positive. These workers, primarily from West Africa, lived in collective housing without adequate sleeping and washing facilities, while working conditions in the factory were deplorable and hot and water supplies limited (Summers 2020; JML 2020). In the last week of July, a cucumber farm in Bavaria, Germany, went into lockdown after 174 workers tested positive for the virus and 500 were put in quarantine. District authorities reported that many of the workers were from Hungary, Romania, Bulgaria and Ukraine, and worked in close physical proximity. According to news reports, employers had not complied with health and safety guidelines (AFP 2020). Similar cases were reported in Italy, France and Belgium, all of which have a significant number of migrant workers – both temporary and often undocumented.

In a 2019 report on the exploitation of migrant workers in the EU, the European Union Agency for Fundamental Rights (EU FRA) highlighted a series of illegal practices in sectors such as agriculture, construction, domestic work, hospitality, manufacturing and transport. These practices (e.g. long working hours, low pay, sub-optimal safety standards and equipment, deplorable housing without access to sanitation, sexual harassment) left migrant workers far more vulnerable than other groups of workers (FRA 2019).

In April, the European Federation of Food, Agriculture and Tourism Trade Unions (EFFAT) issued a joint statement with a number of organisations including Oxfam, Fair Trade Advocacy Office and the European Public Health Alliance:

‘The agricultural sector is the most affected by workplace accidents and illness. It is blighted by extremely low wages, a high proportion of undeclared work and poor working conditions. Workers often fall prey to exploitation, including gang-master practices and other forms of modern slavery. Thousands of migrant farm workers – both EU and third country nationals - live in shacks and unsanitary settlements where observing physical distancing is impossible and the pandemic could have devastating effects. In the fields and in many food processing plants, labourers toil in close proximity, with no protective equipment.’ (EFFAT 2020)

The report argues that maintaining low food prices is one of the main reasons for maintaining exploitative labour systems. Similar conditions were reported by numerous farms across North America which also rely heavily on migrant labour (Haley *et al.* 2020). As in Europe, employer-assisted residence permits and temporary status also play an important role, as workers have no freedom and fear reporting in case they are deported. They are even afraid to visit healthcare facilities (Neef 2020; Caxaj and Plamondon 2020).

While several countries have publicly acknowledged the plight of migrant workers, especially during the pandemic, it remains to be seen what measures will actually be implemented. Watterson (2020) noted that there were huge gaps between

what scientists and trade unions recommended early in the outbreak and what politicians actually implemented.

#### In focus **Migrant farm workers in Italy's Calabria region**

According to a 2019 report published by the EU FRA, 'there are between 400,000 and 430,000 migrant workers employed through illegal intermediaries (*caporali*) and at risk of labour exploitation' in the agricultural industry in Italy (FRA 2020: 38). In 2016, legislation was introduced to eradicate this phenomenon, but a high number of instances have continued. In March, a report by *Al Jazeera* found that African crop pickers in the Calabria region (the Gioia Tauro plain) were housed in shanty towns, living in temporary shacks made of cardboard, wood and scrap metal (Oddone 2020). Workers either had makeshift toilets or had to use fields; no water and electricity were available. The largest shanty town had been recently equipped with water and electricity, but it was still cramped and impossible to maintain social distancing (Oddone 2020).

In October, there were protests from workers in a camp in San Ferdinando in the Calabria region, as the camp was placed under quarantine after 14 workers tested positive. All the workers were locked in, unemployed and not given any protective equipment. Over the course of the pandemic, several migrant worker camps were declared red zones, even though just a few workers from the camp had tested positive for Covid-19. Protestors complained that infected workers should have been isolated instead of issuing a blanket ban. According to news reports, the blanket bans were issued in part because of a lack of space, with bathrooms especially shared among inhabitants and no real isolation maintainable in these camps.

Médecins Sans Frontières (MSF) found that at least 1,500 migrant workers lived in hazardous conditions during the pandemic, particularly in the regions of Rosarno, San Ferdinando and Rizziconi. Abandoned factories and makeshift homes, little access to healthcare and a lack of basic hygiene went hand in hand with labour exploitation and violence. 'The bare minimum one would expect from a country like Italy', said Antonio Virgilio, MSF Head of Mission Calabria, 'is respect of the basic international reception standards. According to the United Nations, in a displacement camp there must be at least one toilet for every 20 people. Not even this basic standard is being complied with in the places we've seen in Calabria – for a population of fundamental importance to the local agricultural economies' (MSF 2020). In their study of farm workers in Canada who live in similar conditions, Caxaj and Cohen (2020) argue that government guidelines are a gamble with migrant lives, that federal standards set for employers are so limited that housing conditions are often deplorable, allowing infections to easily spread rapidly.

Furthermore, as the workers in quarantined camps had no income, no social security and faced punitive action from the local government if they broke quarantine rules, there was also higher chance that workers would not report sick even if they had Covid-19 symptoms (Camilli 2020).

## 4. Occupational inequalities as clinical variables

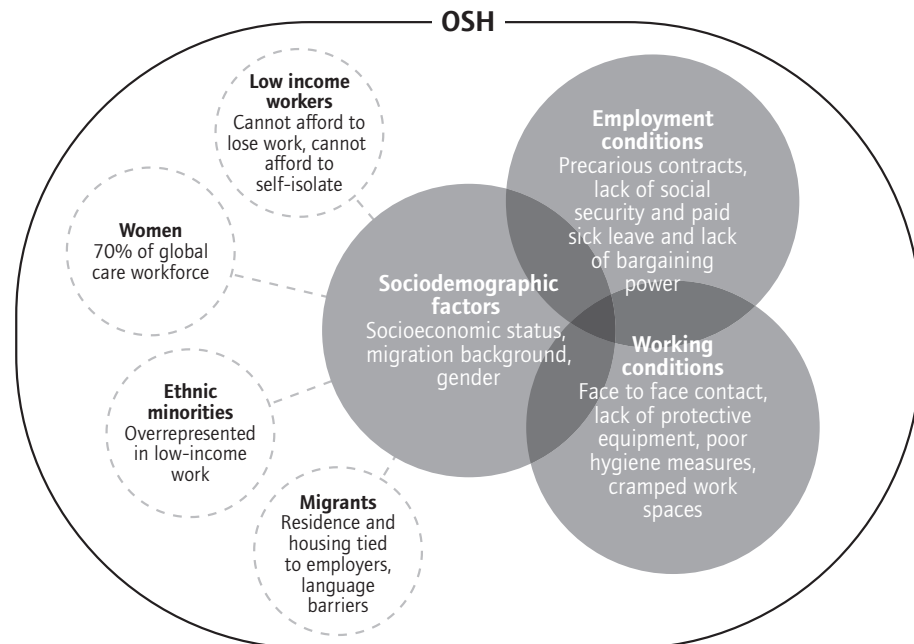
The impact of Covid-19 has not been uniform. The cases presented in the previous section highlight how the conditions and circumstances of work and employment – and the related potential gaps in occupational health and safety measures – impact the spread of Covid-19. There are two aspects to this: (1) certain occupations are at greater risk through needing to be operational at the peak of the pandemic and (2) some occupations are high-risk due to the work environment and related employment and socioeconomic conditions. The two factors often overlap. To a certain degree, these occupational factors also determine the levels of exposure, infection and related consequences, which are further exacerbated due to class, race, migration status and socioeconomic position (Yancy 2020; McClure *et al.* 2020; Patel 2020). This is particularly the case for ‘key workers’ employed in jobs with high-risk physical settings and very low levels of social protection.

This section delineates the three distinct but intersectional factors emerging from our analysis: working conditions, employment conditions and workers’ sociodemographic characteristics. We start by looking at physical working conditions, as these play a significant role in work-related exposure: Face-to-face interaction with other people, enclosed spaces, a lack of ventilation and/or sanitation at work are some such factors.

The second subsection assesses how workers in sectors most exposed to these settings are also more likely to face other vulnerabilities (such as precarious employment conditions and other socio-economic determinants). Structural inequalities in employment rights also create an environment where the spread of infection is difficult to control.

Workers’ sociodemographic characteristics come under the spotlight in the third subsection, in which we study how a low socioeconomic status, gender, migration background and ethnicity intersect with work and employment to become determinants of workers’ health and wellbeing. Occupational status and the interlinked structural vulnerabilities faced by these workers force them to choose between health and earning a livelihood.

Figure 2 A visualisation of three intersectional aspects of OSH



Source: authors' elaboration.

#### 4.1 Working conditions: physical settings leading to higher exposure to Covid-19

In the early stages of the pandemic, occupational safety measures were based on certain established protocols. The EU-OSHA issued 'back to work' guidelines based on the hierarchy of controls – a set of guidelines on controlling the spread of the disease at work (see Annex 2). These included physical distancing among workers, ensuring that essential staff had only limited physical contacts with customers. Belingheri, Paladino and Riva (2020) suggested the following guidelines for non-healthcare settings: provide information and education about Covid-19, self-isolate when showing symptoms, wash or sanitise hands, practice social distancing, clean surfaces, ventilate workplaces, make informed use of PPE.

To explore why certain occupations are more at risk, we use these guidelines as our starting point, analysing why different measures are challenging to implement (or are not sufficiently enforced) in certain occupations.

##### Information gaps

From the start of the pandemic, workers were at the mercy of national guidelines and employers when it came to gaining information on safety standards. Initially downplaying the virus, countries across Europe went into varying degrees of lockdown off and on throughout 2020. Specific measures such as wearing a facemask became a matter of debate, with some governments (including Belgium, the Netherlands and Germany) initially refusing to make wearing masks in public



mandatory, leading to further confusion (Paun *et al.* 2020). Besides conflicting messages, most organisations and countries also failed to reach out to different demographic groups. Migrant workers in various sectors (e.g. domestic services, agriculture and industry) did not receive adequate information in their own language (Dyal *et al.* 2020; Liem *et al.* 2020). The lack of information given to workers in their own languages was cited as one of the main reasons for the outbreak at a meat processing plant in the US (Siemaszko 2020). An article by the Migration Policy Institute on the plight of migrant workers in the EU during the Covid-19 crisis also noted that ‘workers who do not speak the language of the destination country have little information about their rights and the legal recourse available to them’ (Andriescu 2020).

### **Self-isolation**

The discussion around staying home when sick has many dimensions – from the feasibility of working from home to the availability of paid sick leave and being able to self-isolate when sick.

Working from home is increasingly understood as a privilege (Yancy 2020) available only to a few. Employees able to work from home automatically have the option to maintain social distancing and to self-isolate when infected or exposed to a high-risk contact. For all others, as we saw in the case studies, it often boils down to a choice between continued employment and health risks. Some workers were even incentivised to continue working when sick rather than being granted paid sick leave – making it a tough choice for workers in low socioeconomic circumstances.

### **Basic hygiene measures**

Emphasis should be placed on controlling the spread of the disease through physical and administrative measures (Rosemberg 2020). However, we see that their implementation is complicated in several occupations, including assembly line production and factories. Ray (2020) points out that washing hands is in itself a problem, as 26% of the world’s population (including the Global North) have no (or only limited and often expensive) access to soap and water. Farm workers often have no access to adequate field sanitation, let alone an opportunity to regularly wash their hands (Haley and Caxaj 2020). As seen in the case studies from Italy and Germany, migrant labourers living in camps face similar conditions. Rubin (2020) points out that inmates and workers in correctional facilities face a higher risk of infection as access to soap is sometimes also restricted.

### **Social distancing**

A similar challenge arises when it comes to maintaining physical distance of over a metre. Bavel *et al.* (2020) note that certain groups of people may lack the space necessary for this, as in prisons, refugee camps, immigrant detention centres. Similar conditions affect those who rely on public transport and/or work in low-wage jobs where remote work is not possible. In factories featuring production line work, distancing can mean a loss of profits. Workers in meat processing plants report that physical distancing at work is difficult, while studies indicate that long shifts and shared workspaces make exposure to Covid-19 much more likely (Dyal *et al.* 2020; Stephenson 2020). A lot of occupations, especially those involving

large workforces, do not have multiple cafeterias or breakrooms, meaning that workers gather together in groups, often not complying with lockdown measures.

#### **Workplace hygiene measures**

Regular cleaning and disinfection of workspaces and shared spaces are also a challenge, especially if they result in a drop in productivity. While the WHO has suggested that workers such as delivery workers should be given access to washrooms and changing facilities throughout the day, several occupations do not have the infrastructure needed for this. Studies also indicate that cold and humid conditions, for instance in meat packaging and processing plants, present ideal conditions for the virus to survive (Middleton, Reintjes and Lopes 2020), especially when regular disinfection is not possible. Rosemberg (2020) notes that hotel cleaners, especially housekeepers, belong to the most vulnerable hotel staff as they are exposed to infection while cleaning. Sanitation workers and waste collection workers are also vulnerable, as the virus can stay infectious for a long time on different household waste surfaces (Ngheim *et al.* 2020).

#### **Access to protective equipment**

Most countries in Europe reported a shortage of face masks and medical-grade protective equipment even for healthcare workers in the weeks immediate after the first outbreak (Section 2.1). In a study on the healthcare response in Italy, Sorbello *et al.* (2020) noted that a number of frontline medical staff were infected or exposed due to shortages of PPE. According to Eurofound's Covid-19 e-survey, 44% of respondents from the EU27 'believe they are more at risk of contracting Covid-19 because of their job' (Eurofound 2020: 42). The perceived risk was higher for workers in occupations with regular physical contact. One of the key factors regarding perceived risk was the availability of PPE. In this, a clear sector-wise difference was noted. When asked if they were required to wear PPE, only 24% of workers in construction but 78% in healthcare said yes. Nearly three out of 10 workers required to wear PPE stated that their employer provided them with PPE sometimes or not at all (*ibid.*: 43).

## **4.2 Employment conditions: precarious contracts and lack of employee participation**

In this section, we explore how the physical working conditions discussed above intersect with other structural factors, making it difficult for workers to prioritise health or lobby for better safety measures. We also see how pandemic containment policies can work against occupational safety norms, creating an environment where basic measures are flouted even during the pandemic. These measures are a matter of privilege for a large section of the workforce. As Yancy (2020) writes:

'Being able to maintain social distancing while working from home, telecommuting, and accepting a furlough from work but indulging in the plethora of virtual social events are issues of *privilege*. In certain communities these privileges are simply not accessible. Thus, consider the aggregate of a higher burden of at-risk comorbidities, the pernicious effects of adverse social determinants of health, and the absence of privilege that

does not allow a reprieve from work without dire consequences for a person's sustenance, does not allow safe practices, and does not even allow for 6-foot distancing' (Yancy 2020: 1892).

The pandemic has uncovered these unequal conditions. Across Europe, nurses and healthcare workers reported being underpaid, often on short-term contracts, and confronted with understaffing. While delivery services boomed business-wise, delivery workers were mostly gig/platform workers with no job security and inadequate health support (Braun, Kayali and Tamma 2020; Duke 2020a; Eurofound 2020). Such patterns of inequalities play a significant role in a health crisis, as they determine who is at greater risk of becoming infected and also who will have access to healthcare and mitigating circumstances (Bavel *et al.* 2020; Khalatbari-Soltani *et al.* 2020). Analysing case studies of Covid-19 victims, Khalatbari-Soltani *et al.* (2020) point out that 'people with disadvantageous socioeconomic positions should be considered as high-risk populations at the time of any infectious disease outbreak, since their social context could affect the occurrence and severity of an infectious disease via several pathways' (2020: 620). This kind of 'social patterning of health' (*ibid*) is marked by individual indicators of occupation, income and education.

In the following subsection, we start by examining income levels and the nature of employment in the sectors most impacted in terms of worker health. We then go on to consider the pandemic-specific implications of these factors, i.e., lack of sick leave, presenteeism, infection clusters.

### **Lower income levels**

Occupations demanding physical presence and interaction often involve low-wage jobs (Lu 2020). Moreover, as the cases discussed earlier indicate, there is a clear link between low-skill / low-wage jobs and higher Covid-19 mortality rates (Wise 2020; Khalatbari-Soltani *et al.* 2020; Windsor-Shellard and Kaur 2020). Barring doctors, the majority of workers in essential sectors earn less than the national average in their various countries. Analysing 'worker distress' in times of Covid-19 among workers in 52 districts of California, using Census data and Central Population Data, Flores and Padilla (2020) found 'a strong relationship between low-wage work and Covid-19 positivity'. The highest worker distress was recorded in sectors such as agriculture, waste management, warehousing and retail, sectors where most workers in the US are not entitled to emergency paid leave (Flores and Padilla 2020). These findings concur with the sectors most impacted in the EU. This is no coincidence. As we have seen in the case studies, there is a 'coronavirus class divide' (Williams 2020). The jobs with the highest number of deaths are performed by the economically least advantaged – those with the lowest pay, least paid sick leave and insecure contracts. Low-skilled work is often accompanied by precarious contracts and/or hourly/daily wages (Williams 2020). Colon (2020) writes that those working in supermarkets, in conditions where 'their safety is not prioritised', earn 25% less than median earnings. '44% of workers in this sector [in Ireland] are low-paid and, like many private sector workers, are unlikely to be receive sick pay as there is no statutory requirement to do so' (Colon 2020: 46). Many of these factors are determined by national policies. In Ireland, for instance,

sick leave is a 'perk' left to the discretion of employers to include in contracts, i.e. it is not a legally guaranteed right (Bambrick 2020).

Even in the case of skilled workers, such as nurses and caregivers, there is a high incidence of short-term or precarious contracts in many EU countries. 'The Covid-19 crisis has underscored the societal danger of zero-hour contracts, highlighting why a minimum income guarantee is required,' writes Duke (2020).

The most straightforward outcome of this is that workers without paid sick leave and on precarious contracts have no choice but to continue working, regardless of the conditions at work and regardless of their own medical condition: 'There are also complex societal issues around workers who are ill but feel that they have to work for economic or other reasons and thereby increase the risks for colleagues and the public' (Semple and Cherrie 2020: 462).

### **Job insecurity and the lack of social protection**

In a survey conducted in March 2020 among workers in the UK (3,974 people) and US (4,003 people), Adams-Prassl *et al.* (2020) found that the impact of the situation was severe on young workers and those in precarious employment such as individuals working in the gig economy. 'Pressure on people in these segments of society is leveraged by their fear about not being able to cover their bills. The pressure is so high that many report going to work with flu-like symptoms, which poses a health risk to all. We find that this behaviour is particularly likely for those without paid sick leave,' (ibid). De Wispelaere and Gillis (2021) argue that Covid-19 has exposed a clear link between undeclared work and OSH: the 'failure to respect OSH rules and regulations is to be considered an essential part of the concept of undeclared work' (2021: 5).

An analysis of paid sick-leave policies in 192 countries found that 27% of the countries did not guarantee paid sick leave, though numbers were higher for permanent workers (Heymann *et al.* 2020). 58% of the countries had no explicit provisions for the self-employed and gig economy workers. This is also frequently the case in high-income countries. The authors also highlighted studies showing how workers without paid sick leave are 1.5 times more likely to go to work sick and are less likely to see a doctor. This is particularly problematic in the case of Covid-19, as paid sick leave is an effective way to curb the spread of the disease to co-workers, customers, clients and so on (Heymann *et al.* 2020). 'When workers lack paid sick leave, they often need to make untenable choices between going to work sick and being able to afford the basic necessities for themselves and their families' (Heymann *et al.* 2020: 925). Berger *et al.* (2020) argue that healthcare institutions should set an example for all other sectors by guaranteeing paid sick leave for all employees, while governments should reimburse sick leave expenses for key healthcare workers and have related programmes for casual, small business and gig economy workforces (2020: 1). Another problem that arises is that hazardous work is often incentivised through extra pay or benefits. In the case studies discussed above, we note how employers offered bonuses to workers who showed up to work regardless of conditions. Despite mandatory self-isolation when sick, workers continued to be present, either out of fear of losing work or because their sector was understaffed. In October 2020, 10 hospitals in Belgium

reportedly asked medical staff to continue working even if they had Covid-19 (and were asymptomatic) as a quarter of medical staff were off sick (BBC 2020).

Self-employed workers are likely to face a lot more complications during the pandemic. As per Eurostat data (2018), self-employed workers comprise 14% of the EU labour force, and a large percentage of them work in sectors most affected by the lockdown measures. In most EU countries, self-employed workers received much less compensation for loss of income during the pandemic than employed workers. Even in countries where they have access to these programmes, compensation is lower. Duke (2020b) notes that self-employed people, especially those in the gig economy with one or just a few customers, do not qualify for sick pay, even if they are forced to self-isolate. Douglas *et al.* (2020) also point out that self-employed and precarious workers who now face economic hardship will be even less able to afford care for existing conditions other than Covid-19. Anderson (2020) notes that in eight EU countries, including Belgium, France and Italy, self-employed workers are ‘excluded from certain social insurance programmes such as paid sick leave, unemployment and/or occupational injury’. Though some schemes were eventually rolled out for self-employed workers, Duke (2020b) points out that they were at the ‘end of the queue’.

#### **Lack of bargaining power**

A common factor that emerges when analysing the most at-risk situations and occupational groups is the lack of bargaining power of the workers involved. Low bargaining power might relate to several employment-related and external conditions: e.g. inherent instability of the employment situation, having low skills or low legal employment protection, high rates of unemployment, lack of alternatives for employment (i.e. social protection) or a ‘precarious’ residence status (Quinlan *et al.* 2020; Benach *et al.* 2020). In the study on the impact on workers in France, Counil and Khlat (2020) found that low-wage groups were the most exposed at work, with a large percentage lacking protective equipment. This is aggravated by their lower bargaining power due to their economic position and lack of job protection (Counil and Khlat 2020). Workers in factories, farms and retail continued to work despite hazardous conditions because they needed the income and could not afford to be dismissed. Findings indicate that the matter is further compounded in the case of migrant labour or temporary workers. A report on female migrant domestic workers in the EU found that they were afraid of deportation or of losing their residence permit and therefore did not report aggravated circumstances (Foley and Piper 2020). A similar situation was reported among farm workers in Canada and the US who are in the country to work with specific employers and can be deported if sick (Haley *et al.* 2020).

Trade unions have played a significant role in demanding better safety and security for workers during the pandemic. A study among nursing homes in the US found that unionized homes had 30% lower Covid-19 mortality rates and greater access to protective equipment (Dean *et al.* 2020). A report by the US-based Economic Policy Institute also found that, during the pandemic, unionized workers were able to ‘secure enhanced safety measures, additional premium pay, paid sick time and a say in the terms of furloughs or work-share arrangements to save jobs’ (McNicholas *et al.* 2020). The open letter from EU trade union organisations to the EU Commissioner for

Jobs and Social Rights also demanded that workers from all ranks be involved in the decision-making processes regarding Covid-19-specific policies in their companies<sup>14</sup>. The letter stated that, instead of empowering workers during the pandemic, labour regulations, already weakened in recent years, had been further ignored. In December, the European Commission undertook to draw up a new EU Occupational Safety and Health strategy following pressure from trade unions. The ETUC reports that one of its key elements will be that ‘workers have the right to withdraw their labour in case employers do not take the necessary measures to protect them’<sup>15</sup>.

### 4.3 Sociodemographic variables: migration, ethnicity and gender as exacerbating factors

The virus does not discriminate, but systems do, analysts warned early in the pandemic (Yancy 2020; Koh and Goh 2020). This has been borne out by the cases that have emerged since. There is a clear intersectional gradient with regard to occupational health and safety, as occupations linked with higher rates of exposure and fatalities also have a higher representation of Black, Asian and Minority Ethnic communities, migrants and/or women (Windsor-Shellard and Butt 2020; Foley and Piper 2020; Neef 2020; Hattenstone 2020). In this section, we examine the existing employment inequities and why factors such as race, ethnic background, migration status and gender have become determinants of the degree of exposure and outcome of the disease.

#### Migrant labour and policies that sustain precariousness

Migrant workers make up a large share of the working population in the EU (estimated at 13%) (Fasani and Mazza 2020). In some jobs, such as cleaners, helpers and labourers in mining and construction, 1/3 of the workforce are foreign born (Fasani and Mazza 2020). Over a million seasonal workers are hired in the EU every year. According to the European Parliament, they work ‘mainly in the agri-food sector: 370,000 in Italy, 300,000 in Germany, 276,000 in France and 150,000 in Spain.’<sup>16</sup>

At the peak of the first lockdown, to ensure that workers were available for the harvest season and processing plants, seasonal workers were included in ‘new guidelines to ensure free movement of critical workers’<sup>17</sup>. Cheap labour from

14. Participating trade unions were: European Trade Union Confederation (ETUC), IndustriAll, UNI-Europa, the European Federation of Food, Agriculture and Tourist Trade Unions (EFFAT), the European Federation of Public Service Unions EPSU), the European Training Foundation (ETF) and the European Federation of Building and Woodworkers (EFBWW). The letter was sent in May 2020. <https://bit.ly/2Oe6f6o>

15. <https://www.epsu.org/article/etuc-eu-occupational-safety-and-health-strategy-light-covid-19>

16. Members of the European Parliament demanded urgent action in order to protect migrant workers during the pandemic. <https://www.europarl.europa.eu/news/en/press-room/20200615IPR81233/bold-measures-needed-to-protect-cross-border-and-seasonal-workers-meps-say>

17. European Commission news on 30 March 2020. [https://ec.europa.eu/info/news/coronavirus-seasonal-workers-included-new-guidelines-ensure-free-movement-critical-workers-2020-marzo-30\\_en](https://ec.europa.eu/info/news/coronavirus-seasonal-workers-included-new-guidelines-ensure-free-movement-critical-workers-2020-marzo-30_en)

Bulgaria, Poland and Romania was flown into Western Europe; in Canada and the US, similar exceptions were made to ensure that migrant labour from Latin America, Mexico and the Caribbean was available (Charles 2020; Pazzano 2020).

In the EU, a large number of these workers work for subcontractors, are flown in on temporary contracts and have limited rights to social security and healthcare, and, often, no paid sick leave. In an analysis of how seasonal labour was flown in around the world, Neef (2020) wrote that, even though they came from Covid-19 hotspots, some of the first hundred Romanian workers flown to Germany in March to work on farms underwent only cursory health checks upon arrival. 'Despite stringent government regulations, many migrant farm workers live in crowded conditions—such as repurposed shipping containers or shacks in communal housing camps—where physical distancing and adhering to proper sanitary regimes is near impossible. Several workers tested positive for Covid-19, and one Romanian worker died from the virus in his residential container in mid-April 2020,' (Neef 2020: 642). Similar intersections have been detailed in previous sections, where migrant labour is left highly vulnerable to Covid-19 and penalties from employers.

Studies on migration policies focusing on low-skilled (temporary and seasonal) migrant workers show that they face far more precarious circumstances and a lot more restrictions (Ruhs 2013). According to an investigative news report in July by EuroNews on migrant workers on farms across Europe, workers often have no access to healthcare, live in cramped, sometimes temporary spaces, work long unpaid hours and have little access to water (Borges and Huet 2020). Though there is a common EU agricultural policy, the working conditions of farm workers are not prioritised in the policy (Borges and Huet 2020). Mares (2020), who has conducted ethnographic research among immigrant workers on dairy farms, writes: 'Perhaps a better classification for these essential workers in the food systems during these harrowing times is 'sacrificial' (2020: 585).

As a number of workers work for subcontractors, they do not come under the national government's rules regarding health insurance, minimum wages, paid sick leave or even workers' rights. While this lowers the cost of labour considerably, the fallout for the workers is immense. Without access to these mechanisms, migrant workers are dependent on employers to ensure that health and safety standards are met and have no option but to continue working even if when this is not the case.

As mentioned earlier, not having access to health and safety information in a language that foreign workers can understand causes key information gaps (Dyal *et al.* 2020; Liem *et al.* 2020). The European Parliament has called for urgent changes to the laws pertaining to temporary migrant labour and demanded that employers do more for their social security (Box 2-3.). Following the increasing outbreaks of Covid-19 in meat processing plants and the outcry over the working conditions of employees, a number of governments have made significant policy changes. In Germany, as mentioned earlier, subcontracting has been outlawed specifically in the meat processing industry from 2021 onwards, while France has also announced similar changes.

While it is difficult to estimate the number of irregular foreigners or undocumented workers in the EU, studies estimate that 70% of these foreigners have some form of employment (Boswell and Staubhaar 2004). According to estimates by the European Commission (2009), in 2007 there were between 4.5 million and 8 million irregular migrants in Europe, with an estimated increase of 350,000 to 500,000 per year (EC 2009: 7). A large number of these migrants work in agriculture, food processing, construction and in hotels, cleaning, domestic services and restaurants. Bhopal (2020a, 2020b) points out that undocumented workers and refugees are especially vulnerable because they have no trust in the authorities, are afraid of deportation, are not the target of any communication campaigns and cannot afford measures such as social distancing. In an open letter, (the) European Public Health Association's Migrant and Ethnic Health Section stated that no one should be excluded from healthcare information and protection services (Bhopal 2020a) and called for the temporary suspension of any policies possibly excluding minorities from accessing ongoing protective measures (Bhopal 2020b). Undocumented workers, while essential to several sectors, are invisible to most welfare policies and at the mercy of their employers. Faced with the real threat of joblessness, they do not complain about their work circumstances (Calderone, Abel and Rosenbaum 2020). Several EU countries have allowed temporary and undocumented migrant workers residence rights for the duration of the pandemic.

Migrants, who may move legally but are in irregular employment (e.g. intra-European migrants who work under precarious employment conditions), are

#### **Box 2 Excerpts from the European Parliament resolution on protecting seasonal workers**

The COVID-19-crisis has further exposed and exacerbated social dumping and the existing precariousness of the situations of many mobile workers employed in the EU's agri-food, construction and healthcare sectors.

In a resolution adopted on Friday, Parliament urges the Commission to assess the employment, health and safety conditions of cross-border and seasonal workers, including the role of intermediary agencies and subcontracting firms, to identify shortcomings in EU and national legislation and, possibly, revise the existing EU laws. The text also calls for a swift and balanced agreement on the coordination of social security systems that is needed to combat social fraud and the abuse of mobile workers' rights.

#### **Urgent measures needed to protect seasonal and cross-border workers**

MEPs urge the Commission to issue new, specific guidelines for cross-border and seasonal workers in the context of COVID-19, to propose long-term solutions to deal with abusive subcontracting practices and to ensure that the European Labour Authority (ELA) becomes fully operational as a matter of priority. Member states must increase the capacity of labour inspectorates and ensure quality housing, which should be decoupled from their remuneration, says the text.



often overlooked in discussions around safety, better working conditions and empowerment. Munck, Schierup and Delgado Wise (2012) argue that the current labour market is producing increasingly fragmented employment trajectories blurring the boundaries between formal and informal work arrangements. Work is regulated at EU and national levels and covers a broad range of contract types. Temporary work agencies are usually engaged in recruiting seasonal and care workers from Eastern Europe. According to Eurostat, agency work accounts for a high share of the temporary employment market; in 2019, the EU average share of temporary employees is higher (almost 14%) for intra-EU migrants. Certainly during times of crisis, like the Covid-19 pandemic, temporary agency work can lead to heightened precariousness in the labour market.

### **Minority ethnic communities**

Minority ethnic communities in EU countries have seen a high number of Covid-19 infections and deaths since the start of the pandemic. The occupational conditions of these communities could play a significant role here, as ethnic minorities are overrepresented in low-skilled and low-wage occupations, as well as in a number of key/essential occupations. As a consequence, they face similar working and employment conditions to those discussed earlier. They live in low-income neighbourhoods and have less access to affordable care measures. Khalatbari-Soltani *et al.* (2020) point out that socioeconomic positions (SEPs) are closely linked with levels of education and income, and that ‘Covid-19 is likely to follow similar patterns of distribution in terms of SEPs.’

As the number of cases recorded among minority communities in France grew, the French government decided to investigate the underlying causes. In June, the country changed its long-standing rule on not collecting data on ethnicity and allowed the INSEE (the National Institute of Statistics and Economic Studies) to examine data on the country of origin of those tested positive for the virus. The INSEE report found that people with a migrant background were affected twice as often by Covid-19. They also noted that ethnicities concentrated in densely populated areas were affected much more (Papon and Robert-Bobée 2020), as illustrated by the large number of deaths (+120% compared to 2019) in the Seine St. Denis district.

Given a similar outcome in the UK, the public health services called for the development of ‘culturally competent occupational risk assessment tools’ to reduce risks, especially for key workers (cited in Iacobucci 2020). Such tools would take into consideration the broad spectrum of cultural and ethnic backgrounds in the labour force. The report further acknowledges that the specific conditions of racism and discrimination faced by BAME key workers could be a significant factor in the high rates of Covid-19 infection.

According to data released by the Swedish Public Office, people of Turkish origin had the highest rates of infection, followed by those from Ethiopia, Somalia, Chile and Iraq respectively (Folkhalsomyndigheten 2020a). In March, hospitals in Limburg (Belgium) reported disproportionately higher numbers of patients of Turkish origin (Bourgrea and De Bouw 2020), while similar figures were reported in a study conducted in the Netherlands (Nieuwenhuis 2020). According to

these reports, intersections between occupations and poor housing conditions are exacerbating factors. Workers from minority communities also constitute a significant percentage of essential/key workers in sectors such as healthcare, cleaning and waste management. The Daga *et al.* (2020) study on the higher mortality rate of BAME doctors in the UK (mentioned in Section 2.1) indicates that social determinants play a critical role in pandemic outcomes. While the working conditions and employment clauses may not be typically as alarming as those of temporary or undocumented workers, ‘ethnicity accrues disadvantages that render income secondary’ Kapilashrami and Bhui (2020). In their study on the racial lines of the virus, they note that ethnicity signals a certain underclass embedded in structures that maintain the status quo. McClure *et al.* (2020) argue that Covid-19 transmission ‘illustrates how racial capitalism operates... (with) exposure among low-wage and essential-worker populations who are disproportionately racial and ethnic minorities and immigrants’ (2020: 1249).

### Gender

Gender intersects with all the conditions discussed in the previous subsections. Constituting a large part of the workforce in essential/frontline services (Fasani and Mazza 2020), women face the host of inequities discussed earlier. This is further compounded by their gendered experience of the workplace, discrimination, sexual harassment and lower pay than men.

In terms of occupational exposure, women make up a large percentage of healthcare workers around the world and 89% of nursing staff in Europe. The healthcare sector faces a much higher risk through interaction with patients and heightened interaction with other healthcare workers. Women are also overrepresented in domestic work, cleaning and care – sectors typically featuring low wages, little or no job security and often inadequate workplace safety provisions. Pre-existing safety threats make working conditions that much tougher. The EU FRA report also noted that migrant women in domestic work faced high threats of violence and sexual harassment (FRA 2019). Similar unsafe conditions persist among workers in agricultural and industrial settings.

Facing suboptimum employment conditions, the majority of the worldwide migrant workforce are women (Foley and Piper 2020). Most domestic workers have precarious contracts and lack job security, with some facing the threat of deportation or detention if they are sick or complain about working conditions (Foley and Piper 2020).

In an analysis of gender equality in the healthcare workforce in 104 countries, Boniol *et al.* (2019) found that women had significantly lower pay (-13% for hourly wages for physicians and -12% for nurses and midwives) and were much more likely to have short-term/part-time jobs. They also faced a higher risk of unemployment, especially during a pandemic or recession (Power 2020).

Though men are more at risk of serious consequences, hospitalisation and death from Covid-19, given the higher risk of infection faced by women, it is important to explore the gender-specific conditions of the pandemic response (Windsor-Shellard and Kaur 2020; Womersley *et al.* 2020). Womersley *et al.* (2020)

emphasise that PPE is not always designed to fit female workers, increasing their risk of exposure. In a study of the risks faced by female aid workers during the pandemic, Sharma *et al.* (2020) noted that even though frontline humanitarian aid workers are for the most part women, only 25% of leadership posts are held by women. Systemic gender bias is reflected even in the distribution of personal protective equipment and in pay gaps.

Furthermore, women are also more likely to become caregivers while schools, childcare and regular social and healthcare facilities are closed (Douglas *et al.* 2020). Women able to work from home face the additional burden of caregiving – several women reported being unable to achieve a good/tolerable work-life balance and faced higher levels of stress and burnout (García-González *et al.* 2020). Regardless of their skill and income levels, women are more likely to face a higher burden of household and caregiving duties during times of crisis, especially in the absence of childcare.

Another alarming outcome of the pandemic has been the rise in the incidence of domestic violence against women. The UN reports that 243 million women and girls faced sexual or physical violence by an intimate partner over the past year<sup>18</sup>. Calling it a Shadow Pandemic, the UN also noted that employers had a duty to care about the working conditions of their employees working remotely (UN Women 2020). Employers should also be trained to watch out for signs, have safe words and allow communication. Given the blurring boundaries between work and home, discussions around OSH should also consider whether home itself is a safe place for employees.

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**18.** UNWomen is collecting data on the impact of Covid-19 on women, from jobs and increased care burdens to the alarming rise in domestic violence. <https://www.unwomen.org/en/news/in-focus/in-focus-gender-equality-in-covid-19-response/violence-against-women-during-covid-19>

## 5. Discussion: the way forward

Based on our findings, we argue that mitigation efforts should cover all three aspects of occupational health and safety: employment conditions, working conditions and sociodemographic factors shaped by/interacting with work. Throughout the report, we have highlighted ongoing action by trade unions to demand actionable policy measures and ensure the health and safety of workers across the shopfloor. We draw on both trade union reports and scientific studies to delineate some policy recommendations that touch on the various intersectional factors determining workers' health and safety.

### **Recognise Covid-19 as an occupational disease in multiple sectors**

While most countries acknowledged Covid-19 as an occupational disease for key workers (healthcare workers and key responders), other occupations such as social care and domestic workers are not included (in all countries) even though they are at risk (George and George 2020; Koh and Goh 2020; Berger *et al.* 2020). Even sectors such as meat processing and farming, where workers do not seem at first sight to be exposed to the disease but are critical vectors of infection, should be recognised (Watterson 2020). Protection should be extended to gig workers, irregular workers and even those working for subcontractors. This will ensure that employers are held accountable and forced to comply with the relevant OSH standards. In some sectors in Italy, Covid-19 has been declared an occupational injury as opposed to a disease. Chirico and Magnavita (2020) argue that this is a stronger approach legally, as calling it an injury assumes that it occurred at work. This avoids putting the onus on the employee to prove how and when the disease was contracted. Furthermore, OSH guidelines should take into consideration the various factors impacting workers' health. For instance, there seem to be no clear rules on the housing conditions of temporary migrant workers, arguably a further critical aspect of OSH measures.

### **Introduce standardised guidelines and significant checks and balances**

Primary responsibility for workplace safety lies with employers; however, expansive guidelines, inspections and heavy fines for defaulters are needed (Caxaj *et al.* 2020). 'Employers are more likely to implement these controls when they are mandated by a government agency that has adequate enforcement tools to ensure compliance' (Michaels and Wagner 2020). In the case studies and examples cited above, we see that in several sectors barely minimum measures are put in place, often in a lackadaisical manner. The ETUC has been tracking violations across several EU countries, finding not only that several employers are unaware of the measures or unwilling to adopt them, but also that in some countries there have been very few inspections even in critical sectors such

as elderly care<sup>19</sup>. In Ireland, the Health and Safety Authority (HSA) had faced many budget cuts in previous years, with the consequence that, despite recent improvements, ‘workplace inspections had halved over a 10-year period’. The Irish HSA has only 109 inspectors, of which 67 were assigned to carry out Covid-19 inspections. According to the ETUC findings, in Denmark the labour inspectorate was not initially considered an essential service; following lobbying by the trade unions it resumed work in July. It is important not only to strengthen national capacities for OSH measures to be implemented but also to be enforced. The European Federation of Food, Agriculture and Tourism Trade Unions has also called for EU-wide harmonised health protocols. Furthermore, these mechanisms should remain alert to the link between precarious work and OSH and have preventive and enforcement measures in place (De Wispelaere and Gillis 2021). As mentioned earlier, the European Commission is now working on a new EU Occupational Safety and Health strategy, a strategy that needs to include not only more concrete guidelines at national and transnational level but also to boost investment in OSH infrastructures.

### **Empower workers**

Covid-19 has provided an impetus for changing solidarity and collective action, providing a foothold for multidisciplinary worker cooperative movements (Duke 2020). In an economic system that puts profit over production conditions, workers need to be sufficiently empowered to play an active role in demanding better working conditions. They need to be involved in designing and implementing the protocols of their working lives during the pandemic (Block *et al.* 2020). Workers in the private sector, workers in precarious jobs and on short-term contracts should all have the right to participate in unions and be represented in decision-making processes as much as possible. In an open letter to the Commissioner for Jobs and Social Rights, the European Commission and the European Parliament, several transnational trade unions call for ‘collective bargaining and worker involvement’ and for dialogue with trade union representatives from all strata of workers (from the shopfloor to corporate bodies)<sup>20</sup>. As we have seen, a key aspect of empowering workers is to ensure that their right to information, consultation and participation is enforced. The letter notes that a Directive to this end is crucial, along with sanctions imposed on those not complying. George and George (2020) also note that it is ‘unlikely that any workplace will be spared from the outbreak’. What is important, they note, is that the rights of the workers be upheld in accordance with the health and safety legislation in place: ‘It is imperative that all stakeholders in workplaces, including management, workers and organised labour, understand their legal rights in terms of the legislation with regard to infectious disease outbreaks’ (George and George 2020: 260). The principal stakeholders in this dialogue are the workers themselves. As Benach *et al.* (2017) point out, ‘health cannot be delegated’. Thus, workers must be empowered through knowledge of their rights, of health risks and of the tools giving them real influence to negotiate and ensure better employment and working conditions.

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<sup>19</sup>. <https://www.etuc.org/en/document/etuc-note-violations-osh-regulations-returning-workplace>

<sup>20</sup>. <https://bit.ly/2Oe6f6o>

### Sector-specific OSH measures

It is important to have sector-specific risk assessments of the burden of exposure to Covid-19 (Petersen *et al.* 2020). As seen in the scientific studies and case studies cited earlier, different sectors need different measures. Structural changes such as reducing production line speeds<sup>21</sup> can clash with productivity, while Plexiglass barriers might not be practical in a certain setting (Dyal *et al.* 2020). While regular hand washing is key advice, we note that not all sectors have access to water or even field sanitation. Furthermore, given the intersections of low-skilled, migrant and ethnic backgrounds, it is important for employers to consider the composition of their workforces and ensure equitable measures in circumstances extraneous to the physical workplace itself – including housing and transport. Given the large number of migrant workers in certain sectors, it is also imperative that information campaigns are provided on a range of platforms and in all major shopfloor languages, including sign language (Berger *et al.* 2020). There should be clear messaging from the government and proper communication between healthcare providers, scientists and politicians (George and George). Psychological support is also a major area of concern for workers across sectors. Warning signs of the toll of the pandemic on the mental health of caregivers (*Le Soir* 2020), doctors and workers in non-medical sectors (Hummel *et al.* 2021) indicate an urgent need to prioritise the matter.

### Job security and paid sick leave

In the wake of the pandemic, several exploitative labour market policies have come under criticism, especially the ‘sub-contracting’ of posted workers. In July, Germany announced that it would stop allowing subcontracted labour in meat processing plants. Though a positive move, research indicates that subcontracting remains prevalent in other industries. Besides subcontracted labour, precarious workers, gig workers, self-employed and temporary workers (migrant and native) should be given equitable pay, paid sick leave and access to healthcare and sanitation as part of their job contracts. While permanent workers have access to paid sick leave in most countries, several high-income countries have no provisions for self-employed and gig economy workers to get paid sick leave (Heymann *et al.* 2020). Surveys and news reports show that workers across sectors, including nurses on short-term contracts, have no recourse to paid sick leave in a number of EU countries. In October, the European Council adopted ‘conclusions’ on *Strengthening Minimum Income Protection to Combat Poverty and Social Exclusion in the Covid-19 Pandemic and Beyond*, noting that ‘minimum income schemes contribute to the social protection of the most disadvantaged groups in society, including people hardest-hit by the Covid-19 crisis. They also have a stabilising effect for the economy as a whole. The Council also acknowledges that such schemes help people’s inclusion in employment and society’<sup>22</sup>.

21. Report of an investigation by the CDC on Smithfield Foods looking at factors exacerbating the spread of Covid-19 and suggestions on mitigating the health risks. [https://covid.sd.gov/docs/smithfield\\_recs.pdf](https://covid.sd.gov/docs/smithfield_recs.pdf)

22. <https://www.consilium.europa.eu/en/press/press-releases/2020/10/12/strengthening-minimum-income-protection-in-the-covid-19-pandemic-and-beyond-council-adopts-conclusions/>

### **Do away with the link between residence, healthcare and employment**

Studies (discussed previously) note that migrants, especially undocumented migrants, are less likely to make use of healthcare facilities (insofar as they have access to them) out of fear of being deported. Even documented workers on temporary contracts may not have access to affordable healthcare. It is important for healthcare to become independent of legal residence status. Especially in times of crisis, migrants and refugees should be given the same legal rights to healthcare and included in any detection, testing and tracing and information plans (Petersen *et al.* 2020). Bhopal (2020a; 2020b) suggests the temporary suspension of all exclusionary measures to ensure that undocumented migrants feel comfortable enough to approach authorities regarding healthcare concerns. ‘Fair and equitable sharing of health resources mitigates further risks to public health by meeting community needs and generates trust. Individuals with ambiguous citizenship rights, regardless of their legal status, should be offered care, thereby encouraging them to report when they are ill and stop the spread of Covid-19’ (Berger *et al.* 2020).

### **Better data**

The first section of our report highlighted the importance of accurate and timely data in order to assess the impact of Covid-19 on various segments of the population. Without this, it is difficult to understand who is contracting the disease and what their potential sources of exposure might be (Khalatbari-Soltani *et al.* 2020). This makes analysis dependent on estimates, sector or country-specific case studies and anecdotal information. Access to reliable data disaggregated by occupation, gender and migrant background would allow policymakers to work with researchers on improving mitigation plans. Rates of infection and excess mortality among healthcare workers vary dramatically between countries and it is critical to understand which clinical settings, social factors and OSH standards result in low rates (ICN 2020). Studies *cited in* this report show how data can reveal critical patterns in the spread of the disease and subsequent access to healthcare, especially in terms of sociodemographic characteristics. And, as Khalatbari-Soltani *et al.* (2020) argue, these factors must be considered as clinical factors determining the outcome of the disease. Keeping track of independent determinants will also help policymakers create an intersectional gradient in OSH and will provide input for future policies.

### **The critical factor of trust**

Ultimately, providing equitable measures and support to workers across society is a critical aspect of recovering from the pandemic and avoiding future outbreaks. Such steps will also go a long way in building people’s trust in national governments and EU institutions. The Eurofound e-survey noted that trust in governmental institutions and EU institutions was lower than trust in healthcare systems. Trust levels were slightly higher among those who receive benefits (unemployment, food vouchers etc.) and lower among those whose requests (such as loan deferral, wage support, paid sick leave etc.) were rejected (Eurofound 2020). Trust in institutions is essential as it helps ensure that people follow the measures implemented by the government (Fukuyama 2020; Rothstein 2020 *cited in* Eurofound 2020).

‘Honest, transparent communication is vital; confusing or contradictory health messaging engenders mistrust and people to seek information from unreliable sources’ (Berger *et al.* 2020).



## 6. Conclusion

By the start of 2021, most countries around the world had made compromises between health and the economy. Even as vaccinations get underway, it is clear that mitigation efforts have so far not been that effective, meaning that it is now more critical than ever to spotlight discussions on occupational health and safety.

This report presents an overview of Covid-19 as an occupational disease and the various factors – on the surface and underlying – that impact the risks faced by workers in various sectors. While measures such as working from home and self-isolation go a long way towards countering the threat of contracting and spreading the disease, (case) studies indicate that these options are a matter of ‘privilege’ (Yancy 2020), i.e. not available to all. Governments, employers, unions and workers need to remain vigilant, ensuring that OSH measures are in place for those having to work in physical settings. These measures need to be inclusive and equitable and should also address the extraneous factors directly impacting health and healthcare, while keeping the economy open and unemployment in check. As McClure *et al.* (2020) state: ‘By ignoring and misrepresenting root causes of poor health among workers, we absolve industries and government leaders of their responsibility for equitable health protection. In the midst of the Covid-19 crisis, we have an opportunity to critically evaluate our methods and take measurable steps toward promoting social justice and health equity’ (2020: 1250). Perhaps the most critical revelation of the crisis has been how dependent society is on its most vulnerable workers for everything from food to sanitation. Ensuring better working and employment conditions for key workers and guaranteeing their access to healthcare – not only during the pandemic – must be a top priority. Small steps towards improvement have already been taken. Politicians and policymakers have acknowledged that there are major problems regarding the safety and wellbeing of workers. At the same time, global unions have come together to share their information and weapons against the virus.

With growing recognition that a fair and equitable society will be more resilient to Covid-19, it is important to keep the momentum going in this field. Any measures intended to mitigate the spread of diseases must be inclusive for everyone in order for them to be as effective as possible.

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All links were checked on 18 February 2021.



## Annex 1

# Sectors declared 'crucial' in association with Covid-19 by the Dutch Government

Table 1 Crucial sectors in connection with COVID-19

In the specific context of the COVID-19 outbreak, there are certain sectors and processes that are crucial to keeping society running. Parents and guardians working in these crucial sectors can make use of childcare facilities. The following sectors and processes have been classified as crucial:

- Healthcare and care, including the production and transportation of medicines and medical devices.
- Education: teachers and support staff who are needed to provide distance learning, childcare at schools and exam supervision.
- Public transport.
- Food supply. This should be understood in the broadest sense and includes supermarkets, deliveries to supermarkets, the food processing industry and related transport, the collection of products from farms, deliveries of animal feed and other products to farms and access for harvest workers.
- Transportation of fuel, including coal, oil, petrol and diesel.
- Refuse and waste collection.
- Childcare.
- Media and communication, in so far as this work relates to providing society with necessary information about the current situation.
- Emergency services (the police service and Defence organisation have already been classified as critical):
  - control room processes
  - fire services
  - ambulance services
  - Regional Emergency Medical Services (GHOR)
  - safety regions' crisis management.
- essential government processes (central, provincial and municipal government), such as payment of benefits and allowances, population affairs, consulates and embassies, custodial institutions and forensic clinics.

### Critical processes

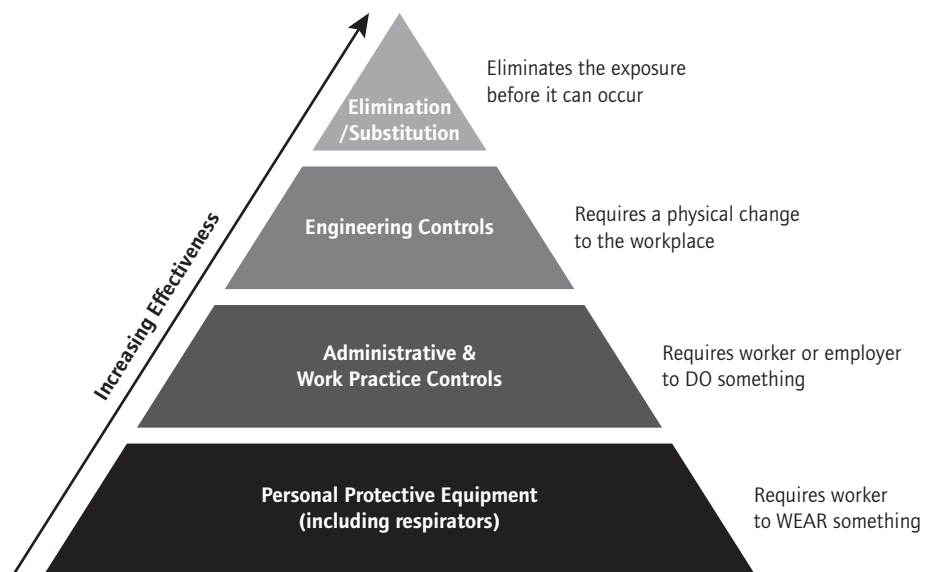
In the Netherlands certain businesses are always classified as critical. This applies to around 100 businesses which were already aware of their status. If you are a key worker in one of these critical processes, you can send your children to school or childcare. National transportation/distribution of electricity; regional distribution of electricity; gas production and national transportation/distribution of gas; regional distribution

of gas; heating oil supplies; Internet and data services; Internet access and data traffic; speech-communication services and text messaging; geolocation and time information via GNS; drinking water supplies; flood defences and water management; flight and aircraft handling; vessel traffic service ; large-scale production, processing and/or storage of chemicals and petrochemicals; storage, production and processing of nuclear materials; retail transactions; consumer financial transactions; high-value transactions between banks; securities trading; communication with and between emergency services through 112 and C2000; police deployment ; Personal Records Database and Organisational Records Database; interconnectivity (transaction infrastructure between records database); electronic messaging and the provision of information to the public; identification and authentication of citizens and businesses; military deployment; passenger and freight transport by rail; transport by road

Source: <https://www.government.nl/documents/publications/2020/03/20/childcare-for-children-of-people-working-in-crucial-sectors>; later on replaced by <https://www.government.nl/documents/publications/2020/12/15/childcare-for-children-of-people-working-in-crucial-sectors>

## Annex 2

# A visual representation of the hierarchy of control



Source: OSHA, <https://www.osha.gov/safer-chemicals/why-transition>



**European  
Trade Union Institute**

Bd du Roi Albert II, 5  
1210 Brussels  
Belgium  
+32 (0)2 224 04 70  
etui@etui.org  
www.etui.org

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