Organisation for Economic Co-operation and Development

DELSA/HEA/WD/HWP(2023)5

Unclassified English text only

6 March 2023

DIRECTORATE FOR EMPLOYMENT, LABOUR AND SOCIAL AFFAIRS
HEALTH COMMITTEE

Health Working Papers

Health Working Papers No. 153

Socio-economic and ethnic health inequalities in COVID-19 outcomes across OECD countries

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JEL numbers: I14, I30, and I10

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Acknowledgements

The authors would like to acknowledge and thank the delegates of the OECD Health Committee who provided information to the 2021 OECD Policy Survey on COVID-19 and Health Inequalities, and for comments received on an earlier version of the study.

The work presented here was undertaken by Caroline Berchet, José Bijlholt and Mariko Ando. Within the OECD ELS Health Division, we would like to thank Frederico Guanais, Francesca Colombo and Mark Pearson for their feedback and support. The authors also appreciate the support received from Isabelle Vallard, Sahnur Soykan and Takumi Akama, who coordinated the administrative aspects of producing this report.

Abstract

The COVID-19 pandemic has disproportionately hit some vulnerable population groups. Those living in deprived areas, migrant population, and ethnic minorities are at higher risk of catching and dying from the virus than other groups, and they also face significant indirect health impacts of the COVID-19 pandemic - both mental health impacts and disruption of routine care. The working paper gathers evidence on the direct and indirect health impacts of the COVID-19 on the poor population and the ethnic minorities. It reviews factors underlying these inequalities, and maps policy interventions adopted by OECD countries to help address the disproportionate impacts of the COVID-19 pandemic on vulnerable population groups.

Résumé

La pandémie de COVID-19 a touché de façon disproportionnée certaines catégories de population vulnérables. Les habitants des zones défavorisées, la population immigrée et les minorités ethniques sont plus exposés au risque de contamination et de décès dû au COVID-19 que les autres groupes, et ils sont également confrontés à d'importantes conséquences indirectes de la pandémie sur la santé, qu'il s'agisse d'effets sur l'état de santé mental ou de perturbations des soins courants. Le document de travail présente les données disponibles sur les effets directs et indirects du COVID-19 sur la santé des populations défavorisées et des minorités ethniques. Il passe en revue les facteurs qui sous-tendent ces inégalités, et recense les actions menées par les pays de l'OCDE pour contribuer à remédier aux effets disproportionnés de la pandémie sur les catégories de population vulnérables.

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Key Findings

COVID-19 has put disadvantaged populations at greater risk of getting sick and of dying from COVID-19 than the rest of the population. In almost all OECD countries for which data are available, people with lower incomes, those living in deprived areas, ethnic minorities and immigrants have faced an elevated risk of dying from the virus and an increased risk of COVID-19 infection and hospitalisation:

- The risk of dying from COVID-19 among people living in the most deprived areas is between 1.2 and 2.6 times as high as the risk among people living in the least deprived areas across nine countries for which data are available;
- In Canada, Luxembourg, Sweden and the Netherlands, the risk of dying from COVID-19 is between 40% and 60% higher among the lowest income groups than the highest income groups;
- In the few countries reporting mortality data disaggregated by ethnicity, Black and Hispanic people are at least twice as likely as the Whites to die from COVID-19.

People with lower incomes, those living in deprived areas, ethnic minorities and immigrants also experienced higher rates of mental distress during the COVID-19 pandemic:

- Prevalence of depression were more than twice as high among the least well-off than the most well-off in Austria, Canada, Czech Republic, France and the United States.
- Foregone care or disruption in routine care associated with the pandemic and lockdown measures disproportionately impacted the disadvantaged across many countries**.**

Socio-economic and ethnic inequalities in COVID-19 outcomes have multiple and often interrelated causes:

- *Systemic discrimination and poverty* increase the risk of the disadvantaged to have higher-risk jobs with greater exposure to COVID-19, and to live in overcrowded or insecure housing, all of which increasing their exposure to the virus.
- The disadvantaged population also faces an *accumulation of risk factors* that place them at higher risk of complications and death from COVID-19. They more likely face chronic conditions, have higher exposure to risk factors such as obesity, have more limited health literacy and less access to the health system.
- The disadvantaged were disproportionately impacted *by job and income losses* during the pandemic which are risk factors associated with poor physical and mental health, potentially exacerbating health inequalities further.

Health systems have implemented several policy actions to redress COVID-19-related health inequalities. The report stresses the important role of four main approaches: 1) better targeting and outreach to vulnerable groups for both the delivery of pandemic products and the supply of routine health services; 2) improving literacy, including digital literacy; 3) improving monitoring of inequalities; and 4) encouraging cross sectorial collaboration. The report notes an urgent need to:

- *Increase the vaccination rate of disadvantaged groups*. Given the gaps across socio-economic or ethnic groups in vaccination coverage, ensuring equitable COVID-19 vaccine coverage should be a high national priority across OECD countries. At global level, efforts to ensure distribution of vaccine to all remained essential to end the pandemic. At country level, efforts to

increase supply production and distribution to economically disadvantaged countries was most needed. Ensuring free access to COVID-19 testing and treatment at the point of delivery and that there is no immigration status check are also examples of good practice across OECD countries (as done in the United Kingdom with the GP Access Card initiative). Empowering and equipping communities to lead vaccination efforts within their communities can help to ensure interventions are delivered in a culturally safe and appropriate way. Target communities need to be involved in rollout, campaigns, and delivery of COVID-19 vaccination to build trust in health care system.

- *Reinforce primary health care services to reach out to the most disadvantaged population* in order to address both COVID-19 and non COVID-19 health needs in the community (as done for example in France with the *Permanence d'Accès aux Soins de Santé* and of E*quipes Mobiles Psychiatrie Précarité*). Primary health care has a key role to play by supporting vulnerable people to implement public health measures (such as in the United States with the deployment of community health agents).
- Develop adequate resources to support *health and digital literacy* among the disadvantaged population by providing accurate and easy to understand COVID-19 information, and in all relevant languages. Education and prevention campaign should be developed in collaboration with local communities to be culturally appropriate, as implemented in Spain, Canada or Australia. The "4 Steps to eHealth4ALL" model developed by the Pharos Centre in the Netherlands has all the components to improve *digital health literacy* among low socio-economic status.
- Strengthen *collection of health data disaggregated* by socio-economic characteristics. This is the starting point to shed light on how different population groups are doing, to monitor trends in health inequalities and deploy targeted responses during health emergencies. Belgium and the United Kingdom have developed new tools and surveillance systems to monitor health inequalities during the COVD-19 pandemic. However, the pandemic revealed significant gaps in the availability of disaggregated information in many countries. For example, no country reported collecting routinely COVID-19 health data disaggregated by income or education level, and only seven countries reported collecting routinely COVID-19 data by ethnicity, nationality or country of birth. To monitor patterns of health inequalities and deploy effective interventions, OECD countries need to urgently invest in their national capacity to improve the collection of disaggregated health data not only by age and sex, but also by geographic area, income, education, ethnicity and country of birth.
- Expand *cross-sectoral collaboration* to implement a range of labour market, social and housing policies to address the root causes of inequalities. Strengthened co-ordination between the health and social sector in Scotland is an example of good practice to redress health inequalities by proactively addressing the social determinants of health.

The report highlights the crucial and continuing need for OECD countries to monitor inequalities in direct and indirect COVID-19 health outcomes, to better understand the underlying causes and be able to act on them. While identifying high-risk population groups is crucial for defining targeted infection control, prevention measures and health care resource prioritisation during emergencies, too few OECD countries routinely collect COVID-19 health data disaggregated by socio-economic status. This is clearly not enough to build a comprehensive picture of the causes, distribution, and impact of the pandemic on disadvantaged population. Strengthening routine data collection on health outcomes and access to care disaggregated by socio-economic characteristics is a must across the OECD.

1 The unequal health toll of the COVID-19 pandemic

1. Disadvantaged groups are at higher risk of morbidity and mortality from COVID-19

1. Using secondary data, information available online from official websites, and data sent by National Authorities, this section highlights that people from disadvantaged socio-economic backgrounds have a higher risk of dying from COVID-19, and a higher risk of COVID-19 infection and hospitalisation than the better off. There exists several markers of socio-economic status including income, education, occupation, deprivation level, ethnicity and migration status. The working paper mostly focuses on four socio-economic markers: income, deprivation level (which measures poverty of small areas), ethnicity and migration status as they are more commonly used in the literature to measure inequalities in COVID-19 outcomes. While it is not explored in this working paper, there are also wide gender inequalities in COVID-19 infections and mortality.[1]

OECD countries observed higher COVID-19 mortality rates among socially disadvantaged people

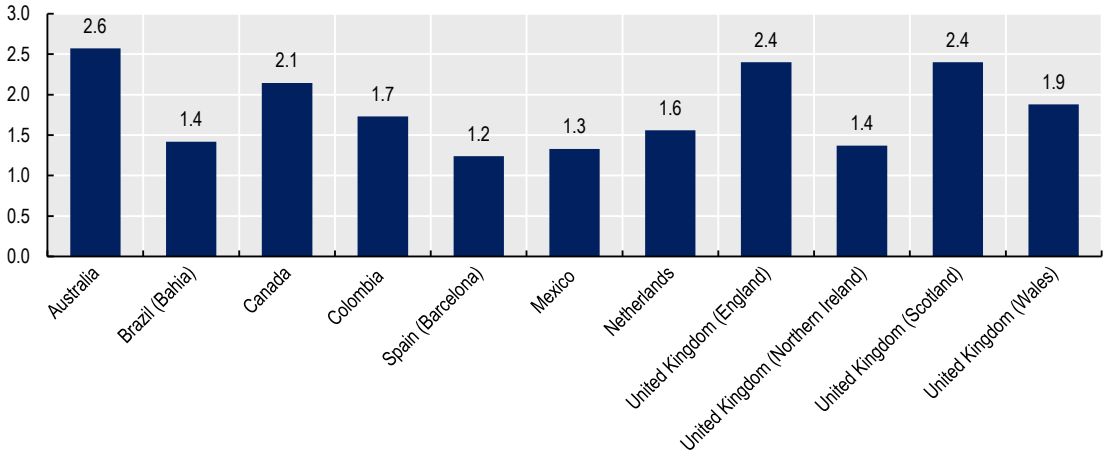
2. In many OECD countries, people living in deprived areas have a higher risk of death from COVID-19. Across nine countries for which data are available, people living in the most deprived areas have on average 80% higher risk of dying from COVID-19 than people living in the least deprived areas. The higher risk of dying remained significant after controlling for biological factors including age. In Australia, Canada, and the United Kingdom (England and Scotland), the risk of dying from COVID-19 among people living in the most deprived areas was between 2.1 and 2.6 times as high as the risk among people living in the least deprived areas (Figure 1). In Brazil, Mexico, and Spain, people living in the most deprived areas had between 20% and 40% higher risks of dying from COVID-19. In Chile (Santiago) and in Switzerland, municipalities with low socio-economic status were also hit the hardest in term COVID-19 deaths (Mena et al., 2021[1]; Riou et al., 2021[2]);

3. Looking at COVID-19 mortality rates by household income groups provides similar differences across four OECD countries (Figure 2). The lowest income groups had a higher risk of dying from COVID-19 than the highest income groups in Canada, Luxembourg, Sweden and the Netherlands. Among these countries, Sweden and the Netherlands displayed the highest relative risk of dying from COVID-19 among the poorest income quintiles, with a 60% higher risk of dying compared to the richest income quintiles. In Luxembourg and Canada, people with lower incomes have 40% higher risk of dying compared to people with higher incomes.

[1] In France, the mortality of people infected by the virus is higher among men than women. On the other hand, women are more exposed to other risk factors as they are more likely to work in health and social services, to have bear a higher informal burden within households, while being more exposed to domestic violence within households.

Figure 1. The relative risk of dying from COVID-19 is significantly higher among people living in the most deprived areas

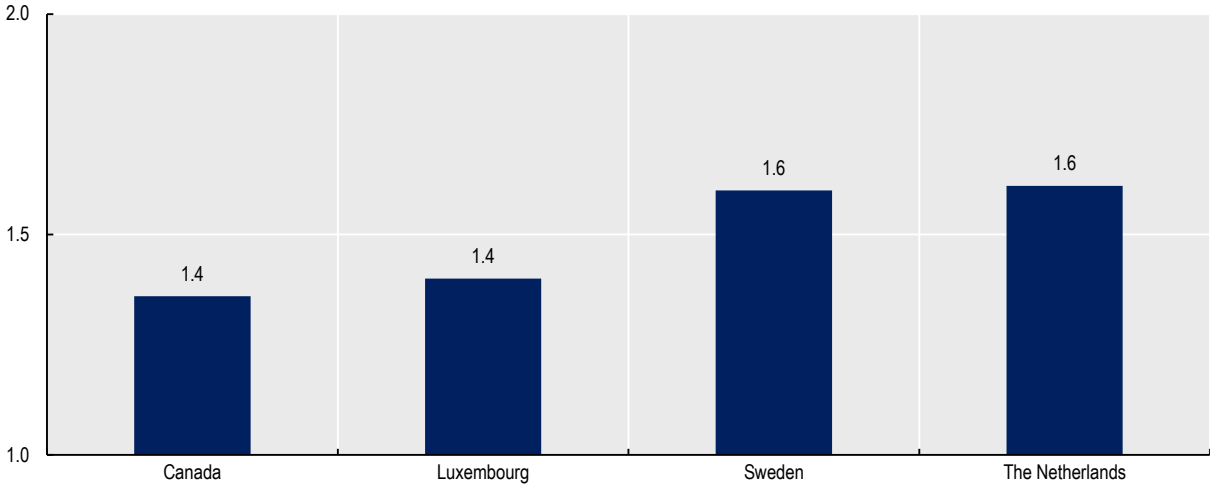
Rate ratio for COVID-19 mortality between people living in the most deprived areas and those in the least deprived areas



Note: Data are not directly comparable across OECD countries and regions due to different study design, methodology and timeframe of observation. The rate ratio is based on age-adjusted or multivariate methodology in Australia, Canada, Colombia, England, the Netherlands, Mexico, Northern Ireland, Scotland, Spain and Wales. In Brazil, the rate ratio is not based on an age-adjusted methodology.
Source: OECD Health Secretariat based on data from Australia, Brazil, Canada, Colombia, the Netherlands, Mexico, Spain and United Kingdom (England, Northern Ireland, Scotland, Wales).

Figure 2. The relative risk of dying from COVID-19 was between 1.4 and 1.6 times as high among low-income groups than high-income groups in 4 OECD countries

Rate ratio for COVID-19 mortality between people with lower incomes and high-income people



Note: Data are not directly comparable across OECD countries and regions due to different study design, methodology and timeframe of observation. The rate ratio is based on age-adjusted or multivariate methodology in Luxembourg, Sweden, the Netherlands and Canada.
Source: OECD Health Secretariat based on data from Canada, Luxembourg, the Netherlands, Sweden.

4. In seven countries, scientific research papers have investigated the risk of COVID-19 mortality by ethnicity. The general direction of results is clear, revealing consistent and stark differences between White population and ethnic minorities (Figure 3):

- In the United Kingdom (England and Scotland), Black and Asian ethnic minorities were at particularly increased risk of dying from COVID-19 compared to Whites (twice as likely) (National Records of Scotland, 2020[3]; Public Health England, 2021[4]).
- In the United States, Black, Hispanic and Indian ethnic minorities were more than twice as likely as the White population to die from COVID-19 (CDC, 2021[5]). This result corroborates a study showing significant ethnic differences in the decline of life expectancy in 2020 in the United States (Andrasfay and Goldman, 2021[6]). According to projections, life expectancy at birth decreased by 3.0 years for Latino populations and by 2.1 years for Black populations, as compared with 0.7 years for White populations.
- In Canada, completeness level of COVID-19 mortality data by ethnic group is poor at national level. As a result, Canada relies on neighbourhood diversity as a proxy measure to study ethnic disparities in COVID-19 deaths. Evidence from Statistics Canada shows that the risk of dying from COVID-19 among neighbourhoods with the highest ethno-cultural concentration[2] was 2.3 times as high as those living in neighbourhoods with the lowest proportion concentration (Statistics Canada, 2020[7]). Recently, Statistics Canada revealed that Black people had the highest age-standardized mortality rate compared to South-Asians and Chinese (Statistics Canada, 2022[8]).
- In the Netherlands, Mexico and Colombia, the difference is lower but still significant for some ethnic minorities after age-adjustment. In these three countries, Indigenous people and people with a non-western background had a 20%-30% higher risk of dying from COVID-19.

5. When comparing foreign-born and native-born population, the risk of dying from COVID-19 was significantly higher among foreign-born population in seven OECD countries (Figure 4). Nationwide data from Australia, Norway and Sweden, suggests that foreign-born populations were between 1.9 and 3 times as likely as native-born populations to die from COVID-19. In Canada, Italy and the Netherlands, the risk was between 10% and 70% higher among foreign-born than native-born populations. In Luxembourg, adjusted COVID-19 mortality rates were on average 50% among foreign-born resident than native-born resident. The death rates were three times higher for residents born in any former Yugoslav country than for people born in Luxembourg (Van Kerm, Salagean and Amétépé, 2022[9]). A handful of studies also show that excess mortality rose more significantly among migrants and other disadvantaged populations in France, Belgium, and Sweden (Box 1).

Box 1. Excess mortality is significantly higher among the disadvantaged in France, Belgium and Sweden

In France, evidence suggests that COVID-19 disproportionately hit migrants and people living in deprived areas (Papon and Robert-Bobée, 2020[10]). During the first wave of the pandemic in March-April 2020, mortality rates in Seine-Saint-Denis (the poorest department in mainland France) were more than doubled compared with a year earlier – much higher than the 27 % increase observed nationally for the same period. In addition, mortality among people born in France increased by 22% in March-April 2020 compared with the same period in 2019, but by 54% among those born in the Maghreb, 91% among those born in Asia, and more than double among those born in non-Maghreb African countries (+114%).

In Belgium, a population-based study on mortality among Belgian migrants during the first COVID-19 wave suggests an increased mortality in all country of origin groups, particularly for Sub-Saharan

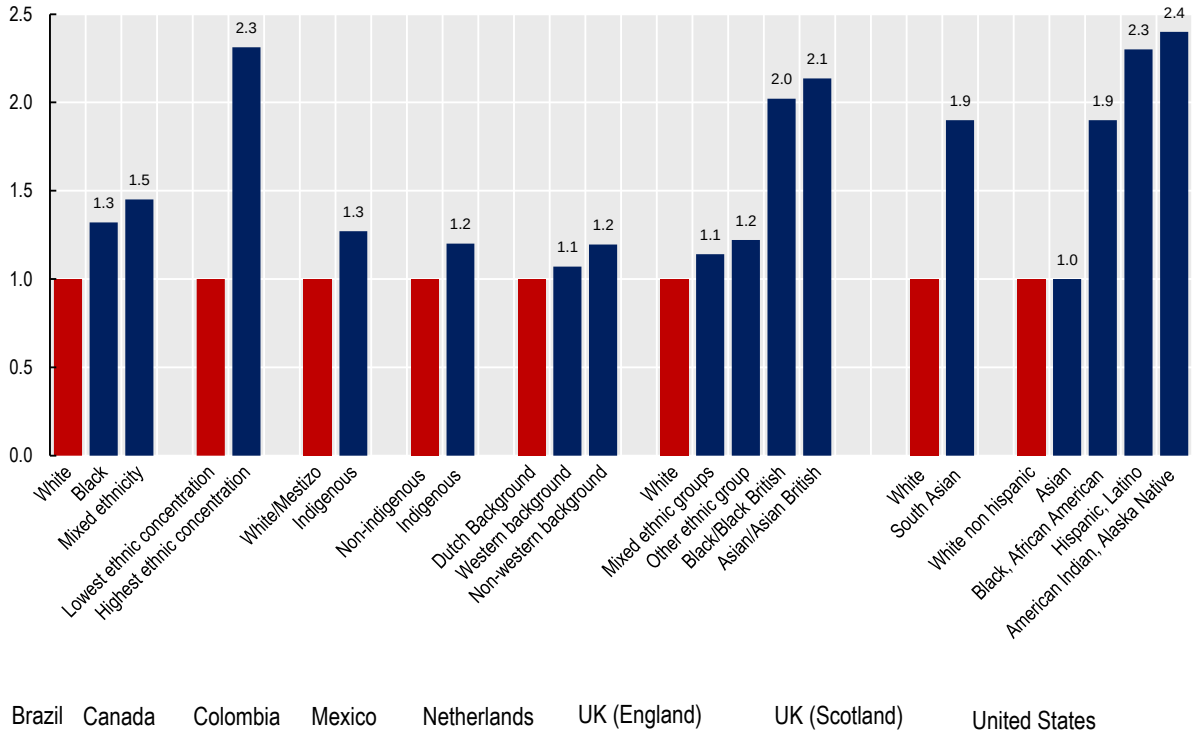
[2] Ethno-cultural composition is based on proportion of those self-identifying as: a visible minority; a recent immigrant; being born outside Canada; having no knowledge of either official language (English or French).

African men aged between 40 and 64 years (+ 70% - much higher than the 7% increase observed among native-Belgium men) (Vanthomme K et al., 2021[11]). In addition, excess mortality related to COVID-19 is negatively associated with income level among people aged over 65 (Decoster, Minten and Spinnewijn, 2021[12]). Excess mortality in the poorest income decile was more than twice as high as in the richest income decile. For individuals aged under 65, the relationship between income and mortality was unchanged during the COVID-19 pandemic. Mortality among low-educated people aged 65 and over increased by 30% in March-May 2020 compared with 2015-2019, but by 22% among people with higher education. Lastly, the relative increase in mortality was highest for people born in Italy (+42.8%), Republic of Türkiye (+42%), and Poland (+39%), compared to those born in Belgium (+25%), Germany (+23%) and the Netherlands (+6.8%).

In Sweden, excess mortality related to COVID-19 was also found during the first wave of the pandemic (from March to May 2020) compared with the 2016–2019 period among middle-aged people (40-64) and those aged over 65. Excess mortality was the highest for immigrants from Somalia, Syria and Iraq, with mortality rates 3 times as high as the baseline period. By contrast, mortality increased by only 19% among those aged over 65 and born in Sweden, the European Union, the Nordic countries or North America (Hansson et al., 2020[13]).

Figure 3. The relative risk of dying from COVID-19 is higher among ethnic minorities

Rate ratio for COVID-19 mortality between ethnic minorities

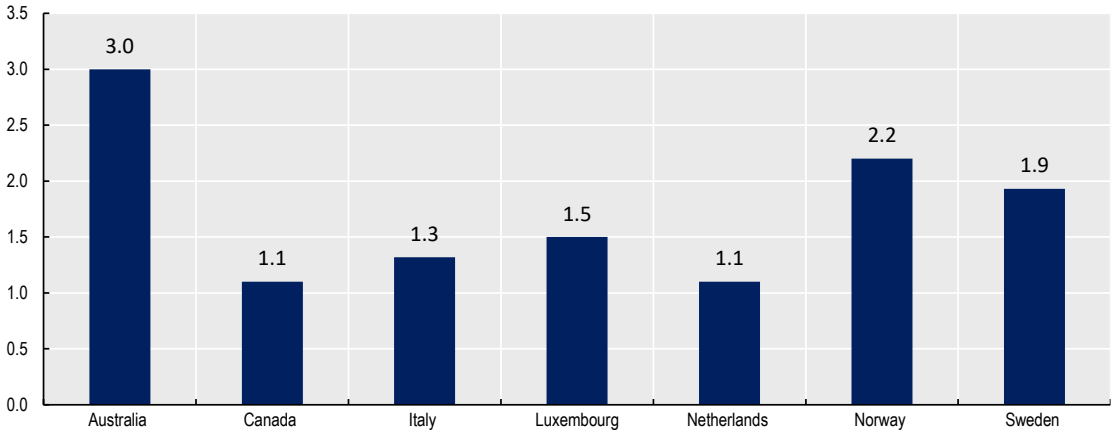


Note: Data are not directly comparable across OECD countries and regions due to different study design, methodology and timeframe of observation. The rate ratio is based on age-adjusted or multivariate methodology in Brazil, Canada, Colombia, England, Mexico, the Netherlands, Scotland, and the United States.

Source: OECD Health Secretariat based on data from Brazil, Canada, Colombia, Mexico, the Netherlands, United Kingdom (England as of May 2011 and Scotland as of June 2020) and the United States (as of August 2021).

Figure 4. The relative risk of dying from COVID-19 is higher among foreign-born population

Rate ratio for COVID-19 mortality between foreign-born populations compared to native-born populations



Note: Data are not directly comparable across OECD countries and regions due to different definitions, study design, methodology and timeframe of observation. The rate ratio is based on age-adjusted or multivariate methodology in Australia, Italy, the Netherlands, Norway and Sweden. In Canada and Luxembourg, the rate ratio is not based on an age-adjusted methodology.
Source: OECD Health Secretariat based on data from Australia, Canada, Italy, Luxembourg, the Netherlands, Norway, and Sweden .

Socially disadvantaged people have faced an elevated risk of COVID-19 infection

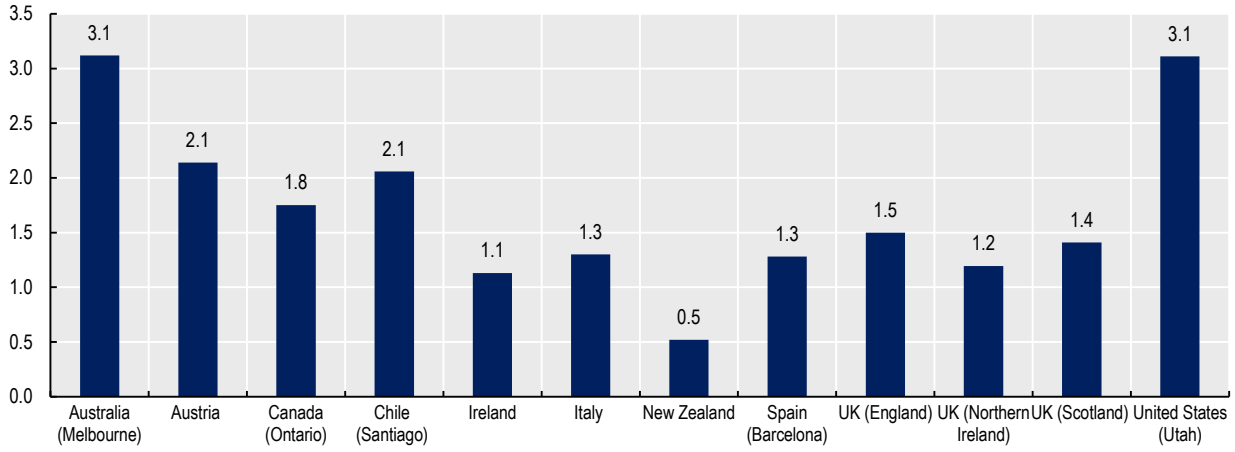
6. Differences in mortality were at least in part explained by differences in infections across these population. Socio-economic and ethnic inequalities were found in COVID-19 infection rates in several OECD countries: people living in deprived areas, low-income groups, ethnic minorities, and the foreign-born population were at significant higher risk of COVID-19 infection. The higher risk of COVID-19 infection remained after controlling for biological factors, including age (apart from Ireland and the United Kingdom (Scotland) where the rate ratio is based on crude infection rates).

7. The risk of COVID-19 infection for people living in the most deprived areas was at least 50% higher than among those living in the least deprived areas in six countries. In the United States and Australia, the risks of COVID-19 infection among people living in the most deprived areas were more than 3 times as high as those living in the least deprived areas. In Ireland, United Kingdom (Northern Ireland, Scotland and England), Spain (Barcelona) and Italy, the risk of COVID-19 infection in the most deprived areas was between 10% and 50% higher than in the least deprived areas (Figure 5).

8. In New Zealand, evidence suggests the pandemic started in communities with higher socio-economic status. Jefferies et al (2020) show that between February 2 to May 13, 2020, COVID-19 cases were 50% lower among residents in the most deprived areas compared to the least deprived areas (Jefferies et al., 2020[14]). In Germany, a similar gradient in disfavour of residents living in the least deprived areas have been found in the early phase of the pandemic up to April 2020 (Wachtler et al., 2020[15]). Over time the pandemic impacted harder the communities of low socio-economic status. Indeed, over the course of the second pandemic wave in Germany, new infections shifted from the country's most affluent to its most deprived areas, which ended up with the highest incidence rates as of the end of 2020 (Hoebel et al., 2021[16]). In the Netherlands and Austria, a reverse social gradient was also found in the early stage of the pandemic, which then shifted to the detriment of the most deprived area (2021 OECD Policy Survey on COVID-19 and Health Inequalities). It might be that travels and participation to work-related or social events among the better-off contributed to higher incidence rates in the least deprived areas during the early stage of the COVID-19 pandemic (Hoebel et al., 2021[16]; Wachtler et al., 2020[15]).

Figure 5. There is an increased risk of COVID-19 infection among people living in the most deprived areas

Rate ratio for COVID-19 infection between people living in the most deprived areas compared to the least deprived areas



Note: Data are not directly comparable across OECD countries and regions due to different definition, study design, methodology and timeframe of observation. The rate ratio is based on age-adjusted or multivariate methodology in Spain, the United States, Italy, England, Canada, Australia, Austria, New-Zealand, Chile and Northern Ireland. In Ireland and Scotland, the rate ratio is not based on an age-adjusted methodology.
Source: OECD Health Secretariat based on data from Australia, Austria, Canada, Chile (Santiago), Germany, Italy, Ireland, New Zealand, Spain, United Kingdom (England as of July 2021, Northern Ireland, Scotland as of September 2021) and the United States.

9. Looking at COVID-19 infection rates by household income level provides similar patterns of inequalities. Luxembourg and Korea have for example analysed COVID-19 infection data by household income level:

- In Luxembourg, the number of COVID-19 cases from March 2020 to October 2021 among low-income group (those with a standard of living less than EUR 25 000 per year) was 15% higher than high-income group (those with a standard of living above EUR 60 000 per year) (Van Kerm, Salagean and Amétépé, 2022[9]).
- In Korea, the likelihood of COVID-19 infection between January 2020 to June 2020 was 19% higher among the lowest income groups (Oh, Choi and Song, 2021[17]).

10. Inequalities in COVID-19 infection are also observed looking at differences by ethnic minorities or migration status. Countries using ethnicity in scientific research on COVID-19 revealed consistent and stark differences between the White population (or non-Indigenous People) and ethnic minorities (Figure 6):

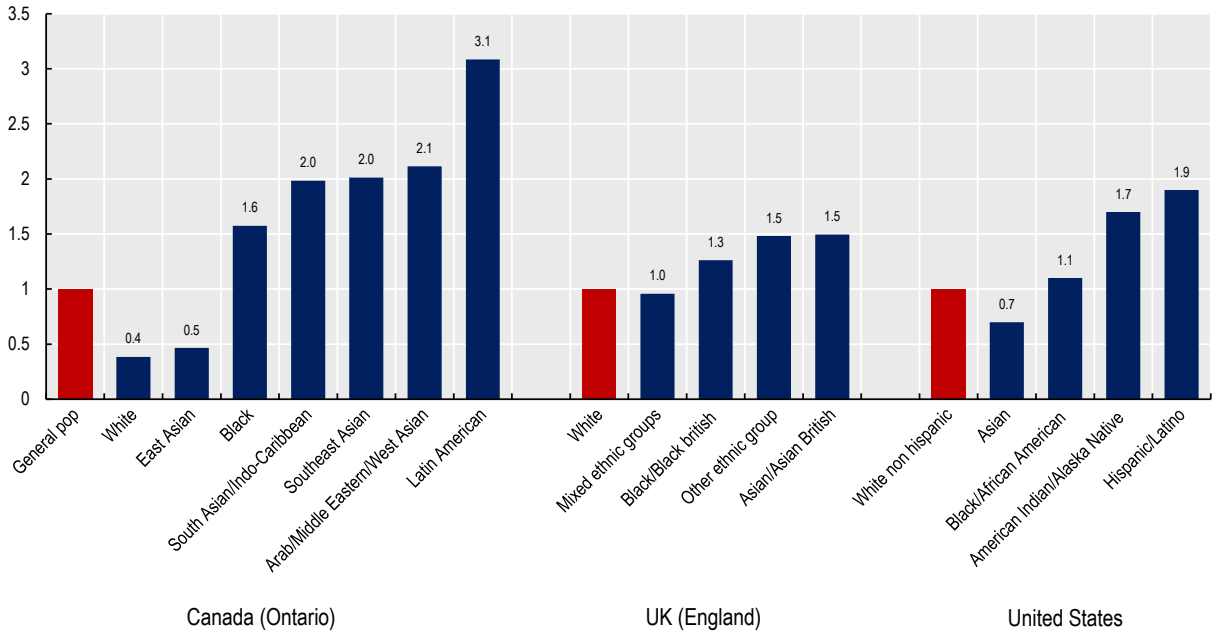
- In the United States, the Centre for Disease Control and Prevention shows that in 2021 the risk for COVID-19 infection among Hispanic/Latino people and American Indian/Alaska Native people was 1.9 and 1.7 times as high compared to White non-Hispanic people (CDC, 2021[5]). The risk of COVID-19 cases for Black or African American was 10% higher than that of White non-Hispanic persons. By contrast, Asian had a 30% lower chance of COVID-19 infection compared to White non-Hispanic people.
- In the United Kingdom (England), the relative risk of COVID-19 infection was almost 30% and 50% higher for Black and Asian people respectively compared to White British people (PHE, 2021[18]). Another study from England and Wales confirms higher COVID-19 infection rates among Black, Asian and minority ethnic (BAME) communities after multivariate adjustment for age, health risk

factors, socio-economic status and comorbidities (Prats-Uribe, Paredes and Prieto-Alhambra, 2020[19]).

- In Canada (Ontario), the risk of COVID-19 infection for Black, South and Southeast Asian, Latin American and Arab/Middle Eastern/West Asian was between 1.6 to 3 times as high as that of the general population. By contrast, White population and East Asian ethnic minorities have 60% and 53% lower risk of COVID-19 infection as compared with the general population (Toronto Public Health, 2021[20]).

Figure 6. Some ethnic minorities have been at higher risk of COVID-19 infection in England, Canada and the United States

Rate ratio for COVID-19 infection between ethnic minority groups

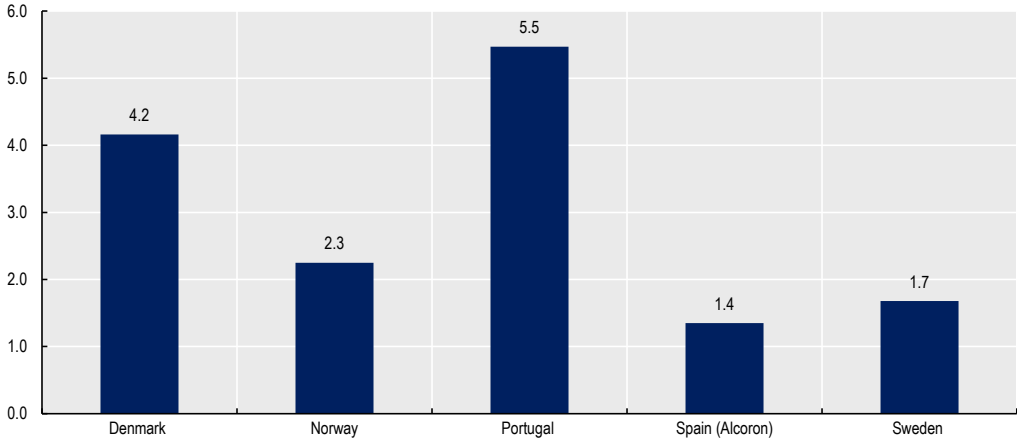


Note: Data are not directly comparable across OECD countries and regions due to different definition, study design, methodology and timeframe of observation. The rate ratio is based on age-adjusted or multivariate methodology in the United Kingdom and the United States. In Canada, the rate ratio is not based on adjusted methodology.
Source: OECD Health Secretariat based on data from Canada (as of May 2021), England (as of July 2021), the United States (as of August 2021).

11. Using country of birth as a proxy for migration status, evidence demonstrated that migration is also an important factor of vulnerability for higher COVID-9 infection (Figure 7). In Spain (Alcoron), Portugal, Norway, Denmark and Sweden, foreign-born population have been harder-hit than native-born population during the COVID-19 pandemic. The relative higher risk of COVID-19 infection among foreign-born population ranges from 40% in Spain (Alcoron) to a factor of five in Portugal.

Figure 7. The relative risk of COVID-19 infection is higher among foreign-born population than native-born population

Rate ratio for COVID-19 infection between foreign-born and native-born population



Note: Data are not directly comparable across OECD countries and regions due to different definition, study design, methodology and timeframe of observation. The rate ratio in Spain, Sweden, Norway and Denmark is based on crude data, while in Portugal the rate ratio is adjusted for age, sex and education level.
Source: OECD Health Secretariat based on data from Denmark, Norway , Spain, Sweden, and Portugal.

12. Across these countries, there are major variations between countries of birth. For example, in Norway, people born in Pakistan, Somalia and Iraq, have the highest COVID-19 infection rates (Indseth et al., 2021[21]), while in Sweden, the risk is the highest for people born in the Republic of Türkiye, Ethiopia and Somalia (Folkhalsomyndigheten, 2020[22]). In Denmark, the highest risk of COVID-19 infection was found among people born in Somalia, Pakistan and Morocco (Institut, Statens Serum, 2020[23]). In the city of Alcaron (Spain), the relative risk for migrants from Latin America was about 7 times higher than that for Spanish native-born, 3.6 times higher for migrants from Sub-Saharan Africa, and about 6.3 times higher for migrants from the Caribbean. By contrast, COVID-19 incidence among migrants from Asia, the European Union, and Eastern Europe did not significantly differ from Spanish native-born population (Guijarro et al., 2021[24]).

Box 2. Income inequalities in COVID-19 infection vary according to individual's nationality and country of birth in Denmark

In Denmark, there are also large income disparities in COVID-19 infection that significantly vary according to nationality and country of birth (Table 1). Interestingly, there is a reverse gradient of income inequality among the Danish-born population, with a slightly higher infection rate among the highest income group (4.5%) compared to the lowest income group (4%). However, among those born in a non-western country, the risk of COVID-19 infection is 1.6 times higher in the lowest income group compared to the highest income group. Among people born from a western country, income inequalities are lower: the risk of infection is 1.2 times higher among the lowest income group compared to the highest income group.

Table 1. Share of positive COVID-19 cases among the tested population by income quartiles and country of origin in Denmark (%)

	Danish-born population	Foreign-born from a western country	Foreign born from a non-western country
1st Quartile	4.0	5.3	12.2
2nd Quartile	3.9	5.8	11.6
3rd Quartile	4.2	5.7	10.4
4th Quartile	4.5	4.4	7.8

Note: The data indicate the share of people with a positive SARS-CoV-2 test among the tested population. The data cover the period from February 1, 2020 to March 9, 2021.
Source: The 2021 OECD Policy Survey on COVID-19 Health Inequalities.

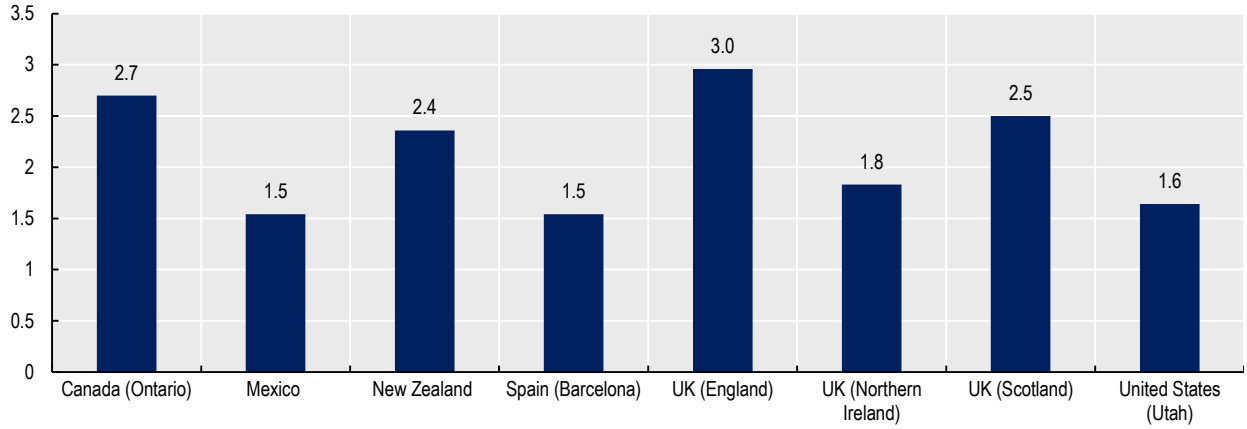
The odds of COVID-19 hospitalisations are consistently higher among socially disadvantaged people

13. Strong available evidence suggested significant gradients in the risk of hospitalisation for COVID-19 according to deprivation level, ethnicity and migration status. In six OECD countries, people living in the most deprived areas had at least 50% higher risk of COVID-19 hospitalisation than people residing in the least deprived areas **(**Figure 8**).** The increased risk of COVID-19 hospitalisation was the highest in the United Kingdom (England and Scotland) and Canada, where people living in the most deprived areas were between 2.5 and 3 times as likely to be hospitalised for COVID-19 compared to those living in the least deprived areas.

14. In Luxembourg, between 1 March 2020 and 27 October 2021, the risk of being hospitalised in intensive care for COVID-19 was 1.6 times greater among people with a low standard of living than those with the highest standard of living (Van Kerm, Salagean and Amétépé, 2022[9]).

Figure 8. The increased risk of COVID-19 hospitalisation among people residing in deprived areas is confirmed in eight OECD countries

Rate ratio for COVID-19 hospitalisation between people living in the most deprived areas and those in the least deprived areas

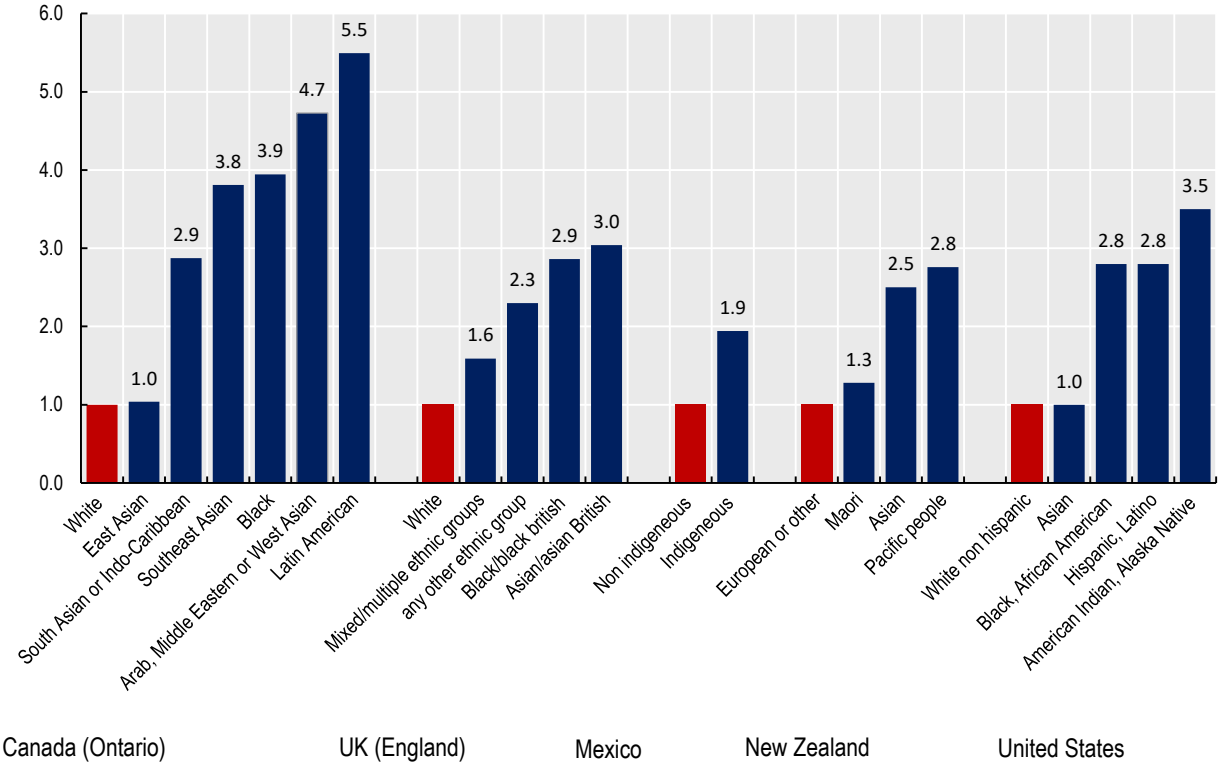


Note: Data are not directly comparable across OECD countries and regions due to different definition, study design, methodology and timeframe of observation. The rate ratio is based on age-adjusted or multivariate methodology in all countries except for Scotland. In New Zealand, the data measures severe COVID-19 health outcomes corresponding to both COVID-19 hospitalisation and deaths.
Source: OECD Health Secretariat based on data from New Zealand, Mexico, Spain, the United States, Canada as of December 2021, and the United Kingdom (Northern Ireland as of May 2020, Scotland as of October 2021 and England as of May 2021).

15. Higher risk of COVID-19 hospitalisation was also confirmed by ethnicity and immigration status in nine OECD countries. For example, Black ethnic minorities in the United States, United Kingdom (England), and Canada were between 2.8 and 3.9 times as likely than Whites to be hospitalised for COVID-19. In Canada (Ontario), people from Latin America were 5 times as likely as White people to be hospitalised for COVID-19 (Figure 9). In Mexico, the risk of COVID-19 hospitalisation was twice as likely among Indigenous people than non-Indigenous People.

Figure 9. Ethnic minorities have faced a higher risk of COVID-19 hospitalisation in five OECD countries

Rate ratio for COVID-19 hospitalisation between ethnic minorities



Note: Data are not directly comparable across OECD countries and regions due to different definition, study design, methodology and timeframe of observation. The rate ratio is based on age-adjusted or multivariate methodology in all countries.
Source: OECD Health Secretariat based on data from New Zealand, Mexico, United States (as of August 7, 2021), England (as of May 2021), Canada (as of 31 July, 2021).

16. In Italy, data from the COVID-19 surveillance system suggested that adjusted hospitalisation rates and admission rates to ICU were significantly higher among non-Italian nationals compared to Italian nationals (Fabiani et al., 2021[25]). In Norway and Denmark, foreign-born population had consistently higher crude hospitalisation rates per 100 000 population than native-born population. As the foreign-born population is on average younger than the native-born population, it is most likely that disparities between foreign-born and native-born population will increase after age-adjustment. Lastly in Luxembourg, the risk of being hospitalised in intensive care for COVID-19 among residents born in Italy and in any former Yugoslav country was between two and three times as high as the risk among people born in Luxembourg (Van Kerm, Salagean and Amétépé, 2022[9]).

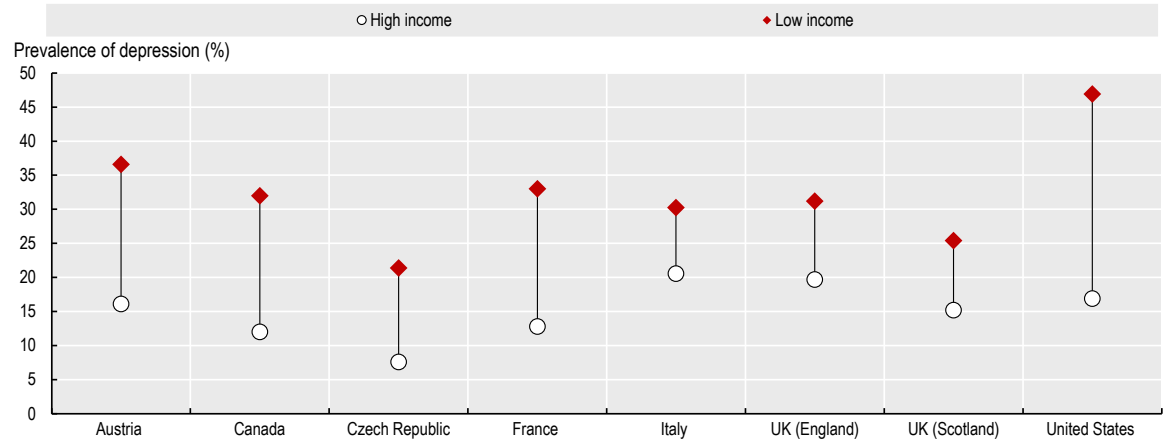
2. The unequal mental health effects of the pandemic

People with lower socio-economic status experienced higher rates of mental distress during the pandemic

17. The mental health impact of the pandemic has been dramatic. From March 2020 onwards, prevalence of anxiety and depression increased in many OECD countries (OECD, 2021[26]). But the mental health effects of the pandemic have not been the same for everyone. A lower socio-economic status has been associated with an increased risk of poor mental health during the pandemic. People with lower incomes or low-education groups have been particularly impacted.

18. The prevalence of depression was consistently higher among the least well-off (those in the lowest income groups or those having difficult financial situation) compared to the most well-off (those in the highest income groups or those having good financial situation) in several OECD countries (Figure 10). Rates of depression were more than twice as high among the least well-off than the most well-off in Austria, Canada, Czech Republic, France and the United States. In United Kingdom (England and Scotland), the prevalence of depression was at least 50 % higher among the least well-off than the most well-off. There is strong empirical evidence on the positive association between low socio-economic status and increased mental illness during the pandemic (Box 3).

Figure 10. Higher prevalence of mental health disorders among the least well-off during the COVID-19 pandemic

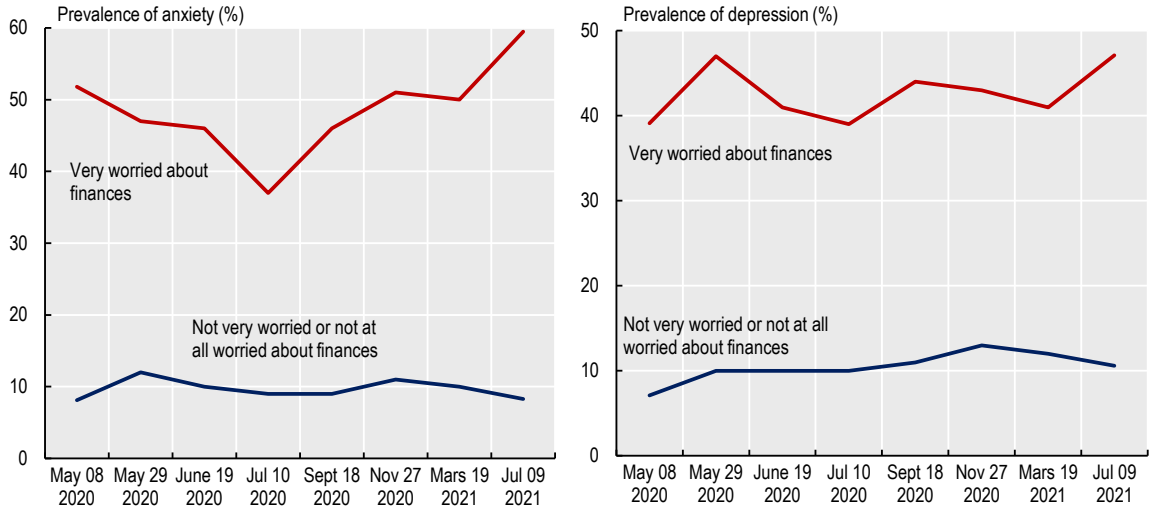


Note: Data are not directly comparable across OECD countries and regions due to different definition of income level, methodology and timeframe of observation.
Source: OECD Health Secretariat based on data from Austria , Czech Republic, Canada, France, Italy, United Kingdom (England, Scotland) and the United States.

19. In Canada, longitudinal data from the CAMH COVID-19 National Survey show the evolution of depression and anxiety between May 2020 and July 2021 by population groups on personal financial situation. The Figure 11 suggests that the prevalence of depression and anxiety among people reporting to worry about finance was 4 and 6 times higher respectively than among people who do not worry about finances. Most critically, the difference in the prevalence rates of both anxiety and depression between the two population groups increased over time, suggesting widening social mental health inequalities during the pandemic. In France, trends data from the CovSurvey show that during the three lockdowns (March-April 2020, November December 2020, and April 2021), the prevalence of depression was significantly associated with the individual financial situation. The prevalence of depression was between 2.2 and

3 times higher among people with very poor financial situation than those with good financial situation. Unlike Canada, inequalities in the depression prevalence between both groups did not increase over time in France, rather it remained constant with a gap standing at 24 percentage points (Santé Publique France, 2021[27]). In addition, the ECHO survey in France shows that almost 30% of people in precarious situations living in shelters have shown depression symptoms during the first lock-down in May 2020 (Longchamps et al., 2021[28]).

Figure 11. Mental health inequalities slightly increased during the COVID-19 pandemic in Canada



Source: CAMH: Covid-19 National survey Dashboard, available at https://www.camh.ca/en/health-info/mental-health-and-covid-19/covid-19-national-survey

Box 3. The association between socioeconomic status and mental illness during the COVID-19 is strong across 11 OECD countries

The negative association between mental health and socio-economic status is confirmed for several social markers (including education, employment status and income) in at least 11 OECD countries:

- In **Australia**, the nationwide survey of the mental health shows that during the first lockdown in April and May 2020, people experiencing the worst mental health symptoms (using the PHQ-9 and the GAD-7) were those living in poorly resourced area as measured by the Index of Relative Socio-economic Advantage and Disadvantage (Fisher et al., 2021[29]).
- In **Austria**, a study exploring mental health four weeks after the COVID-19 lockdown shows that poorer mental health for low-income population was consistent across the mental health indicators for depression (PHQ-9), anxiety symptoms (GAD-7), and clinical insomnia. Low-income population were more than twice than high-income population to report depressive symptoms, and 72% more likely to report anxiety symptoms (Pieh C, 2020[30]).
- In **Belgium**, people with lower education were more likely to develop depression and anxiety disorders during the COVID-19 pandemic (prevalence of 17% for depression and anxiety), compared to people with higher education (prevalence of 12% for depression and 14% for

anxiety) (Sciensano, 2021[31]). Additionally, people with lower education were more likely to feel extremely lonely, compared to people with higher education (24.5% against 18% respectively).

- Evidence from **Czech Republic** shows that people with elementary education displayed disproportionately higher prevalence of mental disorders than those with university level during the second peak of the pandemic in November 2020 (Winkler P, 2021[32]).
- In **Iceland**, people with lower education were more likely to report poor mental health, with poorer pre-existing mental health status both before and during the pandemic (The 2011 OECD Policy Survey).
- **In Italy**, while low-income population are nearly 50% more likely to report depression or anxiety symptoms than high-income population, the association between lower household income and poorer mental health was not significant in multivariate regression models analysis (Bruno et al., 2021[33]).
- In **Norway**, vulnerability factors for mental health problems during the pandemic included socio-economic disadvantaged such as pre-existing economic challenges (Blix, Skogbrott Birkeland and Thoresen, 2020[34]). Mean score for psychological distress was higher among people reporting pre-existing economic challenges.
- In **Sweden**, standardised measures of depression and anxiety were all negatively correlated with individual income level and education level (McCracken LM, 2020[35]). The mean scores for depression and anxiety among lower-income people was 2.5 times higher the scores of high-income population.
- In the **United Kingdom**, analyses based on longitudinal data from March 2020 to August 2020, shows that anxiety and depression scores were significantly associated with lower income and lower educational attainment (Fancourt, Steptoe and Bu, 2021[36]). In Scotland, data from the Covidlife Study collected between 17 April and 7 June 2020 confirm that low socio-economic position was consistently associated with increased odds of depression and anxiety, even after taking into account all potential confounding and mediating factors. Deprivation, low education level and income where the most important predictors of depression disorders (Pierre et al., 2021[37]). After multivariate adjustment, low education level was related to a 33% increase in the odds of depression, and low household income was related to a 25% increase in the odds of depression.
- In the **United States**, depression in adult population inreased over the course of the COVID-19 pandemic, and low income household was found among the central determinants of depression. The risk of depressive symptoms for low income relative to high income persons increased from 2.3 in March-April 2020 to 7.0 in March-April 2021 (Ettman et al., 2021[38]).

The prevalence of mental distress during the pandemic has also been higher for ethnic minorities, Indigenous people and immigrants

20. There is increasing evidence that ethnic minorities, those identifying with BAME groups, Indigenous people or immigrants (whether regular or undocumented) have disproportionately higher risks of being adversely impacted by COVID-19 in the area of mental health.[3] This is confirmed in the United States, Canada, United Kingdom, the Netherlands, Australia, Switzerland and France:

- Evidence from Canada shows that a greater proportion of people from visible minority groups reported fair or poor self-rated mental health (27.8% against 22.9%) (Moyser, 2020[39]). The prevalence of moderate or severe generalised anxiety disorder is also higher among visible

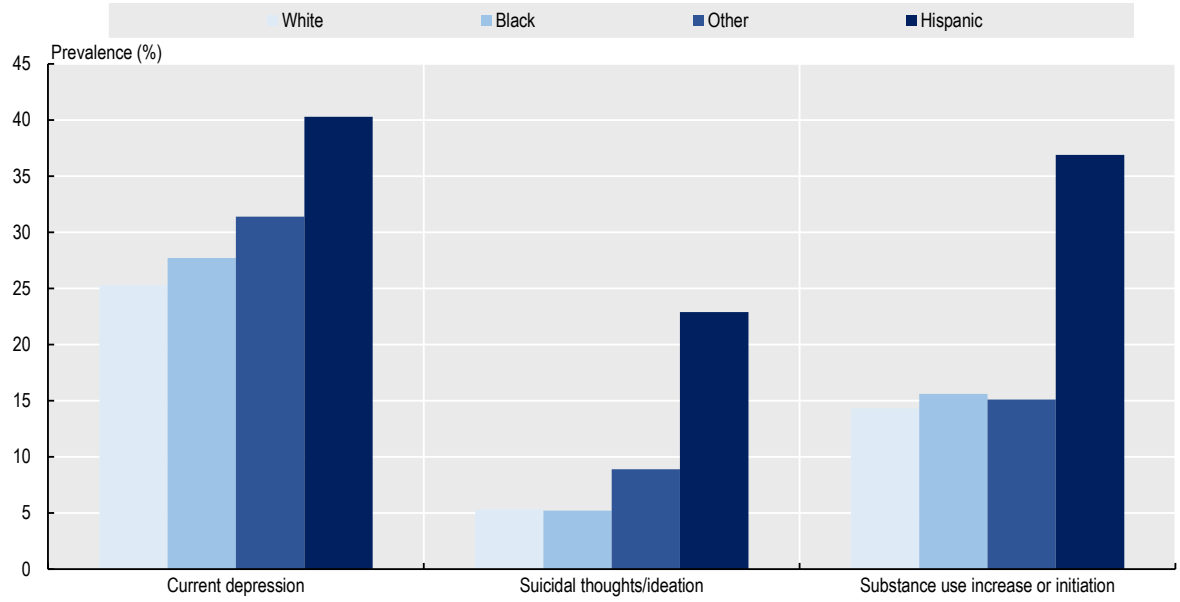
[3] The burden of mental health also fell more heavily on youth people.

minorities (30%) than among White population (24.2%). Looking at the five largest visible minority groups in Canada, evidence shows that people from South Asian, Chinese, Black and Filipino descents are all more likely to report a poor mental health than White Canadians. However, people from Arab communities were less likely to report poor self-rated mental health than White Canadians. Another study from Canada shows that more Indigenous than non-Indigenous people with disabilities or long-term conditions reported worsened mental health since the start of the pandemic. The prevalence of worse mental health is 14% higher for Indigenous people than non-Indigenous people (Hahmann, 2021[40]).

- Data based on a survey carried out in April and May 2020 in the United States suggest that Hispanic and Latino ethnic minorities reported a much higher prevalence of psychosocial stress as measured by depression, suicidal thoughts, or substance use increase (Figure 12) (McKnight-Eily et al., 2021[41]). In particular, depression prevalence rates were 60% higher among Hispanic adults than non-Hispanic White people. Estimates of self-reported suicidal thoughts among Hispanic persons were also four times those among Black persons and White persons.

Figure 12. Ethnic disparities in the prevalence of mental ill-health are large in the United States, 2020

Prevalence of depression (PHQ>8), suicidal thoughts and substance use increase among adults aged 18 and over



Note: Prevalence are weighted percentage. Data collected from April and May 2020.
Source: Adapted from (McKnight-Eily et al., 2021[41]), https://www.cdc.gov/mmwr/volumes/70/wr/mm7005a3.htm#T1_down

- The United Kingdom Household Longitudinal Study provides evidence of an average increase in mental distress between the pre-COVID-19 pandemic (2017-2019) and during COVID-19 pandemic (April 2020) which largely varies by ethnic groups (Proto and Quintana-Domeque, 2021[42]). BAME people among both men and women experienced a higher average increase in mental distress than White British. Exploring in more details ethnic groups differences, the findings suggest that the largest increase in mental distress was experienced among Bangladeshi, Indian and Pakistani men.
- In the Netherlands, available evidence demonstrates that respondents with a non-native background more often had high anxiety and depressive symptoms than Dutch-natives before and

during the COVID-19 pandemic (van der Velden PG, 2020[43]). The likelihood to report high anxiety and depression symptoms levels is 40% higher among non-native population than native population, even after controlling for individual socio-demographic and economic characteristics.

- In Australia, the Household Impacts of COVID-19 Survey carried out in May 2021 demonstrates that Indigenous People (21%) were slightly more likely than non Indigenous (18%) to report a worsening of mental health in May 2021 compared to before COVID-19 (Australian Bureau of Statistics, 2021[44]).

21. Undocumented migrants have also been at greater risk of adverse consequences during the COVID-19 crisis, as shown by survey data from Switzerland and France. In Switzerland, almost 68% of immigrants declared feeling anxious or depressed in relation to the COVID-19 pandemic. The proportion reaches 71% among undocumented migrants, and stands at 66% among regularised migrant (Burton-Jeangros et al., 2020[45]). In France, the prevalence of mental distress among sub-Saharan African immigrants in the Greater Paris area increased by 10%, from 65% before the first lockdown in March 2020 to 72% during the lockdown in April 2020. The share of undocumented migrants having severe depression more than double over the same period, from 7% before the lockdown to 17% after the lockdown. Overall, mental distress among undocumented immigrants during the COVID-19 pandemic was three times higher the prevalence among the general population (at around 20% during the first lockdown) (Gosselin, 2021[46]).

3. Disruption in routine care and unmet needs for health care during the pandemic has been more pronounced for the disadvantaged

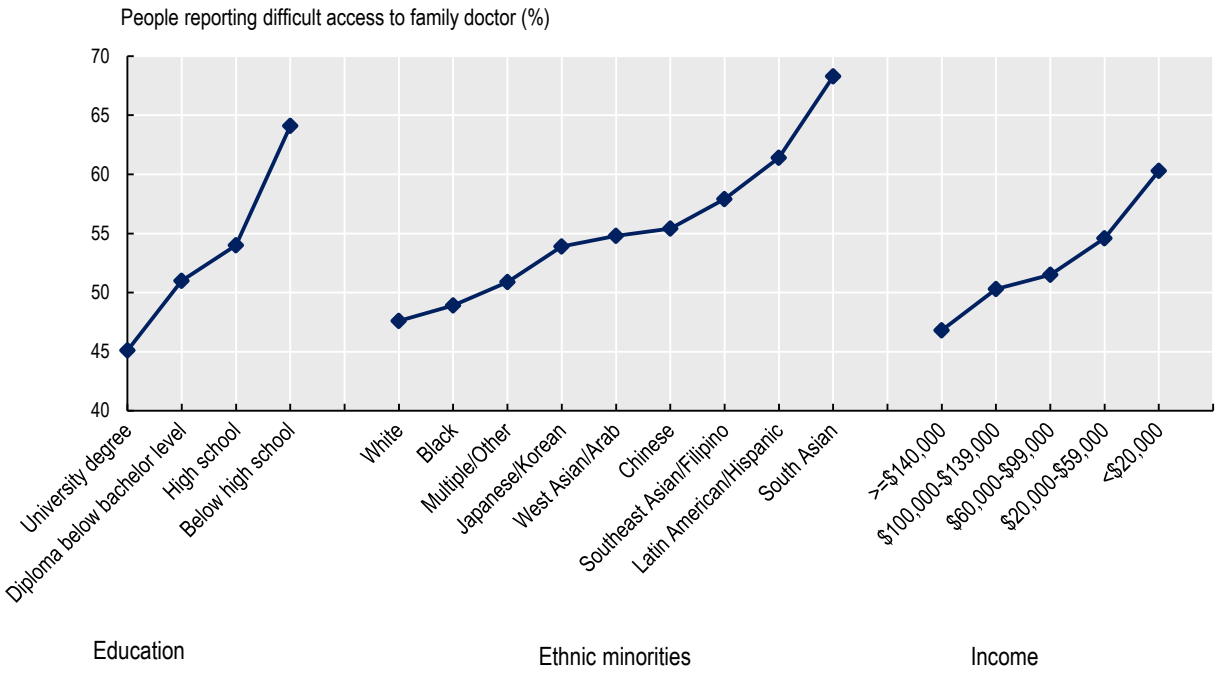
22. During the pandemic, there have been significant disruptions to health care delivery with many people unable or not seeking medical care because they fear exposure to COVID-19 attention. Available evidence from the United States, Canada, the United Kingdom and across European countries consistently suggests that the prevalence of foregone and delayed care is higher among the disadvantaged. This is a high cause for concern given the increased COVID-19 morbidity and mortality risks among these population groups, which will most likely lead to severe health consequences.

23. Data from the United States revealed that compared to White non-Hispanic, Black adults and Hispanic adults were 60% and 50% more likely to have delayed urgent and emergency care during the pandemic because of concerns about COVID-19 (Czeisler et al., 2020[47]). Another study from the United States reveals that Black adults were 35% more likely to report delaying or forgoing care than White people. Findings also show that adults with family incomes below 250 percent of the federal poverty level were 1.3 times more likely to report delaying or forgoing care than adults with higher incomes (Gonzalez et al., 2021[48]).

24. In Canada, a handful of studies suggest that cancelled care and disruption in routine care disproportionately impacted population with low socio-economic status and ethnic minorities. A survey of Canadians shows that there are important differences in the inability to access health care across the spectrum of household income levels. Almost 30% of people among the lowest income group have been unable to see a family doctor over the past two months, compared to 18% among the highest income group. Among low-income Canadians, nearly one-in-ten say they have been unable to access treatment for a chronic illness. This is 4 times higher the share among the highest income group and nearly twice the number of Canadians overall who report the same (Angus Reid Institute, 2020[49]). Overall, the social gradient holds true when aggregating people who have had at least one appointment or procedure delayed due to the pandemic: the share of people among the lowest income group to report delayed care is 23% higher than among the highest income group.

25. A similar association was identified in British Columbia as ethnic minorities, people with lower incomes and low-education groups were more likely to report difficulty in accessing health care and to avoid health care services (City of Vancover, 2021[50]). The proportion of people reporting difficulty in accessing their GP is 42% higher among low education groups compared to high education groups, 43% and 30% higher among South Asian and Hispanic people respectively compared to White people, and 30% higher among people with lower incomes compared to high-income people (Figure 13). This social gradient is rather consistent across the different proxies to measure difficulty in accessing health care and avoidance of medical care. However, the decrease in physician visit was not observed across different income, material deprivation, and ethnic concentration quintiles in an Ontario-specific study (Stephenson et al., 2021[51]).

Figure 13. The social gradient in access to health care in Canada (British Colombia)

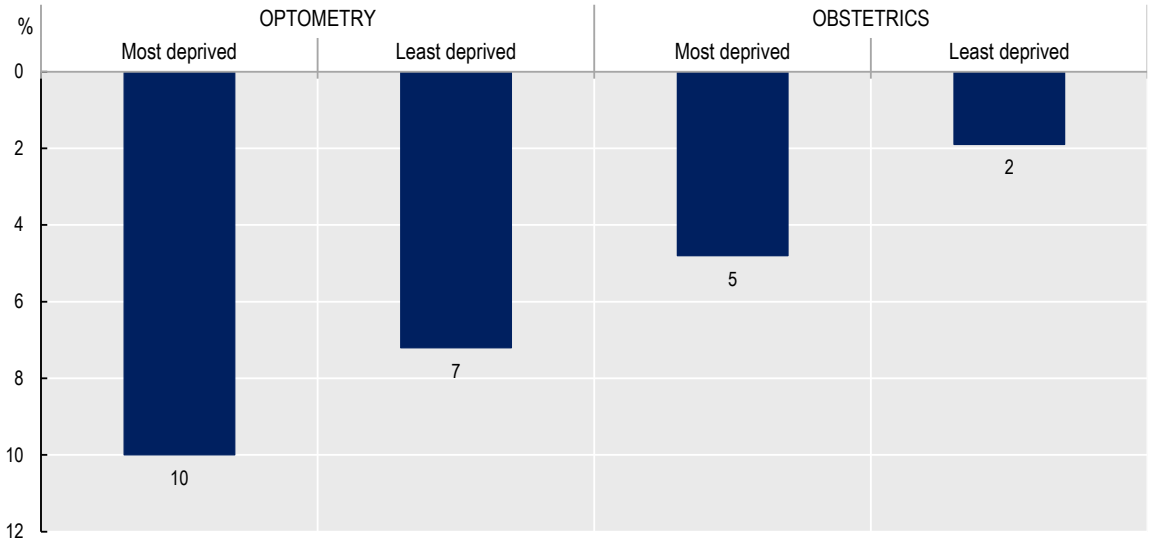


Source: The BC COVID-19 SPEAK Results, BC Centre for disease Control

26. According to a meta-analysis, based on 12 longitudinal studies from the United Kingdom, ethnic minorities compared to White people were more likely to report health care disruptions (Maddock, 2021[52]). In particular, black people had a 38% increase in the odds for any health care disruptions. Across European countries, inequalities in health system utilisation has been highlighted using the SHARE Corona survey (Smolić, 2021[53]) (Arnault, 2021[54]). People who reported a bad economic situation had a 40% higher risk of foregoing medical care during the pandemic than people having a good economic situation.

27. In Australia, while no disruption in GP services was noted between 2019 and 2020, disruption of care was observed for some specialities including obstetrics and optometric care (Figure 14). In relation to optometry services (which are largely covered by Medicare), there was an overall decrease in services utilisation of 7.9% between 2019 and 2020. The decrease for each of the socio-economic groups ranged from 7.2% for the least disadvantaged area to 10% for the most disadvantaged area. For obstetric services, there was an overall decrease in service utilisation of 2.9% between 2019 and 2020, ranging from 1.9% for the least disadvantaged area to 4.8% for the most disadvantaged area.

Figure 14. Specialist visits declined more rapidly in deprived areas over 2019-2020 in Australia



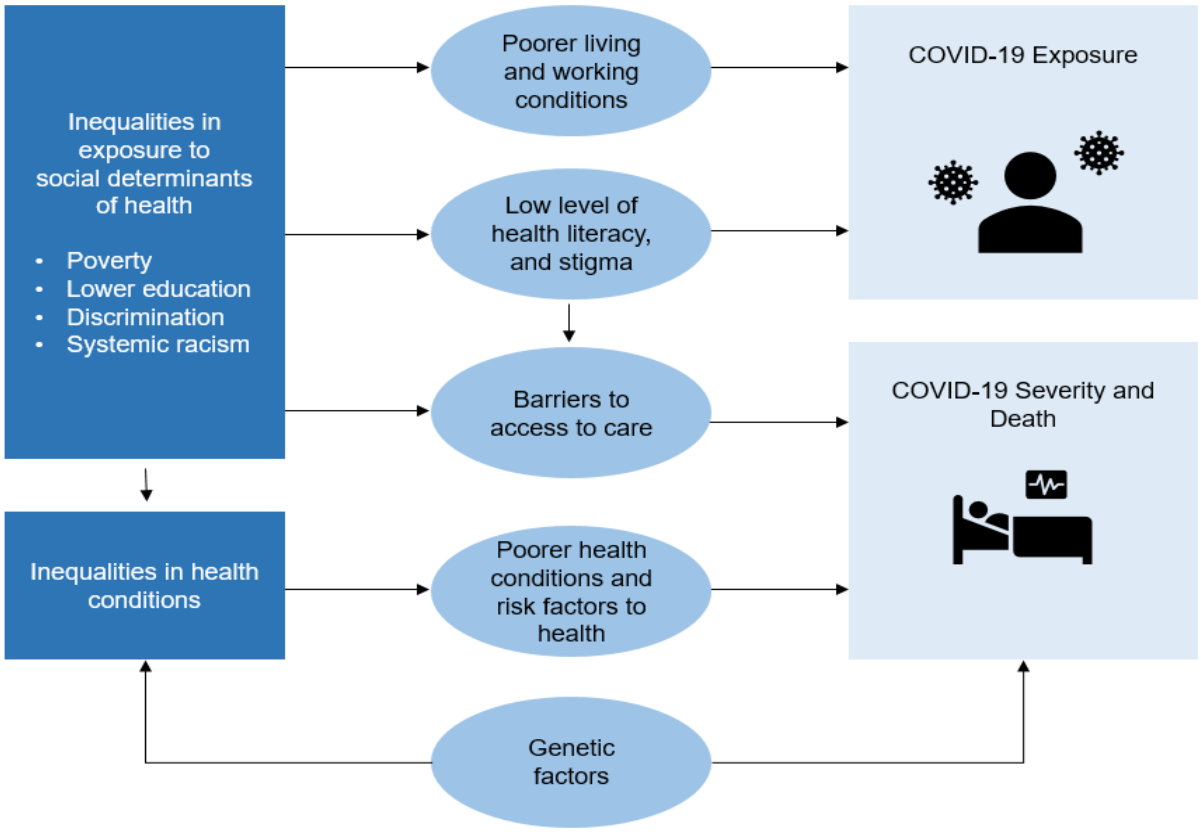
Source: Data are sourced from Australian Institute of Health and Welfare analysis of the MBS claims data, 2019 and 2020.

2 Channels toward COVID-19 inequalities are multiple

28. Socio-economic and ethnic inequalities in COVID-19 outcomes have multiple and often interrelated causes (Figure 15). First, inequalities in exposure to social determinants of health (poverty, low education or systemic discrimination) increase the risk of the disadvantaged to have higher-risk jobs with greater exposure to COVID-19, and to live in overcrowded or insecure housing, all of which increasing their exposure to the virus. Limitations in health literacy and higher exposure to stigma among people who face higher exposure to social determinants of health also increase exposure to COVID-19 and place them at higher risk of complication and death from COVID-19, notably because it leads to inappropriate prevention measures and prevents them from access to care. In addition, pre-existing inequalities in underlying health conditions (which are themselves associated with higher exposure to social determinants of health and genetic factors) increase the risk of severity and death from COVID-19 among the disadvantaged. Genetic difference between population groups may also play a role in itself in explaining higher risk of complication from COVID-19 (such as the single gene LZTFL1[4]). Lastly, disadvantaged populations and ethnic minorities were disproportionately impacted by job and income losses during the pandemic, which are known risk factors associated with poor physical and mental health, potentially exacerbating health inequalities further.

[4] Although not explored in this report, recent findings show that the single gene LZTFL1 can double the risk of respiratory failure and death after COVID-19 infection, offering some explanation for why south Asian Populations (including Bangladeshi, Pakistani, and Indian peoples) had much higher risk of deaths (Downes et al., 2021[142]).

Figure 15. There are many causes of COVID-19 inequalities



Note: The influence of genetic factors is not explored as part of this report.
Source: OECD Health Secretariat

1. Poorer living environment and occupations make social distancing more difficult

Socially disadvantaged groups have poorer housing conditions

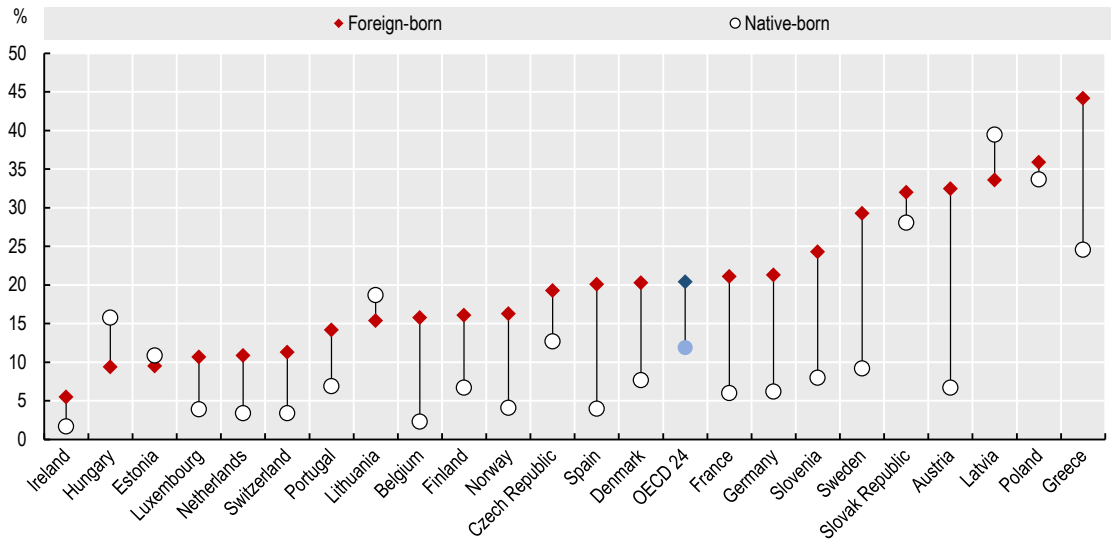
29. People living in inadequate housing, overcrowded conditions and lacking access to water and sanitation are particularly vulnerable to contracting the virus. High density and overcrowding housing are positively associated with the spread of COVID-19 (via aerosol and droplet transmissions), and with higher mortality rates. This is because people living in overcrowded conditions face more difficulty in self-isolating and in respecting social distancing, while those lacking access to adequate plumbing or sanitation are less able to practice good hygiene, leading to worse COVID-19 outcomes.

30. Robust literature links poor housing conditions to worse COVID-19 outcomes. A nationwide study in the United States shows that each 5% increase in percent households with poor housing conditions was associated with a 50% higher risk of COVID-19 incidence and a 42% higher risk of COVID-19 mortality all other things being equal (Ahmad et al., 2020[55]). Accordingly, overcrowding and a lack of access to adequate plumbing and sanitation are the most important factors explaining higher incidence and mortality of COVID-19. In France, the spatial distribution of COVID-19-related infections has also been associated with overcrowded housing (Deguen and Kihal-Talantikite, 2021[56]). The results also suggest a significant impact of chronic exposure to a high level of air pollution on COVID-19 health outcomes. In Portugal, household overcrowding was positively associated with higher risk of infection (Leite et al., 2021[57]).

31. People with lower incomes, immigrant populations and Indigenous People are more likely to live in overcrowded conditions and to face poor housing conditions. Across the OECD, 23% of immigrants live in sub-standard accommodations, against 19% of the native-born population (OECD, 2021[58]). In addition, according to the 2020 EU-SILC survey, immigrants are twice as likely to live in overcrowded housing that the native-born population (Figure 16). This pattern is also confirmed in the United States: immigrant workers are about 4 times more likely to live in overcrowded housing compared to the native workers (Center for Immigration Studies, 2020[59]). In the United Kingdom, the Household Longitudinal Study in 2016-2018 revealed that the foreign-born population are between 3 and 4 times as likely to live in overcrowded housing than the native-born population (The Migration Observatory, 2019[60]).

32. Public Health England noted that severe COVID-19 outcomes on people from BAME members is linked to overcrowding and poor standard homes. In addition, BAME households are more likely to be intergenerational, leading to risk of transmission between young children and older adults (Public Health England, 2020[61]). Similar results were found in the Netherlands, Canada or Sweden, where household density has been associated with an increased risk of COVID-19 infection or mortality rates for some immigrants or ethnic minority groups (Coyer et al., 2021[62]; Statistics Canada, 2021[63]; Hansson et al., 2020[13]).

Figure 16. Overcrowding rates are twice as likely among the foreign-born population as the native-born, 2020



Source: Eurostat Database 2023, based on the EU-SILC Survey.

Socially disadvantaged groups have high-risks jobs in relation to COVID-19

33. Another important reason explaining why socially and economically deprived population showed higher COVID-19 infection and mortality rates is that many of them work as essential workers during the pandemic, as the case for health and social workers, retail grocery workers, or public transit employees. Such key workers are unable to stay at home and thus more likely to use public transportation to commute to their essential work, increasing exposure to the virus (Public Health England, 2020[61]; Dorn, Cooney and Sabin, 2020[64]). Strong empirical evidence suggests higher risk of COVID-19 infection among essential workers. In the United Kingdom, the risk of COVID-19 infection among health care workers is 7 times higher than the risk among non-essential workers, and the risk is 1.8 times higher for social and educational essential workers (Mutambudzi, 2021[65]). In Ireland, highest COVID-19 infections rates were

found among people working in jobs with higher rates of social interaction, such as agriculture, wholesale and retail trade, education, health and social work (Health Protection Surveillance Centre, 2021[66]).

34. Many of these essential workers are low-income, immigrants and ethnic minorities. In the United States, nearly 70% of essential workers do not have a college degree, and people from ethnic minorities make up the majority of essential workers in food and agriculture (50%), and in industrial, commercial, residential facilities and services (53%) (McNicholas and Poydock, 2020[67]). In Luxembourg, Switzerland, Ireland, the United Kingdom, Sweden, and the United Kingdom, foreign-born population were over-represented in key professions, including distribution, food processing, and health care (OECD, 2020[68]).

35. As migrants are more concentrated in essential occupation, they are less likely to work from home to limit the exposure to the virus. Recent OECD calculations show that in three-quarters of OECD countries, the share of immigrants able to telework is at least 5 percentage points below their native counterparts (OECD, 2021[58]). In the United States, evidence shows clear disparities in teleworking during the COVID-19 pandemic (Gaffney, Himmelstein and Woolhandler, 2021[69]). Black and Hispanic people, compared to White workers, were less likely to be teleworking in May 2020 and February 2021. This was also the case for immigrants and workers with less education or lower incomes. In February 2020, people in the highest income quintile were almost 5 times more likely to telework than people in the lowest income quintile. In Canada, financially deprived people, and those with low education, have the lowest teleworking capacities according to Statistics Canada. People with less than a high school diploma were 4.6 times less likely to telework than those with a bachelor degree or higher (StatCan, 2020[70]).

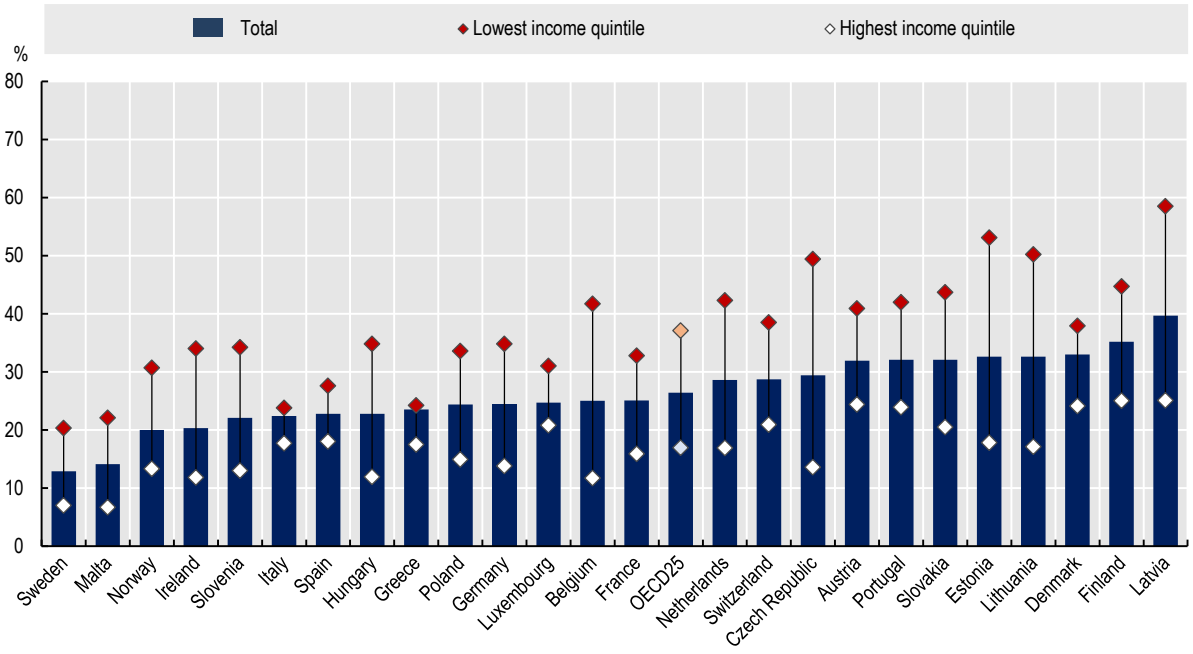
2. Populations in vulnerable situations more likely suffer from underlying health conditions, increasing the risk of severe COVID-19 outcomes

36. It is well established that COVID-19 is more severe in people having chronic diseases or underlying health conditions. Increased COVID-19 severity and higher mortality rates have been reported among older adults and people with pre-exiting health conditions including obesity (Dietz and Santos-Burgoa, 2020[71]; Luo et al., 2020[72]; Peters, MacMahon and Woodward, 2021[73]), diabetes (Hussain, Bhowmik and do Vale Moreira, 2020[74]) ((Zhang et al., 2020[75]), hypertension (Lippi, Wong and Henry, 2020[76]) or cardiovascular disease (Aggarwal, 2020[77]; Ganatra, Hammond and Nohria, 2020[78]).

37. The burden of chronic conditions and of multi-morbidities is unequally distributed among socio-economic groups. Although evidence on migrant health is still scant, some studies show that migrants or ethnic populations are more likely to suffer from chronic diseases, increasing the risk of severe COVID-19 outcomes. In France, asylum seekers and undocumented migrants are more likely to have certain chronic conditions, such as diabetes, hypertension and obesity (Gosselin, 2021[79]). The prevalence of obesity among undocumented migrants is 1.6 times higher than in general population according to the Premier Pas survey (Marsaudon et al., 202[80]). In the Netherlands, migrants populations are more likely to suffer from a health condition, such as depression, diabetes and obesity - with percentages being 4 to 5 times as high as in the native-born population - leaving them at risk for severe COVID-19 outcomes (Coyer et al., 2021[62]). In the United States, immigrants with a high degree of establishment in the host country present higher prevalence of obesity, diabetes, and hypertension than the native-born population (Commodore-Mensah et al., 2016[81]). Across European countries, evidence suggests a higher prevalence of hypertension, diabetes, chronic kidney disease, obesity, and metabolic syndrome among the migrant population compared to the native-born population (Modesti et al., 2016[82]). In Canada, Statistics Canada suggests that Indigenous people have been at greater risk of COVID-19 because of higher rates of underlying health conditions (StatCan, 2020[70]). In New Zealand, people from ethnic minorities reporting at least one underlying health conditions were at higher risk of severe COVID-19 than other population (Jefferies et al., 2020[14]).

38. Beyond migrant population, those with low incomes and low educated people are also more likely to suffer from chronic illness (OECD, 2019[83]). The 2020 EU-SILC survey confirms the income gradients in the share of people reporting a long-standing illness. On average, 37% of people in the lowest income quintile report a long-standing illness or health problem, compared with 26% of people in the highest income quintile (Figure 17).

Figure 17. People reporting a long-standing illness or health problem, by income level quintile, 2020



Source: Eurostat Database 2023, based on the EU-SILC Survey.

39. In Canada, lower income groups are 3 times more likely than high income groups to have been diagnosed with at least 2 chronic diseases (Government of Canada, 2021[84]; Robert Wood Johnson Foundation, 2008[85]). In Australia, the lowest socio-economic group experienced a burden rate (measured using the Disability Adjusted Life Years metric) that was 1.6 times that of the highest socio-economic group in 2018 (Australian Institute of Health and Welfare, 2021[86]).

40. Overall, the unequal distribution of underlying health conditions and risk factors for a severe course of COVID-19 (including obesity, diabetes, cardiovascular disease or respiratory diseases) make the socio-economic deprived and the ethnic or migrant population more likely to catch a COVID-19 infection and more at risk of severe outcomes.

3. Stigma and discrimination during the COVID-19 pandemic prevent access to health care and contribute to more severe outcomes

41. Already, some infectious diseases - such as HIV or tuberculose - and non-communicable diseases -such as mental ill-health and cancer - have long carried a stigma with them and consequent discrimination, both resulting in adverse consequences on health, quality of life and social cohesion. These negative experiences most likely act as barriers to help-seeking behaviour and results in lower access to health care system.

42. An extensive body of research shows that migrants and ethnic minorities are at increased risk of experiencing stigma around COVID-19, possibly leading to more severe health outcomes and contributing further to the spread of the virus (WHO, 2020[87]) (Turner-Musa, Ajayi and Kemp, 2020[88]). According to the World Health Organisation, stigma can:

- Increase the chance to hide the illness to avoid discrimination;
- Reduce the chance to seek health care immediately;
- Decrease the chance to adapt healthy behaviour.

43. Among ethnic minorities, Asian descent have been targeted by fear, rumours, and stigma around COVID-19 (Hargreaves and Logie, 2020[89]). In the United States, African American populations groups have also been found to avoid testing and hide COVID-19 symptoms due to fear of stigma, while enhancing community risks and increasing the likelihood of transmitting the disease (Association, American Psychological, 2020[90]). Stigma and discrimination among African Americans was already found in relation to HIV, leading patients to avoiding engaging in the continuum of care, less likely to get tested, to attend appointments and to adhere to medicine.

44. Another study from Canada provides evidence of the positive association between COVID-19 infection and COVID-19 related stigma among East and South Asian participants and Black participants (Miconi, 2021[91]). In the Netherlands, stigmatisation among migrants from Ghana resulted in higher risk of COVID-19 hospitalisation most likely because it led people to hide symptoms and prevent them from seeking treatment (Coyer et al., 2021[62]). In Italy, data from the national surveillance system show that non-Italian population were diagnosed at a later stage than Italian population, likely contributing to higher COVID-19 hospitalisation rates because of more advanced and severe disease at the time of diagnosis (Fabiani et al., 2021[25]). Such delays in diagnosis (up to 4 weeks later among some non-Italian nationals compared to Italian nationals) can be associated to fear of stigma, but also to low health literacy.

4. Lower health literacy among socially disadvantaged population leads to inappropriate prevention and control measures

45. The World Health Organization pointed out the massive infodemic surrounding COVID-19 and reported that the global overabundance of information made it difficult for people to distinguish trustworthy information from misleading information (Damian and Gallo J.J, 2020[92]). One of the key factors associated with current COVID-19 misinfodemic is low health literacy (Damian and Gallo J.J, 2020[92]). Inadequate knowledge on the virus, a lack of awareness about the spread of infection, inappropriate prevention and control measures may all be risk factors to increase COVID-19 spread (Liu, 2020[93]).

46. In Mexico, high level of health literacy is positively associated with COVID-19 preventive health behaviours in general population (Sánchez-Arenas, 2021[94]). By contrast, evidence from the United States shows that people with lower health literacy were 80% more likely to feel unprepared to the COVID-19 outbreak. (Bailey, Serper and Opsasnick, 2020[95]). In Australia, people with inadequate health literacy had poorer understanding of COVID-19 symptom and more difficulties in identifying the preventive behaviours, in finding information and understanding government messaging about COVID-19 compared to people with adequate health literacy (Caffery et al., 2017[96]). In France, disadvantaged people with low level of health literacy were less likely to undertake COVID-19 testing and to isolate during the first lockdown in 2020 (Longchamps et al., 2021[28])

47. Low health literacy has been reported to be more prevalent among ethnic minorities, immigrants, and low socio-economic groups (Baker et al., 2002[97]; Rikard et al., 2016[98]; Sudore et al., 2006[99]). Limited health literacy among migrants most often relates to language and cultural barriers, contributing to a lack of awareness about availability and efficacy of health care services. They have a lower

understanding of the health care options and pathways, preventing them to navigate the health care system easily.

48. A handful of studies suggests that migrant population and BAME people are less likely to access necessary health information and services, and to understand their health conditions with insufficient management of their medications:

- In the United States for example, the National Assessment of Adult Literacy suggests that one people over ten among White presented “below basic” health literacy level, against one quarter among black people and four out of ten people among Hispanic (Beauchamp, 2015[100]).
- Evidence from Germany suggests that immigrants are almost twice more likely to show limited health literacy compared to non-immigrant population, after controlling for age and socioeconomic factors (Schaeffer, Berens and Vogt, 2017[101]).
- In Norway, compared to the general population, a larger proportion of immigrants with a background from the Republic of Türkiye or Viet Nam were at or below the lowest level of general health literacy.
- Data coming from the Greater Paris area in France, showed the level of information on COVID-19 was insufficient for undocumented immigrants, who were unaware about asymptomatic transmissions and health response in case of a COVID-19 infection (Gosselin, 2021[46]).
- In Canada, Indigenous patients reported less information required to manage their health effectively during the pandemic compared to non-Indigenous Canadians (Canada Health Infoway, 2021[102]).

49. Likewise, access to digital device and health literacy is generally lower among the poor and less educated people, who often lack training in schools or workplaces, creating barriers in understanding and applying health information, as well as problems navigating the health system effectively (OECD, 2018[103]). Results from the United Kingdom show that people with lower health literacy were 2.5 times more likely to be in the most socially deprived quintile and 7.5 times more likely not to have low education level (Simpson, Knowles and O’Cathain, 2020[104]). Data from Denmark show that lower income groups were 1.6 times more likely to present inadequate health literacy compared to higher income groups and that the highest educational group were 54% less likely to present limited health literacy compared to the lowest educational group (Svendsen, 2020[105]).

50. Migrants, ethnic minorities and socio-economically disadvantaged populations, who are more likely to present lower health literacy, may struggle to adopt COVID-19 preventive measures and access to he health system, contributing to higher COVID-19 infection and delay in diagnosis.

5. Lower access to care contributes to more severe COVID-19 outcomes and can have ripple effects on communities

51. Already before the pandemic, the disadvantaged - including people in low socioeconomic status or migrants and ethnic minorities - had more difficulties in accessing health care services and utilising preventive medicine or medical treatments (OECD, 2019[83]).

52. During the COVID-19 pandemic, difficulties in accessing health care services exacerbated due to new modes of health care delivery such as the use of teleconsultations. Indeed, socially disadvantaged population are less likely to search for health information online, to use health technology, and to access to telemedicine consultation (Lee et al., 2021[106]; OECD, 2020[107]). Specifically, data from the United States show that, during the COVID-19 pandemic, people in the lowest income quartile had a 40% lower chance of completing a virtual consultations compared with people in the highest income quartile, even after controlled for insurance coverage (Darrat et al., 2021[108]). In the United Kingdom, rapid digitalisation

and virtual consultations during the pandemic have amplified existing inequalities in access to health care for many migrants due to lack of digital literacy and access to technology, compounded by language barriers (Knights et al., 2021[109]).

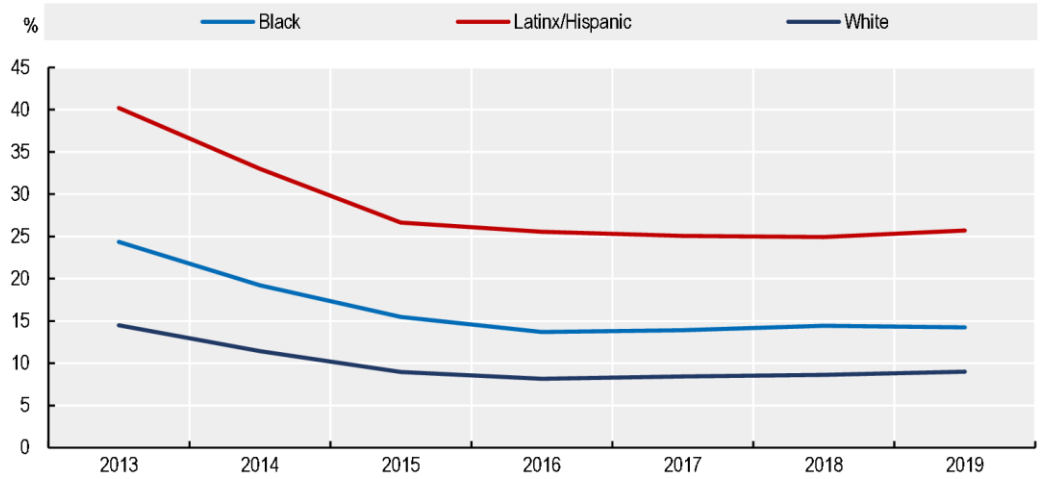
53. A Similar pattern of inequalities in access to digital health has been found in Canada. While Indigenous patients have increased access to e-booking with a doctor during COVID-19 than they did pre-pandemic, they still report lower accessibility to online information and e-health services to manage their health than non-Indigenous Canadians. At the same time, high income Canadian are more likely to access digital health compared to low-income Canadians (Canada Health Infoway, 2021[102]). However, evidence from Luxembourg does not show any significant difference in access to telehealth between socio-economic groups (based on the OECD policy survey).

54. Beyond lower access to digital health, inappropriate insurance coverage and out of pocket costs are also known factors contributing to poor access to health care among migrants and economically deprived populations during the pandemic. Evidence from the European Centre for Diseases Prevention and Control suggests a positive association between COVID-19 mortality and out-of-pocket expenditure across 179 countries after adjustment for the Gini index and GDP income category (El-Khatib et al., 2020[110]). In the United States, uninsured working-age adults are disproportionately low-income population and Latino people. The Latino and Hispanic adults are for example three time more likely than white adults to be uninsured in the United States in 2019, preventing them from seeking care in case of COVID-19 symptoms (Figure 18) (The Commonwealth Fund, 2021[111]). Another study from the Kaiser Family Foundation found that 23% of regular immigrants and 45% of undocumented immigrants are uninsured as compared to only 9% of US citizen (Kaiser Family Foundation, 2020[112]).

55. Addressing gaps in health care coverage by extending entitlements to migrants and socially disadvantaged groups, as well as offering free access to testing and COVID-19 treatment is critical to ensure that everyone has access to appropriate health care during the pandemic. Financial barriers to testing and medical care during the COVID-19 pandemic have ripple effects for communities, exposing others to infection and reducing the efficacy of mitigation policies.

Figure 18. Latino and Hispanic adults are three times more likely that White adults to be uninsured in the United States

Percentage of uninsured adults ages 19–64, by ethnicity



Source: Commonwealth Fund (2021) based on U.S. Census Bureau, American Community Survey Public Use Microdata Sample 2013–2019.

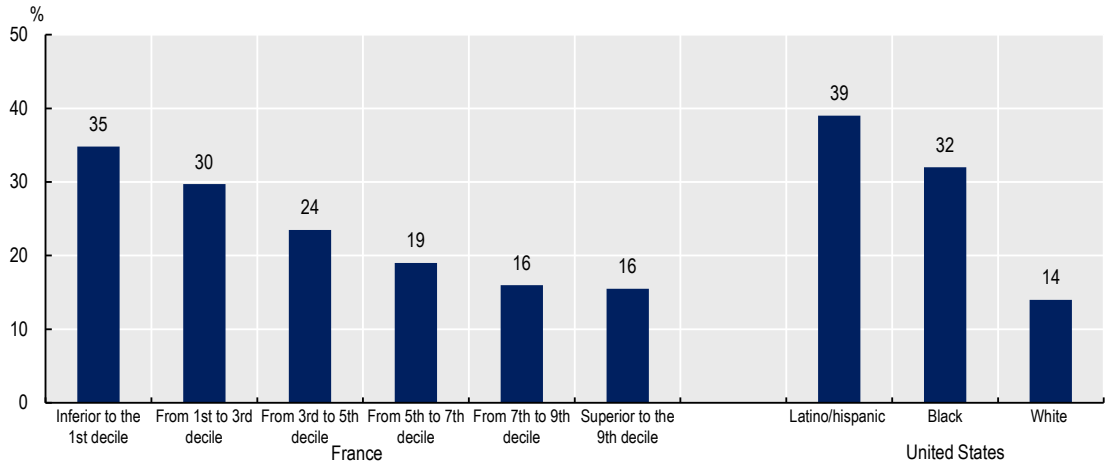
6. Populations in vulnerable situations were disproportionately impacted by job and income losses, potentially exacerbating health inequalities further

56. Many of the measures taken to control the spread of the virus had a disproportionate effect on those already experiencing economic and health inequalities. The negative impact of COVID-19 on employment, income level, or perceived financial situation is consistently higher among socially disadvantaged population. One reason relates to discrimination and systemic racism across OECD countries, which pushed a disproportionate number of socially disadvantaged population and ethnic minorities group into low income, part-time jobs, and more precarious working conditions, which were all disproportionately impacted by job and income losses during the pandemic. These in turn contributes to increase risk of underlying health conditions (physical and mental ill-health) and risk factors to health.

57. In France, low-income population were more likely to experience a worsening of their financial situation during the first lockdown than wealthiest people. In May 2020, among the 10% of poorest households, 35% reported a worsening of their financial situation since the start of the lockdown, twice the rate among the 10% of wealthiest household (Figure 19) (Barhoumi et al., 2020[113]). In Belgium, worry about financial strain due to the pandemic was significantly higher among low educated people. People with low education were 2.5 times more likely to fear for food shortages than those with high education for example (Sciensano, 2021[114]). Similar results are found in Slovenia: women with secondary or lower education were most likely to report worsening of their financial situation during the pandemic (34.6%), compared to women with higher education (24.1%) (National Institute of Public Health, 2021[115]).

58. The 2021 Commonwealth Funds Survey also suggests that older adults from ethnic minority populations are more likely than their White counterparts to experience economic hardship as a result of the pandemic, with Latino/Hispanic and Black seniors most affected. Nearly four in 10 older Latino/Hispanic adults and one in three older Black adults said they used up their savings or lost a job or source of income because of COVID-19, compared to only 14 percent of older White adults (Figure 19).

Figure 19. Experiencing economic difficulties related to the pandemic by income level in France and ethnicity in the United States (%)



Note: For the United States: Percent of adults age 65+ who reported either using up all or most of their savings or losing job/source of income because of the coronavirus pandemic. For France: Percent of people reported worsening of their financial situation due to the pandemic.
Source: For the United States: 2021 Commonwealth Fund International Health Policy Survey of Older Adults.For France: Inserm-Drees, enquête Épidémiologie et conditions de vie (EpiCoV), 1st wave.

59. In Canada, evidence suggests that the COVID-19 pandemic created more acute financial strain among Indigenous People than non-Indigenous people (StatCan Covid 19, 2021[116]). For example, more than half of Indigenous people reported a major or moderate impact on their ability to meet food and grocery needs, against 41% for non-Indigenous people.

60. Similar patterns of exposure to economic risks due to the COVID-19 pandemic are found looking at unemployment rates, job loss and income loss. In the United States, some ethnic minorities have been substantially more impacted than White people. The Urban Institute's Health Reform Monitoring Survey shows that 57% of Hispanics reported lost jobs, reduced work hours and reduced work-related income during the pandemic, compared to 41% of Blacks and 38% of non-Hispanic Whites (Urban Institute, 2020[117]).

61. In the United Kingdom, the nationwide Understanding Society COVID-19 Survey shows similar results (Hu, 2020[118]). BAME migrants were 3.1 times more likely to lose their jobs during the COVID-19 lockdown than native-born White British. BAME migrants were also 2.2 times more likely to report being behind with their bills compared to native-born White British. This is because BAME people are less likely to have employment protection than native-born White British people.

62. The situation is worse for informal workers who are employed without a written contract, employees who are not covered by mandatory social security or self-employed who do not qualify for income support schemes. In Austria for example, around 40 000 Romania care workers for the elderly did not qualify for financial support from the Austrian or Romanian State during the pandemic, risking to fall into poverty (OECD, 2020[119]).

63. Overall, increased unemployment rates, income lost and worsening of financial situation will likely cause higher uninsured rates and less access to health system, which could contribute to higher morbidity and mortality in the population (exacerbating social health inequalities further). At the same time, increase financial insecurity and associated stress, will be associated with higher risk factors for health (for example smoking and harmful alcohol situation), and with physical and poorer mental health, particularly among low-income, low educated and other socially disadvantaged groups (OECD, 2019[83]) (Purtle, 2020[120]).

3 Policy responses to mitigate COVID-19 health inequalities

64. Several strategies have been implemented by OECD countries to help mitigate the disproportionate impacts of the COVID-19 pandemic on the disadvantaged. These include expanding health care coverage of COVID-19 tools and vaccines; activating primary health care services to reach-out to vulnerable people; and improving health and digital literacy for the worse-off. While strengthening the data collection disaggregated by socioeconomic characteristics is key to monitor health inequalities, only a few OECD countries have set the appropriate surveillance system to monitor and redress health inequalities. Ultimately, encouraging cross-sectoral collaboration is needed given the scale of inequalities, arising from multiple and often interrelated socio-economic causes.

Table 2. Overview of health policies implemented to address COVID-19 health inequalities

	Ensuring coverage of COVID-19 tools and vaccines	Activating primary health care to reach-out to vulnerable population	Improving health literacy	Collecting COVID-19 data disaggregated by nationality, race, or ethnicity
Australia	✓	✓	✓	
Austria	✓	✓	✓	✓
Belgium	✓	✓		✓
Canada	✓	✓	✓	✓
Czech Republic	✓	✓	✓	
Denmark	✓		✓	
France	✓	✓	✓	
Germany	✓	✓	✓	
Hungary	✓	✓	✓	
Iceland	✓	✓		
Ireland	✓	✓	✓	✓
Japan	✓	✓	✓	
Latvia				
Luxembourg	✓	✓	✓	✓
Mexico	✓	✓		
Netherlands	✓	✓	✓	
Poland	✓	✓	✓	
Portugal	✓		✓	✓
Slovenia			✓	
Spain	✓	✓	✓	
Sweden	✓		✓	
United Kingdom	✓	✓	✓	✓

Source: 2021 OECD Policy Survey on COVID-19 and Health Inequalities.

1. Ensuring equitable coverage of COVID-19 testing, treatments and vaccines

Most OECD countries ensure affordability of diagnostic testing and subsequent treatment of COVID-19

65. Mostly all OECD countries have at least taken some steps to ensure affordability of diagnostic testing and subsequent treatment of COVID-19 for both socio-economic disadvantaged groups and/or migrant population (Table 2).

66. France for example established mechanisms to allow migrants to continue benefiting from state medical aid once their rights to it were due to expire. The Spanish government provided medicine and sanitary products to the Roma population. Portugal also temporarily regularised migrants to ensure full access to the healthcare system during the pandemic. In Japan, COVID-19 testing and subsequent treatment are fully funded by the Central government, without any cost-sharing requirement. In a similar vein in Poland, the costs of COVID-19 testing and treatment are fully covered from public funds.

67. COVID-19 testing is also free of charge and accessible regardless of insurance status and nationality in Canada (for eligible population), Iceland, Luxembourg, the Netherlands, Portugal, Sweden or the United Kingdom. Free access to necessary COVID-19 treatment irrespective of immigrants status is also possible in Belgium, Chile, Finland, France, Germany, Hungary, Israel, Luxembourg, Mexico, Portugal, Spain and Switzerland (OECD, 2021[58]).

68. At the same time, specific screening programmes have been implemented across the OECD to promote COVID-19 testing for the most vulnerable population. Australia for example implemented the "Aboriginal and Torres Strait Islander COVID-19 Point-of-Care Testing Programme", with additional budget allocation from the Australian Government of AUS 11.4 million. The programme enabled on-site testing for COVID-19 to occur in remote health areas, where the population is the most socially and economically deprived. Evidence shows that the programme contributed to increase COVID-19 testing in Indigenous People who are most at risk of COVID-19 infection (Australian Government, 2021[121]). According to the Australian Government, there were 86 testing sites in place in 2021, and a further 67 services were acting as spoke sites, increasing the reach to over 150 remote communities.

But greater efforts are needed to ensure equitable COVID-19 vaccine coverage

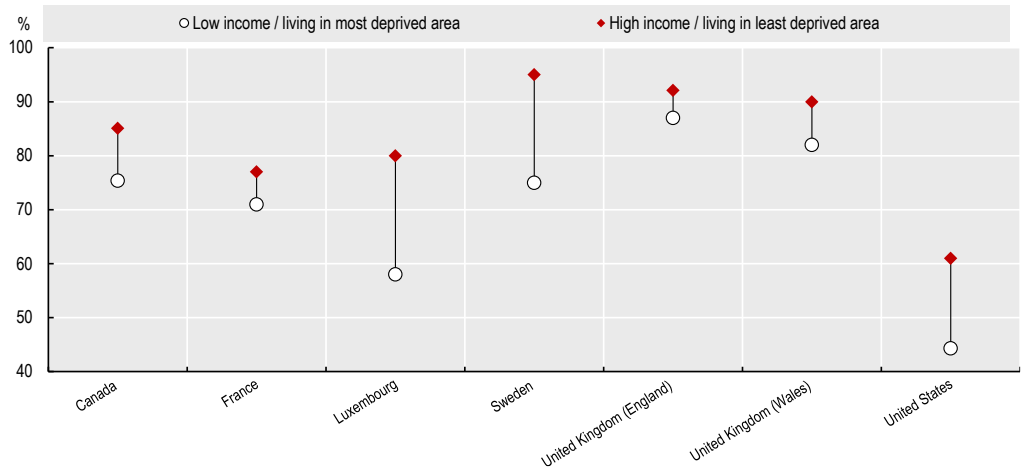
69. Available evidence suggests significant socio-economic and ethnic inequalities in COVID-19 vaccination coverage rates. Large gaps in vaccination rates remained between socio-economic group and ethnic groups, with vaccination rates consistently lower among poorer people or those living in the most deprived areas (Figure 20). The gap in vaccination rates between population groups was the highest in Sweden, Luxembourg and the United States (with at least 17 percentage points difference in vaccination coverage rates between population groups) (Barry et al., 2021[122]) (Folkhalsomyndigheten, 2021[123]). In France and the United Kingdom (England and Wales), the gap in vaccination rates between socio-economic groups was less pronounced (of between 5 and 8 percentage points of difference) (ONS, 2021[124]) (Public Health Wales, 2021[125]) (Assurance Maladie, 2021[126]).

70. In addition, vaccination uptake among ethnic minorities or immigrants was lower than among the general population. In England, around 91% of White British aged 70 years and over had received at least one dose of a COVID-19 vaccine (ONS, 2021[124]), against 59% and 69% respectively for Black African and Black Caribbean people, 74% for people with Pakistani backgrounds and 73% for people with Bangladeshi backgrounds. Evidence from Sweden showed differences in vaccination uptake by country of birth of people aged between 16 and 39. As of end September 2021, while 8 over 10 people born in Sweden had received at least one vaccination dose, less than half of people born in North Africa (49%) and in African countries (44%) did so (Folkhalsomyndigheten, 2021[123]). In a similar vein, evidence from Norway suggests than vaccination uptake for people aged between 65-74 was the lowest among foreign-

born population from Iraq (51%) and Somalia (34%) (FHI, 2021[127]). In Australia, evidence from the Immunisation Register also shows that vaccination uptake among Indigenous People was lagging behind. As of October 2021, 57% of non-Indigenous people have been fully vaccinated and 89% had received at least one dose, compared to only 39% fully vaccinated and 57% being partially vaccinated among Indigenous People. In Canada, non-Indigenous adults (83.5%) were more likely to report obtaining at least one vaccination dose than Indigenous adults (64.1%) between March-April 2021 (Statistics Canada, 2021[128]). In Luxembourg, the vaccination rate among residents born in any former Yugoslav country was at 55%, well below among those born in Luxembourg (78%) (Van Kerm, Salagean and Amétépé, 2022[9]).

Figure 20. There were gaps in vaccination coverage between socio-economic groups

Percentage of people who had received at least one dose of a COVID-19 vaccine



Note: Data are not directly comparable across OECD countries and regions due to different study design, methodology and timeframe of observation.
Source: OECD secretariat based on (Statistics Canada, 2021[128]; FHI, 2021[127]; Folkhalsomyndigheten, 2021[123]; Barry et al., 2021[122]; Public Health Wales, 2021[125]; ONS, 2021[124]; Assurance Maladie, 2021[126]; Van Kerm, Salagean and Amétépé, 2022[9])

71. Some OECD countries have responded with decisive efforts to ensure affordable access to COVID-19 vaccination for all. The United Kingdom has for exemple implemented the “Access Card” initiative targeting all unregitered groups of people to register with primary care to encourage participation to the national vaccination programme. The initiative stated that no immigration checks and no fees will apply to people accessing COVID-19 vaccines at the point of delivery. Several other OECD countries provide COVID-19 vaccination free of charge for the socio-economic disadvantaged population (such as Canada, Czech Republic, Hungary, France or Iceland) and for undocumented migrants (such as the Netherlands, Spain, Italy or France) (ECDC, 2021[129]). Canada applied the Ethics, Equity, Feasibility, and Acceptability (EEFA) Framework to assist in guiding the prioritization of vaccines to priority populations ((Ismail Shainoor J., 2020[130])). Portugal has developed targeted policies for COVID-19 vaccination for immigrants (legal and illegal). While these efforts are examples of good practices, additional policies are needed to address gaps in vaccination, such as activating primary health care to identify and reach out disadvantaged population.

72. In addition, it is necessary to empower and equip communities to lead vaccination efforts within their communities to ensure interventions are delivered in a culturally safe and appropriate way. Target communities need to be involved in rollout, campaigns, and delivery of COVID-19 vaccination to build trust in health care systems. In Canada for example, collaboration between Indigenous Services Canada, the Nishnawbe Aski Nation (NAN) (representing 49 First Nation communities), community leaders, the

Government of Ontario, public health units, Indigenous health authorities and service organisations led to the recruitment, training and certifying additional health care providers and support staff to administer vaccines in Northern Ontario. In addition, the Government of Canada launched the Vaccine Community Innovation Challenge, which provided grants to 20 community-led proposals to promote vaccine confidence within communities. In Luxembourg, as part of the vaccination communication efforts, the government reached out to the country's religious communities and provided them with information. In collaboration with the Catholic community, a video address was recorded with a religious representative to respond to the community's hesitations (OECD, 2022[131]).

2. Expanding primary health care helps to better reach out to lower socio-economic groups

73. Primary health care has already been found to produce better health outcomes and enhanced equity across OECD countries (OECD, 2020[132]). During the pandemic, maintaining primary health care services has been unprecedentedly challenging due to a scarcity of medical resources that were partially diverted to meet COVID-19 needs in hospitals. However, primary health care has a key role to play by ensuring that populations in vulnerable situations have appropriate access to care during health emergencies. According to the OECD policy survey, at least 17 OECD countries implemented new service delivery models to help increase access to care for low socio-economic status, and reinforced the supply of services to those who are most in need (Table 2). These included 1) accelerating the deployment of multi-disciplinary primary care team to address COVID-19 and non COVID-19 health care needs in the community, 2) supporting the most vulnerable patients to implement public health measures, and 3) facilitating the rollout of the COVID-19 vaccination programme by targeting the most deprived population.

74. The first important reconfiguration was to make sure that *primary care services and COVID-19 community care centres were geographically accessible* for low socio-economic-status and ethnic minority. Without access to these sites, vulnerable patients are more likely to defer COVID-19 diagnosis and related treatment, and routine health care services, resulting in more severe health outcomes and preventable deaths. Austria for example established “Schnupfen-Boxen”, where multi-disciplinary primary care team was available in order to allow easy and close-to-home access to testing and primary care for disadvantaged patients. In France also, ambulatory health care facilities were created to improve access to primary health care in the most deprived areas, while mobile primary care teams were also deployed to reach out the most vulnerable population (Rousseau, Bevort and Ginot, 2020[133]). The supply of Permanence d’Accès aux Soins de Santé and of Equipes Mobiles Psychiatrie Précarité was also reinforced in France to enhance access to COVID-19 and non-COVID-19 care (including mental health support) for disadvantaged population. In Ireland, under the agreed Model of Care for COVID-19, the Health Service Executive repurposed some Primary Care Centres as Community Assessment Hubs. These provided timely community-based clinical assessment for COVID-19 patients and clinical support to enable patients to manage their own symptoms safely. In Luxembourg, three multidisciplinary primary health care facilities have been established to enhance access to COVID-19 testing and treatment in the community for vulnerable population including homeless, migrant and uninsured population. In Colombia, primary health care was able to diagnose and triage COVID-19 cases during the pandemic, and to deliver care in the community.

75. Second, primary health care played a vital role in s*upporting disadvantaged patients to implement public health measures*. With unique insight on the impact of the COVID-19 pandemic on their communities, primary care team are well placed to provide COVID-19 patient education for the disadvantaged, combat stigma and carry-out disease surveillance. In several countries, nurses, community health workers or social prescribing workers had important roles in this regards. In the United Kingdom for example, social prescribing was reinforced in primary care practices. Social prescribing link workers were responsible for calling and monitoring the needs of socially and economically deprived patients, helping

for food parcelling, medication deliveries or offering some extra-support for mental health needs. In San Francisco (United States), a community-based approach called "Test-to-Care Model" was developed to target socio-economically vulnerable Latin populations with newly diagnosed COVID-19 and their household (Kerkhoff, 2020[134]). This new model of community care included the provision of COVID-19 related health education, home deliveries of material goods to facilitate safe isolation and quarantine, and longitudinal clinical supports. In New York also, community health workers served as support in provided timely patient education on COVID-19, and mitigating fear and correcting misinformation in disadvantaged communities (Peretz, Islam and Matiz, 2020[135]).

76. Lastly, countries activated primary health care to help remove individual and structural barriers to vaccination rollout. Innovative delivery approaches have been developed across OECD countries such as door-to-door knocking, mobile vaccination buses or mass vaccination centres. For example, in Austria, mobile primary care team have administered COVID-19 vaccine to homeless people, uninsured people or drug addicts using one-dose vaccine. The United States introduced door-to-door vaccination campaign to provide information about COVID-19 vaccines as well as shots in areas where people haven't yet been vaccinated. Mobile vaccine buses were developed in strong collaboration with primary care workers and community health centers in Hungary, the Netherlands, the United Kingdom, the United States, France, Canada and Japan. Japan has for example deployed mobile vaccine buses carrying medical care workers to provide easy access to vaccinations in the city of Chikuma City or the prefecture of Nagano. Australia has used the Royal Flying Doctor service to facilitate the administration of COVID-19 vaccines in Indigenous Peoples living in remote areas. Under the new COVID-19 arrangement, the Royal Flying Doctor service is required to prepare, in collaboration with relevant communities and State and Territory health services, in-depth 4 weekly vaccine service plans. Australia also set up 150 new GPs Respiratory Clinics to manage the vaccination rollout for Indigenous and low socio-economic people. In all OECD countries, primary care workers, including nurses, pharmacists or community health agents, contributed in various meaningful ways to COVID-19 vaccination campaigns among the disadvantaged population.

3. Increasing health and digital literacy for socially disadvantaged population

77. During the COVID-19 pandemic, people needed to quickly obtain the appropriate information about COVID-19 infection and how to avoid getting or spreading the infection. This is even more important for disadvantaged population, migrants or ethnic minorities who - compared to other population groups - present low health literacy, and face language and cultural barriers navigating the health system. Measures to improve health literacy among disadvantaged population can thus help address inequality in COVID-19 health outcomes.

78. At least 18 OECD countries have implemented policies to enhance health literacy among vulnerable population to develop individual knowledge and empowerment to act on COVID-19 health information (Table 2). Three types of approach are reported in the policy survey, all consisting in developing culturally appropriate resources and environment to support health literacy:

- The most common approach is to provide timely, accurate and easy to understand COVID-19 information - for example on prevention measures, testing, availability and efficacy of health care services and treatment – and in all relevant languages (as seen for example in Austria, Canada, Czech Republic, Denmark, Germany, Hungary, Ireland, Japan, Luxembourg, Poland, Portugal, Slovenia and Sweden among other countries).
- A second approach – on top of the first one - is to develop culturally competent COVID-19 education and prevention campaigns using outreach community services, NGOs or local communities (as seen in Australia, Canada, France, Luxembourg, Norway, Ireland, Portugal, Slovenia, Spain or the United Kingdom). Indeed, local authorities, outreach communities and NGOs can play a critical role in reaching disadvantaged populations during the COVID-19

pandemic as they are more closely aligned with the lives of these groups of population (Box 4). In Portugal for example, the Directorate General of Health established partnerships with migrant communities, immigrant associations, associations of Roma communities, as well as with the Portuguese Council for Refugees to develop information leaflets about rights and procedures for these communities in local languages.

- The last approach – on top of the first two - is to improve professionals' communication skills to create an enabling environment that helps vulnerable population better understanding and applying COVID-19 health information. Germany and the United Kingdom are unique examples across OECD countries. In Germany, the Federal Ministry of Health developed the "aidminutes.rescue (COVID-19)" app to support the medical staff at vaccination centres when it comes to informing non-German-speaking COVID-19 vaccination and vaccines. The app supports health workers to disseminate legally sound information in more than 35 languages. In the United Kingdom, NHS England has also worked with Public Health England to provide a range of training resources for vaccination teams on communicating with vulnerable people.

Box 4. Collaborating with local communities to improve health literacy among vulnerable population: Examples from Australia, Canada and Spain

- The **Australia** Government launched a large communication strategy in partnership with Aboriginal and Torres Islander communities. The strategy included a collection of COVID-19 vaccines communication materials, including social media content, poster and video with community leaders. Australia has also established a Culturally and Linguistically Diverse Communities COVID-19 Health Advisory Group, to organise roundtable forums and information sessions with various multicultural community groups including, health practitioners, religious leaders, community leaders.
- In **Canada**, the Vaccine Community Innovation Challenge was introduced to reach communities that are underserved or have been more greatly impacted by the pandemic and provide them with messaging that is targeted, informed and culturally sensitive. The programme provides funding to allow individuals or community based-organisations carry out a community-driven information campaign to promote confidence in vaccination against COVID-19 and continued compliance with public health measures.
- In **Spain,** the Ministry of Health worked with the State Council of Social Action NGOs to make sure COVID-19 informational materials reach disadvantaged population, with appropriate format and channel of dissemination. In addition, the Ministry of Health worked in collaboration with the Roma Network in the development and dissemination of the Vaccination Campaign against COVID-19 "Yo me vacuno. Te digo por qué…", to encourage the Roma population to get vaccinated against COVID-19. Roma and non-Roma people who work for the social inclusion of the Roma population lead the campaign.

Source: 2021 OECD Policy Survey on Health Inequalities in COVID-19 outcomes

79. Beyond developing culturally appropriate resources to support health literacy, consideration should also be given to developing digital literacy for disadvantaged population who face significant barriers to access to digital technology due to financial concerns, limited digital literacy, lack of language proficiency and mistrust in technology (Knights et al., 2021[136]; Ramsetty and Adams, 2020[137]).

80. A few OECD countries tailored teleconsultations to the needs of socio-economically disadvantaged people during the COVID-19 pandemic. In Canada, the Health Authority in British Columbia developed the 'First Nations Virtual Doctor of the Day' programme to provide virtual appointments to First Nations people who have otherwise limited or no access to their primary care doctor. The programme comprises doctors of Indigenous ancestry, and all doctors are trained to follow the principles and practices of cultural safety and humility. In the Netherlands, the "4 Steps to eHealth4ALL" model from Pharos Center is also an example of good practice to improve digital health literacy. The programme helps to develop comprehensive and easy to use digital tools for low socio-economic population, and it enables primary care doctors to implement them within communities with coaching by health professionals.

81. Tailoring digital health services to populations in vulnerable situations is a crucial element that all OECD countries should consider when elaborating policies towards the digital transformation of their health systems. This is essential to avoid widening inequalities in health and health system, particularly during health emergencies.

4. There is an urgent need for more granular data disaggregated by socio-economic status, ethnicity or country of birth

82. The COVID-19 pandemic reinforces the urgent and pending need to invest in data collection disaggregated by socio-demographic and socio-economic characteristics. The availability of disaggregated data is critical to examine the social distribution of COVID-19 exposure, morbidity and mortality. This is the starting point to shed light on how different population groups are doing, to monitor trends in health inequalities and deploy targeted responses to present and future health emergencies.

83. A few OECD countries routinely collect data disaggregated by socio-economic status or ethnicity. Among the 20 OECD countries participating in the survey, none of them reported to collect routinely COVID-19 data disaggregated by income or education level, and only seven countries reported to collect routinely COVID-19 data by ethnicity, nationality or country of birth:

- Austria routinely collects COVID-19 hospitalisation by nationality;
- Belgium routinely collects COVID-19 hospitalisation by ethnicity;
- Canada routinely collects COVID-outcomes by race but poor completeness is reported. Data collection for Canada happens at the provincial/territorial level and COVID data by ethnicity and other disaggregation is not collected systematically across the country;
- Ireland routinely collects COVID-19 outcomes by ethnicity and country of birth;
- Portugal routinely collects COVID-19 outcomes by nationality;
- The United Kingdom routinely collects COVID-19 outcomes by ethnicity;
- Luxembourg collects COVID-19 outcomes by nationality.

84. Belgium and the United Kingdom have reacted quickly by developing new tools or surveillance systems to monitor inequalities in COVID-19 outcomes during the pandemic (Box 5). In Luxembourg, the new Qlick information system comprises COVID-19 data disaggregated by socio-economic status, including income levels and nationality (Van Kerm, Salagean and Amétépé, 2022[9]).

85. Most other OECD countries relied on proxy measures of wealth such as index of deprivation level (based on individual postal code) to monitor socio-economic health inequalities, or they obtain information on socio-economic status by linking national COVID surveillance data to external databases. While such approaches provided useful insight on COVID-19 outcomes between population groups, it is only a second-best solution to build a comprehensive picture of the causes, distribution, and impact of the

pandemic on vulnerable population groups. For example, the German surveillance data on notified COVID-19 cases do not include socioeconomic data at the individual level. To remedy this situation at least partially, RKI started to link the nationwide COVID-19 surveillance data with a socioeconomic deprivation index at the district level to analyse inequalities in infections and deaths. Additionally, RKI conducts a nationwide and repeated seroepidemiological study (RKI-SOEP study) with the possibility of disaggregation by socioeconomic characteristics. Nonetheless, these efforts have not been routinely implemented into a continuous monitoring or surveillance system.

86. Strengthening routine data collection on health outcomes and access to care disaggregated by income or other socio-economic characteristics is a must since it is typically the poor, low educated, immigrants and ethnic minority groups who have worse health outcomes and worse access to health system. Funding opportunities to support academics and community-based organisations to collect this type of data should be also considered. This will help to support community-based organisations and governments in delivering programs and services that help to address health inequalities.

Box 5. Tools and surveillance systems established during the COVID-19 pandemic to monitor health inequalities

The COVID-19 Health Inequalities Monitoring for England and the Wider Impacts of COVID-19 on Health in the United Kingdom

Public Health England produced two tools that support the monitoring of inequalities during the COVID-19 pandemic. The COVID-19 Health Inequalities Monitoring for England (CHIME) tool and the Wider Impacts of COVID-19 on Health (WICH) monitoring tool.

The CHIME tool brings together data relating to the impacts of COVID-19, for factors such as mortality rates, hospital admissions, confirmed cases, vaccinations and life expectancy. By presenting inequality breakdowns, including by age, sex, ethnic group, level of deprivation, population density and region, the tool shows how inequalities have changed during the course of the pandemic and what the current cumulative picture.

The WICH tool collates indicators on the indirect impacts of COVID-19 including, non-COVID hospital admissions and deaths, behavioural risk factors (smoking, alcohol, gambling and physical activity), mental health and wellbeing, employment and a number of other social determinants of health. The availability of inequality breakdowns varies depending on the data source used to construct the indicator.

The National Surveillance of COVID-19 hospitalisation in Belgium

A national hospital surveillance system was rapidly established at the early phase of the pandemic in Belgium to monitor hospital capacity over time and better understand the disease in terms of risk groups and outcomes (Van Goethem, 2020[138]). Individual data collected through the admission questionnaire included socio-demographic characteristics (such as date of birth, sex, ethnicity and postal code), and other health related information (such as diagnostic information, exposure risk, pre-existing conditions, etc). The setting-up of the surveillance system allowed to study epidemiological and clinical differences between different social groups of hospitalised patients based on ethnicity.

Source: 2021 OECD policy survey on COVID-19 health inequalities.

5. Cross-sectoral collaboration is necessary to address the root causes of inequalities and avoid widening social health inequalities

87. While a large part of the response to tackle COVID-19 health inequalities lies within the health system, additional policies beyond the health sector are also key levers. These include a range of labour market, social and housing policies, which not only benefit to low-income groups during the COVID-19 pandemic but also help avoiding widening inequalities by improving health of the worse-off (OECD, 2019[83]). The well-being approach to population mental health project developed by WISE at the OECD analyses how people's social, economic, environmental, relational, and political experiences shape and are shaped by their mental health, and what that implies for sectoral policy design (OECD, 2021[139]).

88. During the COVID-19 pandemic, all OECD countries have taken steps to sustain the incomes of many people and minimise job losses. Remarkably, countries have also supported the livelihoods of disadvantaged people who cannot access unemployment benefits or short term work schemes, such as those with unstable or short employment histories, the self-employed and other non-standard workers. These include for example making unemployment benefits more generous and accessible to new applicants, scaling up means-tested assistance programme, introducing new ad-hoc cash transfers, and providing direct support for expenses (OECD, 2020[119]). All these policies, which compensate for the income loss related to the pandemic, are paramount to avoid widening social health inequalities by indirectly improving the health for many low-income or disadvantaged people.

89. At the same time, policies targeting better housing infrastructure during the COVID-19 have also been key to protect the health of the most vulnerable population. In France for example, local governments in the most deprived areas obtained temporary housing solutions for patients whose home confinement conditions were inappropriate, and NGOs contributed to the opening of dedicated facilities for isolation of homeless patients (Chantal et al., 2020[140]). The Haut Conseil de la Santé Publique indicates that in France national policies and the welfare system, which provided several financial aids to compensate for loss of income and for short-term unemployment, alongside housing and other social policies have been effective in limiting social inequalities in health. In Luxembourg and Ireland, migrants or low-income population also benefited from free housing to encourage adherence to isolation.

90. Another key component is to encourage smarter cooperation between the health and social sector to take proactive steps in addressing the root causes of inequalities. In Scotland for example, welfare advice services are being offered in 150 GP practice since September 2021. The overarching objective is to help address the social and economic determinants to health in some of Scotland poorest areas. An in-house welfare rights officer provides advice and support to people, who may not engage with traditional support services, to make sure they are receiving the benefits they are entitled to, can access debt resolution, get help with housing and employability issues, and access support and representation at tribunals (Public Health Scotland, 2021[141]). The Scottish welfare advice services in GP practices is an example of best practice across the OECD countries to redress health inequalities.

Efforts to address the root causes of inequalities through cross-sectoral coordination can be informed by cross-country collaboration. This would make it possible to exchange knowledge on best practices for intersectoral action on the social, economic and environmental determinants of health. To this end, the WHO and PAHO, in collaboration with Canada, are leading the establishment of a global knowledge exchange network. The global network aims to supports the exchange and dissemination of knowledge on best practices for intersectoral action on the social determinants of health (including social, economic, political, environmental, cultural, commercial, and digital determinants of health) to achieve health equity and gender equality for all. Activities include for example the development of a platform for communication and knowledge exchange on best practices, tools, courses, dissemination materials related to intersectoral action on social determinants of health.

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