Master of Public Health

ACCESS TO HEALTHCARE AND MEDICINES FOR UNDOCUMENTED MIGRANTS WITHIN THE EU: THE CASE OF COVID19 VACCINATION

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LIST OF ACRONYMS

AME	Aide Médicale d'Etat
CEDAW	Committee on the Elimination of Discrimination against Women
EC	European Commission
ECDC	European Centre for Disease Prevention and Control
ECHR	European Court of Human Rights
EEA	European Economic Area
EFTA	European Free Trade Association
EU	European Union
GDPR	General Data Protection Regulation
ICU	Intensive Care Unit
IFRC	International Federation of Red Cross and Red Crescent
IOM	International Organization for Migration
MMR	Measles Mumps Rubella
NGO	Non-Governmental Organization
PICUM	Platform for International Cooperation on Undocumented Migrants
UK	United Kingdom
UNCRPD	United Nations Convention on the Rights of Persons with Disabilities
UNHCR	United Nations High Commissioner for Refugees
WHO	World Health Organization

ABSTRACT

Title: Access to Healthcare and Medicines for Undocumented Migrants within the EU: The Case of Covid-19 Vaccination.

Introduction: Undocumented migrants have continuously suffered numerous barriers to accessing health services within the EU boarder on structural and individual levels, due to their specific administrative status. The Covid-19 pandemic has acted as a critical enhancer of many already existing vulnerabilities, intensified by the lack of consideration of this population's needs and susceptibility to the Sars-Cov-2 virus in the process of prioritization for national vaccine deployments..

Methods: A literature review was conducted to draw upon the vulnerabilities and barriers faced by adult undocumented migrants living in EU countries and the United Kingdom. A secondary data analysis was employed to measure the effects of the pandemic and on vulnerabilities borne by irregular migrants. For the analysis of national policies, 20 countries' Covid-19 vaccination strategies, local initiatives and policy development monitoring, we conducted a grey literature review.

Results: The studied population faces many impediments towards healthcare services at different levels, being legislative, national policy, structural and organizational as well as individual. Many inconsistencies persist in EU legislation on the rights of undocumented migrants to access health services, resulting in a lack of European legislative consensus and much heterogeneity in health service provision. During the Covid-19 pandemic, most studied countries did not recognize undocumented migrants as a priority group for the vaccination campaigns, despite their increased vulnerabilities in the face of the pandemic. This context brings the many repercussions of the exclusion of vulnerable groups from healthcare systems and vaccination strategies to light.

Conclusion: A myriad of exhaustive strategies and actions can be established on European, national and local levels, to facilitate and enable access to healthcare and the Covid-19 vaccines for this population, as well as to ensure their right to good health.

Key words: Undocumented migrants, Access to healthcare, EU legislation, Cost of Exclusion, Covid-19 pandemic, Covid-19 vaccination.

RESUME

Titre: Accès aux Soins et aux Médicaments des Migrants en Situation Irrégulière au sein de l'UE: Le Cas de la Vaccination contre la Covid-19.

Introduction: Les migrants sans papiers ont continuellement souffert des nombreux obstacles à l'accès aux soins au sein de l'Union Européenne, à des niveaux structurels et individuels, lié à leur statut administratif particulier. La pandémie de Covid-19 a joué un rôle amplificateur aux nombreuses vulnérabilités dont faisait déjà face cette population qui ont également été intensifiées par le manque de considération apportée politiquement à leurs besoins et prédispositions lors de l'élaboration des stratégies vaccinales.

Méthodologie: Une revue de littérature a été réalisée pour regrouper les vulnérabilités des migrants sans papiers résidant au sein des pays de l'UE et du Royaume Uni, ainsi que les obstacles auxquels ils sont confrontés. Une analyse de données secondaires a été effectuée pour évaluer les effets de la pandémie de Covid-19 sur les migrants en situation irrégulière. Nous avons également effectué une revue de littérature grise pour l'analyse des politiques nationales, des stratégies vaccinales de 20 pays différents, des initiatives locales et pour le suivi de l'élaboration de politiques de santé.

Résultats: La population étudiée présente beaucoup d'obstacles aux soins à des niveaux législatifs, politiques, structurels, organisationnels et individuels. Sur le plan européen, multiples incohérences subsistent dans la législation de l'UE sur les droits des migrants sans papiers aux soins de santé, entraînant à un manque de consensus et une hétérogénéité importante dans les prestations des services de santé. Lors de la pandémie de Covid-19, une majorité des pays étudiés n'a pas reconnu cette population comme étant prioritaire dans les campagnes vaccinales malgré leur vulnérabilité accrue. Ce contexte met en lumière les nombreuses répercussions de l'exclusion de groupes vulnérables des systèmes de santé et des stratégies vaccinales.

Conclusion: Un grand nombre de stratégies et d'actions exhaustives peuvent néanmoins être établies à l'échelle européenne, nationale et locale pour faciliter l'accès aux soins de santé ainsi que leur accorder l'accès aux vaccins contre la Covid-19, pour garantir leur droit à la Santé.

Mots-clés: Migrants sans papiers, Accès aux soins, Legislation de l'UE, Coût de l'exclusion, Pandémie de Covid-19, Vaccination Covid-19.

INTRODUCTION

Around March 2020, the Sars-Cov-2 virus started to spread throughout Europe, creating a well feared pandemic that has affected the lives of many. As the rates of infections and deaths exponentially increased in some countries, economies were shut down and populations faced lockdowns, awaiting the arrival of a vaccine to overcome the virus. However, not all individuals were equal before the virus in terms of risks of infection, disease severity and economic stability due to countries' restrictive measures to face the increasing incidence of Covid-19 related infections and mortality.

Many communities have suffered from the health sequelae and economic consequences of this pandemic at a much higher level and among these were undocumented migrants, making up for around 4 million inhabitants within the European border in 2017 (1). In 2019, the number of clandestine arrivals was around 123 920, according to the International Organization of Migration (IOM) (2). The same year, the Frontex EU border agency reported around 125,000 "illegal" border crossings into the European Union (EU) (3). These communities have in the past faced numerous structural and individual-level barriers to universal health care and good health, an issue that has well been identified during the Covid-19 pandemic yet again.

Besides differences in vulnerabilities related to age, sex and health status, globally taken into account for population prioritization by national health authorities, numerous additional factors contribute to reinforcing poor health, segregation and thus, risks of infection and complications. Structural deprivation to good health has mainly resulted from social and societal marginalization of these groups (4), raising the question of the ethics, as well as economic and public health sustainability of exclusive healthcare systems as the EU (including former EU-member United Kingdom (UK)) has welcomed an unprecedented amount of immigrants during the last decade, making up a non-negligible proportion of today's European population (3). According to the European Commission's (EC) estimations (6), more than one million of immigrants having entered Europe from 2015 to 2017 were refused status and the average return rate of detected irregular migrants was at 36%, of which many will stay within EU borders without authorization, restricted from obtaining welfare benefits. The amount of irregular migrants is therefore important and needs to be acknowledged in policy development as emergency immunization initiatives.

As the pandemic evolved, vaccines have concomitantly and globally been developed, in conjunction with the EU institutions ensuring collective European procurement of the vaccines, leaving deployment strategies entirely to national decision makers (7). By the month of January 2021, all 27 EU countries as well as the UK had started their vaccination

campaigns and the EU/EEA (European Economic Area) countries have since received a total of 333 678 903 Covid-19 vaccine doses as of June 2021 by manufacturers, of which 85.15% were distributed to adults aged 18 years and above (8).

The absence of a uniform deployment strategy, although well justified by national as well as regional geographic and socio-demographic specificities, has led countries to choose the order of priority and strategy in which they vaccinate their population, illustrating different steps towards a common goal: mass immunization and the decrease of Covid-19 disease incidence and mortality rates.

According to the European Centre of Disease Prevention and Control's (ECDC) most recent technical report, 51.2% of the adult population within EU/EEA countries received at least their first vaccine at the time of 11 June 2021 and 26.8% were fully vaccinated. However, major disparities remain within vaccine uptake (8).

Despite international organizations' recommendations on the importance of including vulnerable groups such as irregular migrants in the vaccine allocation strategies (5), such as the World Health Organization's (WHO) Strategic Advisory Group of Experts Roadmap of November 2020 that identified irregular migrants as a priority group for the allocation of the Covid-19 vaccines and listed migrants as phase II and III priority groups (9), most EU member states did not explicitly mention or acknowledge this particular group in the elaboration of vaccine campaigns. The inconsideration of irregular migrants in the vaccine rollouts has therefore been one of the greatest concerns communities have recently faced as the repercussions of exclusion are global, of ethical concern and render national vaccination strategies counter-effective (10).

Multiple factors can be identified to explain what vulnerability signifies. Vulnerability by definition, corresponds to the quality of being vulnerable, which means being able to be easily hurt, influenced, or attacked (11). On the other hand, health vulnerability has been defined as "the degree to which an individual is unable to anticipate, cope with, resist and recover from the impacts of diseases or epidemics " (12).

To the exclusion of individual health characteristics accounted for in the vaccination strategies, undocumented migrants bear many vulnerable attributes as important as health status.

As Covid-19 infections, mortality and severe disease rates were found higher in migrant populations (irrespective of status) than local communities in multiple countries (5), international organizations and agencies today urge national authorities to recognize this issue, include and prioritize undocumented migrants in national vaccine roll-out strategies, as much as citizens (5).

Many factors leading to a more fragile health status often overlap as migrants can suffer from disability, morbidity, poor mental health and homelessness or financial insecurity in addition to the social and healthcare restrictions brought about by their legal status - this can be recognized as a double sentence in the face of the pandemic. The high prevalence of precarious situations for this population has been highlighted by organizations such as Doctors of the World, who in 2019 reported that within their studies on migrant populations within Europe, a considerable amount of irregular situations was associated with high rates of poverty and homelessness (13). With the absence of social support, a considerable amount of these populations has seen the pandemic affect their income negatively (14).
All of these obstacles, including unfamiliarity with the host country's health system, language and culture, also contribute to non-negligible rates of reluctance and hesitancy towards immunization programmes. This last point needs to be addressed as well, as it corresponds to the numerous disadvantages these populations are subjected to and can be resolved through efficient vaccine communication and information campaigns.

Until this day, specific data based on undocumented migrants is largely insufficient, especially in terms of hurdles faced to accessing healthcare, the prevalence of infectious diseases such as Covid-19 and the efficiency of healthcare interventions carried out for them (15). The absence of data collection of this population has hindered inclusive policy making and accurate estimations to draw upon.

In this paper, we will start by approaching general information on undocumented migrants within EU countries, their rights to healthcare and national differences in healthcare provision. We will then discuss the different vulnerabilities that undocumented migrants are mostly subjected to, the barriers they may face in accessing healthcare within different healthcare systems and conduct an assessment of the place given to undocumented migrants in the national Covid-19 vaccine rollout strategies. Good practices and initiative will be raised, as well as the consequences to the exclusion of these groups from vaccination campaigns and healthcare in general. Finally we will discuss the solutions to more inclusive healthcare systems and enabling environments for irregular migrants to vaccinate.

OBJECTIVES

The aim of this grey literature review is to collect existing evidence on migrant health, European and national legislations and policies on healthcare access for this undocumented migrants in particular, as well as identifying the main barriers these populations ongoingly face and how this impacts their health and wellbeing in situations of emergency crisis, such as non-inclusive vaccine deployment strategies during the Covid-19 pandemic, within

European countries.

The objectives of this study, therefore are to:

- Understand the legal frames of healthcare access for this specific population within the EU and national legislations and report on the diversity of national policies on healthcare provision.
- Identify recurring barriers and continuous vulnerabilities on both structural and individual levels, to accessing healthcare.
- Analyse the lack of an equity lens in Covid-19 vaccine deployment strategies by EU member states.
- Suggest health policy measures and strategies on both the national and EU levels, for more equitable access to vaccines and to more general healthcare.

MATERIAL AND METHODS

A literature review was employed to draw upon these objectives, to identify the main obstacles to health care and create recommendations accordingly. Data was collected from February 2021 to mid-June 2021.

For this research paper, data was collected through four different methods:

(i) A general literature review on migrant health and the legal rights of undocumented migrants within the EU to accessing healthcare;

(ii) Secondary data analysis on the effects of the pandemic on migrant population and on vulnerabilities borne by irregular migrants, notably within healthcare systems.

Concerning the secondary data analysis from research articles and reports, the following databases were used : PubMed, Google Scholar and Science Direct.

The search strategy on these databases was built on the three following questions:

“To what extent do irregular migrants access healthcare services, especially primary healthcare (in relation to immunization) within European countries ?”;

“Which are the main barriers that irregular migrants face when seeking healthcare ?”;

“What are the consequences of excluding irregular migrants from healthcare, health emergency response strategies and immunization campaigns ?”.

We therefore used keywords such as: “Undocumented migrants”, “Irregular migrants”, “Legal rights to healthcare”, “access to the vaccines”, “economic cost of healthcare exclusion”, “health vulnerabilities”, “Covid-19”, “data protection”.

The terms employed to identify undocumented migrants were the following:

“undocumented migrants” “non-documented migrants” “migrants with irregular status” “irregular immigrants” “irregular migrants” ‘migrants in irregular situation” “undocumented third-country nationals” “clandestine immigrants” “persons without papers”.

(iii) Grey literature review for the analysis and policy development monitoring of official national vaccine deployment strategies and scoping review of policy recommendations, policy briefs, informative papers, technical reports, reviews, statement letters, issue papers, national recommendations and strategies, research articles and surveys related to the Covid-19 pandemic. Reports from Non Governmental Organizations (NGO) and international organisations were found on their respective websites and in the reference section of research articles.

For this grey literature review, articles and reports were selected according to: the organization as author, the date of publication and the context and geographic focus.

The literature review was also done on the national, regional and local initiatives and actions to vaccinate undocumented migrants. This review includes applied research on both mediatic and policy sources, through daily research on digital newspapers as well as organisations' websites, for articles on the topic of vaccine access, witness stories and local distribution initiatives.

(iv) Expert input from informational meetings with European and public health stakeholders as part of the internship tasks. Informational meetings were carried out on a weekly basis as part of the internship, with: Civil Society Organisations, NGOs, experts, academics, journalists and policy makers.

Participation in topic-related conferences and webinars organized by international organizations (Civil society organizations), expert groups, NGOs and other institutions (whether national, European or international) also contributed to the thought and writing process of this research paper.

Study context

This research topic was written in the context of the Covid-19 pandemic and the development of vaccine deployment strategies, while being based on previous research and contexts.

The geographical setting of this study focuses on all countries from the European Union, as well as on the United Kingdom. The latter was included as most research previously conducted included this country, as a former EU member state.

National Covid-19 vaccination strategies were analysed for a total of 20 countries. These were Ireland, the Netherlands, Spain, Belgium, France, Italy, the UK, Portugal, Finland, Germany, Cyprus, Poland, Slovakia, Hungary, Sweden, Greece, Croatia, Romania, Luxembourg and Austria. These countries were selected due to the accessibility of available information on the vaccine strategies and their priority groups, as well as documentation availability in a known language.

The population group of focus corresponded to adult undocumented migrants living in EU

countries as well as the UK. Children were excluded from the analysis, as they are currently not subjected to the same vulnerabilities as adult immigrants in the face of the Sars-Cov-2 virus.

The documents analysed were published from 2009 to 2021; however no particular limitation was set to the publication dates in the selection process of documentation.

Limitations

The ongoing context of the Covid-19 pandemic, the very recent release of the vaccines and conception of national vaccine rollout strategies have led to a heavy limitation in data and research work availability on the topic of vaccination strategies for undocumented migrants in Europe. These constraints have therefore significantly limited the analysis possibilities of the European context in the inclusivity of vaccination campaigns and strategies. Moreover, due to the scarcity of information and data on undocumented migrants, this study also uses documentation that focuses on general migrant populations and that therefore has been extrapolated to our study population when no other data was available.

The second limitation of this study was the language barrier concerning national documentation, as many national vaccination strategies were only available in their original language. Documentation was therefore read in four different languages: French, English, German and Spanish. The translation of documents in other languages can therefore also have resulted in bias.

RESULTS

Undocumented migrants in Europe and EU countries

General Information

An undocumented or irregular migrant is defined by the European Commission as "*a person who, owing to irregular entry, breach of a condition of entry or the expiry of their legal basis for entering and residing, lacks legal status in a transit or host country*". In the context of the EU, they are characterised as third-country nationals that do not fulfil the conditions of entry within the Schengen State (16) and within Ireland and the United Kingdom.

In other words, undocumented migrants are immigrants that come from outside the EU/EEA and live in a European country without an authorization. As the definition of irregular migrants has not been universally agreed on, the International Organisation for Migration defines irregular migration as the following: "movement that takes place outside the regulatory norms of sending, transit and receiving country".

Three different conditions have been identified as representing an absence of authorized stay and leading to the denomination of irregularity: type of entry, residence or employment can be considered irregular (17). These can consist of illegal border crossing, the use of false documents or information, visa overstays, loss of status and birth to irregularity (18).

Europe has witnessed one of its highest migration flows in 2015, of more than a million immigrants (1 046 599), with many arrivals through the eastern-mediterranean route (19) and arrivals taking place majoritarily in Greece and Italy. The countries of origin were identified as the following : Syria at 50.2%, Afghanistan at 20.2% and Iraq at 7.1%, in which populations were inflicted by war and conflict.

Although the conflicts and unease in many parts of the world remain, immigration rates within the EU have dropped during the years following 2015, with asylum demands reaching 471 300 total applications, that include 416 600 first asylum applications from non-EU citizens in 2020, while the rate of immigrants from outside the EU has bounced back as of 2017, reaching more than 2.5 million in 2019 (*Appendices - Figure 1)* (20). In the same year, EU countries with the largest number of residing immigrants were found to be, in the following decreasing order, Germany (n=886 300), Spain (n=750 500), France (n=385 600) and Italy (n=332 800) (21).

Concerning unauthorized migration specifically, according to the Pew research center, between 3.9 and 4.8 million unauthorized immigrants resided in EU and European Free Trade Association (EFTA) countries in 2017, among which around 1 million had their asylum claim pending (1).

It is estimated that on the 1st of January 2020 23 million non-EU citizens lived within the EU. Other estimates from the European Commission show that more than 1 million of Europe's arrivals between 2015 and 2017 were refused refugee status. The average return rate from the EU of detected irregular migrants was 36% at the time, of which a certain amount stayed within borders without any authorization (6). Until this day, data collection on the proportion of immigrants in irregular settings, as well as their socio-demographic characteristics has been highly limited due to the difficulty to reach and identify this population.

Immigrant populations in general (regardless of status) were and still are predominantly men, on average very young - the median age being 29.2 years, compared to 43.9 of the EU's total population (*Appendices - Figures 2 and 3*). It has therefore been shown that immigrants in general are economically active and therefore indirectly contribute to many countries' economy as well as healthcare systems through the taxes they pay by consumption of goods and services (22).

Rights to healthcare at international and EU level

Despite differences in national public policies concerning access to healthcare, international human rights conventions and treaties request the provision of basic healthcare by signatory states and prohibit discrimination in the provision of health services for persons presenting vulnerabilities. Conventions such as CEDAW and UNCRPD attest this (23).

The International Covenant on Economic, Social and Cultural Rights adopted in 1966 also recognizes, in the article 12-c, the right of all individuals “to the enjoyment of the highest attainable standard of physical and mental health”, including in the prevention, treatment and control of epidemics and other diseases (24). Additionally, the right to healthcare has been claimed by the UN Committee as requiring availability, accessibility, acceptability and good quality.

Long established declarations such as the Alma Ata declaration on universal health coverage in 1978 have founded the basis for migrants’ rightful access to healthcare. Following policies and resolutions have reinforced Europe’s positioning on that matter : the World Health Assembly resolution on the health of migrants (2008), WHO’s European Region Policy Framework for the promotion of equitable health and well-being (2013), the 2016 Strategy and Action Plan for refugee and migrant health (WHO European Region) (25). However, gaps have been identified within these documents, notably in the indication of ‘necessary treatment’ as no precise definition of this term has been agreed on, nor the type of healthcare services that are recommended to be provided and therefore granting many flexibilities to WHO member states.

As part of the WHO 2030 Agenda of Sustainable Development Goals set in 2015, UHC overlaps multiple goals such as number 3 - “Ensure healthy lives and promote well-being for all at all ages” and number 10 - “Reduce inequality within and among countries” (26). In the Global Health Security Agenda 2024 targets, disease prevention and control programmes also address migration governance within universal health coverage, health prevention and early response to infectious disease threats (12). Universal Health Coverage has been on the EU’s agenda for many years, only recently making the issue of inequitable access to healthcare the case for populations presenting vulnerabilities such as persons without papers (27).

At EU level, Article 35 in the Charter of Fundamental Rights of the European Union confirms those rights to healthcare by stating the following : “everyone has the right of access to preventive healthcare and the right to benefit from medical treatment under the conditions established by national laws and practices” (28), a statement that accounts for a stronger legal basis compared to other declarations and treaties.

Moreover, Article 14-1 of the Return Directive in EU secondary law (29), recognizes refugees’ and subsidiary protection status holders’ right to healthcare. However, it does not

mention unidentified irregular migrants, as it states only that emergency healthcare and essential treatment of illness must be provided for irregular migrants that were given a period for voluntary departure or whose removal has been postponed (28).

In conclusion, the limitations in international recognition of irregular migrants' rights to healthcare can be partially explained by the limitations in the terms employed by EU legislation to address necessary healthcare provision. Moreover, references to financial coverage, funding, administrative requirements and types of services to ensure equitable healthcare provision for this population, are still lacking to this day (30). Despite mandatory provision of emergency care due to the prohibition of inhumane treatment by countries towards vulnerable communities stated by the European Court of Human Rights (ECHR) (31), member states are left to decide on what they consider to be necessary healthcare for clandestine migrants. This creates many disparities in national public policies.

Healthcare provision to irregular migrants within EU member states

All 27 EU member states (as well as its former member the United Kingdom) in principle should provide access to emergency healthcare at the least, as they signed Human Rights Conventions stating that individuals from minority communities shall not be subjected to inhumane treatment (32)(33). Large disparities within European countries in healthcare access for migrants regardless of status, have however been displayed, notably by the Migrant Integration Policy Index providing figures from 2015, showing great heterogeneity in healthcare accessibility (34).

The latest evidence showed that six member states still limited healthcare use to emergency care for adults in irregular situations, that was Bulgaria, Cyprus, Finland, Lithuania, Luxembourg and Slovakia in 2015 (35). Twelve other countries restricted access to primary and secondary healthcare as well, but did provide specific services such as maternity care or infectious disease screening and treatment (HIV, others).

In the remaining 10 member states (of EU-28 at that time), primary and secondary care were allowed to a certain extent: France, Germany, Belgium, Czech Republic, Ireland, Italy, Netherlands, Portugal, Sweden and the UK.

Differences in healthcare provision within the aforementioned countries do remain nevertheless and access will depend on the presence or absence of financial coverage, administrative requirements and the perception of these rights by healthcare providers.

Countries presenting the least restrictions in 2015 were considered to be the following: France, Belgium, Italy, the Netherlands, Portugal and Sweden. Despite this, a 2019 study of nearly 30 000 migrants living in European countries (irrespective of status) has found that

82% of them did not have any health coverage (36). This proportion can therefore be estimated higher for migrants with irregular status.
Screening and treatment against infectious diseases were, in some countries, offered to undocumented persons prior to the covid-19 pandemic and mostly for HIV and tuberculosis. On top of the aforementioned six countries, Greece, United Kingdom, Malta and Spain also offered care related to infectious diseases. However, residence status and health insurance were recognised by the ECDC as being major obstacles to accessing this type of care.
Similar limitations apply to financial coverage of medication, which is only ensured by a certain number of countries (37).
During the Covid-19 pandemic in 2020, 9 EU member states offered free emergency healthcare for Covid-19 infection to undocumented migrants: Belgium, Estonia, Greece, Finland, Lithuania, Luxembourg, Spain, Poland and Slovakia (38).

A positive change in the recognition of undocumented migrant populations and the necessity to provide them with appropriate healthcare was gradually made within European countries. However, the reality in accessing healthcare remains frail, as most individuals presenting irregular status face a multitude of impediments to accessing needed health services. These will be discussed below, along with immigrants' frailty.

Disproportionate vulnerability to the pandemic and individual-level risk factors: undocumented migrants on the front line

Undocumented migrants present vulnerabilities on multiple levels in the face of the Covid-19 pandemic. They experience ongoing marginalization, social and societal discrimination and exclusion that goes beyond the lack of recognition of their rights to healthcare. As shown by the IOM, their vulnerability to the virus is based on multiple factors that increase their risk of contracting the disease, transmission of the virus, suffering of psychosocial impacts of the pandemic, experiencing livelihood and income insecurity, and finally showing severe Covid-19 symptoms with higher risks of mortality (39).
Previous limited access to healthcare services represents a first conduct to poor health, as unresolved health issues and poorer health lead to higher risks of complications from the Sars-Cov-2 virus. Although the 'healthy migrant effect' has proven to be true to some extent as immigrants usually correspond to younger populations and therefore are physically able to migrate - often in perilous conditions (40), research has shown that immigrants' health status deteriorates with time, proportionately to the length of stay within the host country (41). Despite risks of bad health exposure during the migration process, their health is mainly affected by hurdled access to healthcare services and often precarious living and

work conditions, leading to behavioral health risk factors such as malnutrition (65% of refugees were reported being overweight compared to 50% amongst the local population in Sweden) and chronic conditions (5). Situations of inflicted hardship, isolation and experienced xenophobia within the host-country also causes detriment to migrants' mental health. Many are those that have been subjected to psychosocial stressors and trauma from the migration journey that result from human trafficking, violence and abuse, sexual exploitation or xenophobia (12). Studies have shown that individuals suffering from mental illnesses, especially when severe and causing functional impairment, were at higher risk of catching the disease, dying or suffering from the consequences of the Covid-19 disease more severely (42). According to De Hert and al, the presence of a mental illness increases the risks of Covid-19 related mortality by 2 to 3 times. (43). This could, according to Mazereel and al, be partially explained by higher rates of comorbidities as well, that have been associated with mental illness but however do not entirely explain this positive relation as psychiatric disorders themselves represent a considerable risk factor, irrespective of physical comorbidity.

Precarious living and work settings are often another major factor to higher exposure to the virus, limiting the expected benefits from national lockdowns. Immigrants in irregular situations considerably work on the front line in professions that represent an increased risk of infection (39). They often work unrecognised jobs due to their legal deprivation to work and thus may work under unsanitary conditions or be submitted to higher risks of exploitation. This includes lower income, higher risks of losing their job and finally the absence of a paid sick leave, disincentivizing them to miss work for medical appointments and making it impossible to work from home (37). The type of employment this population often occupies can represent a risk for health as well, as the absence of legal supervision can lead to hazardous working conditions. Men majoritarily work in manufacturing and construction, while women mostly work in the service sector (12). They might also risk being subjected to abuse and financial exploitation (44). Occupational risks also include the more frequent use of public transportation when teleworking is not possible, which can present higher risks of infection.

Additionally, this group has faced more intense economic hardship and unemployment due to the numerous restrictions put in place by authorities during the pandemic and might simultaneously be affected by the economic situation in the country of residence as well as by the country of origin where remaining family members possibly rely on monthly allowances (45).

Economic status and income will directly affect migrants' living conditions, frequently crowded, therefore making it impossible for many to physically distance themselves and for

countries unimaginable to avoid clusters. Frequent high risk living settings have been found to be homeless shelters, camps, reception and detention centres and shared households, sometimes multigenerational (5). Numerous cases of disease outbreak were reported in Greek refugee camps as well as in Dutch, Maltese and German reception centres, even under quarantine. Disease clusters in precarious settings contribute to proliferation of the virus and contribute to the expansion of the pandemic's severity, jeopardizing population health globally. Issues like these amongst under-vaccinated groups have been ongoing prior to the Covid-19 pandemic. According to the WHO, the example of the MMR (measles, mumps, rubella) vaccine is quite representative of the lack of consideration of migrants within national immunization programmes by national authorities. In 2017, only 41% of EU and EEA (including Switzerland) countries offered the MMR vaccine to these populations (25).

Immigrants' health status will depend on all the aforementioned factors, in addition to biological and behavioral reasons, which altogether impacts their life and disability-free life expectancy, putting them at higher risk of infection, transmission, morbidity and mortality linked to the covid-19 disease.

A recent report published by the European Centre for Disease Prevention and Control reported that a relatively high amount of national Covid-19 infections in 2020 corresponded to migrant groups: 42% of all covid cases until late April Norway, 32% until May in Sweden and 26% until September in Denmark. In both Spain and Italy, migrants were reported to be more at risk of hospitalization. Other European countries (UK, Netherlands, France and Sweden) found that mortality rates were also higher in migrant populations (5). A Swedish research study also found that migrant men from the Middle-East and North Africa had a tripled rate of mortality from Covid-19 compared to Swedish nationals. On top of these results, the ECDC has stated that vaccination coverage is on average lower amongst migrants, when compared to the general population (46).

These findings can partially be explained by the effects of reluctance or hesitancy towards the Covid-19 vaccines, fueled by both individual beliefs and social exclusion. Irregular migrants are in fact more vulnerable to misinformation due to their social exclusion and deprivation. Many studies have shown that minority ethnic groups presented higher rates of hesitancy towards the vaccines (47) and that vaccine uptake was lower compared to the general population. The reasons behind this trend, reported by research, are numerous: mistrust towards the authorities, scale of disease incidence in the country of origin, politicization of the pandemic, low interaction with healthcare services due to legal restrictions, lack of available information in native language and health illiteracy exposing them to higher risks of vaccine misinformation (48). The ECDC reported that many countries

found higher amounts of vaccine hesitancy in the Vaxzevria (Astrazeneca) vaccine and in the vaccines globally since the growing discussions on the potential risks of blood clots related to the Vaxzevria vaccine (8)(49).

Moreover, structural barriers also play a role in confidence towards the vaccine and towards authorities and will be mentioned further down.

Historical events around forceful medical procedures still considerably impact confidence in the vaccines recommended by western authorities until this day (50). The uncertainty around the safety of the Covid-19 vaccines, besides the fear of deportation has therefore come up as one of the main reasons behind reluctance and hesitancy. The politicization during the pandemic of the virus and the vaccine development, along with political misinformation and interference, have also played an important role in this trend (51), especially when mistrust in the political authorities persisted prior to the pandemic.

Religion and cultural beliefs have also proven to have an impact on vaccine confidence, as they were reported to generally negatively affect trust towards vaccination (52). Numerous studies found that vaccine hesitancy was greater amongst racial and ethnic minorities compared to a country's local population (53)(52). In England, Covid-19 vaccine uptake rate for persons over 80 years was 20 to 34% lower in ethnic minority groups, in late January 2021. The lower rate can however not exclusively be associated with hesitancy, as major barriers clearly stand in the way of vaccination (54). Reluctance towards the vaccines was also associated with lower income and lower access to primary healthcare (55), two situations in which undocumented migrants often find themselves in.

Different determinants were identified to understand the recurrent theoretical factors that influence vaccine confidence in populations. The ECDC described three main factors influencing vaccine hesitancy: contextual factors (sociocultural, environmental, historical), individual and group influences (influence of religious communities) and vaccine specific questions (safety, costs, scientific evidence) (56). Close to these, three determinants were identified by the Sabin-Aspen vaccine science and policy group : Confidence, Convenience and Complacency, the latter corresponding to the perception of the necessity to vaccinate against vaccine-preventable diseases in certain situations (57). A multitude of factors therefore influence an individual's confidence in vaccines and need to be taken into consideration in further immunization information campaigns for better health prevention and education, especially amongst more vulnerable groups.

All in all, irregular migrants present greater health fragility and suffer from discrimination within healthcare systems and societies overall, enhanced by structural deprivation of healthcare services.

Structural, legal and organizational barriers to vaccine uptake by undocumented migrants

As vaccines are being deployed, multiple obstacles to vaccination have been identified for undocumented migrants that existed before the pandemic and need to be seriously accounted for, as inclusive vaccine rollout strategies will not suffice to vaccinate this population if numerous structural and organizational impediments persist.

First and foremost, migrants' irregular status represents a first obstacle, as certain documents are often required in order to register for vaccination and healthcare, such as health insurance affiliation, ID documents, proof of residence and social security number (37). According to the International Federation of Red Cross and Red Crescent (IFRC), document requirements in Sweden (bank ID and social security number) constituted a major hurdle for irregular migrants to book appointments. The National Institute for Health, Migration and Poverty in Italy also stated that more than 700 000 foreign citizens in the country are "invisible" in the Covid-19 vaccine deployment campaigns, as they do not have a health insurance card or fiscal code (58).

In their 2011 country-comparison report on healthcare access of migrants with irregular status, the EU Agency for Fundamental Rights reported that even the most integrative European healthcare systems required some sort of document. At that time and still unchanged to this day, Belgium required proof of insufficient revenue and of residence, while Spain (for certain regions) and France also demanded identification proof. Moreover, most countries require a minimum length of stay in order to benefit from healthcare services (59). In France, undocumented migrants can apply to the state medical aid called AME (Aide Médicale d'Etat) to access covered medical care, medicines, vaccines and testing. That being said, migrants are required to prove residency of at least 3 months and delays in receiving their medical card can be very long (35).

Heavy bureaucratic measures have also quite frequently led to healthcare providers refusing care to entitled migrant beneficiaries, as reported by a French NGO (37).

Other administrative-related obstacles also persist, such as digital literacy in migrants or access to online registrations. Some individuals might have low digital literacy and therefore might be impacted by the digitalization of registration during the pandemic, as shown by A. Deal and al (60). Others might not have access to the internet to do so. This issue was reported in countries like the UK, where migrants could not register for the vaccines as they did not have access to the online services or did not possess a smartphone (59). Identical barriers were reported concerning testing services against the disease.

Furthermore, many face discrimination and stigmatization within the healthcare sector, where they are refused entitled medical care (61), as a result of a lack of knowledge by healthcare providers about the rights to healthcare of persons without papers. On the other hand, migrants might also not be aware of their rights to healthcare services in a given country, especially when healthcare-related public policies are heterogeneous within the continent and when this information isn't properly communicated by the authorities and the healthcare sector (37).

In the context of the Covid-19 pandemic, irregular migrants have frequently witnessed a lack of translated and culturally-aware information materials concerning the pandemic, the vaccines and their rights to healthcare and medicines (62). Many irregular migrants thus might not be informed on their rights to healthcare, nor on the functioning of the host country's healthcare system. Numerous countries (Austria, Estonia, Germany, Hungary, Latvia, Lithuania, the Netherlands and Sweden) have reported facing challenges in communicating information related to the vaccines with certain population groups and both Norway and Germany found it difficult to communicate with immigrant communities specifically (8). The International Federation of Red Cross and Red Crescent (IFRC) reported that the Translators without Borders NGO they worked with during the pandemic, had received an exceptional amount of translation requests from local organizations (14). They also reported many cases of migrants facing major language barriers in accessing information on the Covid-19 disease on official governmental websites.
Many inconsistencies in national guidelines and policies were identified in WHO's 2017 guidance as major barriers to service provision. Very few member states provided specific recommendations for refugees and migrants (25). The absence of cultural and linguistic adaptability from the healthcare services and personnel further disincentivizes migrants to seek health services, even if allowed to do so. In their 2016 study on healthcare access by vulnerable populations, Doctors of the World conducted a survey in health centres within 12 different European countries and found that 40.8% of all study consultations required the presence of an interpreter. The barrier of language was therefore identified as a major hindrance to inclusive healthcare (63).

On top of this, undocumented migrants are at great risk of deportation, therefore minimizing their use of social and health services (64). Although 2018's EU General Data Protection Regulation (GDPR) asserts that personal data protection regardless of nationality or residence status is a fundamental right that applies to everyone under the EU law and prohibits the "sharing, transfer or exchange of personal data between service providers and immigration authorities for enforcement purposes" (13), fear of being reported by the medical

sector is omnipresent and indeed well founded. Data might not always be protected and firewalls between the healthcare sector and migration authorities might not exist, which in consequence doesn't guarantee protection of their fundamental rights to healthcare. Some EU member states impose reporting of irregular patients by public officials or healthcare professionals. In contrast, some countries such as Italy and the UK do not require healthcare providers to report on their patients if they are experiencing irregularity (30). According to the IFRC, the creation of a firewall and policies prohibiting the sharing of patient information to the police has been carried out by a number of countries, such as Italy, Finland and the Netherlands (14).

Other countries do not compel healthcare professionals to report on their patients but hinder data protection in demanding administrative and social protection services to report to the migration authorities or the police, making access to healthcare impossible. This is the case in Germany, where undocumented migrants have access to health services beyond emergency care, as do asylum seekers. The administrative procedure however requires them to receive their medical insurance card from social protection services, who are compelled to report on clandestine patients (37). Countries like Ireland that have granted access to the vaccines to irregular migrants still recognise that the fear of being reported remains, disincentivizing these groups from vaccinating (65) and studies show that the amount of refusals to seeking healthcare remains significant (63).

The financial costs of health services represent a major hurdle towards equitable healthcare access as well. Health services might be delivered at a certain cost that cannot be assumed due to financial hardship, enhanced by the pandemic. In cases of full coverage of services, prepaid expenses and slow reimbursement create a temporary financial cost and might disincentivize individuals from seeking care as well (37).

In a 2017 survey, Hargreaves and al. showed that out of 32 EU/EEA countries,10 (that is 31%) required irregular migrants to cover vaccination fees (66). Undocumented migrants suffer from low social support structures in many different areas, affecting their health through the financial limitations to pay for the health services. Even in cases of rightful access to healthcare and medicines, studies have shown healthcare discontinuity can often be explained by the accumulation of costs borne by the patient, such as costs of medication in addition to healthcare services (67).

On top of these medical fees, migrants wishing to seek care will often have to cover transportation costs to access care facilities as well as bear the costs generated by absence from work, as many work in informal job sectors and therefore are not offered paid sick leave (61). Indeed, challenges in establishing vaccination delivery sites to access vulnerable

populations have been reported by Latvia. Hungary reported similar challenges in reaching underserved populations, notably in rural areas (8).

Finally, globally enforced travel restrictions have represented an additional obstacle towards safety and financial security, limiting social support possibilities through family reunification and putting a halt to asylum procedures (5).

At the very least, organisational hurdles will directly affect migrants' health and individual-level barriers, further accentuating their socio-economic instability and global transmission rates.

The EU is in dire need of migrant sensitive healthcare systems, which starts with the inclusion of irregular migrants in national health emergency responses.

Non inclusive health policies and vaccine deployment strategies: A European issue

National Vaccine Deployment Strategies: Are undocumented migrants included ?

Countries that explicitly included and mentioned irregular migrants in their vaccination strategies were the Netherlands (68) and Spain, where the governments recognised migrants in an irregular administrative situation as at higher epidemiological vulnerability due to their socioeconomic status (69). In their vaccination strategy of December 2020, Spain's National Health System's Inter-territorial Council (Consejo Interterritorial), indicated that persons with a vulnerable socioeconomic status, living and working within communities or closed environments, including persons with an irregular administrative status, would be prioritized in the vaccine rollouts, due to higher risk of morbidity, mortality, exposure, transmission, social and economic impact (69).

Spanish news have however identified hospitals from two Spanish cities located on the African continent (Ceuta and Melilla) that reported irregular migrants trying to seek healthcare. This has created mistrust amongst migrants towards the healthcare sector and has dissuaded them to vaccinate and seek health services (70).

Belgium's health minister Alain Maron publicly stated and confirmed before the Parliament that undocumented people will not be excluded from the vaccination process, as it would otherwise be a public health issue (71). However undocumented migrants or persons without regular status do not seem to be mentioned in Belgium's vaccination deployment strategy (on Brussel's, Wallonia's and the federal's platforms). On the other hand, Wallonia's platform states that the right to vaccination will not depend on a health insurance affiliation (72) and has recently started to vaccinate undocumented migrants in day centres with the Johnson and Johnson vaccine (73). A recent update (on 14 June 2021) on access to the vaccines for persons in a precarious situation of stay confirms that persons without a BIS identification

number intended for persons not yet registered in Belgium's National Register, can ask for one to be created by a physician without needing to indicate their residency address. They can otherwise be vaccinated by mobile vaccination teams (such as Mobivax) organized by local organizations, or get the vaccine in a hospital that has accepted to vaccinate unregistered persons (74).

France stated that persons experiencing homelessness or immigrants could be vaccinated as of 28 January 2021 even if they do not possess a health insurance card (75).

Italy also announced that it will be available to all regardless of residence status (76). However, prominent hurdles have been identified despite their right to access the vaccines, mainly due to bureaucracy, such as enquiries of social security numbers for vaccine appointment booking in many Italian regions (77).

UK guidance states that the vaccines are free for all, including residents "without permission". The UK government confirmed that no immigration checks will be required (78), (79). Online registration for vaccination appointments however requires an NHS number, which most irregular migrants do not have and which must be obtained through a general practitioner's filling. Refusals from general practitioners based on missing proof of identity, immigration status or residency have been however reported, despite affirmation by governmental guidelines that registration for an NHS number does not necessitate any documents (80). Migrants with irregular status can therefore be refused access to the vaccines depending on the physician they consult.

The Portuguese government granted residency to all migrants, resulting in access to healthcare and thereby the vaccines (5). They also created an online covid-19 vaccine registration platform for undocumented persons and would have received nearly 20 000 registrations at the start of June (81).

In Finland, the Ministry of Social Affairs and Health issued recommendations to municipalities and their associations to grant access to the vaccines for persons who are not residents of these municipalities or who do not have legal access to primary care (82) .

According to the recent ECDC report, Cyprus has included residents of closed structures, such as prisons and hosting centres for refugees and migrants in their 5th (out of 6) vaccination rollout phase (8).

Ireland's Minister of Health, Stephen Donnelly, recognised during parliamentary questions on 20 January 2021, that undocumented migrants were a high risk group for Covid-19 and that health services will not report them to immigration authorities. He also stated that it was important to encourage and facilitate vaccine uptake in undocumented migrant populations (83). Their strategy includes adults of 18-64 years that live or work in crowded settings and therefore cannot physically distanciate or isolate, recognizing them as disadvantaged socio demographic groups that have higher risks of infection and experienced burden (84).

“Traveler and Roma communities” aged 18 to 64 therefore have been included as a priority group, based on the risk of ICU admissions and mortality (85).

On the other hand, many other countries do not explicitly mention irregular migrants as a target group in their vaccine deployment strategies. This is the case in Germany, despite the Robert-Koch Institute’s recommendations to prioritize persons living and working in precarious conditions in phase 4 out of 6 (86) and explicitly mentioning persons living in homeless shelters where the risks of disease outbreak are elevated. The Institute continued by warning against discrimination in the prioritization of population groups (87). According to the Platform for International Cooperation on Undocumented Migrants (PICUM), registration requires proof of residence or residence under “normal circumstances”, which puts migrants at risk of detention and deportation (88). Some states also request a health insurance card, making it difficult for irregular migrants to register for a Covid-19 vaccine.
A lot of ambiguity also persists within Poland’s vaccination strategy, which does not mention undocumented migrants, limiting access to regular residents within their guidance (89). Their online governmental website however states that only foreigners with the right to stay in Poland will be allowed to receive vaccination, of which those without a PESEL tax identification number should consult a primary care physician by issuing an identity document, such as a passport or a foreign ID card (90).
Sweden’s 4 point phase national vaccine plan seems to include, within the third phase, persons with difficulties in following infectious control measures (such as physical distancing) and therefore present higher risks of infection and transmission (91). The document confirms that this statement includes people living in socially vulnerable situations and highlights the increased risks of disease in non-national and foreign-born groups, without however mentioning persons with an irregular status.
Although there is no explicit mention of persons with irregular status, the Austrian government states that ID documents and affiliation to a health insurance are not mandatory in order for residents to get vaccinated for free (92)(93). In the official vaccination plan, the last phase (phase three) includes persons living in cramped or precarious conditions, working in fields of activity with higher transmission rates (94).

Other countries witnessed a change in their initial strategies due to criticism on the exclusion of vulnerable communities such as irregular migrants.
In Slovakia, the initial vaccination campaign was highly criticized due to the exclusion of migrants, minority groups and the absence of translated “campaign materials" such as the website. This led to the creation of a new legislative amendment by the Slovakian government, that allowed all foreigners regardless of residence status, to access the

vaccines (95).
In its initial vaccination plan, Greece had not included undocumented migrants (neither asylum seekers) in their vaccination plan (96). This has however led to heavy criticism from NGOs and human rights groups, especially sparked by a government spokesperson statement affirming that migrants were not a priority. Recent news however shows that the country is planning to vaccinate migrants in the migrant camps of three islands Lesbos, Samos and Chios (97).

In contrast to these countries, many are those that have not included migrants with irregular status in their vaccination strategies. Hungary's vaccination strategy document did not mention foreigners nor irregular persons in their deployment plan (98). Moreover, according to PICUM, the registration process has posed a challenge as the indication of a home address seems mandatory and since the registration data can be verified by immigration authorities (99). It is however possible for migrants with an expired visa (or other loss of status) and whose social security number has become invalid, to register for vaccination.
Similarly, Croatia does not prioritize nor mention migrants in their vaccination strategies, only prioritizing permanent residents and citizens (100).
Luxembourg has recently reached its last phase (phase 6) that is divided in two phases: the first phase includes disadvantaged persons that live in institutions and have not previously been vaccinated due to their vulnerabilities, as well as individuals having higher exposure to the virus due to their activity (101). Undocumented migrants have nevertheless not been included nor mentioned in Luxembourg's national vaccination plan. As the country has started vaccinating persons experiencing homelessness at the start of June, uncertainty remains over whether undocumented migrants experiencing homelessness would be included in this initiative (102).
According to the UNHCR office, the Romanian government has included refugees and asylum seekers in their national vaccination rollout, however without any mention of the case of irregular migrants (103). The official national vaccination strategy, published by the Romanian government, does not include this population, which leads to the supposition that they do not belong to the priority groups, granted access to the vaccines (104). Similarly to Luxembourg, Romania plans to distribute the vaccines to asylum seekers and refugees in shelters and refugee centres (105). It is therefore unclear whether irregular migrants within these shelters will be able to receive the vaccine as well.

Consequences to the lack of an equity lens in policy making in times of Covid: Pandemic evolution, segregation and economic costs

Effectiveness of vaccination strategies

The exclusion of highly vulnerable groups from vaccine rollout strategies and Covid-19 campaigns will strongly limit their effectiveness, as vulnerable groups who are more at risk of infection and transmission need to be prioritized to curb the progress of the pandemic (106). Medical emergencies and severe Covid-19 disease can be avoided by vaccination and effective preventive measures (107). As attested by the OECD (2021), strong primary and community healthcare is needed to build resilient healthcare systems in a major crisis such as the Covid-19 pandemic and should ensure access to vulnerable groups experiencing difficulties in accessing medical services (108).

Increased mortality and morbidity as a consequence of exclusion

Risks related to the absence of primary healthcare or immunization services in general settings have been majoritarily linked to degradation of health due to “forced emergency” care as a result of healthcare restrictions or absence of financial protection.

A 2018 study found that Spain’s Royal Decree-Law passed in 2012, that aimed to contain health expenditure due to the previous economic crisis by excluding undocumented migrants from most healthcare (with the exclusion of emergency, maternal and children’s care) has led to an increase in mortality rates of 15% in the first three years following the reform, within this population (109). This shows that preventing irregular migrants from accessing healthcare, leads to higher preventable mortality and morbidity, therefore resulting in a social cost, as inequities in health undermine socioeconomic security and community activity which reinforces segregation of underserved population groups.

Strategies have also been developed by migrants to avoid unaffordable medical costs that put these individuals at great medical risk. In its 2011 report on access to healthcare for irregular migrants, the European Union Agency of Fundamental Rights (FRA) reported on recurring cases of early hospital leave and medical card sharing between relatives and acquaintances, which have both led to serious medical issues (37). Early hospital leave represents a medical risk if the patient is still physically unstable and requires medical supervision. Other serious medical complications have resulted from the sharing of medical cards for individuals that are not entitled to healthcare services and will borrow another person’s card to seek care. However, as these cards contain the owner’s medical information, the latter can unknowingly be mistakenly attributed to the card borrower by medical staff and lead to dire medical errors (wrong blood type for transfusions, medical

history in cases of emergencies). These outcomes of exclusion from basic welfare benefits, do not only cost lives and further deteriorate the health and safety of irregular migrants while enhancing their segregation, but they also represent a considerable cost to the healthcare system and to society: costs related to the medical services, to complications linked to early leave from facilities and medical card sharing.

Economic Costs

The exclusion of irregular migrants from national healthcare systems also has a non-negligible economic cost, borne by the individual seeking care, by the healthcare system and by society. The costs of primary care coverage and vaccination compared to emergency hospital care (ICU care and ventilation in the case of Covid-19) present an economic advantage, as the first tends to reduce use of the second, as shown by Whittaker and al (110). In the case of the Covid-19 disease, the cost of medical care, treatment, societal outcomes and emergency service saturation linked to mild to severe covid have been shown to outgrow the cost of vaccination (111).

According to IOM's economic analysis of the economic costs of healthcare exclusion in a more general setting concerning irregular migrants based on the EQUI-HEALTH project, timely primary healthcare will be cost saving compared to the costs engendered by the emergency and hospital sector (107). Their study shows that 49 to 100% of medical-related costs can be saved by timely primary care. Different types of medical-related costs need to be considered when analysing the cost-benefits from vaccination: direct medical costs, corresponding to the cost of treatment, equipment, medical and non-medical (interpreters, translators, administration) staff work time, hospitalization, medical rehabilitation; indirect costs, such as loss of income or job and economic inactivity linked to the illness; direct on-medical costs, that is travel time, time spent receiving health services and costs of transportation. The study's analysis also showed that the healthcare system (referred to as third-party payers) would witness the greatest savings from ensuring equitable access to primary healthcare, despite results being especially applicable to cost-benefit analyses of chronic disease management and therefore excluding the additional costs of disease transmission when applying the analysis to infectious diseases.

Other studies have shown that exclusion of migrants and vulnerable groups from healthcare comes at a price. In Germany, health expenditure was found to be higher when healthcare services were not granted to refugees and asylum seekers (years 1994-2013) (112).
In the case of the Covid-19 disease, similar calculations can be done as the cost of the vaccine will result in a paramount economic investment by reducing the rate of emergency

care linked to the disease, as well as the high transmission effect towards other individuals, which in fine greatly multiplies the costs engendered by exclusion.

Solutions to EU governance and national strategies: Facilitating undocumented migrants' access to the Covid-19 vaccines and healthcare services in general

a) National Strategies

Many different strategies can be developed on national, regional and local levels in order to render vaccines accessible to irregular migrants. Health delivery systems need to be strengthened, primary care providers capacity needs to be increased and undocumented migrants' health, occupational risks and rights need to be addressed to ensure vaccine equity (23) and healthy recovery from the pandemic. As these populations face ongoing hurdles to accessing healthcare, targeted initiatives need to be realized through national, regional and local tailored approaches, to build holistic healthcare services and avoid marginalization of access within the healthcare system (113).

Data collection and personal data protection

The lack of general data on undocumented migrants is a globally recurrent and ongoing issue (12). Along with the need of improved community surveillance systems, data of this population needs to be assessed and quantitative as well as qualitative research should be carried out on: irregular migrant population demographics, healthcare access, health status, the impact of the pandemic on their health and socio-economic stability (45), quality of services, insights on the host country's healthcare system and barriers to accessing healthcare. Achieving this will necessitate the creation of migrant-sensitive and standardized equity-related indicators and metrics (64). Research on Covid-19 vaccines uptake and recurring questions on the vaccines needs to be carried out as well, in parallel to national vaccine uptake monitoring and the work led by expert groups, civil society and community-led organisations that work with and represent clandestine immigrants.

Finally, along with data collection comes data protection, through guaranteeing anonymity or limited personal information within the data. Health authorities should ensure protected immunization information systems during the pandemic and countries should develop firewalls between healthcare systems and migration authorities, in order to prevent personal data from being shared or transferred to immigration authorities as prohibited by the GDPR (13). All professionals working within healthcare delivery, that is healthcare providers, social services and administrative staff, should be spared the liability of reporting their patients to the authorities (37). In parallel, migration authorities need to acknowledge immigrants' rights

to healthcare by not interfering within the healthcare sector for eviction purposes (114). Such regulations will enable clandestine migrants to seek healthcare services safely and without fear of being reported.

For countries where firewalls are not to be established, local and regional funds can be allocated to physicians and medical facilities to treat migrants without papers in parallel to regular service provision. This has been planned in certain cities within Europe, such as Düsseldorf in Germany, Vienna in Austria or Amsterdam and Utrecht in the Netherlands, and has presented positive outcomes (6).

Access to Information and countering vaccine hesitancy

In the face of the current pandemic, national and international information campaigns need to adapt their outreach to a diversity of population groups, including irregular migrants. The information material therefore needs to be made available in numerous languages and should be culturally-aware, addressing multiple topics: rights to healthcare and vaccination, registration and location of vaccination amenities and initiatives, availabilities of interpreters and translators in certain languages, recurring questions concerning the vaccine (safety, cost, cultural and religious acceptability, etc) (48).

Multiple efficient channels of communication need to be identified, whether online (social media, official national websites) or through physical outreach initiatives in highly frequented locations, such as homeless shelters, camps, residential areas, migrant reception centers and food distribution centres (25). Communication needs to be made available in multiple languages as well, while presenting cultural understanding and diversity awareness. Culturally-adapted services should also be provided within healthcare facilities, as direct patient-provider communication has proven to be quite beneficial (ECDC, 2017), to avoid sentiments of rejection, exclusion and isolation by immigrants, a lack of adaptability has proven to reduce their seeking of healthcare (115). Awareness and sensitization campaigns therefore need to be developed for healthcare personnel as well.

In Neukölln Germany, March 2021, the city council mandated “Covid guides” in five different languages, to reach out to immigrants to provide information on Covid-19 and specifically screening possibilities in order to increase screening among this high-risk group (116).

Communication systems need to be adapted as well. Providing information through non-digital channels is crucial, so as to not create a gap in information access (117) and can be supported by community-led organization initiatives or health mediators that specifically work with migrants, have experienced irregular migration and are trusted by the communities. Norway and the Netherlands have elaborated targeted communication strategies for specific groups and have made information available in multiple languages (8).

Incentives can be created and shared within population-targeted vaccine information campaigns, in order to encourage communities to vaccinate. These can be material such as the free distribution of personal protective equipment (distribution of masks, disinfectant gels, etc), nutritional (free distribution of meals), financial (tax credits, luncheon vouchers) or informative, provided by social services or local NGOs (providing information about local initiatives, lodging, asylum applications, etc) (118) .

Last but not least, it is crucial that health authorities and local organizations taking part in the vaccination campaigns involve health mediators and community representatives as "vaccine ambassadors" for Covid-19 vaccine-related information and message dissemination within migrant communities. Community-engagement has proven to be effective in previous initiatives to counter disinformation (119) and can be established through numerous actions.

The American Psychology Association recommended the following practices to build confidence in the vaccines : Discussing mistrust in the vaccines and public health system as well as other concerns related to the vaccination process with the target communities; choosing convenient vaccination sites such as community centers or religious sites; collaboration between civil societies, community-led organizations, academic institutions and national, regional or local authorities for a more comprehensive and efficient approach (119).

Reducing administrative and structural hurdles

First and foremost, vaccination should be free and optional, in order for it to be financially accessible to everyone and without creating further skepticism and vaccine reluctance, as coercive strategies will fuel mistrust (119). Barriers to healthcare entitlement have, in the light of the pandemic, been removed in certain countries, such as the Netherlands, Spain and the UK (5).

Documentation requirements during vaccination registration, such as proof of identification, social security number or proof of residency should remain limited and flexible for individuals that cannot provide them. Registration should be made available both online and offline, considering that many undocumented migrants might not possess a smart phone or have regular access to the internet. Offline registration possibilities are also a solution for persons with low digital literacy. In both cases, language barriers need to be taken into account to create culturally inclusive registration systems (118).

Some cities have come up with other initiatives to overcome these administrative obstacles: the city of Ghent (Belgium) has provided irregular migrants with medical cards that curb the need to communicate identification, status, residence or health insurance affiliation (6). The city also reimburses card holders' medical fees to the physicians without any delay, incentivizing them to treat patients with irregular legal status.

Geographical obstacles due to the heterogeneous dispersion of medical facilities throughout regions and rural areas need to be counterbalanced by organizing multiple non-traditional vaccination locations and mobile vaccination teams (120). According to the ECDC, Latvia, Romania and Croatia have organized mobile vaccine units to reach underserved populations and isolated communities living in rural areas (8). NGOs in Belgium (Red Cross, Doctors of the World and Samusocial) also started vaccinating the homeless and undocumented migrants for free, anonymously and voluntarily through the creation of a Mobivax team (121). For irregular migrants with very low incomes, transportation fees should be covered in order to incentivize and allow them to vaccinate, at no cost.

Vaccination schedules should be ensured outside of working hours for individuals that cannot leave work during their working hours, particularly when working in the informal sector (25).

Finally, member states should safeguard the presence of translation and interpretation services in medical facilities and vaccination sites, to facilitate communication between the medical professionals and foreign patients that might not speak the language of the host country, as linguistic and cultural inadaptability from healthcare providers have been identified as one of the greatest barriers to accessing healthcare. On top of this, medical, paramedical as well as administrative staff should be trained on migrant health, the issues faced by irregular migrant communities and how to deliver culturally-appropriate health services. This initiative has been created by the UK through the delivery of a Migrant Health Guide (2011-2017) destined to healthcare professionals (25).

Vaccination Follow up

In a continuation of the aforementioned interventions, vaccinated individuals need to be medically followed up in case of secondary effects. This can be an entry point to regular medical utilization.

In cases of a two-dose vaccine, vaccine reminders need to be sent through different outreach channels and vaccination should take place preferably at the same location as the first administration. Distribution of vaccine cards or passports will be necessary to keep track of administration and immunization status.

Single dose vaccines need to be prioritized for underserved communities that could be mobile or hard to reach for a second dose. Estonia, Spain, Ireland and Latvia have already set aside the single dose Janssen vaccines for persons that either have mobility difficulties or face obstacles in accessing vaccination sites (8). More than one vaccine type should however be distributed to underserved groups, so as to not create skepticism and hesitancy.

b) The role of European institutions and agencies

It is highly recommended that EU institutions play a role in the international advocacy for equitable distribution of Covid-19 vaccines to marginalized populations such as irregular migrants.

Firstly, the European Commission should publicly highlight the risks incurred by these groups and the necessity for EU member states to prioritize them in their national vaccination strategies, in the respect of the legal frameworks of international Human Rights treaties and conventions. Global inequities in healthcare access for irregular immigrants should be seriously addressed through monitoring, the creation of solidarity initiatives and support of related projects and research (122).

As regards the Covid-19 pandemic, transparency in the sharing of data (including socio-demographic) on national uptake and distribution strategies of the vaccines should be ensured, in order to measure vaccination uptake and accessibility within irregular migrant populations. Immunization Information Systems should therefore be protected or contain minimal personal identification information.

EU Covid-19 recovery funds such as the Coronavirus Response Investment Initiative or the EU4Health programme, destined to Europe's crisis response recovery and healthcare systems' resilience through a myriad of goals including the reduction of inequalities in access to healthcare (123), should consider being partially allocated to more equitable vaccination campaigns and vaccine promotion strategies for migrant groups. Other solidarity funds such as the European Social Fund (ESF) and the Fund for European Aid to the Most Deprived (FEAD) can also be considered in the reinforcement of vaccine distribution amongst irregular migrant populations.

In the collection of information, data and the creation of initiatives, the Commission should closely consider the input of civil society and community-based organizations that have "on the ground" expertise by working with targeted vulnerable population groups as trusted mediators. Their ongoing work can benefit national and European decisional undertakings, policy development and programme implementation through the elaboration of guidelines and recommendations, as well as the provision of population-specific information and data on vaccine uptake and barriers to healthcare access (124).

In terms of the new ECDC mandate extension within the EU Health Union establishment's objective to reinforce the EU's health security framework and health crisis preparedness through enhanced cooperation with health agencies (125), the agency's roles will mainly be of epidemiological surveillance, country data reporting, surveillance of population health and conducting development projects towards the strengthening of health systems (126). It is

therefore important that the ECDC engage with member states for continuous data deliverance on vaccine uptake in undocumented migrants, further monitor health inequities through equity-related data analysis and issue guidance accordingly (127).

DISCUSSION

Equitable allocation of the Covid-19 vaccines represents a necessary starting point to irregular migrants' right to primary healthcare for the future, globally considered as essential.
In view of better healthcare use and vaccine uptake in the future, community engagement has to remain an important axis as it improves communication and trust towards authorities and the healthcare system (119).
Healthcare access and immunization by undocumented migrants should be intensified and continuously monitored by health agencies, organizations (NGOs, international organizations) and national authorities. As data on undocumented migrants remains insufficient, it is highly recommended that health data concerning this population be gathered for future studies and analysis of the numerous impacts that their legal status has on their health (25). In the case of more general study settings, research should also normalize the inclusion of data variables related to irregular migration. This would lead to better assessment of their needs and include them in general research and policy implementation, with the purpose of reducing health gaps compared to local populations through healthcare provision and pandemic-related socio-economic support (59). It will also enable better community-based disaster risk management for future crises (45).
In the long run, it is highly recommended that EU member states recognise the essential role of civil society and community-led organizations in national decision making, monitoring, data collection and service provision. Local authorities can also create partnerships with NGOs and support local underfunded initiatives that promote healthcare access (6), as managing such projects can be politically sensitive in cases of clear restrictions and enforcement of prohibitive laws on healthcare access for persons without papers.
In light of this, Spain and Denmark have established collaboration and coordination between municipalities, social services and NGOs to improve vaccine distribution towards vulnerable groups (8). For international migration purposes within the EU, information systems sharing for medical files should be established to facilitate medical follow-up (67).
Member states should also be held accountable in their healthcare provision to vulnerable groups, notably within the context of humanitarian and health emergency crises, in relation to the numerous European Human Rights conventions (23). It is today evident that, in order to improve migrant health, public policies beyond the healthcare sector need to be written, with a purpose to improve the general well-being and security of undocumented migrants.

Health of irregular migrants needs to be considered in a more comprehensive way in order for this population to benefit from the health they are entitled to. For instance, in response to the pandemic, psychosocial and mental health support should be provided (14) due to the multitude of stressors they are ongoingly facing.

On the level of EU legislation and national policies, legal conventions remain unclear and approximate on the type of healthcare considered necessary and the specific denomination of undocumented migrants (30). European institutions and EU member states should agree on a convention on inclusive healthcare provision and international standards for further protection of this population (63). Similarly to the ambiguity of Rights to healthcare services established by EU legislation, many national Covid-19 vaccine deployment strategies remain unclear to this day concerning the distribution of the vaccines to irregular migrants.
In their toolkit on health system capacity assessment for managing considerable immigrant inflows, the WHO came up with a framework of various health system building blocks that need to be considered and strengthened: leadership governance based on transparency and strategic communication to enhance social inclusion of migrants through inclusive policy implementation and review of national legislation; cultural sensitization of the health workforce and services; collaborations of the public health sector with organizations and the private sector; human workforce and medical technology capacity enforcement; preparedness for future health emergency management and strong health information systems; inclusive and emergency-sensitive health financing policies (fundraising, financial barriers removal) (128). These building blocks need to be considered for the future of healthcare and the sustainability of our systems.

In view of the current deployment of the Covid-19 vaccines, it is highly recommended that further research be conducted on the inclusiveness of national deployment strategies during the Covid-19 pandemic, as well as on the health, micro and macro-economic costs incurred by the exclusion of undocumented migrants from national Covid-19 vaccination campaigns.

Strengths and limitations

This research study is the first one that has studied the inclusion of irregular migrants vaccination strategies during the Covid-19 pandemic, by reviewing vaccination plans of 20 different EU countries, including former member state the United Kingdom. In addition to this review, one of the main strengths of this study is the comprehensiveness of the global analysis of healthcare access for the studied population, as it includes the EU and national legislative contexts, a complete review of reported barriers to accessing healthcare and of national or local initiatives that have been carried out, in parallel to providing

recommendations to different stakeholders on how to ensure more equitable vaccine deployment in times of crisis and healthcare services in general.

Despite these strengths of this study, the analysis of national deployment plans, vaccine uptake and regional initiatives remains largely non exhaustive, due to the following points:

- The general lack of data on the studied population;
- The absence of data on Covid-19 vaccine uptake in undocumented migrants, since the start of the European vaccine rollouts;
- The ambiguity of national strategies and the missing information on the case of irregular migrants within the vaccination campaigns;
- Language barriers in accessing national vaccination plans, which has led to many EU countries not being included in the analysis.
- The translation of a number of national strategies, which could have led to misinterpretation and therefore bias in the analysis of certain countries' strategies.

CONCLUSION

This study analysed the barriers to healthcare for undocumented migrants on multiple levels: legislative, national, structural and individual. The unclarity and heterogeneity of European and national legislations present a foundation for the limitations brought upon them. National deployment strategies have globally similarly lacked consideration of this non-negligible population group, as very few countries explicitly included undocumented migrants in their vaccination campaigns.

Multiple actions therefore need to be established in order to create more inclusive healthcare systems and provide vaccines equitably. These actions can be established by national, regional and local authorities, organisations, as well as European level institutions and agencies, such as the European Commission and its agencies, the ECDC in particular.

National authorities need to review the equity lens of their vaccine deployment strategies and health systems overall, along with the proactive intervention of European institutions, in issuing guidelines, recommendations and incentives to reach equitable access to healthcare and medicines for undocumented migrants, in a view of more sustainable healthcare systems and fairer societies within the EU.

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APPENDICES

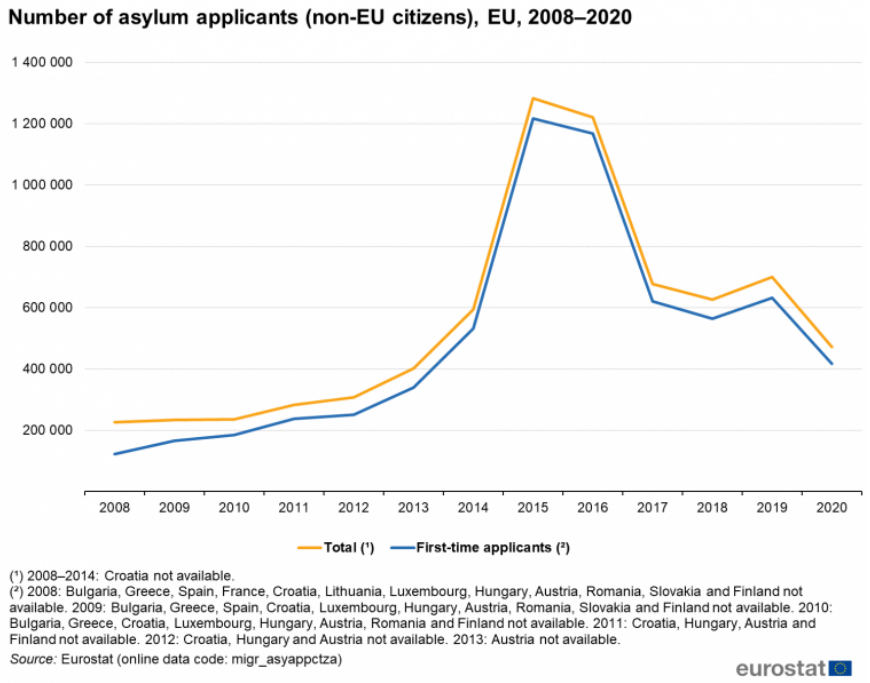

Figure 1 - Number of asylum applicants (non-EU citizens), EU, 2008-2020, Eurostat. *https://ec.europa.eu/eurostat/statistics-explained/index.php?title=File:Figure_1_Number_of_asylum_applicants_(non-EU_citizens),_EU,_2008%E2%80%932020.png*

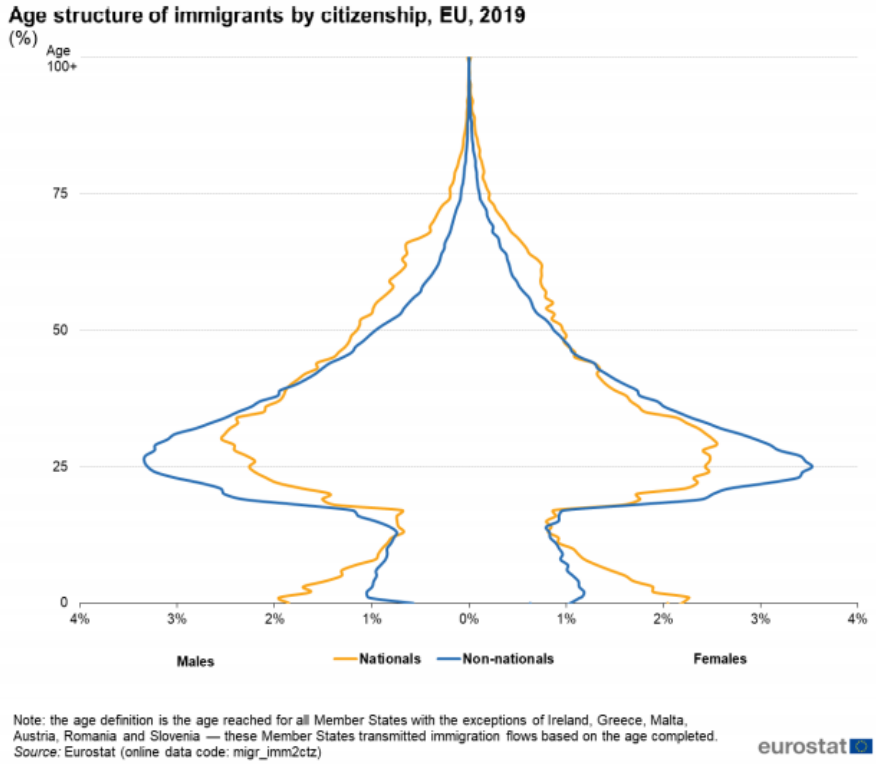

Figure 2 - Age structure of immigrants by citizenship, EU, 2019, Eurostat. *https://ec.europa.eu/eurostat/statistics-explained/index.php?title=File:Age_structure_of_immigrants_by_citizenship,_EU,_2019_(%25).png*

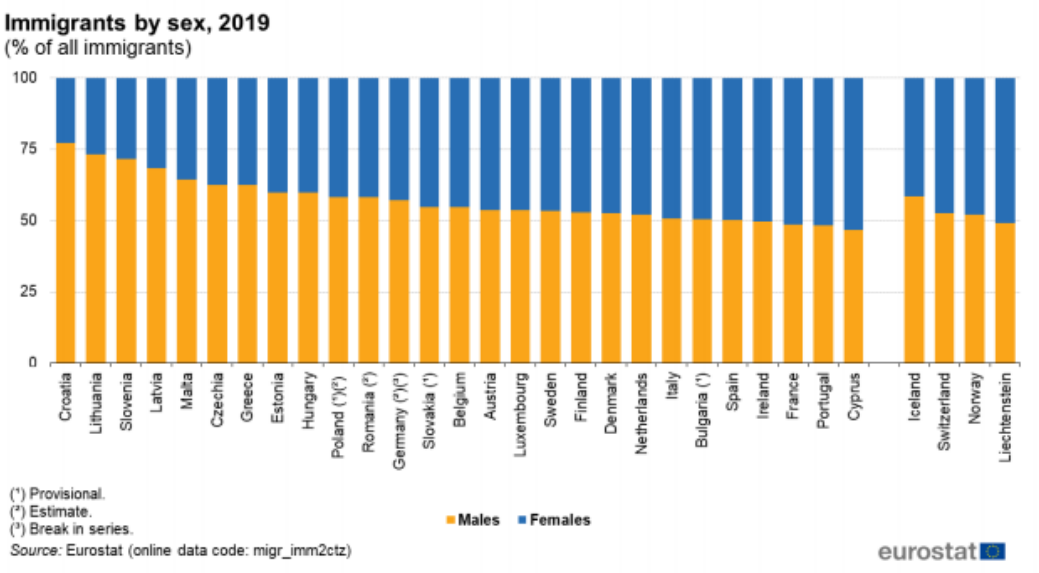

Figure 3 - Immigrants by sex, 2019, Eurostat.
https://ec.europa.eu/eurostat/statistics-explained/index.php?title=File:Immigrants_by_sex,_2019_(%25_of_all_immigrants).png