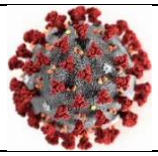
National COVID-19 Science Task Force (NCS-TF)



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Covid-19 Vaccines: Ethical, Legal and Health Policy considerations regarding different responses to vaccine hesitancy

Executive summary

Vaccination against SARS-CoV-2 significantly cuts the risk not only of disease but also of infection and transmission for vaccinated individuals. These findings underscore the importance and value of widespread vaccination. This importance is increased as data regarding the Delta variant suggests that rates of transmission for this variant by vaccinated individuals may not be decreased as much as with previous ones. Willingness to be vaccinated has increased steadily since the start of 2021, as has vaccination coverage. Vaccine hesitancy, however, remains high.

Population immunity can only be achieved if a high proportion of the public chooses to vaccinate or undergoes COVID-19. Previous experience suggests that technical information alone will not be adequate to overcome vaccine hesitancy, and that a holistic approach is needed. To persuade an adequate proportion of the population to be vaccinated, targeted measures such as communication campaigns and collaboration with trusted authority figures beyond government officials or experts are required. Resistance to vaccination has been around as long as immunization programs and is distinct from "underimmunization," which refers to a variety of behaviors in different groups of the population: those who encounter barriers in accessing vaccines, those who refuse vaccines and a proportion of hesitants who are likely to delay or omit immunization. Healthcare providers are both an important target audience for messages encouraging vaccination uptake (as they themselves may be vaccine hesitant) and are also often one of the most trusted sources of information and advice for patients. Training of health workers and other trusted figures in motivational interviewing and presumptive communication styles, for example, may be an effective way to increase vaccine uptake.

There is concern that vaccine mandates might fuel political polarization and increase vaccine hesitancy. However, data suggests that mandates can effectively increase vaccination rates. The main arguments in their favor are their contribution to the protection of vulnerable individuals ineligible for vaccination or in whom vaccines are less efficacious, and to the protection of essential public services, such as healthcare, from disruption. Population-wide vaccine mandates are not permitted under Swiss law.

Health professionals and institutions have duties to protect patients and users. A time-limited vaccine mandate specific to sectors at risk of nosocomial transmission, with appropriate exemptions, would be permitted under the Swiss Epidemics Act for professional groups in contact with vulnerable individuals, and could be elaborated in consultation with professional associations. Even under such a mandate, however, individuals could not be vaccinated against their will, and the continuity of services such as healthcare, education, and care homes for the elderly would need

to be ensured. Such mandates for specific professional groups must in any case respect the principle of proportionality, and any sanctions imposed on those who refuse vaccination must also remain proportionate (for example, transfer to other functions rather than dismissal). Measures to encourage and facilitate voluntary uptake of vaccination should be adopted, regardless of whether a targeted mandate is put in place.

Résumé

La vaccination contre le SARS-CoV-2 réduit considérablement le risque non seulement de maladie mais aussi d'infection et de transmission pour les personnes vaccinées. Ces résultats soulignent l'importance et la valeur d'une vaccination généralisée. Cette importance est d'autant plus grande que les données concernant le variant Delta suggèrent que les taux de transmission de ce variant par les personnes vaccinées pourraient ne pas diminuer autant que pour les précédents. La volonté de se faire vacciner n'a cessé d'augmenter depuis le début de l'année 2021, tout comme la couverture vaccinale. L'hésitation vaccinale reste toutefois élevée.

Pour parvenir à une protection collective, il faudra qu'une forte proportion de la population choisisse la vaccination, ou guérisse du COVID19. L'expérience passée suggère que l'information technique seule ne suffira pas à vaincre l'hésitation et qu'une approche holistique est nécessaire. Des mesures ciblées telles que des campagnes de communication et la collaboration avec des figures d'autorité de confiance, au-delà des seuls fonctionnaires ou experts, sont nécessaires pour persuader une proportion suffisante de la population de se faire vacciner. La résistance à la vaccination existe depuis aussi longtemps que les programmes d'immunisation et se distingue de la " sous-immunisation ", qui est un comportement concernant différents groupes de la population : ceux qui rencontrent des obstacles d'accès pour se faire vacciner, ceux qui refusent les vaccins et une partie des hésitants qui sont susceptibles de retarder ou d'omettre la vaccination. Les professionnels de la santé constituent à la fois un public cible important pour les messages encourageant l'adoption de la vaccination (car ils peuvent eux-mêmes hésiter à se faire vacciner) et sont aussi souvent l'une des sources d'information et de conseil les plus fiables pour les patients. La formation des agents de santé et d'autres personnes de confiance à l'entretien motivationnel et aux styles de communication présomptifs, par exemple, peut être un moyen efficace d'augmenter l'adoption du vaccin.

En tant qu'interventions, les obligations vaccinales suscitent des craintes quant à leur capacité à alimenter la polarisation politique et à accroître l'hésitation à se faire vacciner. Cependant, les données suggèrent que ces obligations peuvent effectivement augmenter les taux de vaccination. Les principaux arguments en leur faveur sont qu'elles contribuent à la protection des personnes vulnérables qui ne peuvent pas être vaccinées ou chez qui les vaccins sont moins efficaces, et à la protection des services publics essentiels, tels que les soins de santé. Une obligation vaccinale à l'échelle de la population ne serait pas autorisée par la loi suisse.

Les professionnels et les institutions de santé ont des devoirs de protection des patients et des usagers. Une obligation vaccinale limitée dans le temps et spécifique aux secteurs à risque de transmission nosocomiale, assorti d'exemptions appropriées, serait autorisée en Suisse par la Loi sur les épidémies pour les groupes professionnels en contact avec des personnes vulnérables, et pourrait être élaborée en consultation avec les associations professionnelles. Cependant, même dans le cadre d'une telle obligation, les personnes ne pourraient pas être vaccinées contre leur gré, et la continuité des services tels que les soins de santé, l'éducation et les foyers pour personnes âgées devrait être assurée. De telles obligations pour des groupes professionnels spécifiques doivent en tout cas respecter le principe de proportionnalité, et toute sanction imposée à ceux qui refusent la vaccination doit également rester proportionnée (par exemple, le transfert à d'autres fonctions plutôt que le licenciement). Des mesures visant à encourager et à faciliter l'adhésion

volontaire à la vaccination devraient être adoptées, indépendamment de la mise en place d'obligations ciblées.

Zusammenfassung

Die Impfung gegen SARS-CoV-2 senkt nicht nur das Erkrankungsrisiko, sondern auch das Infektions- und Übertragungsrisiko für geimpfte Personen erheblich. Diese Ergebnisse unterstreichen die Bedeutung und den Wert einer grossflächigen Impfung. Diese Bedeutung wird noch verstärkt, da die Daten zur Delta-Variante darauf hindeuten, dass die Übertragungsraten für diese Variante durch geimpfte Personen möglicherweise nicht so stark gesenkt werden wie bei früheren Varianten. Die Bereitschaft, sich impfen zu lassen, ist seit Anfang 2021 stetig gestiegen, ebenso die Durchimpfungsrate. Die Impfzurückhaltung ist jedoch nach wie vor hoch.

Ein kollektiver Schutz kann nur erreicht werden, wenn sich ein grosser Teil der Bevölkerung entweder für die Impfung entscheidet oder eine COVID-19 Erkrankung durchmacht. Die bisherigen Erfahrungen zeigen, dass technische Informationen allein nicht ausreichen, um die Impfzurückhaltung zu überwinden, und dass ein ganzheitlicher Ansatz erforderlich ist. Gezielte Massnahmen wie Kommunikationskampagnen und die Zusammenarbeit mit vertrauenswürdigen Personen, die über Regierungsbeamte oder Experten hinausgehen, sind erforderlich, um einen ausreichenden Anteil der Bevölkerung von der Impfung zu überzeugen. Der Widerstand gegen Impfungen besteht schon so lange wie es Impfprogramme gibt und unterscheidet sich von der "Unterimmunisierung". Die Unterimmunisierung beschreibt Verhaltensweisen, die in verschiedenen Bevölkerungsgruppen vorkommen und bezieht sich auf Personen, die beim Zugang zu Impfungen auf Hindernisse stossen, diejenigen, die Impfungen ablehnen, und einen Teil der Zögernden, die die Impfung wahrscheinlich hinauszögern oder unterlassen. Das Gesundheitspersonal ist eine wichtige Zielgruppe für Kommunikation, die zur Impfung ermutigen soll, da sie selbst möglicherweise zögern und eine der vertrauenswürdigsten Informations- und Beratungsquellen für Patient:innen sind. Die Schulung von Mitarbeiter:innen des Gesundheitswesens und anderen vertrauenswürdigen Personen in Motivationsgesprächen und präsumtiven Kommunikationsstilen kann beispielsweise ein wirksames Mittel sein, um die Impfquote zu erhöhen.

Es wird befürchtet, dass eine Impfpflicht die politische Polarisierung vorantreiben und die Zurückhaltung bei der Impfung verstärken könnte. Daten deuten jedoch darauf hin, dass eine Impfpflicht die Impfraten wirksam erhöhen kann. Hauptargumente für eine Impfpflicht sind der Beitrag zum Schutz von gefährdeten Personen, die für eine Impfung nicht in Frage kommen oder bei denen Impfstoffe weniger wirksam sind und zum Schutz wesentlicher öffentlicher Dienstleistungen, wie z. B. der Gesundheitsversorgung. Nach Schweizer Recht ist eine bevölkerungsweite Impfpflicht nicht zulässig.

Die Angehörigen der Gesundheitsberufe und -institutionen haben die Pflicht, Patient:innen und Nutzer:innen der Gesundheitsinstitutionen zu schützen. Eine zeitlich befristete Impfpflicht speziell für Risikobereiche mit nosokomialer Übertragung, mit entsprechenden Ausnahmeregelungen, wäre nach dem Schweizerischen Epidemiengesetz für Berufsgruppen mit Kontakt zu gefährdeten Personen zulässig und könnte in Absprache mit den Berufsverbänden ausgearbeitet werden. Aber auch bei einer solchen Impfpflicht könnten Personen nicht gegen ihren Willen geimpft werden, und die Kontinuität von Dienstleistungen wie Gesundheitsversorgung, Bildung und Altenpflegeheimen muss gewährleistet sein. Eine Impfpflicht für bestimmte Berufsgruppen muss in jedem Fall den Grundsatz der Verhältnismässigkeit wahren, und auch die Sanktionen, die gegen Impfverweigerer verhängt werden, müssen verhältnismässig sein (z. B. Versetzung in andere Funktionen statt Entlassung). Unabhängig davon, ob ein gezieltes Mandat erteilt wird, sollten Massnahmen zur Förderung und Erleichterung der freiwilligen Inanspruchnahme von Impfungen ergriffen werden.

Main text

Introduction:

Vaccination against Covid-19 is an important strategy for ending the pandemic. A key objective is to achieve a high level of population coverage in hopes of achieving "herd" or "population immunity" (we use the latter term in this brief), which would protect both those who are able and unable or unwilling to be vaccinated. This policy brief addresses three inter-related questions regarding vaccine hesitancy, vaccine mandates and population immunity:

1) What is currently understood about the effect of Covid-19 vaccines on infection and transmission, and the achievement of population immunity?
2) What measures are available to address vaccine hesitancy?
3) What are vaccine mandates, and what are the ethical, legal and health policy considerations regarding different types of vaccine mandates?

What is currently understood about the effect of Covid-19 vaccines on infection and transmission?

The public policy rationale and ethical justification for requiring an individual to be vaccinated is to prevent that individual from passing the virus on to others (i.e. transmission) and/or to ensure the continuity of critical public services such as healthcare, security or education. Therefore, it is important to understand both the efficacy of a vaccine in preventing symptomatic disease, as well as its effects on asymptomatic infection and transmission. To date, two vaccines against Covid-19 have been deployed in Switzerland, Pfizer/BioNTech and Moderna, both mRNA vaccines. Swissmedic granted authorization to these vaccines based on data that they protect the vaccinated individual against developing Covid-19 symptoms and severe illness.[1] Prevention of symptomatic Covid-19 or severe disease was the primary endpoint of clinical trials for most vaccines.[2] However, further data is being collected to understand the extent to which either of these vaccines prevents infection (asymptomatic and symptomatic) or transmission, and the evidence base is evolving.

For example, a US CDC study published in April 2021 found that mRNA vaccines reduced both symptomatic and asymptomatic infections by 90% in fully-vaccinated participants (>2 weeks after second dose) and 80% in partially-vaccinated participants (>2 weeks after first dose) in real-world conditions.[3] A study conducted in England published in April 2021 found that the Pfizer/BioNTech vaccine reduced infections (asymptomatic and symptomatic) by 70% >21 days after the first dose, increasing to 85% >7 days after the second dose.[4] A study conducted in Israel published in May 2021 found that the Pfizer/BioNTech vaccine was 95.3% effective at reducing infections (both symptomatic and asymptomatic), and that as population vaccination coverage increased, "marked and sustained declines" in incidence across all age-groups was observed, suggesting an overall dampening effect on transmission.[5]

As of April 2021, the ECDC therefore already concluded that "Evidence from real-life usage of COVID-19 vaccines has confirmed these clinical trial findings and also showed high vaccine effectiveness against PCR-confirmed SARS-CoV-2 infection. Limited evidence indicates that fully vaccinated individuals, if infected, may be less likely to transmit SARS-CoV-2 to their unvaccinated contacts. Uncertainty remains regarding the duration of protection in such cases, as well as possible protection against emerging SARS-CoV-2 variants."[6] The decrease of transmission of SARS-CoV2 by vaccinated individuals has since been confirmed.[7] The Delta variant, however, shows signs of partial immune escape and rates of transmission of this variant by vaccinated individuals may not be decreased as much as with previous ones.

Vaccine hesitancy and measures available to address it

Achieving population immunity, so that society is protected from future epidemics of SARS-CoV2 and resilient against re-introduction of the virus, will require a high proportion of the public to be vaccinated. The precise proportion required for population immunity is not currently known, as it depends on the efficacy of the vaccine(s), including for the prevention of infection and transmission, the transmissibility of the virus (which is evolving as novel variants emerge), and the duration of protection (which is not yet known).[8] Vaccine hesitancy refers to attitudes of concern, preoccupation and skepticism towards vaccination.[9] Defined by WHO as "the reluctance or refusal to vaccinate despite the availability of vaccines," vaccine hesitancy (also known as vaccine resistance) was ranked as one of 10 priority threats to global health by WHO in 2019.[10] While resistance to vaccination has existed as long as immunization programs, it has attracted increased attention in traditional and social media in recent years. "Vaccine hesitancy" is distinct from "underimmunization," which is a behavior relating to different groups of the population: those who encounter access obstacles in getting vaccinated, those who refuse vaccines and some of those who are hesitant who are likely to delay or omit immunization.[11] Indeed some of the vaccine hesitant are immunized.

In light of low compliance with H1N1 vaccination schemes in 2009 and of the relevance of vaccine hesitancy, studies regarding people's attitudes towards Covid-19 vaccination are important. While some data are available, they are nonetheless related to the specific timing and context of the surveys. Attitudes toward COVID-19 vaccines may therefore change as both the pandemic, local epidemic, and vaccine development continue to evolve. There is also a spectrum of hesitancy, with some likely to refuse vaccination regardless of the circumstances while others are likely to change their views.

The University of Zurich's Covid-Norms[12] survey has been tracking public willingness to be vaccinated since Sept 2020. As of late July 2021, 74.9% of respondents indicated that they had already been vaccinated. In addition, 4.6% were "willing" to get vaccinated, 7.6% were undecided, and 12% "declining." The proportion "willing"+"vaccinated" has increased steadily throughout 2021, with the proportion undecided and declining having decreased. A Sotomo survey in late October 2020, before safety and efficacy data on the frontrunner vaccines had been published in mid-November, found that only 49% of the population was willing to take a Covid-19 vaccine, with 26% undecided and 25% saying they would not.[13] Willingness to be vaccinated against Covid-19 seems to have dropped steadily during 2020, then grew steadily in 2021 (see above). For example, a survey administered in September found 54% of the Swiss population willing to be vaccinated,[14] and in June that 63% would be willing.[15] In a study of 7 European countries, 74% were willing to be vaccinated in April 2020, which dropped to 68% in June.[16] Surveys have also found that the proportion of persons willing to be vaccinated increases with age, that men are more willing to be vaccinated than women, and that willingness was correlated with levels of trust in information provided by the authorities.[17, 18] A study across 19 countries published in October 2020 found that younger people were more likely than older persons to get vaccinated if required by employer; higher acceptability among those with higher income and education; and higher acceptance in countries that had experienced high caseloads. Whether respondents or their families had been infected did not seem to affect acceptance rates.[30] There is variation across the population in vaccine hesitancy, and many of the factors associated with hesitancy cannot be changed by a strategy of the authorities. However, targeting communication to specific sub-populations that are more vaccine hesitant has been recommended.

Both the survey data cited above and previous experience with safe, effective vaccines such as those for measles suggest that hesitancy is not only related to the objective characteristics of

specific vaccines, but to other social, cultural and normative factors. Switzerland is known to have large local differences in the willingness to get vaccinated.

Addressing vaccine hesitancy requires a holistic approach: The WHO Technical Advisory Group on Behavioral Insights and Sciences for Health meeting in October 2020 concluded that three factors would increase Covid-19 vaccine uptake: "1. Creating an enabling environment – making vaccination easy, quick and affordable, in all relevant respects. 2. Harnessing social influences – especially from people who are particularly trusted by and identified with members of relevant communities. 3. Increasing motivation – through open and transparent dialogue and communication about uncertainty and risks, including around the safety and benefits of vaccination."[19]

These three aspects are complementary and each can be addressed in a variety of ways. For example:

Creating an enabling environment can include multiplying low-threshold access to vaccination, such as walk-in appointments or mobile vaccination clinics to sporting and cultural events, schools, religious institutions, town and village squares, free hotlines staffed by health care providers and other people who can be trusted to answer questions factually and with empathy, and home-based vaccination for those with low mobility or other access difficulties.

Harnessing social influences can include direct contact by health care providers to their patients, promoting vaccination and offering opportunities to ask questions, calls by faith-based and political leaders to their members, by social influencers to their audience, as well as encouraging vaccinated individuals to wear a visible sign to signal pride for their contribution.

Increasing motivation can include public recognition of the contribution of those who are vaccinated, communication about the benefits of vaccination such as protecting health, the economy, jobs, and reaching the end of the pandemic faster, and it can also include a variety of incentives to be vaccinated such as gifts, gift cards, lotteries, or even tax incentives. Since all of these measures provide either symbolic or concrete advantages to the vaccinated in order to raise motivation, they all risk either representing or encouraging stigmatization and in some cases discrimination of those who cannot be vaccinated. It is therefore important to recognize the existence of such individuals appropriately, for example by offering similar recognition and incentives in their case for other actions aiming to increase vaccination in the population as a whole. Incentives have been shown to be effective especially in motivating one-time behavior.[20] They also have drawbacks, however. For example, incentives can send a counter-productive message that the incentivized behavior is not something individuals would want to do without the incentive, and some may conclude that it is risky and decide against it.[21] Communication must therefore be very clear on the reality of the risk-benefit ratio for individuals targeted by incentives.

The WHO Technical Advisory Group on Behavioral Insights and Sciences for Health also highlighted that healthcare providers (HCPs) are a key group for targeted measures. HCPs themselves may be vaccine hesitant. At the same time, they are one of the most trusted sources of information and advice for patients. By engaging in motivational interviewing[22] ("a collaborative method of interaction aimed at exploring people's real reasons for hesitancy and strengthening their own motivation for change"[23]) and making vaccination the default option (presumptive communication approaches), HCPs can play a critical role in addressing vaccine hesitancy.[24],[25]

Communication campaigns targeted at specific sub-groups may also be needed. Different groups may have different reasons for vaccine hesitancy – ranging from perceived lower risk from Covid-19 infection to fear of vaccine side effects, from mistrust in the healthcare system to religious beliefs.[26] For this reason, trusted leaders and influencers in communities (rather than government officials or experts alone) may be more influential in shifting social norms within a group towards

supporting vaccination. Lessons from previous efforts to address vaccine hesitancy can provide useful guidance.[27]
Guidance for health authorities and practitioners has been developed on ways to improve communication regarding Covid-19 vaccines.[28] Because positions regarding vaccination tend to crystallize tendencies for mutual oversimplification and distrust,[29] our previous Policy Brief on "Responses to Corona Denial" is also relevant here.As vaccination campaigns progress, further evidence and research is expected to become available on vaccine hesitancy and ways to address it for Covid-19.

Effects of vaccine mandates: The academic literature on mandatory vaccination is based on policies related to childhood immunization or vaccination of healthcare professionals, with case studies mostly situated in high income countries, particularly the US. In a context of vaccine hesitancy, Italy and France recently made some childhood vaccinations mandatory. Fears have been expressed, however, that vaccine mandates might fuel political polarization and increase vaccine hesitancy. However, some data suggest that mandates can effectively increase vaccination rates.[30] Evidence gathered from 32 studies (covering the period 1980 to 2015) in the United States and related to vaccination requirements to access childcare, schools and colleges found a median 18% increase in vaccination rates when vaccine mandates were implemented.[31] A recent review of interventions aimed at improving vaccination rates concluded that, in high income countries, vaccine mandates are more likely to support uptake than measures aimed at modifying people's attitudes towards vaccination.[32] However, the literature's focus on childhood immunizations limits its applicability to discussions about potential COVID-19 vaccine mandates, as these initially primarily concern adult populations. Factors specific to Covid-19 vaccines must be taken into account when considering vaccine mandates (as noted above).
While countries adjacent to Switzerland recently adopted vaccine mandates for childhood vaccines, public health professionals in Switzerland seem on the whole reluctant to do so, preferring to count on recommendations and individual responsibility.
In the next section, we address specific issues related to vaccine mandates.

What are vaccine mandates, and what are the ethical, legal and health policy considerations regarding vaccine mandates?

WHO outlined ethical considerations regarding Covid-19 vaccine mandates: necessity and proportionality to meet public objectives; sufficient evidence of vaccine safety, efficacy and effectiveness; sufficient supply; public trust; and ethical processes for decision-making.[33] We address each of these in the following sections.

What are vaccine mandates? A vaccine mandate is an authoritative requirement, for example by a government or employer, for an individual to be vaccinated. Vaccine mandates can vary widely along multiple dimensions,[34] including for example: the groups subject to the mandate (from tightly-targeted groups to population-wide), the vaccines that are mandated, the types of sanctions for non-compliance (from non-existent to criminal), and the planned exemptions (from few to many, from easy to difficult to obtain). See Annex A for a discussion of the features of vaccine mandates.

What types of vaccine mandates are legally permissible in Switzerland? The Swiss Epidemics Act, which came into force on January 1st 2016, makes it clear that vaccine mandates can only be

considered for specific groups and cannot refer to the entire population. This Act mandates the Federal Office of Public Health (FOPH) to elaborate, in cooperation with the Cantons, national programs relating to vaccines (Art. 5 para. 1 lit. a Epidemics Act). The Confederation and the Cantons jointly are responsible for implementing such national programs (Art. 5 para. 2 Epidemics Act). The Epidemics Act provides a legal basis for the introduction of selective vaccine mandates. According to Art. 22 of the Act (Mandatory vaccinations), cantons are granted the authority to issue such mandates: "The Cantons may declare vaccinations mandatory for risk groups, particularly exposed persons, and for persons engaged in specific activities, provided that a serious threat is established."[35]

In a special epidemiological situation (in which the country still finds itself in July 2021), the Confederation is also granted such authority. It may, after consultation of the Cantons, "declare vaccinations mandatory for risk groups, particularly exposed persons, and for persons engaged in specific activities" (Art. 6 para. 2 lit. d Epidemics Act). While the authority to issue vaccine mandates constitutes an exclusive competence of the cantons in normal epidemic situations, the Confederation and the Cantons share concurrent competences in special situations. The Cantons may issue vaccine mandates "when a serious threat is established", the Confederation may do so whenever the epidemiological situation is special (which implies a serious threat to health). The Epidemics law aimed at limiting the authority of vaccine mandates. They may only exist when - and as long as - a serious threat exists or when - and as long as - the country finds itself in a special epidemiological situation. When the Act was publicly discussed, the Federal Council made it clear that the Epidemics Act did not provide a legal basis for enforced vaccines (against the will of a person) and did not provide for criminal sanctions in case of non-compliance. The Council also made it clear that children who have not been vaccinated would not generally be banned from attending school, but only in case of an outbreak of the disease at the school. As for the consequences of vaccine mandates in the sphere of work, the Council referred to labour law and mentioned the possibility of non-vaccinated health workers to be temporarily transferred to less exposed workplaces. (see FOPH, Das neue Epidemiegesetz, Fragen und Antworten, 2013).

The Epidemics Act raises a number of issues which merit examination. If selective vaccine mandates are justified by a situation, will the Confederation or the Cantons introduce the obligation? If the Confederation decided not to declare vaccines mandatory for specific groups, could individual cantons -or cantons acting jointly- still do so? If the Confederation does issue a vaccine mandate for specific groups, can the Cantons go beyond in terms of scope and/or sanctions? These are relevant questions that must be answered, but lie beyond the scope of this policy brief.

Covid-19 vaccine-specific considerations: Consideration should be given to the specific features of Covid-19 vaccines and the context in which they would be deployed. Covid-19 vaccines have been developed in record time, condensing a multi-year process into 10-18 months. Phase III studies have enrolled tens of thousands of people, but longer-term data on safety, efficacy and real-world effectiveness is still needed now that new highly transmissible variants of concern are becoming dominant, and continue to be gathered. It will be unprecedented that so many people are vaccinated in such a short time with novel vaccines, which calls for vigilance and surveillance of adverse effects. Furthermore, as noted above, the effects of specific vaccines on infection or transmission are still actively being studied.

Human rights considerations: An obligation to be vaccinated constitutes a restriction on personal freedom, guaranteed in Article 10 para. 2 of the Swiss Federal Constitution. Such a restriction is constitutional when the following conditions are simultaneously met:

i. The vaccine mandate is provided for by law. As the obligation to vaccinate constitutes a serious restriction to personal freedom (physical and psychological integrity), a formal legal basis, i.e. an Act adopted by the Federal Assembly or cantonal parliaments, is required;
ii. The vaccine mandate must be justified by the public interest or by the protection of the rights and freedoms of others;
iii. It must be proportionate;
iv. It must leave the very essence of the right intact.

The first condition (i) is fulfilled by the Epidemics Act. The last condition (iv) excludes the possibility to physically force a person to get vaccinated. Forced medical treatment against the will of a person is only permitted under very restrictive conditions (and only when a person is deprived of liberty for health reasons).

The fulfillment of the second (ii) and third (iii) conditions must be evaluated based on the characteristics of the vaccine and the epidemic. Public interest and proportionality strongly depend on the effects of the vaccine and the context.

As noted above, since vaccines decrease the risk of both infection and transmission, there is a public interest in high vaccine coverage, as each vaccinated individual reduces the risk of harm not only to himself or herself but also to others. Even in this situation, however, a vaccine mandate is only justified if proportionate, i.e. if there is no less intrusive means to prevent the danger. The question arises as to whether the use of personal protective equipment (PPE) is an adequate replacement for vaccination. A mandate requires necessity and proportionality: this means that for a mandate to be justified, a vaccine must be not only effective and safe, but also be more effective than alternative measures such as PPE. The evidence base may not allow for easy comparisons. Vaccines are developed through randomized controlled trials with clearly quantified effects on the risk of symptomatic infection, and after vaccination, protection against infection does not rely on consistent behavior by the individual. In contrast, while evidence of the efficacy of PPE is strong,[36] it is not generated through RCTs and also depends on constant availability of quality PPE and consistent correct use by the individual. The real-world effectiveness of PPE, in lieu of vaccination, for preventing symptomatic infection is likely to vary by workplace. The ethical acceptability of employees wearing PPE in lieu of vaccination while working in proximity to vulnerable populations would depend, in principle, on how well either intervention reduces the risk of infection or transmission. Although specific comparative data is not available, PPE is likely to be less effective than vaccination to prevent transmission of SARS-CoV2.

A mandate also requires that a vaccine no longer be considered experimental, since in this case mandatory vaccination would imply mandatory participation in research.[37] This condition is fulfilled in Switzerland, where Swissmedic has granted authorization under the ordinary procedure to three Covid-19 vaccines. Although manufacturers are continuing full-length clinical trials for longer-term follow-up on each of them, these vaccines are no longer considered to be experimental. [38]

Considerations regarding general vaccine mandates: Population wide-vaccine mandates are discussed in several countries. Justifications for such mandates are not to protect individuals themselves, but rather to decrease the risk of transmission to others, to protect the healthcare system from being overwhelmed by a surge of patients, and to protect individuals ineligible themselves to be vaccinated, or in whom vaccines may be less efficacious. Population-wide vaccine mandates are not permitted under Swiss law. The Swiss authorities have clearly stated that there will be no general Covid-19 vaccine mandate,[39] and the National Advisory Commission on Biomedical Ethics has also advised against such a mandate.[40]

Considerations regarding targeted vaccine mandates for some professional groups: A targeted vaccine mandate for specific professional groups would be permitted under Swiss law. Justifications for considering such a mandate include ensuring continuity of services, and protecting those who depend on such services from transmission by professionals.

Ensuring adequate staffing for the continuity of essential public services, such as public safety, education, transport or healthcare, which would be threatened if significant numbers of employees were unable to work due to illness. While large numbers of employees could indeed become severely ill with Covid-19, however, thus far it does not appear to be the case that high numbers of police, teachers, health workers, military or other providers of essential services in the country have fallen ill to the extent that such services cannot be provided adequately.

In light of growing evidence regarding the effects of vaccines on the risk of infection and transmission, there is however a stronger case for vaccination of health professionals, who have a duty to protect patients, where no alternative measures are as effective as vaccination to protect their patients against the risk of nosocomial COVID-19. As of this writing, Italy and Greece have introduced such mandates for healthcare professionals, and France has announced that it will do so. A recent publication summarizing -and defending- the case for such specific mandates lists three arguments: heath workers' specific duty to protect their patients, especially when vaccination has so few side effects, their general duty to protect the health of others, and the observation that mandates to be vaccinated against COVID19 are not the first vaccine mandate health professionals are subjected to, but rather an extension of a well-accepted practice.[41] WHO's ethical guidance suggests "Whether a mandate for health workers is necessary and proportionate (ethical consideration 1) and would not undermine trust (ethical consideration 5) might depend on the local context and should be investigated empirically before a mandate is considered for this population."

In February 2021, the National Advisory Commission on Biomedical Ethics has also advised against such a mandate in its Summary and Recommendations regarding COVID19 vaccination,[42] with a position based on some of the same arguments as that of the WHO:

"*Vor dem Hintergrund ihrer Erwägungen empfiehlt die Kommission, von einem Impfobligatorium für bestimmte Bevölkerungsgruppen abzusehen. Derzeit ist lediglich eine Wirkung der Impfstoffe zum Selbstschutz der betroffenen Person nachgewiesen. Einen solchen Selbstschutz für bestimmte Personengruppen allgemein zu verordnen, wäre paternalistisch und nicht zu rechtfertigen. Auch wenn nachgewiesen werden könnte, dass die Impfung vor einer Weitergabe des Virus schützt, müsste der Nutzen eines Impfobligatoriums für bestimmte Gruppen, namentlich für das Gesundheitspersonal, sorgfältig gegen die damit verbundenen Nachteile abgewogen werden. Zwingend müssten mildere wirksame Methoden, etwa die Vornahme regelmässiger Schnelltests bei Nichtgeimpften, ausgeschöpft sein, bevor ein Obligatorium ins Auge gefasst wird. Auch müssen unerwünschte Folgeeffekte, etwa die Akzentuierung des Fachkräftemangels, in der Abwägung berücksichtigt werden, umso mehr, als das Gesundheitspersonal im Zuge der Pandemie bereits in hohem Mass gefordert ist und einen Einsatz zugunsten der Allgemeinheit leistet, dem grösste Wertschätzung gebührt. Ein Impfobligatorium für bestimmte Gruppen und insbesondere für das Gesundheitspersonal wird von der Kommission in dieser Hinsicht abgelehnt*."

In the Swiss context, it would be valuable to consider data on the extent and reasons underlying vaccine hesitancy among certain professional groups, such as health workers, teachers, or police forces. Measures should be developed to encourage an adequate willingness to be vaccinated within key professional groups and in consultation with their representatives. No individual can legally, or should, be vaccinated against his or her will. Nevertheless, health professionals and institutions have duties to protect patients and users, and no alternative measures are as effective as vaccination to do so. The Swiss Epidemics Act also provides a legal basis for the introduction of selective vaccine mandates by Federal or Cantonal authorities, including for specific professional

groups. Decisionmakers including health and long-term care institution authorities can also mandate vaccination as a condition of employment (or the performance of certain functions) in settings where the risk of transmission is high, such as healthcare settings, care homes for the elderly, daycares or schools, if the risk to vulnerable members of the public warrant this decision. Careful planning, sometimes including regional coordination, will be needed to minimize disruptions if it is expected that significant numbers of employees may change or leave their jobs rather than be vaccinated. Any mandate should also have exemptions, such as for medical reasons, appropriately verified and regulated. Such mandates for specific professional groups must in any case be based in law, respect the principle of proportionality, and any sanctions imposed on those who refuse vaccination must also remain proportionate (for example, transfer to other functions rather than dismissal).

Private sector vaccine mandates: The question also arises regarding the appropriateness of vaccine mandates adopted by private actors, such as private firms or private educational institutions. For example, Delta Airlines announced new employees would be required to be vaccinated against Covid-19.[43] If a private firm is providing an essential public service that would be severely impacted by high levels of employee illness, as above, vaccine mandates may be justifiable. But if the rationale is to reduce costs related to employee illness, this may be considered by some to be disproportionate. The absence of a general vaccine mandate does not exclude employers to request their workforce to be vaccinated. If the employer is the state (e.g. a public hospital or home), such obligation must be based on law. In private settings, the obligation to be vaccinated can be introduced by means of private labour law. In such cases also, any specific mandate must be based in law, respect the principle of proportionality, and any sanctions imposed on those who refuse vaccination must also remain proportionate (for example, transfer to other functions rather than dismissal).

Conclusions

The evolving evidence base suggests that mRNA vaccines significantly cut the risk not only of disease but also of infection and transmission for vaccinated individuals. The emerging data suggests that high levels of vaccine uptake can provide collective protection for both vaccinated and unvaccinated persons. The Delta variant, however, shows signs of partial immune escape and rates of transmission of this variant by vaccinated individuals may not be decreased as much as with previous ones. These findings underscore the importance and value of widespread vaccination. In Switzerland, there is no legal basis to introduce population-wide vaccine mandates. Willingness to be vaccinated has increased steadily since the start of 2021, as has vaccination coverage. Vaccine hesitancy, however, remains high.

At the moment, disruption of essential public services - including but not limited to healthcare - due to high numbers of Covid-19 illness seems unlikely. Therefore, the main justification to consider any vaccine mandate would be to protect vulnerable individuals ineligible for vaccination or in whom vaccines are less efficacious. In line with the Swiss Epidemics Act (2016), a time-limited vaccine mandate with appropriate exemptions could be elaborated for professional groups in contact with vulnerable individuals, in consultation with professional associations. That said, individuals cannot be vaccinated against their will, and the continuity of services such as healthcare, education, and care homes for the elderly needs to be ensured. Measures to encourage and facilitate voluntary uptake of vaccination should be adopted, regardless of whether a targeted mandate is put in place. Strategies for training and educating health care providers on how to effectively communicate vaccination recommendations, communication strategies targeted to healthcare providers who may be hesitant and other vaccine-hesitant groups across the population, and working with trusted leaders and influencers beyond government and science/medicine can all encourage vaccination.

Annex A

Features of vaccine mandates

Compulsory or mandatory vaccination, usually referred to as "vaccine mandates" in academic and policy circles, is a complex concept whose different dimensions have been summarized in a taxonomy.[44] In this multicomponent framework, researchers elaborated on the basis of current policies and proposed guidelines for the implementation and study of potential future mandates. Three main features of vaccine mandates should be considered:

Scope: access to and possible enforcement of vaccination results from a process including a series of governmental decisions, that are partially independent: which vaccines are licensed? which are recommended (for whom, when)? which vaccines are funded (to support the publics' access), and finally whether the vaccine should be mandatory. In sum, *scope* refers to the vaccines that would be mandatory.

Sanctions: the enforcement of vaccine mandates can be associated with various sanctions. Forcible vaccinations have been used in the past, with evidence in the US in early 20th century,[45] and in Asian countries at the time of the polio eradication campaign in the 1970s,[46] but would clearly be illegal now in many countries, including Switzerland.

- Criminalization of non-vaccination: monetary penalties of various amounts are documented, with two main downsides: on one hand it turns non-vaccination into 'a purchasable commodity', on the other hand fines are more likely to hit those who could not access vaccination rather than those who refused it, thus creating social inequities.[47] One country (Uganda) has implemented imprisonment sanctions for non-vaccinated people;
- Financial levers: some countries (for example Australia) suspend incentives provided to parents;
- Restrictions on access to institutions and public spaces, notably schools and preschools in the United States and France for example;
- Professional repercussions: it is conceivable some professionals may refuse to be vaccinated and this could necessitate a change in professional assignment, eg for healthcare workers, EMS workers, teachers. A major challenge, however, is that when such frontline workers are scarce and/or it is difficult to find substitutes, refusal to be vaccinated may create significant challenges to maintaining the functioning of public services such as healthcare and education.
- Legal responsibility: with potential claims of criminal negligence.

Penalties and fines have been found to support vaccination uptake, but attention has to be paid to their impact on disadvantaged groups.[48] A vaccine mandate can thus be considered only when access to all those concerned is ensured. Another notable point of concern when it comes to sanctions for those who do not adhere to vaccine mandates is the issue of clearly defining the authoritative body or group of actors who verifies adherence and enforces sanctions for non-compliance.

Selectivity: a system of exemption is usually associated with enforcement, defining conditions under which the vaccine mandate might be lifted. They include medical exemptions and non-medical exemptions (based on religious and personal beliefs). The characteristics of the non-

medical exemptions' system has been shown to affect vaccination rates: when these are more difficult to obtain, vaccination uptake increases.[49]

Overall, vaccine mandates have been shown to increase vaccination rates. However, Omer et al. (2019) recommend adopting an intermediate position between rigid and punitive systems on one hand and too flexible ones on the other hand. While non-medical exemptions should be proposed, they should not be too easy to obtain. In addition, including citizens in decision processes to design policies have been used in France[50] and are recommended.[51]

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