

Literature screening report

Covid-19 vaccines and post-vaccination data: literature update (6)

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Abstract

We report below the most relevant data on Covid-19 vaccines literature as of June 07, 2021. The current report focused again on those vaccines currently used in Switzerland. We addressed the effectiveness of vaccines on new variants/strains, the importance and timing of vaccinating children and young people, and highlighted the potential challenges of the current vaccination in Switzerland.

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Preamble

A large number of scientific publications become available on a daily basis, reflecting the rapid development of knowledge and progress of science on COVID-19 related issues. Leading authorities should base decisions or policies on this knowledge; hence they need to master the actual state of this knowledge. Due to the large number of publications shared daily, decision makers heavily depend on accurate summaries of these publications, in the different public health domains. Therefore, the authors of this report were mandated by the Swiss School of Public Health plus (SSPH+), upon request of the Federal Office of Public Health (FOPH), to inform the FOPH on recent findings from the literature.

Background

Switzerland has accelerated its Covid-19 vaccination rollout as almost two million persons are fully vaccinated. The current epidemiological situation, given the decrease in cases, hospitalisations, and deaths, is rather reassuring at the short term. One global threat remains the emergence of new Covid-19 variants or strains as evidenced in the current situation in the United Kingdom or Canada. In this report, we focused on published studies that covered the following points:

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- Effectiveness of vaccines on new variants/strains, in particular the new variant of concern B.1.617.2.
 - Safety data of vaccines on adolescents and teenagers.
 - A spotlight about Switzerland Covid-19 vaccination rollout.
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Methodology

Please refer to the previous reports if needed. The current report screened the Covid-19 vaccine-related literature as of June 07, 2021. We focused on those studies that would help to discuss the points raised above.

Results and Findings

Effectiveness of Covid-19 vaccines on new variants/strains

Summary:

The effectiveness of currently used mRNA vaccines is increasingly reported to be relatively high and exceeds the threshold of 50% set by the World Health Organization (WHO) as one criterion to make a Covid-19 vaccine eligible for an Emergency Use Listing (EUA). However, the effectiveness of those vaccines on newly emerged variants termed variants of interest or variants of concern has barely been reported in the literature. Earlier in the epidemic, the effectiveness of some Covid-19 vaccines (namely, AstraZeneca/Oxford, Janssen, and Pfizer-BioNTech) was demonstrated unsatisfactory or lower for the variant B.1.351, for instance [1-8]. Of those, a study [8] showed an effectiveness of 29.5% and 16.9% following single doses of Pfizer-BioNTech vaccine against the variants B.1.1.7 and B.1.351, respectively. Unfortunately, there are still little data about the new strain - B.1.617.2 - that dominated other variants in India and the United Kingdom (UK) and is currently circulating in other parts of the world. A non-peer reviewed study conducted in the UK demonstrated that single doses of AstraZeneca/Oxford and Pfizer-BioNTech Covid-19 vaccines reduced symptomatic cases against the variant B.1.617.2 with an effectiveness of 32.9% and 33.2%, respectively. However, two-dose vaccinations were respectively more efficacious with 59.8% and 87.9%. We believe that this may partially explain the recent surge of cases in the United Kingdom¹ where the vaccination strategy initially preferred to inoculate more people with a single dose while delaying the second dose up to 12 weeks. Although the benefits of such strategy were previously demonstrated [9-11], it might not be the case with a more virulent strain due to a lower efficacy.

¹ <https://coronavirus.data.gov.uk/> (accessed on 04.06.2021).

Safety data of Covid-19 on adolescents and teenagers

Summary:

Several ongoing clinical trials (NCT04884685; NCT04800133; NCT0464915; NCT04611802)² target the young population (those under 16 years old) to evaluate the efficacy and safety of those Covid-19 vaccines that are currently administered to the adult population. A press release stated that Moderna Covid-19 vaccine was effective against symptomatic SARS-CoV-2 infections in those aged 12 years old to less than 18 years old³. Further peer-reviewed data are expected soon. A similar published study about the efficacy and safety of Pfizer-BioNTech Covid-19 vaccine on adolescents aged 12-15 years old showed that the vaccine was effective with an overall favorable safety profile. The study had, however, some limitations. First, the sample size is relatively small and the absence of sample size calculation before starting the trial may partially explain the higher efficacy of 100% to prevent symptomatic SARS-CoV-2 infections. Despite the potential benefits of vaccinating this young population due to their potential role in asymptomatic SARS-CoV-2 transmission [12], the study has not yet reported the efficacy of the vaccine to prevent asymptomatic transmission. If the vaccine is deemed inefficace in preventing asymptomatic transmission, it would be difficult to justify vaccination of this subpopulation. There are also several reasons⁴ why vaccinating children and young people (12-16 years old) should be at least **delayed** for several months.

- Current data included few participants (< 3000 people).
- Detection of adverse events did not or would not occur due to the small sample size (the blood clots issues after vaccination with AstraZeneca vaccine, for instance, were not reported in the even larger clinical trials).

² <https://clinicaltrials.gov/>

³ <https://investors.modernatx.com/news-releases/news-release-details/moderna-announces-teencove-study-its-covid-19-vaccine> (accessed on March 31.2021).

⁴ <https://theconversation.com/pfizer-jab-approved-for-children-but-first-other-people-need-to-be-vaccinated-161791> (accessed on 07.06.2021).



- 12-15-year-old population is considered at low risk as there were < 2 deaths in a million of Covid-19 related deaths.
- Ethical issues raise due to 'duty of easy rescue' as we are still unsure of their safety in children.
- Ethically speaking, vaccinating children and young population should not be at the expense of lives lost of other people in other nations who have no access to vaccines. Besides, the risk of new variants emergence may augment and potentially prolong the pandemic worldwide.
- Herd immunity may be achieved without vaccinating children especially in 'aging societies'.

Moreover, Switzerland still needs – at the current rate - several months to vaccinate its adult population.

A spotlight about Switzerland Covid-19 vaccination rollout

Summary:

Switzerland Covid-19 vaccination rollout has recently been accelerated with almost 2 million fully vaccinated people as of June 02, 2021⁵. Despite the favorable safety profile of Covid-19 vaccines in the adult population, reluctance or hesitancy may become a barrier if measures are not maintained and reinforced throughout the vaccination campaign.

It is important to remind health policy makers that the faster we vaccinate while maintaining some public health measures such as social distancing, quarantine and isolation, the more likely we would be able to curb the pandemic and reach herd immunity.

Indeed, potential additional challenges would be related to imported or emerged virulent variants before fully vaccinating a good proportion of the population.

⁵ <https://www.covid19.admin.ch/en/overview> (accessed on 07.06.2021).

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in the submitted work in the previous three years; no other relationships or activities that could appear to have influenced the submitted work.

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