COVID-19 Vaccine Update

February 2021

Combining our resources and market experience, Generali Employee Benefits and Granite Management Limited (Granite) have worked in collaboration to develop this short summary offering perspective on available data related to COVID-19 vaccine development, and some suggested applications of that information. We hope this provides you with some initial insight on the many vaccines that are currently available and/or under development, and actions you can take to ensure you are addressing the health needs of your employees, as well as your own business needs.

February Updates

Growing threat of COVID variants

On a global basis it has been observed that the virus is mutating into separate and distinct variants across several countries, most notably the three distinct variants first identified in the UK, South Africa and Brazil, and 7 new variants recently identified in the US.

The variants appear to include mutations that are causing major changes in how the virus behaves, including increased rates of transmissibility, a potential increase in lethality, and in some instances, a heightened ability to evade the immune system response.

There are concerns that the vaccines currently approved may not be as effective against all the new variants, however to-date there is limited data on vaccine efficacy by variant and research is still ongoing. The advent of these variants is emphasizing the need for a rapid global rollout of the vaccines to achieve some form of herd immunity, thereby reducing transmission and the development of future new variants.

It is now believed that COVID-19 is here to stay and will continue to be a global health issue for some time. Since it does not appear that currently available vaccines will provide long term immunity, it has to be assumed that vaccination against the virus will be required on a regular basis. Because of this, employers should consider the future design of their medical plans to accommodate this eventuality if such coverage is not already provided.

Emerging variants and notable mutations

Following is a high-level summary of the transmissibility, lethality , notable mutations and vaccine efficacy for the three main COVID variants, based on currently available information:

B.1.1.7 Variant (first identified in UK)

- Detected in 86 countries; estimated to be 30-50% more transmissible than the original COVID variant; very preliminary data suggests it may also be 30% more lethal than the original COVID virus;
- Vaccine efficacy: Novavax and Johnson & Johnson have indicated their vaccines provide effective though somewhat reduced protection against this variant (Novavax = 89% efficacy; J&J = 66% efficacy). Early data suggests the Pfizer and Moderna vaccines will also protect against the UK variant;

B.1.351 Variant (first identified in South Africa)

- Detected in 32+ countries; early data indicates this variant is more transmissible than the original COVID variant due to the presence of the N501Y mutation; lethality/severity has not yet been adequately ascertained; this variant has similar mutations to those found in the B.1.1.7 variant;
- Vaccine efficacy: There is heightened concern over vaccine efficacy. Testing their vaccines against all strains prevalent in South Africa, Novavax reported 49% average efficacy and J&J reported 57% average efficacy. Early data also indicates a reduction in the efficacy of the Pfizer and Moderna vaccines against this strain.

P.1 or B.1.1.28 Variant (first identified in Brazil)

- Detected in 14 countries and now present in over 91% of COVID infections in Amazonas state; early data indicates this variant is more transmissible than the original COVID variant; lethality/severity has not yet been adequately ascertained; this variant also has similar mutations to those found in the B.1.1.7 variant;
- Vaccine efficacy: There is heightened concern over vaccine efficacy. Studies are ongoing to determine efficacy of existing vaccines against P.1 (B.1.1.28).

Vaccine rollout across the globe

Vaccine rollout continues to present challenges across the globe, primarily due to supply issues. And while wealthier countries rapidly scale up their ability to administer any available supplies, many middle income, lower middle income and poorer countries who were unable to pre-purchase vaccines haven't even begun to administer any doses whatsoever. Below is a summary of the percent of the population partially and fully vaccinated by country.

Public health experts estimate that 80-90% of the population would need COVID-19 immunity (through prior infection or vaccination) in order to achieve global population immunity. Without significant, broad immunity, the virus will continue to spread and mutate, leaving countries in an endless loop of vaccine development, production and required inoculation.

Reported percentages below are based on **% of the population vaccinated**, not the number of doses per 100 of population as has been widely reported in the media.

% Population vaccinated by country

Country	Percentage of population	
	Vaccinated	Fully vaccinated
UAE	42.2%	2.6%
Israel	39.2%	23.4%
Seychelles	38.8%	1.6%
UK	18.1%	0.8%
Bahrain	12.2%	–
US	9.5%	2.8%
Malta	6.0%	1.8%
Iceland	3.6%	1.4%
Denmark	3.4%	2.3%
Romania	3.4%	1.0%
Slovakia	3.3%	0.6%
Chile	3.2%	0.1%
Poland	3.2%	1.2%
Ireland	3.1%	1.4%
Singapore	3.1%	0.1%
Finland	3.1%	0.9%
Norway	3.0%	0.7%
Greece	3.0%	0.7%
Hungary	3.0%	1.1%
Belgium	2.9%	0.8%
Portugal	2.8%	1.0%
Lithuania	2.8%	1.6%
Sweden	2.8%	0.6%
Spain	2.8%	1.5%
France	2.8%	0.4%
Germany	2.8%	1.2%
Estonia	2.7%	1.3%
Slovenia	2.6%	2.1%
Czech Republic	2.4%	0.9%
Austria	2.4%	0.8%
Italy	2.4%	1.9%
Mainland China	2.2%	–
Luxembourg	2.2%	0.5%
Cyprus	1.9%	0.8%
Brazil	1.7%	<0.1%
Croatia	1.5%	0.9%
Andorra	1.3%	–

Please note: Countries not listed have a 0 - 0.99% vaccination rate. Data reported as of 18Feb 2021

Sources: https://www.nytimes.com/2021/02/07/health/coronavirus-variant-us-spread.html; https://www.nytimes.com/2021/02/07/world/africa/covid-vaccine-astrazeneca-south-africa.html; https://www.nytimes.com/2021/02/04/travel/coronavirus-vaccine-passports.html?name=styln-coronavirus-vaccines&region=TOP_BANNER&block=storyline_menu_recirc&action=click&pgtype=Article&impression_id=898151e0-6a25-11eb-a55c-8f653f1cf63e&variant=1_Show https://www.aljazeera.com/news/2021/2/7/what-you-need-to-know-about-the-new-covid-variants-2; https://ourworldindata.org/; https://www.scientificamerican.com/article/the-most-worrying-mutations-in-five-emerging-coronavirus-variants/; https://www.medicalnewstoday.com/articles/covid-19-pfizer-shot-appears-to-protect-against-uk-variant; https://www.npr.org/sections/goatsandsoda/2021/01/27/961108577/why-scientists-are-very-worried-about-the-variant-from-brazil; https://www.france24.com/en/europe/20210205-covid-19-new-mutation-in-more-contagious-uk-variant-raises-concerns; https://www.nytimes.com/2021/02/07/world/south-africa-astrazeneca-vaccine.html; https://www.washingtonpost.com/health/interactive/2021/01/25/covid-variants/; https://www.ft.com/content/71e53321-3719-4f10-9406-c614a5ddc1b8; https://www.ft.com/content/5691b1bb-0f9f-4410-9ade-84f4d55ea778; https://www.cdc.gov/coronavirus/2019-ncov/more/science-and-research/scientific-brief-emerging-variants.html; https://www.cdc.gov/coronavirus/2019-ncov/transmission/variant.html

The impact on Employers

- Vaccine rollout is expected to be inconsistent across the globe, especially for lower income countries, as the COVAX foundation is facing issues in obtaining sufficient supply from manufacturers, meaning they may not reach their stated 20% goals;

- To-date, additional private purchase of vaccine is not available anywhere globally, except potentially on the black market. Expectation is that reliance on the public health distribution system will be the only option for some time, at least through 2021;

- Should companies wish to pre-purchase vaccines for their employees, there are not yet clear options and we do not recommend this course of action since the vaccines which are most promising have largely been pre-ordered and those remaining may be further away from final approval. In addition, private purchase of the most promising vaccines may not be available until late 2021 or 2022 due to priority being given to the public healthcare sector/governmental bodies/ authorities;

- It is likely that full rollout of the vaccines will be managed under the global WHO-PIP[3] initiative, giving full control and management to governments and health systems globally under UN guidance, including the assumption of the costs, as has largely been the case for global testing and treatment of the pandemic since its declaration by the WHO.

What can Employers do now?

1. Local HR functions should begin to investigate and report on which vaccines are being purchased and provided through local government health agencies/authorities, and when/how these will be available to the local population;

2. Using this information, multinational employers should work closely with local HR functions to ensure employees and their dependents know how to access vaccines through public health systems once they become available in-country. HR functions should also consider providing paid time off for employees to get vaccinated;

3. If vaccinations are restricted by age / condition, it is recommended that local HR functions encourage and support employees who meet the criteria to get the vaccine. Since patient privacy laws are likely to prevent specific identification of eligible individuals based on health conditions, it is recommended that local HR develop a general and wide reaching education and information campaign to make all employees aware of vaccine availability and access based on health status, age, etc;

4. HR functions should liaise with local insurers to:

    - Determine how they could potentially support vaccinations that might be available outside the public system (i.e. direction to providers, employee education etc);

    - Consider a potential strategy/plan to provide coverage for COVID-19 vaccinations within the local plans. As this strategy is explored, the following points should be considered:

        - Cost; Frequency; Availability of cover within Public Sector; Accessibility in remote areas;

        - The advisability of additional cover beyond Public Sector vaccines (if the vaccines chosen by the local health authorities are considered less effective or if they are subject to limited availability);

        - Liability issues associated with the employer "recommending" a specific vaccine, should any negative side effects/health events result from the vaccination.

Summary of approved vaccines

Note: to-date it is estimated that over 51% of the world's existing and future vaccine doses have been pre-purchased and/or reserved by the wealthiest countries representing only 15% of the global population (estimate from Johns Hopkins School of Public Health, reported by Reuters Dec 2020)

APPROVED VACCINES	
Vaccine name (Sponsor)	**Comments**
AZD1222 (AstraZeneca)	• Authorised in Algeria, Argentina, Australia, Bangladesh, Bhutan, Brazil, Chile, Dominican Republic, Egypt, El Salvador, EU, Iceland, India, Iraq, Kuwait, Maldives, Mexico, Mongolia, Morocco, Nepal, Norway, Pakistan, Philippines, Seychelles, Sri Lanka, South Africa, South Korea, Thailand, UK, WHO • Muscle injection; 2 doses 12 weeks apart • Up to 82.4% effective • Stable if refrigerated for at least 6 months
BBIBP-CorV (Sinopharm)	• Authorised in Bahrain, Cambodia, China, Egypt, Hungary, Iraq, Jordan, Nepal, Pakistan, Peru, Serbia, Seychelles, UAE • Muscle injection; 2 doses 3 weeks apart • 79.34% effective
Comirnaty (Pfizer, BioNTech, Fosun Pharma)	• Authorised in Bahrain, New Zealand, Saudi Arabia, Switzerland, Argentina, Australia, Canada, Chile, Colombia, Costa Rica, Ecuador, EU, Iceland, Iraq, Israel, Japan, Jordan, Kuwait, Lebanon, Malaysia, Mexico, Mongolia, Norway, Oman, Panama, Peru, Philippines, Qatar, Serbia, Singapore, Tunisia, UAE, UK, US • Muscle injection; 2 doses 3 weeks apart • 95% effective • Freezer storage at -94^{O} F (-70^{O} C)
CoronaVac (Sinovac)	• Authorised in Azerbaijan, Brazil, Chile, China, Colombia, Indonesia, Laos, Mexico, Turkey, Uruguay • Muscle injection; 2 doses, 2 weeks apart • 50.38% effective
Covaxin (Bharat Biotech)	• Authorised in India • 2 doses 4 weeks apart • Efficacy unknown • Stable at least a week at room temperature
EpiVacCorona (State Research Ctr)	• Authorised in Russia • Muscle injection; 2 doses 3 weeks apart • Stable in refrigerator up to 2 years
mRNA-1273 (Moderna, BARDA, NIAID)	• Authorised in Canada, European Union, Iceland, Israel, Mongolia, Norway, Qatar, Singapore, Switzerland, UK, US • Muscle injection; 2 doses 4 weeks apart • 94.5% effective • Can store for 30 days with refrigeration, 6 months at -4^{O} F (-20^{O} C)
No name announced (Wuhan Institute, Sinopharm)	• Sinopharm-Wuhan: Limited use in China, UAE
Sputnik V (Gamaleya Research, Acellena Drug)	• Authorised in Algeria, Argentina, Armenia, Bahrain, Belarus, Bolivia, Bosnian Serb Republic, Gabon, Guinea, Hungary, Iran, Kazakhstan, Lebanon, Mexico, Mongolia, Montenegro, Myanmar, Nicaragua, Pakistan, Palestinian Authority, Paraguay, Russia, St. Vincent and the Grenadines, Serbia, Tunisia, Turkmenistan, UAE, Uzbekistan, Venezuela. • Muscle injection; 2 doses 3 weeks apart • 91.6% effective • Freezer storage

Table updated 18Feb 2021; efficacy noted above is based on efficacy against the original COVID strain; vaccines listed in alphabetical order; sources: WHO; Bloomberg.com; Nature.com; NYTimes (https://www.nytimes.com/interactive/2020/science/coronavirus-vaccine-tracker.html); Financial Times