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## Covid-19: WHO set to reject Canadian plant based vaccine because of links with tobacco industry

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A unique plant based coronavirus vaccine newly approved in Canada is unlikely to be listed for emergency use by the World Health Organization, a WHO official has warned, because a tobacco company is a major shareholder in the company that developed it.

Philip Morris Investments, a subsidiary of Marlboro cigarette manufacturer Philip Morris International, holds around one third of the equity in Medicago, a Quebec based vaccine maker. Medicago's vaccine Covifenz, which uses virus like particles assembled from plant proteins, was approved by Health Canada on 24 February.

With Canada's population already largely vaccinated, the government had hoped that Covifenz would form a major part of the 200 million vaccine doses it has pledged to ship to poorer countries this year, many of them through the Covid-19 Vaccines Global Access (Covax) mechanism. But Covax will not accept vaccines without a WHO listing.

"Because of its connections—it's partially owned by Philip Morris—the process is put on hold," said Mariangela Simao, WHO's assistant director general for drug access, vaccines, and pharmaceuticals. "WHO and the UN have a strict policy regarding engagement with the tobacco and arms industries, so it's likely it won't be accepted for emergency use listing."

Canada, which has invested CA\$173m in the company, still intends to offer the two dose shot domestically. Uptake is likely to be low, but the government hopes it may tempt people who have specific concerns about mRNA vaccines.

Canada has not ruled out direct shipments to other countries, a spokesman told *The BMJ* in an email. "Health Canada is prepared to work closely with regulatory authorities in other regions to share information on the health department's review of Covifenz and support authorisation in other countries, as well as enable other countries access to Covifenz vaccine supplies that may become available in the coming months."

He added, "The government of Canada has studied the matter of its investment in Medicago carefully and considers that it is compliant with its treaty obligations related to tobacco control under the WHO Framework Convention on Tobacco. The convention requires parties to specifically protect 'public health policies with respect to tobacco control' from 'commercial and other vested interests of the tobacco industry.' As such, the convention does not preclude the government of Canada from working with Medicago on vaccine development and procurement."

The plant used to create Covifenz, *Nicotiana benthamiana*, sometimes called benth or benth, is a close relative of the tobacco plant, and is often used in plant virology research. In its phase 3 trial, not yet published in a peer reviewed journal, Covifenz achieved an efficacy of 71.0% (95% confidence interval 58.7 to 80.0), mostly against the delta variant.<sup>1</sup> It has yet to be approved outside Canada, though applications have been filed with regulators in the US and the UK.

Besides Covifenz, the coronavirus vaccine Nuvaxovid, made by US based Novavax, was expected to account for many of Canada's vaccine shipments abroad this year. Canada pre-ordered 56 million doses but remains reliant on production in India as a facility in Montreal is not yet ready. Nuvaxovid was approved in Canada on 17 February. Canada's government says it still expects to meet its goal of shipping 200 million vaccine doses abroad this year.

Asked by *The BMJ* if Medicago would consider restructuring its ownership to comply with WHO policy, a spokesman for the company said it was awaiting official communication of WHO's position, and will then "review the rationale and continue to discuss potential next steps with our board and shareholders."

1 National Advisory Committee on Immunization. Recommendations on the use of Medicago covid-19 vaccine (Covifenz). 11 March 2022. [www.canada.ca/content/dam/phac-aspc/documents/services/immunization/national-advisory-committee-on-immunization-naci/recommendations-use-medicago-covid-19-vaccine/recommendations-use-medicago-covid-19-vaccine.pdf](http://www.canada.ca/content/dam/phac-aspc/documents/services/immunization/national-advisory-committee-on-immunization-naci/recommendations-use-medicago-covid-19-vaccine/recommendations-use-medicago-covid-19-vaccine.pdf).