

## COVID-19 treatment innovations welcome news



By MICHAEL RILEYStaff

NEW DEVELOPMENTS ON treating COVID-19 are always welcome news, especially for those of us with aged parents, like myself, who are more vulnerable to this virus and its effects. While my dad and my stepmom, who live down on Wolfe Island have already had their vaccinations and booster shots, I still worry about them as they go about their daily lives that they may come in contact with COVID-19 when they travel back to the mainland to Kingston and subsequently become infected. My stepmom also has a condo in Toronto, which they sometimes go to as well. While my parents' vaccination status offers them some protection, their ages make them more at risk to a more severe viral infections, especially in urban centres with more people and more chances of contracting COVID-19, especially the most recent Omicron variant. So, it was gratifying to hear a couple of weeks ago that Health Canada had approved a new anti viral pill for COVID-19 from Pfizer called Paxlovid. It is a combination therapy, comprising nirmatrelvir and ritonavir, with patients taking two of the former tablets and one of the latter tablets orally twice a day for five days. It should be taken within five days of COVID-19 symptom onset. The active ingredient in Paxlovid, nirmatrelvir, hinders the replication of the COVID-19 virus, while ritonavir keeps it in the body longer so it can do its job. Dr. Ethan Toumishey, the acting medical officer of health for the Hastings Prince Edward Health Unit, elaborated on Paxlovid's purpose and usage in the fight against COVID-19 when I spoke to him on Jan. 27. He too thinks its very welcome to have increased options for healthcare providers treating patients with COVID-19. It's important to have these options available and that there continues to be innovation here [in the fight against COVID-19] so it's a very good step, he says. Toumishey says that Paxlovid is a combination treatment that's an antiviral, and that this combination of drugs targets the molecular machinery of the virus. The nirmatrelvir in particular, he says, targets a particular protein that is part of the COVID-19 viral machinery. This protein, called 3CL protease, which is the main

protease in corona-viruses, is latched onto by the nirmatrelvir, which stops the ability of the virus to replicate, and the ritonavir boosts the nirmatrelvir's effectiveness at this task. So, the combination of the two work to interrupt the function of the virus in order to have that clinical effect for patients, he says. Paxlovid has some drug-drug interactions that could cause severe or life-threatening adverse reactions in patients, or a loss of therapeutic effect, according to the Canada.ca website on Paxlovid and its effects. Toumishey cautions that people should be cognizant of any drug interactions with any medications they are taking, including Paxlovid. A very good resource to see all the drug-drug interactions with Paxlovid is the Ontario Science Table, which lists all the drugs that shouldn't interact with Paxlovid, he says. This information can be found at [www.covid-19-sciencetable.ca/sci-encebrief/nirmatrelvir-ritonavir-paxlovid-what-prescribers-and-pharmacists-need-to-know/](http://www.covid-19-sciencetable.ca/sci-encebrief/nirmatrelvir-ritonavir-paxlovid-what-prescribers-and-pharmacists-need-to-know/). The Ontario COVID-19 Science Advisory Table, as Toumishey mentioned, is a group of scientific experts and health system leaders who evaluate and report on emerging evidence relevant to the COVID-19 pandemic to inform the province's response. Whenever medications or therapies are prescribed like Paxlovid one always has to consider whether there are interactions with other drugs. They may be there so there are some interactions [available to see at the Ontario Science Table website above] and it speaks to the importance of the healthcare provider that would be assessing and prescribing this. They are trained in how to do this safely and considering medications and potential unsafe interactions, he says. Toumishey says that at this point, with Paxlovid only recently being approved for use by Health Canada, there is not much evidence-based data yet on it. According to Pfizer's clinical trials, the drug was nearly 90 per cent effective at preventing hospitalizations and deaths in patients who are at high risk of severe illness from COVID-19. We will expect that there will be more and more evidence that is accrued off of its use. The overall supply of this medication is very limited at this point so continued evidence-based experience with the medication will keep coming through time, he says. Toumishey says it's important to highlight that those who qualify for Paxlovid are those who are immunocompromised, those 80 years of age and older whose vaccinations are out of date, those 60 years of age and older living in rural or underserved communities and those from First Nations, Inuit and Metis communities whose vaccinations are out of date, to keep them from getting very sick, hospitalized and potentially even dying from COVID-19. The most important step is prevention, getting vaccinated against COVID-19 to reduce the risk of severe illness ahead of when someone may become infected, he says. As the months and years go by, more innovative treatment options will come to the fore in the fight against COVID-19 no doubt. Already, scientists are looking to develop a vaccine that would protect against multiple variants of the coronavirus that causes COVID-19, a pan-coronavirus vaccine. The National Institute of Allergy and Infectious Diseases, part of the National Institutes of Health in the U.S. has invested roughly \$36.3 million to the University of Wisconsin, Boston's Brigham and Women's Hospital and Duke University to come up with these pan-coronavirus vaccines to counter COVID-19 and its variants. This is in addition to the approximately \$1.2 billion that the NIH has already committed to the fight against COVID-19. While it will take years to develop such a treatment, according to Dr. Anthony Fauci, the NIAID director, it is heartening to hear that the push for progress to counter COVID-19 continues with some of the brightest minds in the world's scientific community. Hopefully we'll come to a point when COVID-19, which will probably always be with us, will be, with existing and forthcoming treatment options, no more dangerous than the common cold. Hopefully that day will be sooner rather than later.