

Health

Emission declines cut deaths

Biogen 'halves' price of its Alzheimer's drug

NEW YORK, Dec 22, (AP): Biogen is slashing the price of its Alzheimer's treatment in half months after it debuted to widespread criticism for an initial cost that could reach \$56,000 annually.

The drugmaker said Monday that it will cut the wholesale acquisition cost of the drug by about 50% next month. That means the annual cost for a person of average weight will amount to \$28,200.

The actual amount that person would pay will depend on factors like insurance coverage.

Biogen CEO Michel Vounatsos said in a prepared statement that too many patients were not being offered the drug due to "financial considerations," and their disease had progressed beyond the point where Aduhelm could help.

Aduhelm is the first in a line of new drugs that promise to do what no other Alzheimer's treatment has managed: slow the progress of the fatal brain-destroying disease, rather than just managing its symptoms.

The drug received FDA approval in June, and the agency later said it was appropriate for patients with mild symptoms or early-stage Alzheimer's.

But Aduhelm's debut has been slowed by concerns over the price and research behind the drug. Some insurers have balked at paying for the drug, while medical centers across the country have been either slow to decide on using the drug or said they weren't planning to prescribe it for now.

Doctors have said concerns over the price were compounded by costs patients also would face for regular testing and scans needed to monitor their progress on Aduhelm.

Biogen said in June that it would not raise its price on the drug for four years, and the company often touted its financial assistance programs for patients.

RBC Capital Markets analyst Brian Abrahams said he was not surprised by Biogen's price cut. He said in a research note that the move was probably necessary and should "give Aduhelm its best opportunity for success."

The initial price was a key factor behind planned premium hikes for Medicare, the federal government's coverage program for people ages 65 and older and for the disabled.

Last month, Medicare announced one of the largest increases ever in its "Part B" monthly premium for outpatient care. It said it would raise the premium nearly \$22, from \$148.50 currently to \$170.10 starting in January.

The agency said about half of that hike was due to the need for a contingency fund to cover Aduhelm. Medicare is expected to be one main payers for the drug.

Aduhelm clears brain plaque thought to play a role in Alzheimer's disease, and US regulators gave their approval based on study results showing the drug seemed likely to benefit patients. But they've asked for more research.

Biogen, which developed Aduhelm with Japan's Eisai Co., said last week the company expects to screen the first patients for their next study in May. Researchers will aim to enroll about 1,300 people with early-stage Alzheimer's and expects to complete the research about four years after the study begins.

Concerns about the research behind the drug were a main reason the European Medicines Agency cited in refusing Aduhelm's marketing authorization last week.

Biogen said in October that Aduhelm had brought in only \$300,000 in sales during its first full quarter on the market. The company attributed that figure partly to drug wholesalers drawing down inventory they had purchased the previous quarter.

Biogen also said Monday that it will start some cost-cutting measures that are expected to yield about \$500 million in annual savings, most of which will be realized next year. The company said it was cutting costs in part because the slow debut of Aduhelm was affecting its revenue.

Researchers say that thousands of lives and hundreds of billions of dollars have been saved in the United States by recent reductions in emissions from vehicles.

Harvard University researchers who study the environment and public health examined the impact of declines in emissions from vehicles over a decade. They found deaths dropped from 27,700 in 2008 to 19,800 in 2017 and that the economic benefits of the reduction in emissions totaled \$270 billion.

In a study published recently in the Proceedings of the National Academy of Sciences, the researchers also concluded that if vehicles continued to emit air pollution at 2008 levels throughout the time period, the death total in 2017 would have been 2.4 times higher.

Light-duty vehicles such as cars, pickup trucks and SUVs made up a major portion of the health burden reduced by tougher regulations on fossil fuel companies and vehicle manufacturers, according to the study.

But the researchers found that these benefits were limited by an increasing and aging population and by drivers buying larger cars and driving more.

Benefits

"Despite substantial progress in reducing emissions, you have this countervailing effect of population and larger vehicles," said **Ernani Choma**, an environmental health researcher at Harvard and lead author of the study. "So it will be hard to achieve substantial progress, if we don't enact more stringent policies."

While there has been previous research on the health benefits and economic impacts of emissions reductions, this study paints a more precise picture of how emissions affect public health, according to experts not affiliated with the research team.

"Good environmental policy has drastically reduced transportation emissions over the past decade," said Sumil Thakrar, an air quality researcher at the University of Minnesota. "But getting a good understanding of the benefits of those emissions controls is hard because it requires keeping track of a lot of other moving parts. And I think the authors do a remarkable job."

The study also looked at the climate benefits that resulted from curbing air pollution from vehicles, but found that those benefits only made up 3% to 19% of the overall economic gains.

That's because most approaches for reducing transportation emissions in the US have been aimed at curbing air pollution, not climate change, said **Susan Anenberg**, associate professor of environmental and occupational health and global health at George Washington University.

"Catalytic converters, diesel particulate filters, those are taking pollutants out of the (environment), but those aren't doing anything for (carbon dioxide)," she said.

That's one reason Choma and his colleagues recommend tougher policies to curb emissions. Another reason, he said, is that if the upward trend in population and vehicle size and use continue, the same policies that created the health benefits highlighted in the study won't be as effective in the future.

"If we look ahead to 2030 and nothing has changed, you're only going to see a modest drop" in deaths from vehicle emissions, he said. "So that's the case for more stringent policies."



Vounatsos



City residents wait in a line extending around the block to receive free at-home rapid COVID-19 test kits in Philadelphia, Monday, Dec. 20. (AP)



A SpaceX Falcon 9 rocket lifts off from Kennedy Space Center, Fla., Tuesday morning, Dec. 21. The rocket is carrying supplies for the International Space Station. (AP)



Musk



Walker

Discovery

SpaceX launches supplies to ISS: SpaceX launched gifts, goodies and supplies to the International Space Station on Tuesday and got a present in return: the company's 100th successful rocket landing.

The predawn liftoff from NASA's Kennedy Space Center was barely visible in the fog and clouds, as the Falcon rocket hoisted a Dragon capsule loaded with more than 6,500 pounds (2,950 kilograms) of gear for the station's seven astronauts. Several minutes later, the first-stage booster landed upright on an ocean platform, six years to the day that **Elon Musk's** company accomplished its first booster touchdown in 2015.

This particular booster was making its first flight. A few days ago, a SpaceX booster made its 11th flight.

"It's critical to lower the cost of spaceflight to continue to reuse these boosters more and more times. A hundred is a big milestone, so we're excited about that," said SpaceX's **Sarah Walker**, a mission manager. "We're also excited to see how few new boosters we have to produce as the years go by."

Among the items due to arrive at the space station Wednesday: presents from the astronauts' families, as well as smoked fish and turkey, green beans and fruitcake for a holiday feast. NASA's space station program manager **Joel Montalbano** wouldn't divulge anything else.

The delivery also includes a laundry detergent experiment. Station astronauts currently trash their dirty clothes; Procter & Gamble Co. is developing a fully degradable detergent for eventual use at the station, on the moon and beyond.

SpaceX is ending the year with 31 launches, the most ever by the company. (AP)

Groups to sue EPA: Three conservation groups filed a formal notice on Monday of their intent to sue the Environmental Protection Agency if it doesn't take steps to protect manatees from water pollution in Florida.

Pollution-fueled algae blooms are cited as the cause of over half of the more than 1,000 manatee deaths in Florida this year, according to a news release from the Center for Biological Diversity, Defenders of Wildlife and Save the Manatee Club.

The algae blooms killed thousands of acres of seagrass in the Indian River Lagoon, which highlights the inadequacy of Florida's federally approved water quality standards, the groups said in the notice letter.

They are asking the EPA to reinstate consultation with Fish and Wildlife Service to reassess the standards. Monday's notice gives the agencies 60 days to ad-

Coronavirus

'It's 'patriotic duty' to get vaccinated'

Biden to pledge 500m free COVID tests

WASHINGTON, Dec 22, (AP): Fighting the omicron variant surging through the country, President Joe Biden announced the government will provide 500 million free rapid home-testing kits, increase support for hospitals under strain and redouble vaccination and boosting efforts.

At the White House on Tuesday, Biden detailed major changes to his COVID-19 winter plan, his hand forced by the fast-spreading variant, whose properties are not yet fully understood by scientists. Yet his message was clear that the winter holidays could be close to normal for the vaccinated while potentially dangerous for the unvaccinated.

His pleas are not political, he emphasized. He noted that former President Donald Trump has gotten his booster shot, and he said it's Americans' "patriotic duty" to get vaccinated.

"It's the only responsible thing to do," the president said. "Omicron is serious and potentially deadly business for unvaccinated people."

Biden chastised social media and people on cable TV who have made misleading statements to discourage people from getting vaccinated.

The outbreak from this latest strain of the coronavirus has required the federal government to get more aggressive in addressing the wave of infections, but Biden promised a weary nation that there would not be a mass lockdown of schools or businesses.

"I know you're tired, and I know you're frustrated. We all want this to be over. But we're still in it," Biden said. "We also have more tools than we had before. We're ready, we'll get through this."

Scientists don't know everything about omicron yet, but they do know that vaccination should offer strong protection against severe illness and death. The variant has spread at such an alarming rate since it was identified in South Africa about a month ago that the Biden administration snapped into action to offer new tests and additional aid. Still more is needed, some medical experts said.

A cornerstone of the plan is for the government to purchase 500 million coronavirus rapid tests for free shipment to Americans starting in January. People will use a new website to order their tests, which will then be sent by US mail at no charge. The 500 million could be increased, depending on de-

velopments.

It marks a major shift for Biden, who earlier had called for many Americans to purchase the hard-to-find tests on their own and then seek reimbursement from health insurance. For the first time, the US government will send free COVID-19 tests directly to Americans, after more than a year of urging by public health experts.

Experts had criticized Biden's initial buy-first, get-paid-later approach as unwieldy and warned that the US would face another round of testing problems at a critical time. Testing advocates point to nations including the UK and Germany, which have distributed billions of tests to the public and recommend people test themselves twice a week.

Resources

The federal government will also establish new testing sites and use the Defense Production Act to help manufacture more tests. The first new federally supported testing site will open in New York this week. The new sites will add to 20,000 already available. White House officials said they're working with Google so that people will be able to find them by searching "free COVID test near me."

Still, Biden's testing surge would need to be supported by a further jump in production for all Americans to test at the recommended rate of twice weekly. The US would need 2.3 billion tests per month for everyone 12 and older to do that, according to the nonprofit Kaiser Family Foundation. That's nearly five times the half-billion tests Biden will deploy.

Currently, the US can conduct about 600 million tests per month, with home tests accounting for about half, according to researchers from Arizona State University.

In another prong to Biden's amped-up plan, he is prepared to deploy an additional 1,000 troops with medical skills to assist hospitals buckling under the virus surge. Also, he is immediately sending federal medical personnel to Michigan, Indiana, Wisconsin, Arizona, New Hampshire and Vermont. And there are plans to ready additional ventilators and protective equipment from the national stockpile, expanding hospital resources.

As a backstop, the Federal Emergency Management Agency will deploy hundreds of ambulances and paramedic teams so that if one hospital fills up, it can transport patients

to open beds in another. Ambulances are already headed to New York and Maine, and paramedic teams are going to New Hampshire, Vermont and Arizona.

But vaccination remains the main defense, since it can head off disease in the first place. The government will support multiple vaccination sites and provide hundreds of personnel to administer shots. New rules will make it easier for pharmacists to work across state lines to administer a broader range of shots.

Biden said in response to a question that he may lift the Southern Africa travel ban that was imposed to delay omicron from reaching the US.

Some prominent experts said that Biden's new actions are a step in the right direction but he hasn't gone far enough, given the risks of infections and hospitals being overwhelmed.

"I don't know that the measures being proposed are going to be adequate," said Dr. Peter Hotez, dean of the National School of Tropical Medicine at Baylor College of Medicine in Houston.

Hotez said the government may need to authorize a second booster shot for health care workers to prevent infections that would sideline clinicians when all hands are needed.

Dr. Eric Topol, professor of molecular medicine at Scripps Research in La Jolla, California, said the administration "finally sees the light" with Biden's plan to ship 500 million tests, but "we need to pull out all the stops, and we're not doing that still."

"We don't have control of this pandemic here," said Topol.

He said the government could redefine "fully vaccinated" as three shots instead of two of the Pfizer and Moderna vaccines. Biden could order a ban on air travel by people who are not fully vaccinated, and the government could use its authority to ramp up production of high quality masks for free distribution.

"There's a lack of boldness," Topol said. "I am disappointed."

Scientists say omicron spreads even more easily than other coronavirus strains, including delta. It accounted for nearly three-quarters of new U.S. infections last week.

Underscoring the reach of the virus, the White House said late Monday that Biden had been in close contact with a staff member who later tested positive for COVID-19.

dress violations alleged in the letter before the groups file a lawsuit.

"It's disgraceful that hundreds of manatees have died as a direct result of regu-

lators' failure to protect our water quality," **Jaclyn Lopez**, Florida director of the Center for Biological Diversity, said in a news release.



COVID-19 testing specialist Susana Blasco reaches forward with a swab to test a driver at a drive-up coronavirus testing location Tuesday, Dec. 21, in Bellingham, Wash. Washington health officials said Tuesday at least 400 cases of the new COVID-19 variant had been confirmed, but that omicron hasn't yet overtaken delta cases in the state. Over the past two weeks Washington state has averaged more than 1,500 new, likely cases of COVID-19 a day. (AP)

The Indian River Lagoon is an "ecological wonder that supports not just manatees, but green sea turtles, snook, tarpon and a stunning diversity of marine life," **Lopez** noted. (AP)

Shrimp fishery to stay closed: New England's commercial shrimp fishery will remain shut down because of concerns about the health of the crustacean's population amid warming ocean temperatures.

The cold-water shrimp were once a winter delicacy in Maine and beyond, but the fishing industry has been shut down since 2013. A board of the regulatory Atlantic States Marine Fisheries Commission voted to keep the fishery shuttered for at least three more years.

The shrimp prefer cold water and their population health is imperiled by the warming of the ocean off New England. The Gulf of Maine, in particular, is warming faster than most of the world's ocean.

Scientists have also said recently that warming waters led to increased predation from a species of squid that feeds on shrimp.

The board last voted to extend the existing moratorium on commercial fishing of the shrimp in 2018. The board could have decided to reopen the fishing industry on Friday, but chose not to in the face of discouraging news from scientists. (AP)