

3 AUSTRALIANS CRITICALLY ILL AFTER RARE THUNDERSTORM ASTHMA

MELBOURNE: Three patients remained critically ill on Thursday, three days after a rare condition known as thunderstorm asthma killed four people and sent hundreds to hospitals in Australia's second-largest city, an official said.

Doctors were amazed there were not more fatalities given the numbers of people who suffered cardiac arrests and struggled to breathe when a wild thunderstorm struck Melbourne on Monday

night, Victoria state Health Minister Jill Hennessy said.

The storm caused rain-soaked ryegrass pollen to explode and disperse over the city, with ruptured particles penetrating deep into lungs. Almost one third of patients who suffered asthma attacks on Monday reported never having asthma before. Nine patients remained in intensive care units on Thursday after the unprecedented event that overwhelmed

Melbourne's hospitals and emergency services, Hennessy said. The condition of three of those patients was listed as critical, she said. "I'm pleased we haven't had more deaths ... but those deaths are four deaths too many," Hennessy told reporters.

Experts were trying to determine whether asthma thunderstorms could be predicted, and the Australian Bureau of Meteorology and other government

agencies met with pollen scientists Thursday to discuss whether future events could be accurately forecast.

Melbourne University botanist Ed Newbigin, who runs Melbourne's main pollen-counting station, said forecasting such events should be possible. "Thunderstorms and high pollen levels in the air occur reasonably frequently this time of year, but not all those events result in episodes of thunderstorm asthma," Newbigin said. "We can probably figure out what are the requirements for producing thunderstorm asthma and come up with, if not a perfect forecast system, at least a pretty good one," he said. The world's first recorded thunderstorm asthma event occurred in Melbourne in 1987. Similar events have happened in the United States, Canada, Britain and Italy. The last major event in Melbourne was in November 2010. —AP



SEOUL: Members of the environmental group Greenpeace hold placards and balls symbolizing microplastics from cosmetic products during a campaign to support a microbeads ban, at the Han river on August 9, 2016. —AFP

GREENPEACE URGES MICROBEAD BAN TO PROTECT OCEAN LIFE

TOO SMALL TO BE FILTERED

LONDON: Environmental group Greenpeace is calling for a ban in Britain on plastic "microbeads", found in many cosmetics, which they warn pollute the oceans and poison marine life. Campaigners want a total ban on the tiny particles—which are too small to be filtered-in products that are commonly washed down the drains.

Although only making up a fraction of the five to 12 million tons of plastic discharged into the oceans each year, these small beads are "probably the most harmful", said Erik Van Sebille, oceanographer and climate scientist at Imperial College London. "The smaller (the plastic) is, the most harmful it is," he told a news conference Thursday on the Greenpeace ship

"Esperanza", moored near Tower Bridge in central London. "Most animals won't eat an entire plastic bag, so the smaller it is, the easier it is to be ingested." He said there was evidence that the excess of plastic was causing harm to sea creatures, including stopping oysters from reproducing. The tiny balls, which can be as small as 0.1 millimeters, are found in numerous cosmetic products, from facial scrubs and exfoliators to shower gels and toothpaste.

A 125ml tube of exfoliating cream can contain several hundred thousand microbeads, usually made from polyethylene, explained David Santillo, a researcher for Greenpeace at Exeter University. Too small to be picked up by water treatment filters, they enter the oceans where

they are "very effective at picking up pollutants that are in sea water", said Santillo. These pollutants are then passed on to the fish, crustaceans and microplankton that ingest them.

'Turn back the clock'

The British government is due to launch a three-month review process in December on plans to ban microbeads, amid mounting pressure from Greenpeace and other environmental groups. A petition calling for a ban has gathered more than 375,000 signatures. It urges Britain to follow the example of the United States and other countries which have taken action to limit their use. Anticipating the ban, British supermarket chain Tesco will remove microbeads from its own brand cosmetic and household products by the end of 2016, the group's quality director Tim Smith announced on Thursday. He said Tesco had asked suppliers to effectively "turn back the clock" to before microbeads, and use natural alternatives such as ground-down coconut shells.

Cosmetics giant Johnson & Johnson has pledged to remove microbeads from its products globally by the end of 2017 while toothpaste maker Colgate told AFP it hasn't used them since 2014. US corporation Procter & Gamble says on its website that it is "in the process of eliminating them from our toothpastes and cleansers".

Greenpeace said it welcomed the British government's plans to ban microbeads but wants the legislation to go further to avoid loopholes, warning that the situation is only worsening.

"By 2025, for every three tonnes of fish, there will be one ton of plastic" in the oceans, said John Sauven, executive director for Greenpeace UK. —AFP



SEOUL: Members of the environmental group Greenpeace collect beach balls symbolizing microplastics from cosmetic products (represented by large balloons) during a campaign to support a microbeads ban, on the Han river in Seoul on August 9, 2016. —AFP

SCIENTISTS GO BIG WITH FIRST AQUATIC SPECIES MAP FOR US WEST

BOISE, Idaho: It sounds like a big fish story: a plan to create a biodiversity map identifying thousands of aquatic species in every river and stream in the western US But scientists say they're steadily reeling in that whopper and by next summer will have the first Aquatic Environmental DNA Atlas available for the public.

Boise-based US Forest Service fisheries biologist Dan Isaak is leading the project and says such a map could help with land management decisions and deciding where to spend limited money and resources. "It's kind of the Holy Grail for biologists to know what a true biodiversity map looks like," he said. "To have that formatted digitally so you can do lots of science with it will be transformative in terms of the quality of information we'll have to conserve species."

Isaak said annual surveys could provide snapshots so scientists can see how biodiversity and ecosystems change over time. Because of the project's immense scale, he said, sample collecting likely will require help from many entities, including citizen scientists.

What the map will include

The map eventually will include everything from insects to salmon to river otters. It's possible because of a new technology that can identify stream inhabitants by analyzing water samples containing DNA. The technology also can be used to identify invasive species.

That technology is evolving, said Michael Schwartz, the Forest Service's director of the National Genomics Center for Wildlife and Fish Conservation in Missoula, Montana. Currently, he said, scientists can detect only one species at a time in a stream sample. He said the goal is to identify multiple species in a single test from one sample. A rough estimate for when that might be possible is about a year, he said.

The trove of information has the potential to be so vast that questions not presently imagined might arise. "Any time

science undertakes large projects like this, the payouts can be in directions you don't expect," Schwartz said.

Ultimately, he said, the publicly available information could be used by someone with an iPad or other device who could go to a section of river and see what species it contains.

The Aquatic Environmental DNA Atlas for the western US has its genesis in a smaller-scale project called the Bull Trout Environmental DNA Atlas involving five states - Idaho, Montana, Nevada, Oregon and Washington - where the federally protected fish is found. That effort, Isaak said, has discovered bull trout in areas where they were thought not to exist.

Isaak also has been working on something called the Cold Water Climate Shield to identify streams that could serve as a refuge for cold water species, such as bull trout, if global warming continues.

That map uses millions of temperature recordings going back decades and has expanded to include most of the western US Stream temperatures in lower elevations have risen several degrees over the past 30 years, Isaak said. The DNA Atlas has been confirming the kind of species present as predicted by the Cold Water Climate Shield, Schwartz said.

What scientists ultimately hope to do is combine all the information from stream temperatures, DNA Atlas sampling, topography and weather patterns to get more insights into species distribution patterns and even how entire ecosystems function. "The data sets can be bigger because computers are bigger," Isaak said. Even for Isaak, who is called a visionary by his colleagues, the leaps in technology that make his ideas possible can be mind-boggling.

"It's just been an ongoing revelation," he said, recalling 15 years ago using pencil and paper to make streamside observations. "It still seems like magic to me that you can go take a water sample and you have instruments powerful enough to discern what species are present." —AP



MISSOULA, Montana: This April 17, 2014 photo provided by the US Forest Service shows Michael K. Schwartz in the process of filtering 5 liters of water to concentrate DNA on a filter to be analyzed at the National Genomics Center for Wildlife and Fish Conservation, on Rattlesnake Creek. —AP

ANOTHER FAILURE IN SEARCH FOR TREATMENT TO SLOW ALZHEIMER'S



INDIANAPOLIS: This June 30, 2011, file photo, shows the Eli Lilly and Company corporate headquarters. —AP

INDIANAPOLIS: An experimental treatment for Alzheimer's failed again in a widely anticipated study, disappointing many who had hoped drugmaker Eli Lilly had finally found a way to slow the progression of the mind-robbing disease.

The drug did not work better than a placebo treatment in a study of more than 2,100 people with mild Alzheimer's, the company announced Wednesday. "We're incredibly saddened by the news," said Maria Carrillo, chief science officer of the Alzheimer's Association, who was not involved in Lilly's research. "There was a lot of hope for this avenue, this approach."

Alzheimer's experts had modest expectations for the drug, called solanezumab (sohl-ah-NAYZ'-uh-mab). It had already failed in two large studies in people with mild-to-moderate forms of the disease. Combined results, however, suggested that the drug might work for those with the mildest symptoms.

Lilly started another study, testing monthly infusions of the drug for 18 months in those patients. The drug binds to a protein called amyloid that builds up in the brains of Alzheimer's patients. The drug clears the protein from the brain before it can clump together to form a sticky plaque between nerve cells. Researchers think the protein triggers the degenerative disease, which impairs memory and thought.

Premature to abandon

Amyloid still plays some role, and it's premature to abandon the notion of targeting it, said a specialist who has led many previous failed Alzheimer's drug studies. "When you get a result like this you have to question, is it the stage of the disease, is it the particular drug you are testing, or is it some combination? Or is the strategy wrong?" said Dr. Stephen Salloway, neurology chief at Brown University in Providence, Rhode Island. "We don't know the answer."

Lilly's drug is still being studied in two other major tests. One involves patients with a rare, inherited form of Alzheimer's, and the other is a prevention trial of people who have no symptoms but have deposits of amyloid in their brain as seen on scans.

At least 18 other drugs are in late-stage testing, including several similar to solanezumab. Dietary therapies, supplements and even a medical device also are being tried. "There are other approaches that we need to pursue," Carrillo said. "We need to redouble our efforts."

Scientists say the search for a better Alzheimer's treatment presents several problems. They also believe changes in the brain of a person with Alzheimer's begin many years before the patient shows symptoms. That means that by the time diagnosis happens, the brain may

be essentially too damaged for potential treatments to work.

Lilly has spent about \$3 billion over the past 27 years on Alzheimer's research. One of the drugmaker's researchers, Dr. Eric Siemers, said the latest results were a "bump in the road," and scientists are looking forward to learning more from the results of other potential treatments. "We're continuing to go forward, it's just not as fast as we would like," said Siemers.

With more than 5 million people in the United States afflicted, Alzheimer's is the most common form of dementia. There's no known way to prevent, cure or even slow its progression. Current treatments on the market, like Aricept and Namenda, only temporarily ease symptoms such as memory loss, confusion and agitation.

Alzheimer's patients typically live an average of eight years after their symptoms become noticeable, during which the disease gradually erodes their memory and ability to think or perform simple tasks. Wall Street analysts had given Lilly's drug relatively low odds of success. Even so, shares of Indianapolis-based Eli Lilly and Co. plunged more than 10 percent, or \$8.02, to \$67.97 Wednesday afternoon. Shares of other drugmakers researching Alzheimer's treatments, like Biogen Inc., also sank in early trading. —AP