While the media seem embroiled in a moral panic about methamphetamine or “ice”, those of us who actually work with overdose patients are nervously watching out for a far more dangerous drug: carfentanil.

You may have heard of fentanyl, a synthetic opioid similar to morphine, the drug derived from the opium poppy. Fentanyl is 50 to 100 times more potent than morphine, but there wouldn’t be a day that goes by where we don’t use it in the emergency department, mostly for pain relief.

Carfentanil is an ultra-potent synthetic version of this. Its only legitimate use is in veterinary practice for large animals such as elephants. Its distribution is restricted to veterinarians engaged in zoo and exotic animal practice, wildlife management programs, and researchers.

How does it work?

The human body manufactures neuropeptides called endorphins. Opioids work by binding to endorphin receptors in the body, namely opioid receptors.

There are several types of receptors, all which, when activated, create slightly different effects - some make you feel good, or sleepy, or less anxious.

One, called the μ-receptor, is very good at mediating respiratory depression. And carfentanil can activate this receptor better than almost any other opiate.

How was it developed?

Developed in the mid-1970s as a large animal sedative (Wildnil), carfentanil is 10,000 times more potent than morphine. A lethal dose in humans is only 20 micrograms. That is the weight of ten snowflakes, or a single grain of pollen.

It is so potent that lab technicians require special protective equipment to analyse it, and have to have the antidote at the lab bench. It takes only 10mg to knock down a wild African elephant. An unfortunate veterinarian who merely splashed some on his eye while trying to sedate an elk required resuscitation.

Read more: Weekly Dose: fentanyl, the anaesthetic that may have been used as a chemical weapon on Chechen rebels

What are its uses?

Carfentanil has no therapeutic human application. And for most consumers who have ingested it, they have done so involuntarily, thinking it was another drug, usually heroin.

So why is it available? In the world of heroin, "quality" is frequently conflated with potency. A product that may be significantly "cut" can be dosed with minute quantities of fentanyl-like products to give the impression of enhanced value. By increasing the perceived "purity" of a shipment, you can increase its apparent value.

It's particularly useful that the manufacture of carfentanil is entirely synthetic, and not reliant on the vagaries of crops in Afghanistan's Helmand province, or border patrols in Herat Province. It's far easier to smuggle a suitcase of an ultra-potent product globally than a shipping container of something more "dilute" and organic.

Why should we be so concerned about it?

The first epidemic of fentanyls and fentanyl-related compounds dates back to the 1970s. Between 2005 and 2007, another product, this time from Mexico, killed hundreds of Americans.

Globally, we are now seeing a third wave of fentanyl-related deaths, dating from perhaps late 2013, far more serious than any that preceded it. There were over 5,000 deaths in the US alone in 2014. Ohio state had over 1,100 deaths in 2015 alone. The figures for 2016 could be far greater still.

Those of us in the business of tracking down new illicit drugs in Australia have felt the malign presence of the fentanyls for a while now. We have been forewarned by our overseas colleagues - equally aghast at their escape into the open market. We predicted the synthetic fentanyls would be a major issue for Australia in April 2016.

For about a year, we've been hearing reports of "heroin" overdoses that are no longer responding to standard doses of our normal opiate antidote, naloxone. That is usually about 2mg, but in cases we suspect involved carfentanil and its close cousins, it can take ten times more to make someone breathe again.

In December, a carfentanil seizure was reported in Sydney - last month another in Brisbane. Like a lethal strain of flu, now it's here, and all we can do is work furiously to prevent it becoming established. This involves engagement with the consumer community, an approach which doesn't appear to be viewed favourably by Australian policy makers.

Read more: Weekly Dose: Naloxone, how to save a life from opioid overdose

In many ways, the fentanyl-related compounds connect many of the problems and solutions of modern drugs policy in Australia. Many are novel products, manufactured to pharmaceutical purity, as the global drug market mutates into something darker and less tangible. Their emergence has been catalysed by a Big Pharma peddled epidemic of opiates, coupled with a subsequent crackdown in availability.

We have no meaningful toxicological early warning system that widely shares data in Australia - we rely on whispers. Consumers who overdose are unlikely to survive outside of a medically-supervised injecting centre, providing yet more pressure for the expansion of those services in Australia - and yet still, they are opposed.

The tabloid press would have us believe the drug “ice” is currently the biggest threat to Australian society. But doctors and drug professionals alike will tell you that potentially, the unfettered spread of carfentanil and the illicit synthetic fentanyls is much worthier of y