The number of industrial chemicals with known links to neurodevelopmental disabilities like autism has more than doubled in the past seven years, according to new research published in *The Lancet Neurology*.

As rates of autism and attention deficit-hyperactivity disorder (ADHD) increase worldwide, researchers believe widespread exposure to these chemicals among children may be contributing to a “silent epidemic” of people with neurodevelopmental disabilities.

Based on an analysis of previous studies, researchers added six new toxins to a list of chemicals believed to pose a threat to the brains of fetuses and young children: manganese, fluoride, chlorpyrifos, dichlorodiphenyl-trichloroethane (DDT), tetrachloroethylene, and the polybrominated diphenyl ethers.

While chemicals like manganese and fluoride, common in drinking water, are rarely found in high enough concentrations in the U.S. to pose a health threat, other chemicals on the list are much more pervasive.

“Chlorpyrifos is an organic pesticide … 10 years ago it was banned for household use, but it is still extensively used in agriculture and can be found in lots of fruits and vegetables,” study co-author Dr. Philip Landrigan, of the Icahn School of Medicine at Mount Sinai in New York City, told FoxNews.com.

And the list gets scarier: Tetrachloroethylene, which has been linked to deficient neurological function and increased risk of psychiatric diagnosis, is a common
solvent used in dry cleaning. Another chemical on the list, polybrominated
diphenyl ethers, is a type of flame retardant frequently found in couches. And
while the pesticide DDT is now banned in the U.S. due to human health risks, it’s
still found in imported fruits and vegetables, as well as in soil and water
throughout the country.

These six chemicals have been added to a list of five other neurointoxicants –
lead, methylmercury, polychlorinated biphenyls, arsenic, and toluene – first
identified by Landrigan and his co-author, Dr. Phillipe Grandjean of the Harvard
School of Public Health, in 2006.

**How chemicals harm the developing brain**

Industrial chemicals pose a far greater threat to the neurological health of a
developing fetuses, infants and young children than to adults, Landrigan noted.
During the early weeks of pregnancy, an embryo forms the cells that eventually
go on to become the brain and spinal cord. Those cells divide, multiply and
migrate, forming millions or even billions of connections with surrounding cells –
and build up the pathways that form the body’s central nervous system.

“If some chemical gets in to the developing brain, whether lead or
methylmercury, and either kills brain cells or disrupts cell division or cell
migration, those connections are lost and the brain is not as complete as it
should have been,” Landrigan said. “And the consequence is a child whose
intelligence is reduced and attention span shortened, etc. The human brain is a
wondrous creation, and extremely complex, but the price of that complexity is
vulnerability.”

Though the researchers acknowledge that increasing rates of conditions like
ADHD and autism are partially due to increased awareness about these
conditions, they argue that other factors are also at play.
“We note the increase of later diagnoses of these disorders tracks very nicely with increased production and release into environment of synthetic chemicals over last 40 or 50 years,” Landrigan said. “And then on top of that, there’s the direct evidence we present in [the] paper showing these particular chemicals have been linked to these problems in children.”

How to curb the effects of industrial toxins
Currently, the United States has no system by which to screen the potential health effects of industrial chemicals before they enter the marketplace – a problem which must change in order to reduce the levels of dangerous toxins in the environment, according to Landrigan.

“That’s the first thing, calling for proper chemical testing,” Landrigan said. “There is bipartisan legislation currently in Congress introduced by the late Senator Lautenberg and Senator (David) Vitter and they said, ‘This is a nonpartisan issue, we all have children, we should do something about it,’ and it’s currently being debated.”

Secondly, Landrigan and Grandjean propose setting up an international agency dedicated to studying the toxicity of chemicals, similar to organizations like the International Agency for Research on Cancer. Landrigan said he believes efforts like these could slowly curb increasing rates of autism and other neurodevelopmental disorders in the United States.

“The short answer is yes [it could curb rates of autism and other disorders], and the longer answer is it would take time,” Landrigan said. “These chemicals are out there, some of them are quite persistent. They aren’t going to disappear overnight, but I think it’s entirely worthwhile for the government to take action.”

However, concerned parents can also take action to reduce exposure in simpler ways – for example, by eating organic or eliminating wall-to-wall carpeting in homes, which can trap chemicals and pesticides.
“Lastly, I talk with parents about what to buy and even in the case of chemicals where evidence for toxicity is not yet solid, like phthalates and BPA, it makes sense to buy products free of chemicals,” Landrigan said. “I say to people, ‘Why take a chance? Why risk your health and your child’s health with exposure to a chemical [with] at least some toxicity when there are safe alternatives available?’”