



Hypoxic-ischemic encephalopathy (HIE) is, at its core, a brain injury. This injury can impact a child cognitively, emotionally, intellectually, and physically. HIE can impact a child physically by damaging neural pathways, including the nerves that send signals to the muscles, in a condition called cerebral palsy. Cerebral palsy can often cause pain, as certain types of cerebral palsy can cause muscle spasms, contractures and limited range of motion, which can make movement difficult and painful. Individuals with hypoxic-ischemic encephalopathy may also need certain surgical procedures or interventions in some cases, and pain can sometimes be a factor after the completion of such interventions. In other instances, pain can be the result of secondary conditions, such as immobility or the inability to reposition the body after a set period of time. Pain commonly results from spasticity, scoliosis, hip dislocation/malpositioning, nerve injury, UTIs, and respiratory, esophageal or intestinal issues. Other considerations include nerve impingements, skin breakdowns, and arthritis due to bone displacement.

Specialized Cases: How to Determine When a Nonverbal Child Is In Pain

One aspect of childcare that can be difficult is determining whether a nonverbal child is in pain, because of two factors: nonverbal children may not be able to identify or describe what they are feeling, and parents may have limited training in interpreting signs of pain. Individuals who can communicate should be encouraged to communicate their pain levels, but for those who cannot report at all, there are behavioral pain assessment tools available, such as the American Society for Pain Management Nursing (ASPMN)'s "[Pain Assessment in the Nonverbal Patient: Position Statement with Clinical Practice Recommendations.](#)"

Other [behavioral pain assessment tools](#) include:

- [FLACC Assessment Tool](#)
- [CHEOPS in Young Children](#)
- [CHIPPS, NIPS and CRIES Scales for Neonates](#)
- [RIPS for Infants](#)
- [PIPPR-R for Neonates](#)



- [COMFORT Behavior Scale](#)

Treating and Managing Pain from Conditions Related to HIE

Parents who are worried about their child's physical pain should consult with a medical professional regarding methods of minimizing pain symptoms and controlling underlying causes of pain. There are several ways that physicians can recommend parents assist in relieving their child's pain, including therapy, medication, or surgical procedures. The kind of treatment a child will receive will depend on their condition's severity and other factors. Pain management is necessary to improve the child's quality of life, as pain can impact all aspects of a child's daily living, including social, physical and cognitive functioning.

The child's primary care physician will likely be the first point of contact for the family. Depending on the root cause of the pain, the physician may refer the child to a specialist, or continue treating the child themselves. They may interface with occupation and/or physical therapists, orthopedists, neurosurgeons, rheumatologists, neurologists, physiatrists, chiropractors or massage therapists to develop a comprehensive pain management approach. Parents may also consider taking their child to a specialized [pain management specialist](#) or clinic.

In many cases, *physical and/or occupational therapy* can help reduce or prevent painful HIE-related physical issues before they worsen, as these therapies can increase strength, range of motion, stretching, endurance, and physical stability. All of these factors can reduce the risk of painful contractures and musculoskeletal deformities.



Medications are the next line of defense against pain. Over-the-counter medications (such as



Tylenol, Motrin or Advil) may be common, though physicians can sometimes provide prescription pain medications that prevent pain receptors in the brain from firing. The type of medication prescribed largely depends on the pain's cause. Children with spasticity-related pain may be prescribed anticholinergics or antispastic medication (such as Baclofen, administered as [ITB therapy](#)), which children with severe cerebral palsy may be given opioids such as oxycodone. Children with seizures may be given anticonvulsants to reduce seizure activity and prevent pain from seizure-related injuries. Other medications for pain-related issues include anti-inflammatories, stool softeners (for constipation-related gastric pain), and antidepressants (to relieve emotional/psychological pain in the form of depression and/or anxiety). All medications must be monitored by a medical professional, including over-the-counter medications, to ensure the child does not have adverse reactions or drug interactions.

Other solutions (which may be appropriate for some people but not others), include:

- [Pulsed radiofrequency](#)
- [Neuromodulation](#)
- [Botox injections](#)
- [Spinal cord stimulators](#) to block pain receptors (experimental)
- Surgery (including orthopedic surgery to making walking less painful, selective dorsal rhizotomy to reduce spastic pain, and spinal surgery to provide trunk stability)