

# BACLOFEN PUMP

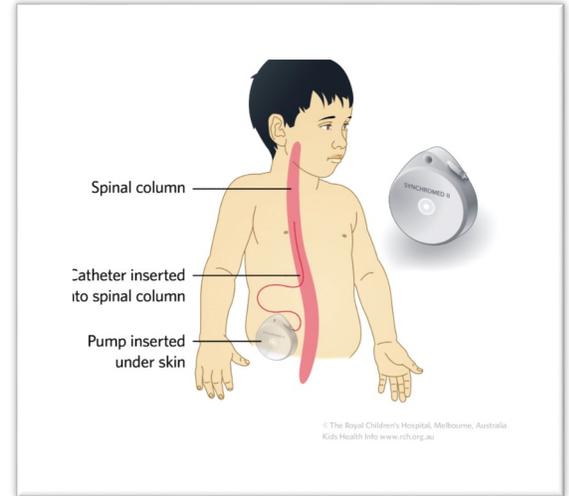
## What is it?

A baclofen pump is a surgically implanted medical device used to reduce symptoms of spasticity that cause uncontrolled tightening of muscles or contractures. Spasticity is a movement disorder that can occur in conditions which affect the brain or the spinal cord. It is characterized by muscle stiffness, tightness, spasms, or clonus. Tight and stiff muscles are painful and make it difficult to carry out activities of daily living. Children with baclofen pumps may be diagnosed with cerebral palsy, spinal cord injury, brain injury, or stroke.

Instead of taking baclofen medication everyday by mouth, a baclofen pump infuses baclofen directly into the intrathecal space. This form of treatment delivers the medication directly to the site using a much smaller dose and without the central nervous system (CNS) side effects of large oral doses like upset stomach, constipation, urinary retention, headaches, and sleepiness.

The baclofen device consists of a pump about the size a hockey puck implanted under the skin (usually in the lower abdomen) with a catheter threaded to the spinal canal. Liquid baclofen is instilled in a reservoir inside the pump and refilled as needed by the healthcare provider using a needle. Depending on the specific medication dose and delivery rate for the child, most medications will last 2-3 months before requiring a refill. The device is operated by a lithium battery and will last approximately 4-7 years before it requires replacement.

The implanted pump has specific alarms that will sound if the device has a problem, needs to be replaced, or requires a medication refill. The tone of the alarm varies based on the urgency of the problem.



## What are potential problems?

Adverse events like baclofen overdose or under-dose can result from mechanical device problems such as internal component failure, pump migration or flipping, or programming error. Other rare but serious complications can occur if the catheter migrates from its original location or if it becomes bent, kinked, or occluded.

After 3 months, an individual becomes dependent on the baclofen. Some healthcare providers will prescribe oral medication as a precaution to treat baclofen withdrawal in the event that ITB therapy is not working. This is considered an emergency and therapy will need to be restored as soon as possible.

| Complication        | Cause                                                                                                                                                                                                                                          | Symptoms                                                                                                                                                                                                                                                        |
|---------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Baclofen withdrawal | Occurs when the dose of baclofen is suddenly decreased or stopped. May result from an empty medication reservoir, programming error, or problem with catheter or battery.<br><br><b>Baclofen withdrawal is considered a medical emergency.</b> | Increase in spasticity, sweating, itching, fever, increased heart rate, increased respiratory rate, increase in blood pressure, or altered mental state including confusion or irritability.<br><br>Can progress to hallucination, seizure, coma, or death.     |
| Baclofen overdose   | Occurs when the dose of baclofen is too much or too fast. May result from human or device error or unsafe combination of intrathecal and oral medication.<br><br>Occurs less commonly than withdrawal.                                         | Symptoms may appear gradually or suddenly.<br><br>Mild symptoms include lightheaded, low muscle tone, sleepiness, and difficulty concentrating.<br><br>Can progress to respiratory depression, slowed heart rate, difficulty awakening, seizure, coma or death. |



Kennedy Krieger Institute

The Specialized Health Needs Interagency Collaboration (SHNIC) program is a collaborative partnership between the Kennedy Krieger Institute and the Maryland State Department of Education.

## Specific health issues for Individualized Healthcare Plan

- Diagnosis and orders for implantable device
- Location of pump, date of surgical placement
- Last medication refill date and/or predicted refill schedule
- Current medication list including PRN medications
- Consideration of team discussion for a possible 504/IEP and Emergency Evacuation Plan
- Skin assessment, location of palpable pump, note any incisions
- Activity and/or positioning restrictions
- Fever protocol for implanted medical device
- Child specific signs and symptoms of baclofen overdose and under-dose
- PRN emergency medications that could include oral baclofen, oral diazepam, rectal diazepam in event of device malfunction
- Communicate with school staff, parents, and provider any changes or concerns about the student's disease or device
- Medical device information (see SHNICs "Medical Device Information Guide")
- Emergency Care Plan (ECP) related to medical needs in the school setting and staff education/training as appropriate for each

### Resources & Manuals

#### **Kennedy Krieger Institute: A guide for baclofen therapy**

[https://www.kennedykrieger.org/sites/default/files/library/13242\\_2018BaclofenPumpTherapyParentBooklet\\_IA1.pdf](https://www.kennedykrieger.org/sites/default/files/library/13242_2018BaclofenPumpTherapyParentBooklet_IA1.pdf)

#### **Medtronic– IB Therapy**

<https://www.medtronic.com/us-en/patients/treatments-therapies/drug-pump-severe-spasticity.html>

#### **University of Michigan: A guide for baclofen pump therapy for the treatment of spasticity**

<http://www.med.umich.edu/1libr/PMR/BaclofenPumpTherapy.pdf>