# Pedmark (sodium thiosulfate)



**Summary**

Cisplatin is a potent chemotherapy drug that is commonly used to treat pediatric cancers such as neuroblastoma, osteosarcoma, and medulloblastoma. While cisplatin is highly effective in treating cancer, it can also cause ototoxicity, which is damage to the inner ear and the hearing system.

Ototoxicity is a common side effect of cisplatin treatment in pediatric patients, with a reported incidence ranging from 20% to 80%. The risk of ototoxicity is dependent on various factors, including the dose and duration of cisplatin treatment, patient age, and pre-existing hearing deficits.

Cisplatin-induced ototoxicity can present in different ways, including tinnitus (ringing in the ears), hearing loss, and balance disorders. The severity of hearing loss can vary from mild to profound and can affect one or both ears. The hearing loss may be temporary or permanent, and the degree of recovery depends on the individual patient and the severity of the damage.

The mechanism of cisplatin-induced ototoxicity is not fully understood, but it is thought to involve damage to the hair cells in the inner ear, which are responsible for detecting sound and transmitting it to the brain. Cisplatin can also cause damage to the auditory nerve and other structures in the ear.

To minimize the risk of cisplatin-induced ototoxicity, various strategies have been investigated, including reducing the dose and duration of cisplatin treatment, administering cisplatin as a continuous infusion, and using otoprotective agents such as sodium thiosulfate or amifostine.

Pedmark (sodium thiosulfate) is indicated to reduce the risk of ototoxicity associated with cisplatin in pediatric patients 1 month of age and older with localized, non-metastatic solid tumors.

- The safety and efficacy of Pedmark (sodium thiosulfate) have not been established when administered following cisplatin infusions longer than 6 hours.
- Pedmark (sodium thiosulfate) may not reduce the risk of ototoxicity when administered following longer cisplatin infusions, because irreversible ototoxicity may have already occurred.

## Definitions

"**Cisplatin**" is a chemotherapy drug that is commonly used to treat various types of cancer, including ovarian, bladder, and lung cancer. However, cisplatin is also known to cause ototoxicity, and can result in hearing loss, tinnitus, and balance problems. Otoprotective agents are often used alongside cisplatin to reduce the risk of ototoxicity.

"**Chemotherapy**" is a type of cancer treatment that uses drugs to kill cancer cells. Chemotherapy drugs work by targeting rapidly dividing cells, which includes cancer cells. However, they can also affect normal, healthy cells in the body, leading to side effects such as hair loss, nausea, and fatigue.

"**Otoprotective agents**" are drugs or compounds that are used to protect the ear from damage caused by ototoxic drugs or chemicals. Otoprotective agents may work by reducing the amount of ototoxic drug that reaches the ear, by reducing oxidative stress and inflammation in the ear, or by promoting the repair of damaged cells in the ear.

"**Ototoxicity**" refers to the harmful effects of drugs or chemicals on the auditory system, including the cochlea, auditory nerve, and other parts of the ear. Ototoxicity can result in hearing loss, tinnitus, and balance problems.

## Medical Necessity Criteria for Authorization

The Plan considers **Pedmark (sodium thiosulfate)** medically necessary when **ALL** of the following criteria are met:

1. The member is a pediatric patient between 1 month of age and 18 years of age; ***AND***
2. The member is being treated for a localized, non-metastatic solid tumor; ***AND***
3. The member is receiving a chemotherapy regimen that includes cisplatin; ***AND***
4. Individual cisplatin doses will be infused over 6 hours or less.

**If the above prior authorization criteria are met, the requested medication will be approved for 12 months.**

## Experimental or Investigational / Not Medically Necessary

Pedmark (sodium thiosulfate) for any other indication or use is considered not medically necessary by the Plan, as it is deemed to be experimental, investigational, or unproven. Non-covered indications include, but are not limited to, the following:

- for the treatment of adults or in ovarian cancer
- for the treatment of acute cyanide toxicity
- in metastatic solid tumors or in patients receiving high-dose carboplatin
- when administered following cisplatin infusions longer than 6 hours. Pedmark (sodium thiosulfate) may not reduce the risk of ototoxicity when administered following longer cisplatin infusions, because irreversible ototoxicity may have already occurred.

## Applicable Billing Codes (HCPCS/CPT Codes)

| **CPT/HCPCS Codes considered medically necessary if criteria are met:** | |
|---|---|
| *Code* | *Description* |
| 96365 | Intravenous infusion, for therapy, prophylaxis, or diagnosis (specify substance or drug); initial, up to 1 hour |
| 96374 | Therapeutic, prophylactic, or diagnostic injection (specify substance or drug); intravenous push, single or initial substance/drug |
| J0208 | Injection, sodium thiosulfate, 100 mg |

| ICD-10 codes considered medically necessary if criteria are met: | |
|---|---|
| *Code* | *Description* |
| T45.1X5A | Adverse effect of antineoplastic and immunosuppressive drugs, initial encounter |
| T45.1X5D | Adverse effect of antineoplastic and immunosuppressive drugs, subsequent encounter |
| H91.01 | Ototoxic hearing loss, right ear |
| H91.02 | Ototoxic hearing loss, left ear |
| H91.03 | Ototoxic hearing loss, bilateral |
| H91.09 | Ototoxic hearing loss, unspecified ear |

## References


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3. Freyer DR, Chen L, Krailo MD, et al. Effects of sodium thiosulfate versus observation on development of cisplatin-induced hearing loss in children with cancer (ACCL0431): a multicentre, randomised, controlled, open-label, phase 3 trial. Lancet Oncol. 2017;18(1):63-74. doi:10.1016/S1470-2045(16)30625-8
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6. Romano A, Capozza MA, Mastrangelo S, Maurizi P, Triarico S, Rolesi R, Attinà G, Fetoni AR, Ruggiero A. Assessment and Management of Platinum-Related Ototoxicity in Children Treated for Cancer. Cancers (Basel). 2020 May 17;12(5):1266. doi: 10.3390/cancers12051266.
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## Clinical Guideline Revision / History Information

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