

Sudden Sensorineural Hearing Loss Standard Procedure for the MHS

Guidance for Otolaryngology

Recommendations from the
Defense Health Agency
Hearing Center of Excellence

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Background

The American Academy of Otolaryngology-Head and Neck Surgery (AAO-HNS) Foundation published a clinical practice guideline (CPG) in March of 2019 that defined sudden sensorineural hearing loss (SSNHL) as:

- An acute sensorineural loss of hearing over 72 hours
- A decrease of at least 30 decibels (dB) in three (3) consecutive frequencies
- Audiogram compared to a prior audiogram or the opposite ear's thresholds.¹

Reported incidences of SSNHL range from 5 to 20 per 100,000 persons, but this is likely an underestimation as many patients who spontaneously recover may not seek medical attention.^{2,3,4,5} Proper diagnosis of SSNHL remains challenging as it is often idiopathic, with no identifiable cause in 71-90% of cases.^{3,5,6,7}

The AAO-HNS Foundation CPG discusses a variety of treatment options, to be determined by the treating otolaryngologist.

Proposed options	Discouraged options
<ul style="list-style-type: none">■ Oral steroids■ Intratympanic (IT) steroids■ Combination of oral and IT steroids■ Hyperbaric oxygen	<ul style="list-style-type: none">■ Antivirals■ Thrombolytics■ Vasoactive substances

Adherence to the treatment guidance on SSNHL found in this CPG can aid in standardization, to a certain extent, and foster value for both the patient and healthcare system. Quality of patient care is of increasing importance in the US healthcare system and will continue to frame important discussions on healthcare utilization and delivery.

Diagnosis in Active Duty Service members is particularly difficult due to the high rates of sensorineural hearing loss secondary to acoustic trauma and chronic hazardous noise exposure. A recent study by the Hearing Center of Excellence demonstrated that, within the Military Health System, 27% of the patients diagnosed with SSNHL either failed to meet criteria or were misdiagnosed.⁸

Upon completion of the study, several clinical gaps in the diagnosis and treatment of SSNHL were identified for primary care (PC), emergency department (ED), otolaryngology (ENT), and audiology (Aud).

Specialties	Gap
PC, ED	Recognition of signs & symptoms; knowledge of referral criteria
All specialties	Understanding of required documentation, diagnosis coding, and procedural coding for treatment
ENT	Standardized steroid dosage (oral and IT)
AUD	Standardized documentation of word lists used for word recognition testing

Further Reading

For a case review, overview of existing guidelines, and clinical recommendations, please refer to the following sources.

- Rauch, 2008. Full text is available at <https://www.nejm.org/doi/pdf/10.1056/NEJMcp0802129>.
- 2019 CPG. Full text is available at <https://www.ncbi.nlm.nih.gov/pubmed/31369359>.

Otolaryngology Confirmation of SSNHL

1. After diagnosis is confirmed, clinicians should evaluate patients for retrocochlear pathology by obtaining a magnetic resonance image (MRI) (preferred, within 30 days of diagnosis), auditory brainstem response (ABR), or close audiometric follow up.
2. Clinicians may offer oral corticosteroids as initial therapy. The greatest spontaneous improvement in hearing occurs in the first 2 weeks, with little benefit after 4 to 6 weeks. The recommended steroid of treatment is Prednisone 1 mg/kg/d in a single (not divided) dose. Usual maximal dose of 60 mg/d with a duration of 7-14 days and a taper over the same time period. Perform an audiogram at completion of treatment course and at delayed intervals.
3. If clinicians choose to use transtympanic steroid injection as either an initial or salvage therapy after failed oral prednisone, the following doses and frequencies are recommend:
 - Dexamethasone 24 mg/ml (compound, see attached formula)
 - Methylprednisolone 40 mg/ml
 - Use of a 27 gauge 1.5 inches (Monoject Hypodermic Polypropylene Hub Needle, Barcode: 476670, Item ID: 6515011805160) vs a 1.25 inches
 - Inject 0.4 ml to 0.8 ml every 3 to 7 days for a total of 3 to 4 sessions
 - Audiogram before each session and after completion of treatment course
4. Clinical documentation should include drug name and concentration.
 - Current procedural terminology (CPT) Code for transtympanic injection: CPT 69801 (inner ear surgery labyrinthotomy transcanal)

Clinicians should not routinely prescribe antivirals, thrombolytics, vasodilators, vasoactive substances or antioxidants to patients with SSNHL.

Coding Guidance

Specialty	Code	Definition
Primary Care	H91.90	Unspecified hearing loss
ENT and Audiology (after audiometric confirmation)	H91.20	Sudden idiopathic hearing loss – unspecified ear
	H91.21	Sudden idiopathic hearing loss – right ear
	H91.22	Sudden idiopathic hearing loss – left ear
	H91.23	Sudden idiopathic hearing loss – bilateral

Patient Information

Standardized patient information based on the clinical practice guidelines is available from the AAO-HNS Foundation and can be found in Appendix A of this document.

Metrics for Implementation

The above standard protocol for the evaluation and treatment of SSNHL can lead to better understanding of treatment outcomes and cost to MHS. With the implementation of this protocol, HCE will evaluate certain metrics biennially for all specialties.

Otolaryngology metrics will include:

- ✓ Coding compliance with CPT and ICD-10 codes
- ✓ Clinical documentation that should include dose and drug

Summary of Evidence-Based Statements

Management of Patients with Sudden Hearing Loss (Evidence-Based Statement)	Statement Strength
Diagnosis	
Exclusion of conductive hearing loss (Statement 1)	Strong recommendation
Modifying factors (Statement 2)	Recommendation
Computed tomography (Statement 3)	Strong recommendation against
Audiometric confirmation of idiopathic sudden sensorineural hearing loss (Statement 4)	Recommendation
Laboratory testing (Statement 5)	Strong recommendation against
Retrocochlear pathology (Statement 6)	Recommendation
Shared Decision Making	
Patient education (Statement 7)	Strong recommendation
Treatment	
Initial corticosteroids (Statement 8)	Option
Hyperbaric oxygen therapy (Statement 9)	Option
Other pharmacological therapy (Statement 10)	Recommendation against
Salvage therapy (Statement 11)	Recommendation
Follow-up	
Outcomes assessment (Statement 12)	Recommendation
Rehabilitation (Statement 13)	Strong recommendation

Pharmacy Master Formula

Dexamethasone Sodium Phosphate 24mg/ml Otic Preservative-free	12 oz 1 oz 2 oz 4 oz	8 oz 16 oz 32 oz
Product: Dexamethasone 24mg/ml 5ml vial	AMOUNT	
INGREDIENTS		
Dexamethasone Sodium Phosphate powder USP 25G	1.0 GM	
Sodium Citrate granular U.S.P. SOOG	0.3 GM	
Sodium Hydroxide Solution	500ml	1N sol. QS
Sterile Water for injection	10ml vial	QS
STERILE-WATER FREE VIALS	6	

Directions for Compounding

1. The compound should be prepared in a laminar flow hood in a clean room.
2. Using an Acculab scale, weigh or measure each ingredient (tare beaker on scale).
3. Remove beaker from scale and add 24ml sterile water for injection; mix well until dissolved.
4. Check pH of the solution and adjust to pH 7.0 to 8.5 with sodium hydroxide 1N – **if needed**.
5. QS Solution to 30 ml with sterile water for injection.
6. Filter the solution through a 0.22 micron filter into a sterile syringe.
7. Inject 5ml into sterile water-free vials. Seal and label each vial.

Note: OTOLARYNGOLOGY (ENT) USE – SEND ONE VIAL TO BE TESTED FOR STERILITY.

LABELING: Store: BUD of 30 days			
REQUIREMENTS: PROTECT FROM LIGHT- KEEP REFRIGERATED			
Reference: Compound Today formula#2576; Trissel LA.Trissel's Stability of Compound Formulation 4thED179			
DATE	PREPARED BY		CHECKED BY
9 MAY 2014	ARTURO CONTRERAS	DATE	

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Appendix A

American Academy of Otolaryngology-Head and Neck Surgery Foundation

Clinical Practice Guidelines
Patient Information

CLINICAL PRACTICE GUIDELINES

PATIENT INFORMATION

SUDDEN SENSORINEURAL HEARING LOSS (SSNHL) FREQUENTLY ASKED QUESTIONS (FAQS)

WHAT IS CAUSING THE PROBLEM?	The cause of sudden sensorineural hearing loss (SSNHL) is often not clear. It usually is in one ear. You may have other symptoms including dizziness (spinning sensation, balance problems, or vertigo) and ringing (tinnitus) or feeling like your ear needs to pop.
HOW IS SUDDEN HEARING LOSS DIAGNOSED?	The sudden loss in hearing occurs within a 3-day period and is obvious to you. You may also have loud ringing, dizziness, and/or pressure in the ear. You should see a healthcare provider as soon as possible if you have any of these symptoms. Your healthcare provider will complete a physical examination and review your medical history. A hearing test (audiogram) should be obtained by your healthcare provider but other routine lab tests and x-rays are not usually recommended.
WILL MY HEARING COME BACK?	Approximately half of patients with SSNHL recover at least some hearing without treatment. Patients with mild to moderate to severe hearing loss are considered in the "steroid-effective zone" and have a high chance — over 75 - 80% — of recovery with steroid therapy. The earlier that treatment is begun, the better the chances for recovery. Patients with profound hearing loss, which is a complete loss of hearing, patients who experience dizziness (vertigo) with their sudden hearing loss, and individuals above age 65 have a much lower chance of getting their hearing back. In those cases, you and your healthcare provider should discuss aggressive treatments to try to bring your hearing back. Hearing can take up to 6 weeks or more to return, after treatment is finished.
IS THERE ADDITIONAL TESTING NEEDED WITH SSNHL?	Once in a while (less than 1% of the time) SSNHL is due to a benign (non-cancerous) tumor on the nerve that connects the ear to the brain. These tumors are called "vestibular schwannomas." Your healthcare provider may order a magnetic resonance imaging (MRI) scan to look for this tumor if an MRI is safe for you. Another option is a type of hearing test called Auditory Brainstem Response (ABR). However, if the ABR is abnormal, your healthcare provider should recommend an MRI.



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CLINICAL PRACTICE GUIDELINES

PATIENT INFORMATION

SUDDEN SENSORINEURAL HEARING LOSS (SSNHL) FREQUENTLY ASKED QUESTIONS (FAQS)

HOW IS SUDDEN HEARING LOSS TREATED?	There are many treatments for SSNHL. Watchful waiting may be recommended. This is because half of patients may get back hearing on their own — these are usually patients with mild to moderate degrees of hearing loss, but healthcare providers do not currently have a way to predict who will get better without treatment. Initial treatment should be given within 2 weeks and can include steroids in pill form or injected into the ear directly (intratympanic steroid injections), or hyperbaric (pronounced hi-per-bar-ik) oxygen therapy (HBOT) given with steroids. If the first treatments do not work, your otolaryngologist should discuss “salvage therapy.” You may be offered HBOT with steroids, but your healthcare provider should recommend intratympanic steroid injections through the eardrum. The benefits of therapy may include more quick and complete recovery of hearing, but there are also side effects that must be considered when choosing from the available options.
WHAT ARE THE SIDE EFFECTS OF EACH TREATMENT?	Side effects are different with each type of treatment but may include anxiety, pain, dizziness, high blood sugar, high blood pressure, depression, or sleep problems. In head-to-head comparisons, intratympanic injection of steroids causes much fewer side effects than oral steroids. You should talk to your healthcare provider about side effects from any treatment that you are considering.
WHAT ELSE CAN I EXPECT?	Sudden hearing loss can be frightening and may make you feel embarrassed, frustrated, worried, lonely, and even depressed. Talking with a counselor can be helpful. If you have tinnitus (ringing in the ear), it is usually loud and awful at the beginning, but reduces significantly over the first several months and if the hearing comes back up. If you do not experience full hearing recovery, you may want to talk to your otolaryngologist and audiologist about hearing aids or other devices you can use to make hearing easier. You should get a follow-up hearing test (audiometry) within 6 months of your first visit with SSNHL.

SOURCE: Chandrasekhar SS, Tsai Do BS, Schwartz SR, et al. Clinical Practice Guideline: Sudden Hearing Loss (Update). Otolaryngol Head Neck Surg. 2019;161(1_Suppl):[S1-S45].



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