# Educational Intervention for Primary Care Providers on Sudden Sensorineural Hearing Loss Guidelines

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## Introduction

Sudden Sensorineural Hearing Loss (SSNHL)

- Defined as: Hearing loss of 30 dB or greater in at least three frequencies[5] over a period of 72 hours or less[5,]
- Incidence: 1/5,000 persons per year in the United States.[12] Likely underreported[10,12] due to spontaneous resolution in many cases, and lack of recognition of (SNHL) as the primary diagnosis--most present with full or blocked ear[10,12, 14]
- Treatment recommended within 2-4 week from initial onset[12] with high-dose steroids[12]
- Delayed recognition has risk for permanent profound hearing loss[12] which carry psychosocial consequences[4,9,12,16] including loneliness, Isolation, and depression.
- Cost: as much as one million dollars across one's lifetime.[3] Medicare does not pay for hearing aid devices at this time.[13]

Summary/Synthesis of Evidence

- Patients with SHL most often present to PCP's first[7,12,15,16]
- PCP's must distinguish CHL from SNHL[4,6,7,12,15,16]
- Significant practice differences between PCP's and ENT's in identification and management of SSNHL [4,6,7,12,15,16]
- PCP's more likely to misdiagnose or undertreat SSNHL.[11,12,15]
- Implications: Improved PCP knowledge about SSNHL may improve patient outcomes.
- Educational intervention developed for PCP's based on key action statements from AAO-HSNF 2012 SHL guidelines[12]

## Purpose and Aims

**Purpose**:
To determine whether an educational intervention for PCP's in a Southwest outpatient health organization increased knowledge about current guideline recommendations and increased the frequency of identification and appropriate management of SSNHL in adult patients.

**Aim 1:**
Determine the effectiveness of an educational intervention for primary care providers on knowledge about current SSNHL guidelines.

**Aim 2:**
Increase PCP knowledge on SSNHL over a 12-week period

**Aim 3:**
Increase PCP frequency of identification and management of SSNHL over a 12-week period

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## Methods

- **Design**: Single group pre/posttest educational intervention
- **Setting**: Large southwest hospital-affiliated regional outpatient healthcare organization
- **Inclusion Criteria**:
  - Physicians, nurse practitioners, physician assistants
  - Urgent care, family practice, internal medicine
- **Exclusion Criteria**:
  - PCP's with prior otolaryngology experience
  - PCP'S working outside the metro area

**Intervention:**

- Face to face with written handout
- Covered key points of AAO-HNSF SHL guidelines

**Data Collection:**

- Baseline Pre/posttest: novel, 5 item, paper
- 12-week posttest and 4-item survey, Survey Monkey

Table 1
*Sample characteristics for educational intervention participants*

| Variable | Participants (n=30) |
|---|---|
| Provider Credentials, No. (%) | |
| MD | 10 (33.3) |
| DO | 7 (23.3) |
| NP | 7 (23.3) |
| PA | 6 (20.0) |
| Number of Years in Practice, No. (%) | |
| 0-5 | 15 (50) |
| 5-10 | 4 (13.3) |
| 10-15 | 4 (13.3) |
| 15-20 | 1 (3.3) |
| >20 | 6 (20) |
| Practice Type, No. (%) | |
| Family Medicine | 20 (66.7) |
| Internal Medicine | 3 (10) |
| Urgent Care | 7 (23.3) |
| Gender of Provider, No. (%) | |
| Male | 17 (56.7) |
| Female | 13 (43.3) |
| Provider Described Ethnicity, No. (%) | |
| Non-Hispanic/Latino | 23 (76.7) |
| Hispanic/Non-Latino | 2 (6.7) |
| Prefer not to answer | 5 (16.7) |
| Provider Described Race, No. (%) | |
| White | 24 (80) |
| American Indian or Alaskan Native | 3 (10) |
| Two or more races | 1 (3.3) |
| Prefer not to answer | 2 (6.7) |

*Note.* MD = Medical Doctor, DO = Doctor of Osteopathy, NP = Nurse Practitioner, PA = Physician Assistant

## Results

**Demographics**

**Baseline (n=30):** Slightly more males (57%), mostly white, non-Hispanic Latino, majority (67%) family practice

**12-weeks (n=18):** Similar demographics, except more physicians (73%) *Similar to target population*

**Baseline pretest scores (n=30)**

(M=2.87, SD=1.22), Normal distribution

Increased average: 1.83 points, 95% CI (2.26, 1.40); P<0.5,

Paired t-test

**12-week group (n=18)**

Baseline posttest (M=4.72, SD=0.67), 12-week posttest (M=4.4, SD=0.78)

P value = 0.6,

Wilcoxen Signed Ranks

**12-week follow-up survey**

All but 2 (89%): Increased consideration of SSNHL as differential diagnosis

100%: More likely to prescribe high-dosed steroids

67% had not seen a patient with SHL: Half of these report increased referrals to ENT

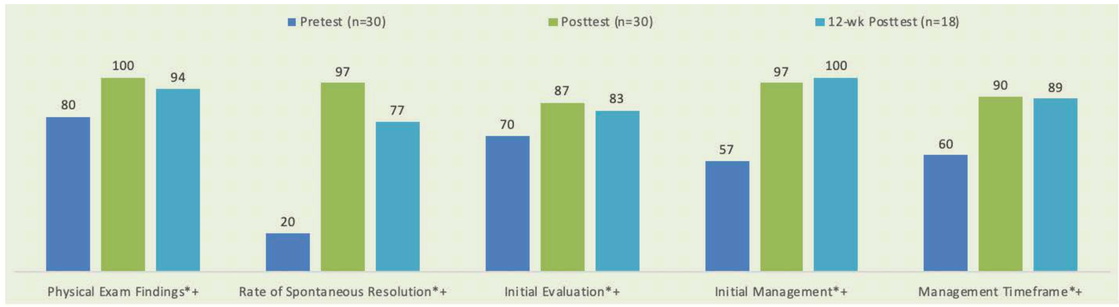


*Figure 1.* Percent correct responses by primary care providers for individual pretest/posttest items just before, just after, and 12 weeks following an educational intervention for sudden sensorineural hearing loss. *denotes significant change in pretest from initial posttest score. +denotes no significant change from initial posttest to 12-week posttest score

## Discussion

**Findings**:

- Educational intervention increased knowledge,
- Knowledge is maintained over time,
- Educating PCP's about SSNHL may reduce risk for permanent profound hearing loss

**Strengths**:

- No current studies investigating PCP intervention about SSNHL.
- Assessed both knowledge increase and meaningful practice change
- Results: increased knowledge that is maintained,, and practice change.
- Potential for significantly improving patient quality of life

**Limitations**:

- Participants: Mostly white, non-Hispanic Latino
- Only 18 completed 12-week survey and posttest
- More physician providers
- Only 5 pre/posttest questions: limited how and what to ask
- One item 80% correct: general knowledge; One item 20% correct: statistic

**Recommendations**

- Validated tool
- Questions to replace outliers
- More questions: assess single concepts
- Larger sample

## Conclusions

Educating PCP's about SSNHL

- May increase knowledge about guidelines, about identifying SSNHL and about recommendations for management
- May increase adherence to guidelines
- May improve patient outcomes by reducing risk for permanent profound hearing loss