

Disseminating evidence-based hearing loss prevention through the electronic health record

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Introduction:

Noise-induced hearing loss is predictable and preventable. Effective, evidence-based interventions exist, but have not been widely disseminated. Electronic health records and standardized terminologies present new opportunities to translate and disseminate evidence-based interventions in routine health care encounters. The purpose of this study was to develop and validate an evidence-based protocol for preventing noise-induced hearing loss, to be disseminated in the electronic health record.

Methods:

A noise-induced hearing loss prevention intervention was selected based on the literature. A team of clinical and scholarly experts translated the intervention using a standardized terminology, the Omaha System. The proposed translation will be further validated in a pilot test and evaluated according to the following criteria: a) correct use of an interface terminology, b) the level of granularity needed for intervention descriptions, c) the accuracy of the intervention descriptions, d) the completeness of the intervention descriptions, and e) the amount of education or training necessary for fidelity to the original intervention content and intent.

Results:

A final evidence-based hearing loss prevention protocol for dissemination will be available on-line for use by any health care clinicians. The current version is shown below in Table 1.



Table 1: Hearing Loss Prevention Protocol using Omaha System Terminology

| Problem: Hearing | | | | | | | | | | | | | | |
|-------------------------|-------------------------------------|--|-------------------------------------|--|---|------------|-------------------------------------|---|------------|-------------------------------------|--|------------|-------------------------------------|---|
| Category | Target | Care Description | | | | | | | | | | | | |
| | | Audiologic screening | | | | | | | | | | | | |
| Surveillance | Screening | <table border="1"> <tr> <td>S</td> <td>Durable Medical Equipment</td> <td>Functional check of audiometer before each use, regular calibrations.</td> </tr> </table> | S | Durable Medical Equipment | Functional check of audiometer before each use, regular calibrations. | | | | | | | | | |
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| Surveillance | Behavior modification | Self-reported use of hearing protection | | | | | | | | | | | | |
| Case management | Medical/dental care | Interpretation of hearing test and referral to provider (e.g. audiologist or physician) | | | | | | | | | | | | |
| TGC | Safety | Long or repeated exposure to noise levels >85 dBA, without proper protection, causes hearing loss | | | | | | | | | | | | |
| TGC | Signs and symptoms physical | Hearing loss from exposure to loud noise is permanent and cannot be recovered. Tinnitus (ringing in the ear) is an early sign of hearing damage. | | | | | | | | | | | | |
| TGC | Signs and symptoms physical | If you have to raise your voice to be heard by someone an arm's length away, you need hearing protection | | | | | | | | | | | | |
| TGC | Screening procedures | Regular hearing tests help with early detection of hearing loss | | | | | | | | | | | | |
| TGC | Supplies | Selecting, fitting, and use of hearing protection equipment | | | | | | | | | | | | |
| | | Use of hearing protection behavior | | | | | | | | | | | | |
| TGC | Behavior modification | <table border="1"> <tr> <td>TGC</td> <td>Signs and symptoms mental/emotional</td> <td>Decreasing barriers to using hearing protection</td> </tr> <tr> <td>TGC</td> <td>Signs and symptoms mental/emotional</td> <td>Increasing benefits of using hearing protection</td> </tr> <tr> <td>TGC</td> <td>Signs and symptoms mental/emotional</td> <td>Improving self-efficacy/confidence in using hearing protection</td> </tr> <tr> <td>TGC</td> <td>Signs and symptoms mental/emotional</td> <td>Improving social norms for using hearing protection</td> </tr> </table> | TGC | Signs and symptoms mental/emotional | Decreasing barriers to using hearing protection | TGC | Signs and symptoms mental/emotional | Increasing benefits of using hearing protection | TGC | Signs and symptoms mental/emotional | Improving self-efficacy/confidence in using hearing protection | TGC | Signs and symptoms mental/emotional | Improving social norms for using hearing protection |
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S=Surveillance

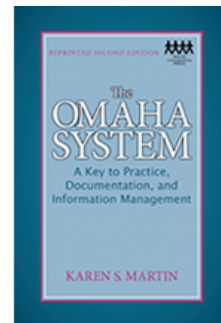
TGC=Teaching, Guidance & Counseling

Discussion:

The Omaha System provides necessary terms for describing the evidence-based intervention. Use of the protocol will provide clinical decision support for delivering quality noise-induced hearing loss prevention during routine health care encounters and generate standardized data that can be used to evaluate care quality and outcomes.

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