Dangerous Decibels®: Community and workplace partnerships

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Improving Worker Safety and Health among American Indians/Alaska Natives: Partnership Workshop
August 17-18, 2015
Aurora, CO

Hearing loss in AI/AN populations

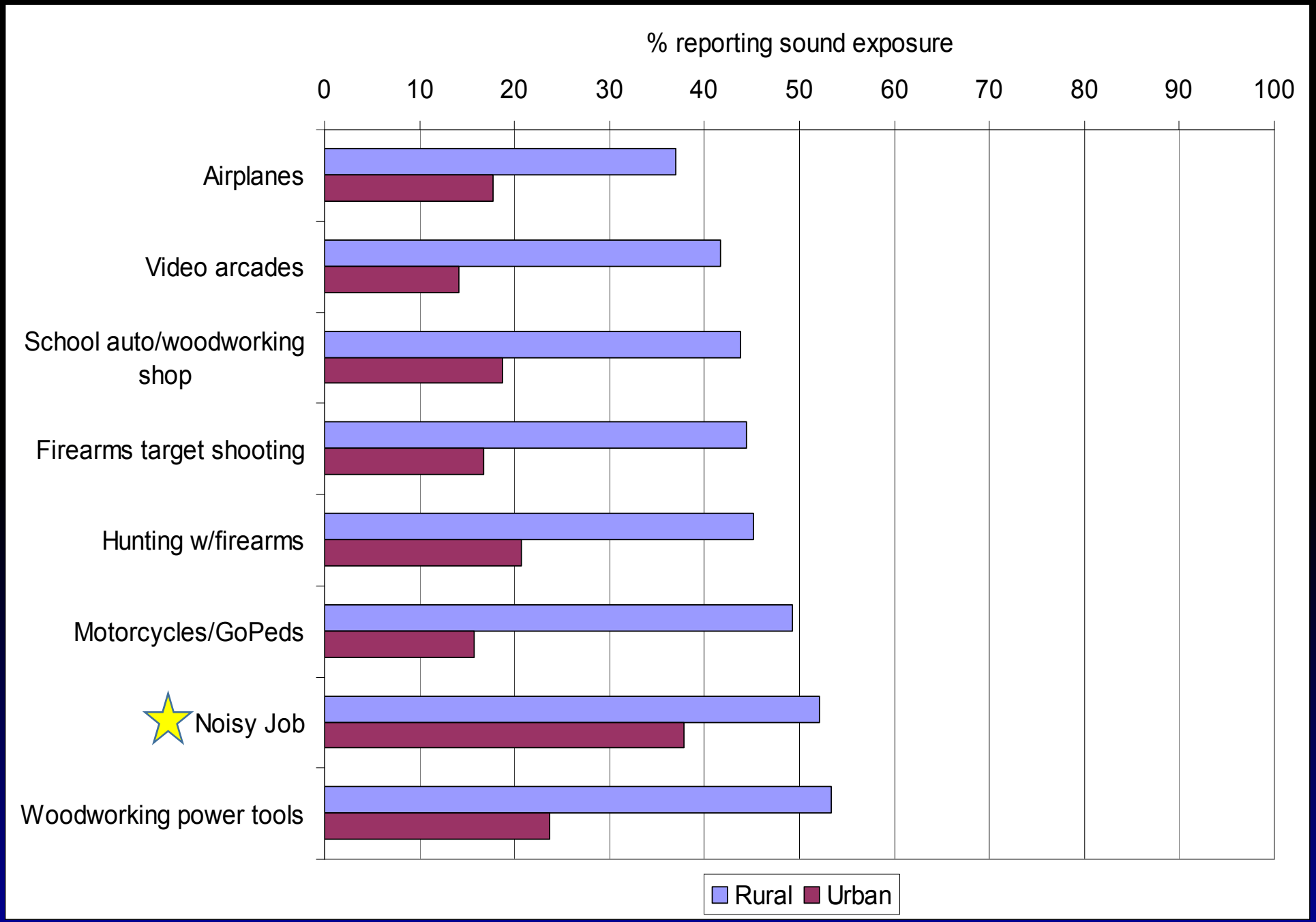
	A little trouble hearing	Deaf or a lot of trouble hearing	Total with problems hearing
Hispanic	3.4	2	5.4
White	14.5	3.7	18.2
Black	8.4	1.4	9.8
AI/AN	**17.4**	**7.1**	**24.5**
Asian	8.6	2.9	11.5

% reporting hearing difficulties

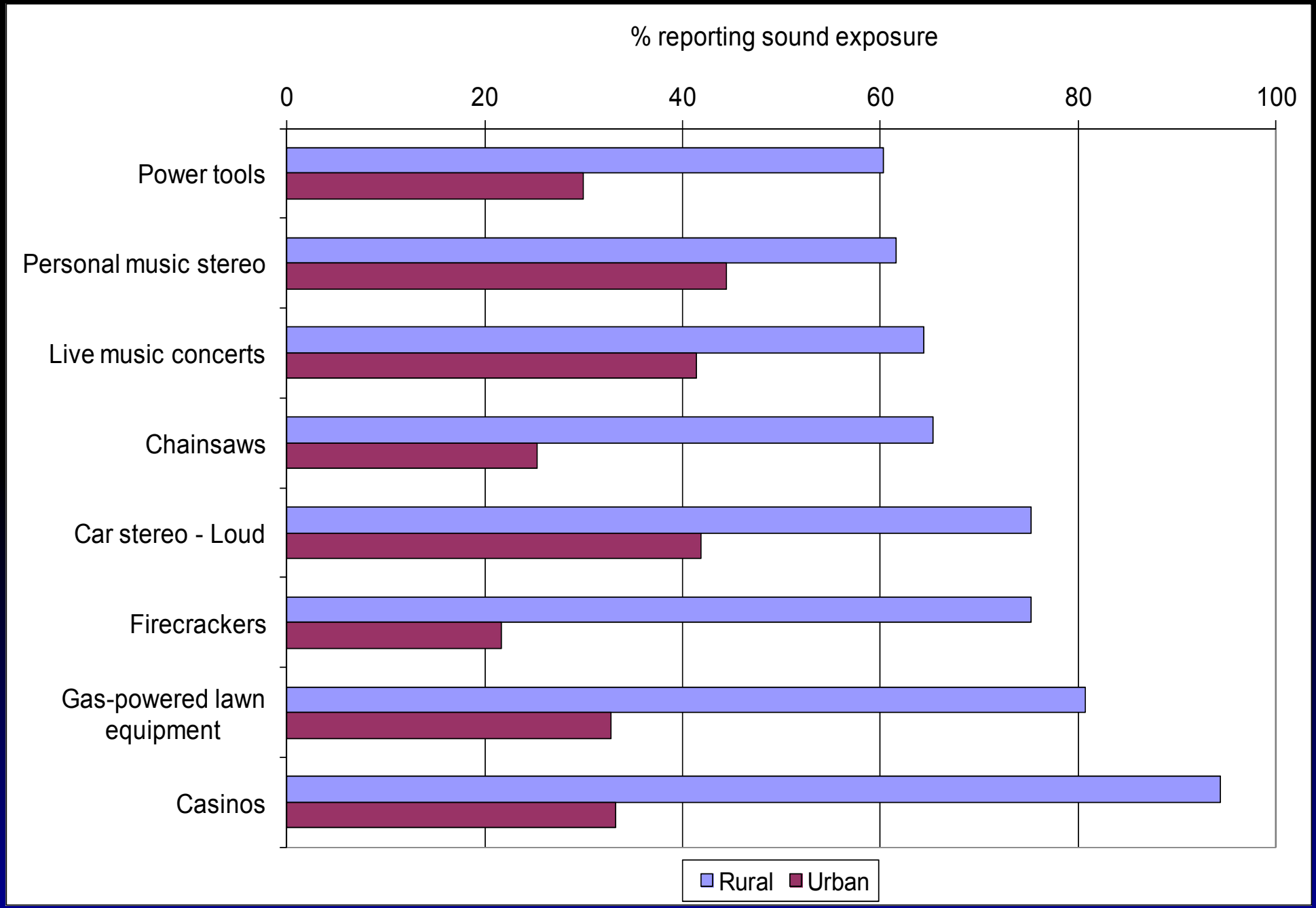
Schoenborn & Heyman, National Health Interview Survey, CDC 2008

WHY?

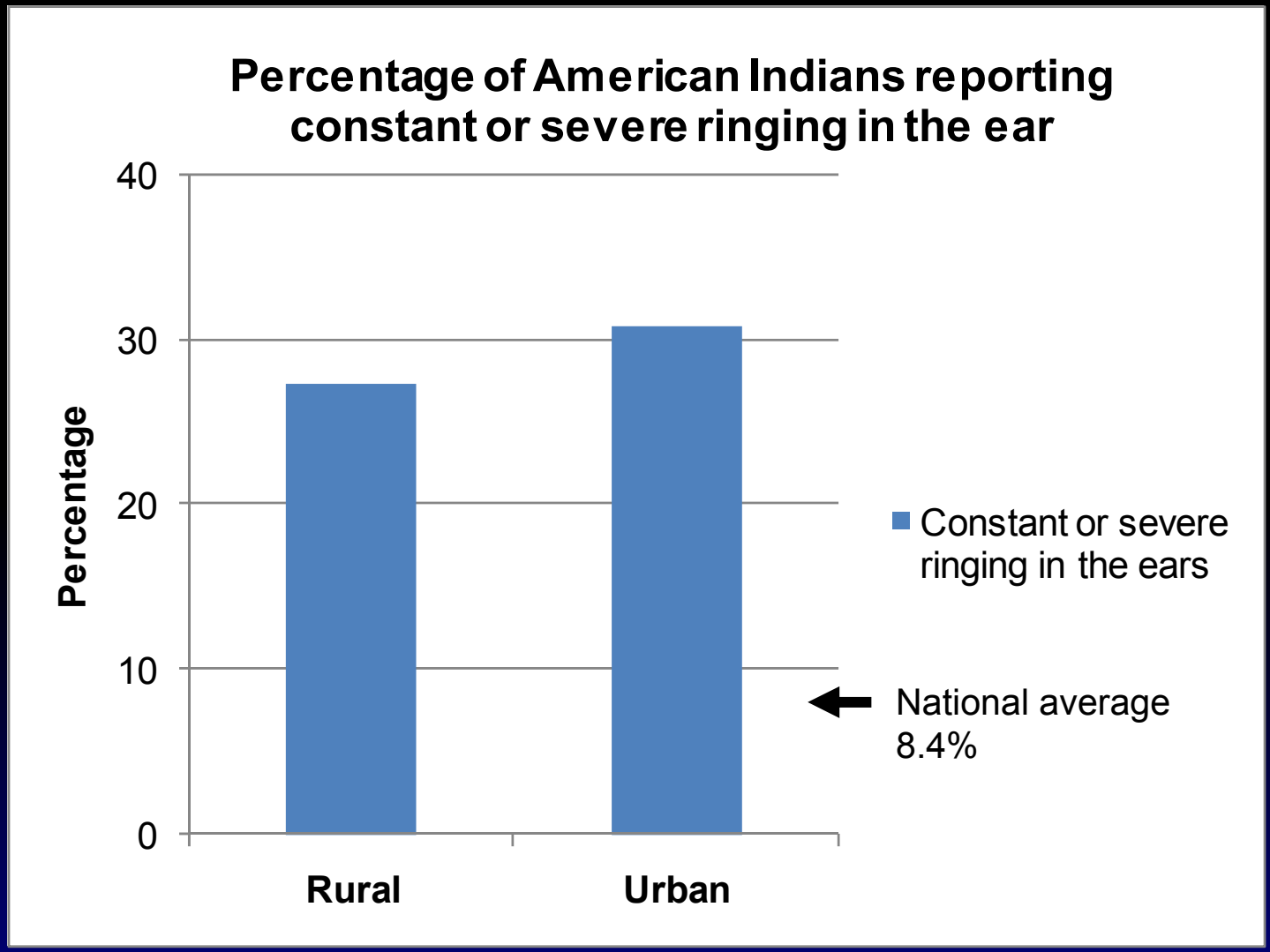
AI/AN reported sound exposures



AI/AN reported sound exposures



Tinnitus in AI/AN populations



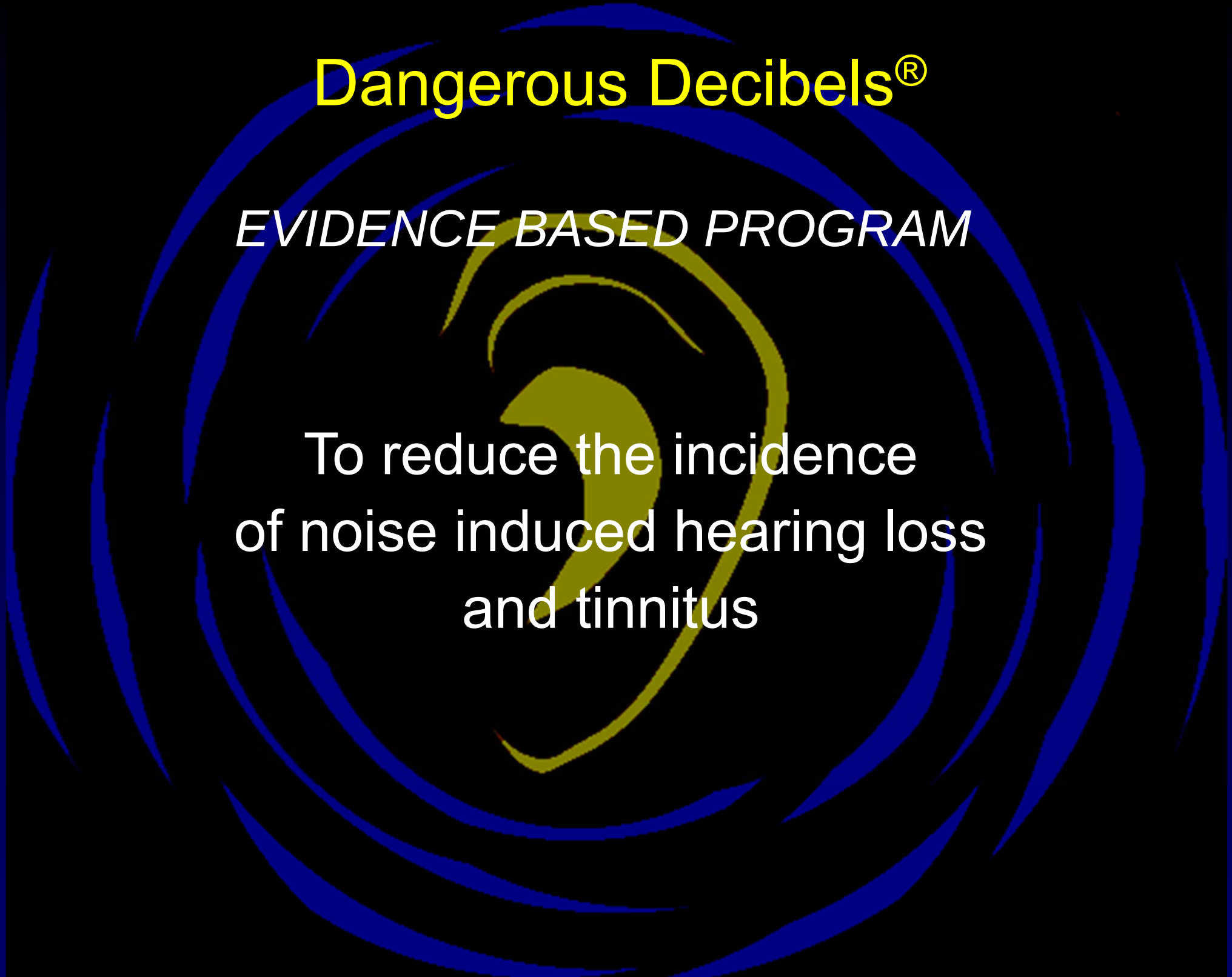
Martin et al. 2009

Exposures to hazardous sound levels are likely to be significant contributors to hearing loss in American Indians

It can be prevented

Dangerous Decibels®

EVIDENCE BASED PROGRAM



To reduce the incidence
of noise induced hearing loss
and tinnitus

To reduce the incidence
of noise induced hearing loss
and tinnitus

HOW?

By changing

knowledge, attitudes, and behaviors

about sound exposure

Partners in public health

Dangerous Decibels: Recognition

SAFE·IN·SOUND
EXCELLENCE IN HEARING LOSS PREVENTION AWARD

National Institute for Occupational Safety and Health
NIOSH

2013 NIOSH
Safe-in-Sound Award
for Innovation

Dangerous Decibels: Support

1999-2013 Private foundation grants (9)

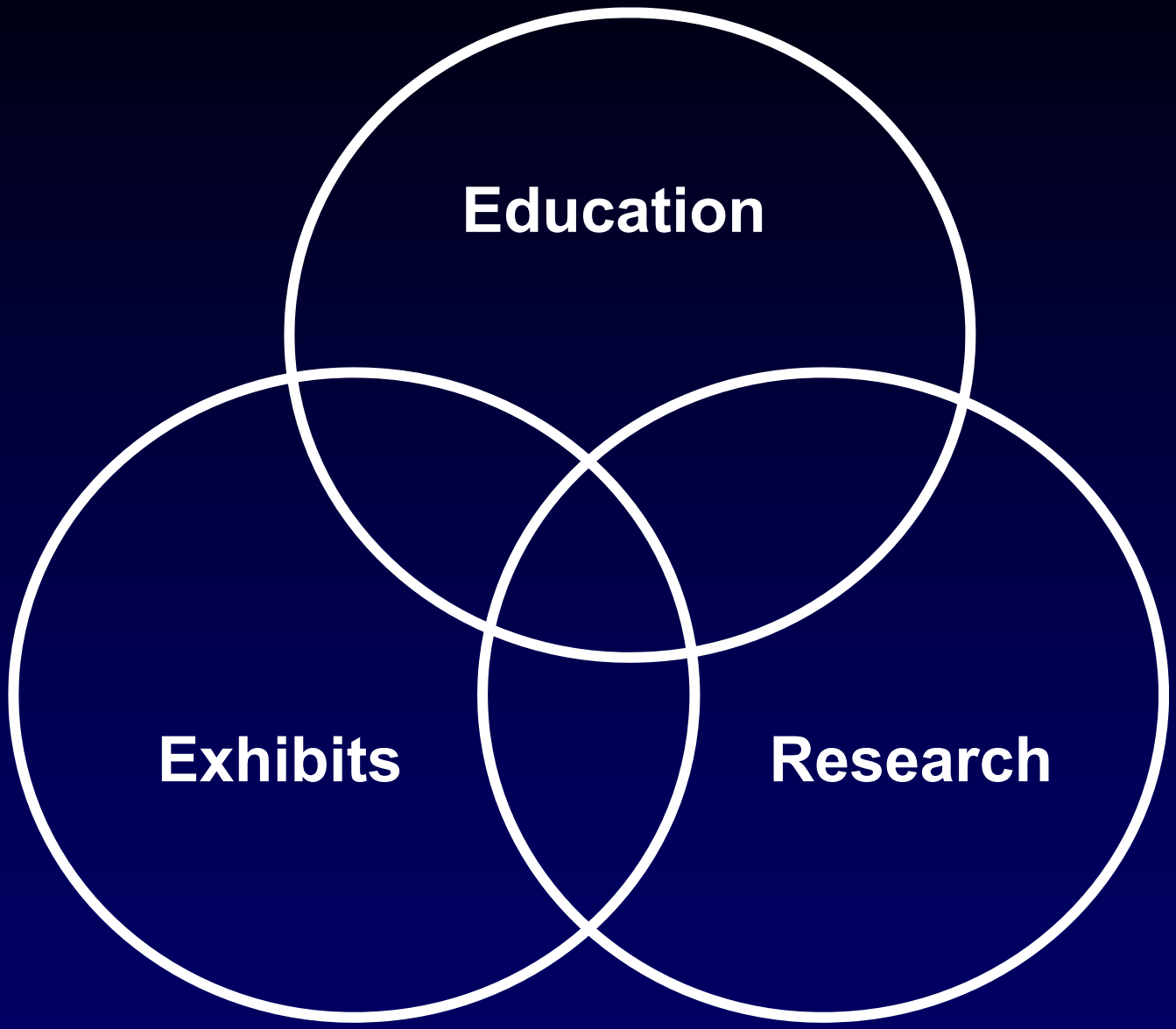
2000 NIH R25 RR15634

2003 NIH R25 DC006431-01

2006 CDC R13 OH008567-01

2006 NIH R21 DC008077-01

2009 CDC U48 DP000024-02


Education
Exhibits
Research

Common underlying educational messages

- What are sources of dangerous sounds?
- What are consequences of exposure to dangerous sounds?
- How do I protect myself from dangerous sounds?

Teaching method:
Inquiry-based learning

"Tell me and I forget,

show me and I remember,

involve me and I understand."

Banchi, H. & Bell, R. The Many Levels of Inquiry.
Science and Children, 46(2), 26-29, 2008

Educate early

Dangerous Decibels® Activities

- OMSI exhibition
- OMSI Science Festivals at county fairs
- K-12 classroom programs
- Online Virtual Exhibit
- Website information
- Educator training
- Public health research
- Jolene

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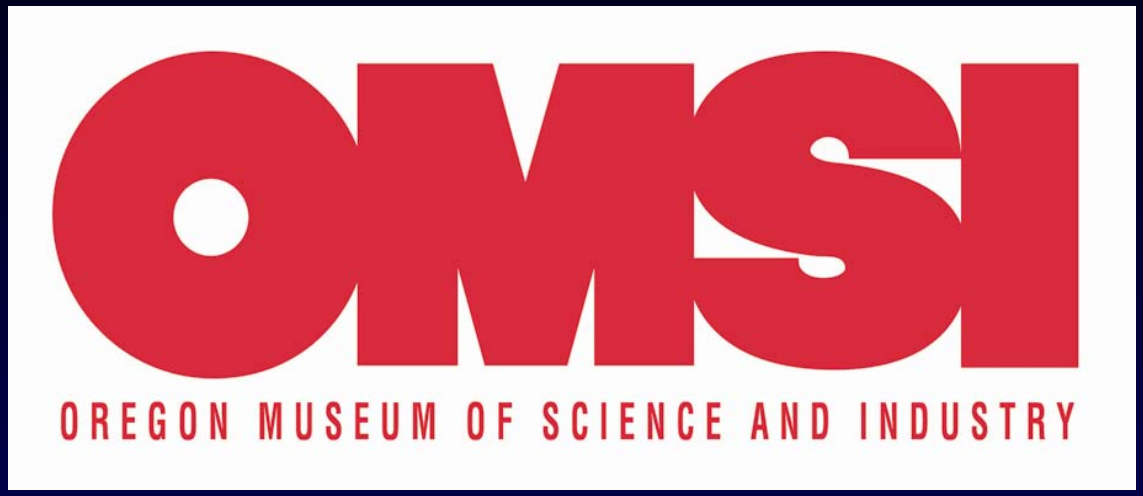
Dangerous Decibels®



- First exhibition in the world dedicated to reducing noise induced hearing loss and tinnitus
- 12 exhibit components - 2000 ft^2 / 186 m^2
- Open June 1, 2002 to May 5, 2011
- Over 5,000,000 visitors

Dangerous Decibels® Activities

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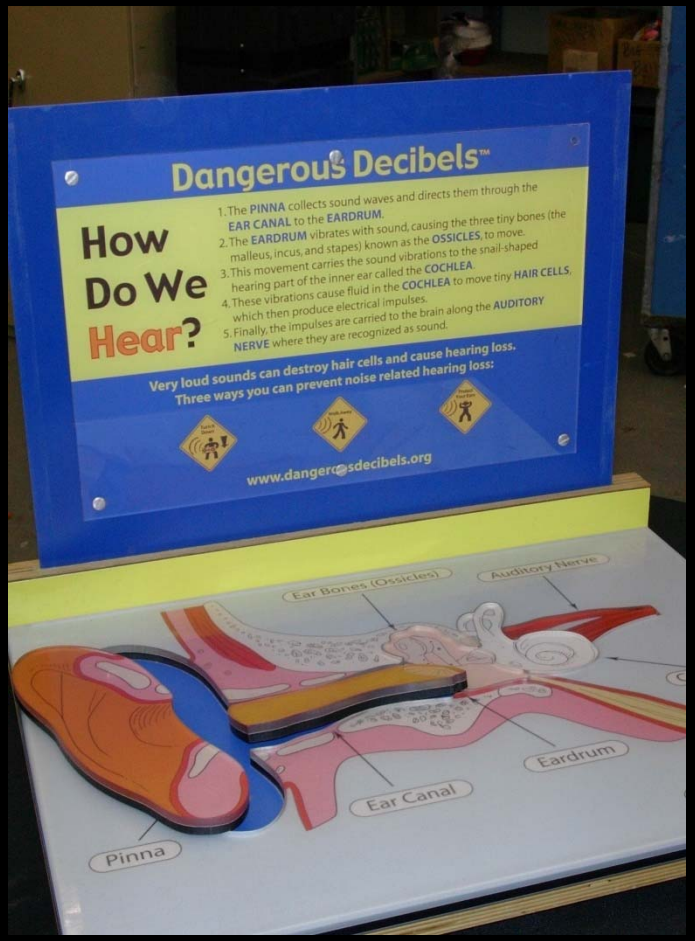

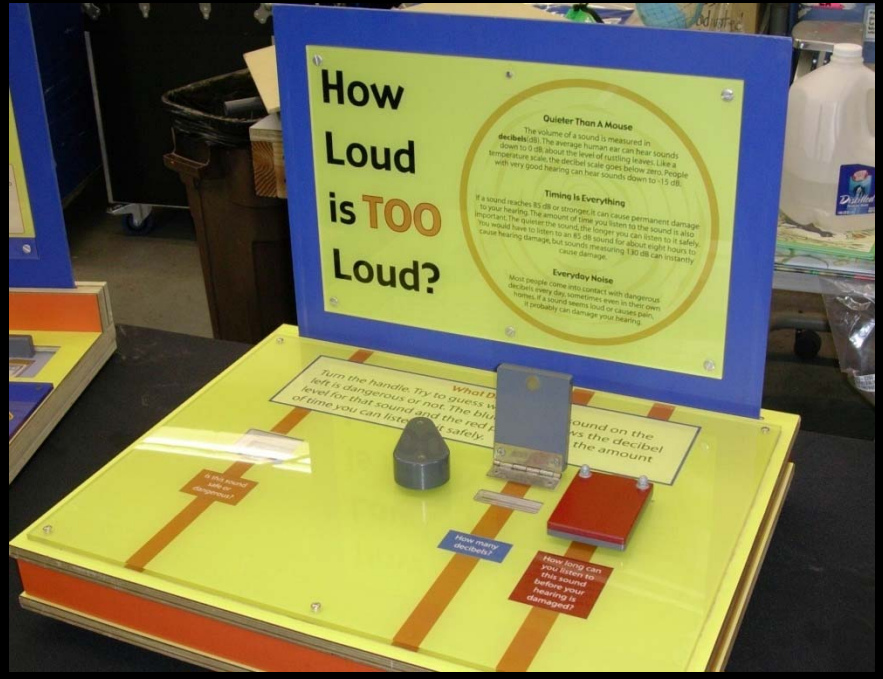

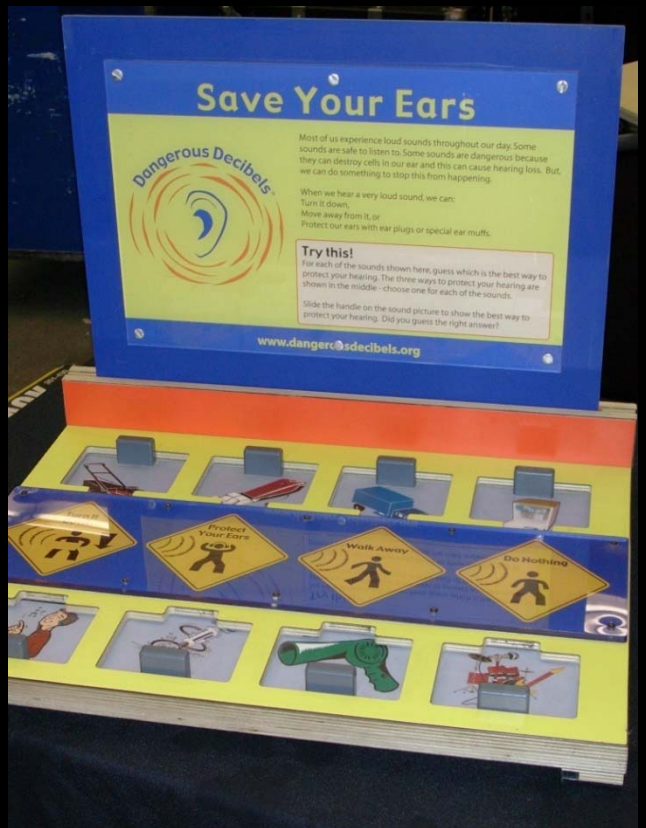

250,000 visitors/year


Dangerous Decibels
Decibels
Time Before Damage Begins
180
140
130
120
110
100
90
85
80
70
60
20
Immediate Damage
Immediate Damage
1 sec.
10 sec.
2 min.
15 min.
2 hrs.
8 hrs.

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Strategies to Protect Young Ears

Classroom Program

- Measuring sound pressure at different distances
- Classifying safe and dangerous sounds
- Modeling hair bundle damage from sound exposure
- Gaining confidence in the use of hearing protection

Self-Efficacy

Self-efficacy – The likelihood of someone using a protective strategy is directly related to their self-confidence with that strategy.

Dangerous Decibels® Activities

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OMSI OHSU

Dangerous Decibels

Virtual Exhibit

- WHAT'S THAT SOUND?
- HOW DO WE HEAR?
- HOW LOUD IS TOO LOUD?
- WHAT IS SOUND?
- SAVE YOUR EARS
- MEASURING SOUND
- ROCK YOUR WORLD
- WHADDA YA KNOW

PLAY WITH HEARING LOSS

PLAYING

CONTINUE

Hearing loss can make it hard to identify even everyday sounds. In this game you will match sounds with pictures of different sound sources. Sound easy? Play What's That Sound and find out!

http://www.dangerousdecibels.org - Dangerous Decibels...

Click any tile
to find out
How L
Too Lo

SCORE
0

Average Rock Concert

Do you think listening to this sound is safe?

YES Listening to this sound is safe.

NO Listening could damage hearing

PREVIOUS ACTIVITY | RETURN TO VIRTUAL EXHIBIT INDEX | NEXT ACTIVITY

Done

Dangerous Decibels® Activities

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Decibel Exposure Time Guidelines

How loud is too loud?

Exposure Time Guidelines

Accepted standards for recommended permissible exposure time for continuous time weighted average noise, according to NIOSH and CDC, 2002. For every 3 dBAs over 85dBA, the permissible exposure time before possible damage can occur is cut in half.

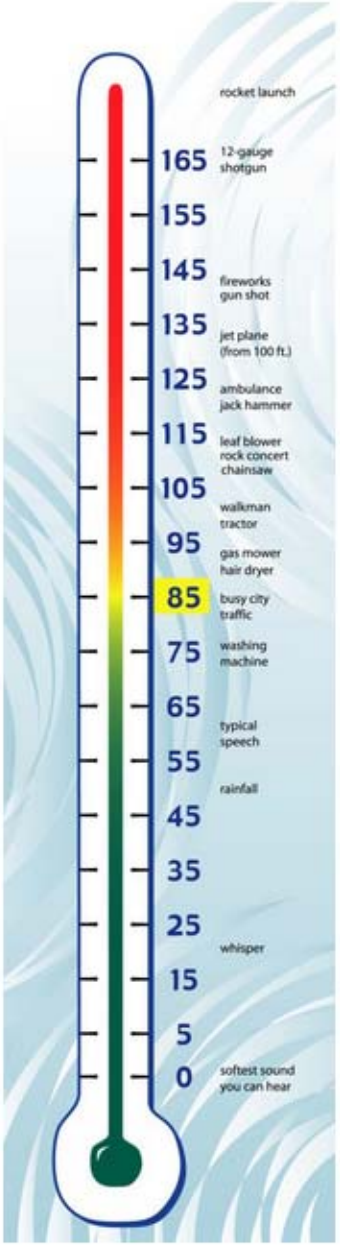
Continuous dB	Permissible Exposure Time
85 dB	8 Hours
88 dB	4 hours
91 dB	2 hours
94 dB	1 hour
97 dB	30 minutes
100 dB	15 minutes
103 dB	7.5 minutes
106 dB	3.75 minutes (< 4 min)
109 dB	1.875 minutes (< 2 min)
112 dB	.9375 min (~ 1 min)
115 dB	.46875 min (~ 30 sec)

The Noise Navigator®: a database of over 1700 noise sources.

Developed by Elliott Berger, MS, Senior Scientist with 3M Occupational Health and Environmental Safety Division.

- Noise Navigator Spreadsheet - http://www.e-a-r.com/pdf/hearingcons/Noise_Nav.xls – see the tabs at the bottom of the page to find sound levels for settings occupational, non-occupational, military, aircraft, etc.
- E.A.R. Hearing Conservation FAQs - http://www.e-a-r.com/hearingconservation/faq_main.cfm (Visit this link for a list of interesting articles and graphics.)

(See item 2 on this list of interesting articles and graphics.)



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Educator Training Workshops: Who attends?

- Museum educators
- High school students
- Undergrad and grad students
- Audiologists – Speech Pathologists
- School nurses
- Basic scientists
- Physicians
- Administrators
- Industrial hygienists
- School teachers
- Corporate staff
- School hearing screening techs
- Public and community health

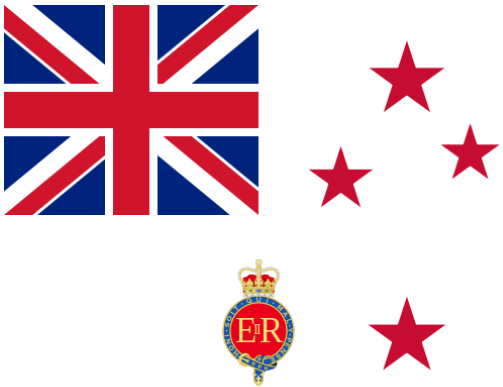

Spokane 2015
Indian Health Services

NEW ZEALAND
DEFENCE FORCE
TE OPE KAATUA O AOTEAROA

4 individuals from the NZDF attended training in November 2011

NEW ZEALAND
DEFENCE FORCE
TE OPE KAATUA O AOTEAROA

March 5, 2012 – Training began



NEW ZEALAND
DEFENCE FORCE
TE OPE KAATUA O AOTEAROA

New Zealand
POLICE
Ngā Pirihimana o Aotearoa

Fonterra
Dairy for life

New Zealand Railways

Nestlé

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Research activities

- Outcomes evaluations
- NIHL in the public
- Health communication strategy effectiveness


Dangerous Decibels™
A measurement of sound
written ~ 8th grade
oral ~ 4th grade

Communities As Change Agents

It is not only important to educate,
and offer hearing protection skills,
It is important to change the local culture,
to change the social norm in the community

Dangerous Decibels can be applied to a variety of communities

- Schools
- Workplaces
- Military Services
- Hunting Groups
- Farming Collectives
- Clubs
- Musicians Groups
- And so many more

Dangerous Decibels has been working in several tribal communities

- to change the local social norms around hearing loss prevention

OHSU Center for Healthy Communities has a 5 year, CDC funded, research grant

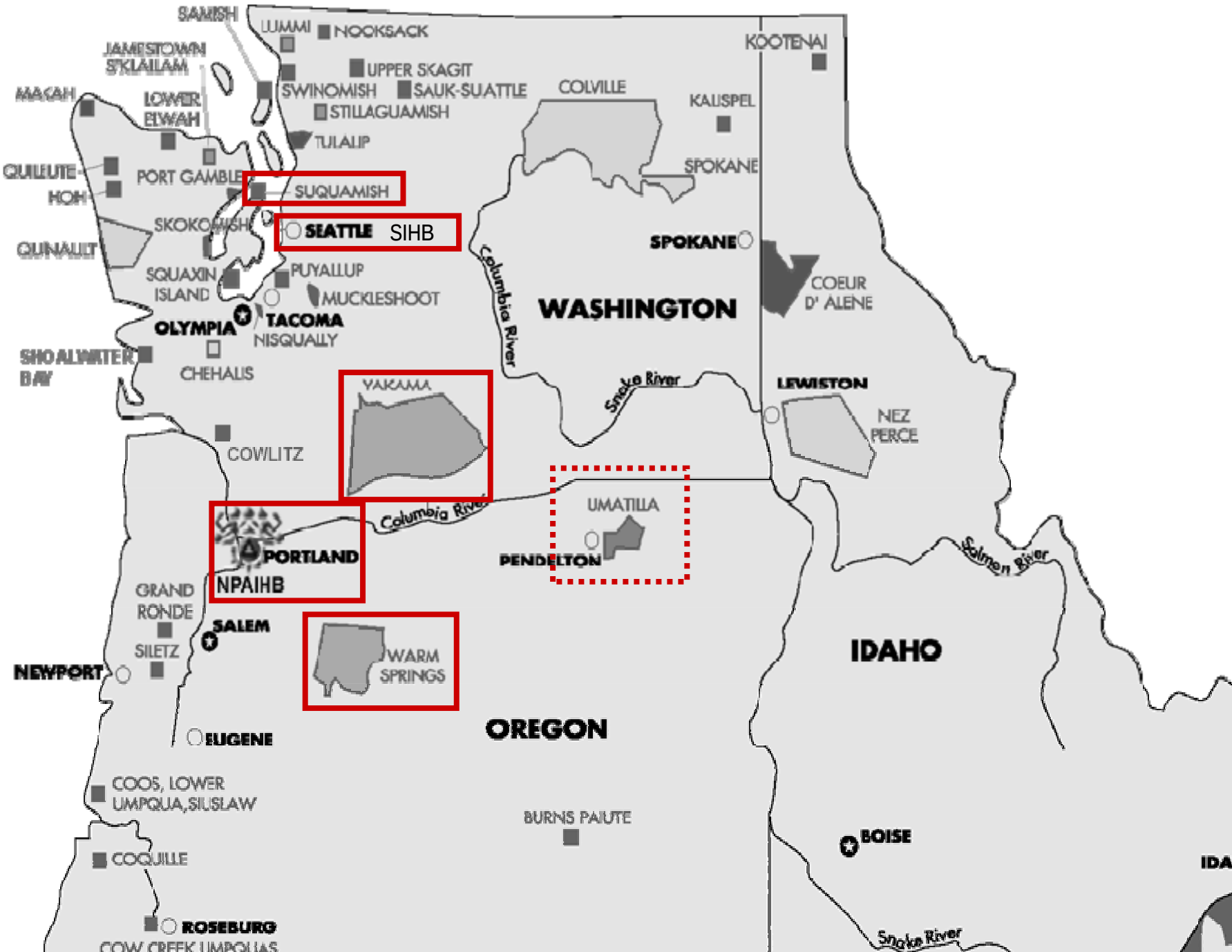
- To evaluate the effectiveness of hearing health promotion interventions in 3 tribal communities in the Pacific Northwest
- And to ensure that it is self-sustaining

Native American tribes have:

- Strong community ties and family links
- Live close to each other
- Common media venues
- Strong Elders influence
- Common cultural values
- Common noise exposures

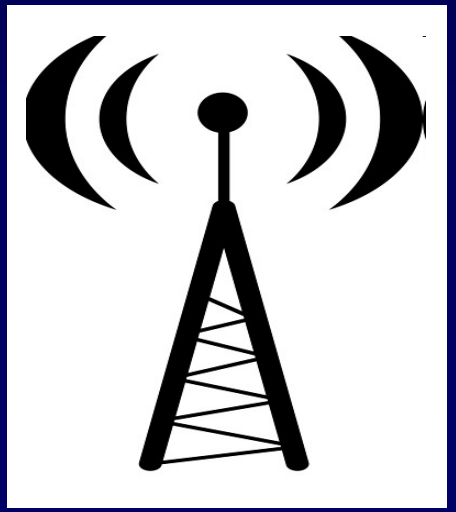
We partnered with each Tribe

1. Established a connection to each community
2. Presented to tribal leadership, for go- ahead
3. Met with interested community members to advise us on program strategy


SAMISH
LUMMI
NOOKSACK
JAMESTOWN S'KLALLAM
UPPER SKAGIT
MAKAH
LOWER ELWAH
SWINOMISH
SAUK-SUIATTLE
STILLAGUAMISH
TULALIP
QUILEUTE
PORT GAMBLE
SUQUAMISH
HOH
SEATTLE
SIHB
QUINAULT
SQUAXIN ISLAND
PUYALLUP
MUCKLESHOOT
OLYMPIA
TACOMA
NISQUALLY
SHOALWATER BAY
CHEHALIS
YAKAMA
COWLITZ
PORTLAND
NPAIHB
GRAND RONDE
SALEM
SILETZ
NEWPORT
WARM SPRINGS
EUGENE
COOS, LOWER UMPQUA,SIUSLAW
COQUILLE
ROSEBURG
COW CREEK UMPQUAS
BURNS PAIUTE
PENDELTON
UMATILLA
KOOTENAI
COLVILLE
KALISPEL
SPOKANE
SPOKANE
COEUR D' ALENE
WASHINGTON
OREGON
IDAHO
LEWISTON
NEZ PERCE
BOISE
Columbia River
Snake River
Columbia River
Salmon River
Snake River

Local Media was approached

- To publish hearing health related articles and interviews:
- For print, broadcast, and online sites
- To try to set the agenda in the community



Stories in the local newspaper

Oct. 20 event will show off Listen for Life skills

PENDLETON - The Listen for Life campaign is coming to the Reservation in October. They will be teaming up with the tribal community to help prevent hearing loss and tinnitus associated with exposure to loud sounds. Program leaders will present a hands-on program called Dangerous Decibels to fourth and fifth grade students at Washington and McKay elementary schools in mid-October. Students will learn about protecting their hearing and have fun. Then on Oct. 20 they will demonstrate their new skills at a large community gathering in the Longhouse. The entire tribal community is invited to join the fun and enjoy dinner.

Sol Van Pelt

Hearing loss and tinnitus can occur at any age. Teaching kids skills to protect their hearing that they can use throughout their lives will offer them the best chance to be able to "Listen for Life." Many tribal members on the Reservation believe that loud sounds are affecting their hearing.

Sol VanPelt, age 22, has yet to experience the effects of noise-induced hearing loss but he suspects certain members of his family are starting to. He notices it mostly in older members of his family, especially when he is talking to his Dad. VanPelt said he never gave much thought to protecting his hearing or the possibility of living with permanent hearing damage, and he said he regularly engaged in loud activities without hearing protection, such as hunting, and using power tools. VanPelt says kids his age do not wear a lot of hearing protection, and they "don't think about the future."

Even though "kids around here are stubborn sometimes," Van Pelt thinks that with the right teaching approach some kids will change their listening behavior. He believes that the Listen for Life Program will be beneficial to younger kids in the community. He thinks that the younger the audience the larger the impact because kids are starting to get ipods and other electronics at earlier and earlier ages.

Bette McLean

Bette McLean is a member of the Tribal Health Commission. McLean and her husband both have permanent hearing damage. She suffered with a hearing condition for years without knowing its name, a form of damage that can be described as ringing or a buzzing in the ear.

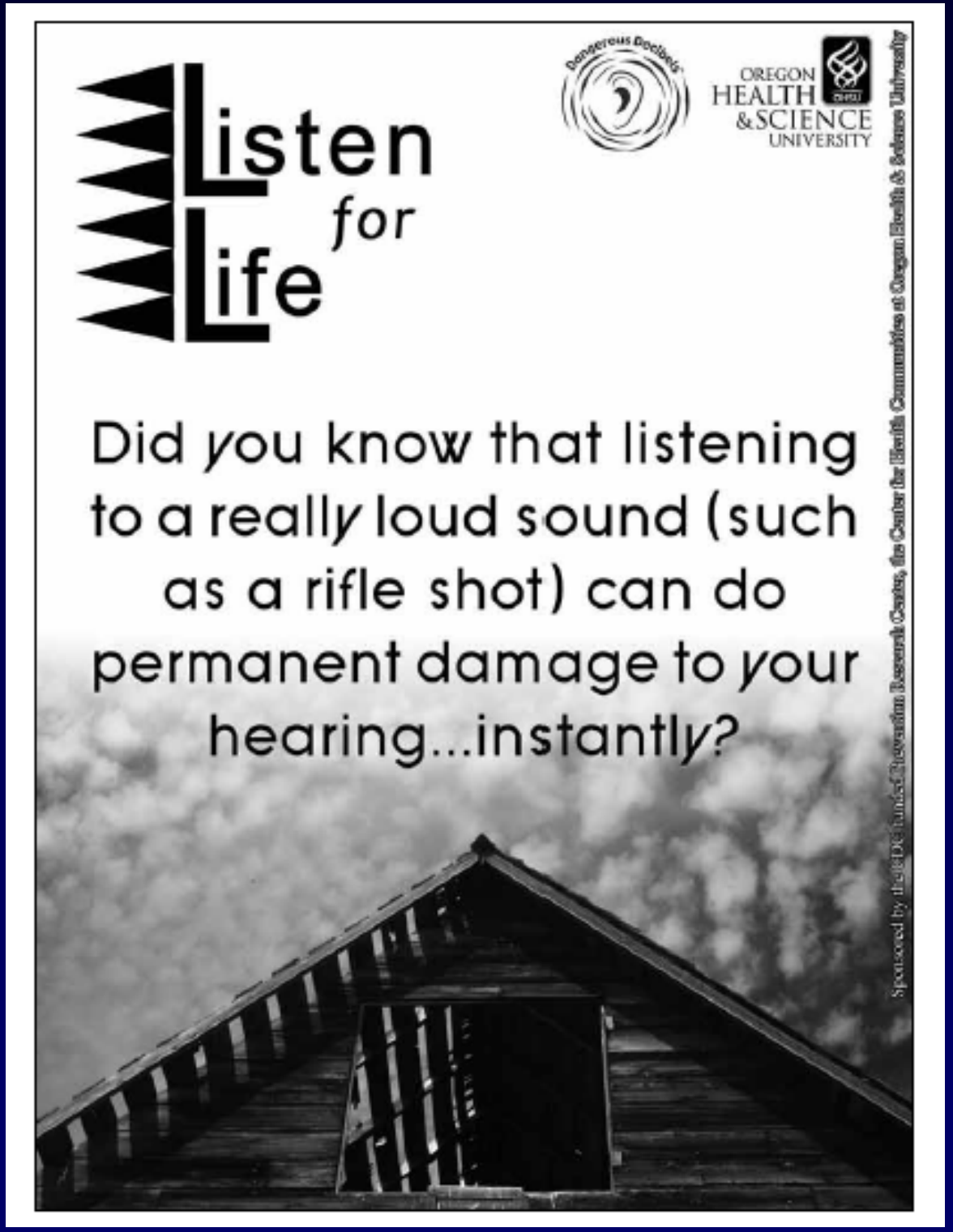
"Then I read something about tinnitus," she explained, and she knew right away that this was her problem.

McLean worries about kids' hearing. McLean says it is important to teach younger kids about hearing loss and hearing loss prevention, before they "have the ipods like their older brothers and sisters have," and before they are "driving with their car stereos cranked up."

McLean believes that the Listen for Life program will be a success in the schools because fourth and fifth grade kids are at an impressionable age.

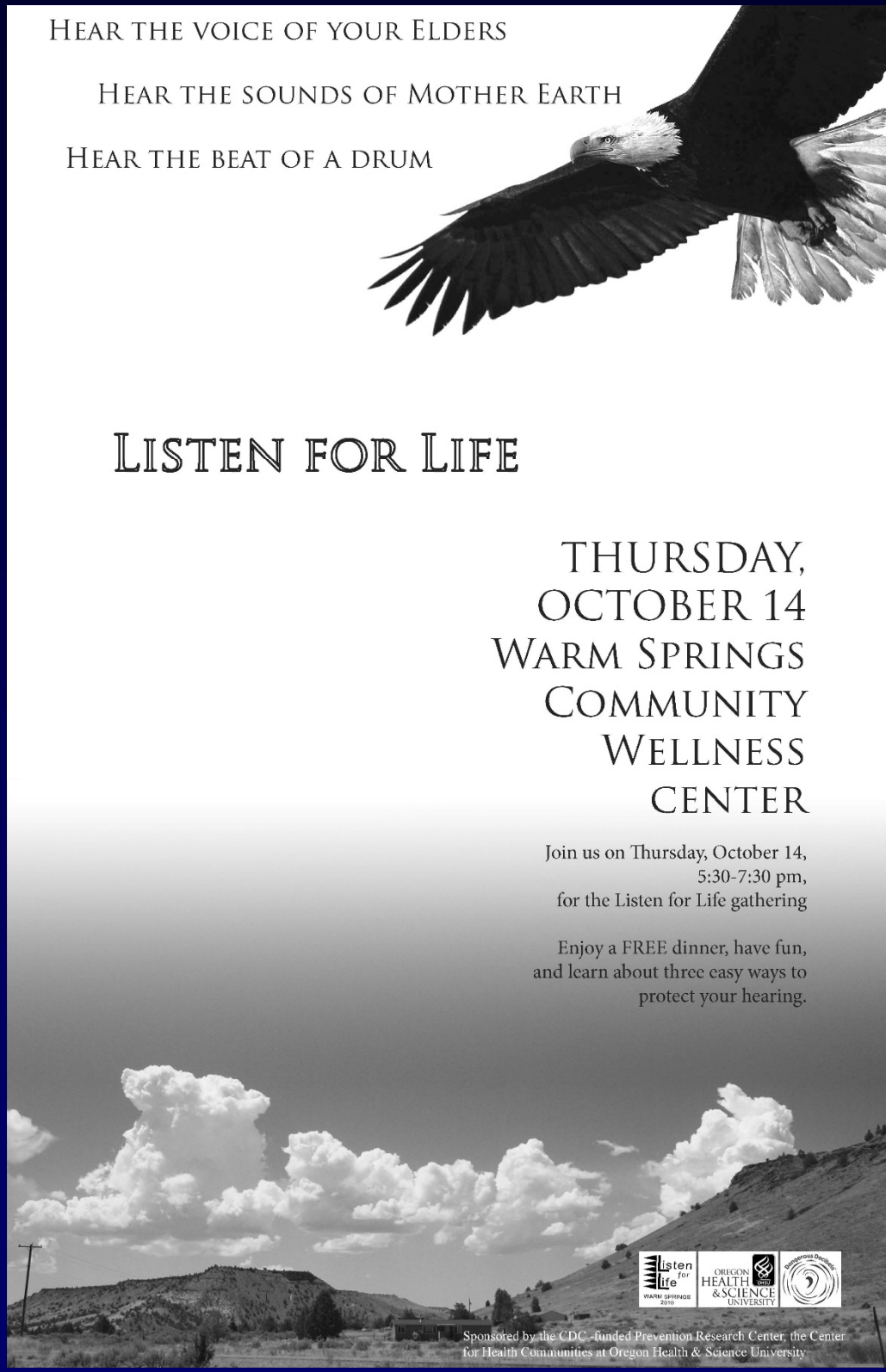
"They are so enthusiastic about things. They will go home and tell folks, 'look what I learned!'" She hopes that if kids in the community learn about hearing loss prevention early that they will be able to avoid permanent hearing loss in the future.

Public Service Ads in the Local newspaper



Flyers and posters

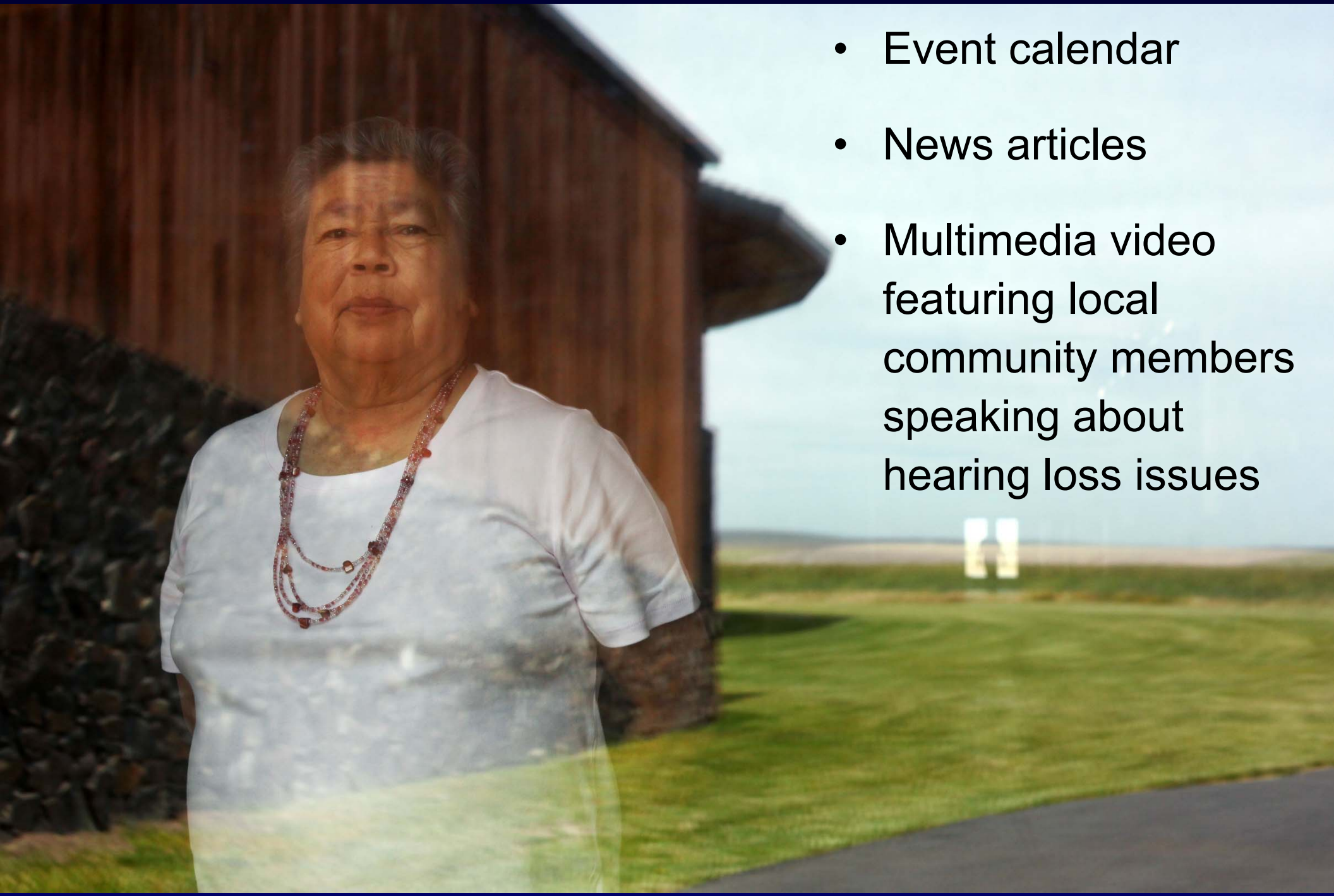
- We created flyers with info for distribution in the community
- And posters at the local market, clinic, Tribal offices and community center



Community Radio Broadcasts

- PSAs addressed NIHL facts, included expert quotes, and event dates
- Interviews with experts

The Tribal Website



- Event calendar
- News articles
- Multimedia video featuring local community members speaking about hearing loss issues

Video Media

- Warm Springs: https://www.youtube.com/watch?v=Gbz2toohmdI
- NAYA: https://www.youtube.com/watch?v=z8wsrfqQVL0
- Umatilla: https://www.youtube.com/watch?v=JSODR8FyJ0s

Target audience

The Dangerous Decibels classroom program was presented to all 4th and 5th grade students

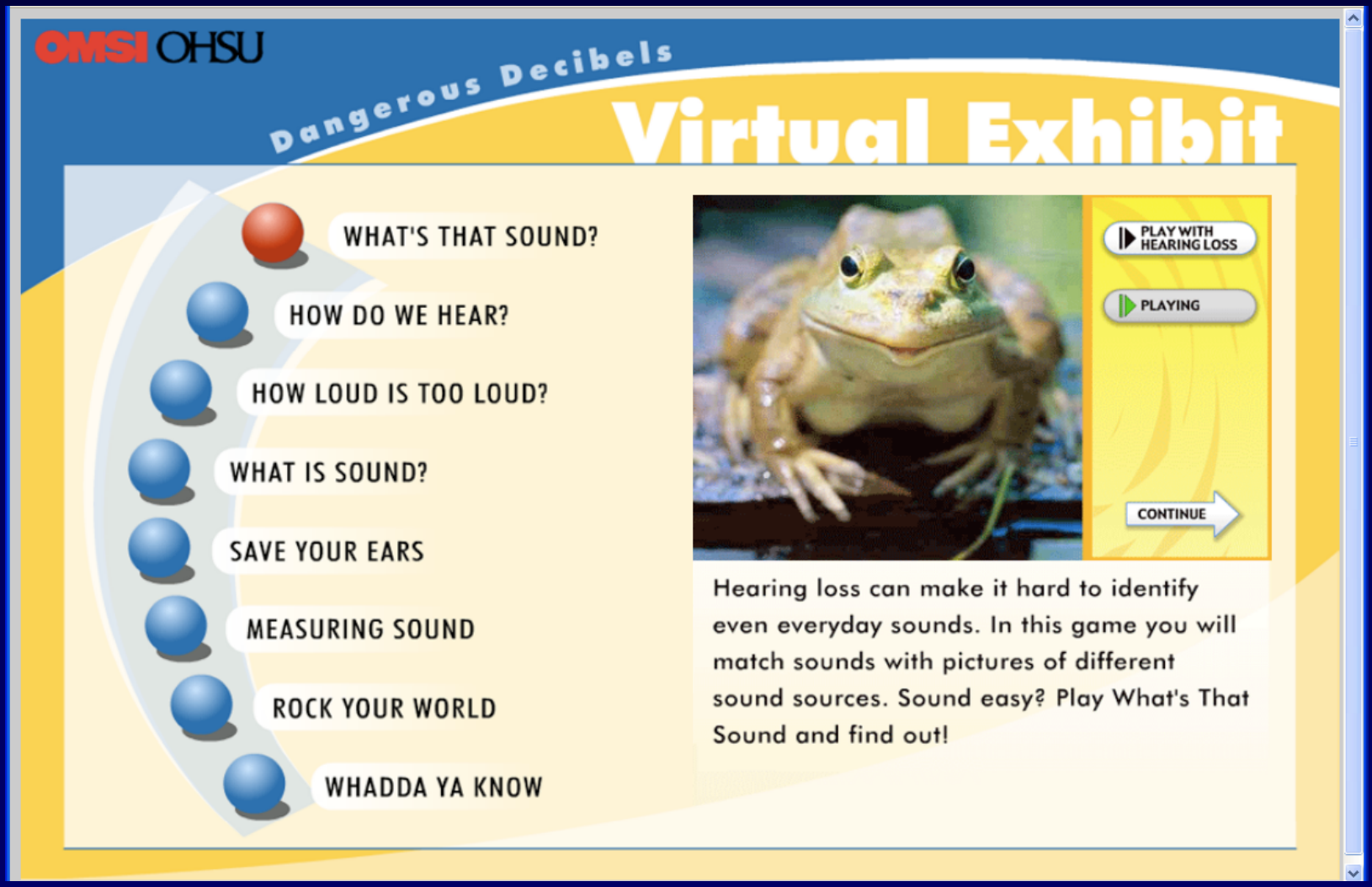
Listen *for* Life

We invited the entire tribal community to an evening event

- To watch the students present hearing loss prevention messages to the community and their parents
- To appeal to the parents, families and elders, to support behavioral changes in kids
- To help set the community agenda

Booster: virtual exhibit lab

The Dangerous Decibels program students explored the Dangerous Decibels Virtual Exhibit in the school computer lab



www.dangerousdecibels.org

Evaluation of the Program

- We conducted baseline, post intervention and 3 month follow-up surveys to evaluate changes in:
  - Knowledge
  - Attitudes
  - Intended behaviors

  Around sound exposure and use of hearing health strategies

Establishing sustainability

With our help

- Communities repeated Dangerous Decibels in subsequent years
- Tribal members were trained
- Media was supported

Evidence of Sustainaibility

- Program continues to be taught
- Additional educators trained and certified
- Health fairs are staffed to promote hearing health
- Media outlets continue to present PSA's about hearing health
- Surveys show recall and behavior change

Be an Agent for Change

Sustainable change involves community:
school, organization, workplace, town, etc

Think about using your new Dangerous Decibels knowledge to be an agent for change in your

community

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- Jolene

Jolene at an OHSU Science Day

Funded by a grant
from the National
Hearing Conservation
Association

www.dangerousdecibels.org/jolene.cfm


Create Meaningful Connections
UNC

Jolene: What can you do with her?

- Outreach & education
- Research

Ellie Queue worked for the US military in Europe getting into aircraft, tanks, striker, Bradley, other fighting vehicles, and also sitting around the firing ranges to measure noise encountered on the battlefield.

The Jolene Travel Guide

Jolene OHSU and Dangerous Decibels on facebook

Partnerships – The key to success

- Partnerships are necessary
- Important for sharing:
  - Knowledge
  - Skills
  - Resources
  - Fundraising opportunities

Partnerships – The key to success

- Partnerships are challenging
- Different:
  - Culture
  - Language
  - Work modalities
  - Approaches to problem solving
  - Institutional priorities

Partnerships – The key to success

- Partnerships WORK!!!

www.dangerousdecibels.org

THANK YOU!


Prevent
Kids
Hazardous
Level
Inquiry
Earplug
HearingLoss
Listen
SoundPunk
Protect
OHSU
DangerousDecibels
MusicPlayer
Knowledge
Change
Engaging
Community
WalkAway
SelfEfficacy
Jolene
Noise
Workers
Motivate
Hear
Loud
Attitudes
Communication
Ears
Youth
Stereocilia
Interactive
TurnItDown
Educate
Tinnitus
Earmuff
Behavior
Fun
HairCell
Cochlea
Health