Celebrating 40 Years of Excellence

History of CAOHC

History files provided by Dr. Joseph Sataloff, founding member
Article written by Bianca Costanzo

40 years ago in August, CAOHC signed the legal paperwork and was officially incorporated to promote hearing loss prevention by enhancing the quality of occupational hearing loss prevention practices.

Although noise-induced hearing loss (NIHL) has existed for many years, hearing conservation programs (HCPs) are a more recent phenomenon.

The first published criteria for the prevention of hearing loss were written in the 1950s. In the early 1960s, several companies initiated programs to protect workers’ hearing. The Department of Defense and military departments using jet engines began HCPs for noise-exposed personnel.

In 1966, the most widely used study that attempted to define noise exposure criteria was that of W.L. Baughn, MD, who suggested that an exposure of 90 decibels (dBA) for 8 hours a day for 45 years would lead to hearing loss.

The American Academy of Otolaryngology—Head and Neck Surgery (AAO-HNS)\(^1\), the Intersociety Committee on Noise Exposure Control and the American Conference of Governmental Industrial Hygienists (ACGIH) recommended that exposures be halved for each increase of 5 dBA over 90 dBA. This standard was adopted by the US Department of Labor in 1969 under the authority of the Walsh-Healy Public Contracts Act and the Occupational Safety and Health Act of 1970.

In the early 1960s, the American Association of Occupational Health Nurses (AAOHN)\(^2\), recognizing the need for a program focusing on the prevention of hearing loss, contacted the American Speech-Language-Hearing Association (ASHA)\(^3\), the American College of Occupational and Environmental Medicine (ACOEM)\(^4\) and the American Industrial Hygiene Association (AIHA) for their expertise. The Intersociety Committee was formed, which produced the Guide for Training Audiometric Technicians in Industry in 1965.

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In 1965, the AAOHN obtained a federal grant to establish 5 courses using the guidelines for training from the Intersociety Committee. These courses were given by Dr. Joseph Sataloff and his staff. By the late 1960s more than 3,000 nurses, health professionals and industrial personnel had completed this training. In 1968, a second Intersociety Committee consisting of 2 representatives from the American Academy of Occupational Medicine, AAO-HNS, ACGIH, AIHA and ACOEM was formed to continue these efforts.

In 1970, the Occupational Safety and Health Act called for the development of regulations for noise exposure. In response, the Intersociety Committee developed guidelines for the evaluation of noise hazards, noise-control methods, planning hazard-free operations and audiology.

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Happy Birthday to CAOHC, 40 years old! In this issue of Update you can read the milestones of the past four decades. Thanks to former council member Dr. Robert Sataloff, we have learned more about CAOHC history through the files of his father Dr. Joseph Sataloff, a founding member. Reading these papers we can really appreciate the meticulous letter writing over months of time that forged the collaborations of the inaugural CAOHC professional organizations. What would the founders think of the rapid communications of the digital world of today?

Today, CAOHC is fully engaging in the digital world with a new more interactive website, social media, and a transition to online issues of the Update publication. We’ve even ventured into e-learning with our first online course. Noise Measurement is available 24/7 to any professional interested in learning more about noise and noise measurement. After last year’s success, another series of hearing conservation webinars in collaboration with the National Hearing Conservation Association will be announced soon! We hope you’ll try some of these new modes of communication and send us your feedback.

On the horizon is another breakthrough in the digital world, the ability to share hearing-related data at the population level. In the Fall 2012 Update, the National Institute for Occupational Safety and Health (NIOSH) Occupational Hearing Loss Surveillance project was described by Elizabeth Masterson. Since then, the full article titled *Prevalence of Hearing Loss in the United States by Industry* was published in the American Journal of Industrial Medicine (Masterson et al., 2013). The early release version was one of the top read articles of 2012 on MDLinx.com according to NIOSH director John Howard (2013). Population data can raise interest in occupational hearing loss! The foundation for this new database is pure tone audiometric testing, the gold standard used by CAOHC Occupational Hearing Conservationists. For information about partnering with NIOSH on this Project go to http://www.cdc.gov/niosh/topics/ohl/partner.html. This is just another way we can extend our reach and work together to prevent occupational hearing loss. Here’s to the next 40 years of CAOHC!

References

Are you in this picture?
If so, please email the CAOHC staff your name and location to info@caohc.org. Thank you!
When the Occupational Safety and Health Administration (OSHA) noise regulations were promulgated in the early 1970s, the National Institute for Occupational Safety and Health (NIOSH) worked with the Intersociety Committee to further develop noise standards. In 1972, the AAOHN expanded its leadership role in the Intersociety Committee. The significant impact of this nursing association and the courses offered by Dr. Sataloff and his team led to the appointment of Mildred Sittner, RN, as the first executive secretary for the Committee.

Later that year, the Intersociety Committee met in Chicago with representatives of every important organization in the United States connected with the prevention of occupational hearing loss. The Committee, officially named the Intersociety Committee for Standardization of Industrial Audiometric Technician Training and Hearing Conservation, was notified that NIOSH would underwrite the formation, development and first-year operation of the Certification Board for Industrial Audiometric Technicians.

Following the formation of the Certification Board in 1973 the Board changed its name to the American Board of Occupational Hearing Conservation Technicians. At the Board’s meeting in Waterville, ME, in August, 1973, the organization changed its name to the Council for Accreditation in Occupational Hearing Conservation (CAOHC).

The first Course Director (CD) Workshop was held at this meeting. Since then, more than 300 CDs have trained more than 21,000 occupational hearing conservationists.


The CAOHC mission has always focused on the advancement of occupational HCPs and the prevention of NIHL. CAOHC continually strives to be the go-to resource for education, knowledge and standards related to quality hearing-conservation practices.

UPCOMING WORKSHOPS

Professional Supervisor of the Audiometric Monitoring Program

Thursday, November 7, 2013
Hyatt Regency Coconut Point • Bonita Springs, FL
(This is a preconference workshop to the Academy of Doctors of Audiology (ADA) conference)

Registration details can be found on CAOHC’s website

Course Director Certification & Recertification Workshop

Friday, November 22, 2013
St. Paul Hotel • St. Paul, MN

Registration details can be found on CAOHC’s website
Recording Occupational Hearing Loss on the OSHA 300 Log

By: Susan Cooper, PhD, CCC-A

According to the U.S. Bureau of Labor Statistics (BLS), occupational hearing loss accounts for roughly 30% of work-related illnesses reported for the manufacturing sector. Although incidence rates have declined somewhat in recent years (Figure 1), it is estimated that roughly 14,000 manufacturing workers are affected annually. Incidence rates are highest in the manufacturing sector, but occupational hearing loss is also reported for an additional 12,000 individuals per year across other industries.

It is important to note that STS as part of a HCP is designed to function as a “warning” or “flag” to follow-up with counseling, refitting/retraining hearing protection, engineering controls, and so on. In contrast, the OHL recording criterion is intended to represent an injury/illness, important for statistical/ tracking purposes. This is why OSHA determined that employers need not record all cases of STS. Rather, recordable OHL cases represent only persistent shifts in hearing, co-occurring with hearing loss/ impairment, and of course, only those that are work-related.

- **Baseline/reference audiogram.** To determine whether an STS has occurred, the employer must compare the current hearing test results to the employee’s baseline audiogram. This comparison is made to the original baseline or when appropriate, a revised baseline according to existing hearing conservation program definitions under 1910.95. Although baseline revision decisions are made according to the professional judgment of the reviewing audiologist or physician, OSHA has clarified certain issues such as that baseline revisions must be conducted separately for each ear (OSHA, 2003a, 2005, 2007). The National Hearing Conservation Association has recently revised its best practices guideline for baseline review/ management. This document serves as an excellent guideline for professional reviewers of hearing conservation programs (NHCA, 2013).

- **Retest/confirmation of STS and time-frame.** If the annual audiogram shows an STS, a hearing retest may be performed within 30 days of that test (multiple retests allowed, but not necessarily recommended). If the retest does not confirm the STS, then the case need not be recorded. If the retest confirms the STS, then the case, if work-related, must be recorded within seven calendar days of the retest. If a retest is not performed, then the case (again, if work-related) must be recorded within seven calendar days.

- **Results of subsequent testing.** If later audiometric testing performed as part of the hearing conservation program indicates that the STS is not persistent, then the employer may erase, or line-out, the recorded entry.

- **Determination of work-relatedness.** In the 1904.10 final rule, OSHA stressed the importance of case-by-case review, and stated that hearing loss work-relatedness must be determined according to specifications of section 1904.5. If an event/exposure in the workplace caused or contributed to the shift in hearing or “significantly aggravated” a previously existing hearing loss, then the case is recordable. The National Hearing Conservation Association has published guidelines to assist professional reviewers with determining work-relatedness (NHCA, 2011). Former CAOHC Council member Dr. Peter Rabinowitz published an article in Update outlining important steps in determining work-relatedness, as well as responsibilities of the OHC and the Professional Supervisor (Rabinowitz, 2005).

- **Forms.** OSHA’s recordkeeping forms (300, 301, and 300A) designate a separate column for recording hearing loss as an illness.
**Example Protocol for Recording Occupational Hearing Loss on the OSHA 300 Log**

If at any step a “no” is encountered, the process ends and the case is **not** recorded on the Log.

<table>
<thead>
<tr>
<th>Step</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Step 1</strong></td>
<td>Compared to the baseline or revised baseline audiogram as defined by 1910.95, is there an STS in either ear (age adjustments allowed)? If yes, continue to step 2.</td>
</tr>
<tr>
<td><strong>Step 2</strong></td>
<td>Is the average hearing level on the current hearing test at 2000, 3000, and 4000 Hz in the same ear greater than or equal to 25 dB HL (no age adjustments)? If yes, continue to step 3.</td>
</tr>
<tr>
<td><strong>Step 3</strong></td>
<td>Is the STS confirmed upon retest within 30 days? If yes, continue to step 4. <em>(Note: if a retest was not conducted within 30 days, also continue to step 4.)</em></td>
</tr>
<tr>
<td><strong>Step 4</strong></td>
<td>Has a qualified healthcare professional determined that the shift in hearing is more likely than not caused or aggravated by workplace noise? If yes, continue to step 5. <em>(Note: if the cause of the STS is not clear or not determined, then the employer should accept work-relatedness by default and continue to step 5.)</em></td>
</tr>
<tr>
<td><strong>Step 5</strong></td>
<td>Record the case in the “hearing loss” column (M)(5) on Form 300 within 7 days of test or retest.</td>
</tr>
</tbody>
</table>

**REFERENCES/ADDITIONAL READINGS:**

OSHAl regulations & interpretations, guidelines, and best practices


Rewind

To celebrate CAOHC’s 40th Anniversary, we are presenting a special section called Rewind. This section will appear within our social media outlets and online newsletter, Update. Rewind will feature articles from previous issues of Update that contain information relevant for today’s readers. As a follow-up to each article, a discussion thread will be started that invites readers to comment on the featured Rewind article.

Rewind back to 2001, when Linda Frye, COHN-S/CM MPH RN wrote the article Hard to Test Workers. Are the issues in this article still relevant? Are there new issues that make workers hard to test? How do you deal with hard to test workers? Tell us by going to our Facebook page and continuing this discussion.

Hard to Test Workers

By Linda Frye, COHN-S/CM MPH RN
Representative of the American Association of Occupational Health Nurses

As an OHC I have been challenged by some working in the audiometric procedure. I am sure many of you have your own stories of the same. Employees who already suffer from hearing loss such as those with tinnitus or a sensorineural hearing loss such as presbycusis frequently arrive for testing with a heightened level of anxiety. Individuals who have difficulty hearing are often times self-conscious or embarrassed and may “not out” in order to conceal the truth. Let’s take a few minutes to consider the harm to test worker’s perspective and alternatives that might help us as OHCs accomplish our objectives.

Hard to-test workers have often had negative experience during testing. This might be due to being in the booth for extended periods of time, or frustration because they have difficulty distinguishing the audiometric tones from the sounds they hear in their head. It is an employee present with an “attitude” and is greeted by an OHC with an “attitude” because the employee’s reputation for being difficult to test. You can imagine the communication and the desire to be treated as a valued member of the team.

Over the years, and another OHC’s how, I have developed a few tricks for getting the best results during audiometric testing. Here under different circumstances. These tips are not based on research and may not be appropriate in every situation, but I hope you will find them helpful. If you have others that you want to share please contact me through the CAOHC office and we will pass them on to you in future UPDATE newsletters.

Testing Tips For the Hard-To-Test Employee:

1. When a worker becomes difficult to deal with, try to excuse before responding and look at things from their perspective. Perhaps they have had a bad day at work or they are concerned about the job while they are away from the testing.

2. Remember that not everyone will test well with a microprocessor. I suggest that you test an occasional employee using the manual audiometer to maintain your skills. If you have an audiologist who does not test well in the microprocessor mode and you are the OHC are not comfortable and efficient in setting up the manual mode, the testing process will not go smoothly. It is essential for all OHCs to remain very familiar with the manual testing procedure. Unfortunately, some employees believe that when you purchase a microprocessor that they don’t need an audiometric OHC such as those who attend a CAOHC approved course and become CAOHC certified.

3. If an employee has a chronic problem such as tinnitus and needs to be tested manually, mark their audiogram “test manually” to avoid wasted time and frustration next time they come in for testing.

4. If a listener has tinnitus, it’s often helpful to use a “padded” tone rather than a continuous tone for testing. (Listeners often report that there is less tendency for the padded tone to “blend in” with the tinnitus).

5. When you have a known difficult employee to test and you have more than one OHC in your department, send the employee with the OHC who has the best rapport with the worker.

6. Keep in mind that management has the ultimate responsibility for the hearing conservation program. Should you encounter an employee who is disrespectful or non-compliant in spite of your best efforts to accommodate them, stop the testing process and call the appropriate management contact for further assistance.

7. Avoid leaving a worker in the testing booth for extended periods of time during the manual testing procedure. After a reasonable time period (e.g. 10 minutes) allow the worker to come out of the booth to rest. Have a drink of water, etc. before proceeding. For those of us who have been tested ourselves, you know that after awhile you begin to lose your own heart beat and are afraid you will pass out if you continue to test. Why?

8. Those who work hearing aids must remove them before testing. For those of us dependent on reading glasses, it can be frustrating to be told to read without them. Now imagine someone doing their job while testing. OHCs must also be retrained in the box or even the ambient noise of the box is loud, do not test the hearing of the worker. How do you test the hearing of the worker after they have put the hearing aid back on?

9. The only reason for your interaction is to “get the test done” you may be missing the big picture. Improving workers to be proactive managers of their own health and well being will have far reaching benefits.

Remember a saying that goes something like, “It isn’t great to be what you’re doing and doing what you love.” Sometimes it takes a difficult worker to remind us what and why we are doing what we do. Being an OHC is a privilege I value and I hope you feel the same way, too.

Do you have experience with hard-to-test workers? Send your advice to CAOHC, and we’ll share it with other OHCs.
Moving On….

The CAOHC Council said farewell to two outstanding women this year. Mary McDaniel (representing ASHA) and Diane DeGaetano (representing AAOHN) moved on from their duties as CAOHC Council members in November 2012 and May 2013, respectively. The CAOHC Council and community were fortunate to have both women as leaders.

Mary McDaniel began volunteering with CAOHC as a guest of the Council in October 2002. During her 10-year term, Mary played an integral role in several key Council initiatives as a Course Director (CD) and a Professional Supervisor of the Audiometric Monitoring Program workshop instructor. As an instructor and committee member, Mary was instrumental in the redesign of the CD and PS course curricula and the PS exam.

Mary was also deeply involved in the standardization of the OHC exam, which will be launched in 2014. Mary, along with fellow committee chair Diane, led the charge to ensure this process was vetted by stakeholders of our component organizations, CDs, PSs and OHCs outside of the CAOHC Council.

Mary spent her last few years on the Council as a member of the Executive Committee as Vice-Chair, Chair and Past Chair. Mary was a dynamic, organized and thoughtful volunteer leader. During her tenure as Chair, several new initiatives were started, and the Noise Measurement online course was completed.

Moving In….

As Mary McDaniel and Diane DeGaetano leave the council, CAOHC welcomes two new representatives. Pamela Gordon duPont and Elaine Brown were recently appointed to serve as CAOHC Council Members representing the American Speech-Language-Hearing Association (ASHA) and the American Association of Occupational Health Nurses (AAOHN), respectively.

Pamela Gordon duPont, MS, CCC-A, CPS/A, is President and Founder of Gordon Hearing Conservation, Inc. Ms. duPont has been a CAOHC Course Director since 1977 and was a professor at the University of Connecticut Graduate School Of Communication Disorders. Pam began her term during our November 2012 council meeting in Phoenix, AZ and since has become an instructor for the Course Director workshop and serves on the Course Director Committee. She is also reviewing both the Noise Course and the new website. We welcome her keen eye and attention to detail.

Elaine Brown, RN, BS, COHN-S/CM, COHC, is an Occupational Health Nurse – North American Seeds at the Fortune 500 Company: Monsanto where she has worked as the onsite certified occupational hearing conservationist (COHC) since 1992. Ms. Brown served as an exam item writer for the American Board of Occupational Health Nurses. Based on this experience and the recommendation of her Course Director, Tom Thunder, Elaine also served as an item writer for CAOHC’s standardized OHC Exam. She has also served a Director of the North Central Region of AAOHN. Since coming on the Council Ms. Brown has been involved with the new OHC standardized exam and participated in the Professional Supervisor focus group conducted earlier this summer. Ms. Brown will begin her term as a CAOHC Council member at the November 2013 meeting in St. Paul, MN. As a certified OHC, she brings a unique perspective to the Council.

Both Pam and Elaine will serve as Council members for up to five years, with an opportunity to renew their term. Both will collaborate in leadership decisions with the full Council to continue CAOHC’s effort to promote the conservation of hearing by enhancing the quality of occupational hearing conservation programs throughout the nation.

We will miss Mary’s input on the Council, but we know she will never be far, and her words will always ring in our ears: “Work to build and strengthen your team, keep the bar high and strive for excellence. CAOHC…there is no equal!”

Diane, another dynamic leader, needed to resign before her 10-year term expired due to the demands of her full-time job. As chair of the Marketing Committee, Diane launched 2 new CAOHC promotional brochures, spearheaded the CAOHC website and logo redesign, which will launch in October, and was an integral participant in the Marketing Strategic Planning Retreat.

In addition to her role on the Marketing Committee, Diane was also committed and passionate about the standardization of the OHC exam. Diane and Mary led a task force through the sometimes tedious OHC job task analysis, item writing, beta testing and cut-score processes.

Although Diane is no longer on the Council, she is still active in Council projects and will continue to do so as much as time allows. Diane often said that CAOHC was her work family, and family always stays connected.

On a personal note, I had the opportunity to work with both of these passionate and committed women. Both Mary and Diane made me proud to be part of this organization. Thank you. You will be missed.

Left: Mary M. McDaniel, AuD CCC-A CPS/A
Served as: CAOHC Chair, Professional Supervisor & Course Director instructor, Co-Chair OHC Certification Task Force

Right: Diane S. DeGaetano, BSN, RN, COHN-S, FAA
Served as: Committee Chair for Marketing & Co-Chair for OHC Certification Task Force

Left: Pamela G. DuPont, MS CCC-A CPS/A
Term: May 2013–May 2018

Right: Elaine J. Brown, RN BS COHN-S/CM COHC
Term: November 2013–November 2018

CAOHC update
Noise Annoyance and Public Health

By: Karen Daneu, College of Public Health, University of Nebraska Medical Center, Omaha, NE

Introduction

As one of our five senses, hearing contributes significantly to our appreciation of the world around us. Many sounds perform an important function in our daily lives, but some sounds may be considered annoying or unwanted. For example, a barking dog, a leaf blower, or a snoring partner may be unpleasant to listen to, and may produce an unhealthy response in listeners.

As the urban population grows and cities become 24-hour hubs of activity, the impact of noise and its effect on public health may increase as well. Noise has been studied extensively since the 1960s, with multiple evaluations conducted in locations around the globe, including the United Kingdom, Sweden, Canada, New Zealand, India and Serbia.

To protect communities, governments have leveraged policy actions in order to mitigate the adverse outcomes of environmental noise. For example, in 1972 the United States passed the Noise Control Act, establishing a national policy to protect Americans from noise that threatened the health and welfare of communities. In 1987 the International Organization for Standardization (ISO) published a standard, ISO 1999, “Acoustics- Determination of occupational noise exposure and estimation of noise-induced hearing impairment” which outlined exposure limits for worker noise. Sound can be measured in decibels (dB), using the A-weighting scale (dBA) that is commonly associated with human hearing. Everyday sounds might include a whisper, measured at 30 dBA, a lawn mower measured at 90 dBA and a music concert that might range from 100-110 dBA. ISO 1999 recommends hearing protection above 85 dBA level (Passchier-Vermeer and Passchier 2000).

However, in spite of legislation and standards, noise exposure remains a significant health risk. To quantify the effects of noise, extensive research has been conducted around the world, including studies on traffic, aircraft, trains, occupational noise and wind turbines. Questionnaires have been administered in order to evaluate how noise annoyance should be measured. Studies have also attempted to quantify noise annoyance in terms of economic detriment (Gjestland 2007). The impact of noise may be studied by quantifying the amount of hearing impairment, annoyance/irritation factor, sleep disturbance, human performance, stress, anxiety, and other health effects.

Direct Noise Effects on Health

The most direct relationship between noise and human health has been verified through loss of hearing (i.e., Noise-induced Hearing Loss, NIHL). Noise-induced hearing loss has been studied extensively, and research supports that workers exposed routinely to noise levels above 85 dBA have corresponding problems with communication - they cannot fully hear conversations because of the cumulative effects of hazardous noise exposure in their workplace. This may lead to reduced productivity, workplace injuries, and even fatalities. In one case, misunderstood verbal directions led a worker to fall to his death. In a recent study, Singh et al. (2009) discovered that laborers exposed to noise above 85 dBA frequently do not wear (or have not been provided) personal protective equipment (Prasanna Kumar et al. 2008). With laborers exposed to high levels of heat, stress and noise control measures, the duration of noise exposure and other environmental factors exacerbate effects of noise annoyance (Singh et al. 2009). Noise-induced hearing loss can be directly attributed to industrial noise, but making an association with a non-auditory health condition is a more challenging task.

Non-Auditory Effects of Noise on Health

One rationale used to link noise to non-auditory health effects is noise annoyance. Annoyance results in stress that has been linked to problems with sleep, performance, cardiovascular health, and mental health status. These conditions may be increasingly detrimental to children, elderly individuals, and others predisposed to anxiety stress. Noise annoyance has been measured by way of questionnaires, often attempting to determine the amount of noise interference, ability to control (reduce or eliminate) noise, and the level of danger the survey respondent perceives during the episode of annoying noise. Laboratory studies have measured the amount of sleep EEGs, blood pressure, catecholamines, reaction times, and memory (Stansfeld and Matheson 2003). There may be a component of bias – some individuals make their livelihood in the field of aviation, and may be less inclined to complain about noise annoyance (Hume 2010). The often cited work “Noise Exposure and Public Health” includes a table identifying the long-term effects of noise exposure and the classification of the evidence as sufficient, limited or lacking (Passchier-Vermeer and Passchier 2000). Most of the data associated with noise annoyance are subjective in nature.

Noise and Annoyance. There have been multiple studies investigating noise annoyance and exposure to transportation, including aircraft, traffic, and rail noise. One study measured the response to a reduction in road noise when traffic was redirected, but the results were inconclusive and suggested the need for further investigation (Stansfeld et al. 2009). Another study investigated the coping mechanisms of individuals subjected to chronic noise in Beirut, Lebanon. Study participants reported increased consumption of sweets, caffeine, and nicotine (tobacco use) in order to cope with the exposure to chronic noise. Certainly, the increased consumption of these products could become the source of other health conditions, or may even amplify the anxiety resulting from noise annoyance. Respondents then used a fan, TV or radio to mask the unwanted noise when trying to fall asleep (Fooladi 2012). It has been reported that high frequency noise is more annoying than low frequency noise (Stansfeld and Matheson 2003). Furthermore, cardiac surgery patients in Intensive Care Units reported noise annoyance related to various clinical instruments and procedures. Such reports of noise annoyance might adversely affect patient rest and recuperation (Hsu et al. 2010).

Noise and Sleep Disturbance. Sleep is often considered a quality of life issue. When people go to sleep they expect to be undisturbed. Night noise exposure, even at low levels, has been associated...
with annoyance and sleep disturbance (Blum et al. 2004; Marks and Griefahn 2007; Jakovljevic et al. 2006). If noise exposure occurs during periods of sleep, it may increase blood pressure, heart rate and body movements, while resulting in decreased quality of life. These findings prompted the World Health Organization (WHO-Europe) to produce night-time guidelines for airport operations (Hume 2010).

Noise and Academic Performance. Noise leads to distractions that may interfere with your ability to perform academically. The 2003 Noise Health Journal reported on three studies of children’s academic performance and the effect of airport noise in Los Angeles, Munich, and London. This report shows a clear link between chronic noise, impaired reading and attention (Matheson et al. 2003). The 2001-2003 Road Traffic & Aircraft Noise & Children’s Cognition & Health (RANCH) Project determined the effect of traffic and airport noise on children’s reading comprehension for students situated near three airports: Amsterdam’s Schipol, Madrid’s Baraja, and London’s Heathrow (Clark et al. 2006). Children exposed to noise had decreased reading comprehension when compared to children who were unexposed, which was evident within one year of data collection. Children in the Munich study were observed in two different noise conditions. In addition to the cognition tests, the children’s urinary cortisol levels and levels of epinephrine and norepinephrine were examined. Overnight levels in children near the old airport were high. After the airport was moved, the children near the new airport exhibited high levels of epinephrine and norepinephrine. The researchers suggested follow-up tests to analyze long-term cardiovascular outcomes (Passchier-Vermeer and Passchier 2000).

Noise and Cardiovascular Disease. The Hypertension and Exposure to Noise around Airports (HYENA) study (Jarup et al. 2008) resembles research discussed above. The HYENA study analyzed data collected from 6000 participants living near six major European airports in order to assess the short-term effects of aircraft noise at night. The authors reported that night-time aircraft noise, and 24-hour traffic, increased hypertension. Hypertension is associated with myocardial infarction, stroke, and cardiovascular disease. The HYENA study, and similar research conducted in Sweden (Blum and Eriksson 2011) showed a statistical relationship between noise and cardiovascular disease that previous studies had not. In addition to NIHL, noise annoyance, sleep disturbance, cognitive performance, and cardiovascular health, there are additional non-auditory health effects that are not fully understood and warrant further investigation.

Conclusion

These studies highlight that community noise is not a new concern, but will continue to be a problematic health issue. As more data are collected, we might resolve challenges presented by study bias and confounding variables. In the meantime, hearing conservationists should provide increased education to the workforce, as well as the general public, about issues pertaining to noise exposure and noise annoyance. We should make every effort possible to mitigate community noise and improve the health of our citizens.

References

Leadership

The CAOHC leadership otherwise known as the Council consists of two representatives from each of the following Component Professional Organizations (CPO).

- **American Association of Occupational Health Nurses (AAOHN)**
  Madeleine J. Kerr, PhD RN
  CAOHC Council Chair
  Elaine Brown, RN BS COHN-S/CM COHC

- **American Academy of Audiology (AAA)**
  Laurie L. Wells, AuD AAA CPS/A
  CAOHC Council Vice Chair-Education
  Antony Joseph, AuD PhD CPS/A

- **American Academy of Otolaryngology - Head & Neck Surgery (AAO-HNS)**
  James Crawford, MD MAJ(P) MC USA
  CAOHC Council Vice Chair
  Richard Kopke, MD

- **American College of Occupational and Environmental Medicine (ACOEM)**
  Bruce Kirchner, MD MPH CPS/A
  Eric Evenson, MD MPH

- **American Industrial Hygiene Association (AIHA)**
  Chandran Achutan, PhD
  Lee Hager, COHC
  CAOHC Council Past Chair

- **The American Society of Safety Engineers (ASSE)**
  David D. Lee, CIH
  Ronald D. Schaible, CIH CSP CPE (Mass.)
  CAOHC Council Secretary/Treasurer

- **American Speech-Language-Hearing Association (ASHA)**
  Pamela G. duPont, MS CCC-A CPS/A
  Ted K. Madison, MA CCC-A

- **Institute of Noise Control Engineering (INCE)**
  Charles Moritz, MS INCE Bd Cert.
  Kimberly Riegel, PhD

- **Military Audiology Association (MAA)**
  John “Andy” Merkley, AuD CCC-A CPS/A
  Thomas L. Hutchison, MA MHA

To submit an article for publication to a future issue of Update contact the CAOHC Administrative Office at kbreitbach@caohc.org.

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