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State of the Art Versus Practice

Key Findings and Proposed Follow-Up from the 2024 Survey on Noise and Hearing Loss Prevention and Respiratory Protection Programs

[aiha.org](https://www.aiha.org)

Background

The 2024 State of the Art Versus Practice (SOTA v P) survey focused on key risk critical practices contained in the [Noise and Hearing Loss Prevention Principles of Good Practice \(PGP\)](#) and the [Respiratory Protection Programs PGP](#). Survey invitations were sent to 15,408 AIHA contacts and to other English-speaking occupational and environmental health and safety (OEHS) associations, including the American Conference of Governmental Industrial Hygienists (ACGIH), the Australian Institute of Occupational Hygienists (AIOH), the British Occupational Hygiene Society (BOHS), the International Occupational Hygiene Association (IOHA), and the Southern African Institute for Occupational Hygiene (SAIOH). A total of 1076 qualified responses were received: 1023 from the email campaign to AIHA's contact list and 53 from the other OEHS organizations. For the 1023 responses to the AIHA email campaign, the completion rate was 74%, the response rate was 7%, and the margin of error was +/-3% at the 95% confidence level. The demographic distribution of respondents was 73% located within the U.S. and 27% located outside the U.S. Nine responses were removed during analysis due to an unknown error in the survey instrument for a total number of survey responses presented in the report of 1,067.

The number of years of industrial hygiene experience reported by respondents were fairly evenly distributed. The majority of respondents worked in corporate settings (36%), followed by consulting (26%), government/military (18%), and academic (9%) settings. More than half (59%) of respondents were credentialed as Certified Industrial Hygienists (CIHs) or equivalent and about a third (35%) held the Certified Safety Professional credential.

Key Findings and Proposed Follow-Up:

What follows are key findings and recommended follow-up activities from an initial review of Avenue M's [survey results](#). In addition, the findings (pages 3–9) and recommendations (pages 9–11) from Avenue M regarding the survey results are worth considering. In many cases, Avenue M's findings reinforce and support those provided here.

1. The Survey Results are Rich and Detailed – Share Them Widely

As was the case with the 2023 survey results, the 2024 survey results are extremely detailed with a wealth of data to inform existing projects seeking to improve OEHS science and practice and to stimulate new project ideas for AIHA, the associations that partnered with us on the survey, and for external research/training organizations.

In addition to sharing the results with our survey partners (ACGIH, BOHS, SAIOH, IOHA, and AIOH), we encourage AIHA to share the survey results and data widely. The report should be published on AIHA's website with links to the Noise and Hearing Loss Prevention and the Respiratory Protection Programs PGPs.



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2. The Results are More Positive than Expected – Perhaps Due to its Focus on Members of Professional Industrial Hygiene Organizations

Generally, the survey results are more positive than the experience of the experts reviewing the results suggests is the case in actual practice. This may be due to the fact that the survey was completed by members of professional industrial hygiene organizations and may underrepresent hearing conservation and respiratory protection programs administered by people who are not members of those organizations.

Examples of surprisingly positive results:	
Q14: What is the primary criterion level you / your team uses for the OEL for noise dosimetry?	73% of respondents reported using 85dBA (83% Intl, 70% US)
Q15: What is the primary exchange rate you / your team uses for the OEL for noise dosimetry?	67% of respondents reported 3 dBA as the primary exchange rate (90% Intl, 59% US)
Q41: Which of the following aspects are included in your written respiratory protection program(s)?	86% of respondents reported including expectations and procedures for voluntary use of respirators
Q43: Which of the following aspects are included in your organization’s written inventory of respirator use?	75% of respondents reported including change-out schedules for each air-purifying respirator used (US- 77%, Intl-65%)
Q47: Does your organization’s respirator fit testing include the following? Respirator users who are being fit-tested for the first time with a specific model and/or brand of respirator will don the respirator for about five minutes prior to the fit testing in order to make adjustments to achieve a comfortable fit.	No - 15%; This is recommended but optional - 29%; Yes, this is required - 56%
Q49: Is fit testing performed on employees with facial hair or other impediments that may interfere with proper sealing of a tight-fitting respirator or proper functioning of its valves?	No - 89%



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3. Few practitioners closely follow the AIHA Strategy for Assessing and Managing Occupational Exposures (AIHA Strategy) when assessing noise exposures.

The AIHA Strategy offers numerous advantages for the effective and efficient assessment and management of workplace exposures to noise, yet many (30%) are not aware of the Strategy and few (13%) closely follow the Strategy.

Question	Key Results and Aspirational Goals: Five Year (By 2029) and Entitlement (Reasonably Attainable Maximum or Minimum)			Key Actions
	Key Survey Result	Five-Year Goal	Ent. ¹	
Q13: Which of the following statements best describes your / your team's use of the AIHA Strategy for Assessing and Managing Occupational Exposures for the assessment of noise exposures and the analysis of noise data? (Select one)	We closely follow this strategy for noise exposures and the analysis of noise data (13%) We somewhat follow this strategy for noise exposures and the analysis of noise data (40%) We are familiar with this strategy but do not follow it for noise exposures and the analysis of noise data (17%) We are not familiar with this strategy (30%)	>40% closely follow this strategy	>95% closely follow this strategy	Ensure that noise assessment is included in the current Continuous Improvement Plan (CIP) initiatives I (promote the AIHA Strategy to training programs, student local sections, and local sections) and III (develop resources that OEHS professionals can use to "sell" the benefits of the AIHA Strategy) Articulate and promote the benefits of the AIHA Strategy (Effective and Efficient)
Q20: Which best describes your / your team's approach to defining Similar Exposure Groups (SEGs) for noise exposures? (Select one)	We systematically define and document SEGs for all workers, including those for whom no noise measurements have been taken - 35% We define SEGs only when noise monitoring data are collected, and we document people in the SEG who were not monitored but for whom the noise monitoring results reflect exposures - 35% We define SEGs only when noise monitoring data are collected and only for the individuals included in the monitoring - 16% We don't define SEGs at all for noise exposures - 12%	>40% systematically define and document SEGs for all workers	>95% systematically define and document SEGs for all workers	

¹Entitlement



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4. Criteria for unacceptable exposures vary widely among practitioners. Most practitioners still use criteria for determining unacceptable exposures that fail to fully account for exposure variability and assessment uncertainty. This results in underestimation of worker risk.

Question	Key Results and Aspirational Goals: Five Year (By 2029) and Entitlement (Reasonably Attainable Maximum or Minimum)			Key Actions	
	Key Survey Result	Five-Year Goal	Ent.		
Q40: Which of the following best describes your / your team's approach to judging whether chemical or particulate exposures are unacceptable and therefore require the use of respirators or other controls?	Criteria for Unacceptable:			Emphasize AIHA's efforts to improve exposure decision making (e.g. CIP, IEJ, OEA PGP) Promote a common vision for acceptable exposures (95%ile<OEL with at least 70% confidence) Teach people to sell the 95%ile approach (Decision Statistic Framing)	
	Average Measurement > OEL	7%	<5%		<3%
	Any Measurement > OEL	34%	<15%		
	Any Measurement > OEL/2	33%	<15%		
	95%ile > OEL	19%	>60%		>95%
Other	7%	<5%	<2%		

5. Most practitioners do not perform quantitative fit testing for workers who use noise hearing protection.

Question	Key Results and Aspirational Goals: Five Year (By 2029) and Entitlement (Reasonably Attainable Maximum or Minimum)			Key Actions
	Key Survey Result	Five-Year Goal	Ent.	
Q30: Does your organization offer hearing protection device quantitative fit testing? (Select one)	No - 67%	<50%	<5%	Training - perhaps with support from manufactures Fact Sheet



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6. Less than half of practitioners use a systematic planning process for advancing up the hierarchy of controls for noise exposures.

Question	Key Results and Aspirational Goals: Five Year (By 2029) and Entitlement (Reasonably Attainable Maximum or Minimum)			Key Actions
	Key Survey Result	Five-Year Goal	Ent.	
Q34: Which of the following best describes your / your team's approach to advancing up the hierarchy of controls for noise exposures (see figure below) after initial short-term controls (e.g., administrative controls, personal protective equipment) have been put in place? (Select one)	We have a systematic planning/implementation process for moving up the hierarchy of controls - 43% We do not have a specific planning process / Our approach is ad hoc or case-by-case - 50% We typically do not advance up the hierarchy of controls - 7%	>70% have a systematic process	>95% have a systematic process	Promote importance of systematic planning Promote Buy Quiet program



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7. About half (53%) of respondents do not include workers exposed to ototoxicants in noise and hearing loss prevention programs.

Question	Key Results and Aspirational Goals: Five Year (By 2029) and Entitlement (Reasonably Attainable Maximum or Minimum)			Key Actions
	Key Survey Result	Five-Year Goal	Ent.	
Q26: Do you / does your team include workers exposed to ototoxicants in noise and hearing loss prevention programs? (Select one)	No - 53% (56%US. 46% Intl) Yes, only workers exposed to more than 100% of the OEL for airborne ototoxic agents- 6% (5% US / 8% Intl) Yes, only workers exposed to 50% or more of the OEL for airborne ototoxic agents - 18% (16% US / 24% Intl) Yes, only workers exposed to 10% or more of the OEL for airborne ototoxic agents - 7% (6%US / 10% Intl) Other - 15% (16% US / 12% Intl)			Fact Sheet Training (webinars, PDCs, etc.) Connect with Toxicology Committee, OEL Committee, ACGIH
Q36: What are the barriers you / your team are facing related to noise and hearing loss prevention?	Lack of training on ototoxicants - 33% (the number one barrier identified related to noise and hearing loss prevention)	<25%	<5%	

8. Lack of support, time, and resources are barriers that hinder noise and hearing loss prevention programs.

Question	Key Results and Aspirational Goals: Five Year (By 2029) and Entitlement (Reasonably Attainable Maximum or Minimum)			Key Actions
	Key Survey Result	Five-Year Goal	Ent.	
Q36: What are the barriers you / your team are facing related to noise and hearing loss prevention?	Lack of support and resources from management/ decisionmakers - 28% Lack of time/resources to conduct regular evaluations of the hearing loss prevention program - 28% Lack of time/resources for providing education to workers on noise exposure - 20%	<20%	<5%	Leverage current CIP initiative III (develop resources that OEHS professionals can use to “sell” the benefits of the AIHA Strategy) Develop a Noise PGP Self-Assessment



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9. Years of experience is an important predictor for the correct implementation of key respirator program practices with less experienced practitioners less likely to indicate key practice implementation.

Question	Key Results and Aspirational Goals: Five Year (By 2029) and Entitlement (Reasonably Attainable Maximum or Minimum)			Key Actions
	Key Survey Result	Five-Year Goal	Ent.	
Q42: In which of the following areas do you or someone on your respiratory protection program(s) team have training? (Select all that apply)	Respondents with 10 or fewer years of experience are less likely to indicate many of the listed options.			Outreach to training programs, Student LS Continuing education training resources
Q43: Which of the following aspects are included in your organization's written inventory of respirator use? (Select all that apply)	Respondents who have 10 or fewer years of experience in respiratory protection programs are less likely to report their organization's written inventory of respirator use includes the following: the rationale for selecting each respirator for use in each combination of operation and agent (67%), change-out schedules for each air-purifying respirator used (64%), and inclusion of respirators that are used voluntarily in addition to those required (57%).			
Q52: Please indicate which of the following information is included in respirator training for employees who use a respirator. (Select all that apply)	Respondents with 10 or fewer years of experience are less likely to indicate that many of the listed options are included in their respirator training.			



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10. Important practices in support of the safe and effective voluntary use of respirators receive less attention than those for required use.

Question	Key Results and Aspirational Goals: Five Year (By 2029) and Entitlement (Reasonably Attainable Maximum or Minimum)			Key Actions
	Key Survey Result	Five-Year Goal	Ent.	
Q43: Which of the following aspects are included in your organization's written inventory of respirator use? (Select all that apply)	Inclusion of respirators that are used voluntarily in addition to those required - 59%	>70%	>95%	Develop guidance/factsheet Information campaign
Q44: Which of the following aspects are included as part of the medical evaluation for those who wear respirators in your organization? (Select all that apply)	Initial medical evaluations are performed for all workers who voluntarily use respirators (not including filtering facepiece respirators) - 44%	>50%	>95%	

11. The rationale for selecting each respirator for use in each combination of operation and agent is not consistently documented.

Question	Key Results and Aspirational Goals: Five Year (By 2029) and Entitlement (Reasonably Attainable Maximum or Minimum)			Key Actions
	Key Survey Result	Five-Year Goal	Ent.	
Q43: Which of the following aspects are included in your organization's written inventory of respirator use? (Select all that apply)	The rationale for selecting each respirator for use in each combination of operation and agent - 75%	>80%	>95%	Develop guidance/factsheet Information campaign



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12. Only about half of respondents require that respirator users who are being fit-tested for the first time with a specific model and/or brand of respirator don the respirator for about five minutes prior to the fit testing in order to make adjustments to achieve a comfortable fit.

Question	Key Results and Aspirational Goals: Five Year (By 2029) and Entitlement (Reasonably Attainable Maximum or Minimum)			Key Actions
	Key Survey Result	Five-Year Goal	Ent.	
Q47: Does your organization's respirator fit testing include the following? Respirator users who are being fit-tested for the first time with a specific model and/or brand of respirator will don the respirator for about five minutes prior to the fit testing in order to make adjustments to achieve a comfortable fit. (Select one)	Yes, this is required - 52%	>70%	>95%	Develop guidance / factsheet Information campaign

13. Less than half of respondents require that when workers are being fit tested they wear any applicable safety equipment that may be worn during actual respirator use which could interfere with respirator fit.

Question	Key Results and Aspirational Goals: Five Year (By 2029) and Entitlement (Reasonably Attainable Maximum or Minimum)			Key Actions
	Key Survey Result	Five-Year Goal	Ent.	
Q48: Does your organization's respirator fit testing include the following? Respirator fit testing of workers is completed while they wear any applicable safety equipment that may be worn during actual respirator use which could interfere with respirator fit. (Select one)	Yes, this is required - 43%	>60%	>95%	Develop infographics highlighting PPE that can interfere with fit including any research data that has been collected



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14. Many organizations do not include change out schedules for each air-purifying respirator in their written inventory.

Question	Key Results and Aspirational Goals: Five Year (By 2029) and Entitlement (Reasonably Attainable Maximum or Minimum)			Key Actions
	Key Survey Result	Five-Year Goal	Ent.	
Q43: Which of the following aspects are included in your organization's written inventory of respirator use? (Select all that apply)	Change-out schedules for each air-purifying respirator used - 75% (US- 77%, Intl-65%)	>80%	>95%	Develop guidance / factsheet Strengthen the small business compliance guide Strengthen the NIOSH multi-vapor tool (guidance and tool itself)



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15. Six percent of respondents perform fit testing on employees with facial hair or other impediments that may interfere with proper sealing of a tight-fitting respirator or proper functioning of its valves.

Question	Key Results and Aspirational Goals: Five Year (By 2029) and Entitlement (Reasonably Attainable Maximum or Minimum)			Key Actions
	Key Survey Result	Five-Year Goal	Ent.	
Q49: Is fit testing performed on employees with facial hair or other impediments that may interfere with proper sealing of a tight-fitting respirator or proper functioning of its valves?	Yes - please explain*: 6% No - 89% Unsure - 4%	<6%	<5%	Information campaign
	*Yes - please explain: "as educational tool to explain the need to removing facial hair" "As we use quantitative fit testing we do this to show they fail." "Employees believe shaving is optional" "for full-face covering" "For testing is performed with facial hair to determine if the facial hair will interfere with the fit or function. Facial hair is allowed if the user passes the fit test." "If they have a documented medical case i.e. Folliculitis barbae" "Implementation of Clean Shaven or No Facial Hair Policy for respirator users" "In accordance with NIOSH facial hair styles." "It depends on who is administering the fit test" "some refuse to shave on religious grounds" "stubble hair/forgot to shave"			



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16. In spite of the importance of fit testing and the high percentage of practitioners that include fit testing in their RPP (about 95% - Q45), 20% of RPP teams lack someone trained in fit testing.

Question	Key Results and Aspirational Goals: Five Year (By 2029) and Entitlement (Reasonably Attainable Maximum or Minimum)			Key Actions
	Key Survey Result	Five-Year Goal	Ent.	
Q42: In which of the following areas do you or someone on your respiratory protection program(s) team have training? (Select all that apply)	Qualitative fit testing 81% Quantitative fit testing 80% Lack of training is more often reported by respondents who have 10 or fewer years of experience in respiratory protection programs: (Qualitative: 72%/ Quantitative: 75%).	>85%	>95%	Continuing Ed Training Program Outreach (AIHA?) Partner with fit-test equipment vendors to develop readily accessible guidance and training resources



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