

SEM subcommittee recommendations for occupational history questionnaire Draft March 16, 2017

The SEM subcommittee reviewed both the current occupational history questionnaire from DOL and the draft proposed changes, and has the following recommendations:

(1) We recommend retaining the list of hazards/exposures/materials on the current OHQ, and expanding that list by adding the list of hazards/materials from BTMed. For each exposure reported, the worker should be asked to describe how he/she was exposed to each material with an emphasis on describing the tasks associated with the exposure; this would be captured using free text. The worker would also be asked to rate the frequency of exposure to each hazard, using the scale from BTMed. In addition, we suggest adding a box next to each exposure on the list, asking if the worker used the material directly or was exposed as a bystander.

The current version of the OHQ asks about specific exposures that could be expanded with the text box and assessment of exposure frequency.

The list of hazards should include asbestos; silica; cement dust; engine exhausts; acids and caustics; welding, thermal cutting, soldering, brazing; metal cutting and grinding; machining aerosols; isocyanates, organic solvents, wood dust, molds and spores. Each of these has been shown to cause COPD (see COPD presumption for detailed rationale)

RATIONALE: The goal of this recommendation is to expand the amount of information on specific hazards and materials available to the claims examiner, the consulting industrial hygienist, and the medical consultant. To determine if a disease is related to exposures one generally need to know whether an exposure occurred and to be able to assess duration and intensity in a qualitative way. The worker's description of the tasks and associated hazards is widely considered the most important part of any occupational medicine consultation, and needs to be included in the OHQ.

Bulletin 16 – 03 describes a new process, the direct disease link work process, to link medical conditions to specific tasks. The guidance document states that “Data supplied by an employee or survivor in an occupational history or other personal statements can be accepted as reliable when sufficient detail or other information is provided that documents the scope and type of work performed”. The subcommittee believes that the OHQ, if revised as recommended, would meet this standard.

As additional support for these recommendations, the committee notes that bulletin 16 – 03 states “the CE needs to carefully compare what job tasks the employee actually performed” when using the DDLWP. It also states “To obtain a causation opinion, the CE prepares a summary of the employment that specifically references how much time the employee spent working on one or more DDLWP and describes the work.” Given that the current OH Q does not collect information on tasks, nor on length of time

performing any specific task or operation, it is important to revise the OHQ to allow the claims examiner to effectively utilize the DDLWP.

(2) We recommend adding the list of tasks that we have in BTMed, even knowing that it is incomplete.

The committee discussed the feasibility of creating a list of tasks for production workers similar to what BTMed uses for construction workers but felt that would be almost impossible given the wide range of tasks over the years in the DOE complex. This alternative, of getting a more detailed occupational history from each worker will provide the comparable information.

RATIONALE: As noted above, a primary goal of the OHQ is to identify hazardous exposures for a specific worker, so that information can be used in a causation determination. A worker may not know the names of all the materials he/she used, but will know the tasks she/he performed. Task alone, even without the names of the associated hazards can give the industrial hygienist a good sense of what exposures occurred, and what additional questions need to be asked in the document acquisition request or directly from the worker.

(3) We recommend adding a specific question regarding vapors, gases, dusts and fumes (VGDF). (This mixture of exposures is an identified cause of occupational COPD, and an affirmative answer to the question “Have you been exposed to vapors, gases, dusts and fumes?” predicts COPD in population-based studies). We suggest adding

(a) The question: “Have you been exposed to vapors, gases, dusts and fumes in your work at DOE?”

(b) If the answer to (a) is “yes”, the worker should be asked about frequency of exposure to VGDF overall using the scale above.

(c) If the answer to (a) is “yes” the worker is then asked “Have you already reported all exposures to vapors, gases, dust and fumes in your answers above?” If not, he/she should be asked to describe additional tasks and materials associated with exposure, to VGDF, the frequency using the scale recommended above under (1), the assessment whether the exposure was through direct use or as a bystander, and an assessment of the number of years of exposure.

(d) Since it is necessary to assess VGDF exposure outside of the DOE complex (see COPD presumption for rationale), the worker should be asked to describe how he/she was exposed to same or similar materials in work prior to or after DOE work. Using the same format noted above under (1), the worker would be asked the tasks associated with the exposure, the frequency of exposure to each hazard, and if the worker used the material directly or was exposed as a bystander.

RATIONALE: Substantial medical literature has investigated the etiology of COPD among general populations in the U.S., Italy, New Zealand, Poland, Australia, Spain, and elsewhere (see reviews in ATS Statement, 2003; ATS Statement, 2010^(1;2)).

In 2003 the American Thoracic Society, which is the preeminent respiratory disease organization in the United States, published the enclosed paper concluding that

occupational exposures were responsible for a substantial fraction of COPD in the United States. Another paper from the American Thoracic Society published in 2010, with Eisner as the lead author and the title “An Official American Thoracic Society Public Policy Statement: Novel Risk Factors and The Global Burden of Chronic Obstructive Pulmonary Disease,” describes that there is a very strong and well accepted relationship between occupational exposures and COPD; see the section starting on page 704. This document describes that it is a strong causal relationship and describes other literature that has identified some specific agents that are part of the overall occupational exposures to vapors gases dust and fumes. Table 5 in this paper lists some studies that have identified specific agents, including asbestos and quartz; quartz is another name for as crystalline silica.

Other primary research studies have defined the causative occupational exposures as a combined exposure to vapors, gases, dusts and fumes (VGDF). These large studies of varying study designs have consistently shown that occupational exposures defined as “gases, dusts, vapors, and fumes” increase the risk of COPD. A dose-response relationship has been seen ^(7;8), and the effect is observed among both smokers and non-smokers ^(4;5). The effect of smoking and occupational exposures appears to be additive. A recent study published looked at COPD and occupational risks in DOE facilities specifically, and found that VGDF significantly increased the risk for COPD ⁽⁹⁾.

Therefore, it is essential to assess workers’ exposures to VGDF. As noted above, research has shown that the question “Have you been exposed to vapors, gases, dusts and fumes?” predicts COPD in population-based studies.

COPD is caused by cumulative exposure, as demonstrated by the presence of a dose-response in population-based studies. This fact means that all on-going exposures to VGDF contribute and aggravate dust-induced COPD. Therefore, it is important that exposures outside the DOE complex be considered when determining if a minimal length of exposure has occurred to meet a presumption.

(4) We recommend that the version of the OHQ developed in response to these recommendations be tested multiple times to determine if the information obtained is sufficient to support the process described in 16-03. The board can provide additional information on how to collect data on tasks if that is needed for full implementation of bullet 16-03.

DISCUSSION: The committee understands that these changes would make for a longer questionnaire, but we believe adding the worker's description of how they were exposed to materials is essential for development of the claim. We understand the department's concern that workers, when presented with a list of hazards, might check off all hazards. Adding a narrative description of how the worker was exposed to that hazard would provide validation of the exposure, since it requires knowledge and understanding of tasks. When the questionnaire gets to the industrial hygienist, that hygienist will be able to see if the narrative is consistent with general IH knowledge

about that occupation or specific knowledge about the site, and can determine if the OHQ can be used as the basis for exposure assessment.

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(3) Balmes JR. Occupational contribution to the burden of chronic obstructive pulmonary disease. *J Occup Environ Med* 2005 Feb;47(2):154-60.

(4) Blanc PD, Iribarren C, Trupin L, Earnest G, Katz PP, Balmes J, et al. Occupational exposures and the risk of COPD: dusty trades revisited. *Thorax* 2009 Jan;64(1):6-12.

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(6) Bergdahl IA, Toren K, Eriksson K, Hedlund U, Nilsson T, Flodin R, et al. Increased mortality in COPD among construction workers exposed to inorganic dust. *Eur Respir J* 2004 Mar;23(3):402-6.

(7) Weinmann S, Vollmer WM, Breen V, Heumann M, Hnizdo E, Villnave J, et al. COPD and occupational exposures: a case-control study. *J Occup Environ Med* 2008 May;50(5):561-9.

(8) Mehta AJ, Miedinger D, Keidel D, Bettschart R, Bircher A, Bridevaux PO, et al. Occupational exposure to dusts, gases, and fumes and incidence of chronic obstructive pulmonary disease in the Swiss Cohort Study on Air Pollution and Lung and Heart Diseases in Adults. *Am J Respir Crit Care Med* 2012 Jun 15;185(12):1292-300.

(9) Dement J, Welch L, Ringen K, Quinn P, Chen A, Haas, S. A case-control study of airways obstruction among construction workers. *Am J Ind Med* 58:1083-1097, 2015.