

Miller, Diane M. (CDC/NIOSH/EID)

From: Hearl, Frank J. (CDC/NIOSH/OD)
Sent: Wednesday, January 20, 2010 3:26 PM
To: NIOSH Docket Office (CDC)
Cc: Boord, Leslie F. (CDC/NIOSH/NPPTL); fparker3@calicheltd.com
Subject: RIN: 0920-AA33 42 CFR 84
Attachments: Respirator Fit Testing for H1N1 Flu Protection.docx

I spoke with Frank Parker last week at a meeting I attended in California, and he mentioned concerns that touched on our current TIL proposal. I encouraged him to submit his concerns to the open NIOSH docket, but apparently he had difficulty finding the instructions. I am forwarding these to you for inclusion at his request.

<Frank>

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From: Frank Parker [<mailto:fparker3@calicheltd.com>]
Sent: Wednesday, January 20, 2010 11:10 AM
To: Hearl, Frank J. (CDC/NIOSH/OD)
Subject: Respirator TIL

Great seeing you in Irvine. I'm glad we were not there this week.

Per our discussion at the YPSW, I have tried to get my comments on the TIL issue submitted to NIOSH. I found the rule on the NIOSH web site but found no way to submit comments. I've attached my comments. Maybe you can get them in the system for me or tell me what I need to do concerning the web site.

Regards

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Respirator Fit Testing for H1N1 Flu Protection

We recently had the opportunity to conduct quantitative fit testing on 797 medical personnel employed at an international level hospital in response to concerns over the H1N1 Flu threat. This hospital chose two sizes of the N95 and one size of the N100 disposable respirators produced for the health care industry by an internationally known respirator manufacturer. The vast majority of health care professionals [Doctors, Nurses, Personal Care Assistants, etc.] were tested on the N95s. Respiratory Therapists, who were required to be near patients who were coughing, were the only ones fit tested with the N100. The quantitative measurements were conducted using a well known and well tested particle counter specifically designed for disposable respirator fit testing.

There is no question that the N95 and N100 disposable respirators' filter media are highly effective against very small particles and aerosols such as pathogens. The Achilles' heel of these respirators has always been obtaining a good face seal. An effective face seal is especially critical for those health workers who come in contact with patients suffering from communicable diseases that pose an airborne risk. Unlike hazardous chemicals which do not multiply upon entering the body, it takes only a few pathogenic organisms by-passing the respirator's filter media via a compromised face seal to cause serious disease in a health worker.

The hospital scheduled their personnel for fit testing over two shifts per day, including weekends, in an attempt to fit test as many workers as possible. The fit testing effort lasted for approximately six weeks. Due to the very nature of hospital workloads, it was impossible to maximize the number of fit tests per shift based on tester availability. Frequently only one or two workers were fit tested per shift.

For approximately 50% of personnel tested, the test had to be interrupted at least once and the respirator readjusted in order to obtain a satisfactory face seal. Many of the tests had to be interrupted several times and the respirator readjusted before the individual could pass all portions of the fit test. Individuals with small or flat nose bridges had the most difficulty obtaining a proper fit. In the final analysis 719 [90%] were successfully fit tested [N95-625; and N100-93]. 78 [10%] failed all efforts to be fit tested [One N95-44; Both N95s-28 and N100-6].

So what did we learn or relearn?

- Even with a quantitative fit testing program, this hospital can expect approximately 10% of their workers not to be protected from airborne pathogens using only these respirators;
- Without a quantitative fit testing program, the respirator fit test failure rate would have been at least 50%;
- One should have no confidence that a worker who is simply handed a respirator will obtain a proper fit;
- One brand, one type and one size does not fit all workers;
- Quantitative fit testing is clearly necessary if proper fit is to be achieved, especially in high risk situations such as protecting against pathogens;

- Quantitative fit testing is a great teaching tool in that it directly correlates how the masks feels on the subject's face with how it is performing; and
- Fit testing and respirator training must be done well in advance of their necessary use. If any organization, especially a hospital, waits till a crisis such as a H1N1 outbreak is upon them, to start fit testing, many workers will already be exposed to airborne pathogens before they can physically be fit tested and trained.