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ASSESSING HEALTH CONCERNS & OBSTACLES TO DIESEL EXPOSURE REDUCTION IN VERMONT DIESEL VEHICLE OPERATORS

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BACKGROUND AND OBJECTIVES

Diesel vehicle idling reduction is an important national environmental and legislative issue. Exposure to diesel exhaust is associated with significant morbidity and mortality, including:

- Lung & esophageal cancer
- Asthma
- Cardiovascular disease
- Neurotoxicity
- Decreased sperm count¹ & testosterone deficiency²

Drivers of diesel vehicles have specifically been shown to have increased incidence and death from lung cancer³.

Diesel engines emit a number of known hazardous chemicals, including carbon monoxide, nitric oxide, sulfur dioxide, benzene, formaldehyde, and acrolein, into the air supply⁴.

While public health efforts to reduce diesel idling in Vermont and elsewhere have identified employers' significant financial incentives in fuel conservation, perhaps there is also a role for appealing to drivers themselves: the people who are incurring the most direct exposure. It is unknown, however, whether Vermont diesel vehicle operators are aware of the health effects of diesel exhaust – or, more significantly, whether they are concerned about it.

In order to identify potential targets for future interventions to reduce diesel idling in Vermont, this study aims to probe the following:

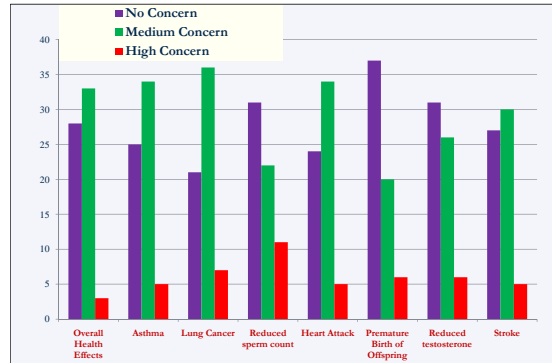
- Have Vermont drivers been educated about exhaust exposure?
- Are they concerned about potential health effects of diesel?
- Are they satisfied with their understanding of the health impact of diesel fuel?
- What are their health concerns, more generally?
- What resources for health information do they respect?
- What are their specific obstacles to idling reduction?

METHODS: SURVEY DESIGN & SAMPLE

Anonymous surveys were administered by medical student researchers to 67 local delivery adult drivers, ranging from ages 24-67, at 7 diesel fleets in the Greater Burlington and Rutland, Vermont areas during November – December 2009 before morning delivery routes.

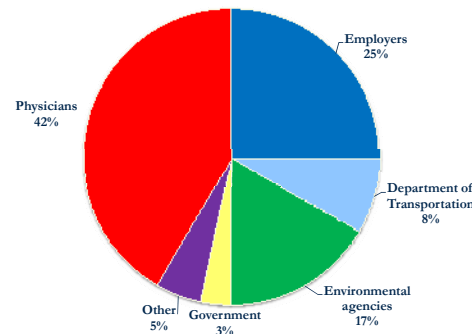
Businesses were targeted on the basis of lacking a no-idling policy and employing a diesel fleet of > 10 drivers. All participants completed surveys voluntarily, and surveys with >1 question skipped were excluded. Of 72 surveys returned, 67 met criteria for inclusion in data analysis.

Figure 1: “HOW CONCERNED ARE YOU ABOUT POTENTIAL EFFECTS OF DIESEL EMISSIONS ON YOUR HEALTH?”



Fisher's Exact Test was used to assess associations between whether health information had been provided by the employer and the extent of health concern, or between age (≤ 30 vs. > 30) and health concern; no statistically significant trends were found (α= 0.5, 2-tailed).

Figure 2. VERMONT DRIVERS REPORT THEIR “MOST CREDIBLE” SOURCES OF HEALTH INFORMATION



QUOTED FROM VERMONT DIESEL VEHICLE OPERATORS:

“In the winter, I idle all day long.”

“Our trucks are safe. What comes out of our engines is no more dangerous than what comes out of your furnace.”

“Oh man. Maybe I should be concerned about this stuff. I don’t know the difference...”

Table 1. “Why do I idle?”
 Driver-Reported Barriers to Idling Reduction

“To keep myself warm/cool”	64%
“I am only stopping a few minutes”	34%
“It is better for the engine”	12%
“I am unloading my truck”	12%
“I am keeping my truck’s contents warm/cool”	5%

“HAVE YOU BEEN PROVIDED INFORMATION ABOUT THE POTENTIAL EFFECTS OF DIESEL ON YOUR HEALTH?”

75%	NO
25%	YES

LIMITATIONS

This was a small (n=67) convenience sample of distributors. Future research might sample a larger, random sample.

RECOMMENDATIONS & CONCLUSIONS

> DRIVER EDUCATION

75% of drivers report that they have not been educated about the potential health effects of diesel exposure, and only 15% are “very satisfied” with their understanding of this issue. While our sample does not report an overwhelming concern about health effects of diesel exposure, this may be a function of limited education. Thus, driver education may be an effective target for idling reduction.

> IDLING-REDUCTION POLICIES

2/3 of drivers report that they would “almost always” or “always” follow employer-set policies. Using drivers’ reported reasons for idling allows a more focused, rational approach to idling reduction.

> PHYSICIAN ADVOCACY

Physician advocacy may play an important role in improving drivers’ education and, consequently, reducing idling.

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