HB 2814- Testimony in Support

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Thank you for the opportunity to submit testimony today. Below please see references for testimony given orally today, as well as references from prior testimony. Air pollution causes and worsens disease, and ample testimony regarding the data has been submitted to this body regarding this previously, especially from the American Lung Association and the Oregon Thoracic Society. I also submitted the supportive testimony from Oregon Thoracic Society on health effects of diesel that have also previously been submitted.

- For every 1ug/m3 increase in PM2.5, there is a 7.2% increase in asthma hospitalizations and a 4.2% increase in ER visits.
- Kids with asthma miss 2 ½ more days of school than kids without asthma, and adults with asthma miss around 14 million work days each year, around $2 billion dollars of additional costs.
- All this contributes to the almost 56 billion dollars the US spends on asthma each year.

References for Oral Testimony March 3rd, 2021:

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Benefits and Cost of the Clean Air Act 1997-1990- Retrospective Study

Keet et al. Long-Term Coarse Particulate Matter Exposure Is Associated with Asthma among Children in Medicaid." AJRCCM. Volume 197, Issue 6. Nov 2017.

Wang LY, Zhong Y, Wheeler L. Direct and indirect costs of asthma in school-age children. Prev Chronic Disease. Jan 2005. 2(1).

Oregon Thoracic Society Testimony on Health Effects of Traffic Related Air Pollution-

Thank you for the opportunity to submit testimony and thank you all for your service to our State. The Oregon Thoracic Society is comprised of lung doctors, thoracic surgeons, and healthcare professionals who care for patients suffering from respiratory illnesses. We witness the health toll of air pollution and diesel in our practices while treating those who suffer from some of the many diseases caused or worsened by diesel and other air pollution. We are particularly concerned about the health burden of diesel on children, who frequently attend school by high traffic corridors around the state and ride diesel buses that negatively impact their health. This is not only a problem for urban children and adults, but for all children around the state attending schools near high-traffic roads and commuting to school in school buses or in traffic with older diesel engines.

It may seem hard to understand how particulate matter from a tailpipe can sicken people, but it is important to remember that the lungs are designed to extract oxygen from the air straight into our blood stream. Think of inhaling something small as an intravenous injection- fine particulate matter goes from the air into the bloodstream and circulates throughout the body causing disease.

Damage from air pollution starts in the womb. Exposure of pregnant women to ambient air pollution causes premature and low birth weight children.[1] Traffic pollution causes asthma attacks in children, and likely causes asthma itself with impaired lung function.[2,3] We can measure black carbon coughed up by children and see more lung damage with higher concentrations.[4] Traffic-related air pollution further causes deficits in memory, cognitive function,[5] and attention[6] with a study even showing MRI changes in children's brains.[7] Children in high-emitting diesel school buses are particularly vulnerable, whether windows are open or closed. Low emitting school buses result in improved air quality for children.[8]

Diesel is a human carcinogen and causes lung cancer and likely other cancers.[9] Air pollution from traffic decreases adult lung function and causes COPD.[10,11] It also causes heart attacks and death.[12,13] Air pollution not only increasing risk of dementia[14] and stroke,[15] but it also increases osteoporosis and bone fracture risk.[16] Increases of 10 ug/m^3 in $PM_{2.5}$, abundant in diesel exhaust, are associated with a 7.3% increase in all-cause mortality among Medicare beneficiaries.[17]

Diesel exhaust is particularly toxic, a known human carcinogen, and children are especially vulnerable to the long-term and short-term health effects of exposure to it due to their higher respiratory rates, increased activity, and vulnerable developmental windows. The American Lung Association of Oregon (for whom we are the Oregon Medical Advisory Board) has testified about these dangers to this legislative body. People who work with diesel (eg truckers, miners, farmers, tollworkers, other industrial work) are also vulnerable, as are those who spend a great deal of time commuting in traffic for other reasons or live by high traffic roads.

Fortunately, we can make it better. Decreasing air pollution improves lung function in children.[18] Washington State, when cleaning up its diesel fleet, decreased the particulates to which children were exposed and also decreased missed school days, particularly in children with asthma.[19]

The lung diseases that are caused or worsened by air pollution are very expensive and common. Around 6% of Oregon residents surveyed in 2011 stated they had been told that they had COPD, but the number is likely higher.[20] Cost for this care will fall disproportionately on taxpayers, as patients with COPD are

more likely to be unable to work and have a household income less than $25,000.[8] Asthma is also a significant burden in our state, affecting 10% of adults and 7% of children totaling over 360,000 Oregonians[21] and responsible for over 2000 people hospitalized for asthma in 2012 alone. Healthcare costs will again fall disproportionately on taxpayers, since those affected by asthma often have lower income, and are more frequently enrolled in the Oregon Health Plan and CHIP. In addition to the toll on human health and direct healthcare spending, there are also costs in worker productivity. Over 25% of people in Oregon with asthma missed more than one day of work due to asthma,[22] and children are also likely to miss school because of asthma, particularly if their school is located by high traffic area and exposure to air pollution is high (which it often is).

COPD and asthma cost more than $100 billion per year, over $50 billion for COPD in the US[23] and $56 billion for asthma in 2007,[24] likely more since that time, with estimates of asthma in Oregon alone at 3 billion. Inhaler costs are skyrocketing.[25] These are likely low estimates since the increase in inhaler costs and medical costs in general have not been factored in adequately. List price for regular inhaler therapy for asthma and COPD is currently around $4,000-11,000 per year, not including rescue medications, doctor visits, etc. This will only worsen as more people move to the state, traffic congestion around the state worsens, and idling and air pollution by schools both urban and rural increases. For every dollar we invest in cleaner air, we will reap significant benefits.

References- *There is a large wealth of data on the health effects of air pollution and diesel. These are a representative few, several particularly chosen for strength and reputation of journal (eg New England Journal of Medicine, American Journal of Respiratory and Critical Care Medicine, Lancet) as well relevance to Oregon. Please contact OTS and ALA if you would like to discuss further.*
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[2] Khreis et al. "Exposure to traffic-related air pollution and risk of development of childhood asthma: A systematic review and meta-analysis." Environ Int. 2017 Mar;100:1-31

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