

17 July 2020

To the Joint Committee on Transparent Policing and Use of Force Reform-

Thank you for the opportunity to submit testimony regarding HB 4208 and the use of tear gas in the state of Oregon. I am a pulmonary and critical care physician who cares for people in the clinic as well as the intensive care unit. As a lung doctor, I have been very concerned thinking about all of my patients. It has been interesting hearing tear gas referred to as a “non-lethal” intervention. I have had to send patients to the ER after exacerbations from far less noxious compounds. I even had one patient with severe asthma/COPD overlap syndrome come close to respiratory arrest in my office lobby because someone was wearing perfume. With more than 1 in 10 Oregonians suffering from asthma, this is very dangerous to our population, and it is impossible to target specifically at one person. I have a patient with obstructive lung disease who is a senior citizen, and tear gas sprayed in her neighborhood entered her house and caused days of illness for her. It was unsurprising to find out that someone has already died acutely after exposure to pepper spray. I, along with other physicians and public health experts, worry there will be more, both directly from tear gas exposure, and due to the use of this substance in the middle of a COVID19 pandemic.

One “study” widely cited for “safety” of pepper spray (capsaicin) does not appear to have been peer-reviewed in the medical literature that I could find, and was done on 34 healthy police cadets and trainers with an average age of 31.7. They wore goggles to protect their eyes and were sprayed once with aerosolized capsaicin and then had lung function tests done. While there was not a difference in lung function, there was a sustained elevation in blood pressure and an increase in heart rate that was significant. This study is of too few people to be helpful (also known as “underpowered”) in answering the question about short and long term health effects. I found the blood pressure elevation worrisome for our country with so much cardiovascular disease. In more real-world settings, our armed forces have studied tear gas in the form of CS (*o*-chlorobenzylidene), and have found that rates of viral illness and pneumonia double in the weeks following exposure, even in young healthy military recruits. A study of people repeatedly exposed to tear gas showed worsened lung function and symptoms of airway disease and damage in those exposed.

Firing this into a crowd in the middle of a pandemic and doubling the rate of viral spread is something we can ill-afford in the middle of a viral pandemic. Both members of our community as well as police officers suffer from conditions such as asthma and COPD, and if young healthy military recruits can suffer airway damage, these community members will be particularly vulnerable.

When we study medications to determine their safety in people, we look at them in large populations and document the comorbidities of those exposed to the substance. Declaring a substance “safe” in the absence of these studies is likely an error, and does not pass the plausibility test if the population exposed includes those with underlying airway disease, particularly for substances known to cause actual burn injury on the skin. This has been the conclusion of others reviewing the literature as well (see references below). Like anything in medicine, we have to think not only about the active ingredient of the substance, but also what it is “mixed” in. Tear gas is not actually a gas but solids deployed in liquid form either from a pressurized dispenser as a spray or aerosolized via mixture of a

powdered chemical form with a pyrotechnic mixture. There is concern for significant toxicity with these mixtures. For example, CS is generally only 45% of the mixture, with the rest including chemicals like maleic anhydride, epoxy resin, etc and generally aerosolizes in 3 to 10um microparticles. Sprays are often dispersed in methyl isobutyl ketone (hexone), which is another potentially hazardous compound.

Though it is frequently lost in the discussion, one important feature I ask you to consider are the healthcare expenditures in the face of a global recession and pandemic. I have treated countless patients with asthma both inpatient and outpatient and am now treating patients with COVID19 in the ICU. This is a severe and devastating virus resulting in prolonged ICU stays and hospitalizations. The US spends over 16 billion dollars per year in asthma care, and we are going to spend untold billions on COVID19. Spreading additional COVID19 cases will lead not only to high healthcare expenditures, for which we all pay in either premium dollars or taxes to support Medicare or Medicaid, but also the economic instability accompanying the loss of breadwinners and caregivers for families. I am also worried we will run out of healthcare capacity in the state if our own government is spraying a substance that doubles viral transmission.

I work in a life-and-death field. I know the surge of adrenaline that occurs in situations with lives at risk, and we are trained to think clearly in these situations. I have also worked with patients that have been violent or verbally abusive towards me and other staff. We train very carefully in how to de-escalate and control these scenarios, and have precise ethical steps we are empowered to take depending on the situation. We always weigh the risks and benefits of each intervention along with patient and staff safety. When I am working with patients in the clinic with high deductibles and the "donut hole," we also think about the costs of each medication vs its benefit to their lives. Tear gas is a "high cost" substance in both human health and downstream healthcare expenditures to treat those suffering from its exposure. It is time for careful reflection on the true risks and benefits of tear gas, particularly in this situation with a circulating pandemic.

I cannot imagine it is worth the human or healthcare costs to be using it as it has been used during these protests.

Thank you for your time and your service to our State.

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