

BRITISH COLUMBIA LUNG ASSOCIATION

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Re: Heat Event Inquiry

The BC Lung Association includes in its mission and programming a concern for persons with chronic lung conditions, of which people with respiratory diseases such as asthma and chronic obstructive pulmonary disease (COPD) are central. We provide direct services of education and care through programs such as the Better Breathers Community and patient forums. We also work on education and advocacy aimed alleviating the environmental risk factors for these diseases. In addition to traditional programming such as our yearly State of the Air Report, we have recently begun a Healthy Indoor Environments program to advance education, awareness, and law reform concerning indoor contaminants that impact on lung health. Here, one of our concerns has been problems with sufficient ventilation in buildings and the relative lack of clear direction in support of lung health in building codes and health and safety standards.

We are very concerned about the heat events of June 25 to June 30 in British Columbia, and the effects that they may have had on the populations we serve. Researchers have documented that indoor heat exposure in COPD patients contributes to respiratory morbidity.¹ Extreme heat can increase airway resistance rapidly and trigger asthma symptoms, with numerous

¹ McCormack, M.C., Belli, A.J., Waugh, D., Matsui, E.C., Peng, R.D., Williams, D.A.L., Paulin, L., Saha, A., Aloe, C.M., Diette, G.B. and Breyse, P.N., 2016. Respiratory effects of indoor heat and the interaction with air pollution in chronic obstructive pulmonary disease. *Annals of the American Thoracic Society*, 13(12), pp.2125-2131.

studies showing increased hospitalization of asthma patients after extreme heat events.² It is also well established that extreme heat and air pollution act synergistically to exacerbate physiologic dysfunction and respiratory symptoms in patients suffering from chronic lung disease.³ Particulate matter (PM_{2.5}) ozone (O₃) and nitrogen dioxide (NO₂) are linked to respiratory diseases.⁴ The heat event likely increased these pollutants. For instance, elevated temperatures together with solar irradiation are known to increase ground level O₃.

We laud the efforts of the BC Coroners Service and the British Columbia Centre for Disease Control in investigating the heat death events. We are concerned that the investigation does not overlook the needs of lung health patients, their families and friends, and service providers.

We request that the investigation consider where possible, the degree to which COPD, asthma, and other lung conditions may have been a contributing factor in death. We are also concerned about the interaction of heat with other contaminants for these populations, such as allergens, NO₂, O₃, and PM_{2.5}, which may have infiltrated indoors from ambient air or in some cases have originated within homes. We are also interested on behalf of our lung patient constituents-- as we are sure many other interested parties are-- in the degree to which better preventative steps might have been taken, such as improved building ventilation and air filtration (both in practice and in codes and standards).

We look forward to the results of the investigation and feel it will be an important tool in future preventative health planning, improving health outcomes, emergency response and saving lives in the province.

Yours,



Noah Quastel



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² Deng, S.Z., Jalaludin, B.B., Antó, J.M., Hess, J.J. and Huang, C.R., 2020. Climate change, air pollution, and allergic respiratory diseases: a call to action for health professionals. *Chinese Medical Journal*, 133(13), p.1552.

³ Carlsten, C., 2018. Synergistic environmental exposures and the airways capturing complexity in humans: an underappreciated world of complex exposures. *Chest*, 154(4), pp.918-924.

⁴ D'Amato, G., Vitale, C., Lanza, M., Molino, A. and D'Amato, M., 2016. Climate change, air pollution, and allergic respiratory diseases: an update. *Current opinion in allergy and clinical immunology*, 16(5), pp.434-440.