

# Canines Might Be Key to Early Cancer Detection



By *Jamie Wells, M.D.* — April 16, 2019

*Should we turn our nose up at using a dog's keen sense of smell as a cancer screening tool? Or to help identify relevant biomarkers that scientists should be isolating for diagnostic purposes?*



Gratuitous picture of my bulldog

It is only appropriate that during the week that honors National Pet Day research that supports using the superior snouts of dogs for cancer screening was presented at the annual Experimental Biology 2019 meeting of the [American Society for Biochemistry and Molecular Biology](#) <sup>[1]</sup> in Orlando, Florida. Given dogs have olfactory receptors [10,000 times](#) <sup>[2]</sup> more precise than humans, it is no surprise the findings in this work demonstrated 97% accuracy when it came to them discerning blood samples of otherwise healthy people from those with lung cancer.

For humans, the health benefits of animals are well-documented. Review [here](#) <sup>[3]</sup> for their impact in coping capacity, reduction of heart rate and blood pressure in chronic stress affirmed via investigation of intra-individual cortisol variability. These cardiovascular advantages especially promote overall well-being. Or, [here](#) <sup>[4]</sup> for analysis of a study from [BMC Psychiatry](#) <sup>[5]</sup> that concluded “pets should be considered a main rather than a marginal source of support in the management of long-term mental health problems, and this has implications for the planning and delivery of mental health services.” That work expressly examined those suffering from long-term significant mental illness (e.g. bipolar disorder, schizophrenia). Beyond this particular citation, the mental health gains are known and considerable.

Increasingly, service dogs are being trained and utilized to assist those with chronic physical

conditions as well as veterans enduring PTSD (aka post-traumatic stress disorder). These animals can be effectively coached to warn an individual of an imminent seizure, thereby ensuring the person's safety while preventing secondary adverse effects (ie drowning, head trauma from injury over fall, being a pedestrian struck). For anyone, let alone a child with cerebral palsy (to read about such a young girl who recently won a unanimous Supreme Court decision over it, see [here](#) <sup>[6]</sup> ) navigating the challenging phases of development, these animals permit any person suffering, no matter the age, life stage or disease state, to be an active participant in his or her communities and the world. For some, the independence garnered affords them unlimited entry to the world, self-reliance and a dignity many of us often take for granted.

Then, there are the self-protections animals have that allow them to flee from danger or rapidly detect impending inclement weather. Recall the many examples of the science that has shown how they migrate to safer ground in advance of some of the great earthquakes or natural disasters.

Our airport personnel utilize them for drug sniffing purposes. As do law enforcement involved in rescue and recovery missions. So, is it really some great leap that the thought of using this uncanny ability of dogs as a cancer-detection tool is on the horizon?

Though the presentation of findings at this recent conference has yet to be published in a peer-reviewed journal, the notion of employing this keen dog sense either as a non-invasive screening method or to direct scientists to aptly identify the relevant biomarkers or compounds they should be isolating could provide great hope. At present, this holds a lot of promise but feasibility of implementation requires much consideration. Another project by the same group is underway for breast cancer while more is being developed for other life-threatening diseases.

As an admitted dog lover, any study with that kind of accuracy that taught four beagles how to distinguish blood specimens of a healthy individual from those of patients with lung cancer without doing any harm to anyone captures my attention. Tack on the anecdote that one beagle named "Snuggles" was "unmotivated to perform" and who isn't intrigued.

In the end, the utility of isolating new, highly specific markers for cancer detection in the reverse through employing canine scent detection is not something to turn one's nose up at - nor is the potential as a general tool.

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[1] <https://plan.core-apps.com/eb2019/abstract/75baa294-b5aa-489c-8c74-d36144aca3c5>

[2] [https://www.eurekalert.org/pub\\_releases/2019-04/eb-ssd032819.php](https://www.eurekalert.org/pub_releases/2019-04/eb-ssd032819.php)

[3] <https://www.acsh.org/news/2017/02/20/are-you-your-dog-science-10883>

[4] <https://www.acsh.org/news/2016/12/12/hey-prescription-nation-pets-now-main-script-mental-health-issues-10565>

[5] <https://bmcp psychiatry.biomedcentral.com/articles/10.1186/s12888-016-1111-3>

[6] <https://www.acsh.org/news/2017/02/26/big-supreme-court-win-girl-and-her-service-dog-10907>