

Dogs recruited in the fight against cancer

By *Nicholas Staropoli* — April 13, 2015

A study published in this month's [Journal of Urology](#) outlines a better than 90% effectiveness of dogs at detecting prostate cancer by sniffing a patient's urine. The researchers, based in Italy, trained two 3-year-old female German Shepherds for 5 months using operant



Man's best friend has long been admired for their remarkable sense of smell. From Sherlock Holmes to the TSA, the canine olfactory system has been directed by humans to detect a long list of items, including bodies, bed bugs and bombs. Now researchers in Europe want to add another item: Cancer.

A study published in this month's [Journal of Urology](#) [1] outlines a better than 90% effectiveness of dogs at detecting prostate cancer by sniffing a patient's urine. The researchers, based in Italy, trained two 3-year-old female German Shepherds for 5 months using operant conditioning to detect volatile organic compounds that are specific to patients with prostate cancer. After training, the dogs were exposed to more than 900 urine samples from both healthy and prostate cancer patients. Dog 1 was able to identify all 540 experimental urines as being from cancer patients, while Dog 2 was able to identify all but 5. The dogs were also extremely accurate in detecting control urine as such, with the dogs respectively misidentifying only 7 and 13 out of 362 healthy specimens.

At this point, it has yet to be elucidated what the dogs are detecting in the prostate cancer patient's urine, broadly referred to as volatile organic compounds that are not found in the healthy patients.

This is not the first time a study has shown that dogs may possess a talent for diagnosing cancer. A 1989 article in the *Lancet* described a dog who was able to detect a melanoma on her owner's leg and recently (2011) a small study (sample size of 66 total specimens) showed that a trained Belgian Malinois was able to discern urine from healthy patients vs. prostate cancer urine at a 91%

success rate.

Although the dogs in this study were not able to differentiate early from metastatic/late stage cancers, their incredible accuracy brings hope to sufferers from a cancer that is marred by poor screening techniques and overdiagnosis. Prostate Specific Antigen (PSA) screening is currently the most commonly used method to detect prostate cancer, however, the efficacy of this test has come under scrutiny in the past few years. Many, including the United States Preventive Task Force and we [here](#) [2] at [ACSH](#) [3], have spoken out about the lack of evidence that PSA screening reduces mortality and instead state that PSA screening leads to patients undergoing invasive and risky procedures that offer little to no actual gain.

It is unclear when canine cancer detection will make its way to the clinic. The study's authors point out that many questions still remain before this can go mainstream the most important of which is to discover the identity of the volatile organic compounds the dogs utilize in their detection efforts. It therefore may be some time before we see dogs making the rounds on the oncology unit.

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[1] [http://www.jurology.com/article/S0022-5347\(14\)04573-X/abstract](http://www.jurology.com/article/S0022-5347(14)04573-X/abstract)

[2] <http://acsh.org/2014/11/routine-psa-screening-still-recommended/>

[3] <http://acsh.org/2014/09/prostate-cancer-screening-psa-testing-harm-good/>