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Dogs Excel on Smell Test to Find Cancer By DONALD G. McNEIL Jr.

In the small world of people who train dogs to sniff cancer, a little-known Northern California clinic has made a big claim: that it has trained five dogs - three Labradors and two Portuguese water dogs - to detect lung cancer in the breath of cancer sufferers with 99 percent accuracy. The study was based on well-established concepts. It has been known since the 80's that tumors exude tiny amounts of alkanes and benzene derivatives not found in healthy tissue. Other researchers have shown that dogs, whose noses can pick up odors in the low parts-per-billion range, can be trained to detect skin cancers or react differently to dried urine from healthy people and those with bladder cancer, but never with such remarkable consistency.

The near-perfection in the clinic's study, as Dr. Donald Berry, the chairman of Biostatistics at M. D. Anderson Cancer Center in Houston, put it, "is off the charts: there are no laboratory tests as good as this, not Pap tests, not diabetes tests, nothing." As a result, he and other cancer experts say they are skeptical, but intrigued. Michael McCulloch, research director for the Pine Street Foundation, and the lead researcher on the study, acknowledged that the results seemed too good to be true. "Yes, we were astounded, as well," Mr. McCulloch said. "And that's why it needs to be replicated with other dogs, plus chemical analysis of what's in the breath." But experts who read the study could not find any obvious fatal flaw in its methodology, and the idea that dogs can detect cancer is "not crazy at all," said Dr. Ted Gansler, director of medical content in health information for the American Cancer Society. "It's biologically plausible," he said, "but there has to be a lot more study and confirmation of effectiveness."

Dr. Berry, too, was interested but suspicious. "If true, it's huge," he said. "Which is one reason to be skeptical." The clinic collected breath samples in plastic tubes filled with polypropylene wool from 55 people just after biopsies found lung cancer and from 31 patients with breast cancer, as well as from 83 healthy volunteers. The tubes were numbered, and then placed in plastic boxes and presented to the dogs, five at a time. If the dog smelled cancer, it was supposed to sit. For breath from lung cancer patients, Mr. McCulloch reported, the dogs correctly sat 564 times and incorrectly 10 times. By adjusting for other factors, the researchers determined the accuracy rate at 99 percent. For the breath from healthy patients, they sat 4 times and did not sit 708 times.

Even if the dogs are accurate in repeat experiments, Dr. Gansler of the American Cancer Society said, it will be useful only as a preliminary scan. "It's not like someone would start chemotherapy based on a dog test," he said. "They'd still get a biopsy."