Oodles of Doodles: Popularity and health

As the first part of a larger analysis of the cancer claims of 1.61 million Nationwide®-insured dogs over a six-year period, the leading U.S. pet health insurer reviewed both the popularity of these "designer dogs" as well as their risk for cancer claims relative to the purebreds that make up these crossbreds. *January 2022*

Executive summary

From dog parks to veterinary practices to the feeds of social media influencers, there's no missing the popularity of crossbreds — dogs resulting from the mating of two different purebreds. With whimsical names such as the Labradoodle (a Poodle crossed with a Labrador Retriever) and Goldendoodle (a Poodle crossed with a Golden Retriever), Poodle crosses have become popular partly because of claims that they are low-shedding companions for allergy sufferers and partly because of a widely held belief that mixed-breed dogs are healthier.

While Nationwide's policy and claims data has nothing definitive to say about assertions that Doodles are less likely to trigger allergy symptoms in people[1] or shed less, the company's pet health insurance division has a vast trove of information on one area of health that perhaps concerns pet owners the most: Cancer.

In 2021, Nationwide analyzed the cancer claims of 1.61 million Nationwide-insured dogs over a six-year period. In this first of a series of white papers on that larger study, Nationwide's veterinary analytics team examined the popularity of Doodles compared with their contributing breeds, and then looked at relative cancer claims rates for these popular crossbreds and their purebred progenitors.

The analysis shows:

- **Doodle popularity is up, and Doodle parent breed popularity is down.** Poodle crosses increased as a relative share of Nationwide's pet health insurance policies, while the relative share of the parent breeds fell.
- **Doodle owners are considerably less likely to have submitted a claim for cancer diagnosis or treatment.** Relative risk for cancer claims is dramatically lower in Labradoodles and Goldendoodles in comparison with their contributing breeds — Standard Poodles, Golden Retrievers, and Labrador Retrievers.

Nationwide has been protecting pets for 40 years, and in 2021 the company reached the landmark of actively protecting more than a million companion animals in the United States. This analysis is the first of a series in 2022 and beyond on pet health and the finances of veterinary care. With these studies, Nationwide draws on decades of policy and claims data and vast veterinary expertise, providing insights to drive positive change in pet health care.

[1] "Dog allergen levels in homes with hypoallergenic compared with nonhypoallergenic dogs," C.E. Nicholas, G.R. Wegienka, S.L. Havstad, E.M. Zoratti, D.R. Ownby and C.C. Johnson, American Journal of Rhinology & Allergy (July-August 2011), pages 252-256.

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Doodles and other crosses on the rise

While Poodle crosses, most notably the Cockapoo (a Poodle and Cocker Spaniel cross), have been around for decades, the demand for crossbreds gained steam following the 1989 breeding of the first named Labradoodle in an effort to create a service dog better tolerated by people with allergies.[2] From there, the popularity of crossbreds — soon to be known as "designer dogs" — took off.

For this white paper, Nationwide analyzed Poodle crosses generally and Labradoodles and Goldendoodles specifically from 2013 to 2021. The analysis shows an increase of 160.3% in popularity for all Poodle crosses among Nationwide policies.

Figure 1: Nationwide breed popularity, 2013 to 2021

POODLE CROSSES	
Goldendoodles	↑ 347.4%
Labradoodles	↑ 196.5%
Poodle crosses (all)	↑ 160.3%

PUREBREDS	
Standard Poodles	↓ 32.2%
Labrador Retrievers	↓ 32.0%
Golden Retrievers	↓ 4.0%

After narrowing the analysis as noted (Figure 1), the numbers are even more dramatic, with the relative popularity of Labradoodles and Goldendoodles increasing while that of the contributing purebreds fell during the same 2013 to 2021 period. The increased popularity of Labradoodles and Goldendoodles suggests that dog owners are choosing these pets at the expense of the contributing breeds.

Although purebreds still make up the majority of dogs protected by Nationwide, non-purebreds overall have climbed in popularity while purebreds have declined.

Crossbreds, mixed-breeds and purebreds

Although Nationwide's analysis focused on Labradoodles and Goldendoodles compared with their purebred progenitors, the relative percentage of all non-purebreds grew from 2013 to 2021 while the relative percentage of all purebreds fell. The percentage of dogs in each group relative to the overall percentage of all dogs insured by Nationwide:

	% of Nationwide-insured dogs		
	2013	2021	% of +/-
All crossbreds (two breeds combined)	2.9%	6.6%	↑ 131.9%
Mixed breeds	22.3%	32.4%	↑ 45.5%
Purebreds	74.9%	61.0%	↓ 18.6%

[2] "The first ever labradoodle wasn't a designer dog; he was a guide dog," Australian Broadcasting Corp.'s "Sum of All Parts" (Sept. 22, 2019).

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Cancer claims, purebreds and crossbreds

With the increased popularity of crossbreds, we may be able to put some of the questions about the genetic root of cancer to the test. Importantly from a genetic point of view, there does not seem to be a drive to create "purebred" Doodles. Breeders and pet owners seem satisfied with the offspring of two different parent breeds (often referred to as an "F1" generation) in contrast to breeding Labradoodles with other Labradoodles. This potentially avoids reduction of genetic diversity by ensuring that the breeding pool can be kept wider.

Purebred dogs, in contrast, typically exist within closed breeding pools, with mating limited to other dogs within a particular breed. For example, purebred Labrador Retrievers are bred from and bred with other Labradors to create additional Labradors.[3] While we know cancers have many compounding factors, it is well established that genetics play an important role.[4] Studies also tell us that the formation of dog breeds has driven a much larger reduction in genetic diversity than that observed in the domestication of dogs.[5]

To our readers

People read studies with varying levels of comfort when it comes to statistics, so we've worked to make the information here as easy to understand as possible for everyone. Throughout the cancer section, we've provided the risk ratio or relative risk ("half as likely," "three times as likely") compared with the average claims rate for all dogs, and, where appropriate, have also provided the relative percentages.

For example, if Breed A has a 163.5% risk of having a cancer claim when compared with the mean (average) rate for all dogs, this is equivalent to noting that Breed A is 1.63 times more likely to have submitted a claim, or that Breed A had a 63.5% greater risk of submitting a claim.

In this analysis, we focus on two retriever breeds, the Labrador and Golden, both part of a larger group of breeds that have some of the highest relative risk for cancer claims.[6] We also look at Standard Poodles, which are used in the breeding of Labradoodles and Goldendoodles. The two retriever breeds are those most commonly bred to produce Doodles, and they're also two of the most popular purebred dogs in the United States. Among Nationwide-insured dogs, Labrador and Golden Retrievers account for more than 9 of 10 retrievers, with the relative risk for claims in Goldens of 195.3% (or nearly two times more likely to have submitted a claim) and for Labradors of 163.5% (or 1.63 times) more likely, compared with all other dogs. The Labradoodle and Goldendoodle populations available for analysis are smaller than the parent breed populations; nevertheless, they still number tens of thousands of Nationwide-covered dogs.

[3] There are a few breed organizations outside of all-breed dog registries such as the American Kennel Club that maintain pedigree records but use planned outcrosses to dogs outside of the breed to maintain greater genetic diversity. Other breed clubs within national breed-registry systems have used limited outcrosses to other breeds to address health issues, most notably in the Dalmatian. For most breeds, choosing breeding pairs of different breeds is not an accepted practice by the national breed registries.

[4] "Breed-predispositions to cancer in pedigree dogs," J.M. Dobson (Jan. 17, 2013).

[5] "Linkage Disequilibrium and Demographic History of Wild and Domestic Canids," M.M. Gray, J.M. Granka, C.D. Bustamante, et al., Genetics (April 2009).

[6] The remaining retrievers registered by the American Kennel Club also have a relative risk greater than baseline: Chesapeake Bay Retriever: 140.9% (1.4 times the relative risk), Flat-Coated Retriever, 345.2% (3.5 times the relative risk) and Nova Scotia Duck Tolling Retriever, 205.3%. (2.1 times the relative risk). The Curly-Coated Retriever is not represented among Nationwide-insured pets in sufficient numbers to allow for reliable independent analysis, although it is included in the whole.

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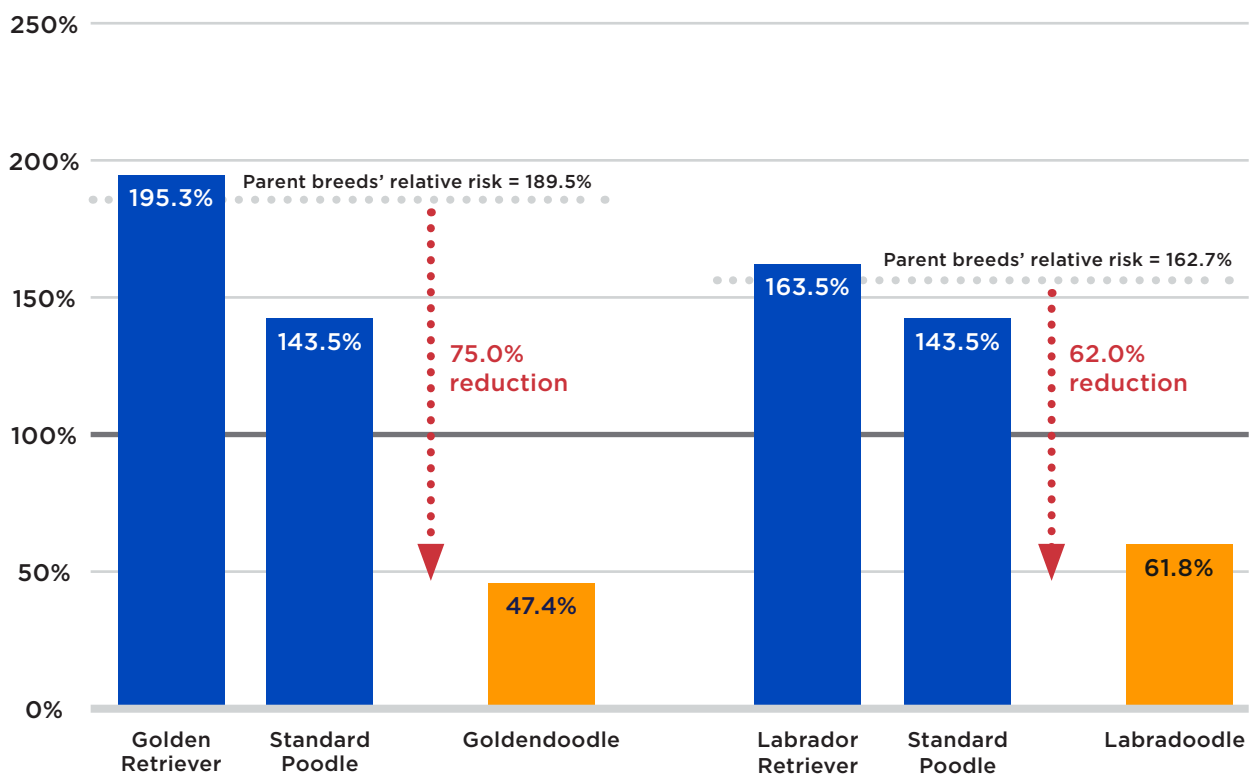
This is a single-variable analysis, not controlling for factors such as nutrition, body condition score/obesity, age, size, environmental factors and others. That noted, the total sample size of 1.61 million dogs is significant, and the population is widely spread across thousands of veterinary practices in all states in rural, suburban and urban locales with a wide variety of demographics reflected in the ownership of the dogs.

The decrease in the relative risk of submitting a cancer claim from purebreds to crossbreds is significant. Calculating a shared relative risk for cancer claims in the parent populations allows us to directly compare the parent and offspring populations:

Figure 2: Relative risk of cancer claims in parent breeds versus Doodle crossbreds



- Goldendoodles are **75.0% less likely** to have a claim submitted for cancer, compared with Golden Retrievers and Standard Poodles combined.
- Labradoodles are **62.0% less likely** to have a claim submitted for cancer, compared with Labrador Retrievers and Standard Poodles combined *(Figure 2)*.

Put another way, the combined relative risk for parent breeds of Goldendoodles having submitted a cancer claim is four times that of their crossbred offspring, and for the parent breeds of Labradoodles it is 2.6 times.

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Purebred dogs are nearly two times more likely to have a claim for cancer than mixed-breed or crossbred dogs

When the focus is broadened to look at purebred versus non-purebred dogs, a similar overall trend emerges. When compared with crossbred and mixed-breed dogs, purebreds as a group are almost twice as likely (188.5%) to have submitted a claim for cancer. (Some of the specific differences among the most popular purebreds will be analyzed in the next white paper in this series.)

Despite the focused nature of pet health insurance data and the limitations of this specific analysis, it is hard to escape the inevitable questions around genetic diversity and the role it plays in many forms of cancer and other diseases in dogs. This topic is currently under discussion and study throughout veterinary medicine,[7] as well as among reputable breeders of purebred dogs, with planned outcross projects for increased genetic diversity now being openly discussed.

Methodology summary

For the analysis of popularity, populations of purebreds, crossbreds and mixed-breeds were isolated and then compared with the entire population of dogs insured by Nationwide, both in 2013 and in 2021. The resulting figures reflect relative percentage as a snapshot in 2013 and again in 2021.

The cancer claims analysis for this white paper and others that will follow was more complex. In brief, the in-house veterinary analytics team looked at all Nationwide-insured dogs, identifying claims activity among 1,612,884 canines over a six-year period (October 2015 to September 2021). The team then identified claims diagnostic codes relating to cancer diagnosis and treatment. Any policy with a claim submission for a cancer diagnostic code was used to calculate the relative risk for having submitted a cancer claim.[8]

A complete disclosure and discussion of cancer claims analysis methodology for all cancer studies in this series as well as any possible limitations of our analysis is available as a separate document at PetInsurance.com/veterinarians/research.

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[7] "The effect of inbreeding, body size and morphology on health in dog breeds," D. Bannasch, T. Famula, J. Donner, et al., Canine Medicine and Genetics (Dec. 2, 2021).

[8] Proprietary business reasons preclude the release of any Nationwide raw data to the public.

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Final note

This is the first of a series of white papers analyzing claims for cancer diagnosis and treatment in dogs, and the first of a series of analyses on companion animal health and veterinary industry financial trends. While most will be conducted by Nationwide's veterinary analytics team of veterinarians, biostatisticians, actuaries and science writers, others will be conducted with input from academic partners. As the leading U.S. pet health insurer with more than 1 million pets actively protected, Nationwide believes these studies to be of use to veterinary professionals and pet owners alike while helping to advance the use of industry data sources[9] in developing guidance on pet selection and care to the benefit of all.

Authors: Jules Benson, BVSc MRCVS, Chief Veterinary Officer; Stacey Neff, MS, Biostatistician; Emily M. Tincher, DVM, Director of Veterinary Relations; Gina Spadafori, BA, Veterinary Communications. To reach Nationwide's veterinary analytics team with questions, comments or media requests, contact Nationwide's Corporate Communications team, news@nationwide.com.

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[9] For a larger discussion of veterinary data responsibility, use and stewardship, see "Pet health 'data' isn't a four-letter word: Why—and how—we all need to help," Jules Benson, BVSc MRCVS, VetSuccess, vetsuccess.com/blog/pet-health-data-isn't-a-four-letter-word (Aug. 31, 2021).