

Keeping Cats Out of the Hospital: Insights for Veterinary Management

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Overview

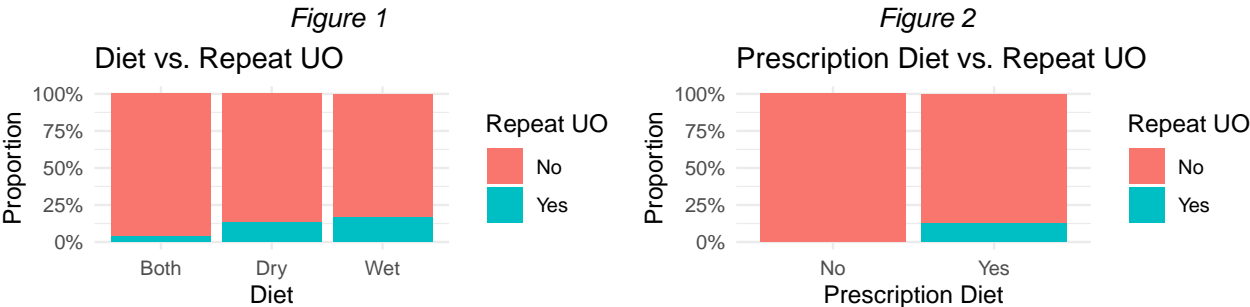
Our dataset focuses on cats diagnosed with urinary tract disease, specifically those that have experienced urinary obstructions (UO) requiring hospitalization. While these cats receive treatment, some are returning to the hospital post-procedure, and the underlying reasons for these repeat visits remain unclear. For examining urinary tract infection in cats we used a dataset of 105 male cats with different variables from measurements taken at the doctors office and input from the owners of the cats based on their home life. We wanted to look at if there were any changes doctors could make in terms of care for the cats as well as how the home life of these cats can affect their health.

Variables of Interest

After testing the data set and examining possible variables we settled on the relevant variables: Diet, Prescription Diet, Water Change, Environment Change, and Litter Change along with symptoms variables such as Hematuria, Lethargy, Polakiuria, Strainguria. All these variables were used to describe why outcomes such as variables like Repeat Urinary Tract Infection, Readmittance into the Hospital, and the Survival of Cats after 30 days occur.

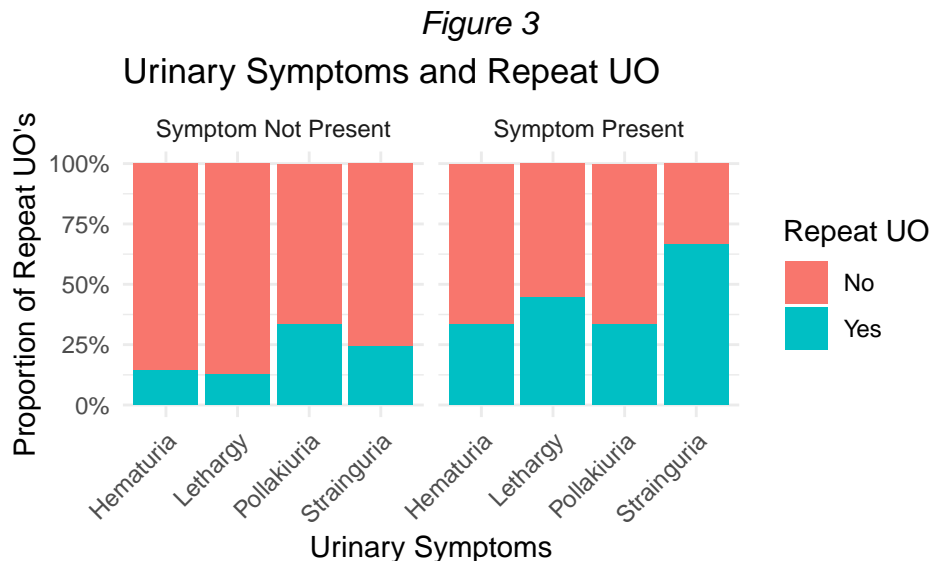
Analysis

First we wanted to look at care of cats in terms of their diets. More importantly how diets and prescription diets affected the cats frequency of getting a Urinary obstructions after the surgery. As show by the stacked bar chart in **Figure 1** it appear that cats are less likely to get urinary tract infections when consuming both dry and wet foods. When evaluating prescription diets, cats get prescribed diets around 82% of the time and among those 82% around 13% of those got a repeat urinary obstruction while there were no cats in thid data set who had a repet obstruction. when they were not prescribed a diet. The results in **Figure 2** show that cats on a prescription diet still experience repeat UOs, and possibly at a higher proportion than those not on a prescription diet. This suggests that a prescription diet alone may not be enough to prevent recurrence, or that high-risk cats are more likely to be prescribed it in the first place.



Next we wanted to look at whether the presence of symptoms such as Hematuria, Lethargy, Pollakiura, Strainguria correlated to whether or not cats have a repeat Urinary obstruction. These are the four symptoms

that we felt an owner can look for at home. In this context, Hematuria is blood in the urine, Lethargy is a lack of energy from the cat, Pollakiuria is frequent urination, and Strainguria is difficulty while urinating. **Figure 3** shows more cats with repeat UO had urinary symptoms compared to those without a repeat UO. Cats experience symptoms such as Hematuria, Lethargy, and Strainguria almost double when they had a repeat UO. It appears that there is no effect on repeat UOs for Pollakiuria because the proportion of repeat urinary obstructions is the same whether the symptoms is present or not.

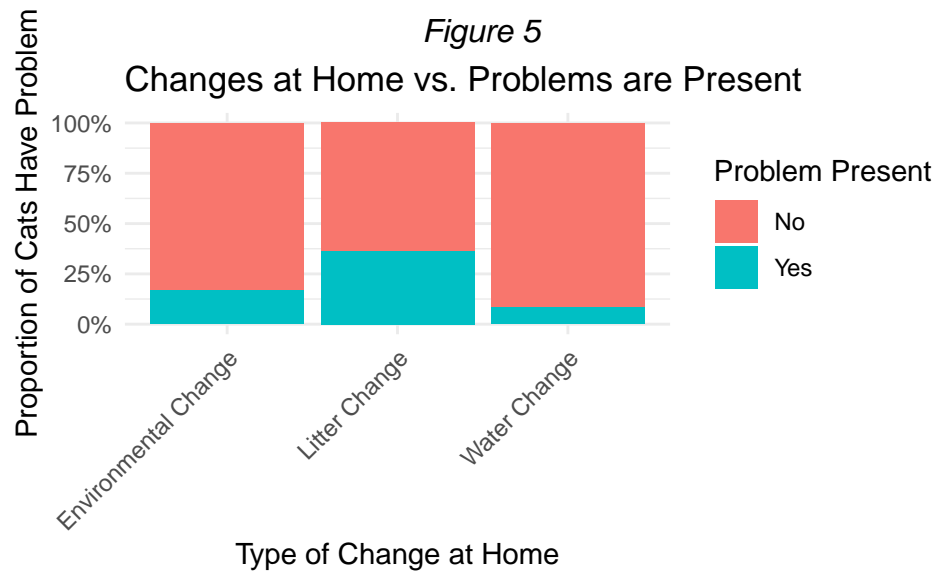


Finally, we wanted to examine how types of changes in the home affected the cat in terms of problems afterwards. We defined problems as whether the cat had one of three outcomes present - Did Not Survive 30 Days, Readmitted into Hospital, or Had a Repeat Urinary Obstruction. These are 3 signs to show that the cats health was negatively impacted after the surgery. We decided to define this variable in this manner because with such a small dataset the amount of cats that solely had a repeat UO was only 9. **Figure 4** shows that when we change our data to look at the problem variable rather than just the repeat obstructions that we get more Yes outcomes than 9. This allows us to get a clearer picture of health for the cats.

Table 1: Figure 4: Cats vs. Problems

Category	Count	Percentage (%)
No	75	71.4
Yes	12	11.4
NA	18	17.1

Now, based on **Figure 5** below we can see that when cats do have one of these problems present around 35% of the time there is usually a change in the litter of cat. We also see that when a water change is present cats do not usually have a problem afterwards. This can be due to cats being able to flush out there system as Water Change looks for if the cats had access to cleaner water or more water was available to them. These signs can help the healing process of cats and lead to shorter recoveries and less frequent trips to the vet.



Overall, the four main recommendations we would make to the vet staff are:

- Advise and strongly encourage cat owners to report any lingering or recurring urinary symptoms after initial treatment.
- Provide clear discharge instructions on what symptoms require urgent follow-up, emphasizing that even mild changes could signal a problem.
- Urge owners if possible to try and put their cats on a diet with both wet and dry foods incorporated.
- Give cats more access to water such as more bowls, the ability to drink from the sink, and water being replaced more frequently.