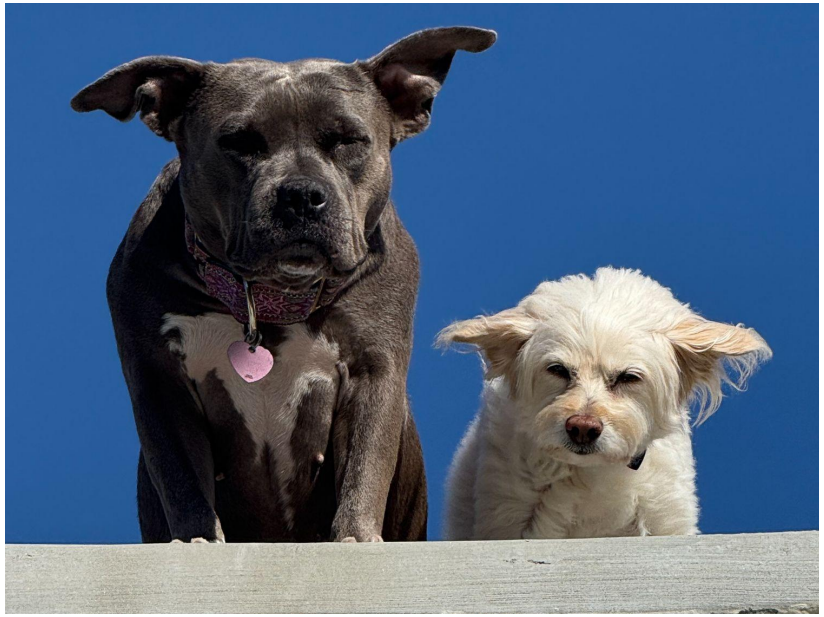
DOGS & DATA™



October 2026

The Latest Learnings On Dog Length of Stay

HOSTED BY PEDIGREE FOUNDATION, OUTCOMES FOR PETS CONSULTING, ADOPT A PET AND SHELTER ANIMALS COUNT



With Guest Presenter

Michael L Mavrovouniotis

Volunteer Data Scientist

Social Compassion in Legislation

PEDIGREE FOUNDATION

OUTCOMES CONSULTING

Adopt a Pet™

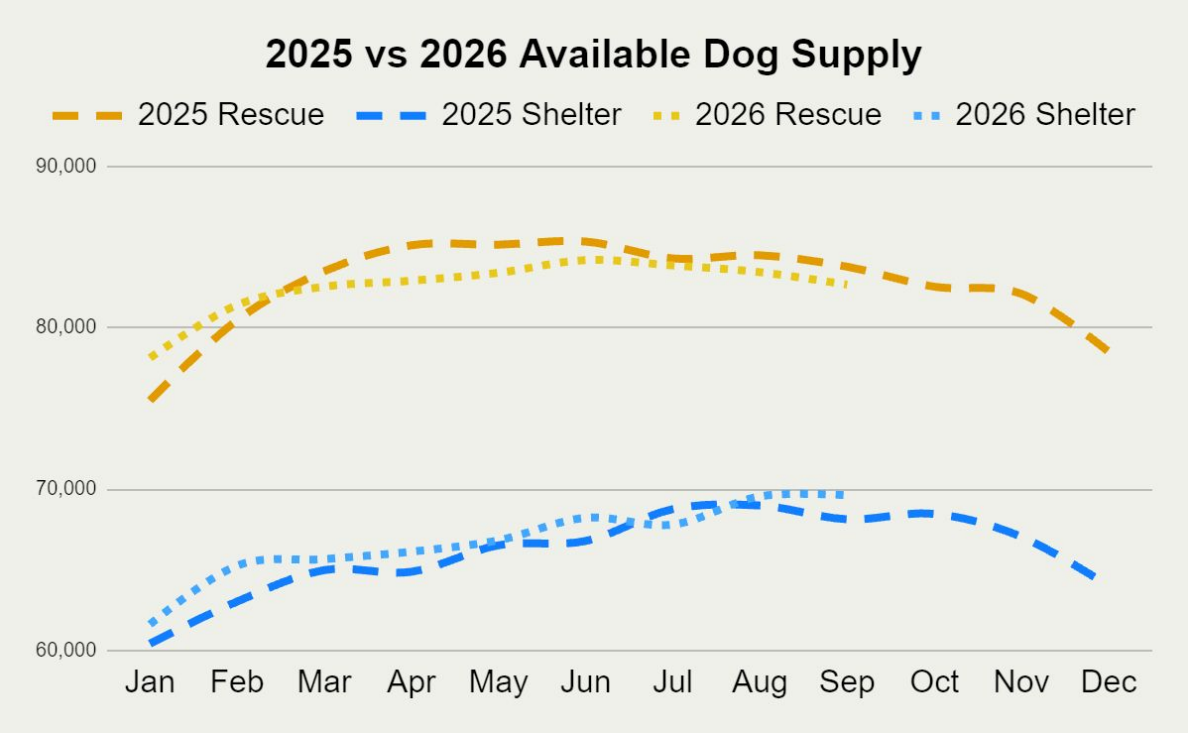
SHELTER ANIMALS COUNT
A PROGRAM OF THE ASPCA

Most dogs go fast. Some get stuck.

- 50% of dogs have an outcome within 10 days of entering a shelter or rescue.
- 10% of dogs are still waiting for an outcome after 90 days of entering a shelter or rescue.

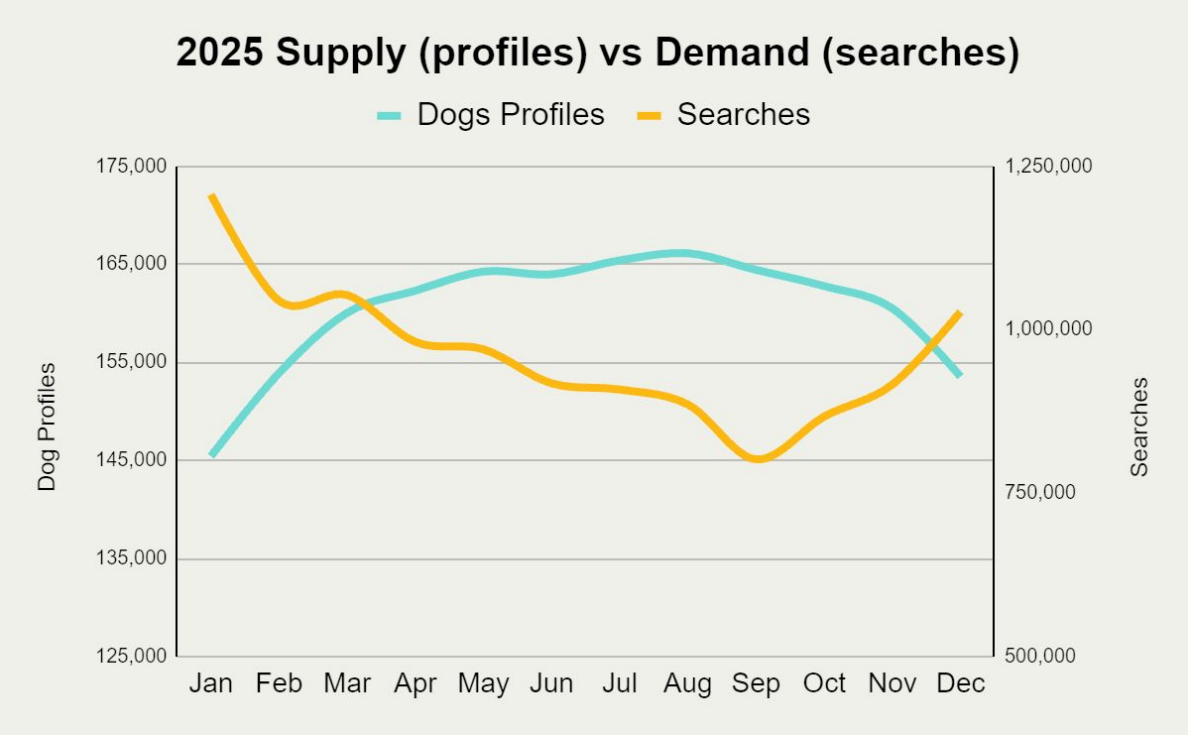
Supply has remained the same.

- Seasonality exists for available dog supply but it has remained flat YoY
- Foster-based rescues have 20% more available dogs than shelters at any given time.



Supply and demand trends don’t align.

- Seasonality exists for both supply and demand.
- Supply of available dogs is highest in the summer which is when demand trends downward.



Terminology

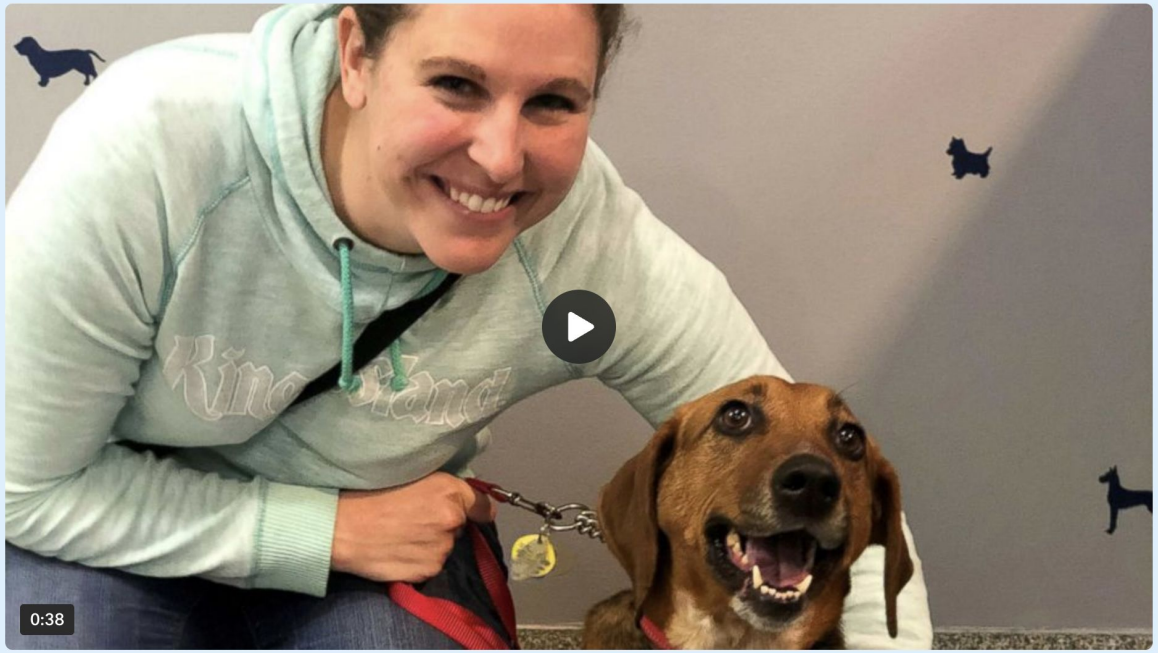
- Length of stay = avg. stay of animals that have had an outcome.
- Days in care = avg tenure or animals that are still in care.
- Median = number in the middle
- Mean = average
- Long stay = arbitrary classification used by shelters



Common problems

1. We don’t track it.
2. We don’t track it daily.
3. Outliers make us feel like LOS isn’t useful.
4. We don’t know which things to track.
5. We don’t know how to act on LOS.
6. We get overwhelmed.

Dog finds forever home after 525 days in the shelter



Dog finds forever home after 525 days in the shelter

Humane Society of Greater Dayton

If this shelter had an average LOS of 25 days, the kennel that housed this dog could have housed 21 dogs over the time this one dog spent in the shelter.

Factors that can impact LOS

- Unavailable, ‘rescue only’ and other special statuses
- Failure to move animals from stray hold to available
- Intake and outcomes types
- Housing location
- Foster care
- Restricted hours

Adopt a Pet
Post-interest Survey

Why did you choose not to adopt this pet?

38%

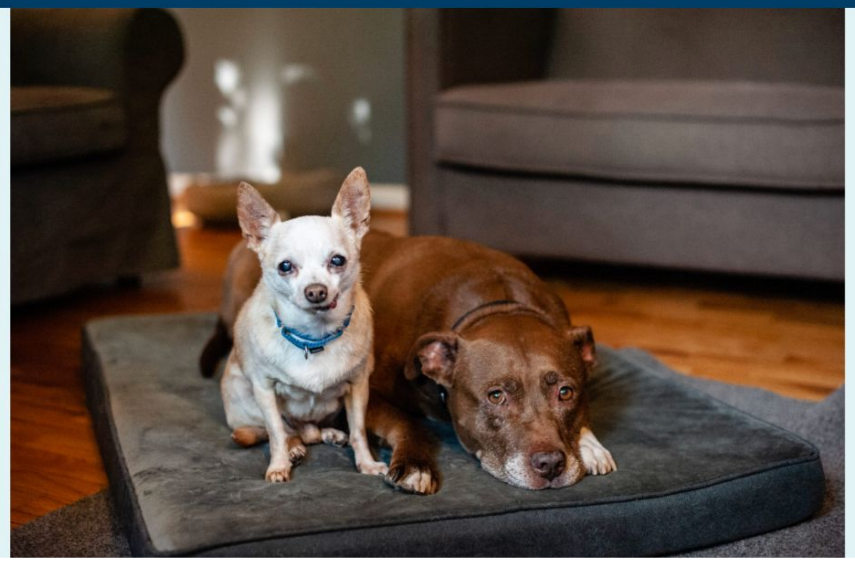
never heard back

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The Power of Chunking

Kristen Hassen *July 16, 2025*



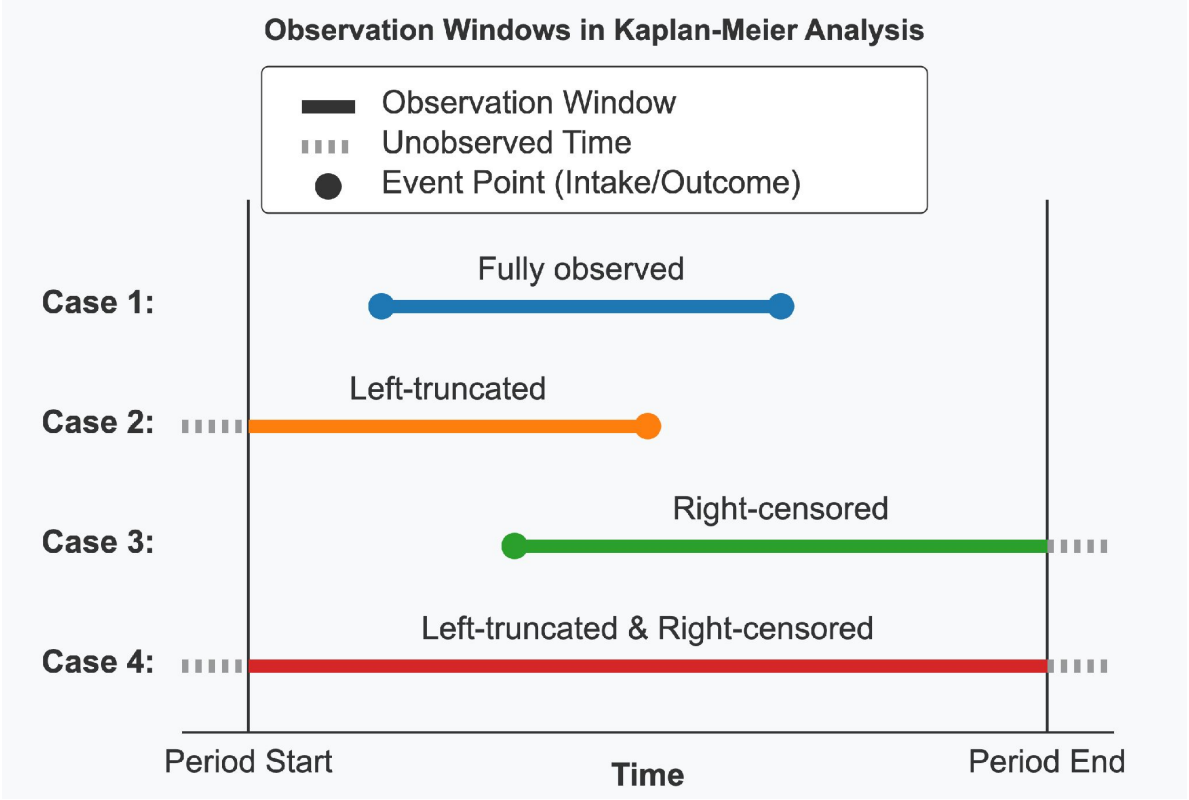
Basic ideas about Length of Stay (LOS)

- Averages are a starting point. Which averages?
- Plots (distributions) are better. Which plots?
- Do different metrics and plots tell us different things?
- → mLOS open-source software:
  - 🔌 Table of animal stays (intake-outcome); 🔌 Settings (e.g., periods)
  - ⚡ results workbook; ⚡ results plots; ⚡ slide deck

Understand the basics. Use software to jump to advanced concepts.

Length of stay (LOS) analysis

- Underlying statistical analysis by the mLOS tool, extensively tested
- This report is generated by an automated experimental system. It may highlight inconsequential findings and miss important ones.



Study window

	From	To	Days
All	2019-01-01	2022-10-01	1,369
Pre-C	2019-01-01	2020-04-01	456
Early-C	2020-04-01	2021-07-01	456
Late-C	2021-07-01	2022-10-01	457

A period includes its start date but excludes its end date.

mLOS 0.2.3. Statistics generated on 2026-09-25 21:12:26, deck on 2026-09-27 12:41:21.

What was analyzed

The sample and its outcomes

		Count	Share
Sample	Stays	15,788	
	Distinct animals	13,346	
	Intakes	15,597	
	Stay cap (days)	365	
	Exceeded cap	52	0.3%
Outcomes	Any	15,521	
	L community live	12,319	79.4%
	T other live	2,452	15.8%
	N non-live	750	4.8%

Outcome counts are only outcomes observed before the stay cap and within the study window.

Stays by intake type

	Stays
OTH	1,994
OWNER	894
RET	1,577
STRAY	11,323

Stays by animal group

	Stays
LARGE	6,106
MED	3,445
PUPPY	1,644
SMALL	4,429
UNKNOWN	164

Looking at LOS? You're already ahead of the pack.

Start with four simple ideas.

- 🔑 Set aside median LOS. Use the mean. Check P90 (90th percentile).
- 🔑 Go beyond averages to the full curve.
- 🔑 Two views, both useful:
  - LOS intake to outcome
  - Tenure of population in care
- 🔑 Split the population into categories.

These are the basics. Everything else is built on them.

Working with Metrics: Just numbers, no plots

*(Mean LOS) * (Mean daily intakes) = (Mean census)*

How long stays last

	Intakes/day	Median LOS	Mean LOS	P90 LOS	At cap (fitted)	Expected census
All	11.39	6	16.7	36	0.3%	190.6

LOS and tenure in days.

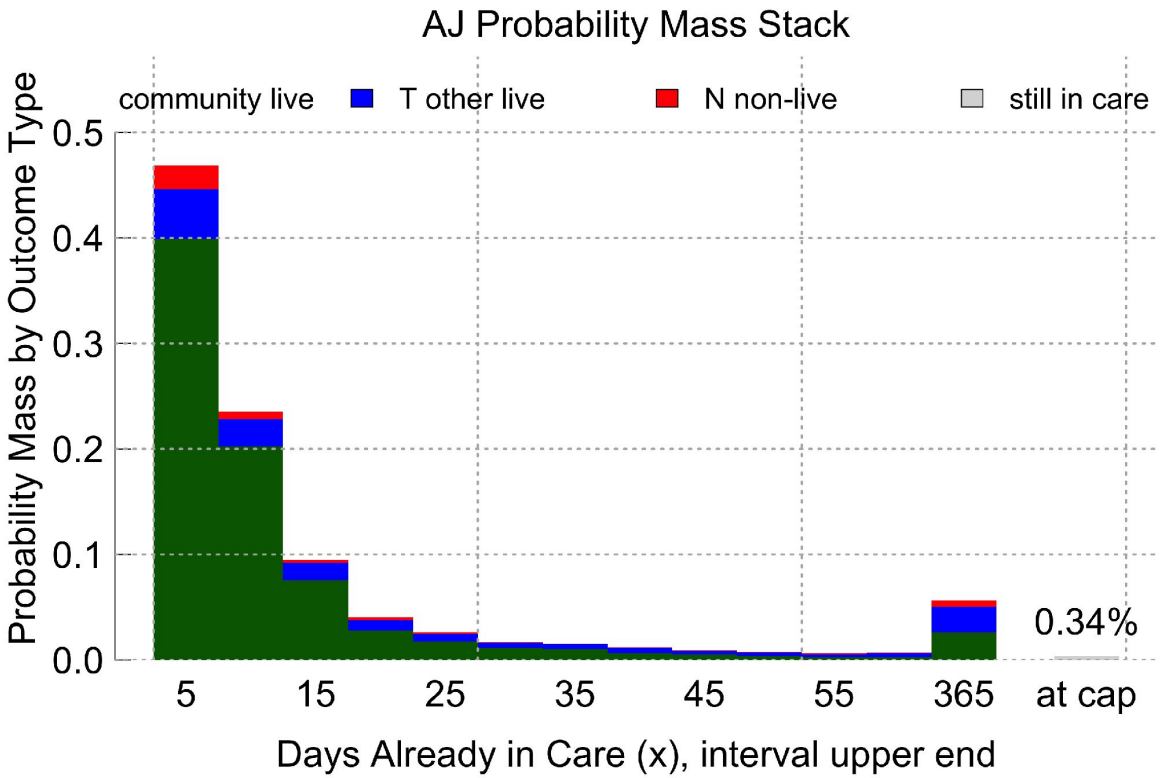
Where stays end (L community live; T other live; N non-live)

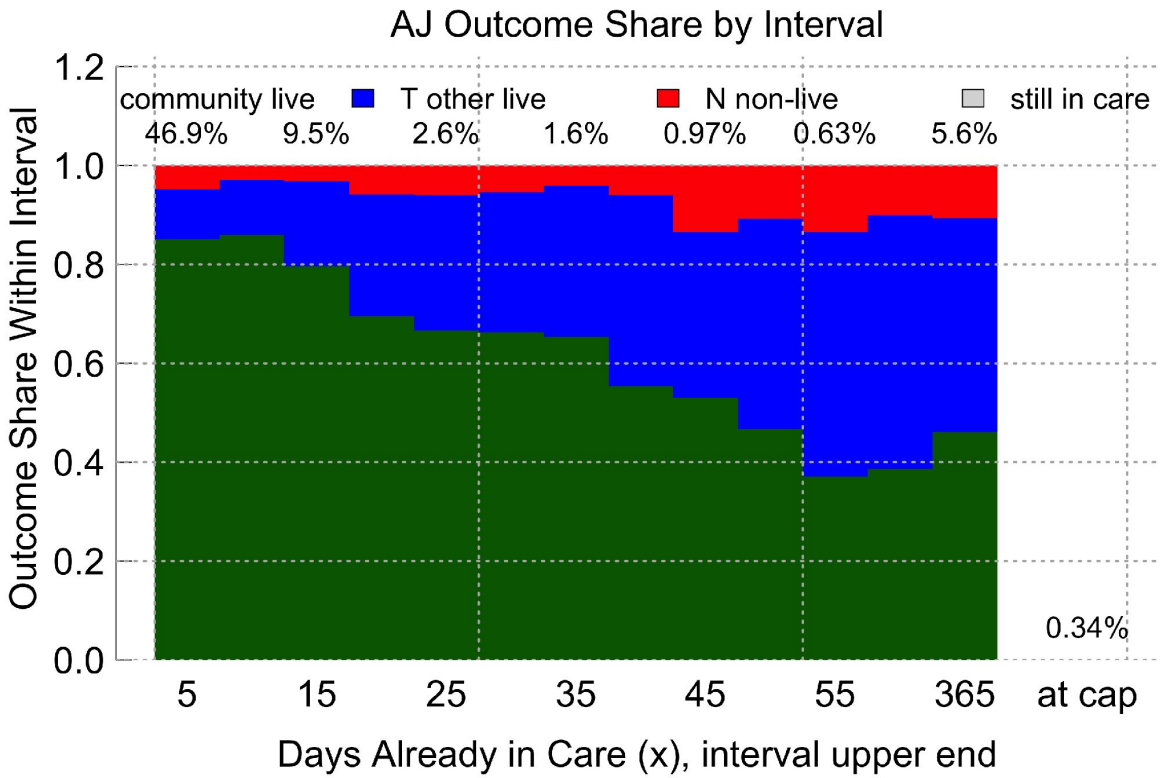
	L share	T share	N share	L days	T days	N days
All	79.0%	15.8%	4.8%	12.1	30.7	22.8

Share is the cumulative incidence at the stay cap. Mean days is the average duration of stays with that specific outcome, not across all stays.

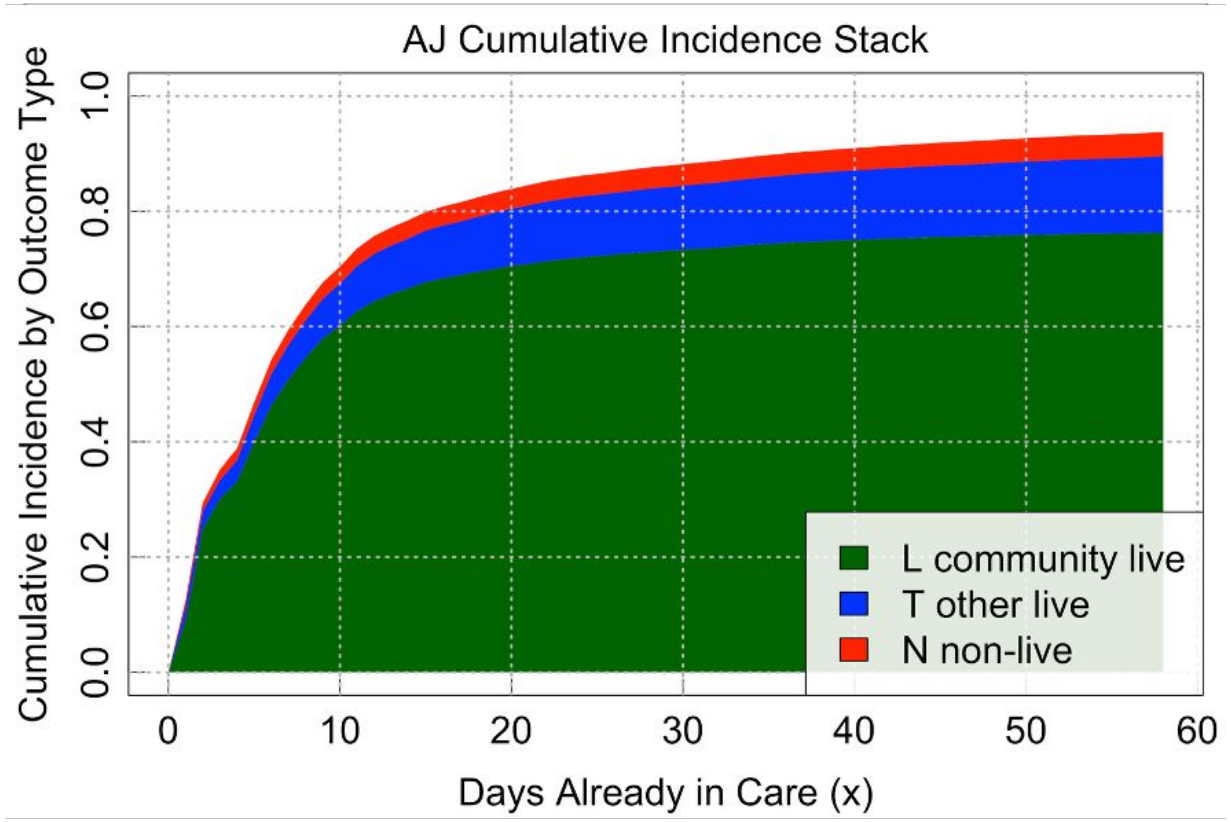
Next look at the P90 rather than the median

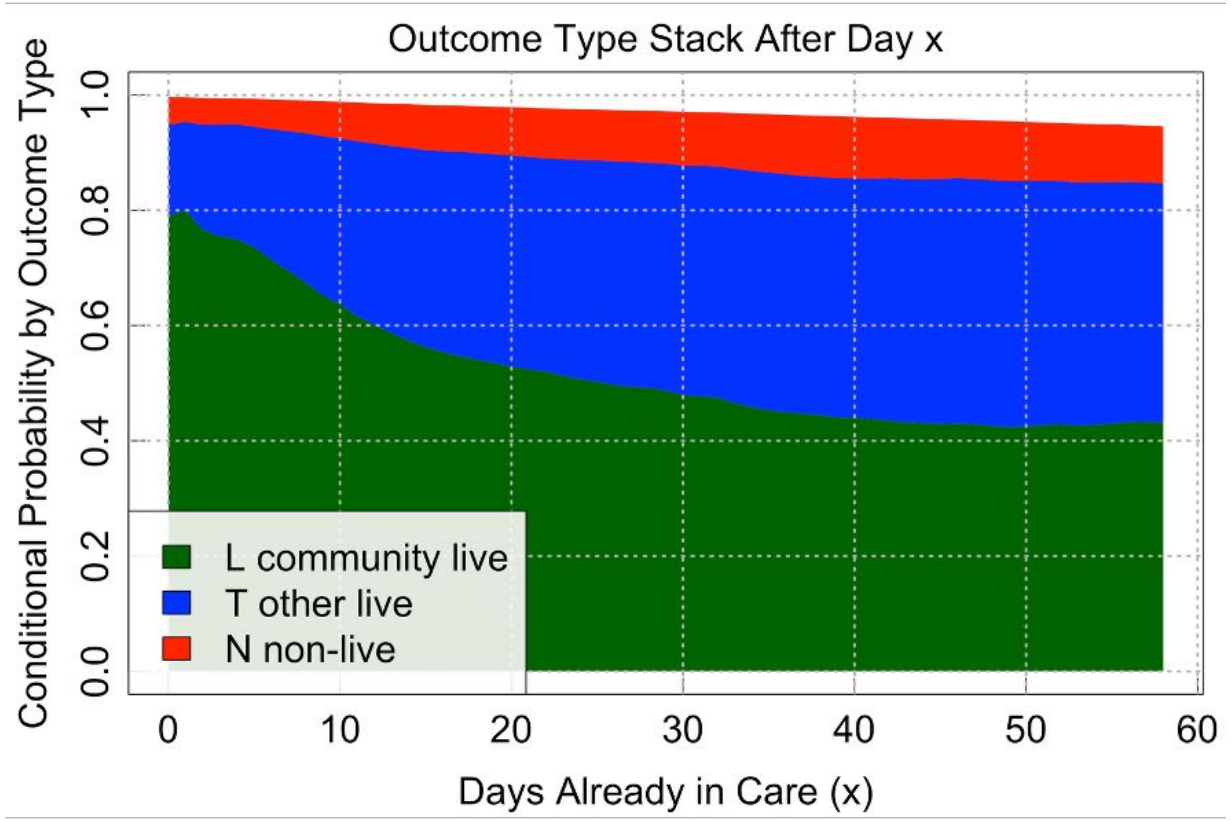
Working with Probabilities in Time Intervals





Where stays end, not just how long they last

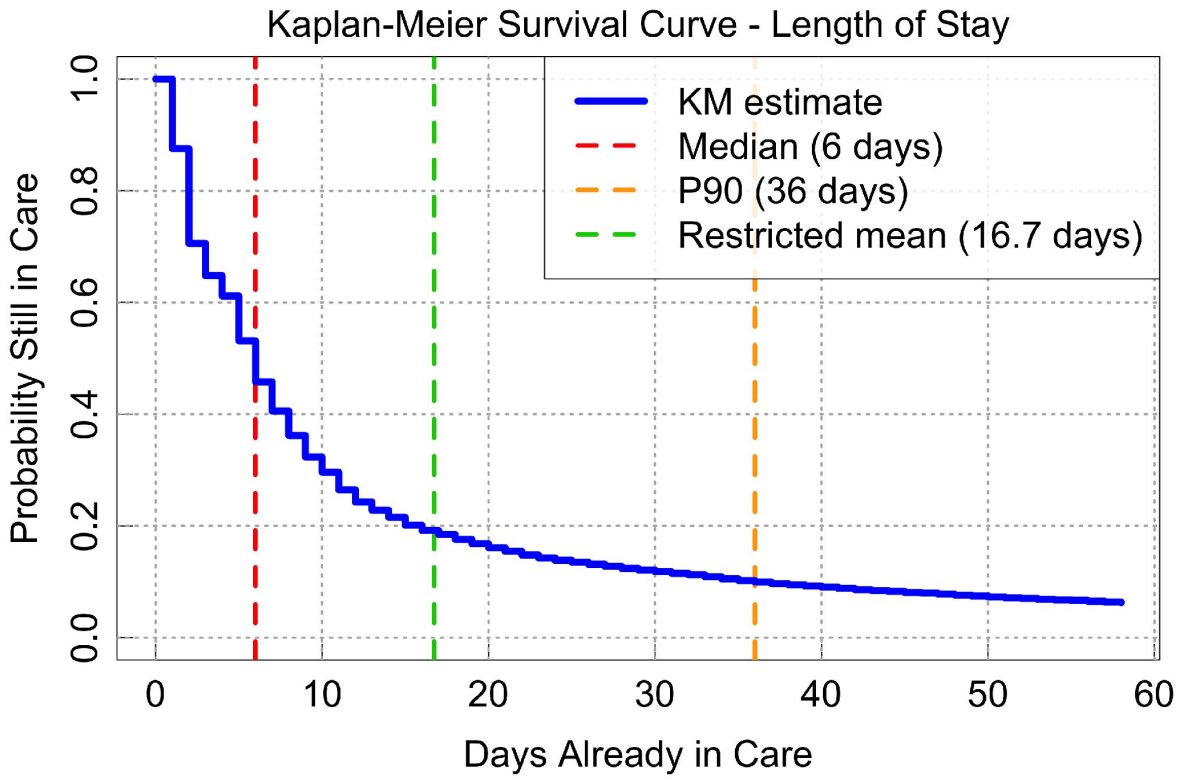


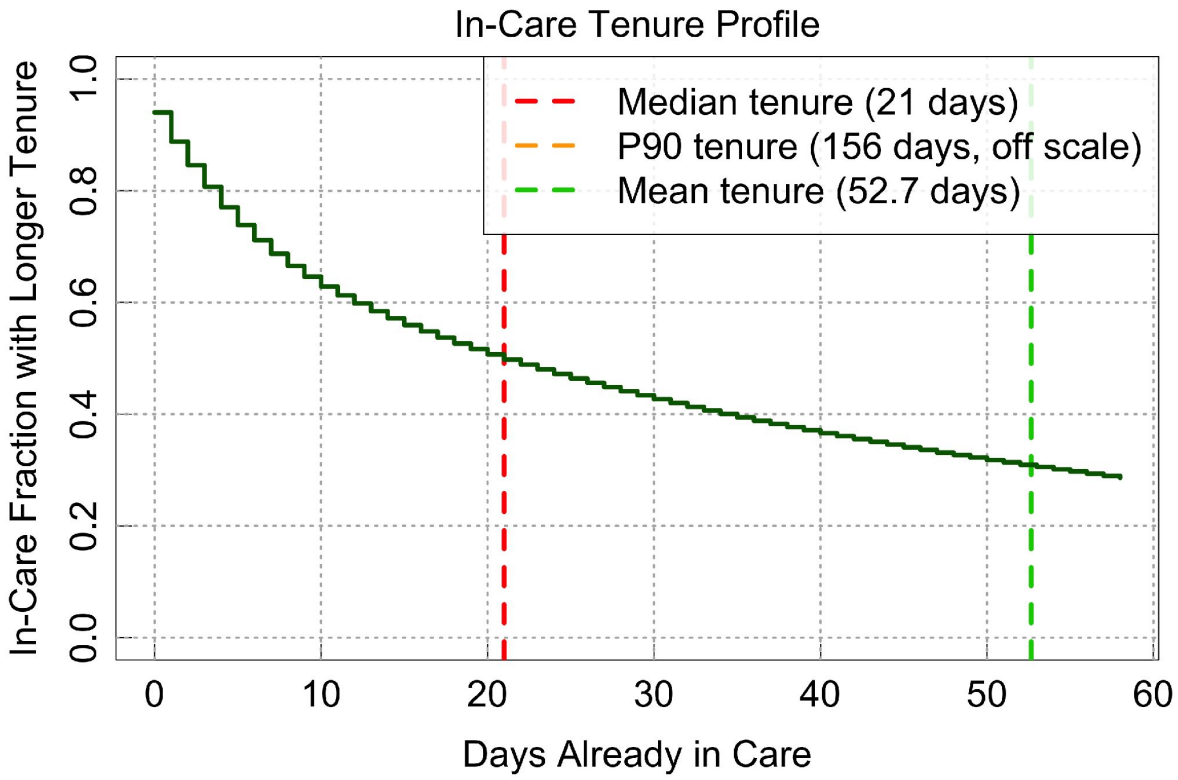


	L share	T share	N share	L days	T days	N days
All	79.0%	15.8%	4.8%	12.1	30.7	22.8

Share is the cumulative incidence at the stay cap. Mean days is the average duration of stays with that specific outcome, not across all stays.

How long stays last, over the whole sample





	Intakes/day	Median LOS	Mean LOS	P90 LOS	At cap (fitted)	Expected census	Median tenure	Mean tenure	P90 tenure
All	11.39	6	16.7	36	0.3%	190.6	21	52.7	156

LOS and tenure in days.

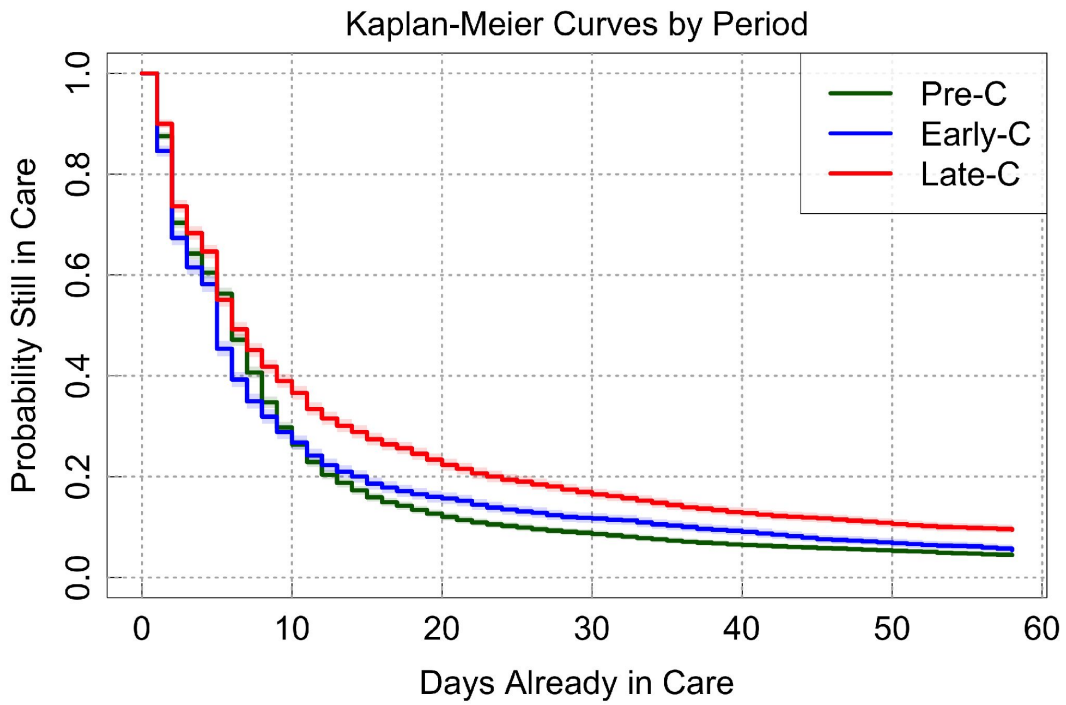
LOS visualization is a pair of curves

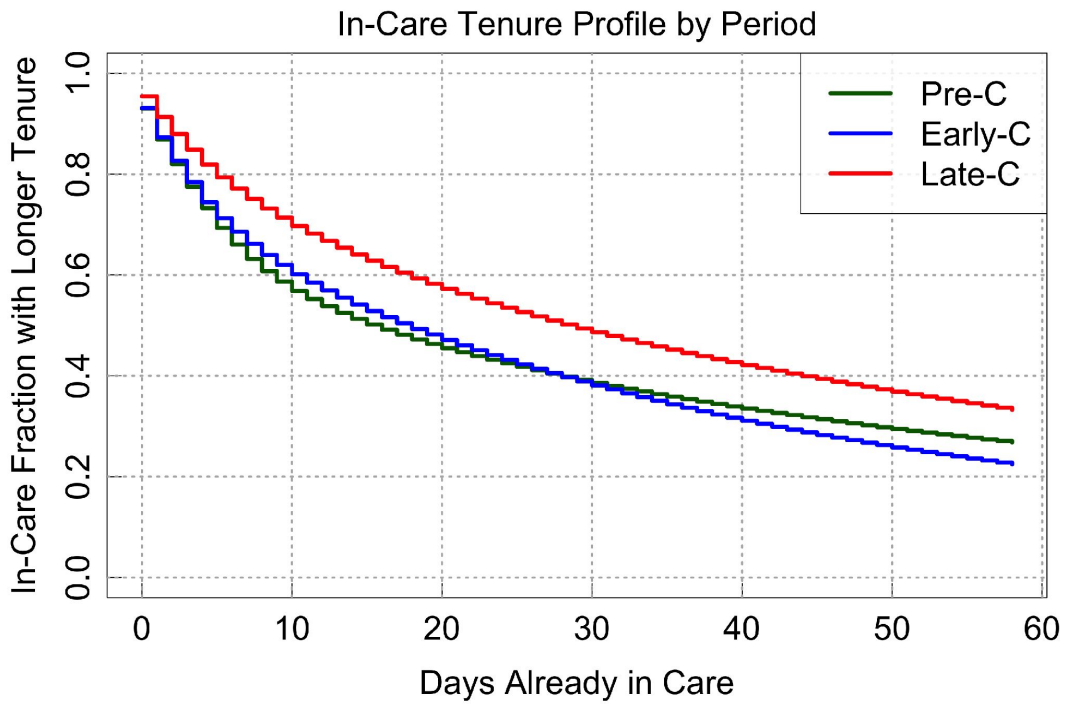
LOS intake to outcome —— Tenure of animals in care

- They describe steady state.
- The tenure curve is derived from the LOS curve.
- You can read median, P90 off the curve. 💡 Mean = area under the curve.
- The second curve is slower:
  - Outcomes slow down with tenure: Extra long residents. 💡 Not inevitable.
- 💡 The tenure curve tells you what fraction of care comes past day X

This is your LOS summary!

LOS by period

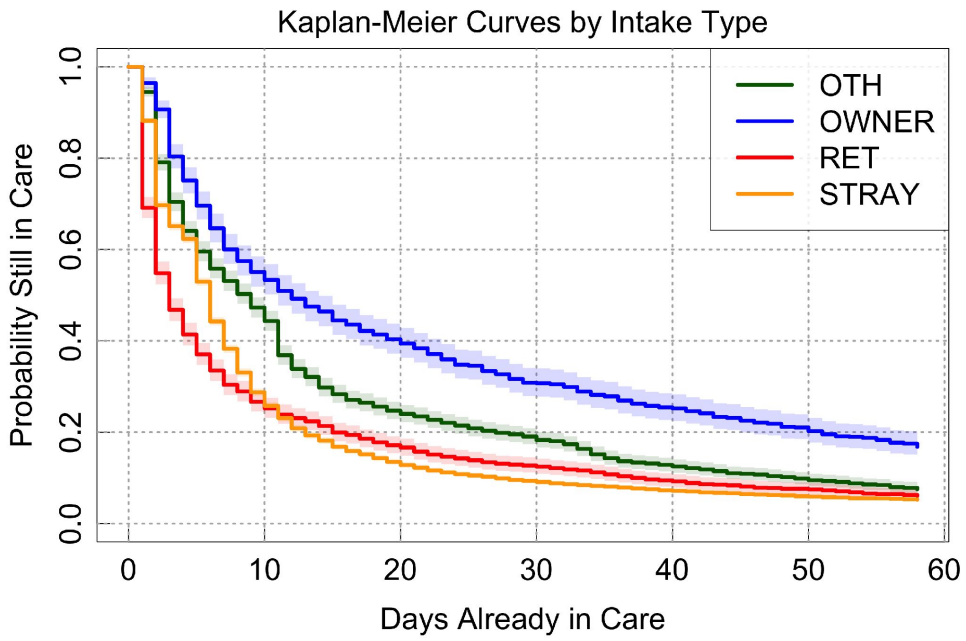


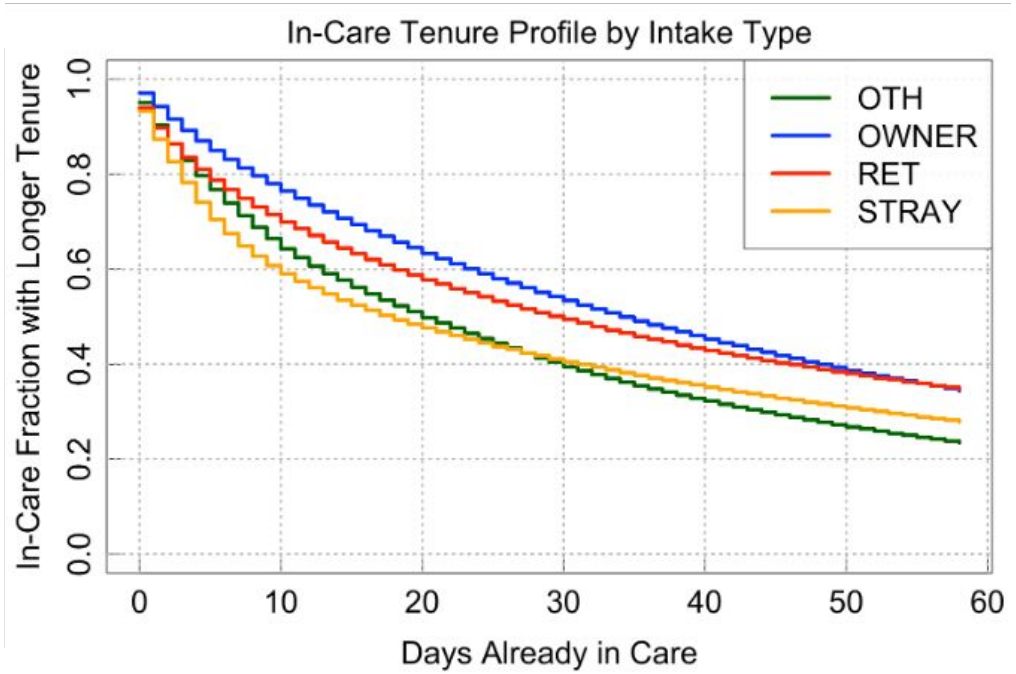


	Intakes/day	Median LOS	Mean LOS	P90 LOS	At cap (fitted)	Expected census	Median tenure	Mean tenure	P90 tenure
Pre-C	14.87 ↑	6 ↑	14.3 ↓	25 ↓	0.3%	212.8	16 ↓	51.1	162
Early-C	8.81 ↓	5 ↓	14.5	37	0.2% ↓	128.0 ↓	18	43.2 ↓	123 ↓
Late-C	10.50	6 ↑	21.9 ↑	54 ↑	0.4% ↑	230.2 ↑	29 ↑	58.4 ↑	163 ↑

↑ highest, ↓ lowest, = flat (all levels tied). LOS and tenure in days.

LOS by intake type

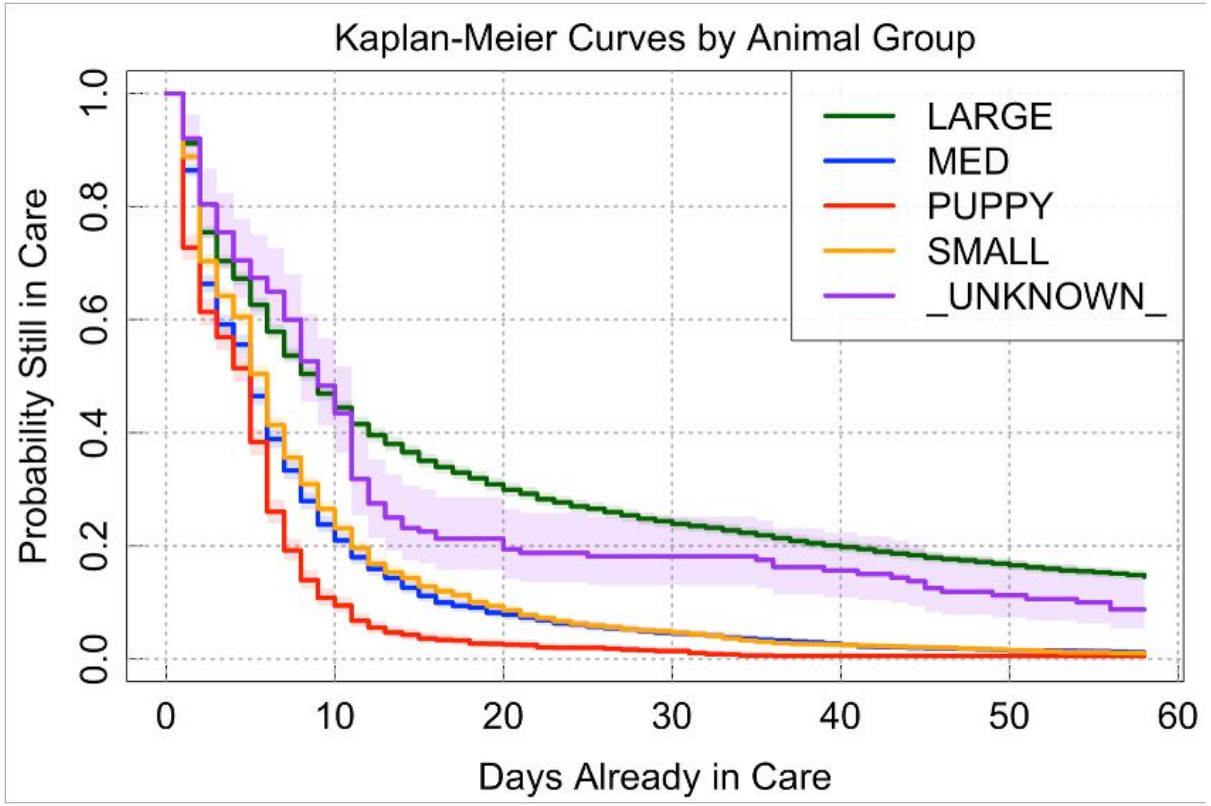


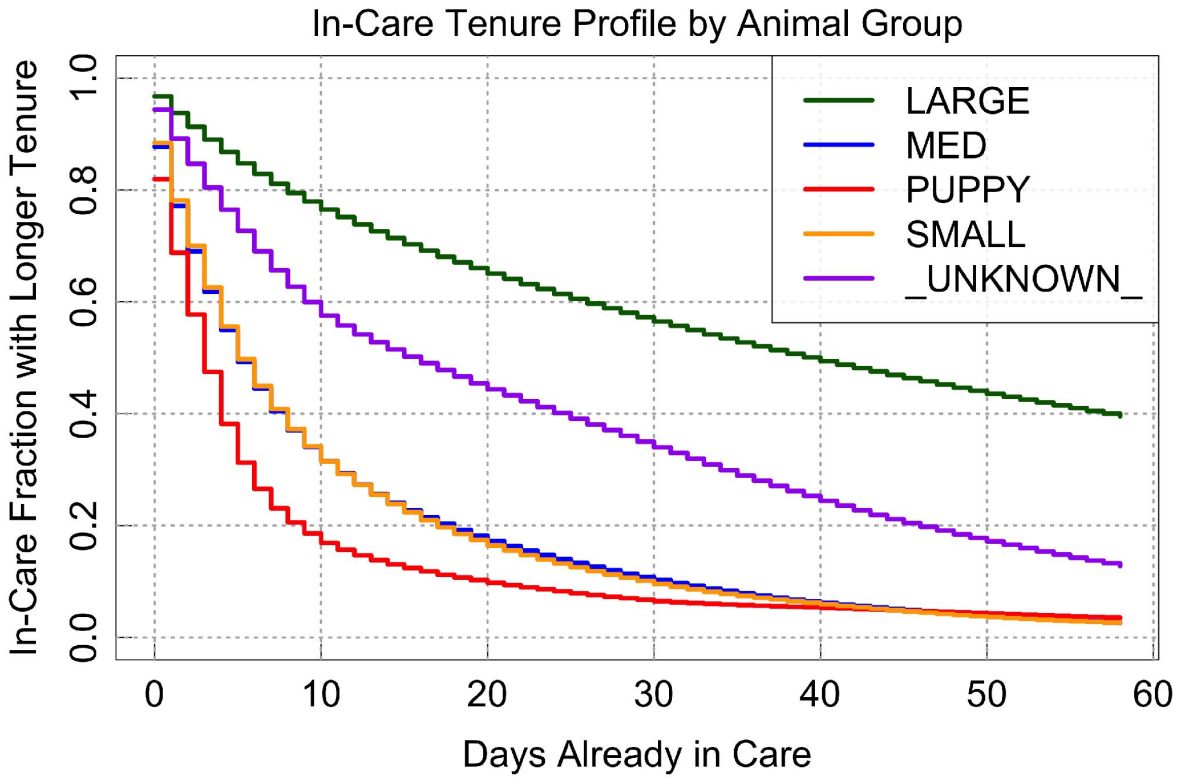


	Intakes/day	Median LOS	Mean LOS	P90 LOS	At cap (fitted)	Expected census	Median tenure	Mean tenure	P90 tenure
OTH	1.43	9	20.1	49	0.4%	28.8	20	47.1 ↓	136 ↓
OWNER	0.64 ↓	12 ↑	34.0 ↑	82 ↑	1.0% ↑	21.8	34 ↑	63.6	175
RET	1.14	3 ↓	16.4	37	0.6%	18.7 ↓	30	66.1 ↑	197 ↑
STRAY	8.18 ↑	6	14.8 ↓	27 ↓	0.2% ↓	121.4 ↑	18 ↓	49.7	149

↑ highest, ↓ lowest, = flat (all levels tied). LOS and tenure in days.

LOS by animal group

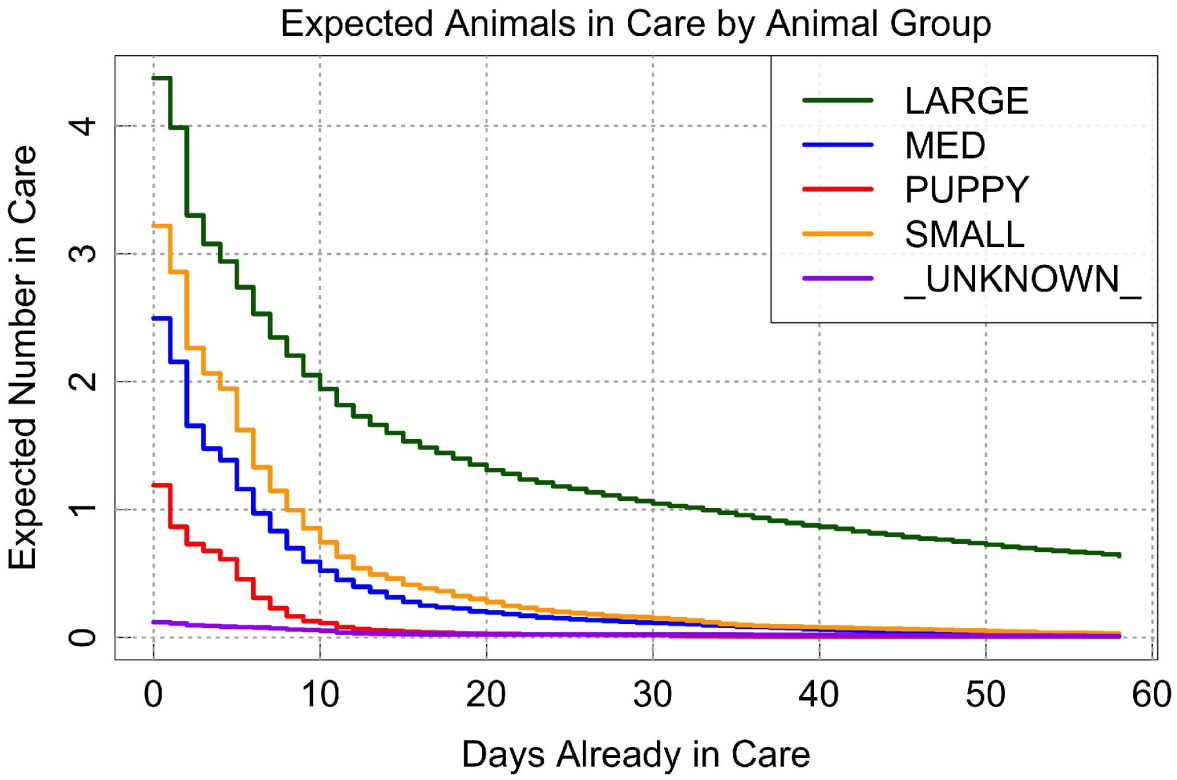


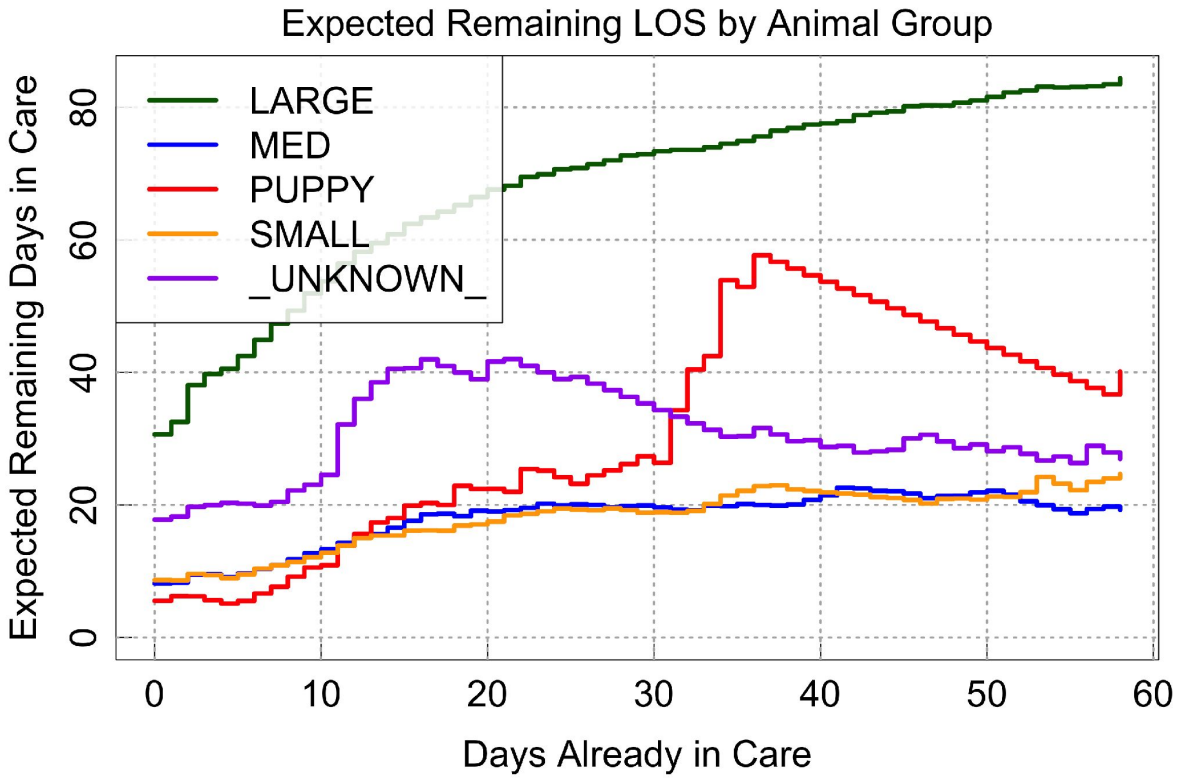


	Intakes/day	Median LOS	Mean LOS	P90 LOS	At cap (fitted)	Expected census	Median tenure	Mean tenure	P90 tenure
LARGE	4.37 ↑	9 ↑	30.6 ↑	83 ↑	0.9% ↑	134.0 ↑	40 ↑	70.1 ↑	190 ↑
PUPPY	1.19	5 ↓	5.5 ↓	10 ↓	0.1%	6.6	3 ↓	12.9	20 ↓

↑ highest, ↓ lowest, = flat (all levels tied). 2 of 5 levels shown; marks are judged across all 5, not across the rows shown here. LOS and tenure in days.

What an average day's residents still owe, by animal group





	Median tenure	At median tenure	Mean tenure	At mean tenure	P90 tenure	At P90 tenure	Remaining per resident
LARGE	40 ↑	77.6 ↑	70.1 ↑	88.3 ↑	190 ↑	90.9 ↑	71.1 ↑
PUPPY	3 ↓	5.6 ↓	12.9	15.7	20 ↓	22.4	13.9

↑ highest, ↓ lowest, = flat (all levels tied). 2 of 5 levels shown; marks are judged across all 5, not across the rows shown here. LOS and tenure in days.

Who is in care on an average day

Categories with longer stays are over-represented in the census compared with intake.

Census, by period

	Counted	Fitted
Pre-C	215	213
Early-C	127	128
Late-C	222	230

Counted from the data; fitted from the survival curves. No share: period levels divide the calendar rather than the animals in care, so each figure is that level's own rather than a part of one total.

Census, by intake type

	Intake Pct	Counted	Pct	Fitted
OTH	13%	29	15%	29
OWNER	6%	22	12%	22
RET	10%	19	10%	19
STRAY	72%	119	63%	121

Counted from the data; fitted from the survival curves.

Census, by animal group

	Intake Pct	Counted	Pct	Fitted
LARGE	38%	131	70%	134
MED	22%	20	11%	20
PUPPY	10%	7	4%	7
SMALL	28%	28	15%	28
UNKNOWN	1%	2	1%	2

Counted from the data; fitted from the survival curves.

The residents' past and future care, summed into animal-days

Categories with longer stays dominate the expected future animal-days for shelter residents.

Animal-days (average), by period

	Counted	Fitted	Owed
Pre-C	10,882	10,862	11,075
Early-C	6,224	5,524	5,652
Late-C	11,730	13,434	13,665

Counted from the data; fitted from the survival curves. Each period's days owed is its own commitment under its own regime, not a part of one total, so no share is given.

Animal-days (average), by intake type

	Counted	Fitted	Owed
OTH	1,351	1,355	1,384
OWNER	1,365	1,383	1,405
RET	1,335	1,233	1,252
STRAY	5,562	6,039	6,161

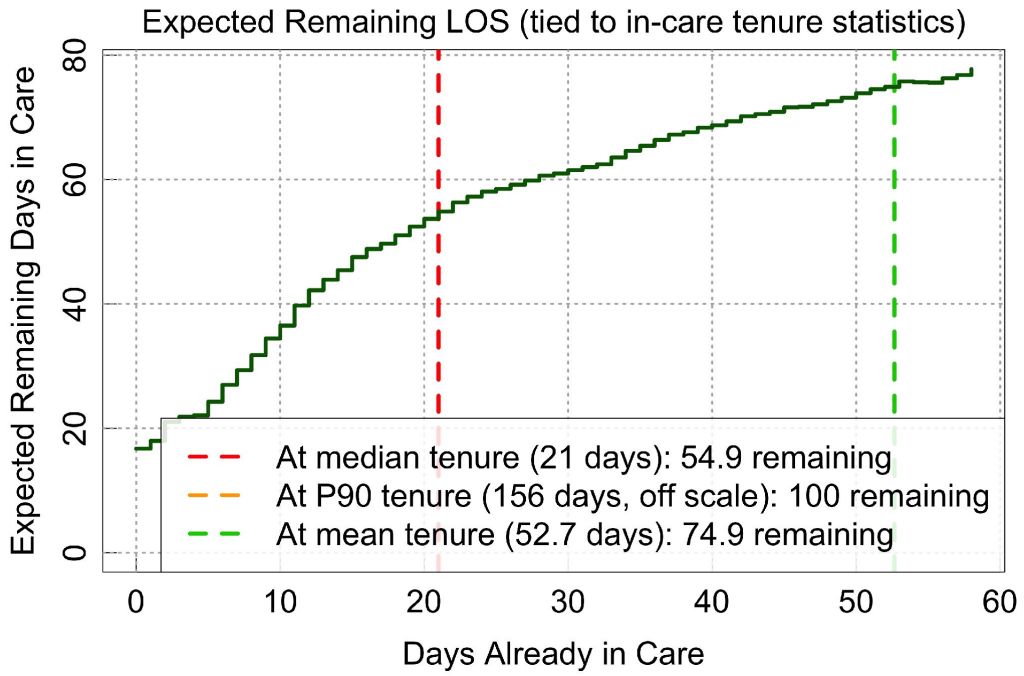
Counted from the data; fitted from the survival curves. STRAY holds 60% of the days owed.

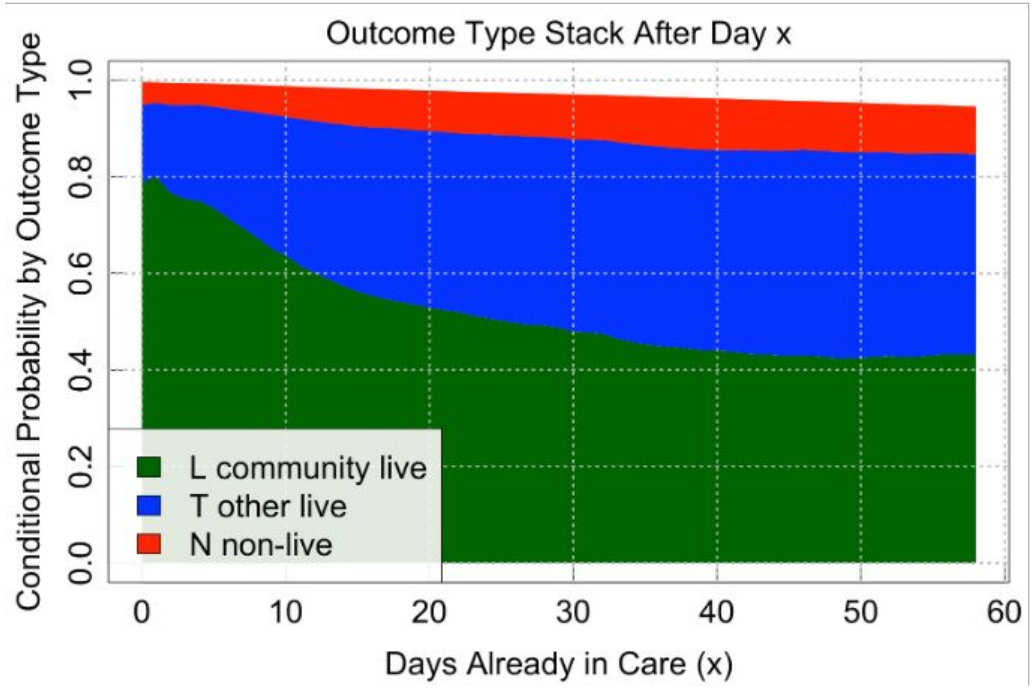
Animal-days (average), by animal group

	Counted	Fitted	Owed
LARGE	8,924	9,391	9,525
MED	231	231	251
PUPPY	85	85	91
SMALL	318	316	344
UNKNOWN	55	56	59

Counted from the data; fitted from the survival curves. LARGE holds 93% of the days owed.

Where residents are heading, given how long they have been here





	tenure (days)	remaining (days)	L	T	N	at cap
median tenure	21.0	54.9	52.4%	36.8%	8.5%	2.2%
mean tenure	52.7	74.9	42.9%	42.2%	10.1%	4.8%
P90 tenure	156.0	100.0	49.0%	25.6%	5.3%	20.1%

Outcome columns are conditional on having reached that tenure, and are read off the analysis window's own day grid at the day a line drawn at that tenure crosses. `at cap` is the rest: still in care when the window closes.

LOS: Understand the basics then use software

🔑 *Averages are OK;* 🔑 *Plots are better;* 🔑 *Multiple ones;* 🔑 *Split the population.*

- Don't look at the median, look at the mean, then P90
- Look at the distribution
  - LOS intake to outcome (the incoming population)
  - Tenure of animals in care (the resident population)
- Focus on the sub-population that accounts for most of your workload
- Lower animal-days means lower census
  - 40 dogs × 1 day = 40 days saved = 1 dog × 40 days

DOGS & DATA™

Long stay self-assessment

JULY 2026

1. Find your three longest stay dogs.
2. Read internal notes, social media marketing about the dogs, and public bios.
3. What would a member of the public learned about them from the information you found?
4. What did you learn from this process?



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