

PAWS - Volunteer disengagement

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Question

What is the typical pattern for volunteer disengagement?

First, I summarised the number of volunteers with various characteristics:

- did orientation, but no shifts
- did orientation, had only 1 shift
- did orientation, had 2+ shifts

How do we define a “disengaged” volunteer?

- For the purpose of this analysis, we considered a volunteer was disengaged (i.e., stopped volunteering) if the length of time after their last shift was > 90 days ago. This was based on both common sense - 3 months since last volunteering is a long time, and also the distribution of the data.

Procedure

1. Load in the data that was pre-cleaned and merged
2. Analyze and create plots

All analysis was performed for volunteers that did orientation between Jan 01 and May 01.

- 2017: Orientation (primary) between Jan 01 2017 - May 01 2017
- 2018: Orientation (primary) between Jan 01 2018 - May 01 2018

Analysis

Summary of volunteers

- How many did orientation, but no shifts?
- How many did orientation, had only 1 shift?
- How many did orientation, had 2+ shifts?

Table 1: Overall Summary

test_period	2017	2018	other
total_volunteers	101	201	324
no service	20.8 %	22.9 %	43.2 %
only 1 shift	5.9 %	13.9 %	9.9 %
2-9 shifts	23.8 %	48.3 %	24.7 %
10+ shifts	49.5 %	14.9 %	22.2 %
ave_shifts	24.33	5.12	6.83
ave_missed_shifts	0.51	0.10	0.21

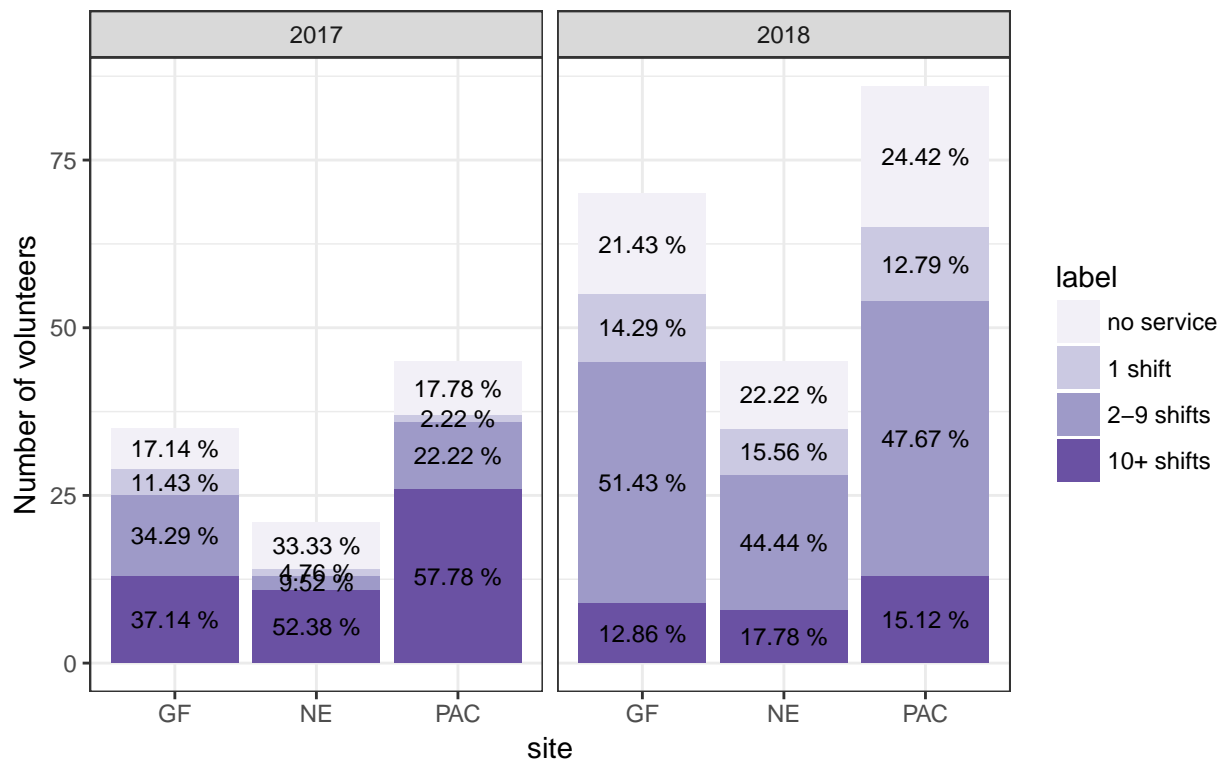
Even though we have data for all of 2017, and only until July 26, 2018, we see that the volunteers from 2018 are doing comparably.

Summary of volunteers by site where they did orientation

Table 2: Summary stratified by location, 2018

	GF	NE	PAC
total_volunteers	70	45	86
no service	15	10	21
1 shift	10	7	11
2-9 shifts	36	20	41
10+ shifts	9	8	13

Number of new volunteers by service level, per location Jan – May



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Summary of volunteer disengagement

For a new volunteer in 2018 that did at least one shift:

The median days since last shift is 65 days.

The median time between shifts is 10.9090909 days.

Table 3: Summary of time between orientation to the first shift

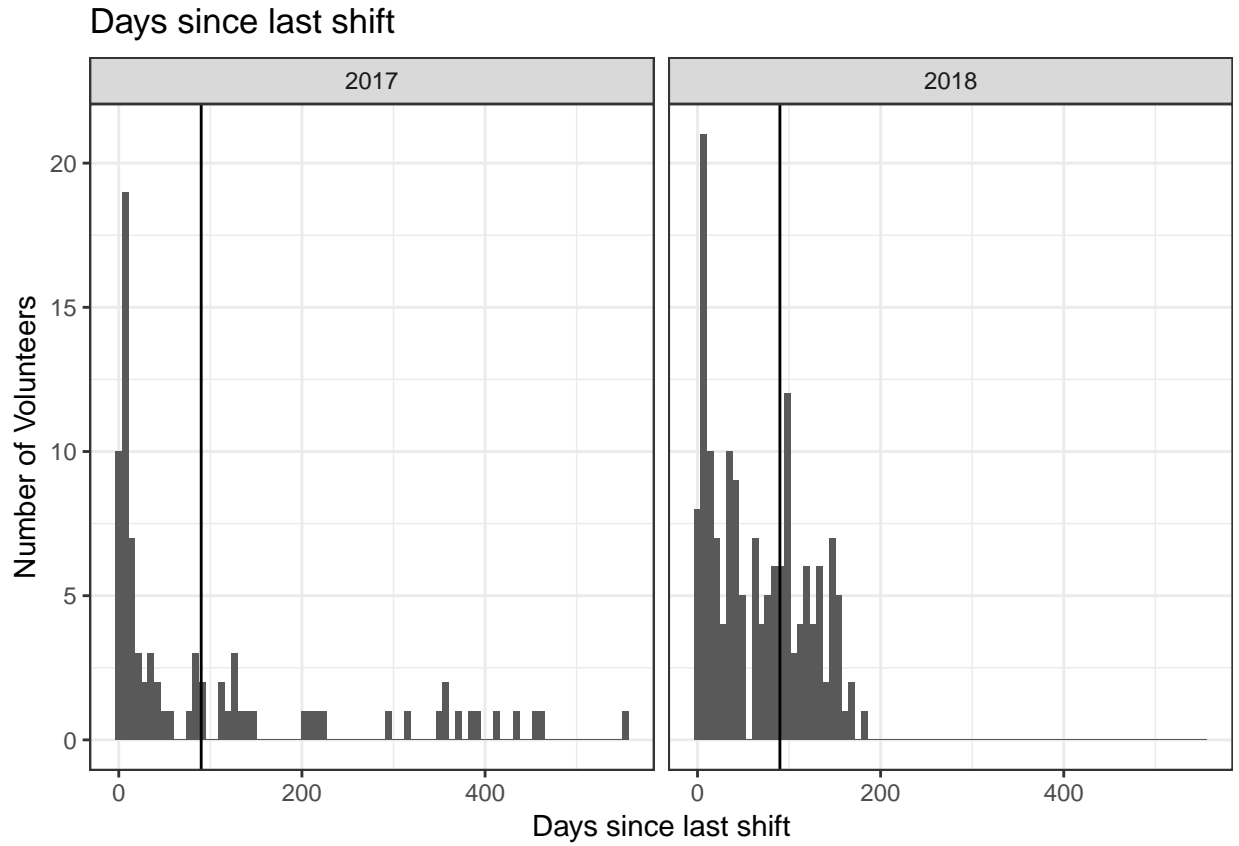
first_shift_group	mean_shifts	mean_missed_shifts	freq
<= 14 days	15.91667	0.322222	180
14 to 60 days	12.57718	0.315436	149
> 60 days	10.67778	0.222222	90

Table 4: Summary of time between shifts

timebw_shift_group	mean_shifts	mean_missed_shifts	freq
<= 7 days	22.962963	0.380952	189
7 to 14 days	9.852941	0.1323529	68
> 14 days	6.280000	0.4100000	100
NA	1.000000	0.0483871	62

Visualizations

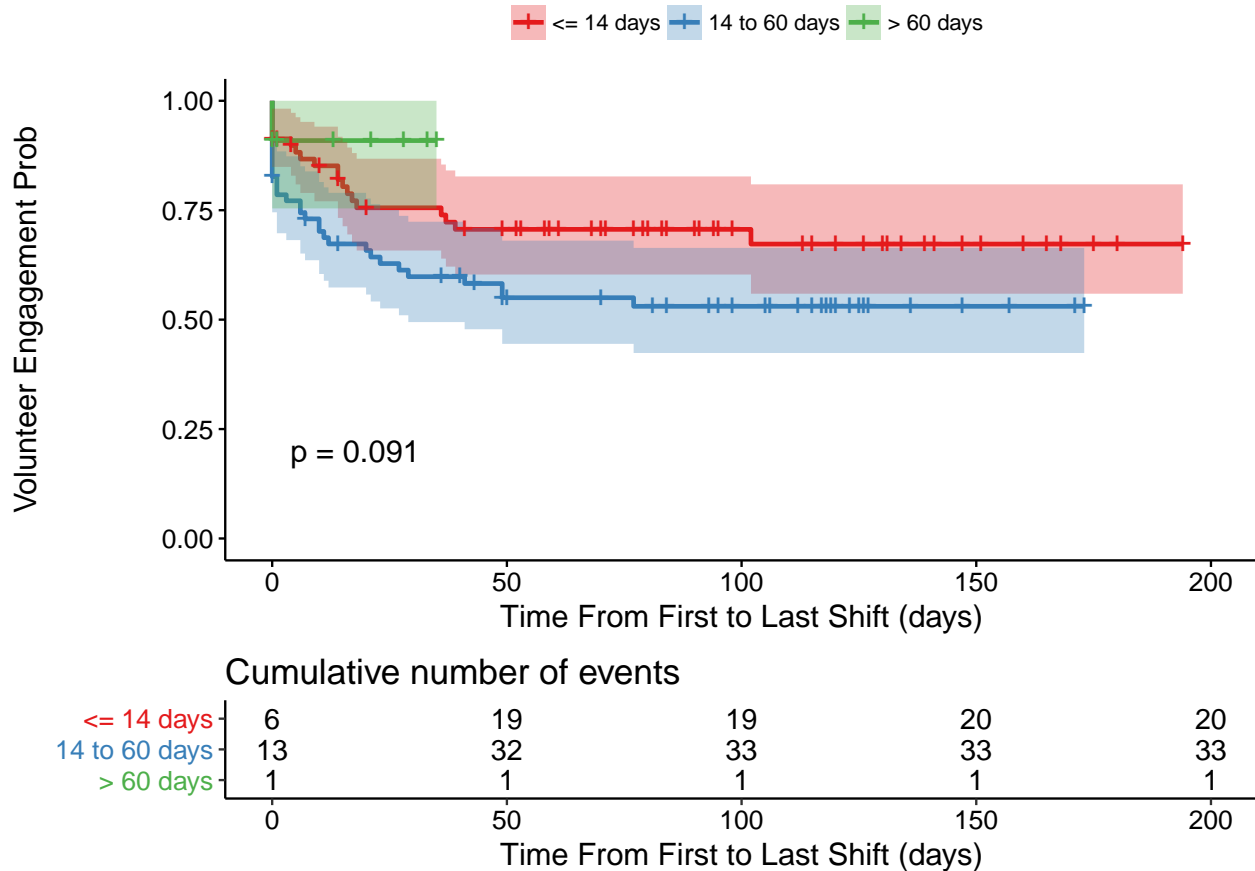
In the below histogram, we see that most the engaged volunteers have volunteered in the last 90 days (vertical black line), while the disengaged volunteers have not volunteered in 100 or more days.



Plot volunteers time between first shift and disengagement

```
## Warning in .add_surv_median(p, fit, type = surv.median.line, fun = fun, :
## Median survival not reached.
```

Compare time between orientation and first shift, data in 2018

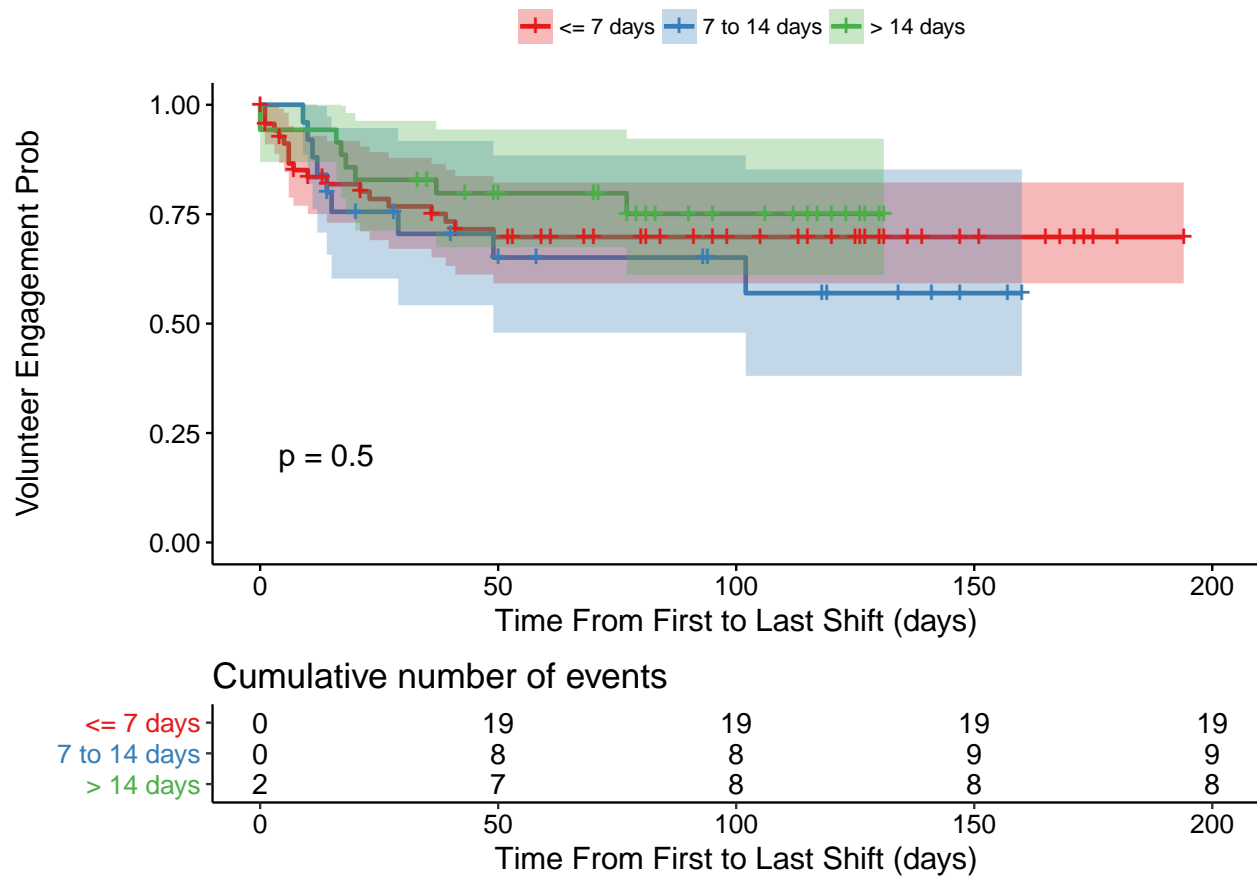


We do not observe a significant relationship between the delay between orientation and volunteering and how long the volunteer continues to volunteer.

The median volunteer engagement time was not yet reached.

```
## Warning in .add_surv_median(p, fit, type = surv.median.line, fun = fun, :
## Median survival not reached.
```

Compare median time between shifts, data in 2018



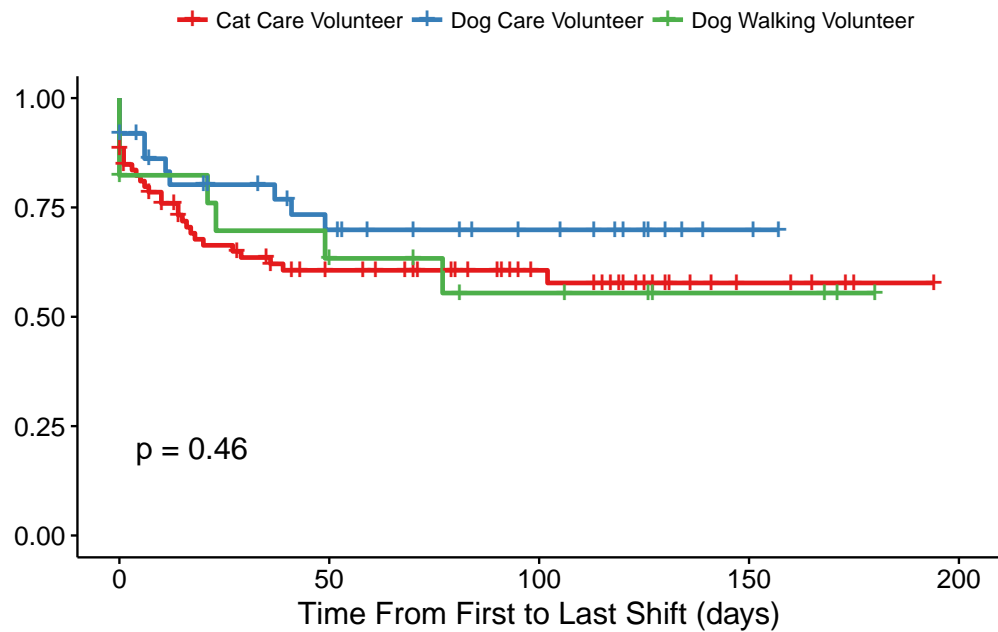
We don't see a strong trend that volunteers leave sooner if they tend to volunteer more or less frequently.

The median volunteer engagement time was not yet reached.

```
## Warning in .add_surv_median(p, fit, type = surv.median.line, fun = fun, :
## Median survival not reached.
```

Probability that a volunteer remains active after x days

Compare primary assignments, data in 2018



Cumulative number of events

Cat Care Volunteer	10	31	31	32	32
Dog Care Volunteer	3	10	10	10	10
Dog Walking Volunteer	3	6	7	7	7
	0	50	100	150	200
	Time From First to Last Shift (days)				

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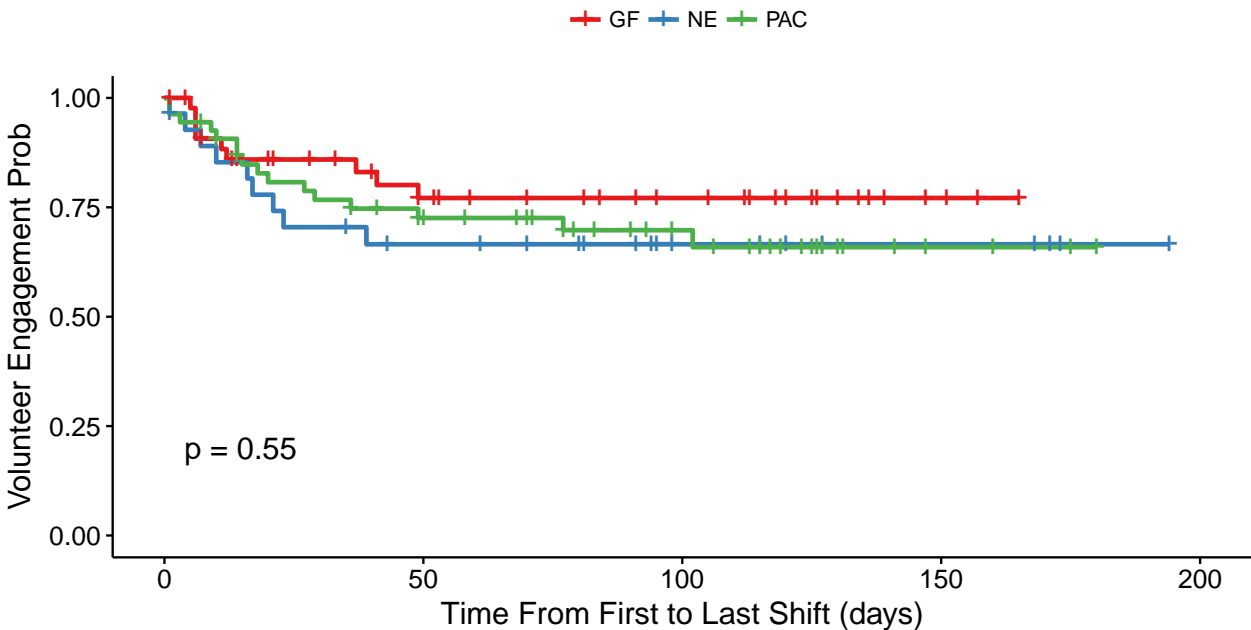
There is a trend that dog volunteers keep volunteering longer than cat care or dog care volunteers. Cat care is at all three sites, dog care only at Grays Ferry, and dog walking is either PAC or NE.

We previously saw a bigger difference in 2017 data than here in early 2018 data.

The median volunteer engagement time was not reached.

```
## Warning in .add_surv_median(p, fit, type = surv.median.line, fun = fun, :
## Median survival not reached.
```

Compare primary orientation location, data in 2018

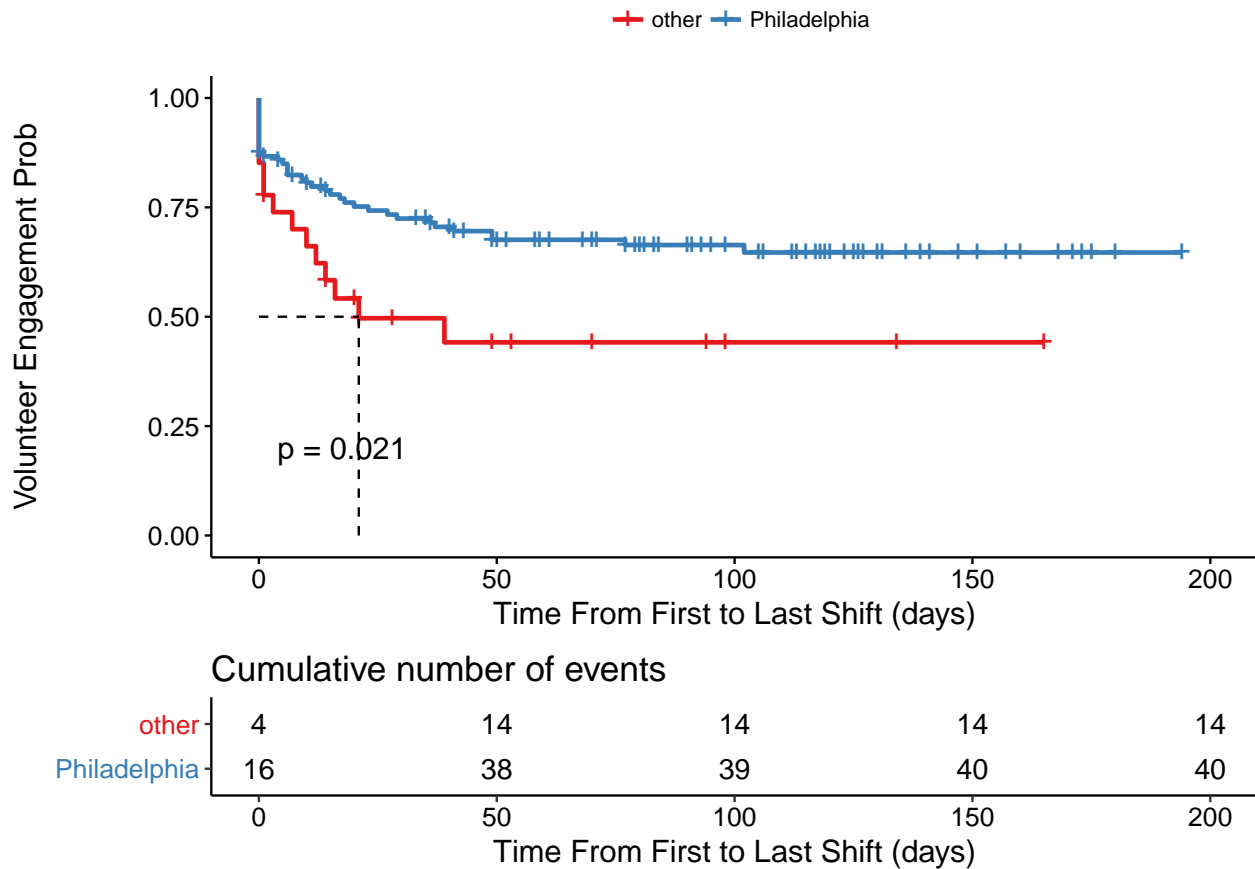


Cumulative number of events

GF	0	9	9	9	9
NE	0	9	9	9	9
PAC	0	14	15	16	16
	0	50	100	150	200

Time From First to Last Shift (days)

Compare volunteer residence city, data in 2018



Unlike what we observed previously in the previous report, we observe in 2018 data that living outside Philadelphia may mean volunteers become disengaged earlier. Because this could be affected by volunteering sites/events, this may take additional data mining to learn more about volunteers living outside Philadelphia.

Conclusions from this part

The additional data is helpful to see what trends we previously observed in the first report are still true! The major take-aways are that:

- More volunteers did orientation during the same period in 2018 compared to 2017
- We continue to see some volunteers that only volunteer once or not at all
- We have not identified any smoking gun for why a volunteer stops volunteering. We did examine factors like how quickly they started volunteering, how often they volunteer, what type of assignments they do, where they volunteer, and where they are from.