

Lessons about Vehicle Repairs and Retirements from the Consumer Assistance Program

Jeffrey Williams

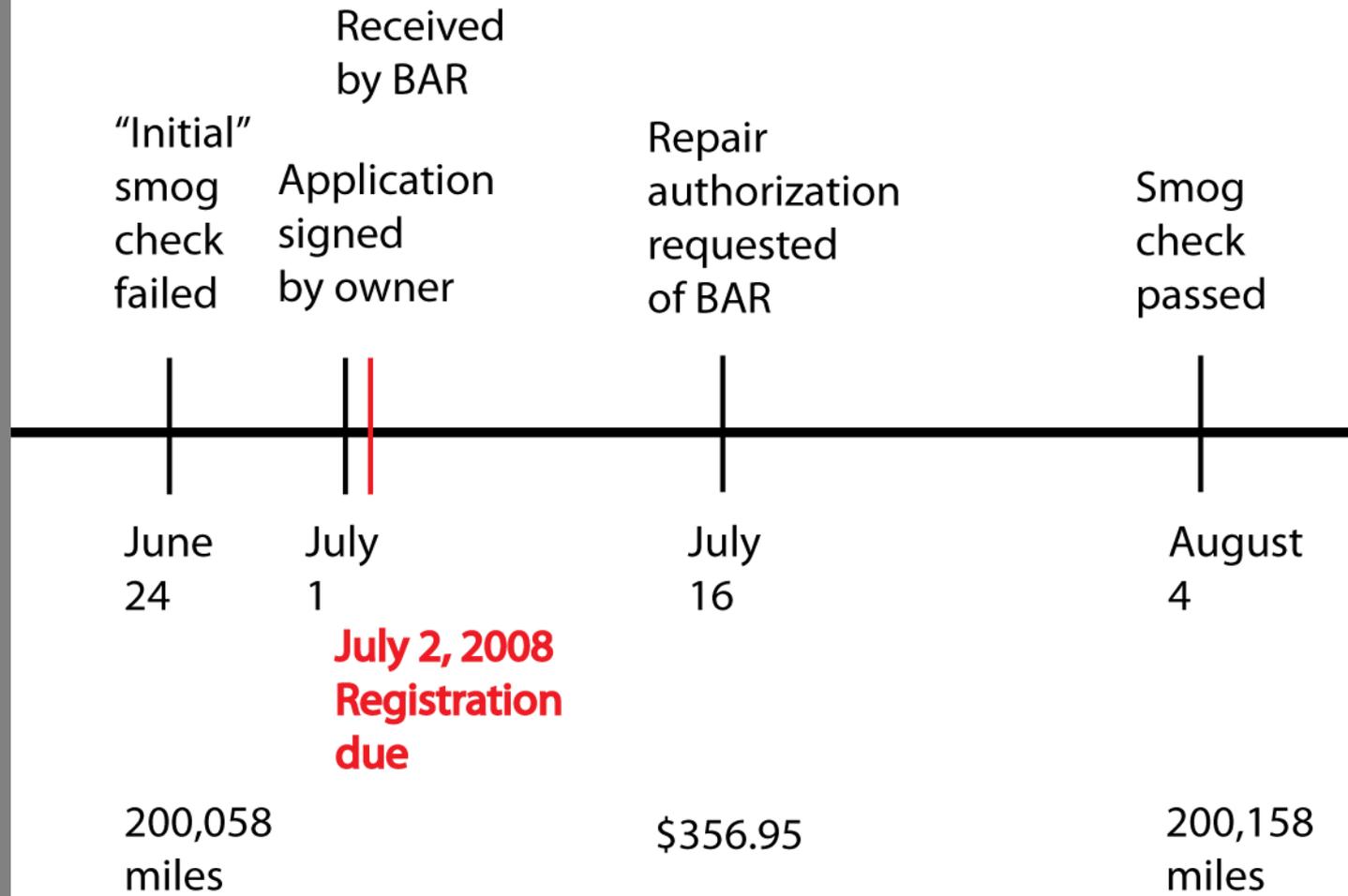
UC Davis

April 16, 2014

Classification of 758,450 CAP applications into six categories

CAP applications in each category	Application to retire			Application to repair		
	Cancelled by owner	Denied by BAR	Paid by BAR	Cancelled by owner	Denied by BAR	Paid by BAR
	23,226	60,366	138,605	80,664	77,451	378,138
without any registration info	39	411	6	34	639	186
without registration due date	3	9	2	2	16	17
ambiguous registration due date	96	1,194	370	208	533	736
no smog checks for that VIN	181	1,017	712	348	424	996
no failure -90/+275 of registration due	1,740	22,491	2,435	4,167	12,724	1,928
first failure not +/-90 of registration due	1,415	9,569	5,469	7,235	12,519	27,022
number in each category investigated	19,851	26,878	129,983	68,880	51,145	348,006

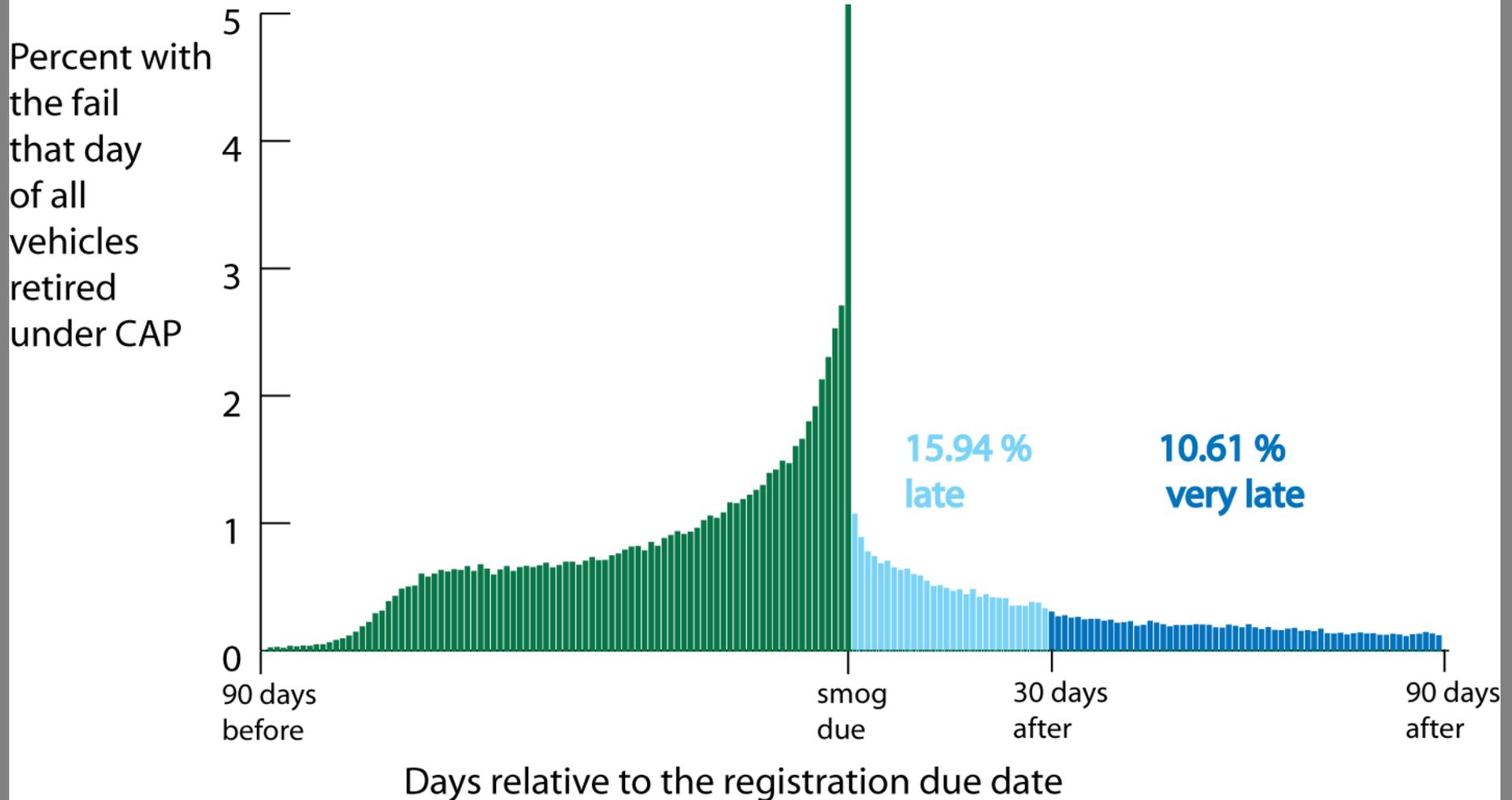
The sequence of dates for a typical vehicle 1B3BD26D5GF313122, a 1986 Dodge Aries



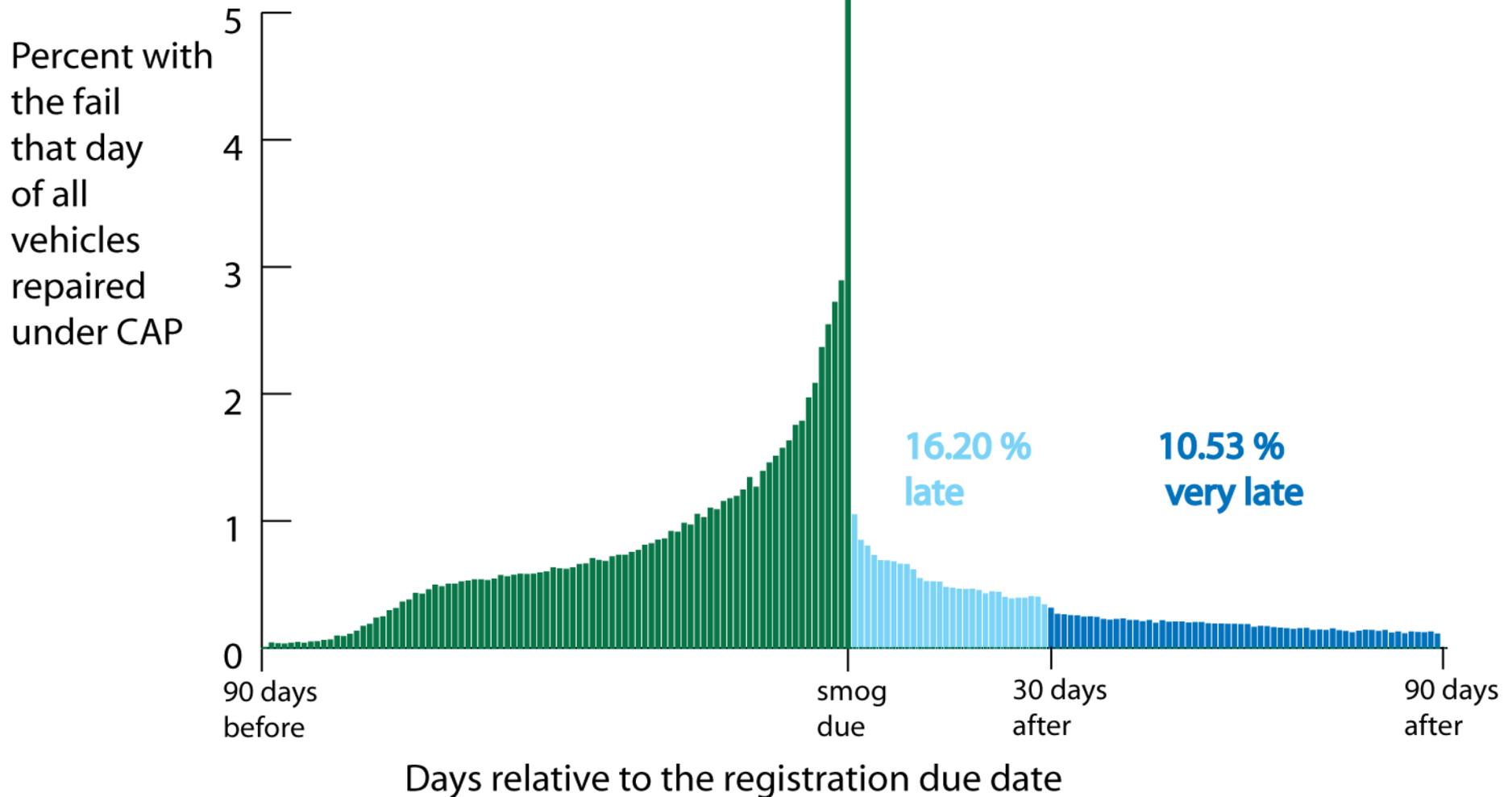
Nature of of these 579,666 vehicles

	Application to retire			Application to repair		
	Cancelled by owner	Denied by BAR	Paid by BAR	Cancelled by owner	Denied by BAR	Paid by BAR
number in each category investigated	16,479	25,509	103,332	65,292	46,988	321,934
% with emissions failure	90.52	81.54	89.86	81.47	81.39	82.47
% with gross emissions failure	48.47	47.93	47.95	31.57	38.82	38.12
% with a failure in earlier smog checks	49.91	56.33	57.98	47.18	49.81	50.59
mean age at registration due date	17.64	18.52	18.78	15.42	15.73	15.48
% older than 25 years at registration due	6.00	8.85	8.58	4.85	5.24	4.35
mean mileage at first failure	161284.	164853.	173098.	151992.	154021.	154099.
% with > 250,000 miles at registration due	9.09	10.31	11.96	6.56	7.18	7.03
% with the failure followed by a pass	34.69	28.17	0.22	65.34	67.30	89.59

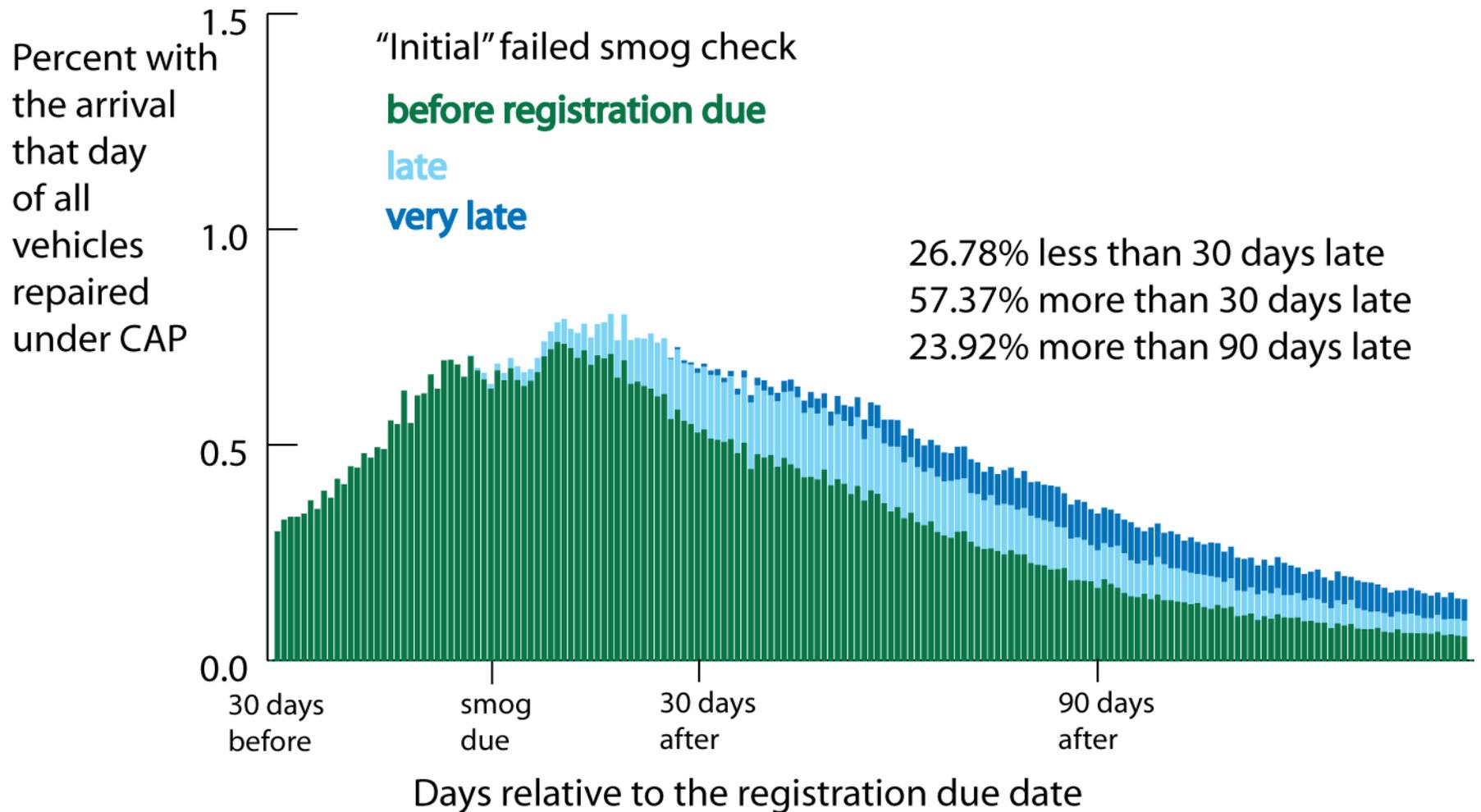
Timing, relative to the registration due date, of the "initial" fail of a smog check for vehicles retired under CAP



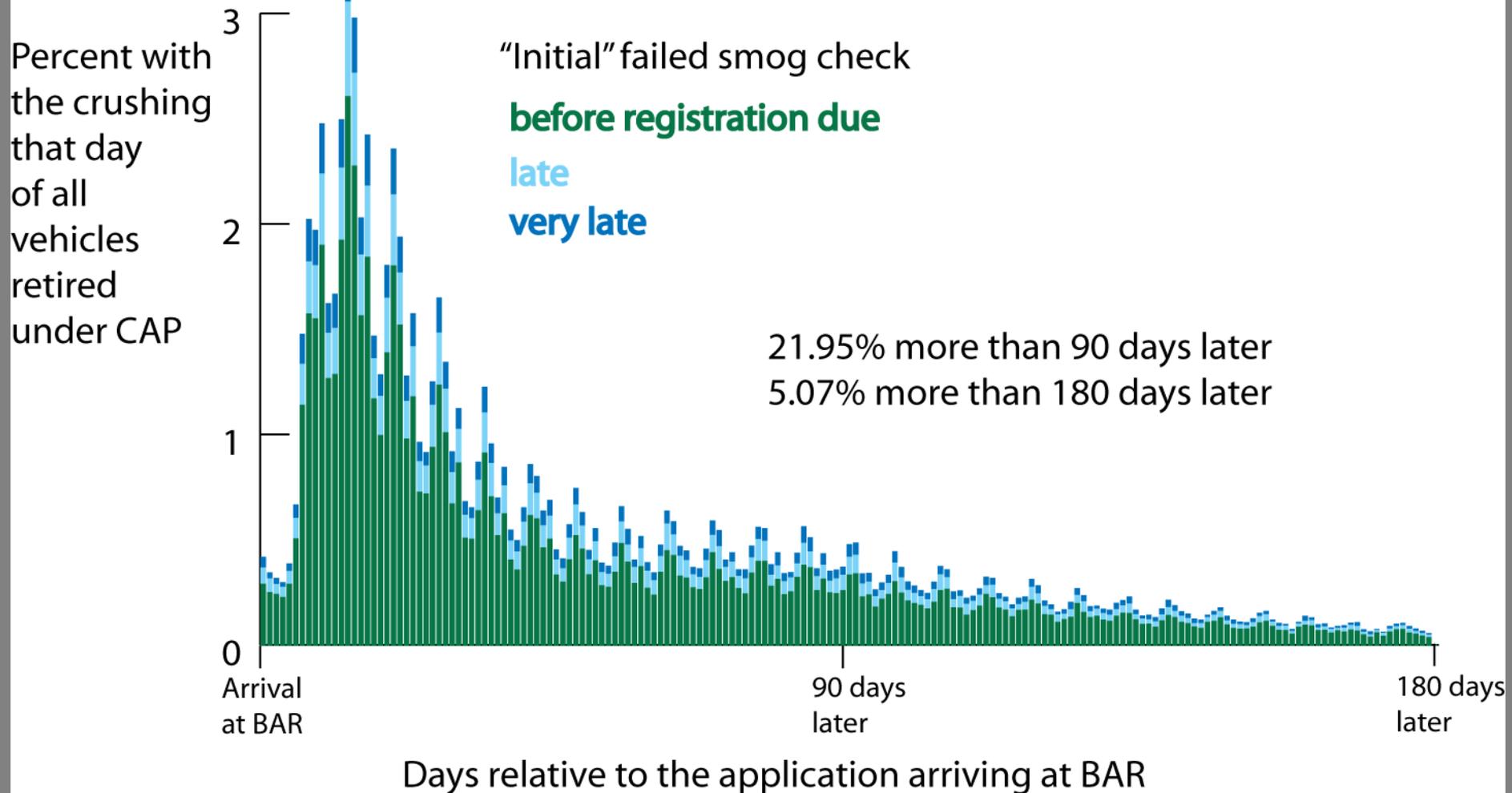
Timing, relative to the registration due date, of the "initial" fail of a smog check for vehicles repaired under CAP



Timing, relative to the registration due date, of the first repair request received at BAR for vehicles repaired under CAP



Timing, relative to the application arriving at BAR, of the crush date of vehicles retired under CAP



Usage of gross polluters during the wait for:

A CAP repair

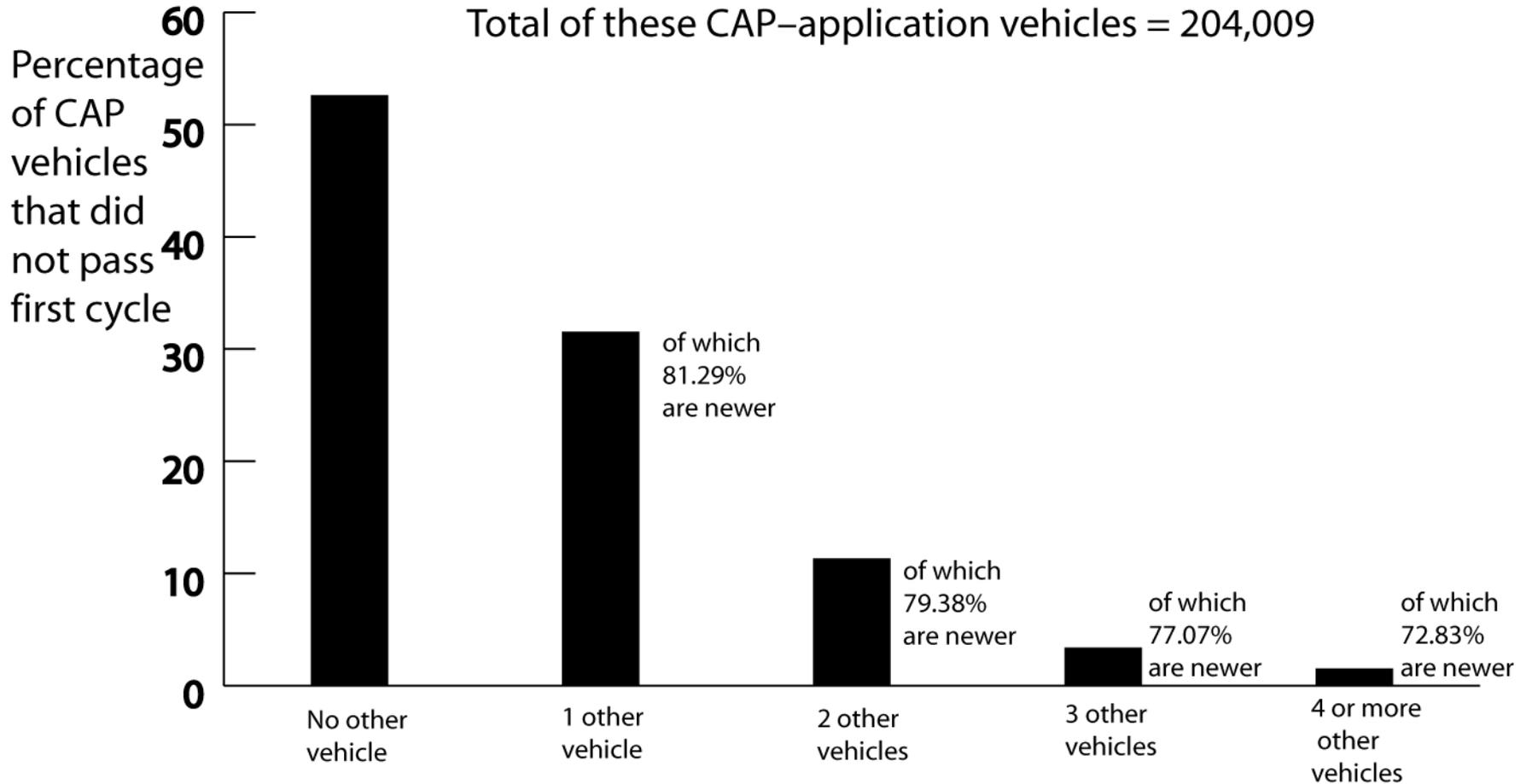
Number of vehicles	121,581
Mean time between failed smog and passed smog	72 days
Median time between failed smog and passed smog	60 days
Mean miles between failed smog and passed smog	1,517 miles
Median miles between failed smog and passed smog	717 miles

A CAP retirement

Number of vehicles	62,164
Mean time between failed smog and crushing	82 days
Median time between failed smog and crushing	61 days
Mean miles between failed smog and crushing	2,101 miles
Median miles between failed smog and crushing	1,018 miles

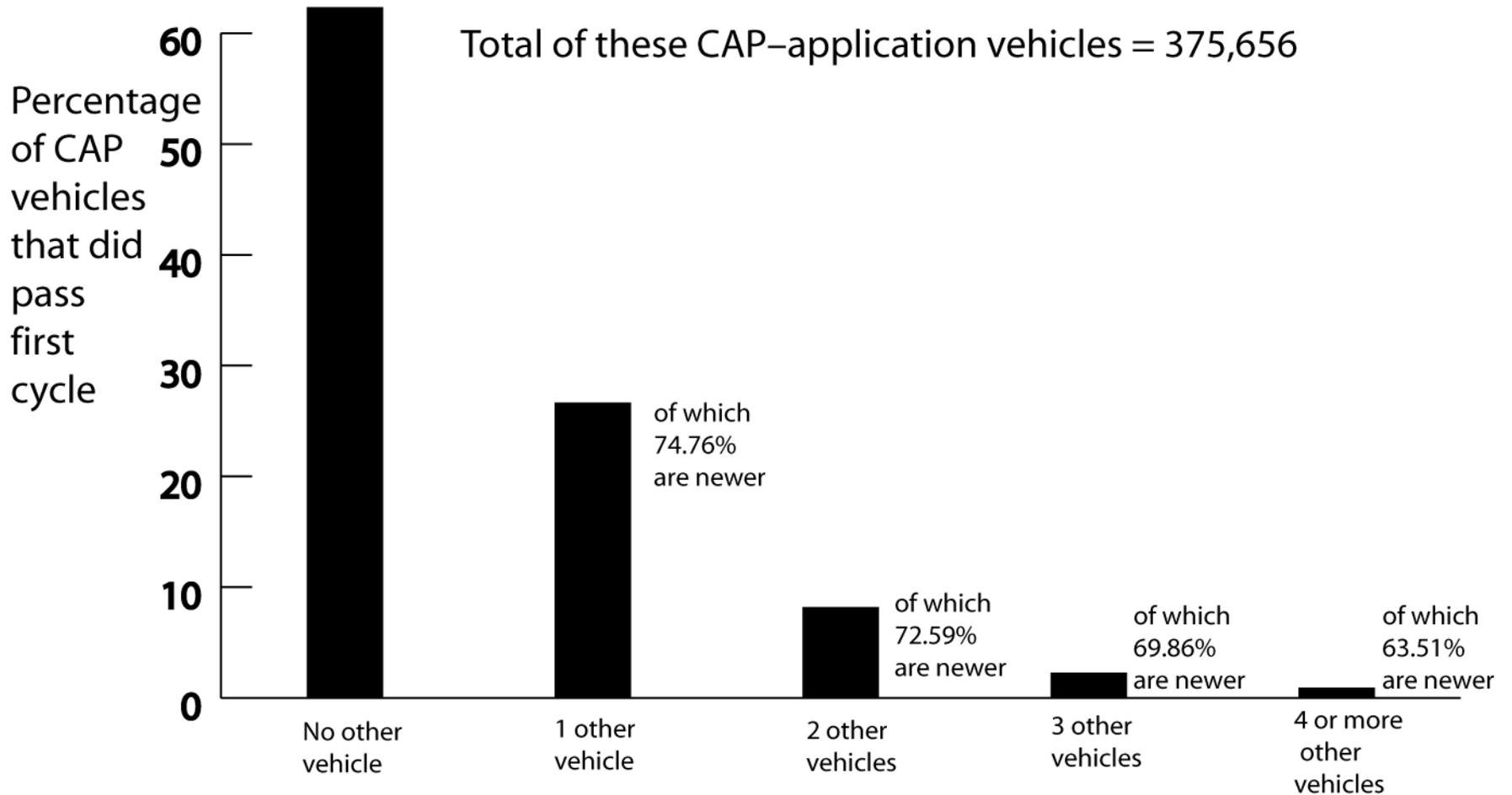
Owners of multiple vehicles at time of application

Total of these CAP-application vehicles = 204,009



Owners of multiple vehicles at time of application

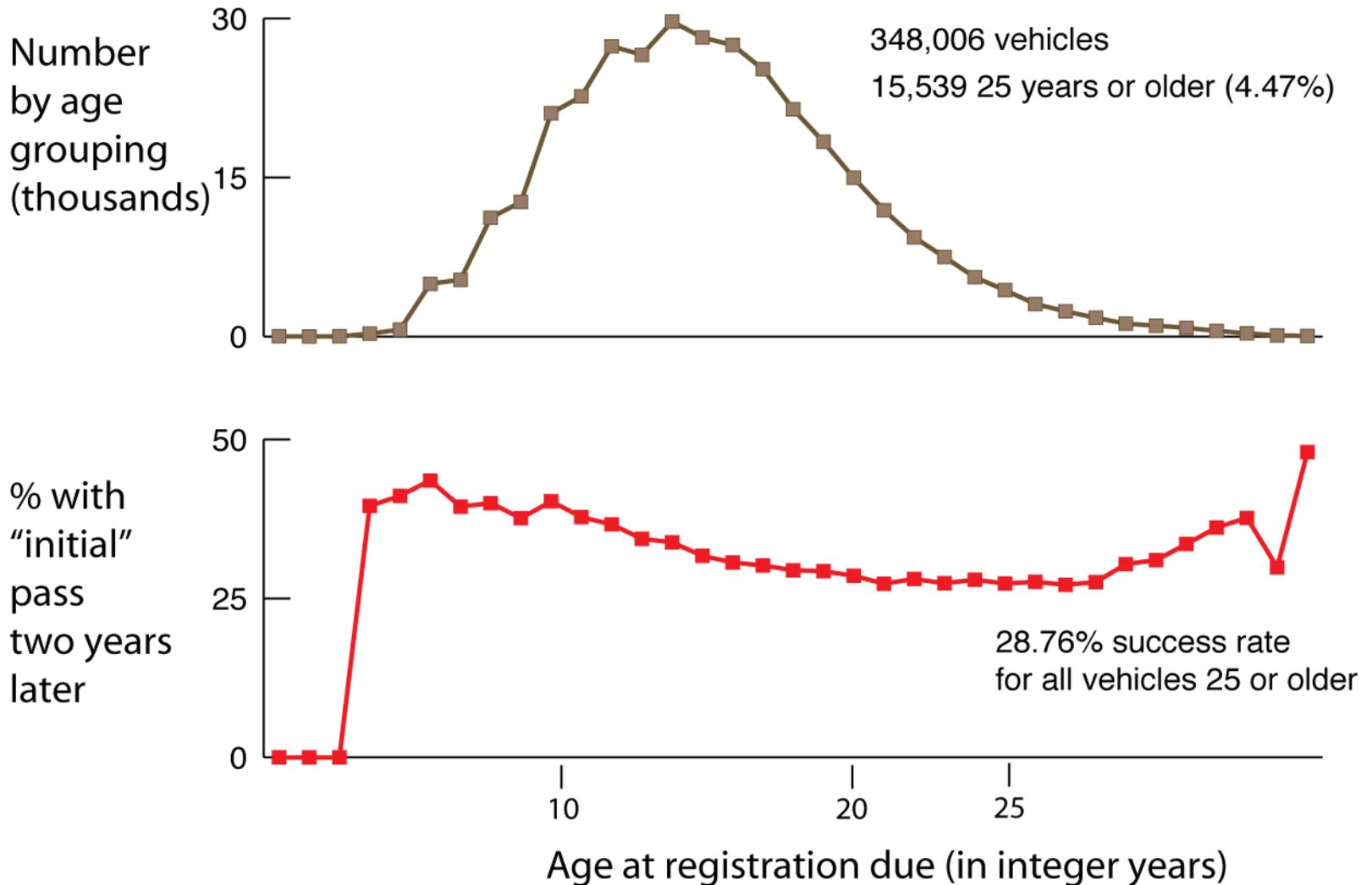
Total of these CAP-application vehicles = 375,656



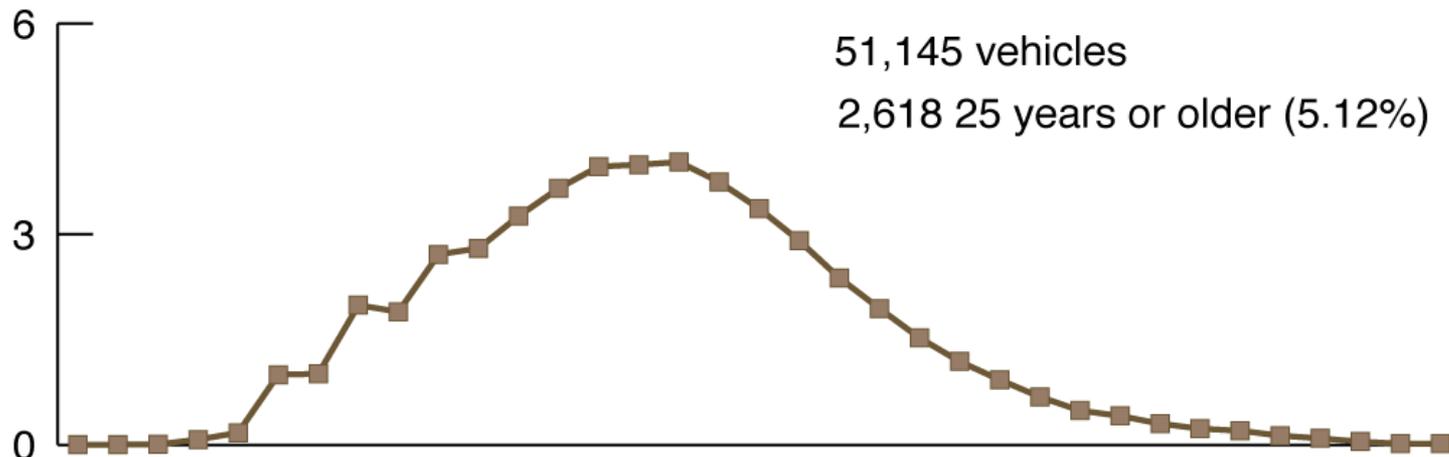
Subsequent to CAP applications

	Application to retire			Application to repair		
	Cancelled by owner	Denied by BAR	Paid by BAR	Cancelled by owner	Denied by BAR	Paid by BAR
number in each category investigated	19,851	26,878	129,983	68,880	51,145	348,006
% with failure followed by a pass	44.46	42.92	0.25	78.89	81.46	94.97
% ever out of state later	3.67	2.38	0.09	2.68	2.42	2.52
% ever insurance event later	1.46	1.26	0.00	2.37	2.16	1.92
% ever non-oped later	15.08	12.63	5.05	5.64	6.43	4.92
% ever crushed later	43.49	45.35	99.70	15.65	17.24	12.73
% crushed < 90 days of registration due	10.66	7.62	67.49	1.30	0.69	0.62
% crushed < 820 days of registration due	42.92	44.99	99.69	15.05	16.65	11.48
% with initial pass two years later	8.47	6.04	0.00	25.59	23.87	33.05

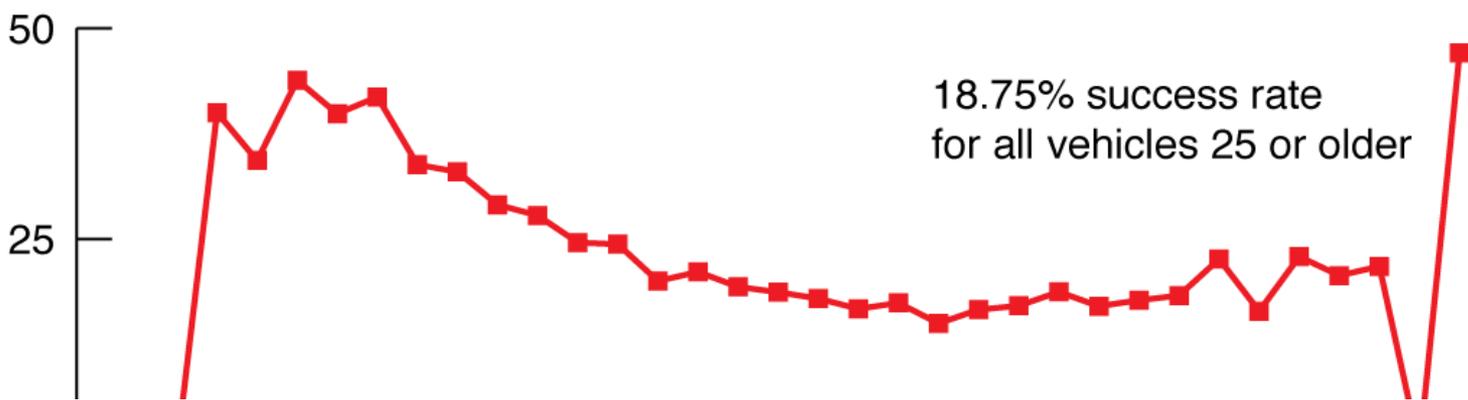
Lasting "success" of CAP repairs



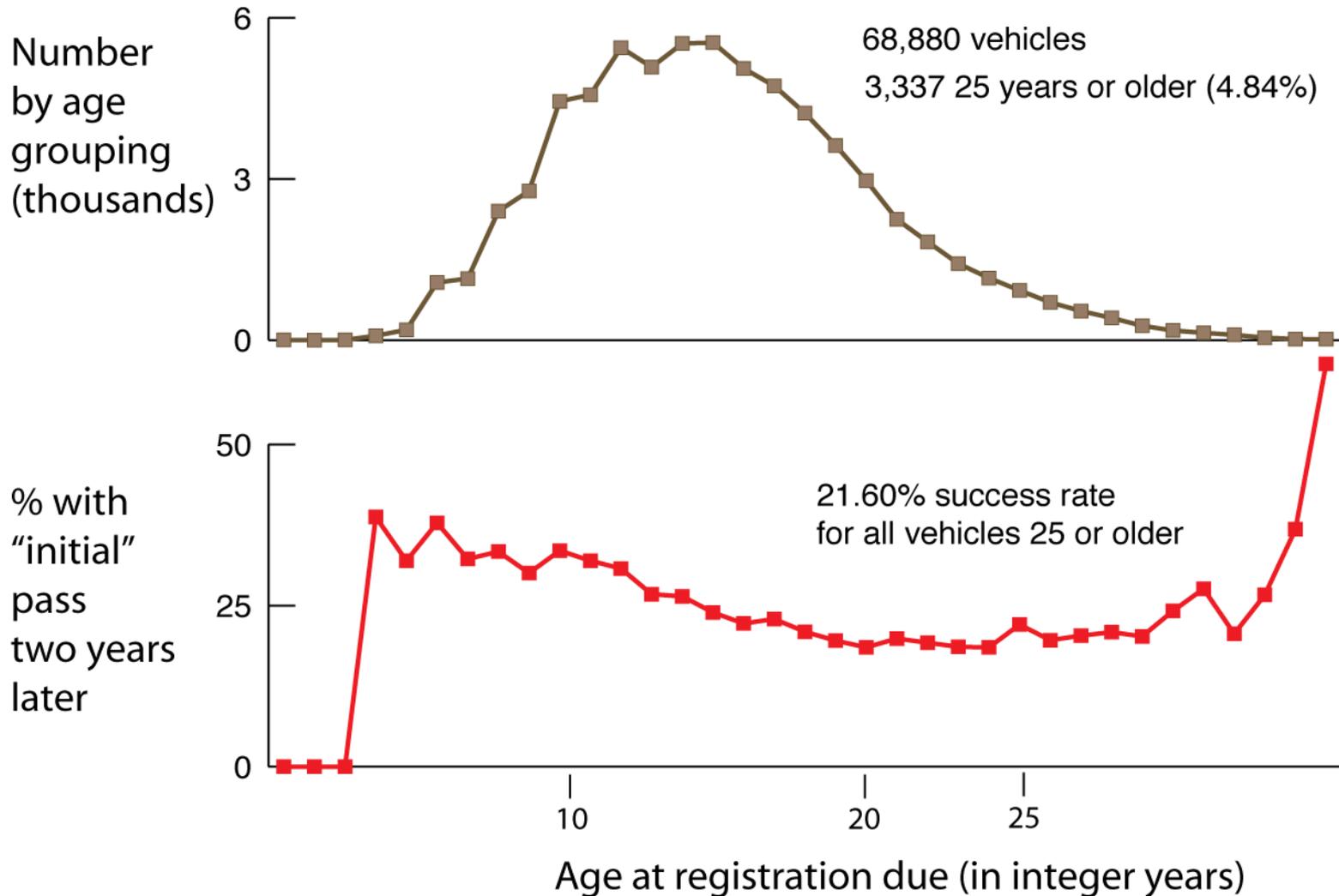
Number
by age
grouping
(thousands)



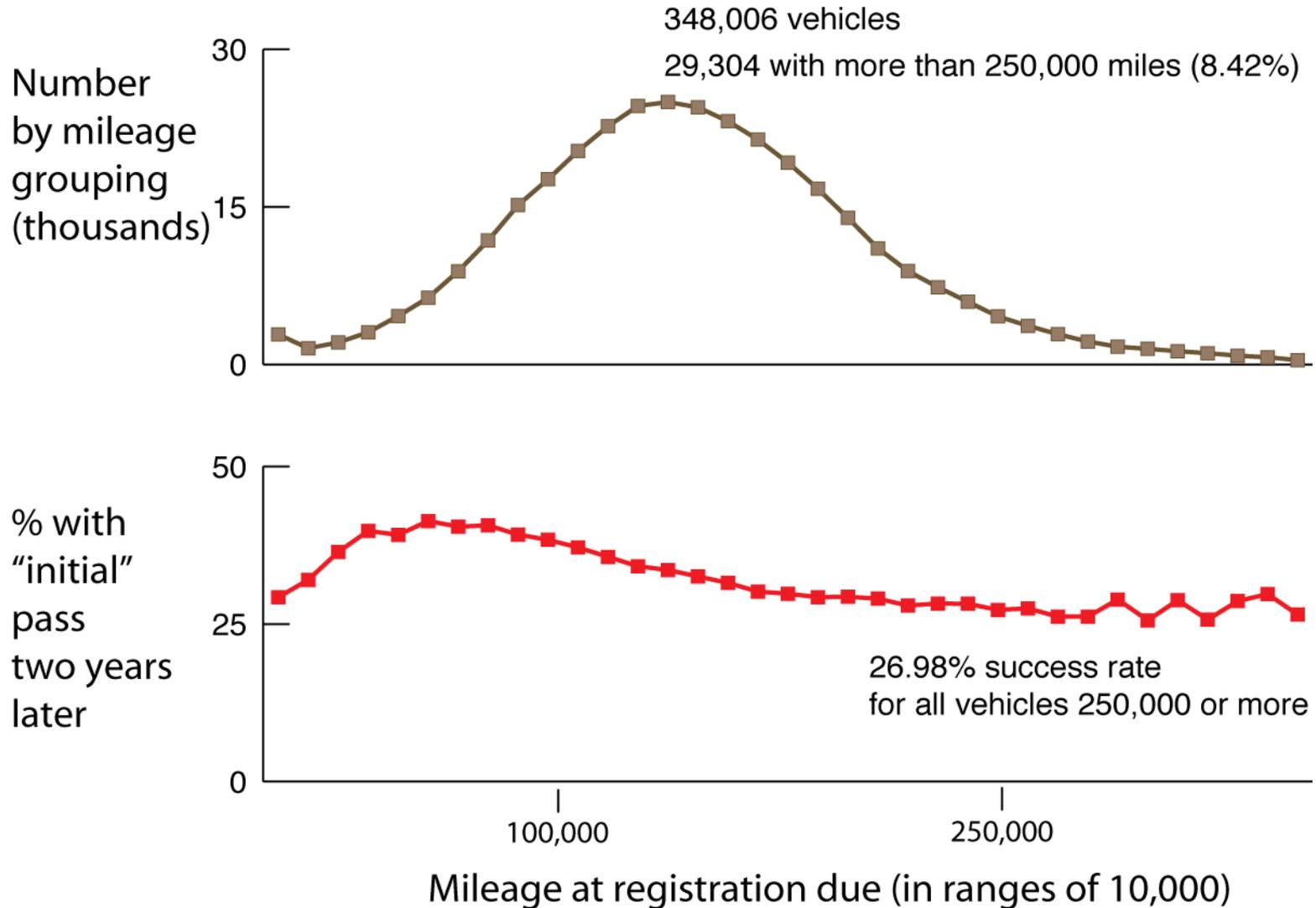
% with
"initial"
pass
two years
later



Lasting "success" of vehicles whose owners cancelled CAP repairs



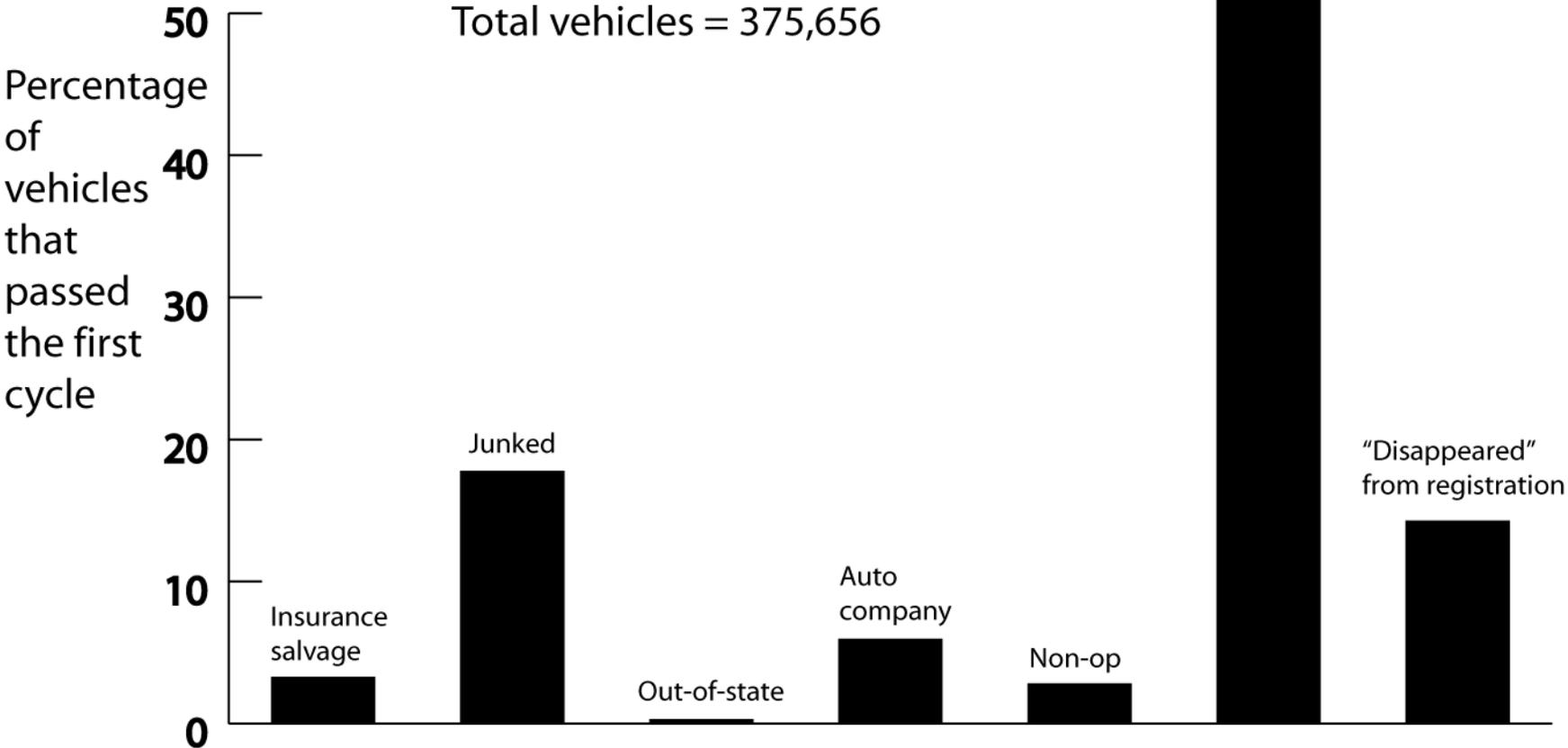
Lasting "success" of CAP repairs by mileage



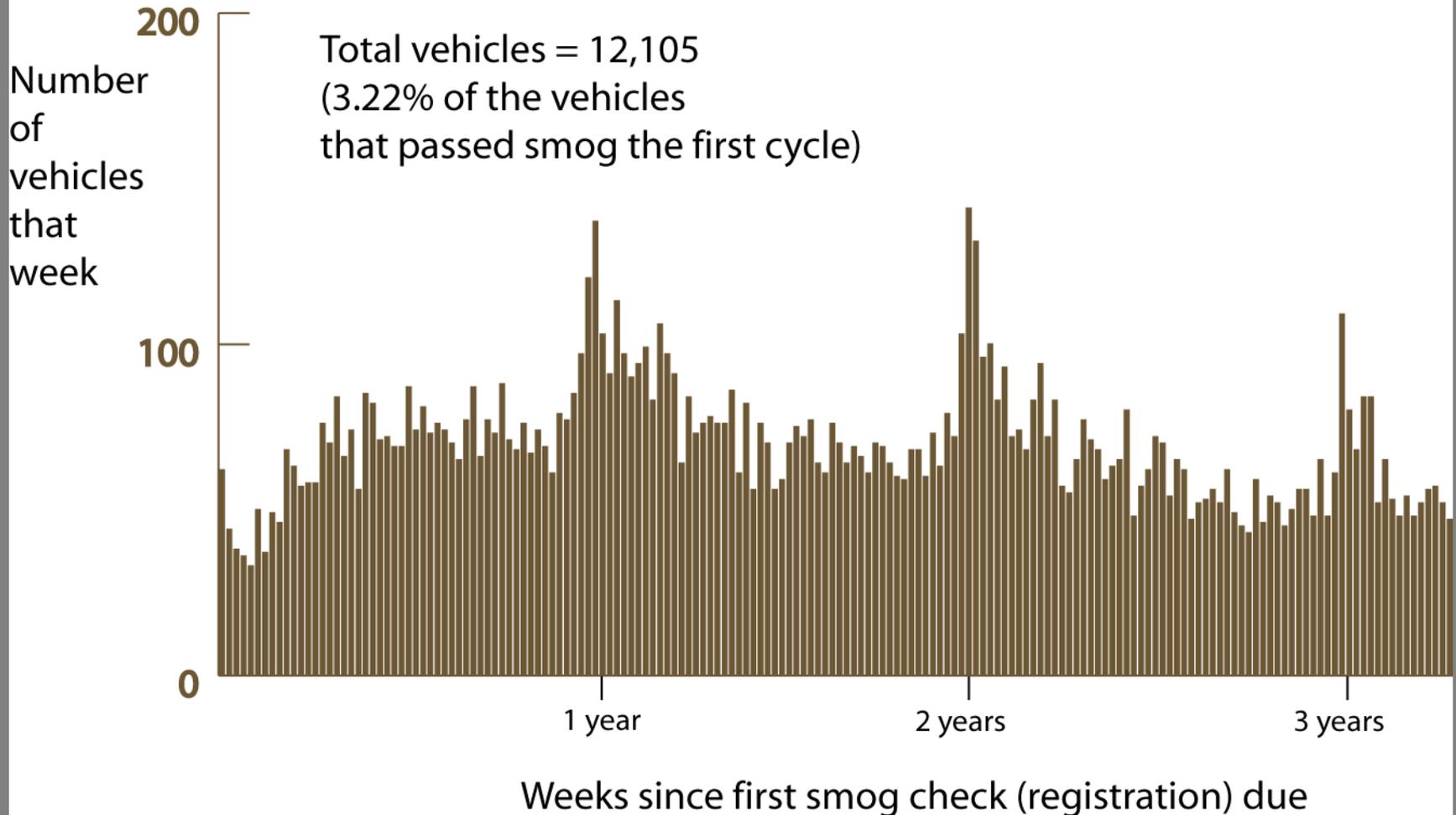
Types and consequences of CAP repairs

Only that repair type	# of vehicles	% > 25	% over 250,000	Mean cost	% initially passing next smog
Diagnostic only	40,087	5.13	7.58	\$130.00	26.22
Oxygen sensor	31,041	0.94	6.58	392.82	37.62
Catalytic converter	43,839	1.85	9.20	549.97	38.64
Carburetor	5,339	24.61	9.44	540.97	25.08
Fuel evap system	9,154	5.49	5.55	457.01	49.07
Ignition system	10,388	5.69	8.28	344.95	29.12
EGR system	24,755	3.98	7.85	386.07	37.22
Owner more than copay	101,220	4.23	9.66	705.88	35.20

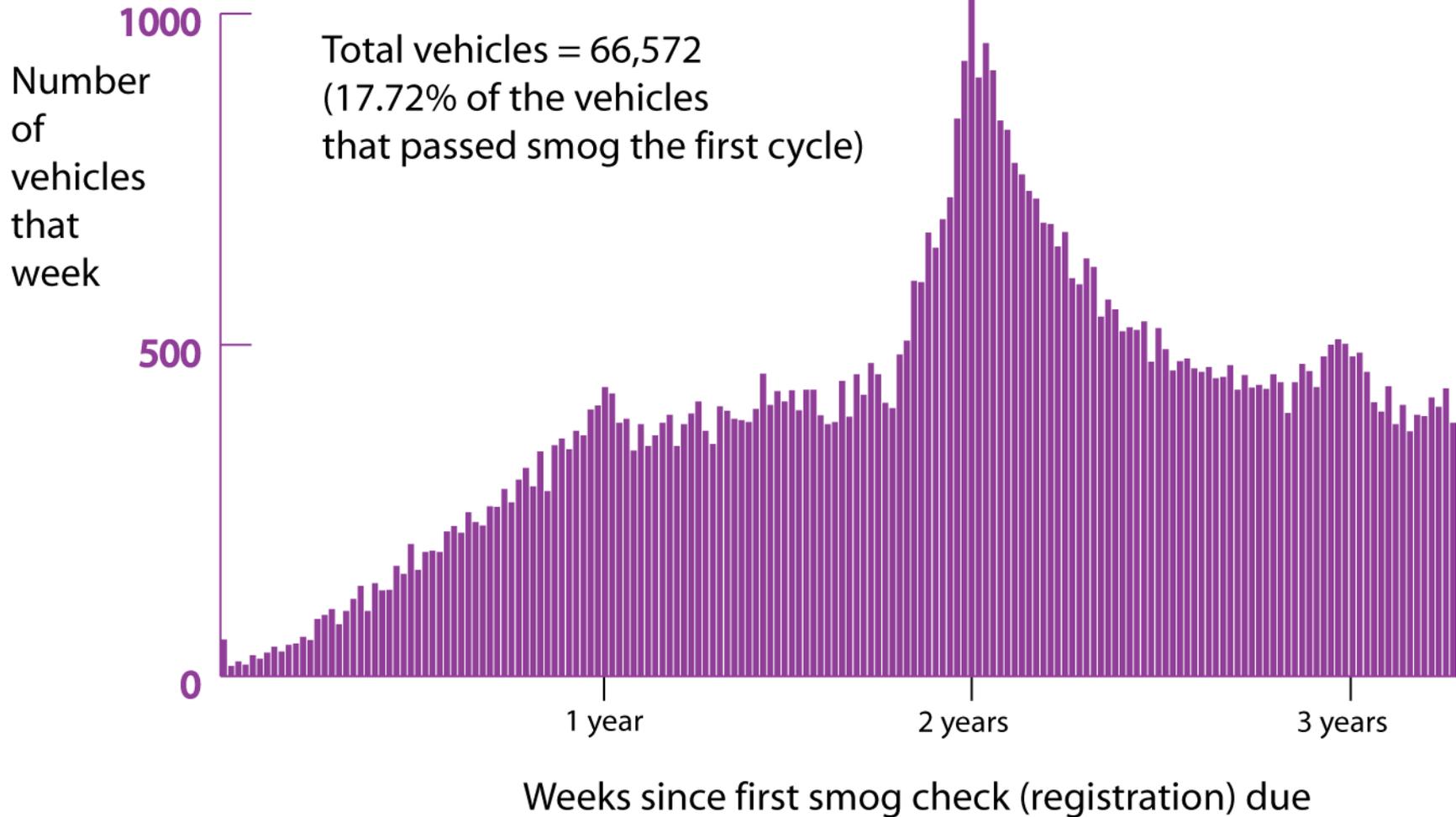
Status of vehicles 3+ years later



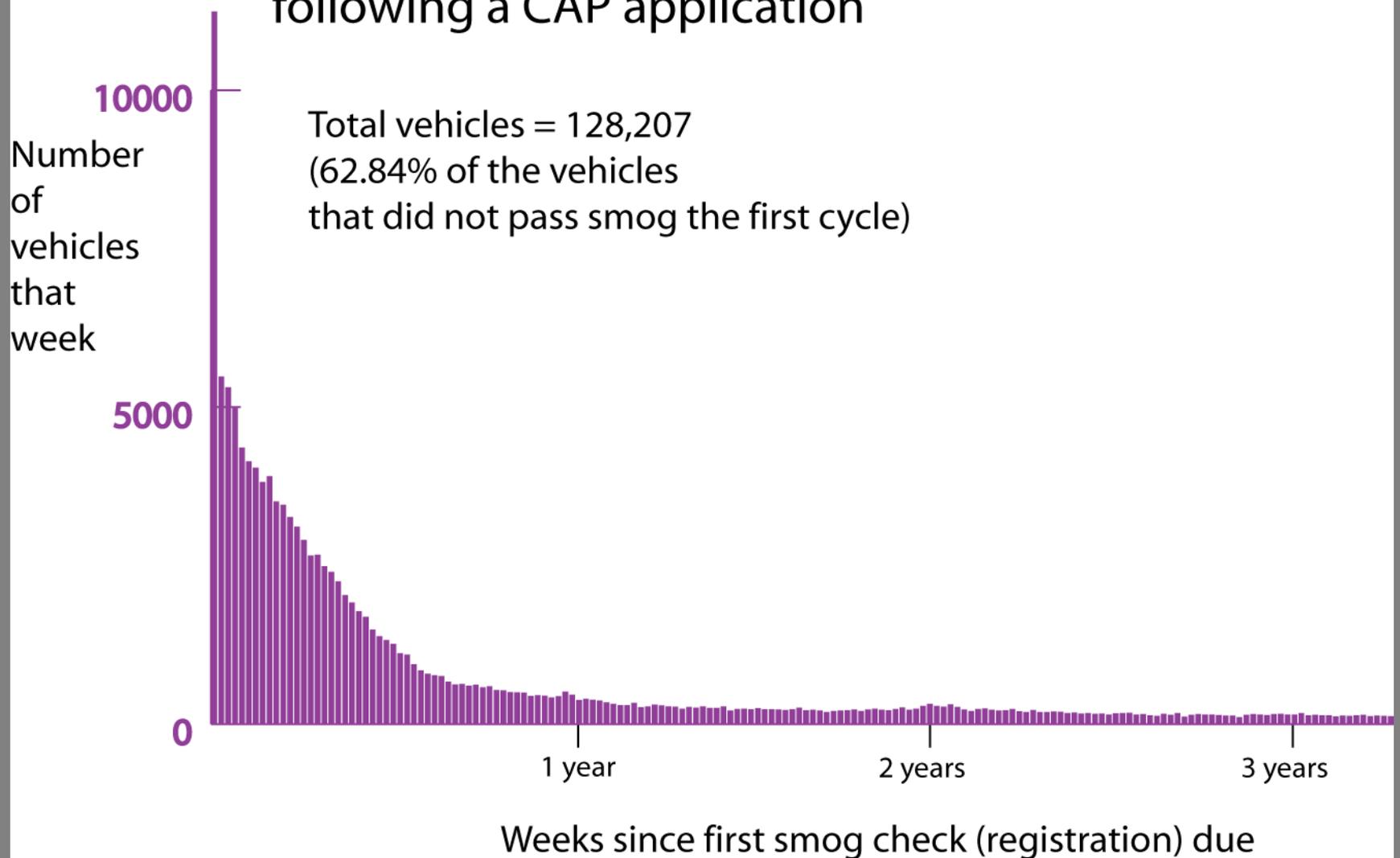
Insurance salvage within 3+ years following a CAP application



Junking within 3+ years following a CAP application

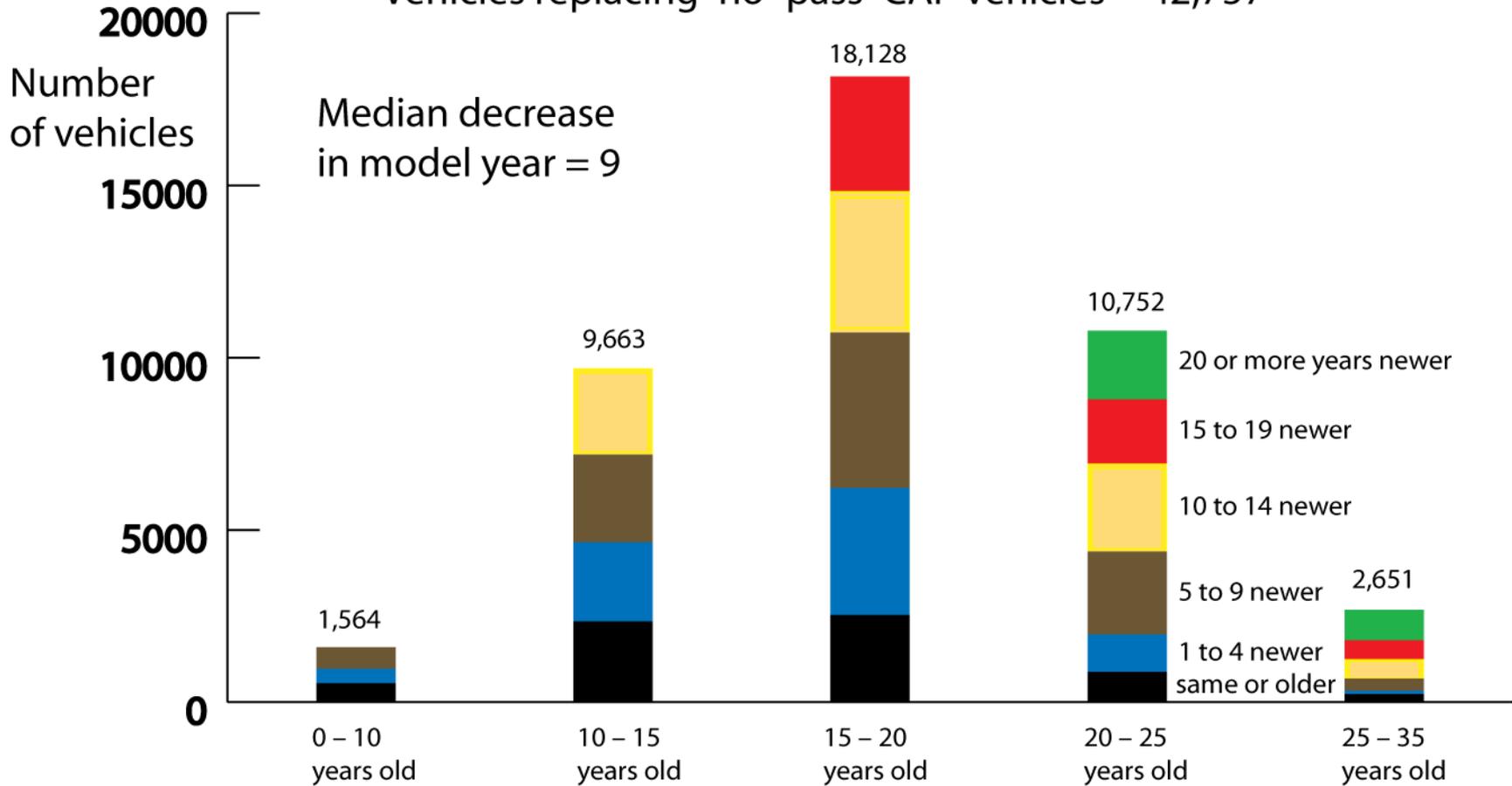


Junking within 3+ years following a CAP application



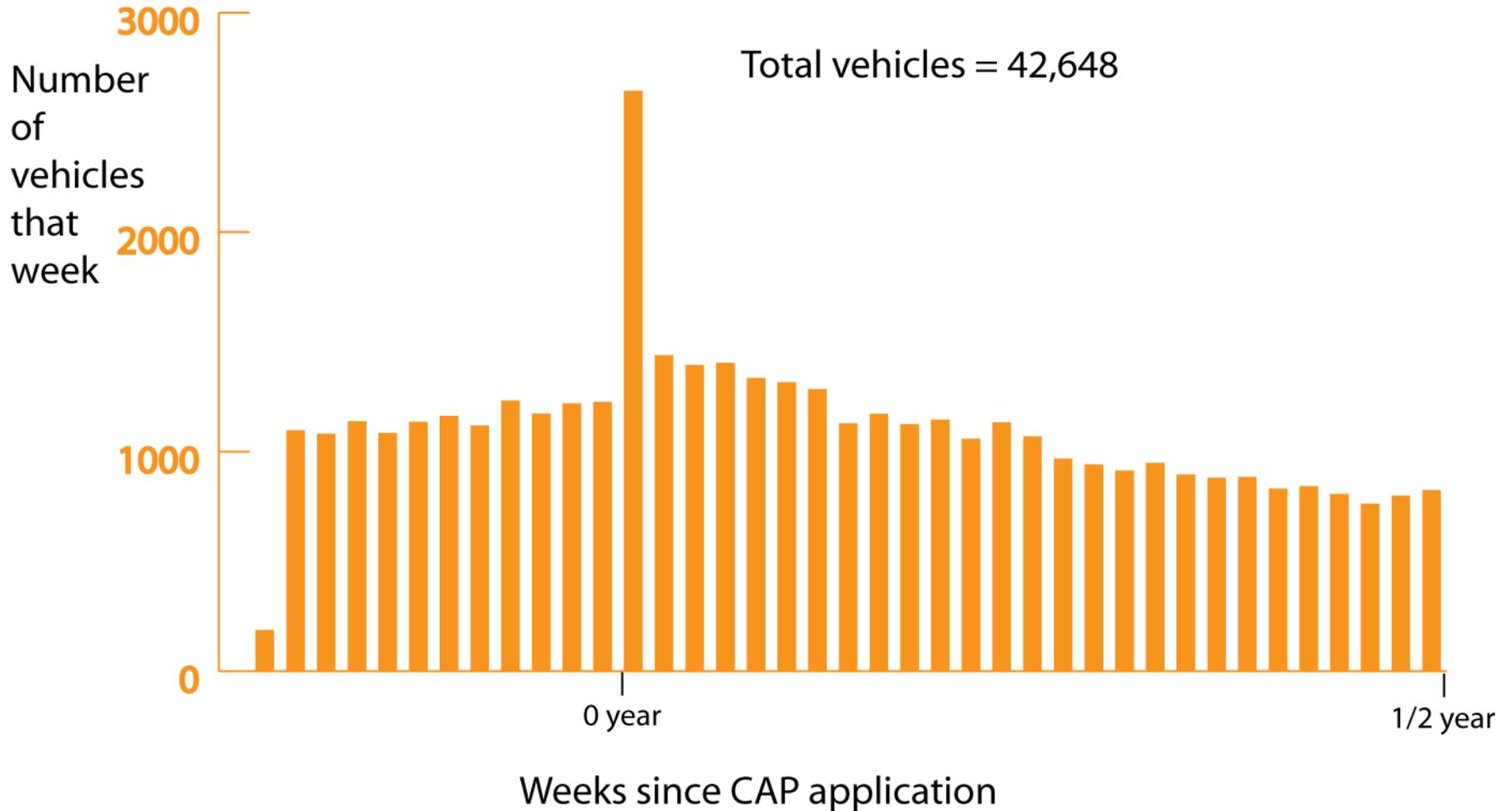
Age of "replacement" vehicles

Vehicles replacing "no-pass" CAP vehicles = 42,757

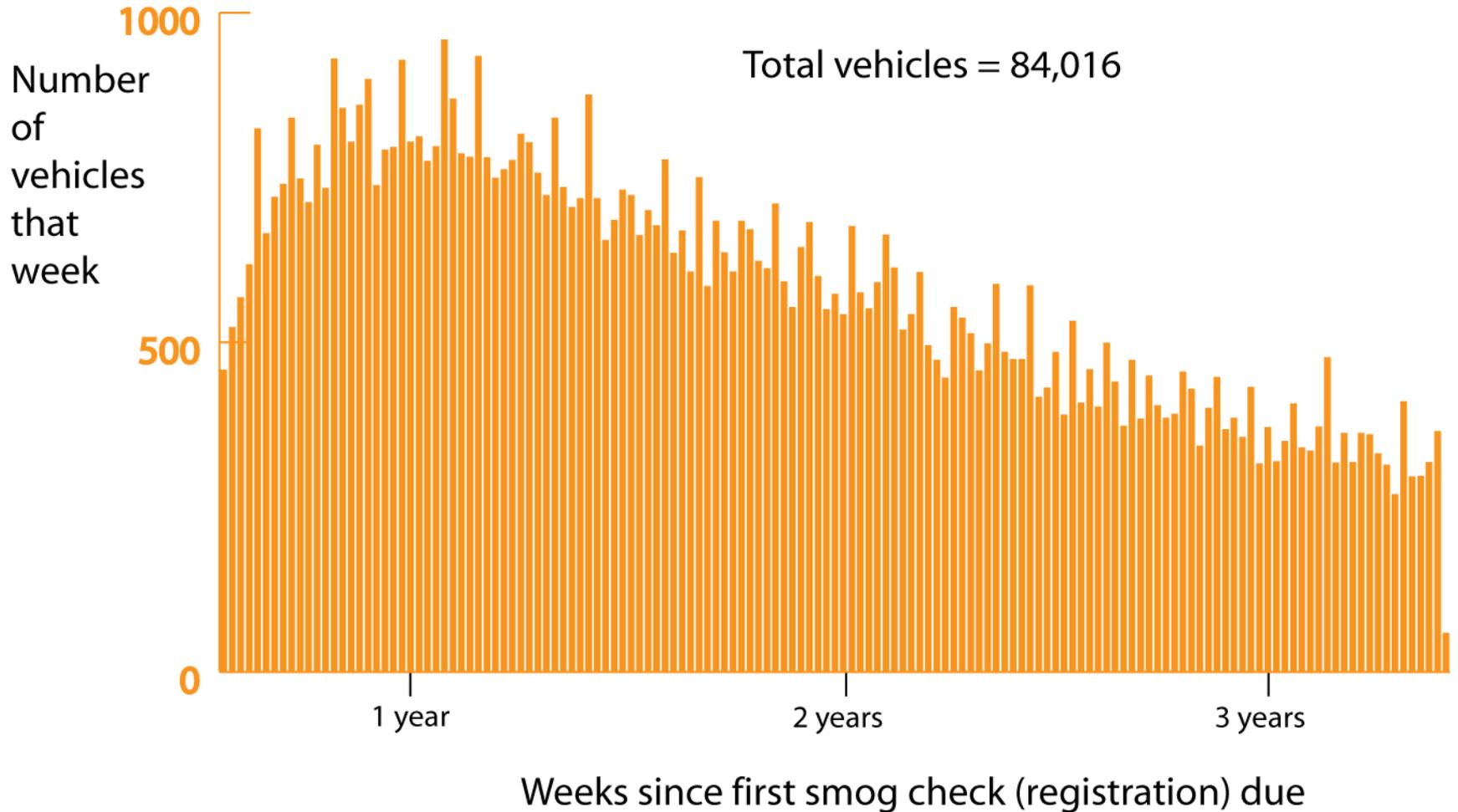


Age range of CAP-application vehicles

Replacement (of those that did not pass) within 1/2 year following a CAP application



Replacement (of those that passed) within 3+ years following a CAP application



Final observations:

- Many vehicles repaired under CAP appear to be near the end of their useful lives.
- A lower maximum CAP payment on older and high-mileage vehicles but no change in the retirement program would twist owners' decisions towards retirement of the vehicle.
- Because many apply for retirement when not eligible, a small payment might induce many towards retirement of the vehicle.
- The prospect of further smog checks influences retirement decisions.
- Many of these vehicles disappear from DMV records.
- Many owners are buying newer vehicles regardless of the CAP program.