

1. Procedure

- I used the diagnosis code that I found in the ambulance claims to merge it into the main analysis dataset we are using right now. I am able to match 100% of the observations.
- I created 3-digit diagnosis codes, the same way we did in the main dataset. I dropped 'weird' ambulance diagnosis codes such as XX0, X00, XXX, 86, A and //
- 17.17 % of the ambulance ICD codes are equal to the diagnosis code we have in the main dataset, 82.83 % are not!
- I regressed our main mortality variable, “y_mortality_28” on ambulance ICD code dummies, absorbing ambulance FE. Then I predicted mortality, using the linear option xb.

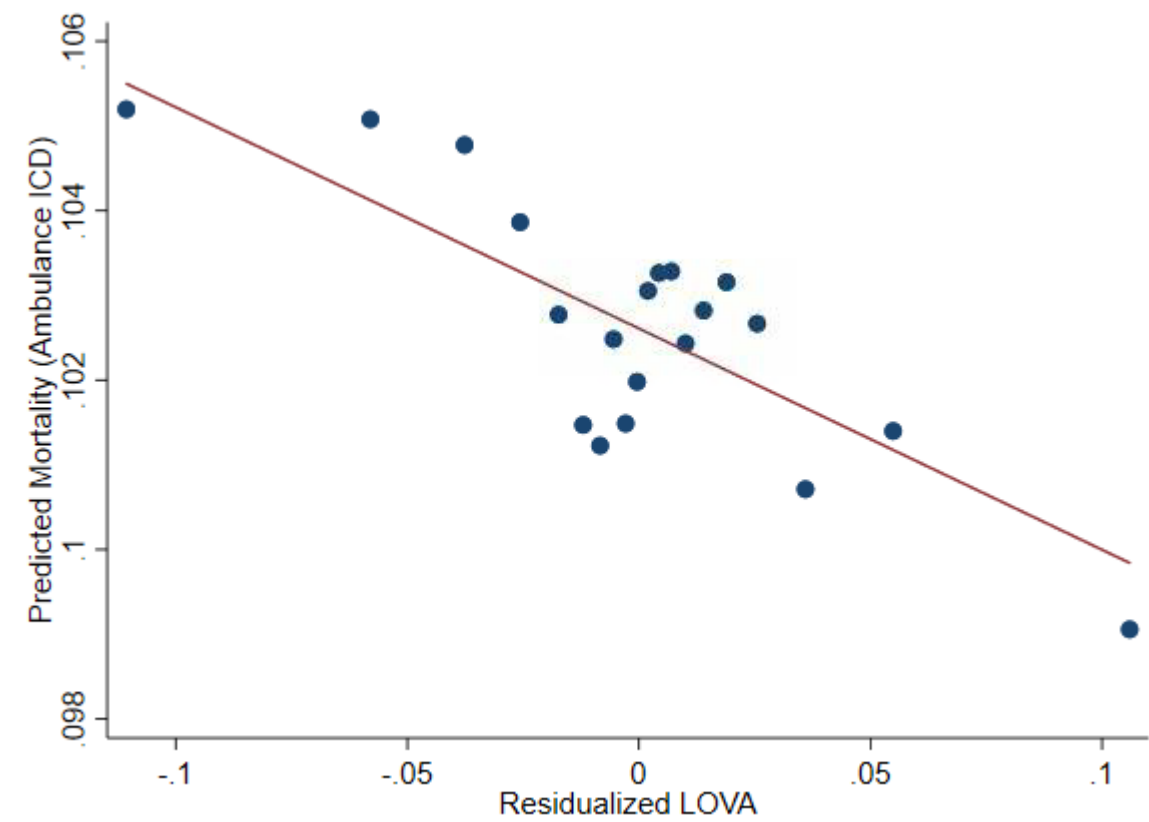
```
areg y_mortality_28 i.diag3_amb, a(z_tax_num)
predict mort_hat, xb
```

- I residualized the instrument in the same way we did before, using race, age, date and utilization (our X1) with zip code FE.

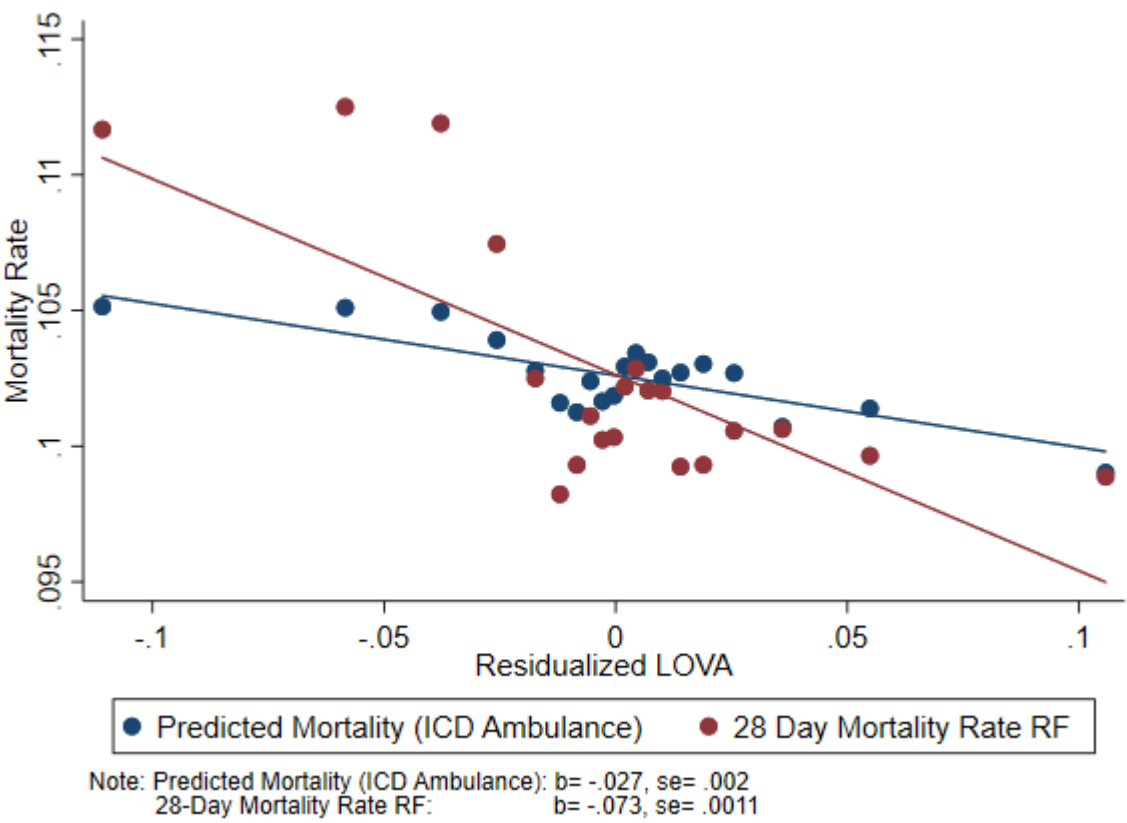
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xi: areg z_lova x1, absorb(z_zip_5)
predict rez_z_lova, resid
```

2. Results

- Binscatter of predicted mortality and residualized ambulance instrument (lova)



- Plot of \hat{y} for ambulance ICD codes, absorbing ambulance FE, and 28-Day actual mortality on instrument controlling for our new x_1 .



3. Quick analysis to describe what are the top 30 ICDs that are used as ambulance ICDs but are not in the main dataset

diag3_ambulance	Freq.	Percent	Cum.
786	141,539	22.41	22.41
780	132,795	21.02	43.43
959	31,465	4.98	48.41
789	31,140	4.93	53.34
719	19,653	3.11	56.45
787	17,877	2.83	59.28
729	11,818	1.87	61.15
724	11,442	1.81	62.96
436	11,022	1.74	64.71
427	10,205	1.62	66.32

786	Dyspnea and respiratory abnormalities
780	General symptoms
959	Other and unspecified injury to head face and neck
789	Abdonimal pain / Other symptoms involving abdomen and pelvis
719	Palindromic rheumatism
787	Dysphagia
729	Nontraumatic compartment syndrome / swelling of limb
724	Other and unspecified disorders of back
436	Acute, but ill-defined, cerebrovascular disease
427	Other specified cardiac dysrhythmias

Here’s also the TOP 10 of 5 digit ICD codes:

ICD 5 Freq. Name 786.09 13.3 Other respiratory abnormalities 786.50 12.8786.05 11.2780.79 7.4780.09 6.4780.02 6.0078.02 4.6789.00 4.5780.97 3.9078.04 3.7

All in all, seems like plausible reasons to call an ambulance while not having super specific diagnostic codes.