

Hospital Closure documentation

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Hospital closures were created to for the purpose of identifying hospital closures from AMI cohort to begin with. At a later date we expanded the study to account for several other cohorts but the manual matching was mostly done with the AMI cohort.

1 Closures have been defined using the following method

We have several data sources, some of which are conflicting other which are not. To begin with I want to limit ourselves to the AHA, TDI and Billing information on closures and use the google maps API to check whether the hospital is reported as closed or whether there is currently a hospital at the same location. I want to separate the process of figuring out whether you are closed and **when** you closed.

The first step will be to look at closures in our sample, because this will toss out a good chunk of hospitals. Originally we were going to use AHA, currently we only use TDI data and cross reference the google maps API. Then have a subset checked by hand.

1. Work with TDI closures only
2. If AHA and TDI report closure - accept it as closure
3. For remaining closures in TDI not validated by AHA, cross reference against google maps API
 - A. Look for other hospitals, doctor offices, or health related businesses within within .1 miles radius of the centroid for a hospital we think close. We can think of this being what someone would do if they opened up google maps - we just automated it.
4. For hospital/doctor office or health related structures found within .1 miles of the closed address Ben Berger manually searched these A. Ben validated these. There were about 120, he found evidence of 50 of these closing
5. No hospital found within .1 miles of closed address- accept closure

Hospital closure date is a tricky subject. We are currently using the medicare claims to date the closure. We are going to want to run some sensitivity analysis on this I think. We used the last year a hospital billed for a cohort to signify closing. This means that a hospital has different closure year in different cohorts. For our study its important to distinguish between the last year the cohort is treated as opposed to a full closure. The file attached uses the last year the hospital billed Medicare; not just for the cohort as the close year.

Table 1: ALL CLOSURES: Comparison of closure definitions from the American Hospital Association (AHA), Medicare claims (BILL), The Dartmouth Institute (TDI) and the cost reports (HCRIS). The table shows that the AHA closure identify a subset of the closure found in the billing and HCRIS data.

	all	aha	bill	tdi
<i>Number of closures</i>				
Total closures	1198	938	1121	680
notin_google_api_tdiben				
Accept closures, report closure in AHA and TDI	420	420	412	420
Ben validates by hand : hosp FOUND within <.1 mile	156	0	142	156
ACCEPT : NO hosp found within <.1 mile	104	0	97	104

Table 2: TDI closures used in analysis per cohort.

	ami	hip	chf	pnu	strk
<i>Total closures</i>					
TDI closure	684	684	684	684	684
# of closures dropped	55	55	55	55	55
Closures used, 1994-2011	629	629	629	629	629
<i>Closures used in analysis</i>					
# closures in event set	447	411	476	491	433
Total # patients (1000s)	4548	3821	7114	8410	5362
# treated in closed (1000s)	102	87	195	248	125
<i>Break down by year of closure</i>					
1994-1996	100	89	101	102	89
1997-2000	139	124	149	154	142
2001-2004	102	93	104	105	92
2005-2008	77	80	87	94	79
2009-2011	29	25	35	36	31