Supplementary Online Content

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This supplementary material has been provided by the authors to give readers additional information about their work.

eAppendix. Sensitivity Analyses

We stratified our primary analysis by the AMI location in the heart: (1) STEMI MIs, which are approximated by anterolateral, anterior wall, inferolateral, inferior wall, infero-posterolateral, true posterior, and not otherwise specified locations, and (2) NSTEMI MIs, approximated by subendocardial location. Changes in early PCI were inversely associated with 180-day mortality, **eTable 3**. The association between early PCI growth and the 180-day mortality decline was larger among STEMI (beta = -0.172, $p<0.0014$) than NSTEMI patients (beta = -0.0917, $p<0.0014$), **Table 1**. Results were similar for 30-day mortality rates (**eTable 1).**

eTable 1. Association Between Early Percutaneous Coronary Intervention and 180-day Acute Myocardial Infarction Mortality, Stratified by Type of Acute Myocardial Infarction

Full Sample: N=668,486	**30d mort**	**180d mort**	**31-180d mort**
Early PCI Rate	-0.033**	-0.068**	-0.034**
	-0.0066	-0.0093	-0.0061
	[0.000]	[0.000]	[0.000]
Log(Mean Total 180-day $)	-0.003	-0.012*	-0.009**
	-0.0036	-0.0049	-0.0033
	[0.479]	[0.013]	[0.005]
NSTEMI Sample: N=455,389	**30d mort**	**180d mort**	**31-180d mort**
Early PCI Rate	-0.041**	-0.081**	-0.040**
	-0.0084	-0.0121	-0.009
	[0.000]	[0.000]	[0.000]
Log(Mean Total 180-day $)	-0.004	-0.012*	-0.007
	-0.0034	-0.0051	-0.0038
	[0.230]	[0.018]	[0.052]
STEMI Sample: N=213,097	**30d mort**	**180d mort**	**31-180d mort**
Early PCI Rate	-0.118**	-0.156**	-0.032**
	-0.0078	-0.0097	-0.0049
	[0.000]	[0.000]	[0.000]
Log(Mean Total 180-day $)	-0.007	-0.020**	-0.011**
	-0.0049	-0.0058	-0.0028
	[0.172]	[0.001]	[0.000]
m	2		
* for 5% significance level, Bonferroni correction	p <= 0.025		
** for 1% significance level, Bonferroni correction	p <= 0.005		

[a]Each column within each panel is a separate regression.
[b]PCI is percutaneous coronary intervention.
[c]Outcome variables are 30 day mortality, 180 day mortality, and 31-180 day mortality.
[d]31-180-day mortality is conditional on surviving to 30 days.
[e]Logit model estimated; marginal effects reported using "margins, atmeans" in Stata.
[f]All regressions control for patient characteristics, hospital fixed effects, and year fixed effects.
[g]Includes years 1999, 2000, 2004, 2008, 2013, and Q1-Q2 2014.
[h]Early PCI rate and Log(Mean Total 180-day Spending) are at the hospital-level.

[i]Early PCI means receiving PCI within a day of admission.
[j]Log(Mean Total 180-day Spending) are calculated using patients who live 180-days.
[k]Standard errors are clustered at the hospital-level and are reported in parentheses.
P values are in brackets.

eTable 2. Components of Spending Across Quartiles of Hospital Early Percutaneous Coronary Intervention Change, 1999-2014

	Change in 180d Early PCI Rates (2013/2014 vs 1999/2000)				**Difference 4th vs. 1st Quartile**
	1st Quartile	**2nd Quartile**	**3rd Quartile**	**4th Quartile**	
Part A	$(1,398)	$(1,335)	$(1,286)	$(1,642)	$(244)
Cardiac Procedures	$752	$678	$725	$855	$103
Other Procedures	$666	$576	$535	$498	$(168)
HHA/Hospice/DME	$1,107	$1,003	$841	$809	$(298)
Skilled Nursing Facility	$2,013	$1,717	$1,548	$1,313	$(700)
Testing	$160	$183	$179	$210	$50
Visits	$583	$509	$460	$473	$(110)
Early PCI rate	1.09	12.81	21.20	33.05	$32

[a]Quartiles based on absolute differences in hospital use of early PCI rates between 2013/2014 and 1999/2000.
[b]HHA = Home Health Agency, DME = Durable Medical Equipment.
[c]PCI = Percutaneous Coronary Intervention.
[d]Early PCI means receiving PCI within a day of admission.

eTable 3. Association Between Early Percutaneous Coronary Intervention and 180-day Acute Myocardial Infarction Mortality

Outcome Variable:	**-1**	**-2**	**-3**
180-day Mortality	**Full Sample**	**Full Sample**	**Full Sample**
Early PCI Rate	-0.066**	-0.078**	-0.078**
	-0.0094	-0.0096	-0.009
	[0.000]	[0.000]	[0.000]
Any CABG Rate	0.029	0.005	
	-0.0129	-0.0139	
	[0.024]	[0.696]	
Mean Total 180-day ($1000)	-0.0004*		
	-0.0001		
	[0.006]		
Mean 180-day Testing ($1000)		-0.004	-0.004
		-0.0027	-0.0027
		[0.133]	[0.122]
Mean 180-day Visits ($1000)		-0.004	-0.004
		-0.0023	-0.0027
		[0.072]	[0.053]
Mean 180-day Cardiac Procedures ($1000)		0.004	0.004
		-0.0016	-0.0016
		[0.011]	[0.008]
Mean 180-day Other Procedures ($1000)		-0.004	-0.004
		-0.0018	-0.0017
		[0.020]	[0.017]
Mean 180-day Part A Spending ($1000)		0.0002	0.0002
		-0.0003	-0.0002
		[0.544]	[0.392]
Mean 180-day Post-Acute Care ($1000)		-0.0021**	
		-0.0002	
		[0.000]	
Mean 180-day Skilled Nursing Facility ($1000)			-0.0024**
			-0.0006
			[0.000]
Mean 180-day Home Health Agency ($1000)			-0.0014
			-0.0015
			[0.377]

Mean 180-day Hospice ($1000)			-0.0022
			-0.0019
Outcome Variable:	**-1**	**-2**	**-3**
180-day Mortality	**Full Sample**	**Full Sample**	**Full Sample**
			[0.253]
Mean 180-day Durable Medical Equipment ($1000)			0.0004
			-0.0043
			[0.924]
N	479,893	479,893	479,893
m	3	8	10
* for 5% significance level, Bonferroni correction	$p < 0.017$	$p < 0.00625$	$p < 0.005$
** for 1% significance level, Bonferroni correction	$p < 0.0033$	$p < 0.00125$	$p < 0.001$

[a]Each column is a separate regression.
[b]PCI is percutaneous coronary intervention, CABG is coronary artery bypass grafting. Early PCI occurs on the same day as the admission.
[c]Logit model estimated; marginal effects reported using "margins, atmeans" in Stata.
[d]All regressions control for patient characteristics, hospital fixed effects, and year fixed effects.
[e]All spending measures are calculated for each hospital-year using patients who live 6 months.
[f]Includes years 1999, 2000, 2004, 2008, 2013, and Q1-Q2 2014.
[g]Standard errors are clustered at the hospital-level and are reported in parentheses.
[h]*P* values are in brackets.

eTable 4. The Return to Early PCI in High vs Low Volume Hospitals

Outcome Variable:	**(1)**	**(2)**	**(3)**
180-day Mortality	**Full Sample**	**NSTEMI**	**STEMI**
Early PCI Rate*Q1 Hospital Volume	-0.0455**	-0.0505*	-0.1470**
	(0.0126)	(0.0192)	(0.0129)
	[0.000]	[0.009]	[0.000]
Early PCI Rate*Q2 Hospital Volume	-0.0700**	-0.0907**	-0.1507**
	(0.0158)	(0.0192)	(0.0150)
	[0.000]	[0.000]	[0.000]
Early PCI Rate*Q3 Hospital Volume	-0.0863**	-0.0855**	-0.1680**
	(0.0158)	(0.0224)	(0.0144)
	[0.000]	[0.000]	[0.000]
Early PCI Rate*Q4 Hospital Volume	-0.0998**	-0.1396**	-0.1690**
	(0.0184)	(0.0289)	(0.0180)
	[0.000]	[0.000]	[0.000]
Mean Total 6-Month ($1000)	-0.0003	-0.0002	-0.0002
	(0.0001)	(0.0001)	(0.0001)
	[0.018]	[0.115]	[0.090]
p-value from F-test: beta1=beta4	0.0067	0.0075	0.2061
N	479,873	331,635	148,077
m	5	5	5
* for 5% significance level using Bonferroni correction	$p < 0.01$	$p < 0.01$	$p < 0.01$
** for 1% significance level using Bonferroni correction	$p < 0.002$	$p < 0.002$	$p < 0.002$

[a]Each column is a separate regression.
[b]Sample includes patients who visited hospitals that appeared in the data in all years and that treated >=10 AMI patients per year.
[c]Logit model estimated; marginal effects reported using "margins, dydx() atmeans" in Stata.
[d]All regressions control for patient characteristics, hospital fixed effects, and year fixed effects.
[e]All spending measures are calculated for each hospital-year using patients who live 180-days.
[f]Includes years 1999, 2000, 2004, 2008, 2013, and Q1-Q2 2014.
[g]Standard errors are clustered at the hospital-level and are reported in parentheses.
[h]*P* values are in brackets.