
Online Supporting Material

1 ONLINE SUPPLEMENT

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3 Title: The effectiveness of chest pain centre accreditation on the management of acute
4 coronary syndrome: a retrospective study using a national database

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25 Supplementary table 1. Definition of ACS and AMI using ICD

Disease	National Clinical Edition 1.1	National RC020-ICD-10	Beijing RC020-ICD-10
AMI	I21	I21	I21
	I22	I22	I22
ACS	I21	I21	I21
	I22	I22	I22
	I20.000	I20.000	I20.001
	I20.001	I20.001	I20.005
	I20.002	I20.002	I20.004
	I20.003	I20.003	I20.003
	I20.004	I20.004	I20.006
	I20.005	I20.005	I20.802
	I20.006	I20.006	I20.002
	I20.100	I20.804	I20.803
	I20.101	I20.101	I20.102
	I20.102	I20.102	I20.101
	I20.800x003	I20.100	I20.806
	I20.800x006	I24.800	I24.802
	I24.900	I24.801	I24.901
	I24.901	I24.900	I24.803
	I24.800	I24.901	
	I24.801		
	I24.900x001		
I24.800x007			

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26 Supplementary table 2. characteristics of ACS patients stratified by chest pain center
27 accreditation status

Characteristics	Total	before accreditation	undergoing accreditation	after accreditation
N	201038	96150	28029	76859
Female	72718(36.2)	35084(36.5)	9833(35.1)	27801(36.2)
Age	63.6±12.0	63.9±12.1	63.6±12.1	63.3±11.9
Comorbidities				
HTN	114437(56.9)	54882(57.1)	15828(56.5)	43727(56.9)
DM	50969(25.4)	24000(25.0)	6883(24.6)	20086(26.1)
HF	48527(24.1)	21412(22.3)	6430(22.9)	20685(26.9)
CKD	14811(7.4)	5408(5.6)	1706(6.1)	7697(10.0)
OMI	15467(7.7)	7745(8.1)	2080(7.4)	5642(7.3)
Region				
Eastern	52908(26.3)	30229(31.4)	7137(25.5)	15542(20.2)
Western	38859(19.3)	19812(20.6)	5904(21.1)	13142(17.1)
Central	109272(54.4)	46109(48.0)	14988(53.5)	48175(62.7)
Hospital type, No. (%)				
Specialized	33542(16.7)	14059(14.6)	4689(16.7)	14794(19.2)
Grade IIIA	179959(89.5)	86941(90.4)	24831(88.6)	68187(88.7)

28 * The differences between different accreditation status were compared using
29 ANOVA tests, signed rank tests, or chi-square tests, accordingly; HTN, hypertension;
30 CHD, coronary heart disease; CKD, chronic kidney disease; HF, heart failure; DM,
31 diabetes mellitus.

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35 Supplementary table 3. The association of in-hospital mortality and management and
 36 chest pain centre accreditation in all hospitals (patient last ACS admission during
 37 2013-2016 was used)*

Endings or treatment procedures	Crude model		Adjusted model	
	OR	95%CI	OR	95%CI
ACS				
In-hospital death	0.70	(0.53,0.93)	0.73	(0.55,0.97)
Length of stay	0.89	(0.84,0.94)	0.88	(0.84,0.93)
Total charge	1.31	(1.14,1.52)	1.04	(0.93,1.16)
PCI	3.76	(2.67,5.30)	3.68	(2.30,5.90)
AMI				
In-hospital death	0.67	(0.51,0.87)	0.68	(0.52,0.90)
Length of stay	0.90	(0.85,0.96)	0.90	(0.85,0.95)
Total charge	1.25	(1.10,1.42)	1.05	(0.94,1.16)
PCI	3.36	(2.15,5.26)	3.61	(2.18,5.99)

38 Mixed-effect models were used in the analysis to control for hospital-associated
 39 random effects, a logistic regression model was used for the in-hospital death
 40 endpoint, a negative binomial model was used for the length-of stay endpoint, and a
 41 generalised linear model with a log link and γ distribution was used for the charges
 42 endpoint. Adjusted for sex, age, comorbidities (hypertension, diabetes, heart failure,
 43 and old myocardial infarction), types and ranks of hospitals, and geographical region
 44 (for total charge, percutaneous coronary intervention was also adjusted for).

45 OR, odds ratio; CI, confidence interval; ACS, acute coronary syndrome; AMI, acute
 46 myocardial infarction; PCI, percutaneous coronary intervention.

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Supplementary table 4. The association of in-hospital mortality and management and chest pain centre accreditation statuses in accredited hospitals (patient last ACS admission during 2013-2016 was used)*

Endings or treatment procedures	before accreditation	undergoing accreditation		After accreditation		undergoing or after accreditation	
		OR	95%CI	OR	95%CI	OR	95%CI
ACS							
In-hospital death	ref	0.84	(0.78,0.91)	0.83	(0.78,0.89)	0.84	(0.79,0.89)
Length of stay	ref	0.94	(0.93,0.95)	0.89	(0.89,0.90)	0.91	(0.90,0.92)
Total charge	ref	0.99	(0.98,1.00)	0.97	(0.96,0.98)	0.98	(0.97,0.98)
PCI	ref	1.18	(1.15,1.22)	1.31	(1.28,1.34)	1.27	(1.24,1.29)
AMI							
In-hospital death	ref	0.85	(0.77,0.93)	0.87	(0.81,0.94)	0.86	(0.81,0.92)
Length of stay, day	ref	0.94	(0.93,0.95)	0.89	(0.88,0.89)	0.91	(0.90,0.91)
Total charge	ref	1.01	(0.99,1.02)	0.98	(0.97,1.00)	0.99	(0.98,1.00)
PCI	ref	1.30	(1.24,1.35)	1.47	(1.41,1.52)	1.40	(1.36,1.45)

*Mixed-effect models were used in the analysis to control for hospital-associated random effects, a logistic regression model was used for the in-hospital death endpoint, a negative binomial model was used for the length-of stay endpoint, and a generalised linear model with a log link and γ distribution was used for the charges endpoint. Adjusted for sex, age, comorbidities (hypertension, diabetes, heart failure, and old myocardial infarction), types and ranks of hospitals, and geographical region (for total charge, percutaneous coronary intervention was also adjusted for).

OR, odds ratio; CI, confidence interval; ACS, acute coronary syndrome; AMI, acute myocardial infarction; PCI, percutaneous coronary intervention.