
Supplementary Online Content

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

eTable 1. Definitions of 16 KPIs of ACS care		
KPIs	Definition	Denominator
First ECG in time	The patient received the first ECG recorded within 10 minutes after hospital arrival	All patients
Early use of aspirin	The patient received aspirin within 24 hours of arrival at hospital	All patients
Early use of Clopidogrel	The patient received clopidogrel within 24 hours of arrival at hospital	All patients
Early use of statin	The patient received statin within 24 hours of arrival at hospital	All patients
Aspirin prescribed at discharge	The patient prescribed aspirin at hospital discharge	Patients discharged alive
Clopidogrel prescribed at discharge	The patient prescribed clopidogrel at hospital discharge	Patients discharged alive
Beta-blocker prescribed at discharge	The patient prescribed a beta-blocker at hospital discharge	Patients discharged alive
Statin prescribed at discharge	The patient prescribed a statin at hospital discharge	Patients discharged alive
ACEI or ARB prescribed at discharge in the presence of LVSD	The patient with left ventricular systolic dysfunction (LVSD) was prescribed angiotensin-converting-enzyme inhibitors (ACEI) or angiotensin-receptor blockers (ARB) at discharge (LVSD is defined as chart documentation of a left ventricular ejection fraction less than 40% or a narrative description of left ventricular systolic function consistent with moderate or severe systolic dysfunction)	Patients discharged alive and with LVSD less than 40% or heart function grade (KILLIP or NYHA) ≥ 3
STEMI receiving reperfusion (fibrinolysis) therapy	The STEMI patient with ST-segment elevation or LBBB on the ECG and arrive hospital within 12 hours of symptom onset received fibrinolysis within 12 hours of symptom onset.	STEMI patients that arrived hospitals within 12 hours
Acceptable door to needle time	The STEMI patient received fibrinolytic therapy within 30 minutes of arrival at hospital.	STEMI patients that arrived hospitals within 12 hours and received fibrinolytic therapy
Diagnosis consistent with ECG and biomarker findings	The patient had its final diagnosis consistent with ECG and biomarker findings	All patients
Length of stay	Number of days of hospitalization	All patients

Three newly added KPIs	Due to the changes in clinical guidelines and clinical practice, it is appropriate to add in the following new indicators.	
Dual antiplatelet therapy	The patient received both aspirin and clopidogrel within 24 hours of arrival at hospital	All patients
Loading dose dual antiplatelet therapy	The patient received both aspirin and clopidogrel with loading dose (i.e. 300 mg or above for each medicine) within 24 hours of arrival at hospital	All patients
Loading dose statin therapy	The patient received statin with loading dose (i.e. 40 mg or above of atorvastatin or equivalent) within 24 hours of arrival at hospital	All patients

*: STEMI: ST-elevated myocardia infraction; NSTEMI: non-ST-elevated myocardia infraction; UA: Unstable angina.

eTable 2. The corresponding mean differences and cluster- and time- and covariates-adjusted Odds Ratios in intervention and control periods.

Outcomes	Cluster- and time- and covariates-adjusted ^a	
	Difference	Odds Ratio or β -Coefficient ^b
	(95%CI)	(95%CI)
Primary outcome		
In hospital MACE	-0.2 (-0.5, 0.1)	0.91(0.76,1.08)
Secondary outcome		
Composite Score of KPIs	0.0 (0.0, 0.1)	0.04(0.01,0.06)
In-hospital therapy KPIs		
Aspirin	0.3 (-0.4, 0.9)	1.04(0.75,1.42)
Clopidogrel	5.8 (4.8, 6.9)	1.33(1.05,1.69)
Statin	0.5 (-0.3, 1.3)	1.04(0.90,1.21)
Dual antiplatelet	6.1 (5.1, 7.2)	1.33(1.05, 1.68)
Loading dose dual antiplatelet	5.9 (5.0, 6.8)	1.43(1.03, 1.99)
High-intensive statin	3.6 (2.6, 4.5)	1.24(0.91, 1.71)
STEMI receiving reperfusion	-2.4 (-4.9, 0.1)	0.91(0.65, 1.27)
Acceptable D2N time	2.5 (-0.8, 5.7)	1.12(0.67, 1.88)
Discharge therapy KPIs		
Aspirin	6.2 (5.4, 7.0)	1.71(1.14,2.56)
Clopidogrel	10.2 (9.1, 11.3)	1.57(1.18,2.09)
Beta-blocker	8.9 (7.7, 10.0)	1.43(1.15, 1.79)
Statin	5.5 (4.6, 6.4)	1.47(1.05, 2.06)
ACEI or ARB (in LVSD ones)	6.8 (4.1, 9.4)	1.31(1.08, 1.60)
Other KPIs		
First ECG in time	3.1 (2.0, 4.3)	1.14(0.84,1.53)
Diagnosis consistent with ECG and biomarker findings	-2.0 (-3.0, -1.1)	0.86(0.73, 1.02)
Length of stay	-0.1 (-0.5,0.3)	-0.10(-0.46,0.26)
In-hospital cost (US\$)^c	-56.4(-133.0, 20.2)	-56.4(-133.0, 20.2)

- a. Covariates adjusted including patient-level baseline covariates (age, sex, systolic blood pressure lower than 90 mmHg when presenting at hospital, heart rate higher than 100 beats/m when presenting at hospital, discharge or death diagnose of acute coronary syndrome, history of cardiovascular disease, history of diabetes mellitus, history of hypertension, history of dyslipidemia, smock history, education, and pre-hospital medicine taken) and hospital-level covariates (number of beds).
- b. Odds ratios and β -coefficients represent effect of intervention compared with control and are calculated as the difference of proportions or means in marginal effects (intervention group minus control group) using three-level generalized linear-mixed models with hospital and province as second and third levels, respectively, and also included a fixed effect for time. 95% CIs for difference in proportions are obtained through normal approximation of the adjusted proportions.

c. Converted from RMB using the average rate 6.2768 between 2011 and 2014.

eTable 3. Fidelity of the intervention components in CAPCS-3 study, 101 hospitals

Intervention components	Indicators	Fidelity, %	Data source	
QCI team	% of hospitals with active QCI teams [#]	90%	Evaluation records by the clinical associates during their site visits	
	Average No. of meetings held by the active QCI teams during entire intervention period	2.5±0.2		
	Meeting minutes filed	38%		
Clinical pathway	% of hospitals implemented the CP [#]	92%		
	% of hospitals with CP seen in either patient chart (45%) or doctors' office (35%)	75%		
Regular feedback on KPIs	% of hospitals read the feedback reports [#]	98%		
	% of hospitals which staff member were able to verbally recall KPIs	92%		
Patient education	% of hospitals with patient education brochures available at patient accessible place	100%		
Technical training	Compulsory test for medical staff engaged in ACS care, participating rate	72%*		Records in the training web site backend system (numerators) and hospital information collected at baseline (denominator)
	Compulsory test for medical staff engaged in ACS care, passing rate (standard: >= 90 out of 100)	82%*		

Note: QCI: quality of care improvement. CP: Clinical pathway. KPI: Key performance indicators. # judged by the clinical associates through face-to-face communications during the site visits. * Among a total of 1774 medical staff engaged in ACS care from all study hospitals, 1226 staff participated in the web-based compulsory test and 1005 passed the test.