Supplementary Online Content

Huffman MD, Mohanan PP, Devarajan R; Acute Coronary Syndrome Quality Improvement in Kerala (ACS QUIK) Investigators. Effect of a quality improvement intervention on clinical outcomes in patients in India with acute myocardial infarction: the ACS QUIK randomized clinical trial. *JAMA*. doi:10.1001/jama.2017.21906

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

eAppendix. ACS QUIK Toolkit: Sample Audit and Feedback Report and Admission and Discharge Checklists

ACS quiK
quality improvement in Kerala
Version 1.0

Institutional Outcomes Report

Dec 2014

Sample Hospital

Aggregation Date: Jan 7, 2015 11:59:59 PM

Publish Date: Jan 10, 2015

This report is made availble to the hospital through participation in the Acute Coronary Syndrome (ACS) Quality Improvement in Kerala (QUIK) clinical trial. The contents of this report are strictly for use by the aforementioned insitution and ACS QUIK trial staff.

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Inclusion Summary

Quarters included in this report:

Timeframe	All Patients	STEMI	NSTEMI	Transfers	Included
2014 Oct	32	9	23	3	Yes
2014 Nov	53	11	42	2	Yes
2014 Dec	0	0	0	0	No

Comparison group included in this report:

Comparison Group	Comparison Group Name	Number of Hospitals per Comparison Group
1	Your Hospital	1
2	Hospitals in your Step	13
3	All Hospitals in ACS QUIK	63

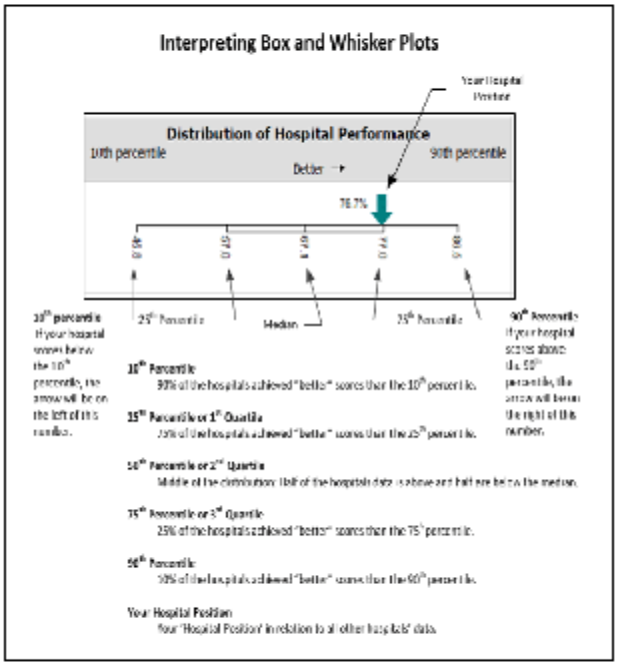
Release Notes:

Report Changes:

1. Placeholder

Inclusion Summary

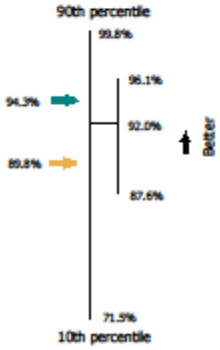
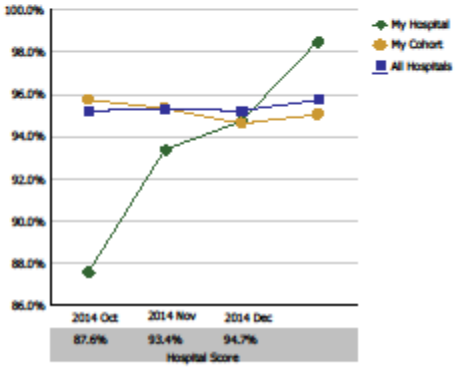
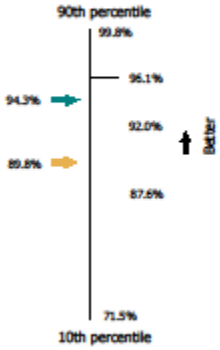
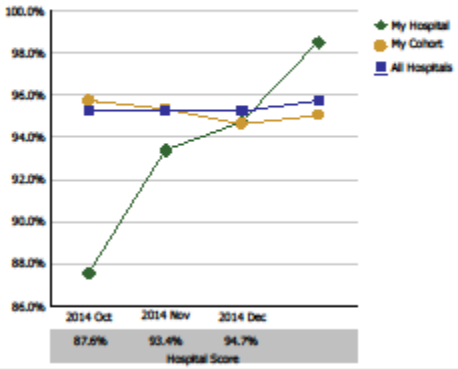
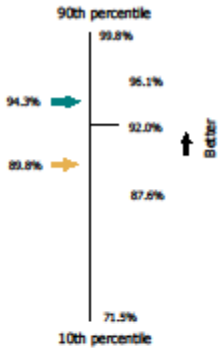
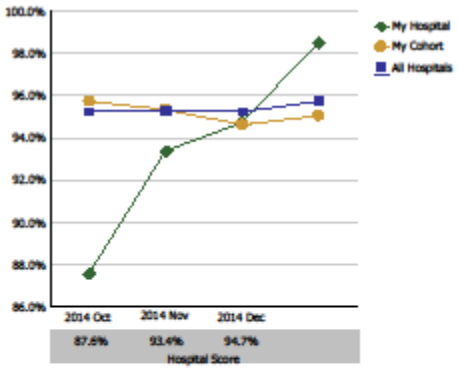
Frequently used terminology:

R3M (Rolling Three Months)	The three (3) consecutive months included in this report. (Example: The 2014 Dec report includes 2014 Oct, 2014 Nov, 2014 Dec. The "M" in 'R3M" indicates the last month of the rolling three months).
Inclusion Status	Indicates whether a submission will be included in the R3M aggregated data and comparison group statistics. "Yes" and "No" denote the status. A "Yes" status indicates the submission (one month/timeframe) is included in the aggregate and comparison group statistics. A "No" status indicates the submission (one month/timeframe) is not included in the aggregate and comparison group statistics because no patients were enrolled in that month.
My Hospital R3M	The values for a metric/measure (over R3M) of data submitted by your facility with a Inclusion Status of "Yes".
Hospital 50th Pctl	The median (or midpoint or 50th percentile) of all hospital participants' aggregated data for the metric or measure. Half of all participants will be above the median, and half will be below. This value will correspond to the midpoint of the box/whisker plot with an Inclusion Status of "Yes".
Hospital 90th Pctl	The 90th percentile of all hospital participants' aggregated data for the metric or measure. 10% of all participants will be above the 90th percentile value, and 90% will be below. This value will correspond to the right-most endpoint of the box/whisker plot with an Inclusion Status of "Yes".
Box and Whisker Plots	

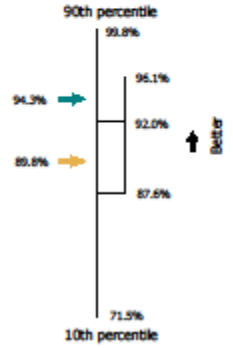
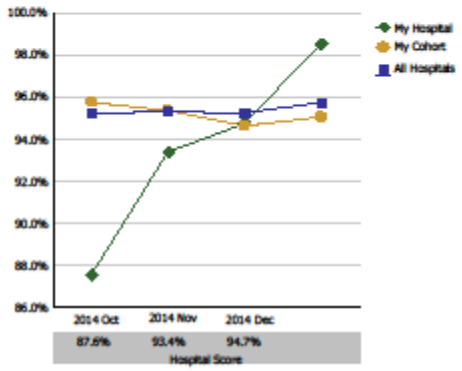
Detailed Summary

Sample Hospital compared to Rolling Three Months (R3M) for Hospitals ending 2014 Dec

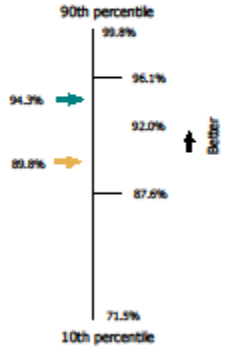
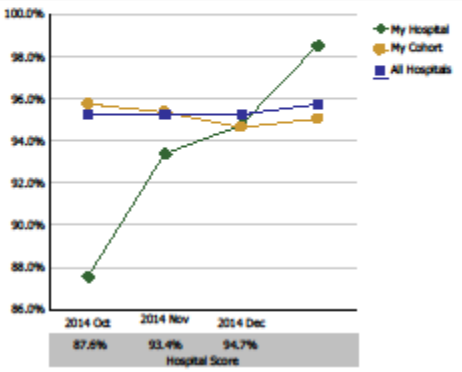
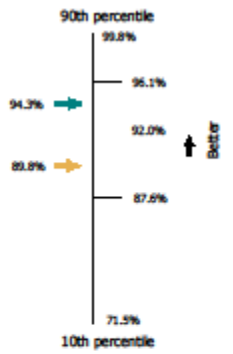
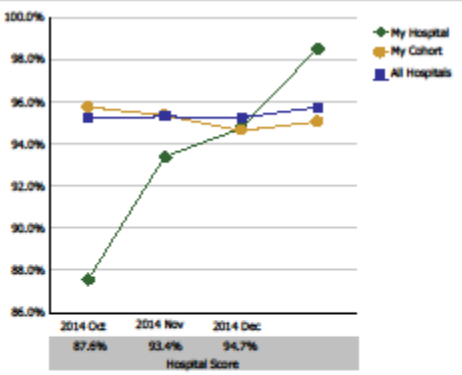
Section I: Composite Measures

Composite Measures	Dec 2014 Performance	3 Months Performance (Oct 2014 - Dec 2014)
1 **STEMI/NSTEMI performance** Definition: Includes all 11 acute and discharge performance measures. Proportion of performance measure opportunities that were met among eligible opportunities. Measures include: • Aspirin at Arrival • Evaluation of LV Systolic Function • Reperfusion Therapy (STEMI only) • Time to Thrombolytics (STEMI only) • Time to Primary PCI (STEMI only) • Aspirin at Discharge • Beta Blocker at Discharge • ACE-I or ARB for LVSD at Discharge • Statin at Discharge • Adult Smoking Cessation Advice • Cardiac Rehab Referral		
2 **STEMI performance** Definition: Includes all 11 acute and discharge performance measures for STEMI patients. Proportion of performance measure opportunities that were met among eligible opportunities. Measures include: • Aspirin at Arrival • Evaluation of LV Systolic Function • Reperfusion Therapy • Time to Thrombolytics • Time to Primary PCI • Aspirin at Discharge • Beta Blocker at Discharge • ACE-I or ARB for LVSD at Discharge • Statin at Discharge • Adult Smoking Cessation Advice • Cardiac Rehab Referral		
3 **NSTEMI performance** Definition: Includes all 8 acute and discharge performance measures for NSTEMI patients. Proportion of performance measure opportunities that were met among eligible opportunities. Measures include: • Aspirin at Arrival • Evaluation of LV Systolic Function • Aspirin at Discharge • Beta Blocker at Discharge • ACE-I or ARB for LVSD at Discharge • Statin at Discharge • Adult Smoking Cessation Advice • Cardiac Rehab Referral		

Section I: Composite Measures

Composite Measures	Dec 2014 Performance	3 Months Performance (Oct 2014 - Dec 2014)
4 **Discharge AMI performance** Definition: Includes all 6 discharge performance measures for all AMI patients. Proportion of performance measure opportunities that were met among eligible opportunities. Measures include: • Aspirin at Discharge • Beta Blocker at Discharge • ACE-I or ARB for LVSD at Discharge • Statin at Discharge • Adult Smoking Cessation Advice • Cardiac Rehab Referral		

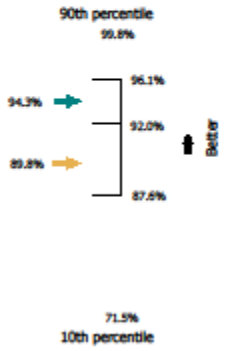
Section II: AMI Performance Measures

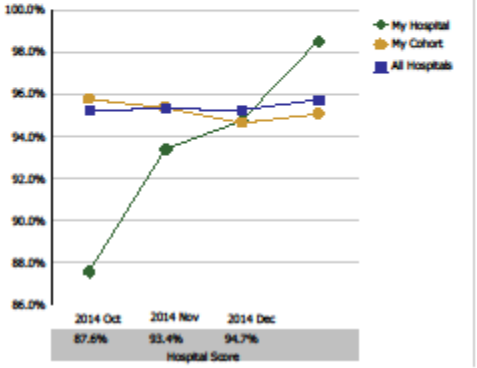
Performance Measures	Dec 2014 Performance	Rolling 3 Months Performance (Oct 2014 - Dec 2014)
5 **Aspirin at arrival** Definition: Proportion of patients prescribed aspirin at arrival excluding patients transferred in and out. Measures include: • Aspirin at Arrival		
6 **Aspirin prescribed at discharge** Definition: Proportion of patients prescribed aspirin at discharge. Measures include: • Aspirin at Discharge		

Performance Measures	Dec 2014 Performance	Rolling 3 Months Performance (Oct 2014 - Dec 2014)

7 **Beta-blocker prescribed at discharge**
Definition: Proportion of patients prescribed a beta-blocker at discharge.

Measures include:
• Beta Blocker at Discharge





8. Statin prescribed at discharge
Proportion of patients prescribed a statin at discharge.

9. Evaluation of LV systolic function
Proportion of patients evaluated for LV systolic function.

10. ACE-I or ARB for LVSD at discharge
Proportion of patients prescribed an ACE-I or ARB for LVSD at discharge.

11. Proportion of STEMI patients receiving thrombolytics within 30 minutes
Proportion of STEMI patients with a time from your hospital arrival to thrombolytics <= 30 minutes.

12. Median time in minutes to thrombolytic therapy for STEMI patients Your hospital's median time in minutes from hospital arrival to thrombolytics for STEMI patients.

13. Proportion of STEMI patients receiving primary PCI within 90 minutes
Proportion of STEMI patients with a time from your hospital arrival to PCI <= 90 minutes

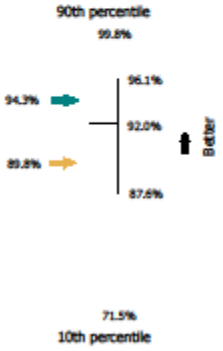
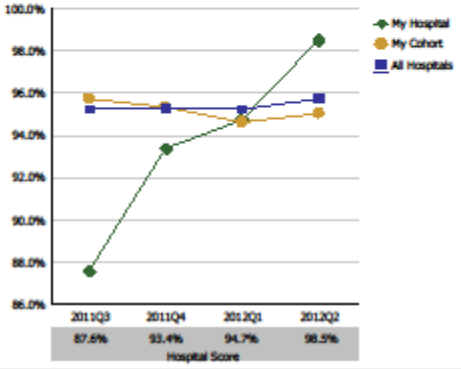
14. Median Time in minutes to primary PCI for STEMI patients
Your hospital's median time in minutes from hospital arrival to primary PCI for STEMI patients.

15. Reperfusion therapy
Proportion of STEMI patients that received either thrombolytics or a primary PCI.

16. Adult smoking cessation advice counseling
Proportion of patients that received smoking cessation advice/counseling among those that have smoked within the past year.

17. Cardiac rehabilitation patient referral from an inpatient setting
Proportion of patients that received a cardiac rehab referral.

Section III: Quality Metrics

Quality Metrics	Dec 2014 Performance	Rolling 3 Months Performance (Oct 2014 - Dec 2014)
18 **Door to 1st ECG in minutes** Definition: Proportion of AMI patients that received an ECG within 10 minute of arrival at participating hospital. Measures include: • Hospital Arrival Time • First ECG Time		

19. Acute ADP receptor inhibitor therapy among STEMI patients

Proportion of STEMI patients prescribed ADP Receptor Inhibitors 24 hours prior to or after 1st hospital arrival.

20. Acute anticoagulant agent for NSTEMI

Proportion of NSTEMI patients prescribed unfractionated heparin, enoxaparin, bivalirudin or fondaparinux 24 hours prior to or after 1st hospital arrival.

21. AMI revascularized patients discharged on ADP receptor inhibitors

Proportion of AMI revascularized patients prescribed an ADP receptor inhibitor at discharge.

22. ADP receptor inhibitors prescribed at discharge for medically treated AMI patients

Proportion of AMI medically treated patients prescribed an ADP receptor inhibitor at discharge.

23. Aldosterone blocking agents for LVSD at discharge

Proportion of AMI patients prescribed an aldosterone blocking agent at discharge.

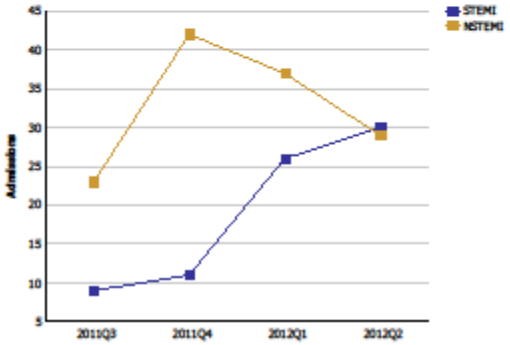
24. Aspirin at arrival for all patients

Proportion of patients that received an aspirin on arrival.

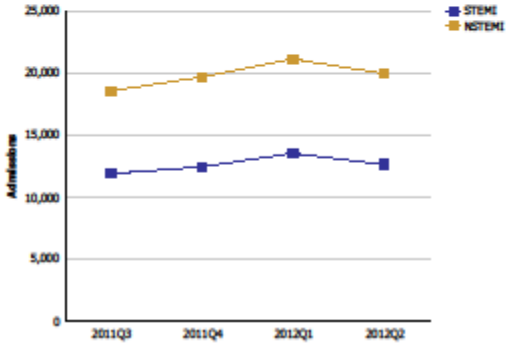
Executive Summary

Section IV: Participant Graphs

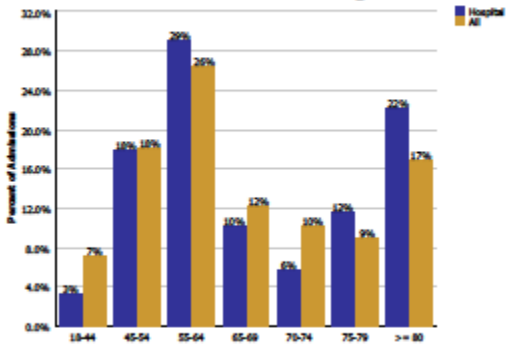
Site Admission Trend



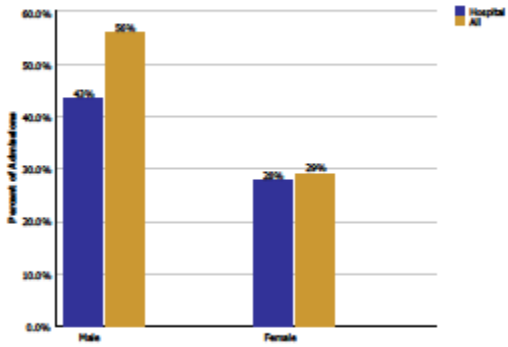
All Hosptials Admission Trend



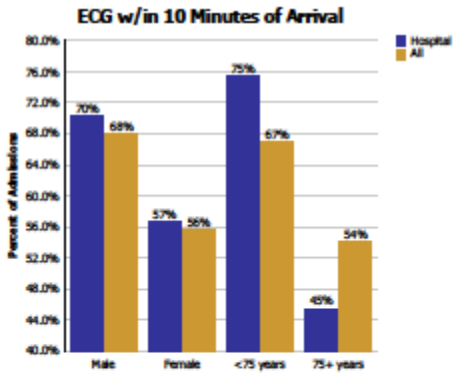
Distribution of Patient Age



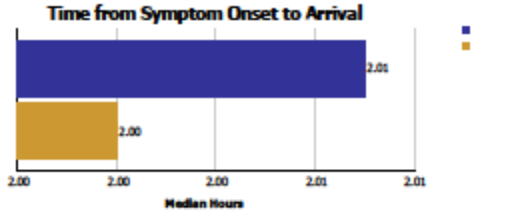
Distribution of Gender



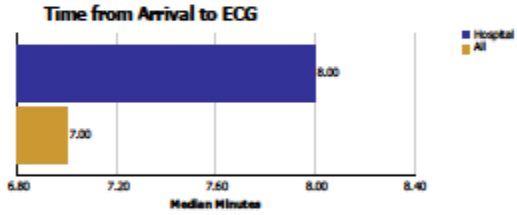
ECG w/in 10 Minutes of Arrival



Time from Symptom Onset to Arrival



Time from Arrival to ECG



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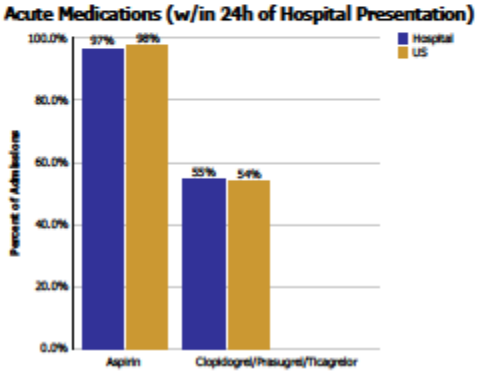

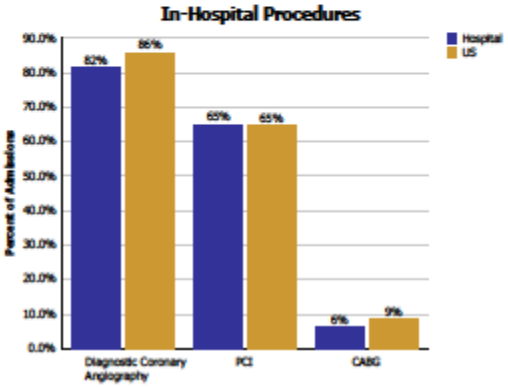

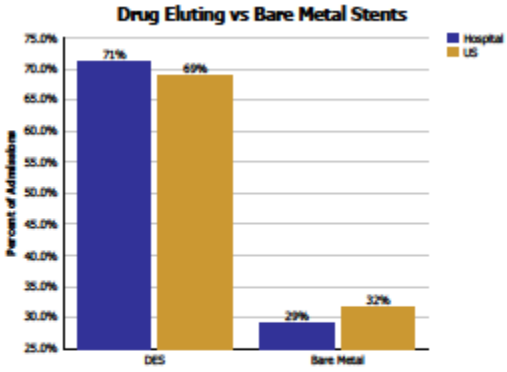

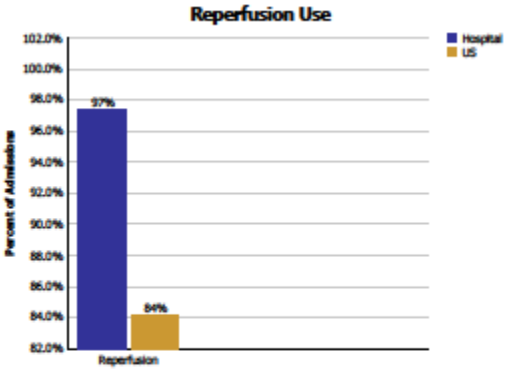

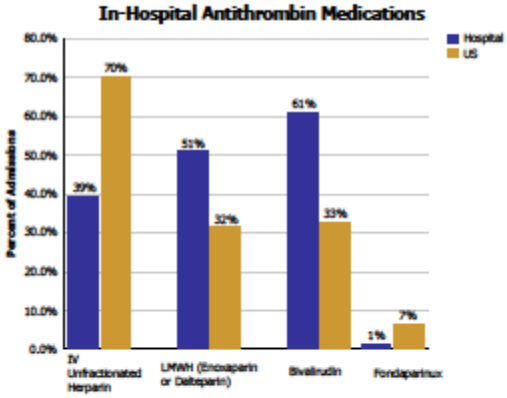

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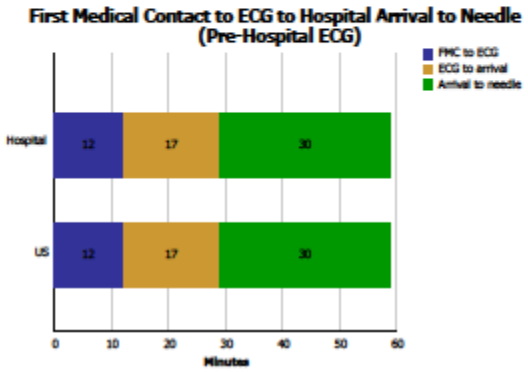

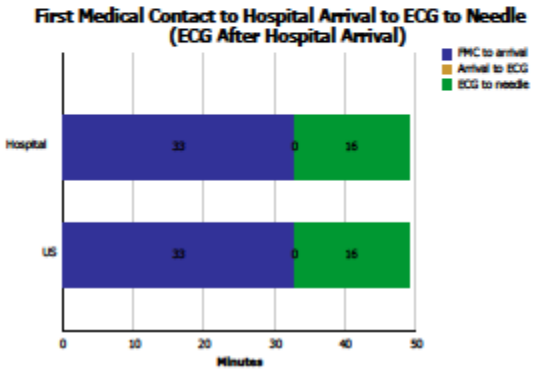

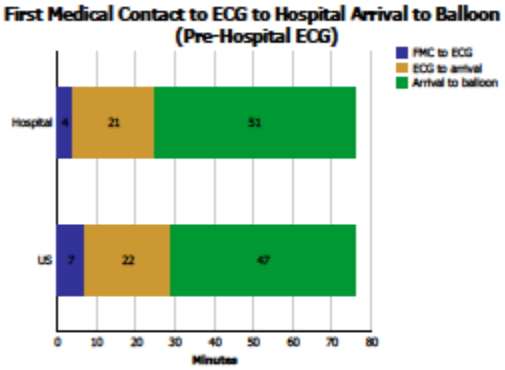

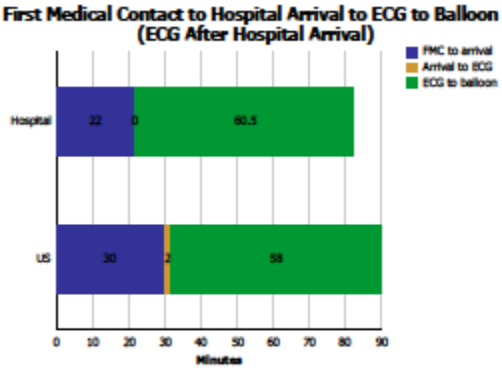

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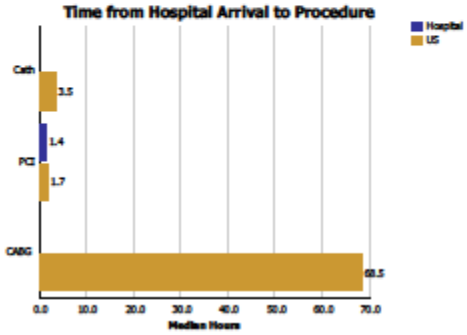

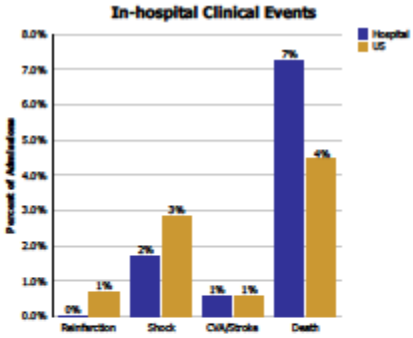

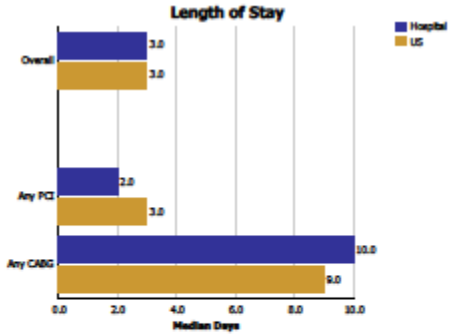

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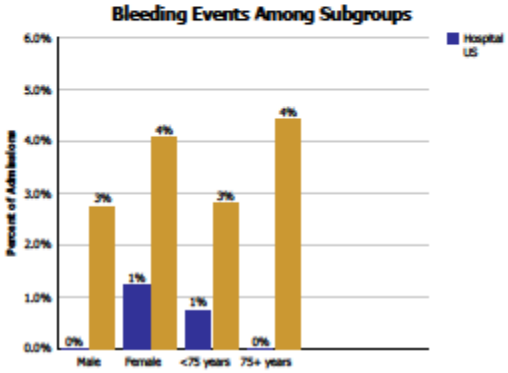
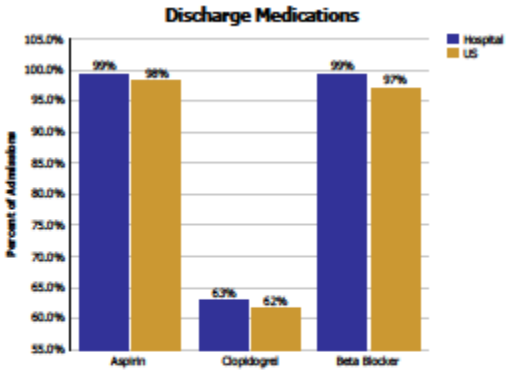
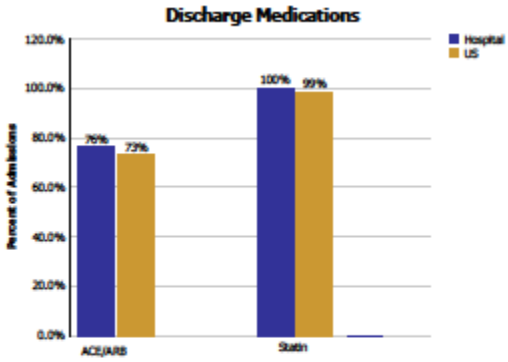






ACS QUIK Brief Admission Checklist

General	
Name	
Date	
Transfer from outside hospital?	☐ Yes ☐ No
Initial Presentation	
Nursing	☐ Vital signs ☐ Place on telemetry monitor ☐ Labs ☐ Cardiac enzymes ☐ CBC ☐ Chemistry panel ☐ ECG completed within 5 minutes of presentation ☐ ECG interpreted by physician/cardiologist within 5 minutes of ECG acquisition
Admission Diagnosis	☐ STEMI ☐ NSTEMI ☐ Non-cardiac chest pain (stop checklist)
Medications	**Aspirin** ☐ Aspirin 325 mg on admission ☐ Aspirin 75 mg daily ☐ Patient has contraindication to this medication **Clopidogrel / Prasugrel / Ticagrelor** ☐ Clopidogrel 600 mg or ☐ Prasugrel 60 mg or ☐ Ticagrelor 180 mg on admission ☐ Clopidogrel 75 mg daily or ☐ Prasugrel 10 mg daily or ☐ Ticagrelor 90 mg twice daily ☐ Patient has contraindication to this medication **Nitroglycerin** ☐ Nitroglycerin 0.4 mg SL Q 5 min PRN chest pain; may repeat x 2 ☐ Nitroglycerin 100 mg/250 mL D5W IV @ 20 mcg/min, titrate to relief of CP, keep SBP > 100mmHg ☐ Patient has contraindication to this medication **Heparin/Anticoagulation** ☐ Unfractionated heparin (per protocol) or ☐ Low molecular weight heparin (e.g. – enoxaparin 1mg/kg daily of 0.5mg/kg if GFR <30ml/min) ☐ Patient has contraindication to this medication **Other medications to be administered during hospitalization** ☐ Moderate or high dose statin ☐ Patient has contraindication statin ☐ Low or moderate dose beta blocker ☐ Patient has contraindication to beta blocker ☐ ACE-I or ARB if EF < 40% ☐ Patient has contraindication to ACE-I or ARB
**************STEMI Patients Only**************	
Reperfusion	Has the patient received reperfusion prior to hospitalization? ☐ Yes → Does the patient need rescue PCI? ☐ Yes → Transfer to cath lab ☐ No → Admit to CCU ☐ No → Is the patient eligible for reperfusion? ☐ Yes → ☐ Thrombolysis (streptokinase, tPA) or ☐ Primary PCI → transfer to cath lab ☐ No → Admit to CCU

ACS QUIK Discharge Checklist

General	
Name	
Date	
Discharge Instructions and Medications	
Instructions	☐ Smoking/tobacco cessation counseling, if applicable ☐ Cardiac rehabilitation referral or instructions ☐ Outpatient department (OPD) follow-up arranged
Discharge Diagnosis	☐ STEMI ☐ NSTEMI
Procedures	☐ Percutaneous coronary intervention (PCI), including stent placement ☐ Coronary artery bypass graft (CABG) surgery
Medications	☐ **Aspirin** 75 mg daily ☐ Patient has contraindication to this medication ☐ **Clopidogrel** 75 mg daily or ☐ **Prasugrel** 10 mg daily or ☐ **Ticagrelor** 90 mg twice daily ☐ Patient has contraindication to this medication ☐ **Moderate or high dose statin** ☐ Patient has contraindication statin ☐ **Low or moderate dose beta blocker** ☐ Patient has contraindication to beta blocker ☐ **ACE-I or ARB if ejection fraction ever < 40%** ☐ Patient has contraindication to ACE-I or ARB

eTable 1. Baseline Characteristics in ACS QUIK Patients by Complete and Missing Follow-up

Characteristics	Complete Follow Up n=21079	Missing Follow Up n=295	Difference (95% CI)[a]
Age, mean (SD), years	60.6 (12.1)	60.0 (11.6)	-0.6 (-2.0 to 0.8)
Male, n (%)	15973 (75.8)	210 (71.2)	-4.6 (-9.8 to 0.6)
History of tobacco use, n (%)	6489 (30.8)	125 (42.4)	11.6 (5.9 to 17.3)
History of diabetes, n (%)	9351 (44.4)	133 (45.1)	0.7 (-5.0 to 6.4)
Transferred, n (%)	8270 (39.2)	131 (44.4)	5.2 (-0.5 to 10.9)
No insurance, n (%)	15322 (72.7)	220 (74.6)	1.9 (-3.1 to 6.9)
ST elevation myocardial infarction, n (%)	13514 (64.1)	175 (59.3)	-4.8 (-10.4 to 0.9)
Symptom-to-door time, median (IQR), min	246 (119-830)	266 (110-915)	21 (-38 to 80)
Body weight, mean (SD), kg	63.5 (9.7)	62.6 (9.3)	-0.9 (-2.0 to 0.2)
Systolic blood pressure, mean (SD), mmHg	138.5 (28.9)	138.9 (32.5)	0.4 (-2.9 to 3.7)
Heart rate, mean (SD), bpm	79.9 (18.9)	82.9 (19.1)	3.0 (0.8 to 5.2)
Initial troponin, median (IQR), ng/ml	1.3 (0.3-5.7)	4.6 (0.9-32.0)	3.3 (0.1 to 6.5)
LDL cholesterol, mean (SD), mg/dl	122.4 (40.8)	131.4 (46.0)	9.0 (3.2 to 14.8)
Triglycerides, median (IQR), mg/dl	121 (89-165)	128 (93-186)	7 (-3 to 17)
Serum creatinine, median (IQR), mg/dl	1.0 (0.9-1.2)	1.0 (0.9-1.3)	0.1 (-0.2 to 0.3)
Fasting glucose, median (IQR), mg/dl	127 (102-176)	128 (107-188)	1 (-6 to 8)
Hemoglobin, mean (SD), mg/dl	13.2 (2.0)	13.2 (2.1)	0.0 (-0.3 to 0.2)

SD, standard deviation; IQR, interquartile range
[a]Difference = intervention minus control

eTable 2. Baseline Characteristics by Intervention and Control Group, Adjusted for Within-Hospital Clustering and Temporal Trends With 95% Confidence Intervals

Characteristic	Marginal Effect (95% CI)		Difference (95% CI)[a]
	Control n=10,066	Intervention n=11,308	
Age, years	60.7 (60.0, 61.3)	60.7 (60.1, 61.3)	0.0 (-0.5 to 0.6)
Male, %	75.3 (73.2, 77.4)	75.7 (73.8, 77.6)	0.4 (-1.6 to 2.4)
History of tobacco use, %	30.9 (27.2, 34.5)	29.1 (25.6, 32.6)	-1.8 (-3.9 to 0.4)
History of diabetes, %	45.4 (42.6, 48.2)	47.9 (45.2, 50.6)	2.5 (0.1 to 4.8)
Transferred, %	28.5 (23.4, 33.5)	35.2 (29.7, 40.7)	6.7 (4.8 to 8.7)
No insurance, %	78.5 (72.5, 84.5)	78.0 (72.0, 84.0)	-0.5 (-2.1 to 1.1)
ST elevation myocardial infarction, %	66.5 (60.7, 72.3)	64.7 (58.8, 70.5)	-1.8 (-3.7 to 0.2)
Symptom-to-door time, min	243 (193, 293)	265 (162, 368)	22 (-82 to 126)
Body weight, mean, kg	64.6 (63.8, 65.5)	63.7 (62.9, 64.6)	-0.9 (-1.4 to -0.5)
Systolic blood pressure, mmHg	140.0 (137.7, 142.2)	139.4 (137.3, 141.6)	-0.6 (-1.9 to 0.8)
Heart rate, bpm	80.7 (79.6, 81.8)	80.9 (79.8, 81.9)	0.2 (-0.7 to 1.1)
Initial troponin, ng/ml	1.7 (0.9, 2.5)	1.1 (0.8, 1.5)	-0.6 (-1.3 to 0.1)
LDL cholesterol, mg/dl	124.0 (121.0, 127.0)	122.5 (119.6, 125.4)	-1.5 (-3.8 to 0.8)
Triglycerides, mg/dl	121 (109, 133)	121 (113, 130)	1 (-11 to 12)
Serum creatinine, mg/dl	1.0 (0.9, 1.1)	1.0 (1.0, 1.0)	0.0 (-0.1 to 0.1)
Fasting glucose, mg/dl	124 (114, 134)	130 (125, 135)	6 (-3 to 14)
Hemoglobin, mg/dl	13.2 (13.1, 13.4)	13.2 (13.0, 13.3)	0.0 (-0.1 to 0.1)

[a]Difference is calculated as the difference in marginal effects (intervention group minus control group) in a mixed effects logistic, linear, or quantile regression model including a random effect term to account for within hospital clustering and a term for temporal trends.

eTable 3. Baseline Characteristics in ACS QUIK Participants by Step and Intervention and Control Group

	Step 1	Step 2		Step 3		Step 4		Step 5		Step 6
Characteristic	**Control**	**Control**	**Intervention**	**Control**	**Intervention**	**Control**	**Intervention**	**Control**	**Intervention**	**Intervention**
No. Participants	2915	2649	662	2251	1265	1422	2432	829	3214	3735
Age, mean (SD), years	60.4 (11.8)	59.9 (11.8)	60.5 (11.7)	60.2 (12.5)	61.8 (12.2)	60.2 (12.0)	60.8 (12.0)	61.5 (12.3)	60.4 (11.8)	61.3 (12.3)
Male, n (%)	2192 (75.2)	2031 (76.7)	517 (78.1)	1760 (78.2)	939 (74.2)	1076 (75.7)	1863 (76.6)	595 (71.8)	2450 (76.2)	2760 (73.9)
History of tobacco use, n (%)	1039 (35.6)	955 (36.1)	179 (27.0)	895 (39.8)	239 (18.9)	536 (37.7)	561 (23.1)	347 (41.9)	845 (26.3)	1018 (27.3)
History of diabetes, n (%)	1245 (42.7)	1116 (42.1)	292 (44.1)	927 (41.2)	614 (48.5)	573 (40.3)	1225 (50.4)	290 (35.0)	1566 (48.7)	1636 (43.8)
Transferred, n (%)	1398 (48.0)	1162 (43.9)	260 (39.3)	892 (39.6)	440 (34.8)	556 (39.1)	938 (38.6)	194 (23.4)	1263 (39.3)	1298 (34.8)
No insurance, n (%)	2148 (73.7)	1782 (67.3)	638 (96.4)	1620 (72.0)	963 (76.1)	917 (64.5)	1934 (79.5)	411 (49.6)	2523 (78.5)	2606 (69.8)
ST elevation myocardial infarction, n (%)	1967 (67.5)	1755 (66.3)	510 (77.0)	1471 (65.3)	818 (64.7)	1100 (77.4)	1378 (56.7)	628 (75.8)	1905 (59.3)	2157 (57.8)
Symptom-to-door time, median (IQR), min	270 (125-941)	275 (128-930)	138 (75-360)	260 (127-850)	390 (126-945)	200 (116-625)	320 (120-947)	124 (101-532)	250 (120-735)	225 (105-810)
Body weight, mean (SD), kg	63.3 (10.4)	63.0 (10.2)	61.7 (9.7)	63.6 (9.5)	63.6 (10.0)	65.0 (8.8)	63.0 (10.5)	64.0 (8.6)	63.4 (9.1)	63.7 (9.3)
Systolic blood pressure, mean (SD), mmHg	138.4 (29.4)	137.9 (29.6)	134.5 (25.1)	139.1 (30.9)	139.6 (28.7)	137.5 (27.3)	139.7 (29.4)	135.5 (23.8)	138.1 (29.3)	139.8 (28.7)
Heart rate, mean (SD), bpm	80.5 (19.9)	80.5 (18.9)	78.9 (18.2)	80.6 (19.2)	80.1 (20.2)	79.1 (17.3)	81.0 (20.3)	76.2 (13.5)	80.0 (18.8)	79.2 (18.2)
Initial troponin, median (IQR), ng/ml	1.4 (0.3-5.9)	1.7 (0.4-10.0)	1.0 (0.2-3.5)	1.9 (0.4-10.0)	1.2 (0.3-3.6)	1.8 (0.5-8.6)	0.8 (0.2-3.1)	1.7 (0.3-6.3)	1.1 (0.3-4.8)	1.4 (0.3-5.7)
LDL cholesterol, mean (SD), mg/dl	124.9 (42.3)	123.8 (41.1)	120.3 (40.7)	127.7 (39.4)	117.3 (43.8)	128.0 (38.9)	116.9 (42.2)	131.9 (33.1)	117.9 (40.8)	121.9 (39.8)
Triglycerides, median (IQR), mg/dl	118 (87-161)	123 (90-172)	111 (82-153)	123 (90-170)	117 (83-158)	121 (89-171)	120 (90-160)	120 (96-157)	121 (90-164)	127 (93-168)
Serum creatinine, median (IQR), mg/dl	NA	NA	NA	1.1 (0.9-1.3)	1.0 (0.9-1.2)	1.0 (0.8-1.2)	1.1 (0.9-1.3)	0.9 (0.8-1.2)	1.0 (0.9-1.3)	1.0 (0.9-1.2)
Fasting glucose, median (IQR), mg/dl	130 (102-180)	123 (99-171)	130 (101-186)	124 (98-171)	132 (109-186)	122 (96-160)	139 (110-188)	109 (83-166)	132 (106-181)	123 (99-168)
Hemoglobin, mean (SD), mg/dl	13.3 (2.1)	13.3 (2.0)	13.0 (1.9)	13.3 (2.1)	13.3 (2.1)	13.2 (2.0)	13.1 (2.0)	13.0 (1.7)	13.1 (2.0)	13.2 (1.9)

SD, standard deviation; IQR, interquartile range

eTable 4. Baseline Characteristics in ACS QUIK Participants by Step

Characteristic	Step 1	Step 2	Step 3	Step 4	Step 5	Step 6
No. Participants	2915	3311	3516	3854	4043	3735
Age, mean (SD), years	60.4 (11.8)	60.0 (11.8)	60.8 (12.4)	60.6 (12.0)	60.6 (11.9)	61.3 (12.3)
Male, n (%)	2192 (75.2)	2548 (77.0)	2699 (76.8)	2939 (76.3)	3045 (75.3)	2760 (73.9)
History of tobacco use, n (%)	1039 (35.6)	1134 (34.2)	1134 (32.3)	1097 (28.5)	1192 (29.5)	1018 (27.3)
History of diabetes, n (%)	1245 (42.7)	1408 (42.5)	1541 (43.8)	1798 (46.7)	1856 (45.9)	1636 (43.8)
Transferred, n (%)	1398 (48.0)	1422 (42.9)	1332 (37.9)	1494 (38.8)	1457 (36.0)	1298 (34.8)
No insurance, n (%)	2148 (73.7)	2420 (73.1)	2583 (73.5)	2851 (74.0)	2934 (72.6)	2606 (69.8)
ST elevation myocardial infarction, n (%)	1967 (67.5)	2265 (68.4)	2289 (65.1)	2478 (64.3)	2533 (62.7)	2157 (57.8)
Symptom-to-door time, median (IQR), min	270 (125-941)	240 (115-870)	300 (127-885)	260 (120-840)	225 (111-720)	225 (105-810)
Body weight, mean (SD), kg	63.3 (10.4)	62.7 (10.1)	63.6 (9.6)	63.7 (10.0)	63.6 (9.0)	63.7 (9.3)
Systolic blood pressure, mean (SD), mmHg	138.4 (29.4)	137.2 (28.8)	139.3 (30.1)	138.9 (28.7)	137.6 (28.3)	139.8 (28.7)
Heart rate, mean (SD), bpm	80.5 (19.9)	80.1 (18.8)	80.4 (19.6)	80.3 (19.2)	79.2 (17.9)	79.2 (18.2)
Initial troponin, median (IQR), ng/ml	1.4 (0.3-5.9)	1.5 (0.3-7.6)	1.6 (0.3-8.2)	1.1 (0.2-4.3)	1.2 (0.3-5.0)	1.4 (0.3-5.7)
LDL cholesterol, mean (SD), mg/dl	124.9 (42.3)	123.1 (41.0)	124.1 (41.2)	121.5 (41.2)	120.1 (40.0)	121.9 (39.8)
Triglycerides, median (IQR), mg/dl	118 (87-161)	121 (88-167)	120 (88-166)	120 (89-164)	121 (90-163)	127 (93-168)
Serum creatinine, median (IQR), mg/dl	NA[a]	NA[a]	1.0 (0.9-1.3)	1.0 (0.9-1.3)	1.0 (0.9-1.2)	1.0 (0.9-1.2)
Fasting glucose, median (IQR), mg/dl	130 (102-180)	124 (100-174)	127 (102-176)	132 (104-179)	129 (103-179)	123 (99-168)
Hemoglobin, mean (SD), mg/dl	13.3 (2.1)	13.2 (2.0)	13.3 (2.1)	13.2 (2.0)	13.1 (1.9)	13.2 (1.9)

SD, standard deviation; IQR, interquartile range
[a]Serum creatinine was not collected until Step 3.

eTable 5. Primary and Secondary Outcomes Adjusted for Clustering and Temporal Trends as Well as for GRACE Score Covariates, Transfer Status, Insurance Status, or Use of Prehospital Aspirin

	Odds Ratio (95% CI)			
Outcome	**Adjusted for GRACE[a] Score Covariates**	**Adjusted for Transfer Status**	**Adjusted for Insurance Status**	**Adjusted for Pre-Hospital Aspirin**
Primary Outcome				
30-day MACE	1.06 (0.77-1.44)	0.98 (0.80-1.21)	0.97 (0.79-1.20)	0.99 (0.80-1.22)
Secondary Outcomes				
30-day mortality	0.98 (0.67-1.43)	0.94 (0.74-1.19)	0.93 (0.73-1.18)	0.95 (0.75-1.20)
30-day cardiovascular mortality	1.00 (0.68-1.47)	0.94 (0.74-1.19)	0.93 (0.73-1.18)	0.95 (0.75-1.20)
In-hospital mortality	1.07 (0.65-1.76)	0.92 (0.70-1.22)	0.91 (0.69-1.20)	0.93 (0.71-1.23)
30-day re-infarction	1.39 (0.74-2.60)	1.38 (0.86-2.21)	1.39 (0.87-2.22)	1.40 (0.87-2.24)
30-day stroke	0.93 (0.46-1.89)	1.23 (0.70-2.14)	1.21 (0.70-2.12)	1.23 (0.70-2.15)
30-day major GUSTO bleeding[b]	2.90 (0.77-10.87)	2.33 (0.93-5.88)	2.26 (0.89-5.71)	2.35 (0.93-5.92)
Optimal in-hospital medication[c]	2.19 (1.83-2.62)	1.47 (1.29-1.66)	1.45 (1.28-1.64)	1.47 (1.30-1.66)
Optimal discharge medication[d]	1.50 (1.27-1.78)	1.61 (1.42-1.82)	1.61 (1.43-1.83)	1.61 (1.42-1.82)
Tobacco cessation advice[e]	0.84 (0.42-1.67)	1.05 (0.67-1.66)	1.05 (0.66-1.66)	1.07 (0.68-1.69)

[a]GRACE risk score variables include age, gender, STEMI or NSTEMI status, systolic blood pressure, heart rate, creatinine, in-hospital heart failure, cardiogenic shock and cardiac arrest.
[b]Major bleeding is defined by the Global Utilization of Streptokinase and Tissue Plasminogen Activator for Occluded Coronary Arteries (GUSTO) criteria, which is defined by intracerebral hemorrhage or bleeding resulting in substantial hemodynamic compromise requiring treatment.
[c]Comprised of aspirin, adenosine diphosphate receptor antagonist [clopidogrel, prasugrel, or ticagrelor], anticoagulant, and beta-blocker among patients eligible to receive all medications.
[d]Comprised of aspirin, adenosine diphosphate receptor antagonist [clopidogrel, prasugrel, or ticagrelor], statin, and beta-blocker among discharged patients eligible to receive all medications.
[e]Among discharged patients who reported smoking at baseline

MACE=major adverse cardiovascular events, defined as death, reinfarction, stroke, and major GUSTO bleeding.

eTable 6. Primary and Secondary Outcomes Adjusted for Clustering and Temporal Trends and Interaction Effect for Time Exposed to the Intervention

Outcome	Odds Ratio (95% CI)
Primary Outcome	
30-day MACE	1.14 (0.76-1.70)
Secondary Outcomes	
30-day mortality	0.98 (0.63-1.52)
30-day cardiovascular mortality	1.00 (0.64-1.56)
In-hospital mortality	1.43 (0.83-2.46)
30-day re-infarction	2.81 (0.79-9.94)
30-day stroke	2.06 (0.58-7.36)
30-day major GUSTO bleeding[a]	2.53 (0.50-12.94)
Optimal in-hospital medication[b]	0.87 (0.70-1.07)
Optimal discharge medication[c]	1.45 (1.12-1.88)
Tobacco cessation advice[d]	0.99 (0.37-2.66)

[a]Major bleeding is defined by the Global Utilization of Streptokinase and Tissue Plasminogen Activator for Occluded Coronary Arteries (GUSTO) criteria, which is defined by intracerebral hemorrhage or bleeding resulting in substantial hemodynamic compromise requiring treatment.
[b]Comprised of aspirin, adenosine diphosphate receptor antagonist [clopidogrel, prasugrel, or ticagrelor], heparin, and beta-blocker among patients eligible to receive all medications.
[c]Comprised of aspirin, adenosine diphosphate receptor antagonist [clopidogrel, prasugrel, or ticagrelor], statin, and beta-blocker among discharged patients eligible to receive all medications.
[d]Among discharged patients who reported smoking at baseline

MACE=major adverse cardiovascular events, defined as death, reinfarction, stroke, and major GUSTO bleeding.

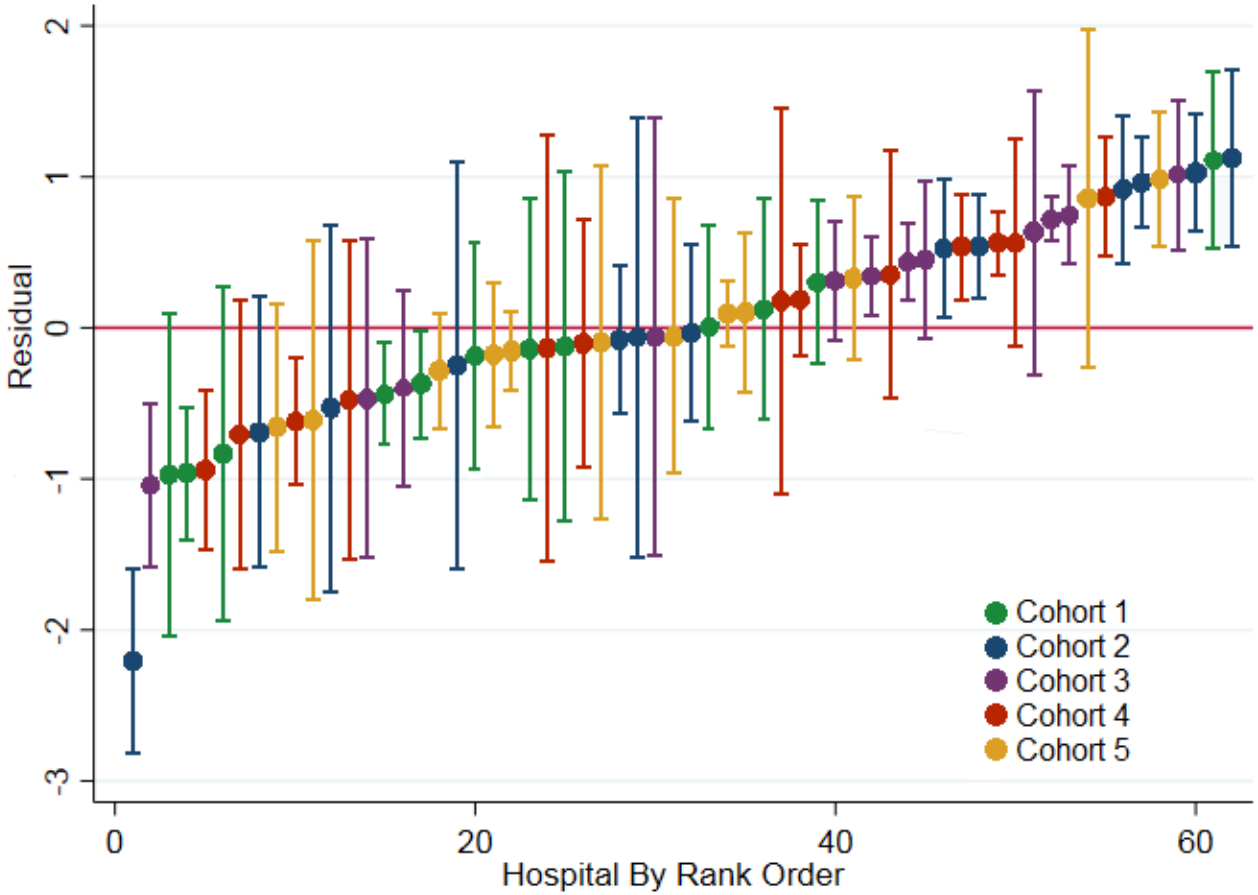
eTable 7. Exploratory Analyses Evaluating the Effect of the Intervention on Major Adverse Cardiovascular Events Plus In-Hospital Incident Heart Failure, Cardiogenic Shock, and Cardiac Arrest Using Mixed Effect Logistic Regression Models That Account for Within-Hospital Clustering and Clustering and Temporal Trends

Outcome	Control (N=10,066)		Intervention (N=11,308)		Cluster Adjusted Difference, % (95% CI)[a]	Cluster Adjusted OR (95% CI)[a]	Primary Analysis Difference, % (95% CI)[a]	Primary Analysis OR (95% CI)[a]	ICC
	n	%	n	%					
30-Day MACE plus in-hospital incident heart failure, cardiogenic shock, or cardiac arrest	919	9.1	795	7.0	-0.86 (-1.72 to -0.01)	0.89 (0.80 to 1.00)	-1.34 (-2.72 to 0.04)	0.84 (0.70 to 1.00)	0.15
In-hospital heart failure	227	2.3	191	1.7	-0.03 (-0.45 to 0.40)	0.99 (0.79 to 1.24)	-0.52 (-1.22 to 0.17)	0.76 (0.54 to 1.07)	0.23
In-hospital cardiogenic shock	217	2.2	170	1.5	-0.06 (-0.42 to 0.30)	0.96 (0.77 to 1.21)	-0.20 (-0.80 to 0.40)	0.89 (0.62 to 1.27)	0.25
In-hospital cardiac arrest	206	2.0	237	2.1	0.16 (-0.31 to 0.62)	1.08 (0.87 to 1.33)	-0.20 (-0.94 to 0.55)	0.91 (0.65 to 1.28)	0.20

[a]Odds ratios represent effect of intervention compared to control and risk difference is calculated as the difference in marginal effects (intervention group minus control group) in a mixed effects logistic regression model including a random effect term to account for within hospital clustering. Primary analysis additionally account for temporal trends.

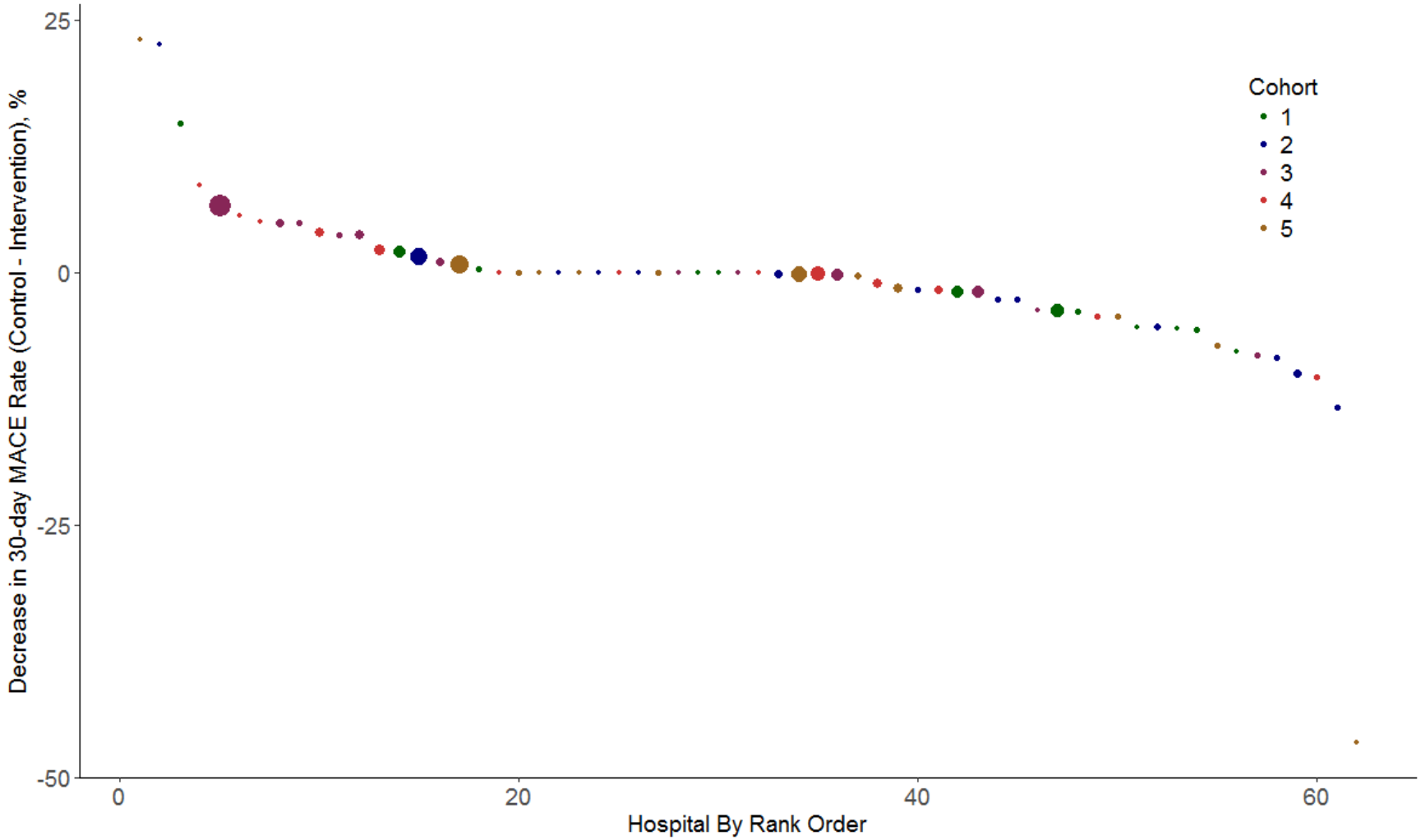
CI: confidence interval; ICC: intra-cluster correlation; MACE=major adverse cardiovascular events, defined as death, reinfarction, stroke, and major GUSTO bleeding.

eFigure 1A. Caterpillar, Residual Plot Showing Hospital Residuals and 95% Confidence Intervals for 30-Day Major Adverse Cardiovascular Event Rate



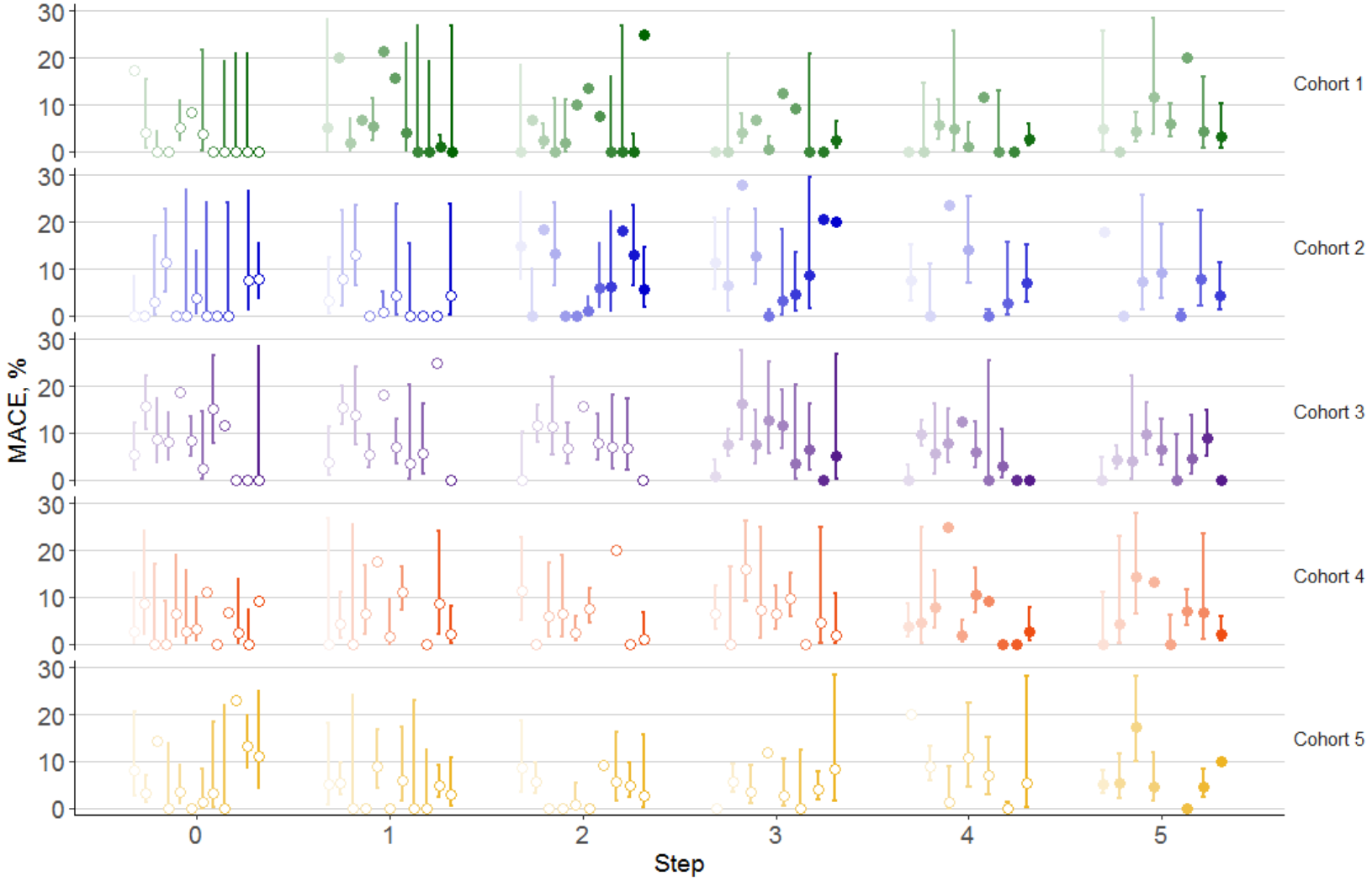
eFigure 1a shows hospital residuals with 95% confidence intervals. Residuals for 30-day major adverse cardiovascular events (MACE) rate are calculated from predicted MACE rates from the multilevel mixed effects logistic regression model including a random effect term to account for within hospital clustering and adjusting for temporal trends. The residuals represent hospital level departures from the mean MACE rate (residual = 0). A hospital whose confidence interval does not overlap the line at zero differs from mean at the 5% level. The left-hand side of the plot depicts hospitals with MACE rate lower than the mean, and the right-hand side of the plot depicts hospitals with MACE rate higher than the mean.

eFigure 1B. Waterfall Plot Showing Unadjusted Within-Hospital Differences in the Rate of 30-Day Composite Major Adverse Cardiovascular Events Between the Intervention and Control Groups



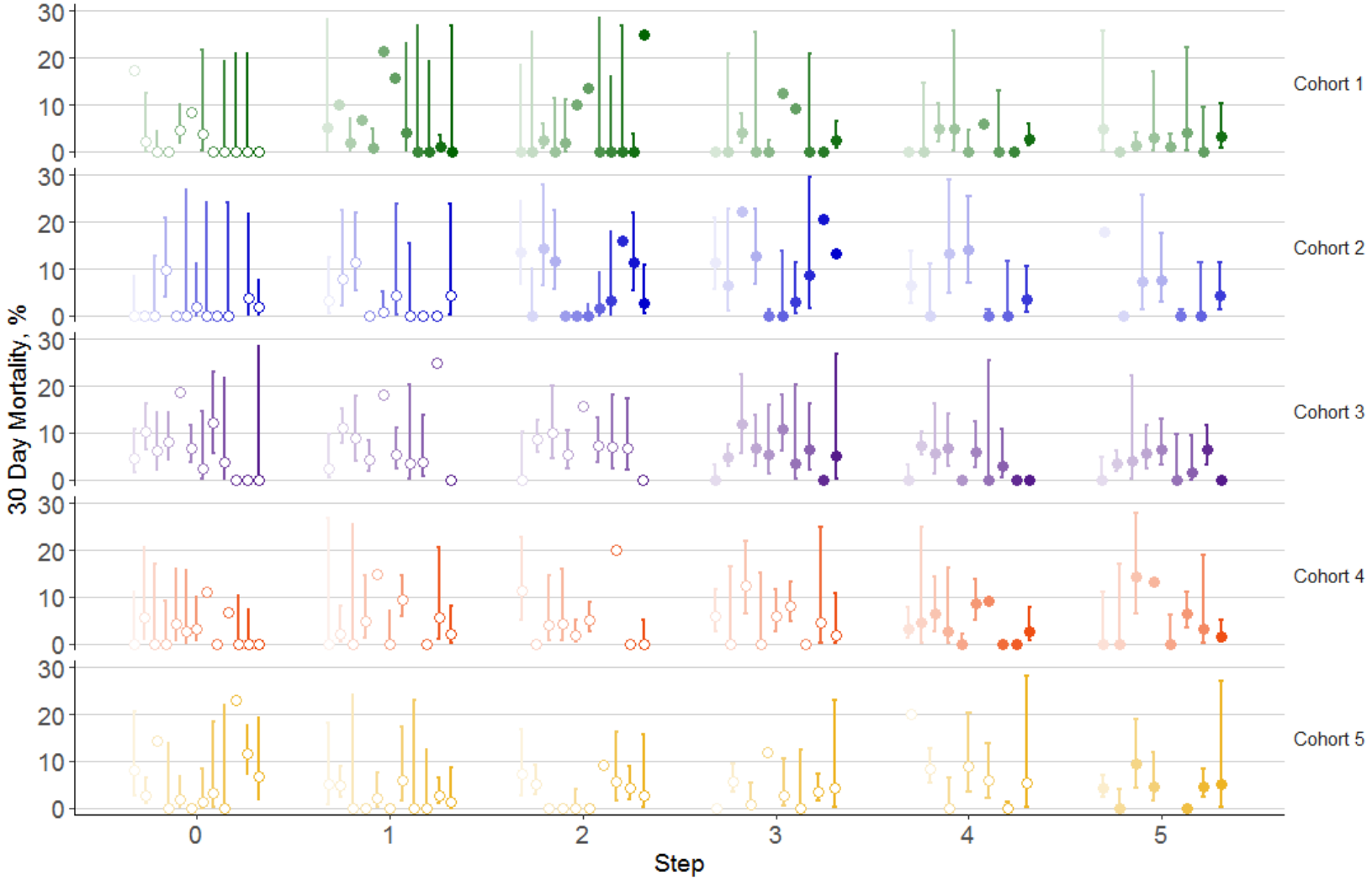
The size of each bubble is scaled to the number of participants recruited from individual hospitals.

eFigure 2A. Unadjusted Temporal Trends in 30-Day Major Adverse Cardiovascular Event Rates With 95% Confidence Intervals by Hospital, Cohort, Intervention and Control Group, and Step During the Trial



Each hospital is depicted by a single point.

eFigure 2B. Unadjusted Temporal Trends in 30-Day Death Rates With 95% Confidence Intervals by Hospital, Cohort, Intervention and Control Group, and Step During the Trial



Each hospital is depicted by a single point.