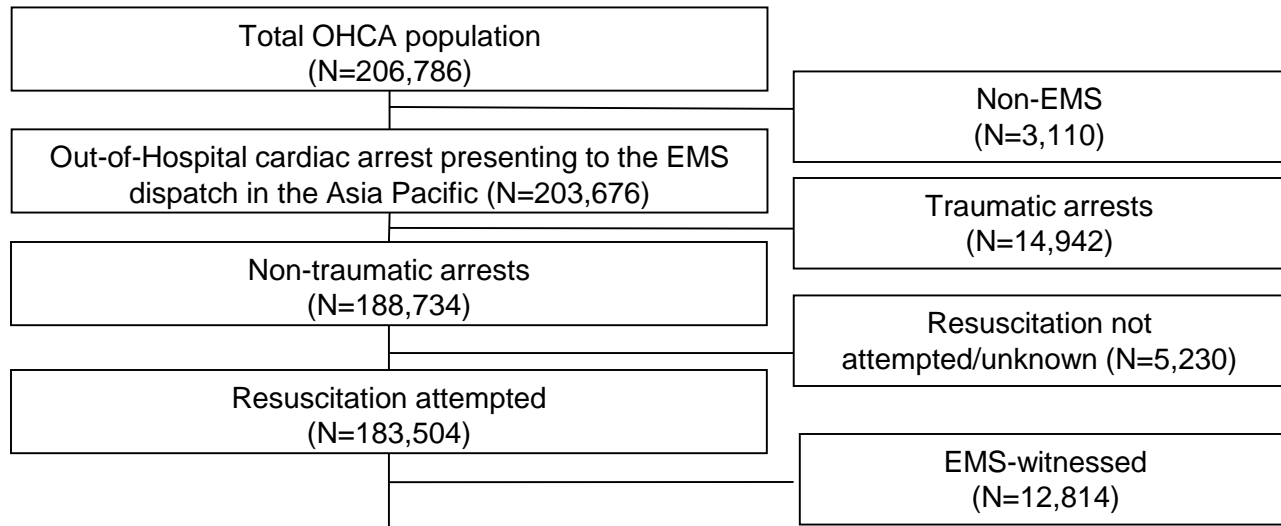


# PAROS 2 Analysis Updates

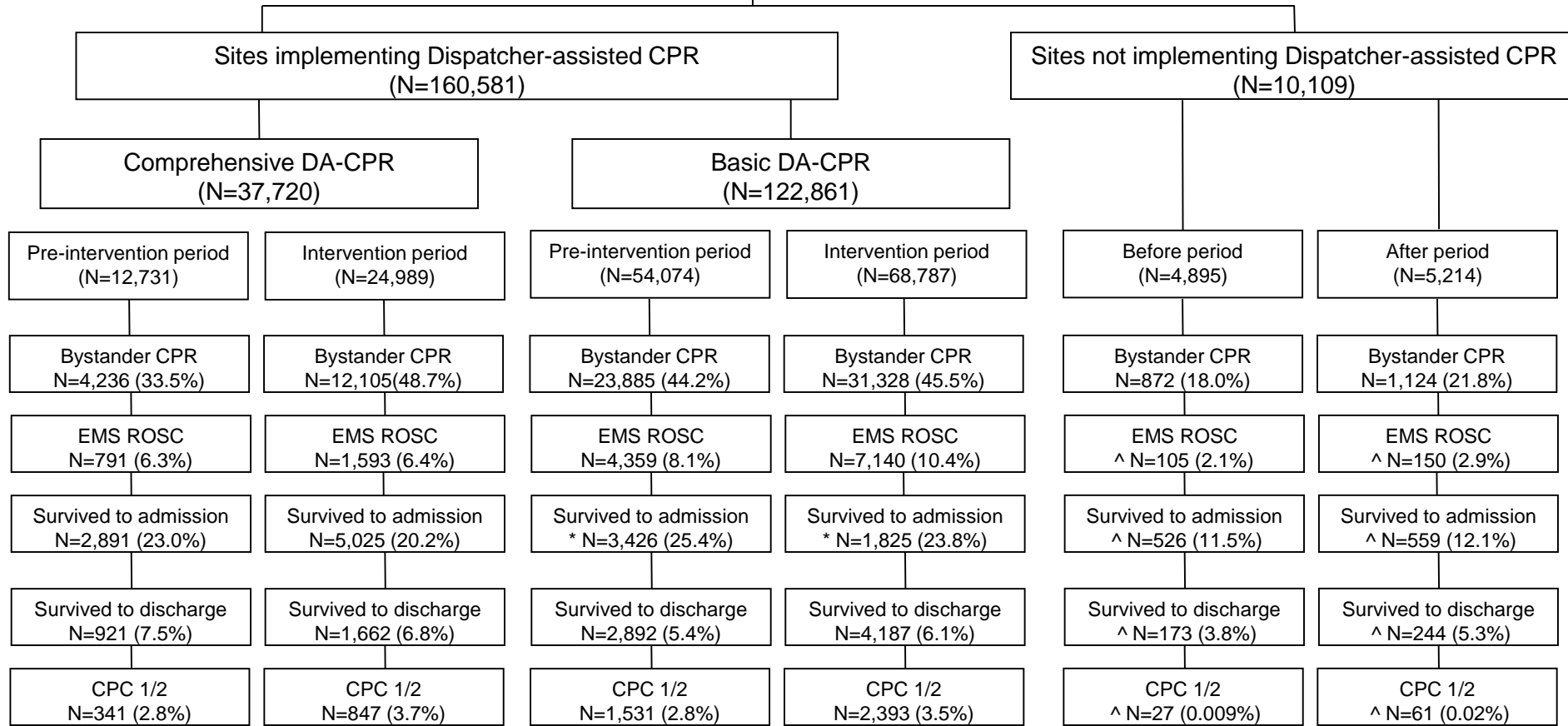
# Data Contribution

City	2009												2010												2011												2012												2013												2014												2015												2016												2017												2018											
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12												
Japan - Tokyo	Pre-intervention PAROS 1 (n=25,270)																																																Basic (n=25,806)																																																																							
Japan - Aichi	Pre-intervention PAROS 1 (n=12,768)																																																Basic (n=13,846)																																																																							
Japan - Fukuoka	Pre-intervention (n=7,988)																																																Basic (n=7,445)																																																																							
Japan - Ishikawa	Pre-intervention (n=2,107)																																																Basic (n=2,064)																																																																							
Japan - Wakayama	Pre-intervention (n=2,301)																																																Basic (n=2,369)																																																																							
Japan - Osaka prefecture																																																	Basic (n=15,261)																																																																							
Japan - Osaka city	Pre-intervention PAROS 1 (n=13,339)												Basic (n=5,402)																																																																																																											
Korea - Daegu																																					Pre-intervention (n=1,158)												Basic (n=2,426)																																																																							
Korea - Gwangju																																					Pre-intervention (n=547)												Basic (n=1,288)																																																																							
Korea - Seoul																									Pre-intervention PAROS 1 (n=7,990)												Comprehensive (n=9,294)																																																																																			
Taiwan - Taipei													Pre-intervention PAROS 1 (n=3,023)																																				Comprehensive (n=5,953)																								Comprehensive (n=1,819)																																															
Taiwan - Tainan																																					Pre-intervention (n=1,152)												Comprehensive (n=3,430)																																																																							
Singapore													Pre-intervention PAROS 1 (n=3,028)												Comprehensive (n=9,518)																																																																																															
Malaysia - Penang													Pre-intervention PAROS 1 (n=135)												Comprehensive (n=765)																																																																																															
Malaysia - Kuala Lumpur/ Klang Valley													Pre-intervention PAROS 1 (n=184)												Comprehensive (n=1,813)																																																																																															
Malaysia - Eastern - Kuching and Miri																																					Pre-intervention (n=175)												Comprehensive (n=410)																																																																							
Thailand - Bangkok													Pre-intervention PAROS 1 (n=379)												OHCA (n=939)												Basic (n=361)																																																																																			
China - Zhejiang																																					OHCA (n=1,583)																																																																																			
Taiwan - Taoyuan																																					OHCA (n=10,057)																																																																																			
Philippines - 2 Cities																																					OHCA (n=781)												OHCA (n=87)																																																																							
Vietnam - 3 Cities																																					OHCA (n=731)																																																																																			
Pakistan - Karachi																																					OHCA (n=514)												OHCA (n=267)																																																																							
India - 3 Cities																																					OHCA (n=2,780)																																																																																			
Lebanon - Beirut																																					OHCA (n=225)																																																																																			
United Arab Emirates																																					OHCA (n=912)																																																																																			



\* Data only available from Osaka city (Japan), Thailand and Korea

^ Data not available in some cities



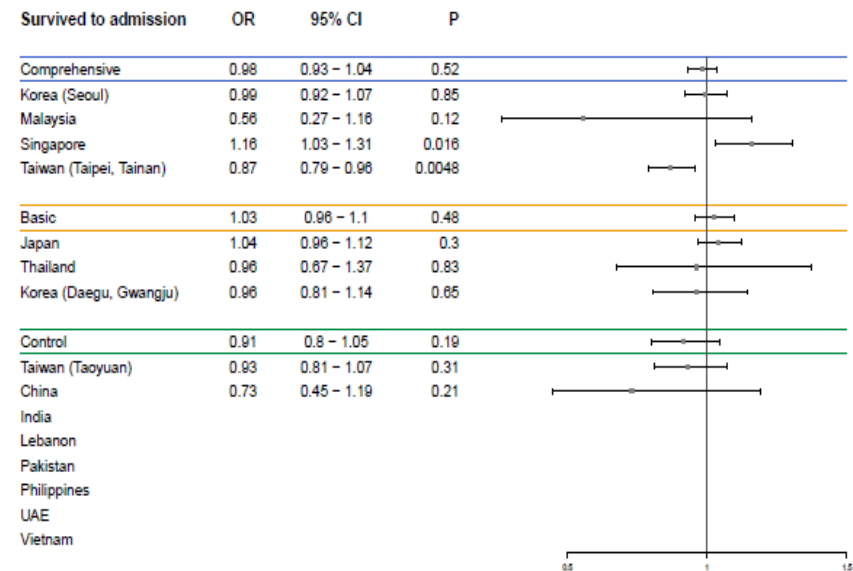
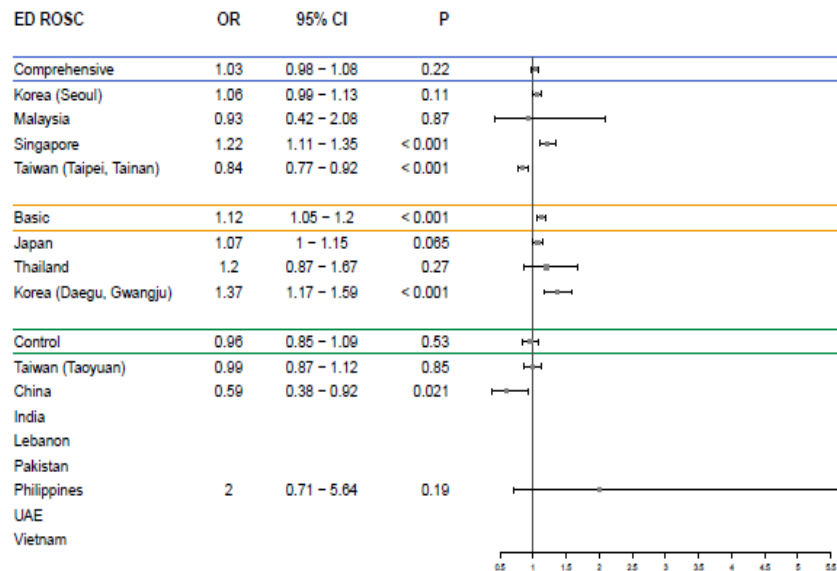
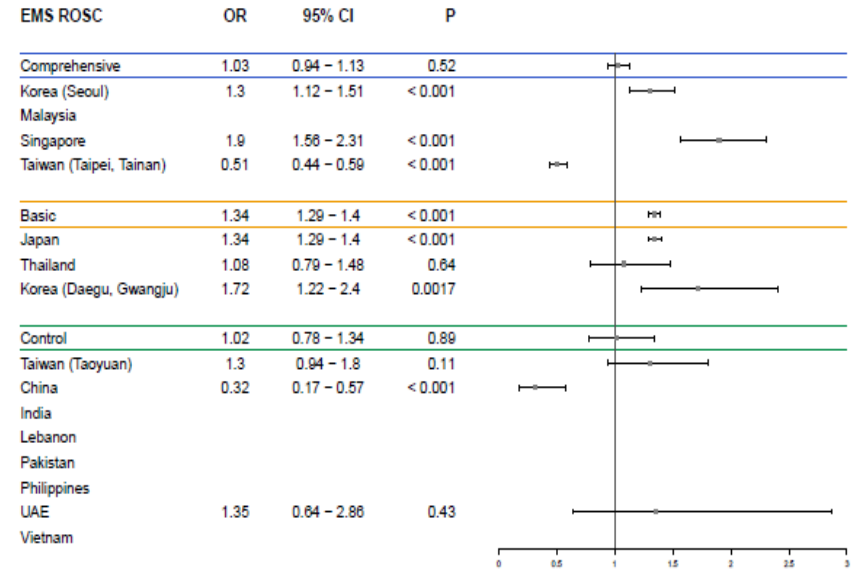
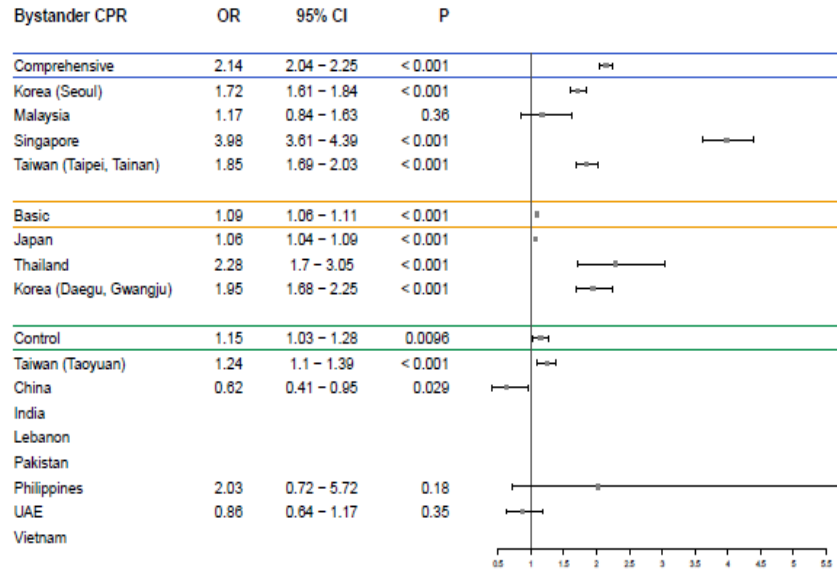
Summary Statistics	Comprehensive DA-CPR countries							
	Korea.Seoul (n=17,284)		Malaysia (n=3,482)		Singapore (n=12,546)		Taiwan.TaipeiTainan (n=12,505)	
	Pre (n=7,990)	Post (n=9,294)	Pre (n=494)	Post (n=2,988)	Pre (n=3,028)	Post (n=9,518)	Pre (n=4,175)	Post (n=8,330)
<b>Age, years, Median (IQR)</b>	66.5 (26)	68 (25)	61 (25)	59 (26)	65 (24)	68 (25)	74 (26.5)	74 (25)
<b>Gender (n, %)</b>								
<b>Male</b>	5243 (65.6)	5915 (63.6)	344 (69.9)	2024 (67.8)	1992 (65.8)	6133 (64.4)	2679 (64.2)	5304 (63.7)
<b>Arrest witnessed by (n, %)</b>								
<b>Not witnessed</b>	3158 (46.7)	3735 (46.9)	254 (55.1)	942 (32.7)	1303 (43)	3741 (39.3)	2400 (62.9)	4261 (54.4)
<b>Bystander</b>	3144 (46.5)	3611 (45.4)	185 (40.1)	1774 (61.6)	1483 (49)	4947 (52)	1069 (28)	3351 (42.8)
<b>EMS</b>	459 (6.8)	611 (7.7)	22 (4.8)	164 (5.7)	242 (8)	830 (8.7)	346 (9.1)	224 (2.9)
<b>First arrest rhythm (n, %) <sup>a, b, c, d</sup></b>								
<b>VT, VF, unknown shockable</b>	1226 (16.3)	1300 (14.7)	8 (3.8)	85 (5)	554 (18.6)	1640 (17.4)	381 (9.2)	877 (10.6)
<b>Unknown unshockable</b>	247 (3.3)	321 (3.6)	81 (38.9)	199 (11.6)	24 (0.8)	474 (5)	56 (1.4)	122 (1.5)
<b>Asystole</b>	4283 (56.8)	5592 (63.3)	52 (25)	1225 (71.7)	1590 (53.4)	4517 (48)	2289 (55.3)	4447 (53.8)
<b>Pulseless electrical activity</b>	1103 (14.6)	1466 (16.6)	4 (1.9)	78 (4.6)	806 (27.1)	2714 (28.8)	799 (19.3)	1793 (21.7)
<b>Unknown</b>	678 (9)	149 (1.7)	63 (30.3)	122 (7.1)	5 (0.2)	75 (0.8)	613 (14.8)	1024 (12.4)
<b>Prehospital intervention (n, %)</b>								
<b>Bystander CPR</b>	2854 (35.7)	4399 (47.3)	76 (16.5)	604 (21)	677 (22.4)	4800 (50.4)	1103 (27.2)	2782 (34.2)
<b>Bystander AED applied <sup>a, b</sup></b>	71 (0.9)	326 (3.5)	0 (0)	108 (3.8)	54 (1.8)	345 (3.7)		
<b>Prehospital defibrillation <sup>a, b, c, d</sup></b>	1801 (23.9)	1878 (21.3)	8 (3.8)	111 (6.5)	699 (23.5)	2503 (26.6)	461 (11.2)	972 (11.9)
<b>Prehospital drug administration <sup>a, b, c, d</sup></b>	59 (0.8)	11 (0.1)	45 (21.6)	612 (35.8)	1419 (47.6)	5187 (55.1)	618 (14.9)	896 (10.8)
<b>Prehospital advanced airway <sup>a, b, c, d</sup></b>	1181 (19)	1927 (21.8)	83 (39.9)	757 (44.3)	2393 (80.3)	8172 (86.8)	1866 (45.2)	5778 (70.4)
<b>Etiology of arrest (n, %)</b>								
<b>Presumed cardiac</b>	5605 (72.7)	6553 (72.2)	276 (78.6)	1371 (57.2)	2256 (74.5)	6386 (67.1)	3160 (77.3)	7008 (84.5)
<b>Trauma</b>	718 (9.3)	830 (9.1)	26 (7.4)	191 (8)	99 (3.3)	321 (3.4)	401 (9.8)	441 (5.3)
<b>Respiratory</b>	65 (0.8)	88 (1)	12 (3.4)	116 (4.8)	239 (7.9)	453 (4.8)	290 (7.1)	528 (6.4)
<b>Other causes</b>	1321 (17.1)	1606 (17.7)	37 (10.5)	719 (30)	434 (14.3)	2357 (24.8)	238 (5.8)	320 (3.9)
<b>DA CPR performed (n, %) <sup>f</sup></b>								
<b>Yes</b>		3773 (40.6)		115 (6.3)		2550 (75.3)		661 (14.9)
<b>Response time</b>								
<b>Median (IQR)</b>	6 (2)	5 (3)	19.6 (12.6)	19 (11.6)	8 (4.4)	8.9 (4.6)	6 (3)	5.3 (3.2)
<b>Outcomes (n, %)</b>								
<b>EMS ROSC <sup>a, b, c, d</sup></b>	366 (5)	541 (6.1)	11 (5.3)	29 (1.7)	151 (5.1)	840 (8.9)	422 (10.2)	428 (5.2)
<b>ED ROSC</b>	2667 (35.4)	3422 (36.8)	11 (2.3)	118 (4)	895 (29.6)	3114 (32.7)	1214 (30)	2155 (26.4)
<b>Any ROSC <sup>3</sup></b>	2917 (36.6)	3442 (37)	18 (3.6)	128 (4.3)	913 (30.2)	3256 (34.2)	1305 (31.3)	2230 (26.8)
<b>Survived to admission</b>	1938 (24.9)	2332 (25.1)	13 (2.7)	89 (3)	522 (17.2)	1764 (18.5)	983 (23.7)	1724 (21)
<b>Survived to discharge</b>	710 (9.5)	840 (9.4)	5 (1)	8 (0.3)	97 (3.2)	481 (5.1)	292 (7.1)	659 (8.1)
<b>Post arrest CPC 1/2</b>	238 (3.2)	409 (4.6)			54 (1.8)	307 (3.2)	127 (3.1)	309 (3.9)

Summary Statistics	Basic DA-CPR countries					
	Japan (n=135,966)		Thailand (n=1,679)		Korea.DaeguGwangju (n=5,419)	
	Pre (n=63,773)	Post (n=72,193)	Pre (n=1,318)	Post (n=361)	Pre (n=1,705)	Post (n=3,714)
Age, years, Median (IQR)	76 (22)	77 (20)	60 (32)	61 (31)	68 (27)	68 (27)
Gender (n, %)						
Male	36840 (57.8)	41164 (57)	857 (65)	243 (67.3)	1061 (62.2)	2391 (64.4)
Arrest witnessed by (n, %)						
Not witnessed	37758 (59.2)	41267 (57.2)	402 (30.7)	170 (47.1)	559 (41.1)	1401 (46)
Bystander	21444 (33.6)	25703 (35.6)	875 (66.9)	176 (48.8)	664 (48.9)	1376 (45.2)
EMS	4571 (7.2)	5223 (7.2)	31 (2.4)	15 (4.2)	136 (10)	269 (8.8)
First arrest rhythm (n, %) <sup>a, b, c, d</sup>						
VT, VF, unknown shockable	4767 (7.5)	4783 (6.6)	78 (8.7)	35 (9.8)	221 (14.6)	512 (15)
Unknown unshockable	13889 (21.8)	4941 (6.8)	7 (0.8)	1 (0.3)	143 (9.4)	262 (7.7)
Asystole	34065 (53.4)	43443 (60.2)	737 (81.9)	287 (80.6)	841 (55.5)	2067 (60.6)
Pulseless electrical activity	10527 (16.5)	15803 (21.9)	69 (7.7)	33 (9.3)	114 (7.5)	476 (13.9)
Unknown	525 (0.8)	3223 (4.5)	9 (1)	0 (0)	195 (12.9)	96 (2.8)
Prehospital intervention (n, %)						
Bystander CPR	25683 (40.3)	30295 (42)	215 (16.4)	115 (31.9)	363 (21.3)	1330 (35.8)
Bystander AED applied <sup>a, b</sup>	340 (0.7)	931 (1.4)	21 (2.1)	5 (1.4)	35 (2.1)	108 (2.9)
Prehospital defibrillation <sup>a, b, c, d</sup>	6660 (10.4)	9987 (13.8)	141 (15.7)	58 (16.3)	272 (18)	669 (19.6)
Prehospital drug administration <sup>a, b, c, d</sup>	5124 (8)	8747 (12.1)	691 (76.8)	262 (73.6)		6 (0.2)
Prehospital advanced airway <sup>a, b, c, d</sup>	24430 (38.3)	26158 (36.2)	687 (76.3)	261 (73.3)	239 (16.2)	893 (26.2)
Etiology of arrest (n, %)						
Presumed cardiac	35176 (55.2)	46784 (64.8)	822 (62.5)	270 (74.8)	1138 (68.2)	2536 (70.2)
Trauma	7495 (11.8)	1491 (2.1)	126 (9.6)	16 (4.4)	259 (15.5)	441 (12.2)
Respiratory	3457 (5.4)	4342 (6)	143 (10.9)	37 (10.2)	8 (0.5)	19 (0.5)
Other causes	17644 (27.7)	19576 (27.1)	224 (17)	38 (10.5)	264 (15.8)	618 (17.1)
DA CPR performed (n, %) <sup>f</sup>						
Yes		35257 (48.8)		134 (37.1)		1022 (27.5)
Response time						
Median (IQR)	6 (3)	6 (3)	13.4 (7)	13.1 (8.2)	6 (3)	6 (3)
Outcomes (n, %)						
EMS ROSC <sup>a, b, c, d</sup>	5426 (8.5)	8104 (11.2)	175 (19.4)	75 (21.1)	57 (3.9)	217 (6.4)
ED ROSC			359 (27.2)	78 (21.6)	405 (24.6)	1170 (31.5)
Any ROSC <sup>3</sup>			407 (30.9)	111 (30.7)	450 (26.5)	1181 (31.8)
Survived to admission			293 (22.3)	62 (17.2)	283 (16.6)	641 (17.3)
Survived to discharge	3633 (5.7)	4865 (6.7)	47 (3.6)	2 (0.6)	70 (4.5)	196 (5.7)
Post arrest CPC 1/2	1959 (3.1)	2859 (4)	11 (0.9)	0 (0)	36 (2.3)	119 (3.5)

Summary Statistics	Countries which did not implement DA-CPR							
	Taiwan.Taoyuan (n=10,057)		China (n=1,583)		India (n=2,780)		Lebanon (n=225)	
	Pre (n=4,790)	Post (n=5,267)	Pre (n=343)	Post (n=1,240)	Pre (n=1,630)	Post (n=1,150)	Pre (n=116)	Post (n=109)
Age, years, Median (IQR)	68 (32)	68 (32)	59 (31.75)	60 (28)	50 (30)	55 (26)	75 (22.5)	73 (25)
Gender (n, %)								
Male	3313 (69.2)	3698 (70.2)	255 (74.3)	876 (70.6)	1148 (70.4)	791 (68.8)	77 (67)	75 (68.8)
Arrest witnessed by (n, %)								
Not witnessed	2771 (61.5)	3170 (64.4)	40 (11.7)	268 (21.8)	1515 (92.9)	1012 (88)	26 (26)	23 (23.7)
Bystander	1503 (33.4)	1462 (29.7)	301 (87.8)	935 (76)	5 (0.3)	3 (0.3)	69 (69)	70 (72.2)
EMS	230 (5.1)	291 (5.9)	2 (0.6)	28 (2.3)	110 (6.7)	135 (11.7)	5 (5)	4 (4.1)
First arrest rhythm (n, %) <sup>a, b, c, d</sup>								
VT, VF, unknown shockable	251 (6.7)	205 (5.3)	19 (8.2)	75 (7.9)	0 (0)	0 (0)	0 (0)	3 (8.6)
Unknown unshockable	1193 (31.9)	621 (16.1)	2 (0.9)	5 (0.5)	5 (0.3)	2 (0.2)	0 (0)	0 (0)
Asystole	746 (19.9)	870 (22.6)	103 (44.2)	593 (62.6)	2 (0.1)	0 (0)	0 (0)	17 (48.6)
Pulseless electrical activity	236 (6.3)	258 (6.7)	30 (12.9)	93 (9.8)	0 (0)	0 (0)	0 (0)	0 (0)
Unknown	1315 (35.2)	1904 (49.4)	79 (33.9)	181 (19.1)	1621 (99.6)	1147 (99.8)	1 (100)	15 (42.9)
Prehospital intervention (n, %)								
Bystander CPR	936 (20)	1182 (23.2)	56 (16.3)	159 (12.9)	1 (0.1)	0 (0)	8 (38.1)	7 (7.1)
Bystander AED applied <sup>a, b</sup>			24 (8.2)	31 (2.9)	9 (0.6)	2 (0.2)	0 (0)	1 (1.1)
Prehospital defibrillation <sup>a, b, c, d</sup>	204 (5.5)	204 (5.3)	22 (9.5)	87 (9.2)	0 (0)	0 (0)	0 (0)	6 (17.1)
Prehospital drug administration <sup>a, b, c, d</sup>	172 (4.6)	248 (6.4)	122 (53)	289 (30.7)	27 (1.7)	24 (2.1)	0 (0)	0 (0)
Prehospital advanced airway <sup>a, b, c, d</sup>	2607 (69.7)	3235 (83.9)	114 (49.6)	274 (29)	1 (0.1)	0 (0)	0 (0)	0 (0)
Etiology of arrest (n, %)								
Presumed cardiac	3410 (71.2)	3914 (74.3)	149 (44)	503 (42.7)	185 (11.4)	265 (23.1)	105 (90.5)	93 (86.1)
Trauma	701 (14.6)	715 (13.6)	85 (25.1)	328 (27.8)	217 (13.4)	127 (11.1)	2 (1.7)	2 (1.9)
Respiratory	258 (5.4)	273 (5.2)	10 (2.9)	70 (5.9)	222 (13.7)	206 (17.9)	4 (3.4)	9 (8.3)
Other causes	421 (8.8)	365 (6.9)	95 (28)	277 (23.5)	999 (61.6)	551 (48)	5 (4.3)	4 (3.7)
DA CPR performed (n, %) <sup>f</sup>								
Yes								
Response time								
Median (IQR)	7.5 (3.4)	7.5 (3)	12 (12.9)	12 (8.8)	14.1 (12.5)	13.3 (11.9)	15 (10)	20 (24.5)
Outcomes (n, %)								
EMS ROSC <sup>a, b, c, d</sup>	87 (2.3)	135 (3.5)	31 (13.5)	43 (4.6)	11 (0.7)	0 (0)		
ED ROSC	729 (15.4)	811 (15.7)	73 (21.9)	166 (13.9)	10 (0.6)	2 (0.2)	16 (13.8)	25 (22.9)
Any ROSC <sup>3</sup>	744 (15.5)	835 (15.9)	84 (24.7)	186 (15)	11 (0.7)	2 (0.2)		
Survived to admission	626 (13.2)	665 (12.8)	63 (18.7)	152 (12.3)	9 (0.6)	1 (0.1)	15 (12.9)	18 (16.7)
Survived to discharge	219 (4.6)	301 (5.8)	18 (5.4)	70 (5.6)	3 (0.2)	0 (0)	7 (6.1)	4 (3.7)
Post arrest CPC 1/2	38 (0.8)	80 (1.6)	3 (0.9)	7 (0.6)				

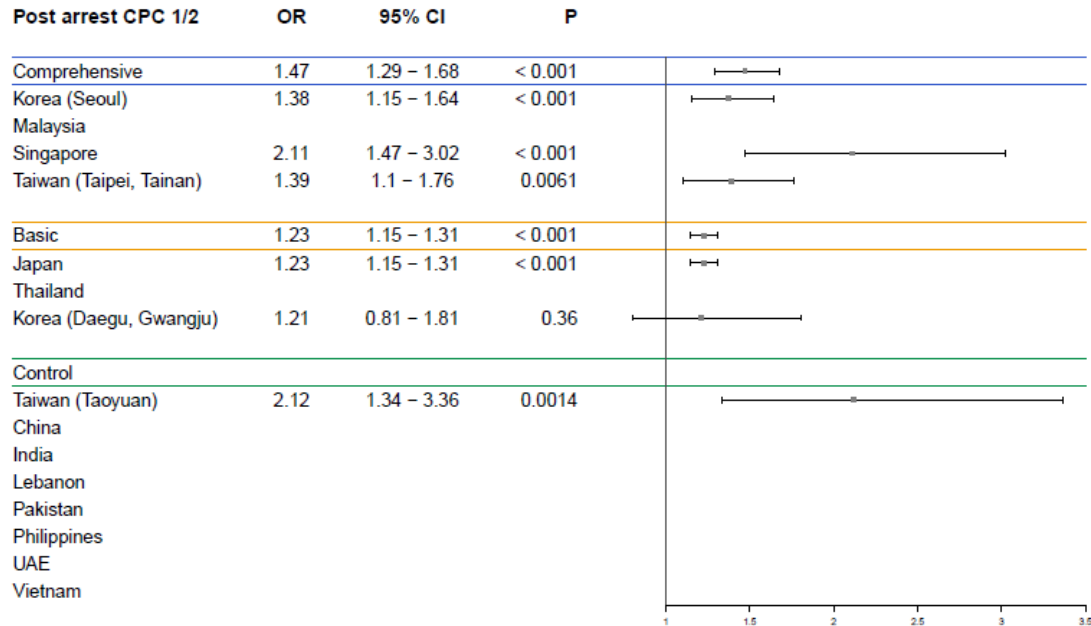
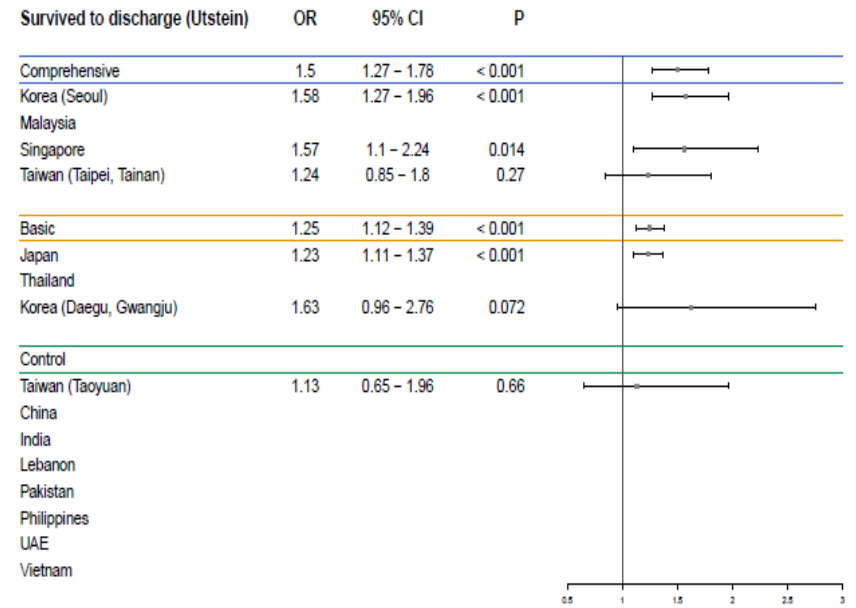
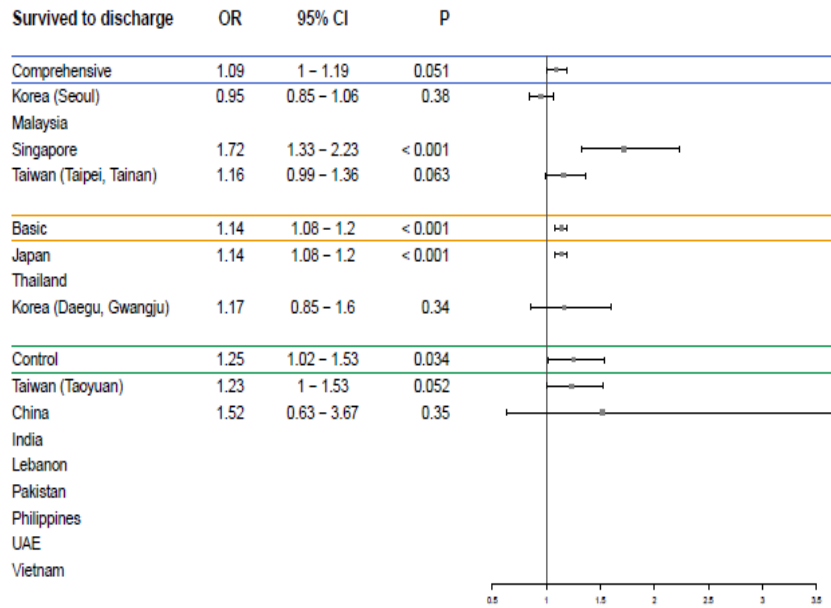
Summary Statistics	Countries which did not implement DA-CPR							
	Pakistan (n=781)		Philippines (n=868)		UAE (n=911)		Vietnam (n=700)	
	Pre (n=514)	Post (n=267)	Pre (n=781)	Post (n=87)	Pre (n=325)	Post (n=586)	Pre (n=243)	Post (n=457)
Age, years, Median (IQR)	58 (29.5)	60 (20)	57 (24)	52 (27)	53 (31)	52 (30.25)	57 (29)	53 (27)
Gender (n, %)								
Male	328 (63.8)	172 (64.4)	516 (66.1)	61 (70.1)	237 (73.1)	448 (76.5)	184 (75.7)	340 (74.6)
Arrest witnessed by (n, %)								
Not witnessed	16 (3.1)	12 (4.5)	264 (33.8)	54 (62.1)	123 (38.1)	208 (35.5)	86 (36.4)	62 (14.5)
Bystander	489 (95.1)	252 (94.4)	496 (63.6)	33 (37.9)	174 (53.9)	328 (56)	115 (48.7)	296 (69)
EMS	9 (1.8)	3 (1.1)	20 (2.6)	0 (0)	26 (8)	50 (8.5)	35 (14.8)	71 (16.6)
First arrest rhythm (n, %) <sup>a, b, c, d</sup>								
VT, VF, unknown shockable	5 (9.1)	4 (23.5)	3 (2.4)	4 (14.3)	61 (18.9)	82 (14)	7 (20.6)	40 (29.4)
Unknown unshockable	0 (0)	0 (0)	3 (2.4)	13 (46.4)	79 (24.5)	72 (12.3)	2 (5.9)	8 (5.9)
Asystole	4 (7.3)	2 (11.8)	26 (21)	1 (3.6)	115 (35.7)	375 (64.2)	8 (23.5)	8 (5.9)
Pulseless electrical activity	0 (0)	0 (0)	4 (3.2)	0 (0)	16 (5)	19 (3.3)	4 (11.8)	10 (7.4)
Unknown	46 (83.6)	11 (64.7)	88 (71)	10 (35.7)	51 (15.8)	36 (6.2)	13 (38.2)	70 (51.5)
Prehospital intervention (n, %)								
Bystander CPR	52 (10.1)	27 (10.1)	50 (6.4)	10 (11.5)	97 (29.8)	156 (26.6)	39 (17)	127 (29.4)
Bystander AED applied <sup>a, b</sup>	1 (0.3)	4 (2.2)	1 (0.5)	1 (3.2)	14 (4.3)	13 (2.2)	3 (3.4)	16 (6.2)
Prehospital defibrillation <sup>a, b, c, d</sup>	1 (1.8)	3 (17.6)	2 (1.6)	5 (17.9)	159 (49.4)	301 (51.5)	7 (20.6)	44 (32.6)
Prehospital drug administration <sup>a, b, c, d</sup>	22 (40)	4 (23.5)	19 (15.3)	12 (42.9)	88 (27.3)	59 (10.1)	29 (85.3)	129 (94.9)
Prehospital advanced airway <sup>a, b, c, d</sup>	38 (69.1)	7 (41.2)	13 (10.5)	2 (7.1)	268 (83.2)	529 (90.6)	22 (64.7)	112 (82.4)
Etiology of arrest (n, %)								
Presumed cardiac	209 (42.8)	235 (92.5)	507 (71.2)	80 (93)			100 (42.4)	157 (35)
Trauma	46 (9.4)	3 (1.2)	37 (5.2)	0 (0)			28 (11.9)	82 (18.3)
Respiratory	140 (28.7)	12 (4.7)	78 (11)	3 (3.5)			68 (28.8)	66 (14.7)
Other causes	93 (19.1)	4 (1.6)	90 (12.6)	3 (3.5)			40 (16.9)	143 (31.9)
DA CPR performed (n, %) <sup>f</sup>								
Yes								
Response time								
Median (IQR)	14 (9)	15 (10.2)	10 (10)	17.5 (10)	10 (8)	10 (8)	18.8 (20)	15 (15)
Outcomes (n, %)								
EMS ROSC <sup>a, b, c, d</sup>	6 (10.9)	0 (0)	5 (4)	2 (7.1)	14 (4.3)	31 (5.3)	17 (50)	100 (73.5)
ED ROSC	37 (7.2)	9 (3.4)	107 (15)	10 (11.5)			49 (20.2)	209 (46)
Any ROSC <sup>3</sup>	42 (8.2)	9 (3.4)	111 (14.2)	10 (11.5)			50 (20.6)	222 (48.6)
Survived to admission	21 (4.1)	5 (1.9)	53 (6.8)	4 (4.6)			34 (14.2)	107 (23.9)
Survived to discharge	7 (1.4)	2 (0.7)	6 (0.8)	1 (1.1)			18 (7.5)	64 (15)
Post arrest CPC 1/2	5 (1)	1 (0.4)	1 (0.1)	1 (1.1)			10 (4.2)	14 (3.6)

# Outcomes Before-After Comparison by Country





# Outcomes Before-After Comparison by Country



# Outcomes Comparison by Intervention Group

