

Abstract

Incidences of Sudden Cardiac Arrest in the Republic of Korea, 2020

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The Korea Sudden Cardiac Arrest Survey has been conducted annually, which could support to make and evaluate policy for the prevention and treatment of sudden cardiac arrest. Based on the first aid activity log of 2020, 31,652 cases of out-of-hospital sudden cardiac arrest occurred in the Republic of Korea. The rate of sudden cardiac arrest in men was 64.0%, and 52.5% of the cases were among individuals 70 years of age and over. There were 7,282 cases in Gyeonggi, which the highest number among cities and provinces, followed by Seoul (4,387 cases), Gyeongnam (2,350 cases), and Gyeongbuk (2,257 cases). The survival rate and brain function recovery rate were 7.5 % and 4.9 %, respectively. Despite the continued increase since 2006, the survival rate and brain function recovery rate of 2020 were lower than those of 2019, which could be affected by the pandemic of the coronavirus disease 2019. The rate of cardiopulmonary resuscitation by bystander had been also increased, the higher survival rate was observed in cases with cardiopulmonary resuscitation by bystanders. It could be a useful evidence that cardiopulmonary resuscitation should be performed on patients experiencing sudden cardiac arrest.

Keywords: Cardiac arrest, Survival rate, Cardiopulmonary resuscitation by bystander, Coronavirus disease 2019

Table 1. Occurrence of sudden cardiac arrest in paramedic transfer^a and survey^b

Characteristics		2006	2007	2008	2009	2010	2011	2012	2013
119 Paramedic transfer	Hospitals	812	757	708	742	757	739	712	661
	Persons	19,480	20,353	21,905	24,442	25,909	26,382	27,823	29,356
Survey of medical record	Completed hospitals	616	619	634	623	644	585	593	575
	Rate of completion (%)	75.9	81.8	89.5	84.0	85.1	79.2	83.3	87.0
	Completed persons	16,348	18,060	20,091	22,667	24,479	24,902	26,531	28,170
	Rate of completion (%)	83.9	88.7	91.7	92.7	94.5	94.4	95.4	96.0
Characteristics		2014	2015	2016	2017	2018	2019	2020	
119 Paramedic transfer	Hospitals	644	590	556	536	492	476	454	
	Persons	30,309	30,771	29,832	29,262	30,539	30,782	31,652	
Survey of medical record	Completed hospitals	566	547	505	514	477	458	446	
	Rate of completion (%)	87.9	92.7	90.8	95.9	97.0	96.2	98.2	
	Completed persons	29,282	29,959	28,963	28,629	30,179	30,279	31,417	
	Rate of completion (%)	96.6	97.4	97.1	97.8	98.8	98.4	99.3	

^a Based on the first aid activity log, cases with 'cardiac arrest' or 'respiratory arrest' as the main symptoms, or with 'resuscitation' or 'use of an automated external defibrillator (AED)' in treatment

^b Among the cases of 119 paramedic transfers of sudden cardiac arrest, cases completed with the survey of medical record in transferred hospitals

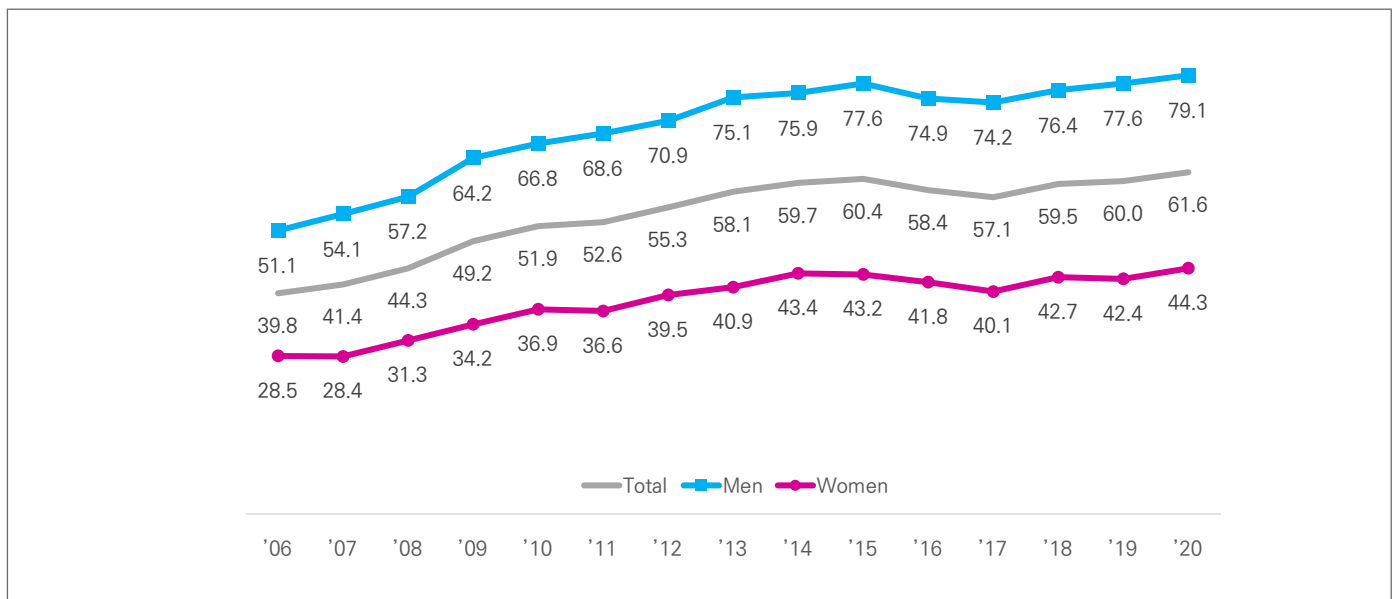


Figure 1. Changes in sudden cardiac arrest incidence per 100,000 population

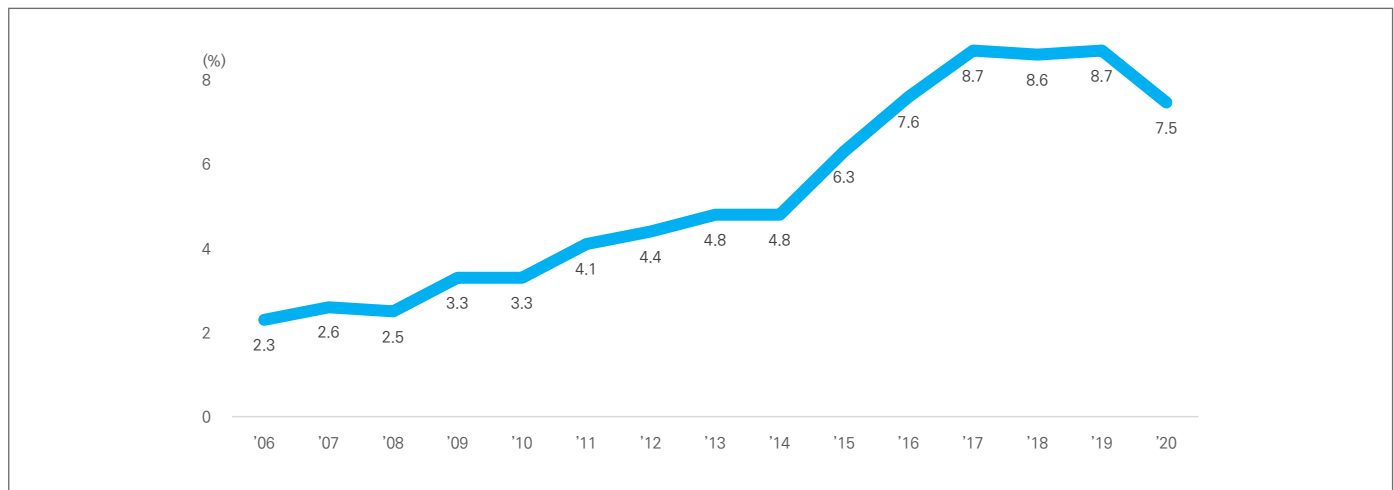
Table 2. Cases of sudden cardiac arrest by sex and age in 2020

Sex · age		Cases	Proportion (%)	Cases per 100,000 population ^a
Sex	Total	31,652	(100.0)	61.6
	Men	20,249	(64.0)	79.1
	Women	11,399	(36.0)	44.3
	Unknown	— ^b	— ^b	—
Age (years)	0~9	324	(1.0)	8.0
	10~19	325	(1.0)	6.7
	20~29	834	(2.6)	12.3
	30~39	1,227	(3.9)	17.7
	40~49	2,378	(7.5)	28.8
	50~59	4,402	(13.9)	51.6
	60~69	5,538	(17.5)	86.0
	70~79	7,261	(22.9)	201.5
	80 and over	9,358	(29.6)	493.6
Unknown		— ^b	— ^b	—

^a Estimated population in 2019, Commissioner of Statistics Korea^b Not presented under 10 cases

Table 3. Cases of sudden cardiac arrest by city and province in 2020

Cities and provinces ^a	Number of cases	Cases per 100,000 population ^b	Cities and provinces ^a	Number of cases	Cases per 100,000 population ^b
Total	31,652	61.6	Gyeonggi	7,282	55.1
Seoul	4,387	46.0	Gangwon	1,378	90.1
Busan	2,092	62.1	Chungbuk	1,286	80.9
Daegu	1,340	55.6	Chungnam	1,769	83.9
Incheon	1,684	57.6	Jeonbuk	1,405	78.1
Gwangju	640	44.3	Jeonnam	1,655	89.6
Daejeon	720	49.3	Gyeongbuk	2,257	85.6
Ulsan	636	56.0	Gyeongnam	2,350	70.5
Sejong	117	33.7	Jeju	654	98.0

^a Based on the location of the occurrence^b Estimated population in 2020, Commissioner of Statistics KoreaFigure 2. Changes in survival rate^a of sudden cardiac arrest patients^a Discharged alive

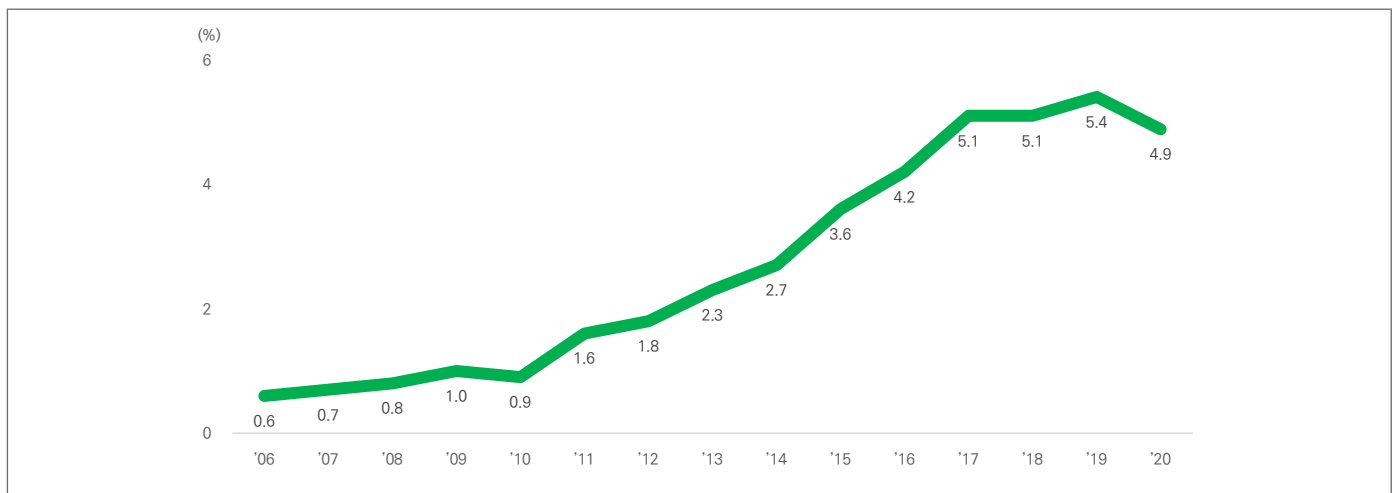


Figure 3. Changes in brain function recovery rate^a of sudden cardiac arrest patients

^a Brain function recovered enough to enable daily life

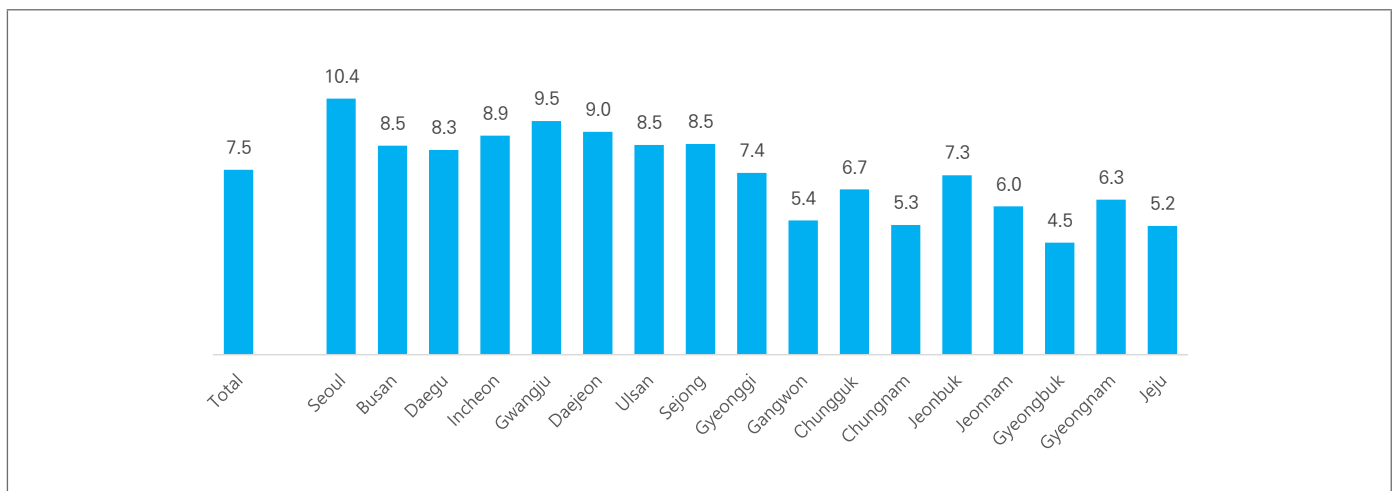


Figure 4. Survival rates^a of sudden cardiac arrest by city and province^b in 2020

^a Discharged alive

^b Based on the location of the occurrence

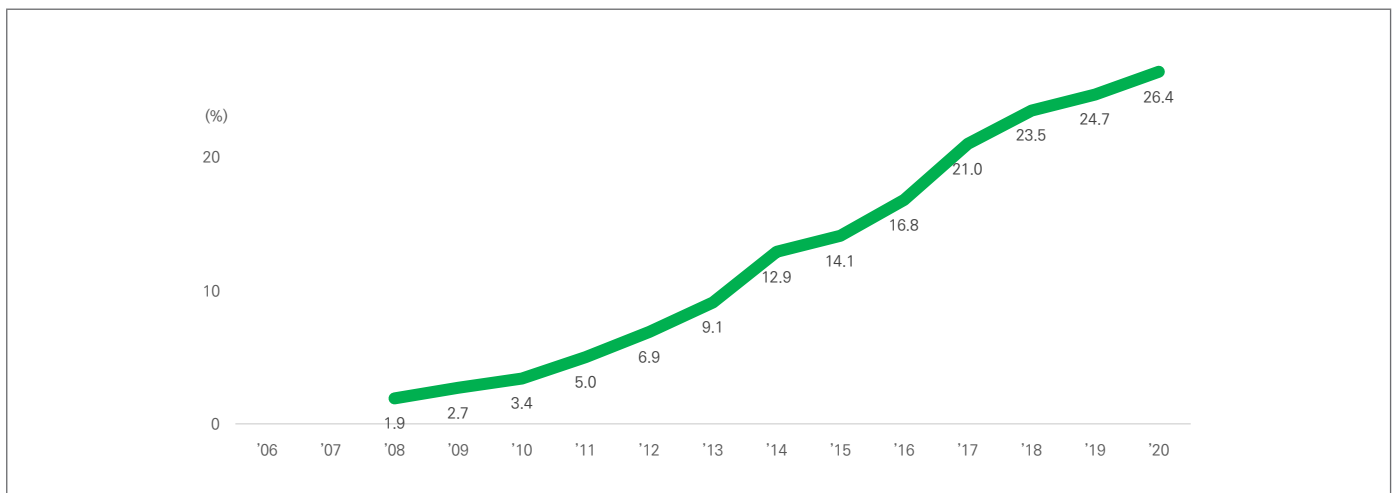


Figure 5. Changes in rate of cardiopulmonary resuscitation by bystanders^a

^a cardiopulmonary resuscitation performed by a bystander excluding paramedics and medical staff before arriving at the hospital

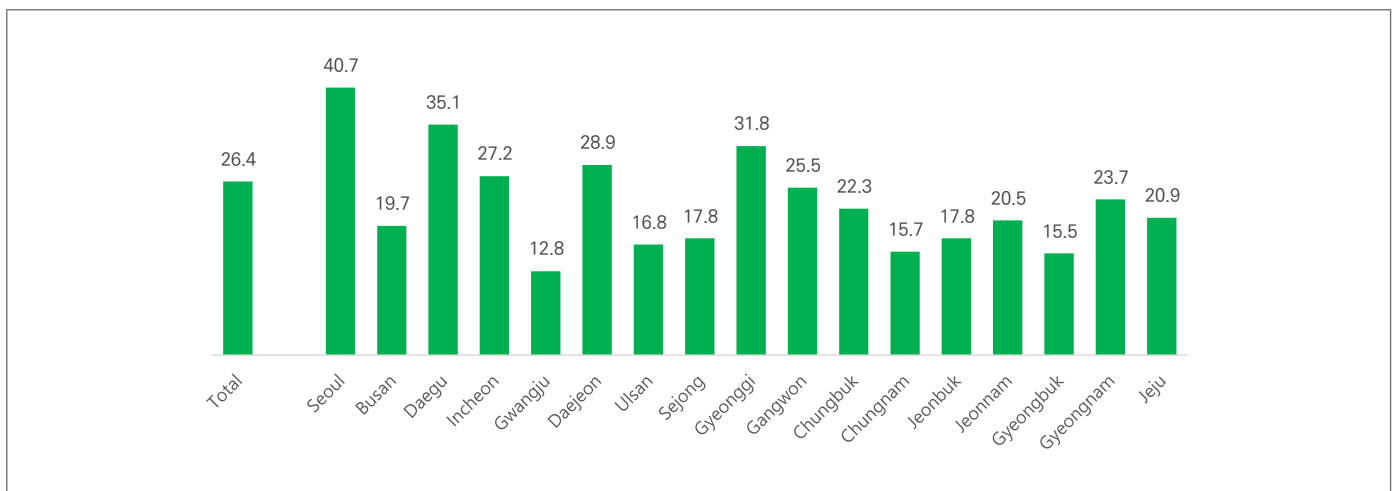


Figure 6. Rate of cardiopulmonary resuscitation by bystanders^a by city and province^b in 2019

^a cardiopulmonary resuscitation performed by a bystander excluding paramedics and medical staff before arriving at the hospital

^b Based on the location of the occurrence