

## Background

- Sudden cardiac arrest (SCA) is one of the treatable major cause of unexpected death worldwide.
- Survival rate from SCA can be serve as a representative indicator for the quality of public health system and emergency care system.
- We aimed to investigate the overall SCA incidence rate, survival rate, and post-resuscitation treatment pathway in medical care centers across the world. As a pilot study, we analyzed the trend in SCA incidence and mortality in a Korean tertiary hospital.

## Method

- Database**  
AUSOM, which was built in the form of OMOP common data model (CDM) version 5 from electronic health record of a single Korean tertiary teaching hospital, has 2.07 million patients' health records who visited from July 1994 to November 2014.
- Definition of Out-of-hospital cardiac arrest (Fig 1)**
  - Inclusion criteria
    - : Patients diagnosed with first SCA during hospital visit through emergency department
    - : Patients older than 15 years were included
  - Exclusion criteria
    - : Patients diagnosed with intra-cerebral hemorrhage, injury, poisoning, self-injurious behaviors were excluded

**Fig 1. Inclusion flow chart**

24,127 patients diagnosed with SCA between 1995 and 2015 in Ajou university hospital

Patients aged under 15 were excluded (N=632)

Patients who diagnosed with intra-cerebral hemorrhage, injury, poisoning, self-injurious behavior were excluded (N=1,134)

22,361 patients included

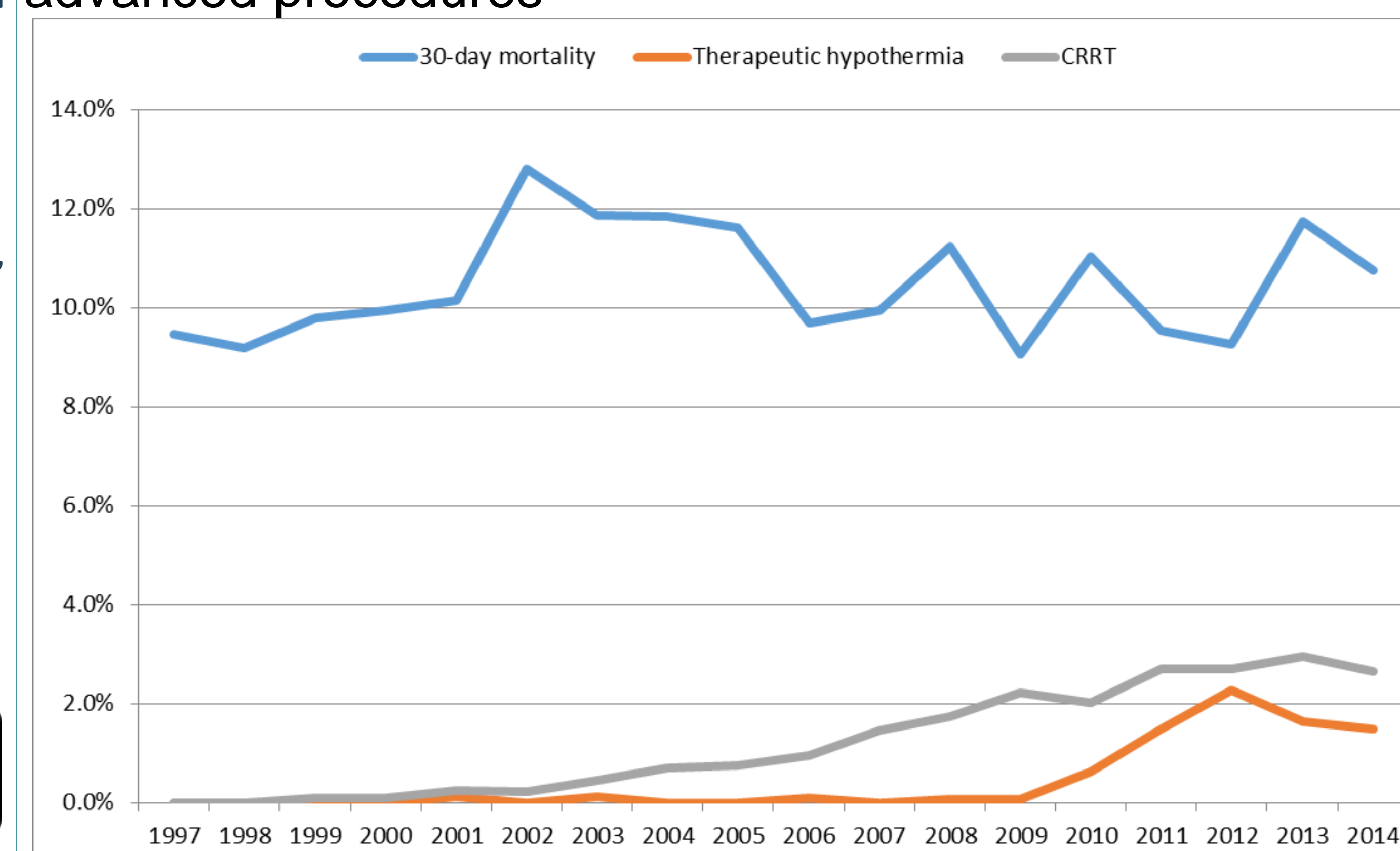
- Acknowledgment : We are grateful to Dukyong Yoon for editing this poster
- Conflict of interest : none

## Result

**Table 1. Characteristics of sudden cardiac arrests in AUSOM**

	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
<b>SCA patient, n</b>	190	849	919	966	827	938	901	996	1067	1135	1367	1372	1389	1431	1550	1588	1525	1691
<b>Female, %</b>	43.7%	38.9%	38.5%	38.1%	40.5%	40.3%	37.4%	39.7%	40.2%	39.9%	41.0%	39.3%	40.5%	42.3%	41.7%	44.3%	43.4%	43.3%
<b>Age, mean ± SD</b>	57.5 ± 14.4	56.6 ± 14.4	58.0 ± 14.3	57.4 ± 14.5	59.0 ± 14.1	58.7 ± 14.5	60.1 ± 14.8	59.5 ± 14.4	59.6 ± 15.0	59.9 ± 15.3	60.2 ± 14.6	60.1 ± 14.7	60.1 ± 14.2	60.9 ± 14.7	62.1 ± 14.1	61.9 ± 14.8	62.1 ± 14.6	63.4 ± 14.0
<b>30-day mortality, %</b>	9.5%	9.2%	9.8%	9.9%	10.2%	12.8%	11.9%	11.8%	11.6%	9.7%	9.9%	11.2%	9.1%	11.0%	9.5%	9.3%	11.7%	10.8%
<b>Known comorbidity, %</b>																		
<b>Ischemic heart disease</b>	0.0%	0.8%	1.3%	0.8%	2.7%	1.8%	3.6%	2.2%	3.6%	4.1%	3.2%	2.6%	3.1%	3.1%	4.3%	3.7%	3.9%	3.8%
<b>Chronic kidney disease</b>	0.0%	0.6%	1.0%	0.8%	1.0%	1.0%	1.2%	1.7%	1.5%	2.0%	1.6%	1.7%	1.4%	2.2%	2.5%	1.6%	2.7%	3.3%
<b>Diabetes mellitus</b>	5.3%	3.8%	4.6%	5.4%	6.0%	9.0%	10.0%	8.7%	11.0%	10.2%	10.8%	10.9%	11.2%	10.1%	11.5%	11.9%	14.3%	14.8%
<b>Hypertension</b>	2.6%	4.8%	7.7%	7.0%	8.6%	11.2%	14.5%	15.2%	17.7%	16.5%	18.9%	18.2%	18.9%	21.4%	21.9%	23.2%	25.2%	25.7%
<b>Ischemic CVA</b>	1.6%	0.8%	0.8%	1.6%	1.2%	1.0%	1.4%	1.3%	1.6%	1.8%	1.5%	1.8%	2.4%	2.9%	2.5%	2.3%	2.2%	3.3%

**Fig 2. 30-day mortality of SCA and proportion of advanced procedures**



- Overall, total of 22,361 patients were diagnosed and treated for SCA between 1997 and 2014. The characteristics of patients are shown in **table 1**.
  - Mean age of SCA showed gradual increase through the years.
  - Known comorbidities, which diagnosed before the SCA event,
- The proportion of patients who had advanced procedures (Continuous renal replacement therapy (CRRT) and therapeutic hypothermia) was increased (**Fig 2**)
- The changes in 30-day mortality among the patients with SCA did not show obvious temporal trend.

## Conclusion

Although the proportion of advanced procedures (CRRT and hypothermia) was increased, the 30-day mortality of patients with SCA was not changed during the past 17 years in Korean single tertiary hospital.

For more accurate analysis about SCA and mortality by time and to find more valuable answer for the effect of treatment policies and emergency medical service on mortality after SCA, we're planning further study which will use the Korean national health insurance data which covers all over the country for more than 10 years. After confirming the validity and feasibility of this study, we will propose the global study analyzing the epidemiology of SCA across OHDSI network