

Defibrillated first	AED EMS unknown not recorded	7 55 1 109
<b>Process intra-arrest core</b>		
Response time (from "call answered by EMS" to "EMS arrived at scene")	6:53 (4:44; 10:27)	
Drugs given	yes no	135 37
<b>Process intra-arrest supplemental</b>		
Time to first compression	3:27 (± 1:56)	
Prehospital airway management	none used BMV supraglottic airway endotracheal tube multiple not recorded	3 14 52 95 2 6
Number of shocks	recorded not recorded	65 107
Vascular access type	peripheral i.v. i.o. unknown not recorded	143 17 2 10
Mechanical CPR	yes no not recorded	5 161 6
Extracorporeal CPR	yes no	0 172
<b>Outcome core</b>		
Survived event	yes no not recorded	62 110 0
Transported to hospital	yes no	72 100
Survival to discharge or 30 d (out of those transported, n = 72)	yes no unknown	26 35 11
Neurological outcome at discharge or 30 d (out of those handed over to ED, n = 63)	CPC 1 CPC 2 CPC 3 CPC 4 CPC 5 not recorded	20 1 1 0 26 15
<b>Outcome supplemental</b>		
Scene outcome	ROSC CPR in progress deceased	71 1 100
Hospital arrival outcome (out of those who were transported to the hospital, n = 72)	transfer with ROSC transfer with ongoing CPR dead	62 1 9
Organ donation (out of those who were handed over to ED, n = 63)	yes no unknown	4 28 31

## Discussion

This analysis is presented according to the updated 2024 Utstein protocol. The primary outcome – survival to hospital admission (36%) – along with secondary outcomes such as survival to discharge or 30 days (15.1%) and good neurological outcomes (12.2%), highlight areas of both success and opportunities for improvement.

The incidence of cardiac arrest reported in the EuReCa TWO study was 88.6 per 100,000

inhabitants (99 per 100,000 in the Czech Republic), compared to 133 per 100,000 in the Karlovy Vary Region (KV). The incidence of CPR provided, as reported in EuReCa TWO, was 56.3 per 100,000 inhabitants (91 per 100,000 in the Czech Republic), compared to 58.3 per 100,000 in the KV. In the EuReCa ONE study, the reported incidence of cardiac arrest and CPR in the Czech Republic was 244 per 100,000 and 104 per 100,000, respectively. In the neighbouring Pilsen Region, the incidence

of cardiac arrests was 128.9 per 100,000 inhabitants, with a CPR incidence rate of 88.2 per 100,000 inhabitants, which is higher than that in our region (5, 6, 7).

Layperson CPR was initiated in 94.8% of cases in the KV, compared to a 58% rate in Europe as reported in EuReCa TWO (and 82.5% for the Czech Republic) and 48% in EuReCa ONE. Both EuReCa TWO and the ERC 2021 guidelines emphasize the importance of early CPR initiation by bystanders, demonstrating that regions with higher rates of bystander CPR tend to have better survival outcomes. The high rates of layperson CPR and dispatcher assistance in the Karlovy Vary Region are likely key factors contributing to the relatively high survival and neurological outcome rates observed (5, 6).

The median age of 68 years (IQR 1,3: 56; 75) indicates that patients over 80 years were less represented in the study. Initiating CPR in older patients involves ethical considerations and complex medical decision-making processes (8). Fifty-four percent of OHCA occurred at home, compared to 72.2% in EuReCa TWO, while 9.4% of OHCA occurred on the streets, compared to 16.3% in the KV. A presumed medical aetiology was reported in 91.1% of all cases in EuReCa TWO, which is almost identical to our result of 89% (5, 6).

In the KV, survival to hospital admission was 36%. In the EuReCa TWO study, hospital survival among patients transported to the hospital, where survival status was known, was 26%, with a range of 0% to 48%. Of those admitted with return of spontaneous circulation (ROSC), 35% were discharged alive. In the KV, the survival rate for patients transported to the hospital, where survival status was known, was 42.6%. Of those admitted with ROSC, 36.1% were discharged alive. Overall survival in all cases where CPR was attempted was 15.1%, compared to 8% in EuReCa TWO and 10% in EuReCa ONE (5, 6).

The Utstein comparator (cardiac arrest witnessed by a bystander and presenting with an initial shockable rhythm) was met in 11% of cases, compared to 13% in EuReCa TWO. The rate of return of spontaneous circulation (ROSC) for this subgroup was 78.9%, while overall survival to hospital discharge was 61.5% for those with known hospital survival status. Among patients