Introduction:
We used nationwide registry data from the intensive care units (ICU) of the five Finnish university hospitals to evaluate the association of 24-hour sequential organ failure assessment (SOFA) score with 12-month survival and healthcare costs after cardiac arrest (CA).

Methods:
We included adult CA patients treated in the ICUs between January 1st, 2003 and December 31st, 2013. We acquired the confirmed date of death from the Finnish Population Register Centre database and gross 12-month healthcare costs from the hospital billing records and the database of the Finnish Social Insurance Institution.

Results:
A total of 5814 patients were included in the study and 2401 were alive at 12 months. Median (interquartile range, IQR) 24-hour SOFA score was 8 (6-10) in 12-month survivors and 10 (8-13) in non-survivors. The SOFA score had an area under receiver operating characteristic curve of 0.68 (95% CI 0.66-0.69) for predicting 12-month mortality. In multivariate regression model with age and gender, SOFA score had an odds ratio, OR (95% confidence interval, CI) of 1.21 (1.19-1.23) for predicting 12-month mortality. All except cardiovascular sub-score also had independent predictive value.

Median (IQR) healthcare costs in 12 months after CA were 47 000€ (28 000-75 000€) in 12-month survivors and 12 000€ (6 600-25 000€) in non-survivors. In univariate linear regression model one point increase in SOFA score was associated with 170€ (95% CI 150-180€) increase in the cost per day alive in the first 12 months after CA.

Conclusion:
The SOFA score is a good indicator of disease severity but the overlap between outcome groups does not allow its use for early prognostication in CA patients. The association of SOFA and its sub-scores with 12-month outcome and healthcare costs highlights that in addition to neurologic damage the full spectrum of multiple organ failure affects the survival and morbidity of CA patients.