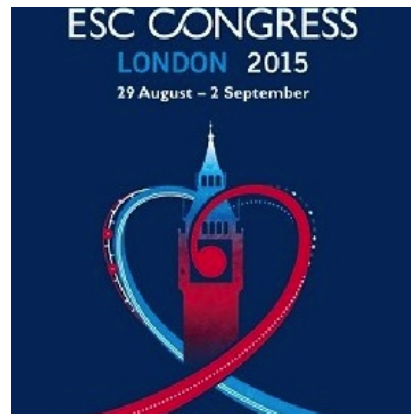




## CPR for Out-of-Hospital Cardiac Arrest to be conducted for 35 Minutes



Cardiopulmonary resuscitation (CPR) for out-of-hospital cardiac arrest should be conducted for at least 35 minutes, according to research presented at ESC Congress by Dr Yoshikazu Goto, associate professor and director of the Department of Emergency and Critical Care Medicine at Kanazawa University Hospital in Kanazawa, Japan. The study in more than 17 000 patients found that nearly all survivals were achieved within 35 minutes and longer CPR achieved little benefit.

Dr Goto said: “The decision regarding when to stop resuscitation efforts is one of the biggest challenges for emergency medical services (EMS) personnel or clinicians. However, the appropriate duration of CPR is not clear. Clinicians have raised concerns that lengthy resuscitation efforts might be futile. We investigated how long CPR should be conducted to achieve maximum survival and favourable neurological outcome.”

This prospective, population-based study included 17 238 adults who received CPR by EMS personnel in the field in 2011 and 2012. Patient records were obtained from a national database. The researchers analysed the relationship between the duration of pre-hospital CPR by EMS personnel (time from EMS-initiated CPR to return of spontaneous circulation) and two endpoints: one month survival and one month favourable neurological outcome after cardiac arrest.

The study found that the probability of survival declined with each minute of CPR (Figure 1). It also showed that 99.1% of all survivors and 99.2% of survivors with favourable neurological outcomes achieved return of spontaneous circulation within 35 minutes of EMS-initiated CPR (Figure 2). No patient with a CPR duration of  $\geq 53$  minutes survived one month after cardiac arrest (Figure 2).

Dr Goto said: “Our study shows that EMS personnel or clinicians should continue CPR for at least 35 minutes in patients who suffer cardiac arrest outside the hospital. More than 99% of survivals and favourable neurological outcomes were achieved by 35 minutes with minimal gains afterwards. CPR leads to absolutely no benefit from 53 minutes onwards.”

“Our finding that the likelihood of surviving with a favourable neurological outcome declines with each minute of CPR indicates that the time from cardiac arrest to CPR is a crucial factor in determining whether a patient will return to a normal life,” added Dr Goto. “This implies that we need to start CPR as soon as possible.”

He concluded: “We hope our findings give EMS personnel and clinicians the confidence that if they stop CPR after 35 minutes they have done everything they can do for a patient. This should help them know when it is appropriate to move on to the next medical emergency.”

### Figure 1. Dynamic probability of 1-month survival and 1-month favourable neurological outcomes

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### Figure 2. Cumulative proportion of survivors and survivors with favourable neurological outcomes 1 month after cardiac arrest

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