Irisawa T, Karamooz M, Stolz U, Murphy RA, McDannold R, Venuti M, Silver A, Spaite D, Bobrow B. **Compliance with prehospital traumatic brain injury guidelines is poor with longer prehospital treatment duration.** Oral abstract presentation to the European Resuscitation Council Resuscitation Symposium in Bilbao, Spain, May, 2014. *Resuscitatio*n, 2014;85, Supplement 1:S1-S2.Resuscitation. 2014;85, Supplement 1:S14

Purpose: Traumatic brain injury (TBI) is a major public health problem worldwide. The Guidelines recommend documentation of vital signs (VS- SpO2, SBP, ETC02) at least every 5 minutes in TBI patients as hypotension, hypoxia, and hyperventilation are all associated with significantly worse outcome. We examined whether frequency of VS documentation is associated with prehospital treatment duration.

Materials and Methods: Patient care reports were reviewed from the treatment of 47 prehospital patients with moderate to severe TBI (initial GCS median 11, IQR 6-13) by 2 EMS agencies formally participating in a prehospital TBI project aimed at implementing nationally-vetted TBI Guidelines in Arizona (US). Times of VS documentation were abstracted from electronic patient care reports. Duration of EMS treatment was determined as time from EMS arrival on scene to ED arrival. EMS treatment time was divided into tertiles to categorize short (18±3 min), moderate (24±2 min), and long (34±6 min) treatments. Frequency of VS documentation was compared between calls of different duration using the Chi-square statistic.

Results: A total of 47 TBI cases were analyzed (mean age 42±20 years, 67% male). Documentation of SpO2 every 5 minutes was significantly less likely for longer (1/17; 6%) compared with moderate (5/15; 33%) and short (7/15; 47%) EMS treatment durations (p=0.03). BP was significantly less likely to be documented every 5 minutes for longer duration (0/17, 0%) compared with moderate (3/15; 20%), and short (6/15; 40%) duration EMS treatments (p=0.02). Regardless of treatment duration, ETCO2 was only documented in 7/47 (15%) cases and none documented ETCO2 every 5 minutes.

Conclusion: Prehospital providers are challenged to document VS at the recommended frequency of every 5 minutes, especially when prehospital EMS duration is long. More research is needed to determine the reasons and implications of this finding. Technologies to automate VS measurement and documentation should be considered.