Introduction:
Many patients anaesthetised in prehospital setting are at risk of inadequate cerebral oxygenation. New hand-held oximeter enables monitoring of near-infrared spectroscopy (NIRS) in prehospital setting. We aimed to assess the feasibility of the new device during prehospital anaesthesia.

Methods:
We performed a prospective, observational pilot study in two anaesthesiologist-staffed Helicopter Emergency Medical Services (HEMS) units. Adult patients who underwent rapid sequence intubation and prehospital anaesthesia because of any reason were included by the HEMS team. NIRS monitoring of left frontal cerebral regional oxygen saturation (rSO₂) with Nonin H500 oximeter system was performed throughout the prehospital anaesthesia. The rSO₂ records were reviewed in terms to identify potentially artefact values caused e.g. moving or transporting the patient.

Results:
Total of 97 patients were enrolled in the study. Due to technical problems or user error adequate monitoring was not achieved in 13 (13%, 95% confidence interval 8 to 22%) patients. Software update of the monitor was installed during the study and no monitoring failures occurred afterwards. No difference was observed in the on-scene-time during the study period compared to eligible patients treated in four previous years. Proportion of likely artefact values was 5.5% in total (median 0.99%, Q1-Q3 0.25%-6.18%).

Conclusion:
Monitoring cerebral oxygenation with Nonin H500 hand-held oximeter system during prehospital anaesthesia is feasible. The value of this new modality available for prehospital critical care providers needs to be further evaluated.