INTRODUCTION

➢ WHAT IS HRV ANALYSIS?
HRV analysis is a mathematical approach of autonomous nervous system influence on the cardiac rhythm. Heart rhythm variations and speed reflect nervous system activity and maturity. Standard Derivation for all NN Intervals (SDNN) is the most commonly used index in HRV analysis.

➢ CONTEXT
International recommendations are vague on the way to assess infants cardiovascular maturity before hospital discharge [1]. However, total power of HRV spectrums can give a good indication on nervous command maturity, especially as premature have a weaker HRV profile compared to full-term newborns [2]. Despite the lack of publications in neonates, many articles link HRV profiles and Sudden Infant Death Syndrome (SIDS) [3].

➢ HOW CAN WE USE HRV IN NICU?
Cardiovascular stability is often assessed with the number of bradycardias. However, short bradycardias are common and physiological near-term. HRV monitoring and analysis can be a more pertinent tool to evaluate cardiovascular maturity in order to optimize safety at the discharge time.

➢ OBJECTIVE
In this study, we compare the Length Of Stay (LOS) before and after the implementation of the HRV analysis as a criteria for hospital discharge.

METHODS

HRV analysis was implemented in our NICU in 2014. This analysis is easily performed with a 24 hour recording routine ECG monitor. We performed a historic cohort study to compare the average LOS of all neonates hospitalized in 2013 and 2016.

RESULTS

The mean LOS was 42 days in 2013 vs 37 days in 2016. This difference is statistically significant (p=0.011). This difference is relevant in the very preterm group (57.8 days vs 52.1 days (p=0.047)) and also in the moderate preterm group (29 days vs 25.6 days (p=0.033)).

CONCLUSION

HRV analysis does not extend the LOS. In the moderate and very pre-term groups, LOS has been significantly reduced from 2013 to 2016. This result is interesting from an economic point of view. Some evidences show that this way to assess cardiovascular maturity appears to be safer than a random number of days without bradycardias. However, further studies including more cases are necessary to confirm the safety of HRV as a discharge criterion.