1116-92-1798   **Evan D Dienstman*** (`eddienstman@email.wm.edu`), 32 Tulip Drive, Newtown, PA 18940. *Using statistical measurements to accurately predict septic events in premature infants.* Preliminary report.

Because of their underdeveloped immune systems, premature babies are at an increased risk to contract many illnesses. Thus, early detection of a disease is vital to saving a premature baby's life. Current methods of detecting illnesses, however, have been inadequate, providing many false positives and insufficient amount of warning time. However, patterns in the heart rate of babies have shown signs of predicting the onset of sepsis in premature infants. Research conducted by Prof. Delos and others suggest that low variability and clusters of decelerations in an infant's heart rate indicate a future septic event. Additionally, low variability may be linked to gram-positive bacteria and clusters of decelerations many be linked to gram-negative bacteria. If this statement is true, then not only will the heart rate of an infant predict the onset of sepsis, but also provide a diagnosis for the baby. Over 12 terabytes of data has already been collected on premature babies' heart rate and breathing. Unfortunately, only looking for low variability and clusters of decelerations would be inadequate since most babies experience some low variability and decelerations in their heart rate at some point. Therefore, sophisticated statistical measurements are necessary to quantify this data. (Received September 21, 2015)