## Title: Cardiac Rate Variation Monitor for Neonatal Care

### Invention Summary

The statistical variability of the cardiac EKG peak-to-peak timing can be used as a measure of autonomic nervous system development. This variability is known as R-R variability (RRV). The inventor’s research has shown that autonomic development in neonates can be correlated to RRV. This invention is a monitor that provides RRV information. The information from the monitor may be provided as a power spectrum, phase shifts, tabulated statistics or any other method to convey the data.

### Market Applications

The improved assessment of neonatal autonomic nervous system development would aid the health-care team and family in making decisions regarding health care, feeding and human contact.

### Features, Benefits & Advantages

- The RRV monitor would “piggyback” with a standard EKG monitor and be interfaced in such a way that it receives a continuous signal for analysis.
- A detailed statistical understanding of the RRV could provide both near term information on the health of the child and long term data on growth and development.
- This could become a powerful clinical tool that would assist in identifying types of care that can promote ANS balance and function.

### Intellectual Property & Development Status

This concept-stage invention is the basis for one of the design projects for the Bioengineering 3801/4801 Design Class sequence, and will be further developed in that context. It is available for developmental research support/licensing under either exclusive or non-exclusive terms.

### Related Research

[http://www.nurs.utah.edu/directory/faculty/smith_sandra.html](http://www.nurs.utah.edu/directory/faculty/smith_sandra.html)

### U of U Researcher

Sandra L. Smith, PhD, APRN – College of Nursing

### Student Liaison

Robert Hitchcock, PhD – Department of Biomedical Engineering

### Licensing Contact

Name: Frank Norris  
Email: [frank@tco.utah.edu](mailto:frank@tco.utah.edu)  
Title: Licensing Manager  
Direct Phone: 801-581-8057

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Technology Commercialization Office  
University of Utah; 615 Arapene Drive, Suite 310; Salt Lake City, Utah 84108  
Phone: 801-581-7792  Fax: 801-581-7538  [www.tco.utah.edu](http://www.tco.utah.edu)