Publications, Invited and Contributed Talks 
in Medical Physics

Publications in Refereed Journals  (each title is a link)

Quantification of periodic breathing in premature infants.
Mohr MA, Fairchild KD, Patel M, Sinkin RA, Clark MT, Moorman JR, Lake DE, Kattwinkel J, Delos JB.
PMID: 26012526

Very long apnea events in preterm infants.
Mohr MA, Vergales BD, Lee H, Clark MT, Lake DE, Mennen AC, Kattwinkel J, Sinkin RA, Moorman JR, Fairchild KD, Delos JB.
PMID: 25549762
This paper was selected for a JAP podcast, http://jappl.podbean.com/e/very-long-apnea-events-in-preterm-infants/

Accurate automated apnea analysis in preterm infants.
PMID: 23592319

Predictive monitoring for respiratory decompensation leading to urgent unplanned intubation in the neonatal intensive care unit.
PMID: 23138402

A new algorithm for detecting central apnea in neonates
H Lee, C G Rusin, D E Lake, MT Clark, L Guin, T J Smoot, A O Paget-Brown, B D Vergales, J Kattwinkel, J R Moorman and J B Delos 
Physiological Measurement 33 (2012) 1–17 doi:10.1088/0967-3334/33/1/1
This paper was selected as the featured article in the January 2012 issue of Physiological Measurement, it won the Martin Black award for the best paper of 2012 in Physiological Measurement, and the journal reports that it has had over 5,400 downloads.

Breath-by-breath analysis of cardiorespiratory interaction for quantifying developmental maturity in premature infants
Matthew T. Clark, Craig G. Rusin, John L. Hudson, Hoshik Lee, John B. Delos, Lauren E. Guin,
Brooke D. Vergales, Alix Paget-Brown, John Kattwinkel, Douglas E. Lake,2,5 and J. Randall Moorman
This paper was selected by American Physiological Society as their March 2012 “hotpick” for press release, http://www.the-ps.org/mm/hp/Audiences/Public-Press/For-the-Press/releases/12/12.html

**Anemia, Apnea of Prematurity, and Blood Transfusions**
K Zagol, D E Lake, B Vergales, M E. Moorman, A Paget-Brown, H Lee, C G Rusin, J B Delos, M T Clark, J R Moorman

**Cardiovascular oscillations at the bedside: early diagnosis of neonatal sepsis using heart rate characteristics monitoring**
J R Moorman, J B Delos, A A Flower, H Cao, B P Kovatchev, J S Richman and D E Lake
Physiological Measurement. 2011 **32** 1821-32. Epub 2011
This was also a plenary talk at ESGCO 2010: 6th Conference of the European Study Group on Cardiovascular Oscillations presented by J. R. Moorman (one of four plenary talks in a conference with about 100 contributed papers).

**Periodic heart rate decelerations in premature infants**
Abigail A. Flower¹, J. Randall Moorman², Douglas E. Lake², and John B. Delos
Experimental Biology and Medicine, **235**, 531 – 538 (2010)
This paper was selected as the feature article for the April issue of *Experimental Biology and Medicine*

**Invited Lectures**

*From HeRO to Super HeRO: new methods for analysis of NICU monitor data*
Presented at International Conference on Complex Acute Illness, Charlottesville, July 2014

*A new algorithm for detecting central apnea in neonates*
Martin Black Award, International Conference on Medical Physics, Brighton, England, September 3 2013

**Electronic Detection and Diagnosis Of Infectious Diseases**
Presented at Max Planck Institute for the Physics of Complex Systems, Dresden, Germany, September, 2015
and Humboldt University Berlin, October 2015
and Wyss Institute for Biologically Inspired Engineering, Harvard University Medical Campus, October 10 2013
and Dartmouth University Physics Colloquium, October 11 2013
and Chinese Academy of Sciences, Wuhan, December 2, 2011
and Chinese Academy of Sciences, Beijing, November 25, 2011
and Undergraduate Seminar in Mathematics, William and Mary, 2010
and University of Virginia Physics Department Colloquium, September 16 2011;
and Genetics, Bioinformatics and Computational Biology colloquium Virginia Tech, Blacksburg, VA October 2009
and Signal processing group, Philips Research Labs, Eindhoven, Netherlands, June 2009

Heart Rate Decelerations in Neonatal Sepsis
Presented at Máxima Medical Center, Veldhoven, Netherlands September 2, 2008
and University Hospital Maastricht, Maastricht, The Netherlands September 3, 2008
and Cardiovascular Physiology & Pharmacology, Université Claude Bernard, Lyon, France, September 4, 2008
and Academy of Sciences, Wuhan, China, October 2008

Contributed Talks and Posters

Very long apneas in NICU infants: a failure of monitoring systems
Mary Mohr and The Apnea of Prematurity group of UVa and W&M Annual Meeting of the Pediatric Academic Societies 2014

Automated Detection and Characterization of Periodic Breathing in Preterm Infants,
M Mohr and JB Delos
International Conference on Complex Acute Illness, Budapest, Hungary 2013 (for this Mary won the best contributed presentation award at the conference)

Pathologic periodic breathing: A tale of two babies
K. Fairchild¹, H. Lee², M. Mohr³, M. Patel¹, J. Delos², J.R. Moorman³, J. Kattwinkel¹ and D. Lake
American Academy of pediatrics annual conference, Orlando, October 25 2013

Extremely Long Apneas in Neonates
2012 International Conference on Complexity in Acute Illness, Ottawa, September

Central Apnea of Prematurity—A Comparison of Nursing Records and Monitor Alarms with Continuous Electronic Waveform Analysis
B Vergales, MD; A Paget-Brown, MD; H Lee, PhD; L Guin; T Smoot, RN; M Clark, PhD; J Delos, PhD; D Lake, PhD; R Moorman, MD; J Kattwinkel, MD
2012 Pediatric Academic Societies’ Annual Meeting, April 28-May 1, 2012, in Boston, MA

Central neonatal apnea can be predicted from clinical and bedside monitoring data
Douglas E Lake, Matthew T Clark, Craig G Rusin, Hoshik Lee, John B Delos, John Kattwinkel and J Randall Moorman
Heart rate characteristics monitoring and central neonatal apnea
European Society for Pediatric Research, Newcastle October 17, 2011

A new algorithm for detection of apnea in infants in neonatal intensive care units;

Apneas Continue to Higher Postmenstrual Age (PMA) in Babies Born Extremely Preterm;

The role of anemia in apnea of prematurity and the effect of blood transfusion

Automated Detection of Increasing Rate of Apnea Prior to Mechanical Ventilation

Predictive monitoring for early detection of subacute potentially catastrophic illnesses in critical care.

Clusters of decelerations of heart rate appear to be a Hopf bifurcation, and provide early warning of illness in premature infants
Abigail Flower, Randall Moorman, Douglas Lake, John Delos
Presented at 2009 Dynamics Days, Sandiego, January 2009
and Annual meeting of American Physical Society, Pittsburgh, March 2009

Storms of decelerations predict the onset of sepsis
Abigail Flower, John Delos, Douglas Lake, Pam Griffin, and Randall Moorman
Presented at 2006 American Heart Association Meeting, Chicago, November 2006