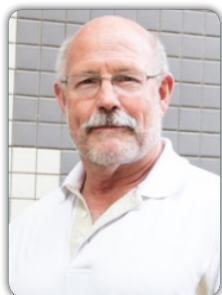


26th International Conference on

Neonatology and Perinatology

November 15-17, 2018 | Edinburgh, Scotland



Randal K Buddington

The University of Tennessee Health Sciences Center, USA

Improving the outcomes of preterm infants-introducing the preterm pig as a translational model for improving NICU protocols and practices

Advances in the technologies used in neonatal intensive care units (NICU) have improved survival of preterm infants and particularly extremely low gestational age neonates (ELGAN; <28 weeks of gestation). However, survival alone can't be the measure of success as many preterm infants suffer childhood disabilities; the potential for adverse long term outcomes are not yet understood. The most effective way to improve outcomes is to develop and implement innovative strategies of care. There are two fundamental barriers to such innovation. First, current animal models are either not clinically relevant (neonatal rodents) or have limited availability (baboons and lambs). Second, clinical studies using NICU patients are constrained by ethical considerations to evaluating modifications of accepted practices. This presentation introduces the preterm pig as a translational model that replicates the clinical challenges of preterm infants and is providing needed insights into how existing and innovative protocols of care influence development of multiple organs and systems (lungs, brain, kidneys, gastrointestinal, cardiovascular, immune and others). We are validating novel ventilation strategies for ELGAN that recruit the lungs, prevent respiratory distress syndrome, and are predicted to reduce bronchopulmonary dysplasia and associated co-morbidities. Other efforts are improving nutrition and fluid support to enhance growth and normal development, investigating prophylactic closure of the patent ductus arteriosus, evaluating biomarkers and technologies for early detection of disease and responses to medications and procedures, and exploring the exciting possibility of fetal incubation. Preterm pigs are accelerating understanding the consequences of prematurity and improving the care and outcomes of preterm infants.

Biography

Randal K Buddington has completed his PhD at University of California, Davis and Postdoctoral training at UCLA before initiating an academic career spanning 30 years and dedicated to understanding how to improve care of infants and young animals. He recently moved to the University of Tennessee Health Sciences Center where, he is the Director of the new Institute for Prematurity and Perinatal Research and is developing an interdisciplinary, multi-institutional program supporting collaborative efforts by basic scientists and clinicians.

rbudding@uthsc.edu