



# NEONATAL HEMODYNAMICS/TNECHO (NHTS) SPECIALTY INTEREST GROUP COMMUNICATION

## Growth of Neonatal Hemodynamics Programs and Targeted Neonatal Echocardiography Performed by Neonatologists



The field of Neonatal Hemodynamics was established to elevate the standard of care for premature infants with hemodynamic instability, based on the academic principals of subspecialization, research, and clinical collaboration. Successful implementation of Hemodynamics programs across North America has resulted from strong collaboration between neonatologists with formal training in Targeted Neonatal Echocardiography (TnECHO) and Pediatric Echocardiography Laboratory leaders. The development of standardized imaging protocols and international collaborative groups has led to the generation of high-quality data for research and the cultivation of broad knowledge dissemination, which benefits both neonatologists and cardiologists performing and interpreting echocardiography studies.

Echocardiography assessments have been performed by neonatologists since the early 1990s, driven in many institutions/regions by the lack of access to pediatric cardiology services. The goal of these assessments is to obtain longitudinal physiologic information that enables enhanced diagnostic precision and facilitates an enriched approach to the management of cardiovascular problems in newborns and young infants. Routine assessment (e.g., heart rate, blood pressure) is imprecise, which leads to variance in diagnostic judgment and treatment choices. It is not surprising that the optimal approach to management of patent ductus arteriosus, hypotension, or pulmonary hypertension remains controversial. The rationale for such inconsistency relates, at least in part, to poorly designed clinical trials which lack mechanistic foundation and fail to fully consider the population of interest.

Bedside echocardiography performed by trained neonatologists has become an integral part of routine care in many centers across the world. Although training opportunities were initially limited, the field of neonatal hemodynamics was born, and knowledge of neonatal cardiovascular health and disease was advanced through scientific discovery and innovation. Four published guidelines articulate the need for a well-defined training structure and standardized approach to clinical application.<sup>1-4</sup> A recent editorial suggests the need for reconsideration of training guidelines, based on a competency-based model which focuses on common neonatal cardiovascular problems.<sup>5</sup> The hemodynamic consultation refers to the performance of a comprehensive integrated assessment by a neonatologist with advanced imaging skills and strong foundation in neonatal pathophysiology. Several publications highlight the merits of hemodynamic consultation but emphasize the need for advanced training.

The PanAmerican Hemodynamics Collaborative, a consortium of more than 50 neonatologists with advanced hemodynamics/TnECHO expertise, was established in 2010 to provide clinical, educational, and academic oversight to the field of Neonatal Hemodynamics. Members have made more than 1,500 contributions to Hemodynamics Science over the past 10 years and have been involved in the publication of sentinel statements related to training and clinical practice. As a result of these efforts, the number of Neonatal Hemodynamic programs has grown rapidly over the past 10-15 years in North America<sup>6</sup> (Figure 1). Dedicated echocardiography equipment, archiving and reporting systems, and quality-assurance processes are prerequisites for the successful

implementation of Neonatal Hemodynamics programs. The appointment of a medical director—who assumes responsibility for clinical operations, development of standardized imaging guidelines, and provision of oversight to the hemodynamic fellowship-training program and hemodynamic research—is essential to program success. The complexity of neonatal cardiovascular illnesses and limited scientific evidence for contemporary treatments justify the need for the establishment of subspecialty training programs within neonatology and a close working relationship between neonatologists and pediatric cardiologists.

We hope the establishment of the Neonatal Hemodynamics/TnECHO (NHTS) Specialty Interest Group within ASE will cultivate innovation and scientific discovery, foster enhanced clinical and academic cooperation, and reshape guidelines for practice and training. It is anticipated that the NHTS and the Pediatric and Congenital Heart Disease Council will work together cohesively to advance the care of all neonates in need of cardiovascular assessment and care. If you would



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Figure 1 Current Neonatal Hemodynamics programs in North America.

like to get involved with the NHTS Speciality Interest Group, please contact ASE's SIG Coordinator, Danielle King at [dking@asecho.org](mailto:dking@asecho.org).

## REFERENCES

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