EXTENDING ADVANCES IN NEONATAL CARE TO THE COMMUNITY HOSPITAL – IS IT EVEN POSSIBLE?

CAROL L. WAGNER, M.D.
PROFESSOR OF PEDIATRICS
MUSC
OBJECTIVES

(1) Discuss the potential role of telemedicine in neonatal resuscitation and acute care interventions to improve neonatal outcomes at community-based hospitals.

(2) Review how current telephone-based neonatal consultations with community-based pediatricians could be expanded and augmented to include a telemedicine interface.
NEONATAL RESUSCITATION

• First standardized in the late 1970’s as a program:
  • Neonatal Resuscitation Program or NRP
• Proven system that has resulted in improved rates of neonatal survival throughout the U.S.
  • particularly among very low birth weight infants
• Success of the program largely due to community outreach efforts by regional neonatal centers such as MUSC
MUSC’S MEDUCARE

- MUSC is a regional perinatal referral center
- Specific gestational age and birth weight criteria limit the care of very low birth weight infants to designated centers in SC
- VLBW and ill neonates are transported via our MEDUCARE transport team from outlying community health centers or other regional perinatal centers to MUSC for a higher level of care.
  - Time honored system that has been in place since the mid-1980’s
- Pediatricians also have access to neonatologist for telephone consultation regarding infants under their care regardless if that infant will require transfer to MUSC.
LIMITATIONS OF THE PRESENT SYSTEM

- When neonates have more complex disease states that require neonatology and other subspecialty evaluations such as cardiology and genetics, and specific therapies such as high frequency ventilation and ECMO.
- When a pediatrician in the community calls a neonatologist for advice, it is often difficult to assess the severity of the neonate’s condition, and to advise specific therapies.
  - Results in transfer of that neonate to the regional referral center—costly in terms of dollars and to the family in terms of stress.
  - Delays in treatment because of unclear diagnosis have profound implication on the survival and quality of life if the infant survives.
  - Unnecessary transfer when the infant is found to have a problem that could have been managed on an outpatient basis if only the diagnosis had been known.
TELEMEDICINE IN NEONATOLOGY

• First trialed in regions of the world where access to care was limited: Australia, New Zealand and Ukraine, for example in the late 1990’s
• Also implemented in larger urban centers such as Boston and Los Angeles
WHAT IS NEEDED...

- Availability of a real-time assessment that includes videoconferencing with the regional referral center neonatologist
- Would have far-reaching implications in improving the diagnosis and immediate therapies for that infant.
- Despite the growing number of programs such as this throughout the world, such a system does not exist in South Carolina.
IN SOUTH CAROLINA

• Ability to apply recent technologies that allow real-time videoconferencing with pediatricians throughout the state would allow consultations to occur between the community physician/hospital and the regional referral center (5 in SC, with MUSC the largest),
  • Would maximize the quality and timeliness of the care given to the neonate
  • in some cases,
    • Would eliminate costly and emotionally laden need for transfer of that neonate to the referral center
PROPOSED PROGRAM THROUGH SCTR

• Utilizing the DHEC-supported outreach education and referral system that was created in SC more than 25 years ago, a SCTR Neonatal Outreach Telemedicine Program will provide a vital addition without incurring a huge cost burden, and more importantly, would be a sustainable program that would serve future generations of newborns.
POTENTIAL APPLICATIONS TO SC—REFINING HOW WE TEACH NRP

• Creation of a virtual Sim lab for educational purposes:
  • A mechanism to teach health care professionals throughout SC how to perform neonatal resuscitation using the Simulation Lab at MUSC as the model
  • Proven modality in Canada:
    • Cronin G, et al. Videoconferencing can be used to assess neonatal resuscitation skills. Medical Education 2001: 35
OTHER POTENTIAL APPLICATIONS

• Videoconferencing with NICU attendings and fellows regarding the care of a sick infant at an outlying hospital
  • Viewing the infant via video in the delivery room and/or nursery
  • Dialogue with pediatrician regarding a therapy or procedure
    • “walk the pediatrician through” approach
    • Stabilize the infant more rapidly before the transport team can arrive
PARENTAL INVOLVEMENT WHEN THEIR BABY IS IN THE NICU—THROUGH BABY CARELINK

• Parents of infants in the NICU are able to use Baby CareLink to view digital photos of their child, see updated daily reports of their child's health, access a customized database to learn more about newborn care, and provide feedback and ask questions about the care of their children.

• Established at Beth Israel in Boston in the late 1990’s now used in growing NICUs in the US
CONCLUSIONS

• Not only is the use of telemedicine possible in Neonatology, but it is a proven tool in the care of high-risk neonates at community hospitals and in NICUs throughout the world.

• There are applications to patient care and education both in the community and at medical centers.

• Is it even possible (in SC)?
  • Yes, if we identify a sustainable infrastructure
  • Yes, if we utilize the outreach and NRP systems already in place
    • So, yes, it is possible.

• Will it happen?
  • It is truly up to the collective “us”