

## South Carolina's Perinatal Regionalized System of Care: Reducing Premature Births and Infant Mortality

*Integrating public health and primary care can both improve quality of care for a population and lower health costs. Both components of the health system share a common goal of health improvement, have similar funding streams and resources, and share many partnerships. If aligned, public health and primary care working together could achieve lasting, substantial improvements in individual and population health in the United States. State and territorial health agencies can make a significant impact in this area by decoding the key elements for successful integration, which can then be shared with others to promote further integration efforts, increase healthcare quality, lower costs, and improve overall population health.*

The South Carolina Department of Health and Environmental Control (SC DHEC), the South Carolina Hospital Association (SCHA), the South Carolina Department of Health and Human Services (SC DHHS), the South Carolina chapter of the March of Dimes, the South Carolina Perinatal Association (SCPA), and other partners have collaborated over the past 30 years to provide a regionalized system of care for high-risk infants and their mothers.

### BACKGROUND

Perinatal regionalization is a system of designating the hospitals in which infants are born or to which they are transferred, based on the amount of care that they need at birth. In regionalized systems, very ill or very small infants are born in hospitals that are able to provide the most appropriate care, with high-level technology and specialized healthcare providers.<sup>1</sup> Regionalized systems define hospitals at risk-appropriate levels. In South Carolina, these levels are: basic (level I), specialty (level II & IIE), and sub-specialty (level III).<sup>2</sup> Level III hospitals, for example, provide the most appropriate care for the sickest infants.<sup>3</sup> Key elements of the system include early risk assessment and referral to appropriate care, coordination and communication between hospitals and community providers, monitoring systems through data, and ensuring access to services from preconception through the first year of life. State health departments often design, designate, and manage regionalized systems, which is the case in South Carolina. However, hospital networks or nonprofit groups manage the system in some states.

**Aim of the Integration:**  
To improve perinatal outcomes and reduce infant mortality in South Carolina.

South Carolina began using perinatal regionalization in the 1970s, when a March-of-Dimes-funded survey revealed that South Carolina had the third highest perinatal mortality rate in the United States. The report also showed that there was no well-designed system of referral, consultation, communication, or transportation for the thousands of high-risk pregnancies and births each year. . In response, hospitals began submitting to voluntary review by a team of volunteer staff from the March of Dimes, SC DHEC, and physicians to see if they met the designation of one of three levels of care: I (community), II (district), and III (regional). With no formal system of follow-up, the team would conduct the survey and make recommendations, but oversight was lacking to ensure that the recommended improvements were made.

In the early 1980s, Gov. Richard Riley issued an executive order establishing a multiagency council to assess the status of services affecting perinatal health and the health needs of women and infants younger than one year of age. Based on the assessment's results, the governor's Perinatal Plan of Action was issued on April 1, 1984. The plan required SC DHEC to establish standards for licensing level III hospital neonatal intensive care beds and facilities with delivery services. It also required risk assessments of the newborns, skills, and equipment for stabilization and emergency care, and a system for transporting infants and women to level III hospitals when needed.

### OVERVIEW OF THE INTEGRATION EFFORT

South Carolina's perinatal regionalization system has continued with four perinatal regions and five regional perinatal centers:<sup>4</sup>

- Low Country Region - Medical University of South Carolina
- Pee Dee Region - McLeod Regional Medical Center
- Midlands Region - Palmetto Richland Memorial Hospital
- Piedmont Region - Greenville Hospital System, Spartanburg Regional Medical Center

A regional perinatal center (RPC) has the greatest level of skill and technology available in its region to care for high-risk obstetric (OB) and neonatal patients. RPCs are responsible for serving as transport and consultation centers for the counties in their regions, and are supported by a contract with SC DHEC.<sup>5</sup> Each RPC in South Carolina has a perinatal systems department dedicated to improving perinatal outcomes in its region by ensuring seamless access to risk-appropriate care. RPC staff includes a regional systems developer (RSD), an OB outreach RN educator, and a neonatal outreach RN educator.<sup>6</sup> RSDs work with all perinatal providers and hospitals within their regions to develop and support a system of risk-appropriate care for all mothers and babies. Their role is not only to coordinate services for the mom and baby, but also to assist with communication/relationship building and increase the collaboration of partners involved in perinatal care. SC DHEC's state coordinator works closely with the four regions to monitor services and implement new programs related to perinatal health.

The OB and neonatal nurse educators provide and coordinate education to hospitals, health departments, and community providers of perinatal services to support professional expertise.<sup>7</sup> They offer referring hospitals standard courses in OB and neonatal care at no or low charge. RPCs coordinate neonatal and maternal transportation for high-risk pregnant women and infants to regional centers and back-transport of neonates when appropriate. Discharge coordination ensures an organized system of referral and follow-up for pregnant women, infants, and children between the regional centers as well as integration back into their home communities.

### RESULTS/BENEFITS

The contracts between SC DHEC and RPCs stipulate that RPCs must collect specific data (e.g., number of educational classes provided, number of maternal transfers versus neonatal transfers, payer sources, number of outreach opportunities). As of 2011, 81.3 percent of all very low birth weight (VLBW) infants are born at a level III hospital, with no differences by maternal race. Preterm births also dropped from 12.7 percent in 2005 to 11.5 percent in 2011.<sup>8</sup> To measure and evaluate the system's success, SC DHEC works with RPCs to monitor the prevalence of VLBW deliveries in facilities appropriate for high-risk deliveries, as well as the neonatal mortality among VLBW births by level of care. The department also analyzes reports from facilities with lower levels of care (I and II) on the circumstances surrounding

VLBW deliveries in these facilities, and utilizes contracted staff to monitor the system's development, educational needs, and barriers. SC DHEC's research has shown that there is consistent evidence of lower mortality if VLBW infants are born in level III hospitals.

### **INFRASTRUCTURE TO SUPPORT COLLABORATION AND SUSTAINABILITY**

Public health policies and regulations help support the system. The Division of Health Licensing within SC DHEC is responsible for inspecting hospitals and other places that provide healthcare. Each hospital is assessed on whether it is meeting a set of regulations specific to perinatal care, according to its level. Key components for sustaining the perinatal regionalization system include established criteria for each level that is clearly defined, and oversight provided by public health agencies. Moreover, SC DHEC has committed to monitor data and measure outcomes.

SC DHEC, RPCs, and the March of Dimes continue to provide numerous financial and staff resources to make the system a success. Although SC DHEC contracts support RPC staff, budget cuts in recent years have gradually decreased the amount of funding SC DHEC is able to provide. Yet the system continues and partners' commitment has grown even as dollars have dwindled. RPCs accept anyone into the system—payment is not used as an excluding factor. The success of this primary care and public integration relies heavily on strong physician proponents and advocacy across the state. This is complemented by the support of SC March of Dimes, SC DHEC, SC DHHS, SCHA, SCPA, and the regional hospitals.

#### **For more information, contact:**

Lisa Hobbs, RN BSN  
Perinatal Consultant  
Bureau of Maternal/Child Health  
South Carolina Department of Health and Environmental Control  
Phone: (803) 898-0811  
[hobbslb@dhec.sc.gov](mailto:hobbslb@dhec.sc.gov)

Courtney Bartlett  
Primary Care Senior Analyst  
Association of State and Territorial Health Officials  
[cbartlett@astho.org](mailto:cbartlett@astho.org)

---

<sup>1</sup> Barfield WD, Kroelinger CD, White VA. "Collaborative Efforts to Address the Impact of Perinatal Regionalization on Infant Mortality." *Pulse*. September 2010. Association of Maternal and Child Health Programs. Available at <http://www.amchp.org/AboutAMCHP/Newsletters/Pulse/Archive/2010/September2010/Pages/Feature1.aspx>. Accessed 08-26-13.

<sup>2</sup> South Carolina Department of Health and Environmental Control, Division of Research and Planning. "Perinatal Regionalization." Available at <http://www.scdhec.gov/health/mch/rpu/perinatal.htm>. Accessed on 08-29-13.

---

<sup>3</sup> Barfield WD, Kroelinger CD, White VA. "Collaborative Efforts to Address the Impact of Perinatal Regionalization on Infant Mortality." *Pulse*. September 2010. Association of Maternal and Child Health Programs. Available at <http://www.amchp.org/AboutAMCHP/Newsletters/Pulse/Archive/2010/September2010/Pages/Feature1.aspx>. Accessed 08-26-13.

<sup>4</sup> South Carolina Department of Health and Environmental Control, Division of Research and Planning. "Perinatal Regionalization." Available at <http://www.scdhec.gov/health/mch/rpu/perinatal.htm>. Accessed on 08-29-13.

<sup>5</sup> Palmetto Health. "Perinatal Systems: Who Are We?" Available at <http://www.palmettohealth.org/body.cfm?id=1906>. Accessed 08-26-13.

<sup>6</sup> *Ibid.*

<sup>7</sup> *Ibid.*

<sup>8</sup> South Carolina Department of Health and the Environment. "SCAN Birth Certificate Data." Available at <http://scangis.dhec.sc.gov/scan/bdp/tables/birthtable.aspx>. Accessed 08-29-13