

## Creating Online Newborn Intensive Care Unit Networks to Educate, Consult, and Team (Project CONNECT)

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| <b>Principal Investigator:</b> | Rachal, Valerie, R.N., Ph.D.   |
| <b>Organization:</b>           | University of Southern Mississippi   |
| <b>Mechanism:</b>              | RFA: HS05-013: Limited Competition for AHRQ Transforming Healthcare Quality through Information Technology (THQIT) |
| <b>Grant Number:</b>           | UC1 HS 016147  |
| <b>Project Period:</b>         | September 2005 – September 2009, Including No-Cost Extension   |
| <b>AHRQ Funding Amount:</b>    | \$1,499,995  |
| <b>Summary Status as of:</b>   | September 2009, Conclusion of Grant  |

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**Target Population:** Medically Underserved, Pediatric\*, Rural Health\*

**Summary:** Mississippi is a primarily rural State with an uneven distribution of generalist and specialist physicians resulting in unequal access to health care. This misdistribution combined with a high rate of chronic diseases and their associated comorbidities requires rural residents to seek medical services from multiple health care providers that are likely to be located in metropolitan areas. A group of health care organizations in southern Mississippi recognized the need for better coordination of medical services for high-risk patients. They realized that technological advances, such as electronic health records and portable health records, could help manage Mississippians' health care information.

The Creating Online Newborn Intensive Care Unit (NICU) Networks to Educate, Consult, & Team (CONNECT) project developed, implemented, and evaluated a variety of technology-based strategies to improve care to newborns at hospitals, in rural physician offices, and in emergency rooms. CONNECT brings together the University of Southern Mississippi; Forrest General Hospital, a county acute care hospital; Southern Mississippi Neonatology Group, a private neonatology practice; Hattiesburg Clinic, the largest multispecialty clinic in the State; and Southeast Mississippi Rural Health Initiative with nine rural family health centers in medically underserved communities.

This project implemented several health information technology (IT) solutions to improve the treatment of NICU infants and toddlers including portable personal developmental/health records (PDHRs), a system to facilitate electronic sharing of medical records, and a Web-based decision support tool. These technologies are used to prevent duplication of tests and increase direct consumer involvement in the health care decisionmaking process, resulting in improved neurological and general health of infants discharged from the NICU. PDHRs created for at-risk infants allowed parents to have a portable, up-to-date health record they could provide to primary care practitioners in the community, thereby ensuring developmental followup and continuity of care. The project team evaluated the project tools by surveying patient and physician satisfaction with the PDHR versus paper medical records, and gauging agency and personnel buy-in for the movement toward shared electronic medical records.

### Specific Aims:

- Facilitate adoption of an interoperable system for electronic sharing of medical records among agencies. **(Achieved)**

- Develop and test multimedia portable PDHRs. **(Achieved)**
- Develop and maintain multimedia Web-based resources to serve as a decision support system and for training and information sharing. **(Achieved)**
- Use telemedicine technologies to enhance and expand the use of developmental care practices in Mississippi NICUs. **(Achieved)**

**2009 Activities:** The project team conducted a focus group with hospital personnel, administrators, and physicians who were familiar with the CONNECT project, to discuss the adoption of an interoperable system, electronic record sharing, and portable PDHRs. They conducted semi-structured interviews with parents or caregivers of babies who were discharged from the neonatal intensive care unit at Forrest General hospital on the use of the PDHRs. Through the focus group and interviews, researchers investigated how caregivers, hospital personnel, administrators, and physicians perceived the usefulness of PDHRs. Caregiver interviews investigated similar questions related to benefits and barriers to the use of PDHRs. The project team reviewed and analyzed the focus group transcript and notes from caregiver interviews for recurring themes, beginning with open coding, followed by composing categories of codes and designating the interrelationship of codes. The Non-numerical Unstructured Data Indexing Searching and Theorizing software program from Qualitative Solutions and Research was used to facilitate management, systematic organization, and examination of the data.

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**Grantee's Most Recent Self-Reported Quarterly Status:** The project ended in September 2009 with all major aims achieved.

**Impact and Findings:** Innovative technologies for managing health information could enhance the delivery of health care in Mississippi. There are certain high-risk populations who might benefit from PDHRs to increase continuity of care between specialist and primary care physicians. The CONNECT project developed a particular type of personal health record in the form of a CD for a special patient population, babies who were treated in a neonatal intensive care unit. Similar PDHRs could be created for other populations who undergo intensive specialized treatment and are later released to their community doctors with only limited check-ups from specialists.

As data analysis from the CONNECT study suggests, PDHRs can increase caregivers sense of empowerment by providing them with a medical record to share with their medical providers. Similarly, physicians can provide higher quality care by gaining access to patients' health information through a portable medical record. Overall, the enhanced communication between the medical providers of high-risk patients will result in improved medical outcomes.

The idea of a portable health record is particularly important to regions of the country at-risk for natural disasters when patients may have to evacuate and seek medical care in a different location than usual. Hospitals have begun to discuss procedures for sending medical records along with patients if they are evacuated to a different medical facility. Many argue those policies would improve medical care even without a disaster. Patients across Mississippi could benefit from portable personal health records, as newborns in southern Mississippi did, while the infrastructure of a statewide health information exchange system is established.

More detail on the project findings is included in Dr. Rachal's final report: [Rachal 2009 Final Report](#).

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**Strategic Goal:** Develop and disseminate health IT evidence and evidence-based tools to support patient-

centered care, the coordination of care across transitions in care settings, and the use of electronic exchange of health information to improve quality of care.

**Business Goal:** Knowledge Creation

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\* *AHRQ Priority Population*