



# City of New Orleans Healthy Start Project Final Report

April 2011

Despite evidence of persistent socioeconomic and racial disparity in prenatal, perinatal, and post-partum services utilization and health outcomes, there has been relatively little federal focus on setting goals for the amelioration of literacy and health communication deficits affecting pregnant and post-partum women and their babies (Healthy People 2010), or in designing literacy interventions to improve health outcomes for this population.

Amelioration of Literacy Deficits in Prenatal Care  
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## Introduction

By August 2005, about 23% of New Orleans residents were living in poverty, and 21% of all residents of Louisiana had no health insurance.<sup>1</sup> According to the United Health Foundation's 2005 report, Louisiana's infant mortality ranked 49th out of 50 states.<sup>2</sup> This was 9.6 deaths per 1,000 live births, while the national infant mortality rate was 6.3 per 1,000 live births.<sup>3</sup>

The aftermath of Hurricane Katrina devastated the New Orleans health care system. The devastated New Orleans health care system was challenged through the loss of numerous health care providers and qualified staff, in addition to equipment, records, and facilities.

With over a dozen hospitals damaged and more than 4,000 doctors displaced, virtually all New Orleanians lost access to their usual health care providers.<sup>4</sup> The devastation of New Orleans' health care system was especially profound for the low-income and uninsured. Access to specialty care was challenging. Women were unable to find prenatal care, much less affordable care.

After Katrina, support came from an array of sources: federal, charities, relief agencies, and the private sector. InnerLink, Inc. was among these. As a creative developer of health-oriented social networks, health content aggregators, medical and wellness applications, and tools to enable healthy solutions, InnerLink understands healthcare and healthcare trends. InnerLink provides web-based solutions to help communities improve health outcomes. In an effort to mitigate difficult circumstances, InnerLink donated web-based solutions to educate, encourage, and support healthy behaviors. InnerLink employees volunteered and participated in a variety of rebuilding efforts.

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<sup>1</sup> "A Pre-Katrina Look at the Health Care Delivery System for Low-Income People in New Orleans." *Kaiser Commission on Medicaid and the Uninsured* (Jan. 2006). *The Henry J. Kaiser Family Foundation*. Kaiser Commission, Jan. 2006. Web. 13 Apr. 2010. <<http://www.kff.org/uninsured/upload/7442.pdf>>.

<sup>2</sup> States, State Compare. "Measure." *America's Health Rankings*. Web. 13 Apr. 2011. <<http://www.americashealthrankings.org/measure.aspx>>.

<sup>3</sup> Many factors surrounding the conditions of birth contribute to infant mortality including the mother's health, prenatal care, overall quality of healthcare received by the mother and child, socioeconomic status, education level, and access to healthcare.

<sup>4</sup> O'Reilly, Kevin B. "Amednews: Katrina's Legacy: Moving beyond the Storm: Aug. 16, 2010 ... American Medical News." *American Medical Association - Physicians, Medical Students & Patients (AMA)*. 16 Aug. 2010. Web. 08 Apr. 2011. <<http://www.ama-assn.org/amednews/2010/08/16/prsa0816.htm>>.

Officials sought to rebuild and improve the city's ravaged health care system by promoting broader access to community-based health services. Healthy Start New Orleans is a resource for pregnant mothers and families with children ages 0-2. Healthy Start New Orleans provides prenatal education, counseling, case management, referral to maternal-child health, and other services to insure positive birth outcomes, healthy mothers, and healthy babies.

Recovery from the destruction of Katrina included efforts to improve health outcomes—with emphasis on education and focus on prevention with improved access and continuity of care. The aftermath of Katrina created a need for a resource that could equalize the client education experience regardless of the staff experience or skills, especially in the first months of employment.

In recognition of the special health needs of women and infants post-Katrina, the City of New Orleans selected InnerLink, Inc. for a pilot information technology (IT) program designed to advance the maternal health literacy of the Healthy Start New Orleans staff, as well as that of their clients (pregnant and young mothers). Maternal health literacy is defined as the cognitive and social skills that determine the motivation and ability of women to gain access to, understand, and use information in ways that promote and maintain their health and that of their children.<sup>5</sup>

IT has the potential to improve healthcare in areas such as patient health, clinical care, public health, and professional education.<sup>6</sup> It has been suggested that IT will be central in the redesign of the healthcare system in order to achieve significant improvement in healthcare quality.<sup>7</sup> There is growing interest tapping IT to address healthcare disparities among racial and ethnic minority populations.<sup>8,9,10</sup>

In February 2008, the City of New Orleans formally engaged InnerLink, Inc. to support Healthy Start New Orleans in their mission to advance maternal health literacy by improving the knowledge, skills, and utilization of appropriate pre-natal health services and early childhood interactions. To this end, the City of New Orleans contracted for InnerLink to supply the following services:

- Provide a web interface linked to a database and communications platform in order to provide specific content, activities, and assessment tools for Healthy

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<sup>5</sup> Health Promot. Int. (2001) 16 (4): 381-388. doi: 10.1093/heapro/16.4.381

<sup>6</sup> Committee on Quality of Health Care in America. *Crossing the Quality Chasm*. Washington, DC: National Academy Press, 2001.

<sup>7</sup> Ibid.

<sup>8</sup> Calman, N., K. Kitson, and D. Hauser. "Using Information Technology to Improve Health Quality and Safety in Community Health Centers." *Progress in Community Health Partnerships* 1, no. 1 (2007): 83–88.

<sup>9</sup> Gibbons, M. C. "A Historical Overview of Health Disparities and the Potential of eHealth Solutions." *Journal of Medical Internet Research* 7, no. 5 (2005): e50.

<sup>10</sup> Ketcham, J. D., K. E. Lutfey, E. Gerstenberger, C. L. Link, and J. B. McKinlay. "Physician Clinical Information Technology and Health Care Disparities." *Medical Care Research and Review* 66, no. 6 (2009): 658–81.

- Start of New Orleans personnel to use to improve health literacy and healthy habits for young mothers.
- Provide a learning management system to assess and train Healthy Start of New Orleans staff with materials specified to promote professional development. In addition, Healthy Start of New Orleans staff may use these materials in their client encounters, as they deem appropriate.
  - Provide on-site implementation training in compliance with Healthy Start New Orleans requests.
  - Provide on-site and online workshops for the professional development of Healthy Start of New Orleans staff.
    - A copy of the materials used by the various guest lecturers in these professional development workshops is available, when applicable, through the web interface.
    - Healthy Start of New Orleans determined the workshop topics and schedule.
  - Provide educational materials for up to 700 Healthy Start of New Orleans participating clients, selection and distribution to be determined by Healthy Start of New Orleans staff.

The three-year pilot program was included as part of the Healthy Start Initiative funded by a U. S. Department of Health and Human Services, Health Resources and Services Administration Grant.

## Quick Facts<sup>11</sup>

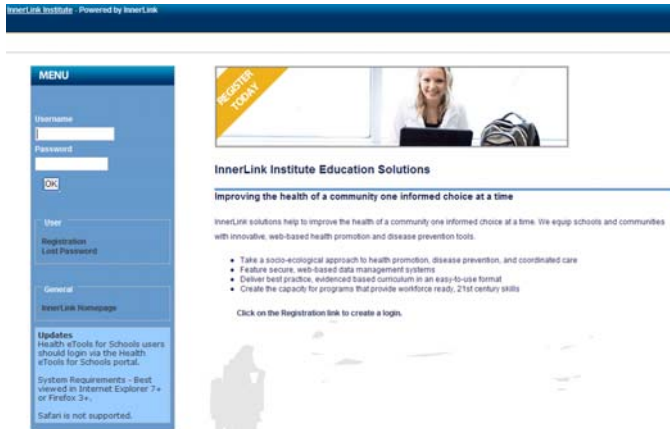
Healthy Start of New Orleans course administrator	1
Healthy Start of New Orleans staff (teacher role)	27
Healthy Start of New Orleans clients (student role)	153
<b>Total Users</b>	<b>181</b>
Learning management sessions	28
Learning management courses	36
o 19 English	
▪ 1 course contains workshop & webinar presentation materials	
▪ 1 course contains Healthy Start of New Orleans recommended web sites	
o 17 Spanish	
Professional Development sessions (workshops & webinars)	10
On-site training seminars	4
o presented the week of July 21, 2008	
o presenters included Justin Chlan and Jason Sunseri	
Educational materials for clients	750
o 500 English notebooks shipped in May 2008.	
o 250 Spanish notebooks shipped in June 2008.	
Web site availability (average uptime for the past three years)	99.971%

<sup>11</sup> Note: Unless otherwise specified, the current figure is provided. The number is not a compilation. If InnerLink received an update that a staff member terminated, their sessions were terminated. Session termination eliminated the LMS data.

## Deliverables

### Web Interface

A web interface (web user interface) accepts input and provides output by generating web pages that are transmitted via the Internet and viewed by a user utilizing a personal computer with a web browser program.



To expedite development for Healthy Start New Orleans, a custom interface was not specified for this project. Initially, authorized users could access the learning management system via <http://www.innerlinkinstitute.com>, and later via the *InnerLink* link under the Healthy Start Library on the Healthy Start New Orleans web site, <http://www.nola.gov/RESIDENTS/HealthyStart/>. The recommended web browsers for the web interface are Internet Explorer or Mozilla Firefox.

Currently, a modification request (Mantis 993) is pending to realign the login menu, so Healthy Start New Orleans users may readily access the content via an Apple iPad or other tablet device. While the content is accessible through an iPad, currently, the tablet user has to scroll down to access the username/password login fields.

### Learning Management System (LMS)

A learning management system is a software application for the administration, documentation, tracking, and reporting of e-learning programs and training content. More than 3,600 organizations worldwide utilize the Dokeos e-learning and course management web application. Dokeos was chosen for the Healthy Start New Orleans application to manage the 36 courses, students, teachers, documents, and SCORM<sup>12</sup> content.

- The Healthy Start New Orleans application utilizes a minimal number of the authoring components. These include SCORM tests, document folder, links, and 36 courses (learning paths).

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<sup>12</sup> SCORM (Sharable Content Object Reference Model) is a set of technical standards for e-learning software. SCORM is a technical standard not relevant for pedagogical concerns.



- The Healthy Start New Orleans courses could be upgraded, at no cost, to include interactive components such as an agenda tool, forum, drop box, announcement tool, and/or assignment tool.

## **Courses**

All of the Healthy Start New Orleans course topics specified in the agreement were developed. The courses include:

- *Making the Most of a Prenatal Visit*
- *First Trimester*
- *Exercise for a Healthy Pregnancy*
- *Pregnancy and Nutrition*
- *Project Breathe - Pregnancy and Smoking*
- *Second Trimester*
- *Third Trimester*
- *Warning Signs During Pregnancy*
- *When to Call the Doctor*
- *Overview of Birth*
- *Labor - Comfort Tips Postpartum Depression*
- *Newborn Appearance*
- *Newborn Nutrition*
- *Comforting the Newborn*
- *Infant Safety*
- *Baby Spacing and Family Planning*

Additional courses were requested, developed, and launched in January 2009. These courses included:

- *Recommended Websites for Healthy Start Participants*
- *Healthy Start Webinar Materials*
- *Alimentación del recién nacido*
- *Apariencia física del recién nacido*
- *Como Aprovechar una Cita Prenatal al Máximo*
- *Consejos para Consolar al recién nacido*
- *Consejos para estar tranquila durante la labor de parto*
- *Cuando llamar al Doctor*
- *Depresión postparto*
- *Ejercicio para un embarazo saludable*
- *Embarazo y Nutrición*
- *Planeación Familiar y Espaciamiento de Niños*
- *Primer Trimestre*
- *Proyecto Respira - Tabaquismo y Embarazo*

- *Resumen del parto*
- *Segundo trimestre*
- *Seguridad Infantil*
- *Signos de alerta durante el embarazo*
- *Tercer trimestre*

Sandra Lloyd RN, BSN, MEd<sup>13</sup> served as the primary subject matter expert for content used in this project. In addition, Dr. Ana Hernandez<sup>14</sup> reviewed the content for the initial 17 English courses. Subsequently, Dr. Hernandez translated the content into low literacy level Spanish (Mexico) for publication in January 2009. Maria Jose Salmeron, Healthy Start New Orleans, reviewed and approved the translated content.

The courses were presented as HTML pages with image/content. Stock images were used, but these were to be replaced should Healthy Start New Orleans opt to supply proprietary images.

Future enhancements could include adding audio (read-to-me) to the courses to overcome literacy barriers for English-speaking clients.

### ***Pre- and post-course assessments***

Pre- and post-course assessments document the services of a program, measure outcomes, and demonstrate successes. Pre- and post-assessments are useful for obtaining impact data for progress reports as well as providing real-time feedback of program efforts, to help the education director decide whether or not to make changes in the implementation.

All courses except *Recommended Websites for Healthy Start Participants* and *Healthy Start Webinar Materials* have pre- and post-course assessments to measure cognitive outcomes. Access to course content is not dependent on completion of pre- and post-assessments because the LMS is to be used by staff as a presentation tool as well as with clients actually logging into their own accounts.

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<sup>13</sup> Sandra Lloyd holds a B.S. in Nursing from the University of Pittsburgh as well as a M.Ed. in Health Education from Penn State University. She has 30 years of experience in the field of maternal-child health as a labor and delivery nurse, childbirth educator, outpatient manager, and program coordinator. Sandra is certified as a childbirth educator through the International Childbirth Education Association (I.C.E.A.) and has been designing community programs for the last twenty years.

<sup>14</sup> Dr. Ana Celia Hernandez De Martinez, MPH, CHES worked as a consultant for Health Net Cultural and Linguistics Department and translated for an OBGYN researcher at the Tucson University Medical Center.

## ***Users***

Rae Miller, InnerLink, Inc., is the platform administrator for the learning management system.

Barbara Cheatham, Healthy Start New Orleans, is the course administrator for the learning management system. Ms Cheatham authorizes the creation of custom LMS sessions for Healthy Start New Orleans staff members. As course administrator, Ms Cheatham can review all content and sessions, observe all teacher and student (user) activities, as well as monitor all user progress.

Healthy Start New Orleans staff members have the teacher role in their custom sessions (English and Spanish) that contain the Healthy Start courses, links, and documents. Teachers are responsible for enrolling their clients (student role) or instructing their clients to self-register, specifying the content to be review, and monitoring their clients' progress.

Healthy Start New Orleans clients have the student role in their caseworker's custom session. Students have the opportunity to take the pre- and post-course assessments, review course content as well as the recommended links and documents.

The exact number of users exposed to the LMS cannot be determined for several reasons:

- The Health Start New Orleans staff was to use the online program as a presentation tool with their clients.
- When notified of Healthy Start New Orleans staff terminations, InnerLink deleted the custom sessions.

## ***Implementation Training***

While a series of small group, on-site, implementation/training sessions took place in June and July of 2008, Healthy Start New Orleans staff opted for a concentrated effort on July 21, 2008. The presentation for this training session is posted in the *Healthy Start Webinar Materials* course.

<b>Topic</b>	<b>InnerLink Instructor</b>	<b>Date</b>	<b>Location</b>
Training Sessions - How to use the LMS	Justin Chlan, InnerLink, Inc Jason Sunseri, InnerLink, Inc	Jun & Jul 2008	On site
Introduction Workshop - Review course material - Tips for coaching clients on use of their notebook Content Session	Justin Chlan, InnerLink, Inc.  Sandra Lloyd RN, BSN, MEd	Jul. 21, 2008	On site & City Hall computer lab

On June 26, 2008, Barbara Cheatham, Staff and HealthCare Education Coordinator, HSNO Liaison provided a list of staff and caseworkers scheduled for the July 21, 2008, session. The initial list of participants included:

<b>Name</b>	<b>Title/Role</b>
Charlotte Parent	Program Director
Christina Hamilton <b>(Tentative)</b>	Admin/Personnel Coor.
Connie Thibodeaux	Case Manager Coordinator
Enel Wise-Mitchell	Teen Coordinator., Case Manager
Geraldine Bankston	Case Manager
Ted Nelson	Case Manager
Rolanda Bass	Case Manager
Taslya Breve	Outreach Worker (Sp)
Kathy Morris	Case Manager (Client Throughput Coordinator)
Alice Johnson	Case Specialist
Toyia Davis	Case Specialist
Deonka Boozier <b>(Tentative)</b>	QA Coordinator
Barbara Cheatham (Liaison)	Staff & Healthcare Coor.

## ***Professional Development/Workshops/Webinars***

InnerLink, Inc. facilitated a series of professional development workshops addressing topics specified by Barbara Cheatham, Staff and Healthcare Coordinator, and Charlotte Parent, Program Director.

<b>Topic</b>	<b>InnerLink Instructor</b>	<b>Date</b>	<b>Location</b>
Smoking and the Developing Baby	Dr. Robert Gillio	Nov. 2008	On site
Immunizations	Sandra Lloyd RN, BSN, MEd	Dec. 2008	Webinar
Engaging the Client or Parent	Dr. John Tardibuono <sup>15</sup>	Jan. 2009	Webinar
Nutrition & Pregnancy	Beth Gillio, MS, RD, LDN	Feb. 2009	Webinar
Women's Wellness	Sandra Lloyd RN, BSN, MEd	Mar. 2009	Webinar
Car Seat & Safety Updates	Sandra Lloyd RN, BSN, MEd	Apr. 2009	Webinar
Sleep & SIDS	Sandra Lloyd RN, BSN, MEd	May 2009	Webinar
Unexpected Outcomes of Pregnancy & SIDS	Sandra Lloyd RN, BSN, MEd	Mar. 2010	Webinar
General Infant Safety	Sandra Lloyd RN, BSN, MEd	July 2010	Webinar
Review Session	Sandra Lloyd RN, BSN, MEd	Oct. 2010	Webinar

Presentations used in these sessions are posted in the *Healthy Start Webinar Materials* course.

Review forms from Dr. John Tardibuono's presentation as well as one of Sandra Lloyd's are included as attachments. Since Sandra Lloyd's presentations were consistently well received, she was designated as the permanent facilitator.

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<sup>15</sup> Dr. John Tardibuono, former school psychologist, is employed by The Institute for Children and Families. The Institute for Children and Families, located in Lancaster, Pennsylvania, is a nationally known center for the treatment of Reactive Attachment Disorder (RAD) and emotional trauma.

## **Materials**

In the spring of 2008, 750 binders, containing pre- and post-natal educational materials in both English and Spanish were delivered to Healthy Start New Orleans. The notebooks contained a variety of educational handouts designed to improve Healthy Start New Orleans client outcomes. The notebooks were to be distributed to clients.

In addition to InnerLink's custom forms (calendars, Mommy & Me), the 8-tabbed notebooks contained carefully selected Krames HealthSheets™<sup>16</sup> supplied information and instruction in a concise, easy-to-understand format. Krames HealthSheets™ cover a single topic in order to focus education efforts on the precise information needed at the time.

## **Assessment Data**

In the last three years, InnerLink, Inc. has solicited project feedback in a number of ways:

- Collected assessment results through the learning management system.
- Solicited feedback after webinars and presentations.
- Conducted inquiries about topics, dates, participants, and concerns.

Pre- and post-course assessments were completed by online users; in other words, the assessments were not paper-based. See Attachments for a copy of the spreadsheet with all assessment data captured during the week of April 4, 2011.

The assessment results were reviewed by an independent statistician at Franklin and Marshall College, Lancaster, PA. Using a paired T-test analysis, the data revealed that most of the courses had a statistically significant impact in imparting knowledge in a variety of areas by up to 15%. (P, .001).

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<sup>16</sup> Krames is the market leader in patient education and consumer health information solutions. Over 85 percent of American hospitals, as well as leading health plans, employer groups, private practices and pharmaceutical companies use Krames' solutions to improve quality of care, streamline workflow and lower healthcare costs. Krames also brings health literacy expertise to American Heart Association/ American Stroke Association and American Lung Association patient education through exclusive partnerships with these respected organizations. [www.krames.com](http://www.krames.com)

	0.1648
<b>Overview of Birth</b>	0.0004
	0.1427
<b>First Trimester</b>	0.0005
	0.1803
<b>Pregnancy &amp; Nutrition</b>	<0.0001
	0.0658
<b>2nd Trimester</b>	0.0016
<b>Exercise for a Healthy Pregnancy</b>	-0.017
	0.1094
	-0.01
<b>3rd Trimester</b>	0.88
	0.0088
<b>Postpartum Depression</b>	0.0345
	0.0151
<b>Infant Safety</b>	0.7757
	0.1702
<b>Newborn Nutrition</b>	0.0058
	0.0535
<b>Labor - Comfort tips</b>	0.2886
<b>Warning Signs during Pregnancy</b>	0.1921
	0.0002
	0.11
<b>Comforting the Newborn</b>	0.022
	-0.057
<b>When to Call the Dr.</b>	0.3234
	-0.276
<b>Newborn Appearance</b>	0.5732
<b>Baby Spacing &amp; Family Planning</b>	0.0394
	0.0076
	0.0907
<b>Pregnancy &amp; Smoking</b>	0.1531

Next to each course, there are two values.

- The top value is the mean difference in testing as a decimal percent, and positive values indicate an increase in test score from pre- to post-.
- The second value is the p-value<sup>17</sup>, and anything under 0.05 is significant.

*Making the Most of a Prenatal Visit* and all Spanish versions are excluded because of minimal use.

<sup>17</sup> P-value is the statistical probability (measure) of worth or efficiency. P-value is the probability of obtaining by chance, the result at least as extreme as that observed even when no real difference exists. If < or = .05 the sample results are usually deemed statistically significant.

## Conclusion

It is difficult to assess the effectiveness of this program without numbers on actual users or knowing health outcomes on clients. InnerLink, Inc. can state with certainty that there was statistically significant improvement in knowledge demonstrated in pre- and post-course assessment in multiple courses. These include:

- *Overview of Birth*
- *First Trimester*
- *Pregnancy & Nutrition*
- *2<sup>nd</sup> Trimester*
- *Postpartum Depression*
- *Newborn Nutrition*
- *Warning Signs during Pregnancy*
- *Comforting the Newborn*
- *Baby Spacing & Family Planning.*

Follow-up reports, including correlation with actual pregnancy outcomes, may add to the evaluation of effectiveness for the overall program. A suggestion for further study would be to renew the contract and take advantage of all the features of the LMS.



## **Attachments:**

- Assessment worksheet
- Reviews from Professional Development Webinars
  - Dr. John Tardibuono
  - Sandra Lloyd RN, BSN, MEd