3 EPIDEMIOLOGICAL ASSESSMENT

CASE STORY: SHARPENING THE FOCUS

Beauregard Rogers was a legendary and colorful Louisiana businessman who had made a fortune in the oil business. When Beauregard died, a portion of his estate was dedicated to create the Rogers Foundation, whose mission statement included the phrase "to improve the health and well-being of Louisianans." Just last year, Beauregard's grandson, George Beauregard — an experienced and successful school administrator — was named president of the foundation. Over the years, the Rogers Foundation had made grants to a variety of agencies and groups throughout Louisiana covering a wide range of health issues from teen pregnancy, to HIV prevention, to exercise programs for women over 60. Recently, the foundation's board of trustees, while acknowledging that much good had been done through these different projects, began to wonder whether the Foundation's resources would be used more effectively if the approach to grant-making were sharpened. They asked George to prepare a "strategic plan" that would give them a more focused grant-making strategy. The board asked him to prepare a concept paper and briefing by the next board meeting, 3 months away.

When Mary Watson received her MPH degree from the University of Alabama 5 years ago, she had taken a position as director of health education for the St. Marie Parish Health Department in the state of Louisiana. During those 5 years, Mary had developed a reputation, not only in St. Marie Parish but the entire state, as the consummate public health professional "who knew the importance of data but never forgot that behind those numbers were real people." That reputation was what prompted George Rogers to seek out Mary Watson's insights on the task his board had given him.

During their initial conversation, George indicated that while he felt confident that his prior administrative experience would hold him in good stead, he hoped that Mary could give him some counsel on determining funding priorities. Mary was pleased to be asked to assist and said that she would try to come up with some preliminary ideas that might serve as a starting point for George's concept paper.

At her next staff meeting, Mary discussed her meeting at the Rogers Foundation with her staff and noted that this might represent a new opportunity to collaborate with a nongovernmental organization making a significant contribution to public health.

During the discussion, one of Mary's colleagues, Leigh Layton, excused herself from the meeting and returned moments later holding a copy of the *Louisiana Health Report Card* —an annual publication released by the Department of Health and Hospitals detailing the most current health statistics for the state.

"This just came in the mail, Mary," Leigh explained. "There's some good stuff in here

that I knew you'd want to take a look at."

Mary looked at the book and then at the piles of other work on her desk. "Leigh, could you take a look through there for me and see what jumps out that we might give back to the foundation — a kind of key points/summary? I'd appreciate it."

"Sure, Mary. Is next Friday OK?"

"Perfect."

As Leigh looked through the data on her state's health, she began noticing some of the key issues that Mary might want in her summary report.

Table 3-1
Ten Leading Causes of Death, Louisiana and United States, 1996[2]

Cause of Death (ICD-9 Codes)[3]	Louisiana Rank[4]	Louisiana Rate	U.S. Rank	U.S. Rate[5]
Diseases of the Heart (390-398, 402, 404-249)	1	270.0	1	276.6
Malignant Neoplasms (140-208)	2	213.8	2	205.2
Cerebrovascular Disease (430-438)	3	59.0	3	60.5
Accidents and Adverse Effects (800-949)	4	41.5	5	35.4
Diabetes (250)	5	37.2	7	23.2
Chronic Obstructive Pulmonary Disease (490-496)	6	33.0	4	40.0
Pneumonia and Influenza (480-487)	7	24.0	6	31.1
Homicide and Legal Intervention (960-978)	8	18.2	14	7.8
HIV Infection (042-044)	9	13.8	8	12.3
Nephritis, Nephrotic Syndrome, and Nephrosis (580-589)	10	13.1	11	9.2

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[2] Source: Louisiana State Center for Health Statistics, National Center for Health Statistics. Published in: Louisiana Department of Health and Hospitals, Office of Public Health. *Louisiana Health Report Card.* Report Submitted to the Governor and the Louisiana Legislature, April 1998.

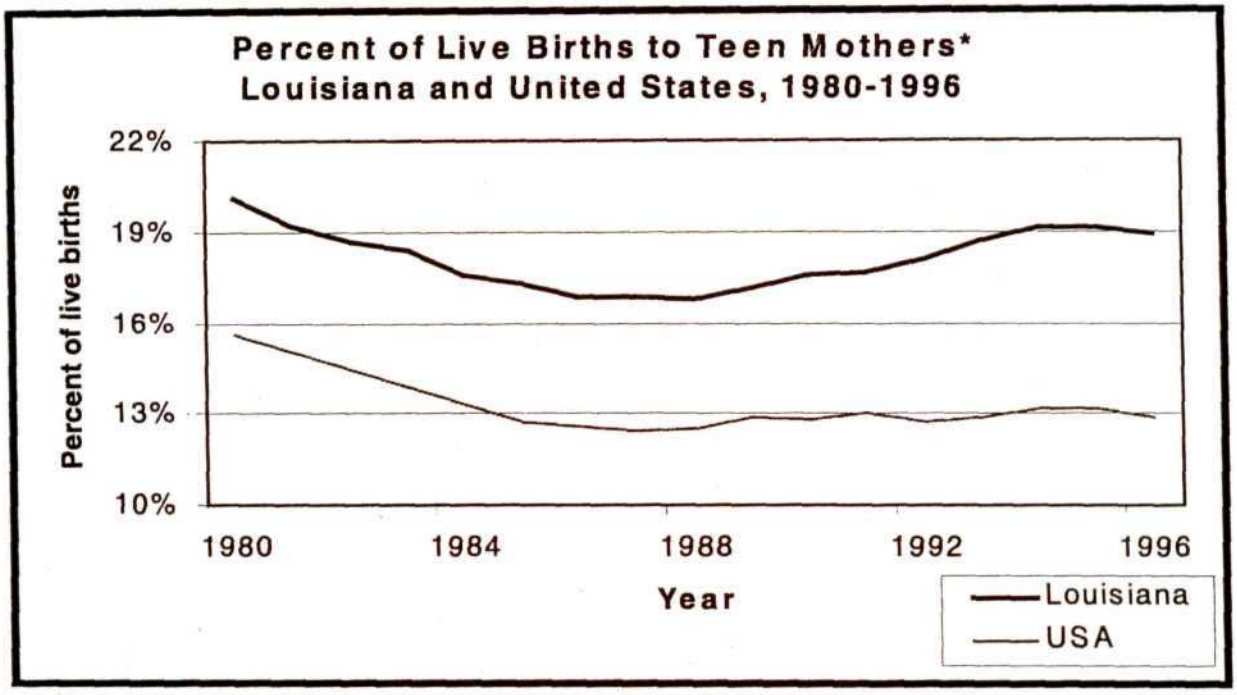
[3] International Classification of Disease (ICD) coding system, 9th Revision, is the method promoted by the World Health Organization (WHO) to standardize cause of death reporting.

[4] Rates for Louisiana and U.S. according to rate per 100,000 population.

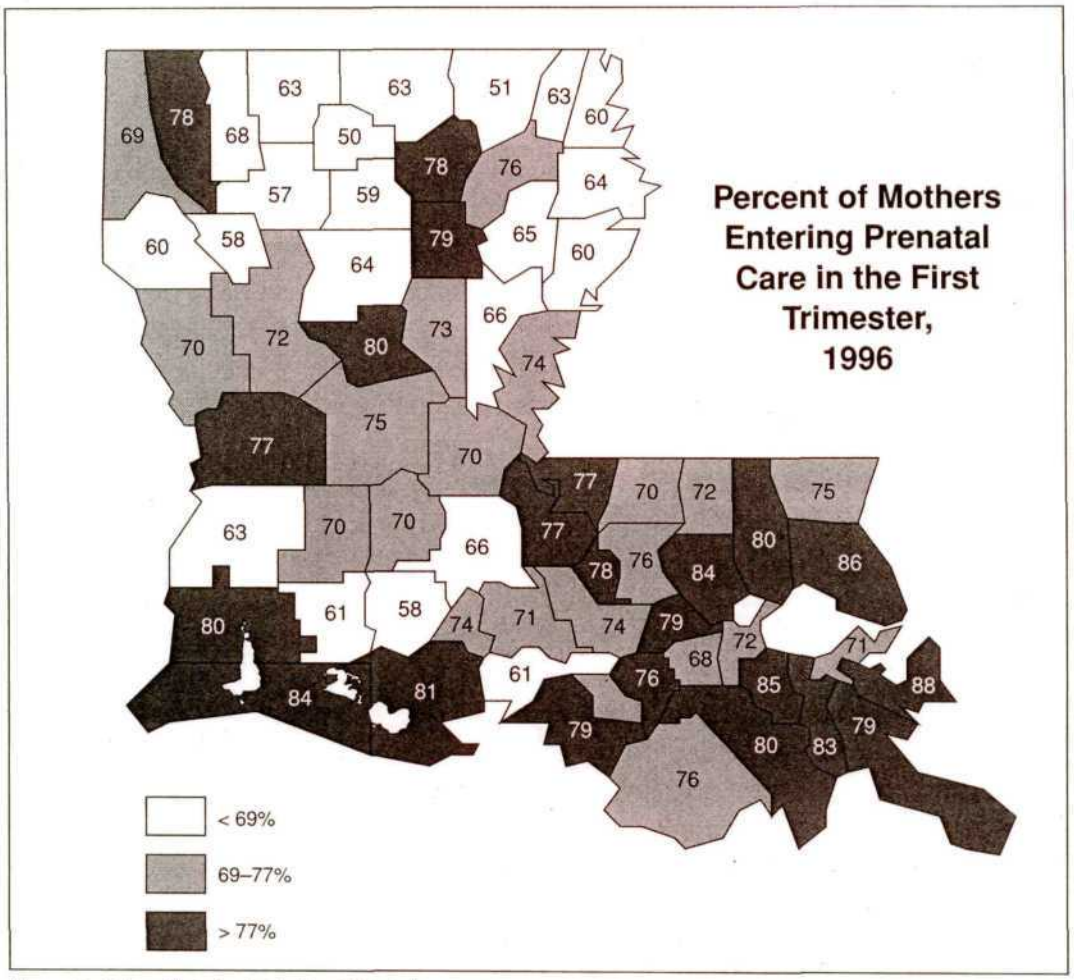
[5] U.S. 9th ranked cause of death: Suicide (E950-E959) - 11.6 per 100,000. U.S. 10th ranked cause of death: Chronic Liver Disease and Cirrhosis (571) - 9.5 per 100,000.

For example, as Table 3-1 shows, the leading causes of death in Louisiana in 1996 were the same as those in the nation overall, including heart disease, cancer, and stroke. Notably, accident/injury and diabetes were ranked higher in Louisiana than the national average. Additional data showed that these rankings had not changed significantly over the past 20 years.

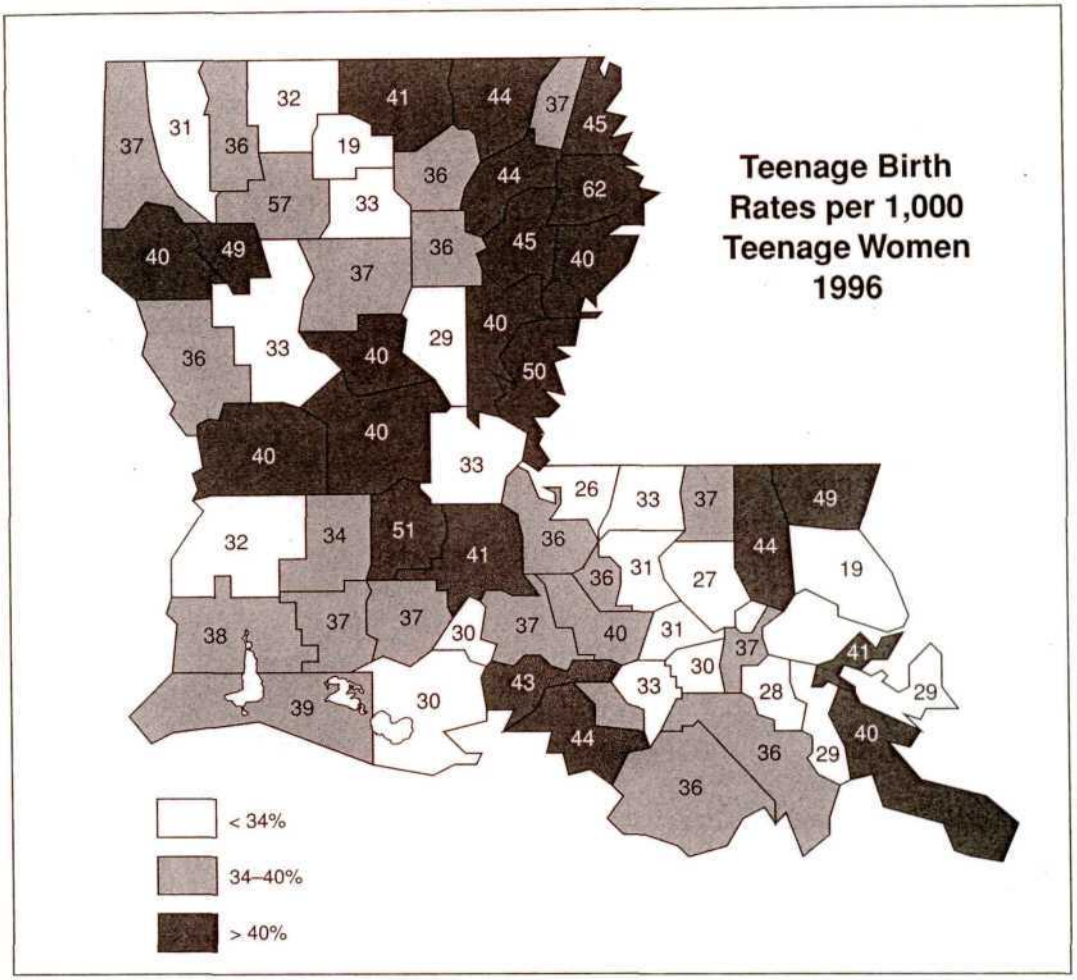
As Leigh continued to scan the report, she began to notice an alarming trend in selected indicators for infant and children's health.



*Teen mothers are less than 20 years old at the time of birth
Source: Louisiana State Center for Health Statistics
National Center for Health Statistics (preliminary 1996 data)



Source: Louisiana State Center for Health Statistics



*Teen mothers are less than 20 years old at the time of birth

Source: Louisiana State Center for Health Statistics

Louisiana was consistently worse off than the national average in terms of women getting first trimester prenatal care, percent of low-birth-weight babies, and percentage of births to teen mothers. These problems seemed to be of particular concern in the northern and northeastern Louisiana parishes.

Leigh had a meeting in Region 8, in northeastern Louisiana, and thought she would use the opportunity to get some additional insight by visiting with Ron Masters, the health officer for a Parish in that region. When she arrived for her meeting, Ron was going over his notes from a recent visit to several rural health clinics in his region and was happy to have a chance to talk with someone about his recent trip. He explained to Leigh that not only are teen rates higher in the northern, rural parishes, but that teen birth rates are twice as high for black women than for whites statewide. On the other hand, he wanted to register the quiet pride with which the extended families of the teen mothers stepped in to support many of them — a hidden strength and asset of the community.

Leigh pointed out that according to data in the Louisiana Health Report Card, it seemed that racial disparity spilled over into other health problems as well. "Black women do not get prenatal care as often, or as early, as women of other races. Black men and women are more likely to be sedentary and overweight, to have high blood pressure, and to have diabetes than are whites, even though they don't engage in certain behavioral risk factors as often as whites."

"That's consistent with my experience," Ron said. "I suspect that the reasons for the disparity are, in part, sociocultural, but also are a result of funding priorities. The northern parishes are mostly rural with a higher than expected level of poverty. The communities are spread out and there are problems getting to and from regular preventive care. In addition, there seems to be a mistrust of medical professionals and a belief that the way things are is simply the way they have been and will always be. The attitude is that some children get sick and die, or are born sickly — it just happens."

Ron continued, "My rural clinic staff work hard and are making good progress, but frankly, most of their time is spent seeing patients. They reach some young mothers with prenatal care and information about infant care, but they don't have the staff or time to undertake a comprehensive and sustained prevention program. The same is true for other health problems, such as injury and diabetes. It's not that they don't know that prevention is critical, they simply don't have enough time." Ron gazed out the window and then added, "I think we need to change some attitudes."

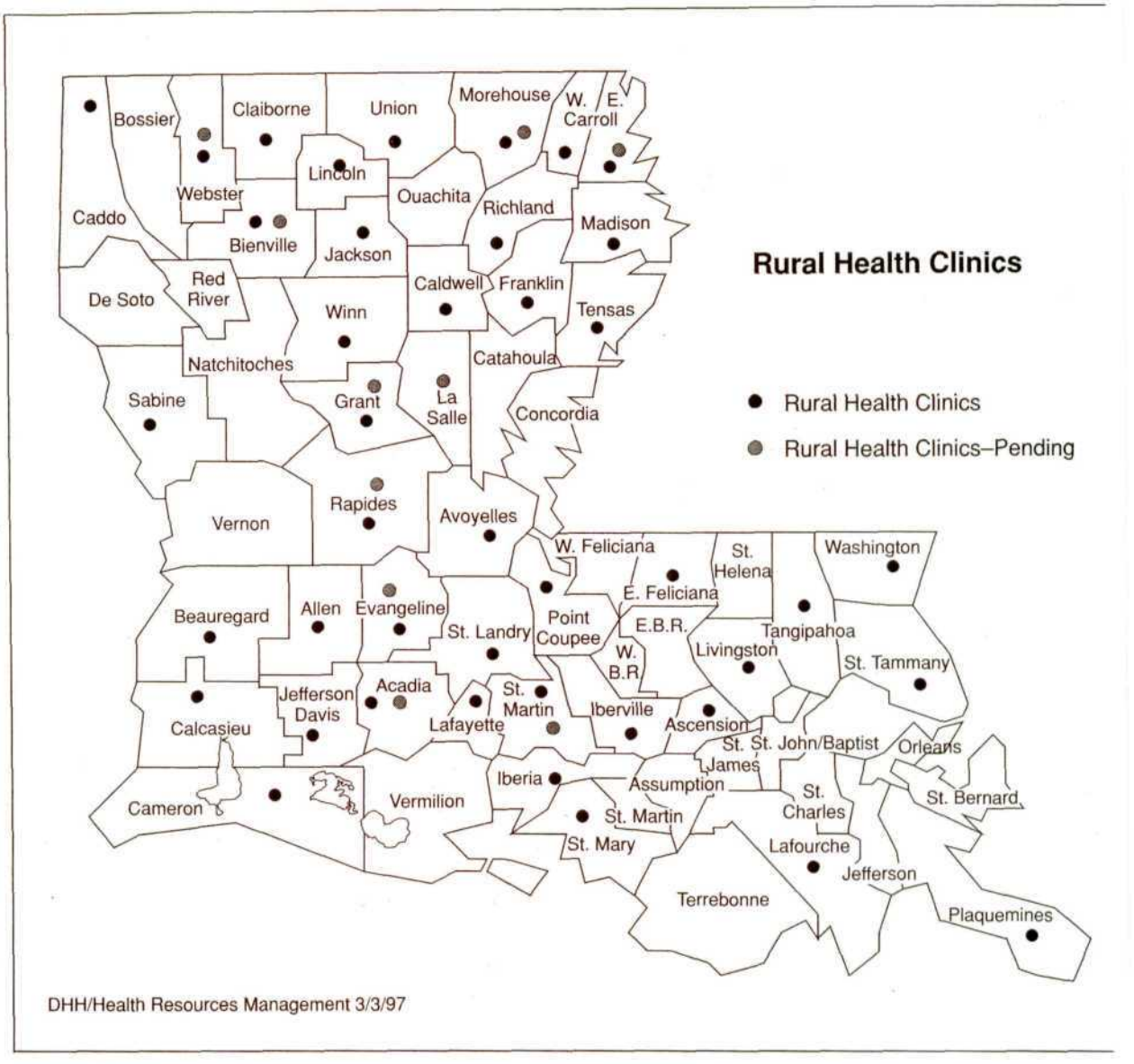
"How's that?" Leigh asked.

"Well, sometimes I get the feeling that people think that prevention ought to be free."

"Which people?"

"The public, politicians, government administrators, everyone! Prevention sounds good, but investing in prevention is another thing."

Leigh and Ron chatted for a few more minutes. Leigh thanked Ron for his time and was just about to leave when he interrupted. "Wait a second — I just got a copy of this article from the *American Journal of Preventive Medicine*. You may find it interesting." Leigh tucked the article in her briefcase and thanked Ron again.



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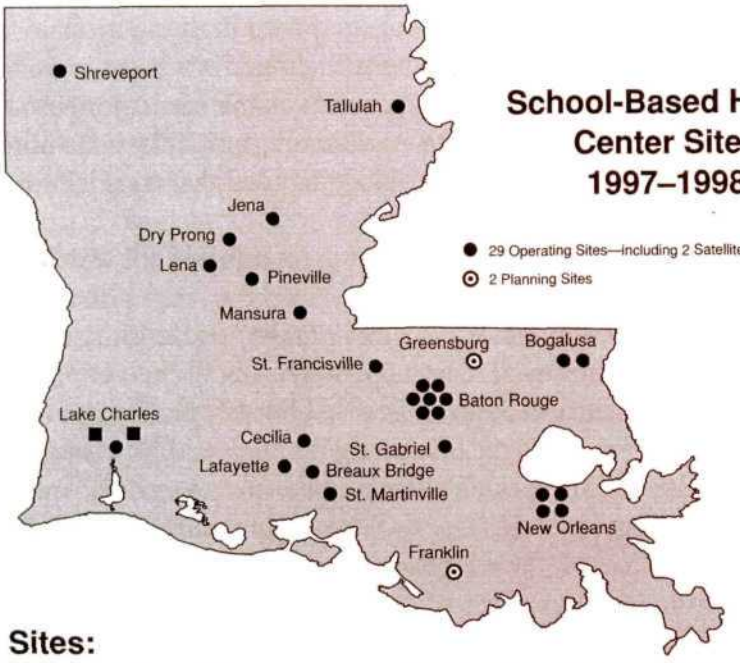

School-Based Health Center Sites 1997–1998

● 29 Operating Sites—including 2 Satellite Sites ■

⊙ 2 Planning Sites

Sites:

Tallulah (Madison Parish)
Reuben McCall High

Shreveport (Caddo Parish)
Linwood Middle

Dry Prong (Grant Parish)
Dry Prong Middle

Jena (La Salle Parish)
Jena Junior High

Lena (Rapides Parish)
Northwoods K–12

Pineville (Rapides Parish)
Slocum Elementary

Mansura (Avoyelles Parish)
Mansura Middle

Bogalusa (Washington Parish)
Bogalusa High
Bogalusa Junior High

Baton Rouge (E. Baton Rouge Parish)
Istrouma High
Glen Oaks Middle
Prescott Middle
Westdale Middle
Capitol High
Northeast High & Elementary
Glen Oaks High

St. Martin Parish
Cecilia Schools Prek–12
Breaux Bridge Schools PerK–12
St. Martinville Schools Prek–12

Lafayette (Lafayette Parish)
Northside High School

Greesburg (St. Helena Parish)
Central Middle & High

St Francisville (W. Feliciana Parish)
Family Service Center

St. Gabriel (Iberville Parish)
E. Iberville K–12

Franklin (St. Mary Parish)
Unnamed site

New Orleans (Orleans Parish)
Lawless Jrunior & Senior
Carver Jrunior & Senior
B. T. Washington
John McDonogh Senior

Lake Charles (Calcasieu Parish)
Washington-Marion Magnet High
Molo Middle
Clifton Elementary

Back in her office, Leigh examined additional maps that she found in the Louisiana Health Report Card. She found that although there were rural health clinics in almost all of the northeastern parishes, there were only two school-based health centers in the entire northern half of the state. Given the epidemiologic data indicating that the northern region of the state bore a disproportionate burden of child and teen health problems, Leigh concluded that more child health services and programs were needed in that area.

As Leigh was completing her summary report for Mary, she remembered the article Ron had given her. Written by Vincent Felitti and his colleagues, it described the results of a study examining the relationship between adverse childhood experiences (ACEs) and adult risk behaviors and mortality. The researchers had surveyed over 9,000 adults about their exposure to adverse events as children, including alcoholism and other substance abuse in the family, mental illness or criminal behavior of family members, violence toward the mother, and psychological, physical, or sexual abuse as a child. Then, the researchers examined the survey respondents' current health status as adults, including behavioral risk factors. The study revealed that as the number of adverse childhood exposures increased, the adoption of risky health behaviors also increased, as did the risk of mortality from leading causes of death — heart disease, cancer, stroke, and injury. There was a virtual dose-response relationship between the number of adverse childhood exposures and participation in risk behaviors.[6]

After reading the ACE study results, Leigh decided to include a brief abstract of the results in her report.

Mary was delighted and impressed by Leigh's summary. "Well done, Leigh. Your discussion with Ron Masters and the summary of the Felitti study gives the report a complementary balance of practical and academic perspectives. Good work!"

Mary added a few comments to Leigh's report and forwarded it, along with a copy of the Louisiana Health Report Card, to George Rogers. She included a cover letter indicating that she would be pleased to discuss it with him once he had had a chance to review the summary.

George read the report and called Mary to schedule a meeting at her office.

"Mary, I understand what this summary says about preventive care, and you know how important a focus on kids is to me personally, but the Report Card also indicates that there is a shortage of basic medical personnel to provide treatment in these areas. Wouldn't providing more medical personnel closer to the population in need make more of a direct contribution?" George asked.

"You're right, George. People need to have access to treatment close to them, but I think the state recognizes that also. The state took the lead in creating rural health clinics in northern parishes and there are plans to build even more. The need is definitely there, but I think it is being met by the state, if slowly. But primary prevention education for children in the northern parishes, on the other hand, is a priority that is not being met. Frankly, this is a gap that needs to be filled," Mary said.

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[6] Felitti, V. J., Anda, R. F., Nordenberg, D., et al. (1988) The relationship of selected health risk behaviors, health status and disease in adulthood to childhood abuse and household dysfunction: the Adverse Childhood Experiences (ACE) Study. *American Journal of Preventive Medicine* 14(4), 245 - 258.

"That makes sense," George agreed. "But it also makes sense to my board that we should be focusing in on the leading causes of death for Louisianans, things like injury and diabetes where we're worse off than the nation as a whole."

"I think the central message of the ACE study," Mary responded, "is that for many people, the leading causes of death and disability are triggered in childhood. Add to that the fact that one of Louisiana's leading causes of death is injury, generally a problem for people under 25 years of age. To me, this suggests that we should make children and young people in general a priority. High teen birth rates in the northern parishes confirm that. In reaching that northern population, I think you also have an opportunity to work with children who tend to be disproportionately at risk for diabetes, because much of the population is black."

George nodded, smiled, and thought to himself, "I know why people like to work with this person." Speaking out loud, he said, "Mary, your logic is compelling, and I really appreciate your time. Oh, and please extend my thanks to Leigh. She did a very nice job."

George had something to tell his board.

EXERCISES

1. Based on the information provided by Mary, draft a program goal statement that George might use in his presentation to the Foundation board. Provide your justification for establishing that goal. Remember, such a goal should provide an overarching statement under which more specific objectives could be developed when more specific grant making initiatives are developed.

Goal:

Justification:

2. How did Mary use the principles outlined in Chapter 3's "Assessing the Importance Health Problems" and "Setting Priorities" in her discussion with George? Identify two principles that Mary used from each section and explain how these principles influenced her arguments.

don't worry about #2

3. In the summary report, Leigh observed that when comparing the maps of the rural clinics and school-based clinics in Louisiana, there were only two school-based clinics in the entire northern portion of the state, the same area that seemed to have the highest rates of child and teen health problems. Based on these observations, Leigh concluded that more child health clinics were needed. Is her assumption we founded? How could she strengthen her argument?

4 BEHAVIORAL AND ENVIRONMENTAL ASSESSMENT

CASE STORY: MAKING THE CONNECTION

The Times-Dispatch

Marshall High Student Arrested in Shooting

by John Rowley
Times-Dispatch Staff Writer

Sixteen-year-old Darren Moran, a student at Marshall High School, was the victim of a shooting at a party Saturday. Moran is in serious condition at Northside Hospital. Another Marshall student, 17-year-old Shawn Conners, has been arrested in connection with the incident. According to other students at the party, the boys argued about insults made to Moran's girlfriend prior to the shooting. Police confirm that Conners left the party after an argument, later returning with a gun.

Police also confirm that after leaving the party Conners drove to a convenience store and was able to purchase alcohol, although he is underage. He apparently retrieved his mother's gun from home and then returned to the party. Moran and Conners argued again, and moved their fight outside the teen center where the party was being held. Moran was shot outside the building in the street.

Six months later . . .

Reverend Joseph Greene looked out at the community members who had gathered for a teen pregnancy forum organized by the local ministerial alliance. He was pleased to see how many had come to discuss the topic of teen pregnancy, but was concerned by the frustration that people were expressing. Despite the commitment and concern among community members, the problem seemed overwhelming. Few people seemed to think that they were going to get any outside help, from the government or elsewhere, in addressing this issue. After about an hour of discussion, one of his most active parishioners, Susanna Moran, stood up to speak.

"You know, I've been sitting here thinking while all of you were talking and I think we have to step back and look at the big picture. You may remember when my nephew, Darren, died in a shooting incident last year." The group grew quiet and heads slowly nodded, acknowledging the tragic event. Susanna continued, "Everyone knows that the boys were fighting before it happened, like the newspaper said, but what people who were close to those

boys know is that Shawn Conners had just found out his girlfriend was pregnant. That's what those boys were fighting about." Susanna paused.

"Shawn's mother had him when she was way too young, and she still lives on her own, which is why she had that gun — for protection. Nobody can convince me that these things aren't connected. I think we should keep that in mind when we're talking about problems in the community. We see a kid getting mad, losing control, and shooting somebody. That's the awful end result, but what caused it? What did we fail to do individually and as a community?" Susanna sat down.

Reverend Greene was stirred by Susanna's remarks. The next morning, he retrieved the program he brought back from the domestic violence conference he had attended at Morehouse University a month earlier. He searched the program agenda looking for a woman from Atlanta who had given an insightful presentation on the very issue Susanna was talking about. He found what he was looking for: Donna Evans, M.D. The narrative indicated that Dr. Evans had been trained in emergency medicine but that she was now on the faculty at the School of Public Health at Emory University, working on domestic violence prevention.

Reverend Greene finally reached Dr. Evans later that same morning at her Emory office. He introduced himself and described the community meeting, indicating that he and the community members would be most grateful if she would be willing to share her experience and insights at their next planning meeting. Dr. Evans listened and told Reverend Greene that she would be pleased to join them. She asked if she could bring along a colleague, Dale Robbins. Dr. Evans explained that Dale was a health educator with the Fulton County Health Department.

"Dale and I are working on a youth violence prevention grant proposal and we have just completed the first report from our local firearm-related injury surveillance system."

Reverend Greene seized the moment. "Would you and Dale be willing to give our group a brief report on your findings and perhaps lead a discussion on what the data mean?"

"We would be delighted," Dr. Evans replied. "When is your next meeting?"

The next meeting was scheduled 2 weeks away and Dr. Evans agreed to contact Dale to see whether his schedule was clear. When Dr. Evans asked Dale if he would be available to meet with Reverend Greene's community group, his response was immediate. "Absolutely! This is the kind of grassroots concern we need to get people to pay attention to this problem. Count me in!"

Two weeks later, Reverend Greene introduced Dr. Evans and Dale Robbins to the community members present at the second meeting organized by the ministerial alliance. Dr. Evans started off by presenting some of their surveillance system data. Highlighted were the following data for the previous year in the metro area:

- 43% of all victims of firearm homicides or assaults were between 15 and 24 years old
- 10.5% of all victims were under 18
- Firearm violence disproportionately affects black males, who were the victims of 79 percent of firearm homicides and assaults
- 44% of homicides and assaults with a firearm took place on the street or sidewalk, while 13.8% took place inside the victim's home

- 30% of homicides were the result of an argument or altercation prior to the shooting, 18.5% of homicides were the result of a robbery attempt, and 1.5% of homicides were reported as being the result of an unprovoked assault
- 40% of non-fatal assaults were the result of a robbery, while 17% were the result of an altercation and 15.5% were unprovoked
- More than two thirds of gunshot victims were received in emergency departments between 6 p.m. and 6 a.m., with the majority arriving between the hours of 9 p.m. and 3 a.m.

"These data are important because they are finally giving us information at the local level. Other surveillance systems that provide national data can't always give local planners the data that they need."

One community member raised a hand. "I think we recognize that there is more to this than just telling young people to stop carrying guns. We need to work on changing behaviors — conflict resolution skills so that kids aren't fighting in the first place and reducing things like drug and alcohol abuse. I know that played into what happened with Susanna's nephew."

"There is no question about behavior being a critical issue, but you may also want to consider factors in the environment that contribute to firearm-related violence," Dale said. "For example, there is evidence from studies indicating that erratic or harsh parental discipline, low school achievement, low social and economic status, and disorganized neighborhoods are all associated with higher rates of youth violence. This could be leading to the association we're seeing with robbery at the city-wide level. As you all have already identified, other studies show that teen pregnancy rates are also associated with rates of violence, as are policing practices. These things are part of an environment that contributes to the behavior we're concerned about."

Susanna interjected, "I understand what you are saying, that this problem is the result of a combination of factors, both behavioral and environmental. It just seems that some of these things will be extremely hard to change. I mean, parenting practices are not something that you can change overnight."

"That's true, and for that reason you may want to think twice about focusing on that particular factor," Dr. Evans agreed. "Your community will want to work on changing risk factors that you think are important and that you feel you can affect. With other factors, it may be important that other organizations get involved to support change. There may be a group in your community that could get parenting classes started or work on a parent's support network. You may want to involve the police or local politicians in talking about curfews as a result of the times of day that most of these shootings occur," Dr. Evans said.

Dale had been writing a list up on the board in the meeting hall. "You are the experts on your community. You know what will work here and what won't. If we can decide which of these risk factors to focus on, we will have made a critically important step toward implementing change," he said.

Risk Factors

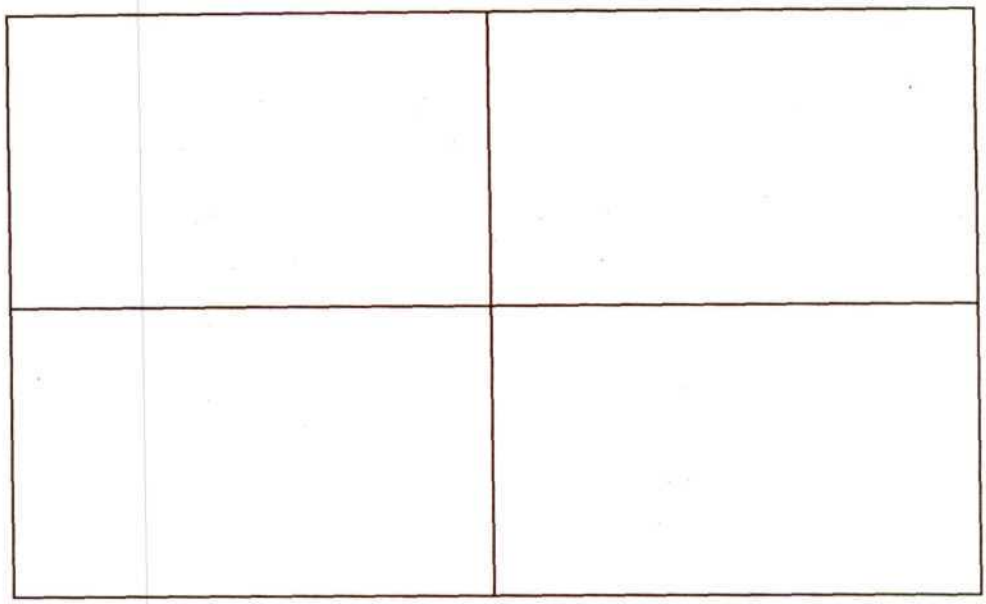
- age
- race
- sex
- time of day
- school performance
- drug/alcohol consumption
- weapon carrying
- policing activities
- parenting practices
- socioeconomic status
- disorganized neighborhoods
- teen pregnancy rates
- arguing/other altercation

EXERCISES

1. Add any factors you believe to be missing to the list above. Then, from your refined list, identify the behavioral and environmental factors that may be potential targets for intervention. *Reminder: demographic variables are usually descriptors, not behavioral or environmental factors.*

Behavioral Factors	Environmental Factors

2. Create an importance/changeability matrix for the factors developed in Step 1.



3. At a later meeting, Donna and Dale discuss getting the community group involved in the violence prevention grant that they are writing. The grant proposal requires measurable objectives for behavioral and environmental factors. Referring back to the data from the local surveillance system, write objectives for the behavioral and environmental targets that you chose in response to question #2.

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The authors wish to thank the Cop & Docs project staff at Emory University's Center for Injury Control for their assistance with this case. The data in this case study were adapted from the following sources:

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