# Peer Power: How Dare County, North Carolina, Is Addressing Chronic Disease Through Innovative Programming

Anne B. Thomas and Ellie Ward

Peer Power is an innovative school-based program that trains high school students as health educators and mentors for middle school students. The program was designed to produce positive health behavior changes in youth and reduce long-term incidence of chronic diseases of the heart and lung. This program, developed at the Management Academy for Public Health, has been successful in receiving grant funds and has demonstrated positive behavioral changes in youth in the areas of physical activity, nutrition, and tobacco use. Peer Power has far exceeded the anticipated outcomes and proven to be a catalyst for improved health behaviors throughout the community. Positive unintended consequences of Peer Power include the development of an effective social marketing campaign, reduction in tobacco sales to minors, and an increase in smoke-free restaurants in Dare County. Benefits received by Management Academy participants are evident through improved business and administrative skills at the Dare County Department of Public Health, the number of new and innovative programs that have succeeded in securing grant funds, and the sustainability of the programs developed.

**KEY WORDS: chronic disease prevention, health education, management development, public health**

North Carolina health statistics[1] have shown an increase in premature morbidity and mortality caused by disease of the heart, neoplasm of the lung, chronic obstructive pulmonary disease, and diabetes. Local population statistics in Dare County, North Carolina, corroborate these findings. Chronic diseases are devastating not only to individuals afflicted but also to the families who care for chronically ill individuals, and whole communities and states, which bear an economic burden of rising healthcare costs related to these illnesses. The economic consequences are particularly burdensome in poor, rural communities with high rates of uninsured individuals.

Chronic disease prevention programs are needed at the local, state, and national levels. Although these are generally not diseases of youth, it is important to begin early to prevent the types of behaviors that lead to chronic diseases. A 1999 report by the North Carolina Heart Disease and Stroke Prevention Task Force[2] identified tobacco use, nutrition, and physical activity as the core behavioral factors related to chronic disease prevention. The national Office of Disease Prevention and Health Promotion Healthy People 2010 initiative also lists these as important health indicators. In North Carolina, the Dare County Department of Public Health (DCDPH) in 2000 joined forces with its long-time ally, the Dare County Schools, to improve the long-term health status of young people in its county by addressing their health-related behaviors.

## Background

Dare County is bounded by the Atlantic Ocean and the Pamlico, Croatan, and Albemarle sounds, and is

The authors acknowledge the Dare County Schools, whose willingness to partner with them was critical to the success of Peer Power, and the Peer Power public health educators and students who have helped make the program a success. The authors also thank the Kate B. Reynold Charitable Trust and the Health and Wellness Trust Fund for their support.

Corresponding author: Ellie Ward, RN, BSN, Dare Home Health & Hospice, PO Box 1000, Manteo, NC 27954 (e-mail: elliew@darenc.net).

**Anne B. Thomas, RN, BSN, MPA,** is Health Director, Dare County Department of Public Health, Manteo, North Carolina.

**Ellie Ward, RN, BSN,** is Nursing Director, Dare Home Health & Hospice, Manteo, North Carolina.

*J Public Health Management Practice,* 2006, 12(5), 462–467

part of a primarily rural northeastern region of North Carolina. With miles of natural beaches and rich historical attractions in the area, Dare County's main industry is tourism. Many of Dare County's 33,500 year-round residents rely on seasonal employment and survive on service industry wages in a community considered to have a higher cost of living than most areas of North Carolina. One in every five residents of Dare County lacks health insurance.

The DCDPH has long had a successful collaboration with the Dare County Schools. For example, all local schools have a nurse, with all but one employed by the health department. This partnership allows for increased health services to youth, but health education in schools has not been as effective. In recent years, an increased emphasis on showing outcomes in academic courses subject to state testing has made health education a low priority. An assessment in 2000 showed delivery of health education to be inconsistent, uncoordinated between schools, and not comprehensive. In response to this assessment and the long-term health challenges facing the region, the DCDPH and the Dare County Schools emerged as leaders to plan and deliver a program to modify risk factors for chronic disease among youth.

## Methods

### Business plan development at the Management Academy for Public Health

A team of four managers from the DCDPH and the Director of Student Services with the Dare County Schools attended the UNC Management Academy for Public Health in 2000–2001. The goal was to improve their business and management skills and to develop a business plan for an innovative, effective program that would improve the health behaviors of youth in their community.

#### *Design of the program*

For the Management Academy, the Dare County team analyzed the industry of chronic disease prevention, looking at best practices and trends in existing initiatives. Because of the program's focus on youth, the team decided it should utilize innovative methods, including technology, to deliver its message, and should have a peer-education orientation to best engage the target audience.

The team created a program for high school and middle school students, in which the latter are taught lessons about nutrition, physical activity, and tobacco use by teams of local high school students, who would receive academic credit for participating. DCDPH personnel would train the high school students in an appropriate curriculum, and these students would be expected to create behavior change projects, mentor middle school students about their health-related choices, and design and produce resource displays at the middle schools and area libraries.

#### *People and finances*

To make a long-term, sustainable commitment to the core health education curriculum in all Dare County middle schools, the team used Management Academy training in data management to gather and analyze a great deal of in-depth information about program needs, expenses, revenue, and risks to long-term feasibility. They detailed daily operations, personnel projections, and annual operational costs going forward 6 years, and produced a month-by-month operations budget for year 1.

The Management Academy curriculum requires that the business plan address the long-term sustainability of its program. The team planned to apply for grant funding to launch the program. Beginning in year 3, the program would include the sale of coupons for discounts on goods and services at local businesses. Also in year 3, the program would begin being marketed regionally, statewide, and nationwide, selling subscriptions to its Web site, program curriculum materials, and consultative services to communities interested in implementing similar programs. Table 1 details the expected revenue and expenses over the first 6 years of the program, on the basis of the business plan created at the Management Academy for Public Health.

The long-range plan addressed expanding the program to include additional risk factors for premature disability and disease. The return on investment from this program would be not only in the form of revenue from this program but also in improved health behavior, resulting in long-term better health outcomes and lower healthcare costs for individuals and the community.

## Results

### The Peer Power program

Using the comprehensive business plan developed for the Management Academy, the Dare County team applied for and received funding for Peer Power through a 5-year, $395,336 grant from the Kate B. Reynolds Charitable Trust's SELF (Smoking, Education, Lifestyles, and Fitness) Improvement Program.

Peer Power was launched in July 2001; it was a fully integrated part of the core health education curriculum in Dare County's three middle schools beginning with

**TABLE 1 ● Peer Power operations budget: Projected in Management Academy business plan***

| | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
|---|---|---|---|---|---|---|
| Operating expenses | | | | | | |
| Peer Power health educator | 44,340 | 46,588 | 48,886 | 51,330 | 53,897 | 56,591 |
| Program assistant | 28,908 | 30,354 | 31,872 | 33,466 | 35,139 | 36,895 |
| Statistical/evaluation consultant | 3,000 | 3,150 | 0 | 5,460 | 0 | 7,875 |
| Web design and editing | 0 | 10,000 | 28,000 | 28,000 | 28,000 | 28,000 |
| Web support and maintenance | 0 | 9,000 | 12,000 | 12,000 | 12,000 | 12,000 |
| Marketing manager | | | 11,875 | 23,750 | 24,938 | 26,184 |
| DCDPH program support staff | 27,492 | 24,045 | 27,491 | 24,806 | 26,043 | 31,841 |
| DCS program support staff | 14,040 | 14,963 | 15,680 | 16,464 | 17,287 | 23,712 |
| Employee travel | 3,000 | 3,000 | 3,000 | 5,000 | 7,500 | 10,000 |
| Student travel | 1,000 | 1,500 | 1,500 | 1,500 | 1,500 | 1,500 |
| Office space | 2,880 | 2,880 | 9,000 | 12,000 | 12,000 | 12,000 |
| Furniture | 3,010 | | 1,505 | | | |
| Telephone | 1,200 | 1,200 | 2,400 | 2,400 | 3,000 | 3,000 |
| Postage | 252 | 500 | 2,000 | 4,000 | 5,000 | 6,000 |
| Computer equipment | 1,320 | 5,280 | 5,610 | 6,831 | 6,831 | 6,831 |
| Resource materials | 21,000 | 9,000 | 6,000 | 6,000 | 3,000 | 3,000 |
| Supplies | 1,500 | 1,500 | 2,000 | 2,500 | 3,000 | 3,000 |
| Promotional/advertising | 3,600 | 5,000 | 5,000 | 15,000 | 25,000 | 50,000 |
| Printing—education materials | 2,500 | 2,500 | 6,500 | 9,500 | 21,500 | 36,500 |
| Printing—discount coupon card | | | 3,500 | 7,000 | 7,000 | 7,000 |
| Total operating expense | 159,042 | 170,430 | 223,819 | 267,007 | 292,635 | 362,429 |
| Revenue | | | | | | |
| Grant funds | 110,750 | 92,912 | 92,758 | 49,898 | 49,018 | 0 |
| Reinvested revenue | 0 | 0 | 0 | 0 | 0 | 211,383 |
| Business donations | 0 | 2,000 | 3,000 | 3,000 | 5,000 | 15,000 |
| Discount coupon card sales | 0 | 0 | 50,000 | 100,000 | 100,000 | 100,000 |
| Web site subscriptions | 0 | 0 | 14,000 | 40,000 | 160,000 | 320,000 |
| Curriculum sales | 0 | 0 | 1,875 | 45,000 | 180,000 | 360,000 |
| Consultative services | 0 | 0 | 0 | 2,500 | 10,000 | 40,000 |
| Total Revenue | 110,750 | 94,912 | 161,633 | 240,398 | 504,018 | 1,046,383 |
| Revenue over expense | −48,292 | −75,518 | −62,186 | −26,609 | 211,383 | 683,954 |

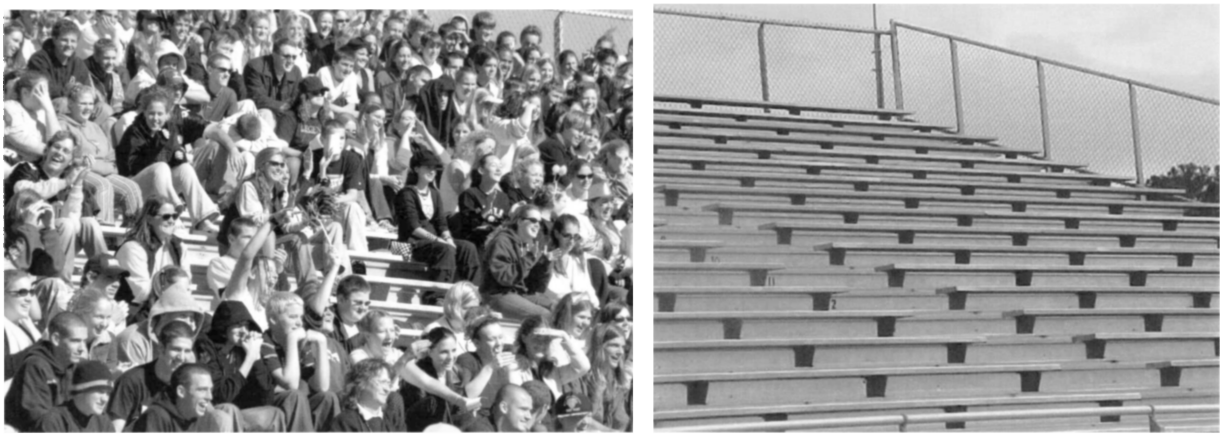
*DCDPH indicates Dare County Department of Public Health; DCS, Dare County Schools.

the 2002–2003 school year and continuing since then. The first step of implementation was to hire personnel. Health educators were hired to train peer health educators (students); they developed behavior modification assignments and classroom activities and established Wealth of Health Resource Areas in libraries in each school.[3]

By fall 2005, 79 high school peer health educators had participated in the program, teaching a total of 805 middle and elementary school students. High school students were recruited for Peer Power on the basis of academic achievement, emotional maturity, and desire to participate. The high school Peer Power students worked with the health educator to learn health content and devise teaching strategies for sharing that content with middle school students. Two to three times each week, Peer Power students visited middle schools to conduct educational sessions. The younger students rotated between different high school peer health educators in groups of four, exploring the harmful effects of tobacco use and other lifestyle choices related to health. An activity report for the period from July 1, 2001, to December 31, 2005, listed a total of 588 service delivery activities, including classes and other events; 102 outreach activities, including exhibits, news releases, presentations, and other disseminating activities; and 467 training activities, including skill building/training for high school peer health educators in the areas of nutrition, physical activity, and smoking.

Beyond the number of activities undertaken by the program planners and students, the high school Peer Power students have added value to the program by applying innovative methods to their task. For example, they have created thoughtful targeted social

450 people die every hour from a tobacco-related illness.
In 2½ hours, that's the equivalent of the entire student body at Manteo High School.



Join the Great American Smoke Out

This ad was created by the Peer Power Class at Manteo High School. Peer Power is a program of the Dare County Department of Public Health in partnership with Dare County Schools. Peer Power is funded by Kate B. Reynolds Charitable Trust. We would like to thank the Publications Teacher, Robin Sawyer, at Manteo High School for supplying the picture on the left.

**FIGURE 1.** Example of a marketing product created by high school peer health educators.

marketing messages about their "product"—healthy living—through which they are replicating the type of business-like thinking advocated by the Management Academy. An example of a marketing product created by the high school Peer Power students is shown in Figure 1.

## Evaluation

According to an evaluation conducted by the North Carolina Institute for Public Health in 2004,[4] Peer Power is a popular program among participating students, their parents, health/physical education teachers, and school administrators. Through interviews and focus groups, this evaluation found that parents, educators, and students believe Peer Power is a much needed program in Dare County, which does an "excellent job" of providing experiential training for high school students and making middle school health information more "relevant and interesting."[4(p8)] Middle school students appreciate the small group sizes and ability to learn from their peers; teachers and administrators have overwhelmingly positive attitudes toward the program content and toward the Peer Power students as role models. Peer health educators themselves take great pride in their teaching and mentoring of middle school students. About half had previously contemplated a career in teaching, and the program has "solidified that career decision" for many.[4(p12)] Finally, parents of middle school students report hearing their children talk about the topics learned in Peer Power outside of class, and parents of high school Peer Power students noted their children's increased self-esteem, responsibility, confidence, and skills such as public speaking and other social skills.

Results directly related to behavior change are very positive as well. For an outcomes evaluation completed in 2005 for the Kate B. Reynolds Charitable Trust's SELF Improvement Program, high school peer health educators and their middle school students were given presemester and postsemester surveys. Findings indicated that the program has improved students' nutritional- and activity-related health choices significantly (Table 2). Besides these behavior changes, the evaluation also found that average body mass index (BMI) decreased by 4 percent for 66 percent of students.

Peer Power is also having a positive—and unforeseen—impact on the wider community's health behaviors by allying with other groups to address health behavior issues. One such group is the Northeastern North Carolina Partnership for Public Health (NENCPPH), a regional voluntary collaborative partnership of 11 health departments serving 19 counties, which administers the recently funded regional Health and Wellness Trust Fund's Youth Tobacco Prevention

**TABLE 2 ● Peer Power program average increases in health-related behavior through third quarter 2005**

| | |
|---|---|
| Vegetable consumption | Increased from 1.0 to 5.2 servings/wk |
| Fruit consumption | Increased from 3.2 to 7.2 servings/wk |
| Days of moderate physical activity | Increased from 1 to 3.3 d/wk |

Program. This program's Youth Tobacco Prevention coordinators work in tandem with the high school Peer Power students as health champions, reaching into the community to reduce tobacco accessibility for minors.

In spring 2005, Peer Power students visited and made presentations to merchants about the law against selling tobacco products to children and provided proper signage to merchants. According to Alcohol Law Enforcement (ALE) officials, the incidence of minors successfully buying tobacco in ALE's "sting operation" was 26 percent in the period following the Peer Power student visits, down from 42 percent in the previous year.[5] The ALE has credited the students' highly publicized visits with causing the dramatic decrease.

Peer Power students have also supported youth tobacco prevention by making presentations to the board of education, advocating the adoption of a tobacco-free schools policy. At its February 2005 meeting, the Dare County Board of Education adopted a 100 percent Tobacco Free School policy, banning the use of any form of tobacco on school district property and at school-sponsored events. Peer Power students were instrumental in advocating for this policy. Peer Power students have also approached local restaurants and other businesses about their smoking policies. A fall 2005 survey conducted by Manteo High School Peer Power students showed the percentage of smoke-free restaurants had risen from approximately 20 percent to approximately 38 percent (92/240 restaurants) after the students' advocacy began. The NENCPPH has expressed interest in evaluating Peer Power as a replicable model for health education and health promotion, and supported the program's successful application for Health and Wellness Trust Fund support.

### Lessons learned

The Peer Power program is an extremely popular and effective program. The following points are lessons learned after 5 years of implementation:

1. *Grant funding adds value*. Peer Power program planners have found that the Kate B. Reynolds Charitable Trust's SELF Improvement Program grant adds value to the program in the form of a built-in evaluation apparatus, which ensures that the program will be based soundly on research about what works to teach school children about healthy lifestyle choices. Furthermore, positive results make the program more attractive to other funding agencies, making long-term sustainability possible, and probably allowing for more health issues to be addressed.
2. *Applying a revenue-driven model to Peer Power may be unrealistic at this time.* Peer Power planners have been too busy implementing the program to work on creating the "Peer Power Discount Card" or marketing the program to other schools, both of which would provide additional income to the program. It may be that in the future, other schools and communities may want to buy the model, as the Management Academy team planned. However, schools and communities struggle to overcome their own budgetary limitations and meet their responsibilities with limited funds. Also, many barriers exist to "privatizing" public schools in any way, or taking content out of the hands of local planners. The fact that Peer Power is now a permanent addition to the Dare County schools' curricula is a testament to the planners' understanding of the community's needs, their use of sound methods, and the extraordinary popularity of the program—all made possible by grant funds. And although the program does not generate revenue at this time, it does leverage an army of effective volunteer educators who are going well beyond initial plans for the program.

   On the basis of the positive results of Peer Power, the community has come forward with ideas for supporting the popular program in lieu of "business" income. Long-range funding options that would effectively ensure the sustainability of the program are being pursued with support from the board of health.
3. *Web-based interaction between students is a challenging issue for schools*. The Management Academy team planned that high school Peer Power students would counsel middle school students about their health choices via e-mail and other Web-based technology. They learned that school firewalls and other blocks to student Web access, established to protect student safety and ensure appropriateness of communication, make this approach difficult or impossible to implement. Frequent in-class presentations and small-group sessions have made Web-based interaction less essential to the program. The lack of Web-based capabilities does, however, make the distance between Dare County schools a challenge for program staff, and the most recent grant request (written to the Health and Wellness Trust Fund) asks for two full-time staff health educators, rather than one as was written into the Management Academy business plan, to better cover needs at the different schools.

## Discussion

This program harnesses the power of adolescent peers in a positive and constructive manner by training high school students to function as health educators and to

develop and deliver activities to their middle school peers. By addressing long-term behavior changes in tobacco use, nutrition, and physical activity, peer health educators are providing primary prevention of chronic diseases of the heart and lung.

The Peer Power training and education program hinges on the concept that high school students teach while learning about sound health practices, thereby improving their own health as well as that of the youth they mentor and teach. According to the evaluative report by the North Carolina Institute for Public Health, "School administrators and teachers [in Dare County] all expressed a desire to see the program continue and expand to include more classes and reach all students."[4(p13)] In fact, the only documented negative criticism of the program was that Peer Power is not yet big enough to include all Dare County schools and students.[4(pp9–10)]

Peer Power is currently in its 5th year of operation. As with any new initiative, challenges have been realized and lessons have been learned. Besides the difficulty of staffing the program at geographically distant schools, which is mentioned above, another challenge has been in the recruitment of students. School counselors charged with ensuring the federal *No Child Left Behind* standards are met and developing student schedules in three different high schools in Dare County are the primary source for recruitment to Peer Power. Given the schools' focus on academic achievement and preparing high school students for college, securing counselor buy-in and willingness to direct students to a one-credit health education course has not been easy. Outreach efforts to school counselors by the health educators with one-on-one meetings is ongoing, with promising feedback.

The positive relationship that existed between administration of the DCDPH and the Dare County Schools allowed the strategic partnership to prosper with minimal effort, and secured the requisite buy-in for this initiative to occur within the schools. This partnership was integral to the program's success. Having both health department and county schools managers attend the Management Academy reflected and enhanced this positive relationship. The Management Academy provided the Peer Power planning team with the training, education, resources, and support necessary to think strategically, plan efficiently, develop effective marketing, and sustain the program financially. These skills were utilized in the development of the business plan, in the grant application to Kate B. Reynolds, and in leveraging the resources of the Peer Power program to affect wider community change. Peer Power mimics the Management Academy education model, providing high school students with the requisite knowledge and tools to become effective health educators. The program has far exceeded expected outcomes, supporting its motto, "Never underestimate the power of your peers."

Several community-based initiatives and partnerships have been facilitated and developed by the DCDPH following the first Management Academy success. A second team graduated from the program in 2002 and created the business plan for "Miles of Smiles," a mobile dental program focusing on preventive and restorative dental services for school-aged children in Dare and Hyde counties. Other community-based initiatives include the Community Care Clinic of Dare, a free clinic serving the uninsured, which is now an independent 501(c) 3 nonprofit organization, and the Dare Respite Care Program, providing respite for caregivers of the elderly and infirm.

Integral to the success of all these initiatives, the culture within the health department has changed in recent years. This change has evolved over time, sparked in part by training provided by the Management Academy and by support from administration. Staff members are encouraged to think creatively and strategically, and to continuously develop their skills in managing people, data, and finances to solve old—and new—problems.

## REFERENCES


1. *Profile of Dare County.* Report by the North Carolina Institute for Public Health. University of North Carolina at Chapel Hill; 2004.
2. US Census Bureau. 2000. Available at: http://www.census.gov/main/www/cen2000.html. Accessed July 12, 2006.
3. Alexander J, Pfaender S. *Healthy Carolinians of Dare County Community Health Assessment*. North Carolina Institute for Public Health, University of North Carolina at Chapel Hill; 2002:13–14.
4. Davis MV, Temby JRE. *Evaluation of the Peer Power Program for the Dare County Health Department.* North Carolina Institute for Public Health, University of North Carolina at Chapel Hill; 2004.
5. *North Carolina Plan to Prevent Heart Disease and Stroke 1999–2003.* North Carolina Heart Disease and Stroke Prevention Task Force; 1999.