# Developing a Health Education Program to Address Liver Cancer in a Community Impacted by Environmental Contamination

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## Introduction

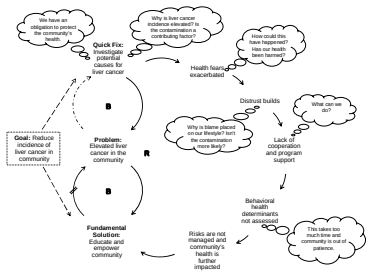
Before its closure in 2001, Kelly Air Force Base (AFB) in San Antonio, Texas was the oldest, continuously active air base in the United States. Past operations at the base resulted in releases of industrial chemical contaminants into the environment. Investigations revealed a shallow groundwater plume of volatile organic compounds extending beyond the base boundary and lying under approximately 20,000 homes.

While the health consequences attributable to this contamination are not confirmed, environmental exposures may have contributed to adverse health effects within the community. The consistently high rate of liver cancer is just one environmental health concern in the Kelly community. Efforts to address this issue have included assuring exposures are not presently occurring, monitoring temporal trends, and conducting investigations to identify the causes.

## Problem Statement

Considering that many factors that contribute to the development of liver cancer are preventable and/or modifiable, why has a comprehensive environmental health education and risk communication program addressing these risk factors not been implemented within the Kelly community?

## Causal Loop




Shifting the Burden was the archetype chosen for this project. Metro Health has an obligation to continue monitoring for potential environmental exposures and investigating the causes of elevated liver cancer in the Kelly community so that appropriate actions can be taken to reduce the community's risks from environmental sources. However, these investigations and studies intensify the community's health concerns, which may lead to distrust and lack of community support. Without the community's cooperation and participation, Metro Health cannot accurately assess, and respond to, the health needs of the community. The implementation of an environmental health education program will supplement the current efforts of Metro Health to reduce the incidence of liver cancer in the Kelly community by educating the community about environmental risks and empowering residents to take responsibility for their health by reducing risks through modified lifestyles.

## Project Plan

**Program Goal:** To reduce the incidence of liver cancer and improve the overall health of a community confronting multiple environmental health challenges through a culturally appropriate health education and risk communication program.

**Health Problem:** Historically, liver cancer incidence has been higher within the Kelly Air Force Base community compared to others areas of Bexar County.

**Outcome Objective:** By December 31, 2011, new liver cancer cases reported to the Texas Cancer Registry will be reduced by at least ten percent from the 2001 baseline.

**Determinant:** The perception that risk emanates primarily from environmental sources overshadows the reality that other factors, such as genetics, nutrition, infectious agents, and lifestyle choices, also contribute to the development of liver cancer.

**Impact Objective:** By September 30, 2009, at least 60% of the program participants will have a greater knowledge of risk and the determinants of health; and 35% or more of the participants will adopt healthier lifestyles.

**Contributing Factors:**

1. A general lack of understanding of health and its determinants.
2. The difficulty in sorting through and understanding the often conflicting health information received through the media, World Wide Web, and special interest groups.
3. The commonly held belief that personal behaviors, in comparison to environmental contamination, are less harmful to health.

**Process Objectives:**

1. During FY08 (October 2007 – September 2008), a health education and risk communication program will be developed in collaboration with key stakeholders.
2. The new program will be implemented in two to four neighborhoods within the Kelly community during FY09.

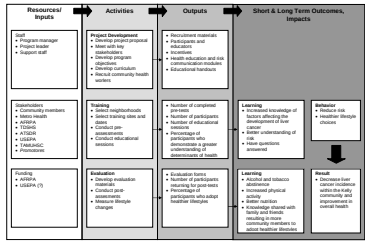
## Next Steps

**Event:** Develop a comprehensive health education and risk communication program.
**Activities:**
Develop and submit a project proposal to funding agency.
Meet with key stakeholders to develop program objectives.
Develop curriculum.
Recruit community health workers to conduct training sessions.

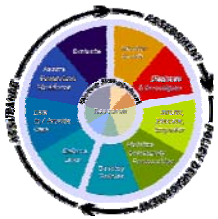
**Event:** Implement the program in Kelly area neighborhoods.
**Activities:**
Select neighborhoods.
Select training sites and schedule training dates.
Conduct pre-test.
Conduct training sessions.

**Event:** Evaluate the program.
**Activities:**
Develop evaluation materials.
Conduct post-test.
Measure long-term lifestyle changes.

## Project Logic Model




## Essential Environmental Health Services



This project addresses the core function of policy development by focusing on the environmental health services of (1) informing, educating, and empowering the community about health issues and (2) mobilizing community partnerships. During a health roundtable meeting sponsored by the Kelly Area Collaboration in September 2006, participants identified promotion of healthy lifestyles and health education and outreach services as necessary actions for improving the health status of the Kelly community. This need for appropriate health information specific to the environmental challenges confronting the Kelly community will be met with an environmental health education and risk communication program developed in collaboration with key stakeholders, including community-based organizations, government agencies, and educational institutions.

## Conclusions

Using systems thinking, a health education and risk communication program was identified as a supplemental strategy to address the elevated liver cancer incidence within the Kelly Air Force Base community. The perception that risk emanates primarily from the environmental contamination at Kelly AFB overshadows the reality

## Conclusions (cont.)

that other modifiable factors also contribute to the development of liver cancer. Personal behaviors potentially may have the greatest impact on health. Research has suggested that 20 to 50% of cancer deaths are attributable to diet and another 29 to 31% to tobacco use, whereas only 1 to 5% are attributable to environmental pollution.14 Nevertheless, voluntary risks are perceived to be less harmful compared to imposed risks, such as environmental pollution.

The intended goal of this project is to reduce the incidence of liver cancer within the Kelly community. To accomplish this goal, a health education and risk communication program will be developed and implemented within several neighborhoods of the community. The program will consist of health education modules developed in collaboration with key stakeholders and presented by *promotores*, or community health workers, in sites throughout the targeted neighborhoods over a period of six to twelve months. Assessments will be conducted at the beginning of the program to measure baseline levels of health behaviors, risk perception, and knowledge of health determinants. The expected outcomes of the project are a better understanding of risk and reduction of health risks through the adoption of healthier lifestyles. These outcomes will be quantified by post-assessments.

The two greatest challenges to this project will be recruiting trained and experienced community health workers and persuading residents to participate in the program. Metro Health has identified a community-based organization already training *promotores* on several health issues, including cancer prevention, within some areas of the Kelly community. Partnering with this group will address the first challenge. As for community buy-in, a community-led effort will provide for the greatest chance of success. Ownership will be given to the community. Metro Health will act as facilitator and allow the community to establish the program objectives. To encourage participation and retention in the program, non-cash incentives may also be offered.

## Literature Cited

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