Geography as a Risk Factor: Effective Use of GIS to Reduce Teen Pregnancy

The Adolescent Pregnancy Prevention Campaign of North Carolina (APPCNC) is one of nine state and local organizations implementing a five-year (2010-2015), multi-component, community-wide initiative to reduce teen pregnancy and address disparities in teen pregnancy and birth rates. Part of The President's Teen Pregnancy Prevention Initiative, the project is supported through a cooperative agreement with the Centers for Disease Control and Prevention in partnership with the Office of Adolescent Health. APPCNC selected Gaston County as the implementation site due to the county's historically high rates of teen pregnancy and racial and ethnic disparities in rates of teen pregnancy and birth.

Project Goals

1. Reduce the rates of pregnancies and births to youth in the target areas.
2. Increase youth access to evidence-based and evidence-informed programs to prevent teen pregnancy.
3. Increase linkages between teen pregnancy prevention programs and community-based clinical services.
4. Educate stakeholders about relevant evidence-based and evidence-informed strategies to reduce teen pregnancy and data on needs and resources in target communities.

Gaston Youth Connected GIS Strategies

- County Public Health Department created 'hot-spot' map of teen birth rates. Rates were calculated for 2006-2009 births per 1,000 females age 15-19 years. Addresses for teen births were obtained from the State Registrar. Map boundaries included middle and high school attendance zones and census tracts. The birth rates were color-coded into five categories: below county average; below state average; at or near state average; above the state average; and above the county average.

- Community stakeholders requested more detailed maps that would identify neighborhoods; schools; parks; churches and other institutions that would highlight locations to recruit youth to sexual health education programs and to conduct outreach activities to inform youth and parents of the availability of teen reproductive health clinical services.

- Project staff approached the director of the Gaston County Planning Department, who volunteered on a project stakeholder team, to create more detailed maps with the markers requested above for the 13 census tracts in the top two categories (i.e., above the state and county average) on the 'hot-spot' map.

- The detailed census tract maps were disseminated among organizations that provide sexual health education programs or adolescent reproductive health services. These organizations reported using the maps to aid recruitment and outreach efforts.

- Youth who enrolled in sexual health education programs reported the school they attended on pre/post surveys. School attendance zones that overlapped with the 13 census tracts with the highest rates of teen birth were identified as high-risk schools. Five high schools, six middle schools, and one alternative school were identified as high risk schools. These schools were used as a proxy indicator of geographic risk to determine the extent to which the programs were reaching the intended target population.

- The project continues to explore the use of mapping strategies to assess project reach for the provision of clinical services. One exploratory map was created to illustrate the overlay of Gaston County Health Department adolescent family planning clients with the high teen birth rate census tracts. This map identified an underserved area of the county where the density of teen births was greater than the density of adolescent family planning clients.

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