



An extensive Public Health Evaluation was completed under the guidance of the Navy and Marine Corps Public Health Center. The Public Health Evaluation is designed to evaluate the potential short and long-term health risks associated with living in the Naples area as a result of inadequate trash collection, uncontrolled open burning of uncollected trash, and widespread dumping of waste, including chemical and other hazardous waste.

Launched in 2008 and completed in 2011, the Public Health Evaluation involved the collection of air, water, soil and soil gas samples from throughout the Naples area to identify whether there were potential health risks.

Your Health: Facts for Navy Families in Naples

About: Birth Defects Epidemiological Study

The U.S. Navy is committed to ensuring our families are safe while serving our country at home or overseas. The following information is provided as part of a wide-ranging effort to understand the health risks of our personnel and families living in Naples, Italy. From 2008-2011, the Navy conducted a comprehensive Public Health Evaluation to assess potential short and long-term health risks associated with living in the Naples area (see sidebar). In line with our commitment to continually share important health information, we encourage you to review the following information.

What is an epidemiological study?

An epidemiological study looks at the distribution of disease, or other health-related conditions and events in human populations, as related to age, sex, occupation, environment, ethnicity, and economic status to identify and alleviate health problems and promote better health. One of the most important distinguishing characteristics of epidemiology is that it deals with groups of people rather than with individual patients.

What is the Birth Defects Epidemiological Study?

The Birth Defects Epidemiological Study, completed in January 2009, was one of several studies being conducted by the Navy and Marine Corps Public Health Center (NMCPHC) as part of the Naples Public Health Evaluation.

Based on concerns raised in Italian health studies, NMCPHC asked the Naval Health Research Center to conduct a study of birth defects among Department of Defense (DoD) beneficiary infants who were conceived in the Naples area. The DoD Birth and Infant Health Registry captures comprehensive healthcare data to define all live births and infant health outcomes among infants born to DoD beneficiaries.

The Birth Defects Epidemiological Study examined birth records of women in the DoD Birth Registry who lived in Naples during their pregnancy periods and compared the birth outcome rates of these women with DoD Birth Registry data. A “birth outcome” is the condition of a child when it is born.

The Birth Defects Epidemiological Study was designed to answer one fundamental question:

- Was the risk of birth defects in children who were conceived while the mothers were enrolled in a Military Treatment Facility (MTF) or associated clinic in Naples significantly different from children born to mothers who were enrolled in other overseas facilities?

Overall, the study analyses do not suggest a statistically significant increase in the birth defect rate of infants who gestate in the first trimester of their development in the Naples area compared to infants who gestate in the first trimester of their development in other overseas Navy areas.

Who was part of the study population?

The study included infants born from 2000 to 2005 to active duty military women and spouses of active duty military personnel where the mother showed continuous enrollment in an overseas Navy MTF or



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associated clinic for the month prior to conception and the following three months of pregnancy. The number of infants born to women meeting this criteria was 8,678 infants. An infant was considered exposed to the Naples environment if all four months of the mother's enrollment were at an MTF or clinic in the Naples area, which included U.S. Naval Hospital Naples and the clinics in Gaeta and Capodichino, regardless of the infant's birth location. There were 894 infants characterized as having had first trimester exposure to the Naples area.

What did the study find out?

Among the 8,678 infants that were part of this study, 894 infants showed first trimester exposure to the Naples area, and 7,784 infants showed first trimester exposure to other overseas Navy enrollment sites. For every 100 Navy births overseas and in the United States, there is an average of 3.6 birth defects in children born to women whose healthcare is provided by the DoD, including those born in civilian hospitals. The Naples group (894 infants) had an average birth defect rate of about 3.13 per 100 births, lower than the overall Navy rate. Because people have to be screened before they go overseas, the Naples group was compared to the birth defect rate in children that were conceived at all other Navy overseas locations (7,784 infants), calculated to be an average of 2.35 birth defects per 100 births. While the average birth defect rate in the Naples group is numerically higher than those born at other overseas Navy locations and lower than the overall Navy rate, the average rates are statistically too close to be considered different.

The study concluded the following:

- The risks of birth defects in children conceived overseas and in Naples were both lower than the overall Navy rate during the study period.
- When compared to birth defects in children conceived at other overseas facilities, the risks were higher for Naples but the difference was not statistically significant.

What is considered a birth defect?

Most children are healthy when they are born; however, adverse birth outcomes may include conditions like birth defects, low-birth weight and infant mortality. This study looked at the rate of birth defects. A birth defect may develop while the baby is developing in the mother's womb, usually during the first three months of pregnancy and can affect almost any part of the body. In general, the most common birth defects are cleft lip or palate; defects of the spine, brain or heart; and Down's Syndrome.

What causes birth defects?

The causes of most birth defects are not known. Sometimes birth defects just happen and are not caused by anything that the parents did or didn't do. Some women have a higher chance of having a child with an adverse birth outcome, such as women over the age of 35, and women who smoke, use alcohol or take certain drugs while pregnant. Families with a history of birth defects are also more likely to have children with birth defects. Environmental factors may also play a role in adverse birth outcomes.

Where can I review the study?

The study, along with other information related to the Naples Public Health Evaluation, is posted on the Naples Community Health Awareness website.

For more information about the Birth Defects Epidemiological Study, your health or the Naples Public Health Evaluation, contact the U.S. Naval Hospital Naples, Public Health at COMM 081-811 4170 or DSN at 629-4170.