

An important Public Health Evaluation is underway 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, the Public Health Evaluation involves the collection of air, water, soil, and soil gas samples from throughout the region to identify whether there are potential health risks.

For details and background information, visit the website listed at the bottom of this page.

Your Health: Facts for Navy Families in Naples

About: Updated Asthma Epidemiological Study—2010

The U.S. Navy is committed to ensuring our families are safe while serving our country at home or overseas. The focus of the Naples Public Health Evaluation and the epidemiological studies is to learn more to better protect the health of U.S. military and civilian personnel and their families living in Naples. In line with our commitment to continually share important health information, we encourage you to review the following information.

What is the asthma epidemiological study?

The asthma epidemiological study was conducted as part of the U.S. Navy's comprehensive Naples Public Health Evaluation to determine whether there are adverse health effects from uncontrolled open burning of uncollected trash and widespread dumping of waste, including chemical and other hazardous waste. An epidemiological study looks at the distribution of disease, or other health-related conditions or events in human populations, as related to various population characteristics, including age, sex, occupation, environment, ethnicity, and economic status. The objective of these types of studies is to identify and describe health problems and promote better population health by working to prevent those problems. The Navy conducted four epidemiological studies as part of the Naples Public Health Evaluation, focusing on birth defects, cancer, and asthma.

Two asthma studies were conducted to determine whether air pollution in Naples was affecting asthma in the Navy population there – particularly the

number of asthma visits to a healthcare provider and the asthma severity. The first study was completed in October 2008 but was unable to identify significant trends that might associate increased exposure to smoke from burning trash with either an increase in asthma severity or the number of medical visits diagnosed as asthma. Subsequently, the Navy continued to collect and analyze medical data and was able to use newly available air quality data from their year-long ambient (outdoor) air monitoring study to conduct a follow-up asthma study. This follow-up study was completed in June 2010 and is the subject of this fact sheet.

Who was part of the study population?

The study population included U.S. Department of Defense beneficiaries who received care at U.S. Naval Hospital Naples or its branch medical clinics at Capodichino and Gaeta during two overlapping time periods: July 2008 to July 2009, and October 2006 to July 2009. The first time period was selected to correspond with the sampling dates of the Navy's year-long regional ambient

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air monitoring study, allowing epidemiologists to compare the number of asthma visits and asthma severity to the air data. The second time period, October 2006 to July 2009, covered a longer time frame to provide a historical perspective of asthma visits and the number of persons clinically monitored for asthma and to identify any long-term trends.

What information was examined?

Data from the regional ambient air monitoring study

While many air pollutants have been associated with asthma, two were selected for analysis in the study after reviewing air sampling data from the Navy's regional ambient air monitoring study. The first pollutant was PM10, which is particulate matter less than 10 microns in diameter (about one-seventh the width of a human hair). Particulate matter is a mixture of small solid particles and liquid droplets found in the air. Particles less than 10 microns in diameter are small enough to be inhaled and accumulate in the respiratory system. PM10 is widely recognized as a primary air pollutant and has been associated with poor health outcomes, including asthma. It has been the focus of many studies on the effects of air pollution on lung function. Scientific studies suggest that PM10 is associated with an increase in the frequency and severity of asthma symptoms.

The second air pollutant was a chemical called acrolein. Acrolein was

selected because the concentrations found in the Navy's ambient air monitoring study exceeded the Navy's risk management criteria in all of the air samples that were collected and because it has some properties that may exacerbate asthma, although the association is not as well established in the scientific literature as that of PM10.

Asthma burden

Asthma-related occurrences (described as "asthma burden" in the study) were measured by the number of asthma visits and by the asthma severity score associated with each asthma visit. An "asthma visit" is defined as any medical visit resulting in an asthma diagnosis. With every diagnosis of asthma, the healthcare provider also assigns a severity score, ranging from 0 to 4, with 0 indicating "unspecified/unknown severity" and 4 indicating "severe."

The asthma visits and severity scores were used in the study to identify whether there was an association between asthma and air pollution among the population at Naples. For purposes of the study, the asthma severity scores were classified into two

Review the asthma study at:

*[https://www.cnic.navy.mil/
Naples/
CommandInformation/
HealthAwareness/
MedicalStudies/index.htm](https://www.cnic.navy.mil/Naples/CommandInformation/HealthAwareness/MedicalStudies/index.htm)*

groups, non-persistent and persistent. Individuals with a severity score of 1 were classified as non-persistent and those with a severity score of 2, 3, or 4 were classified as persistent.

To determine if there were any long-term trends in the number of persons clinically monitored for asthma, data from October 2006 to July 2009 were obtained from a healthcare management system that tracks persons with asthma. This medical data was also compared to data for Naval Hospitals in Rota, Spain, and Sigonella, Italy, to see how trends in Naples compared to other Naval Hospitals in the European region.

What did the study find out?

The study found that air pollution levels in Naples were not associated with the number of asthma visits. Rather, the number of asthma visits varied by season, with peaks in fall and low points in summer. This seasonal variation is consistent with asthma trends discussed in scientific literature.

The study also found that increased levels of the air pollutant PM10 were related to worse asthma symptoms in people who had asthma-related medical visits. The relationship between increased PM10 levels and asthma severity was also consistent with findings discussed in scientific literature. For the air pollutant acrolein, although scientific literature has suggested it may aggravate asthma symptoms, it was not associated with an increase in asthma visits or severity in Naples.

Age was significantly associated with the severity of asthma, where adults (defined as age 20 and older) were more likely than children to be categorized as persistent (severity score of 2, 3, or 4).

Lastly, when compared to Rota and Sigonella, Naples had an increasing trend in the number of people clinically monitored for asthma, while Rota and Sigonella did not. This finding does not necessarily mean that people are sicker; it may only mean that more people are being monitored for asthma. There could be a number of reasons for this trend; however, this study was not designed to determine the cause of this finding, so the reason is unknown at this time. It is possible that this difference is due in part to differences in the environments between Naples and the other two locations, as Naples is more urban and industrial than either Rota or Sigonella. However, for Rota and Sigonella, air quality data were not available as they were for Naples, so the levels of air pollution could not be directly compared. Also, the trend may be influenced by an increased awareness and attention to asthma-like symptoms by the medical providers and community in Naples due to the ongoing Public Health Evaluation.

It is important to know that living in Naples does not mean you will develop asthma, and the onset of asthma may not have any association with transferring to Naples.

What happens now?

The focus of the Naples Public Health Evaluation and the epidemiological studies is to learn more to better protect the health of U.S. military and civilian personnel and their families living in Naples. Although the asthma study did not find a link between the number of asthma visits and air pollution in the Naples environment, it did find that as air pollution increased, people who had an asthma-related medical visit were more likely to be diagnosed with worse asthma symptoms. However, there are actions people with asthma can take:

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- **If you are an adult stationed in Naples and have asthma, or if your child has asthma,** talk with your healthcare provider about actions you can take to help control asthma, such as using medications and reducing exposure to smoke and allergens that can cause asthma symptoms.
- **If you are transferring to Naples** and you or another family member have respiratory problems, talk with your doctor about managing your condition in Naples. Make sure that your condition is noted on your overseas medical screen.
- **If you are a physician in Naples,** you should be aware that the number of patients diagnosed with persistent asthma in the Naples area has an increasing trend, and that closer attention may be required for adequate control of symptoms.
- **People with respiratory disease,** such as asthma, should limit or avoid outdoor exertion when air quality is poor.

As always, U.S. Naval Hospital Naples will continue to provide current residents with health information on preventing and reducing the severity of asthma and other upper respiratory illnesses.

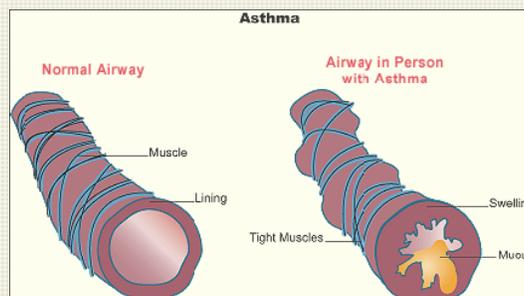


Where can I review the study?

The study, along with other information related to the Public Health Evaluation, is posted on the Naples Community Health Awareness website listed at the bottom of this page. Visit the Environmental Health Information Center for more information on the study and to discuss environmental health-related concerns.

What is asthma?

Asthma is a disease that affects the lungs and is associated with allergies, exposure to very fine particulates, urban air pollutants, and some industrial chemicals. It causes repeated episodes of wheezing, breathlessness, chest tightness, and nighttime or early morning coughing. An asthma attack occurs when the airways in the lungs swell and air flow is constricted, as depicted in the figure below.



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What causes asthma?

In most cases, the causes of asthma are unknown. However, we do know that an asthma attack can be triggered by exposure to things in the environment like air pollution, dust mites, tobacco smoke, pets, allergens, and mold.