Welcome to our Center Newsletter:

The goal of our Center is to improve health by investigating environmental exposures, addressing risks from these exposures, studying who might be most susceptible, and linking our research efforts with the communities we serve.

Our Center has scientists from USC and UCLA who study cancer, respiratory disease and adverse reproductive outcomes. Some of our scientists also develop new methods for designing studies and evaluating exposures.

We hope that our newsletters will help you learn more about our research efforts and community outreach and education activities.

Dr. Frank Gilliland
Center Director

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**November 1, 2006**

**USC researchers link asthma in children to traffic**

Traffic around homes and schools poses a health problem for young children. A new study shows that children who live near a major road are significantly more likely to have asthma than those who live further away. The new Center study may have implications for planning and policy decisions in Southern California. More.

**Impacts of port pollution**

Globalization is changing the landscape of Southern California. As the volume of imported products from Asia skyrockets, the Ports keep growing, as do roads, rail facilities, and warehouses to accommodate more and more goods-filled containers. Center Outreach Director Andrea Hricko describes some of the health and community impacts from these developments. More.

**Skin cancer among non-white Latinos**

The rate of skin cancer is steadily growing among Latinos in California. A new Center study suggests that Latino communities need more education, public awareness and regular medical care to prevent and treat melanoma, a potentially deadly form of skin cancer. More.
Air pollution curriculum engages students in hands-on learning

High school students in southeast Los Angeles are studying air pollution in their communities, through a program led by the Center’s outreach program and a community-based organization. As part of week-long, hands-on science classes, students count traffic, measure air pollution, and conduct community mapping. Then they debate solutions to the air pollution problems identified in their communities. More.
Overview
Directed by Dr. Frank Gilliland, the SCEHSC is organized into an administrative core, four research cores, a community outreach and education core, and three facility cores.

The Ports
Globalization is changing the landscape of Southern California. As the volume of imported products from Asia rocket, the Ports keep growing, as do roads, rail facilities, and warehouses to accommodate more and more goods-filled containers. Center Outreach Director Andrea Hricko describes some of the health and community impacts from these developments.

Skin Cancer & Latinos
The rate of skin cancer is steadily growing among Latinos in California. A new Center study suggests that Latino communities need more education, public awareness and regular medical care to prevent and treat melanoma, a potentially deadly form of skin cancer.

The Southern California Environmental Health Sciences Center (SCEHSC) was established in 1996 through funding from the National Institute of Environmental Health Sciences (NIEHS). Researchers and professionals from the University of Southern California and the University of California at Los Angeles have collaborated to create an interdisciplinary approach to the study and advancement of research in environmental health. The SCEHSC primarily focuses on using epidemiologic methods to study effects of the environment on human health, especially with regard to the multiethnic populations of California and the Pacific Rim.
Youngsters close to major throughfares are more likely to be affected than peers not far away, study says.

By Monika Guttman

Young children who live near a major road are significantly more likely to have asthma than children who live only blocks away, according to a study that appeared in the May 1 issue of Environmental Health Perspectives.

The study found that children living within 75 meters (about 82 yards) of a major road had a 50 percent greater risk of having had asthma symptoms in the past year than were children who lived more than 300 meters (about 328 yards) away. Higher traffic volumes on the different roads also were related to increased rates of asthma.

“These findings are consistent with an emerging body of evidence that local traffic around homes and schools may be causing an increase in asthma,” said lead author Rob McConnell, professor of preventive medicine in the Keck School of Medicine of USC. “This is a potentially important public health problem because many children live near major roads.”

More than 5,000 children ages 5 to 7 were involved in the study, which is an expansion of the Children’s Health Study currently underway in 13 Southern California communities. The researchers determined how far each participating child lived from a major road, freeway, large highway or feeder road to a highway.

“These results suggest that living in residential areas with high traffic-related pollution significantly increases the risk of childhood asthma,” said David A. Schwartz, director of the National Institute of Environmental Health Sciences (NIEHS), the primary agency that funded the study. “Children with no parental history of asthma who had long-term exposure or early-life exposure to these pollutants were among the most...
susceptible.”

Children who lived at the same residence since age 2 had slightly higher rates of asthma than those who had moved to the residence later.

“That is what you would expect if the asthma was being caused by traffic,” McConnell said. Risk for wheeze also decreased the farther away a home was from a major road, dropping to background rates at roughly 150 meters (not quite two blocks).

Study sites included the cities of Alpine, Anaheim, Glendora, Lake Arrowhead, Lake Elsinore, Long Beach, Mira Loma, Riverside, San Bernardino, San Dimas, Santa Barbara, Santa Maria and Upland.

McConnell noted that air pollution regulations typically focus on regional air pollutants rather than localized exposures within communities, such as living near a busy road, that may also be a problem.

“We’ve taken some tentative steps to address that, for example with a law that a new school can’t be built within 500 feet of a freeway. But we have to also consider whether building parks, play areas or homes right next to a major road is a wise land-use decision in terms of health,” he said.

McConnell and his colleagues plan to follow up with a subgroup of the children to measure pollutants in their homes and also to look at characteristics that may make children more susceptible (or that may be protective), such as genetic characteristics.

This study was supported by the NIEHS, California Air Resources Board, the Southern California Particle Center and Supersite, the Environmental Protection Agency, the South Coast Air Quality Management District, the National Heart Lung and Blood Institute and the Hastings Foundation.
Guest Editorial

Ships, Trucks, and Trains: Effects of Goods Movement on Environmental Health

Globalization is changing the world in ways that we may not yet fully comprehend. For the United States, the enactment of new free trade agreements, the downsizing of our manufacturing base, and consumer demand for inexpensive products are all affecting both jobs and the environment, especially in those regions with ports and transportation corridors designed to distribute imported goods. The changing dynamics of trade prompted a journalist to remark last month that the United States “is becoming nothing more than a distribution economy, importing, moving and selling consumer goods” (Romans 2006).

As this shift in the world and U.S. economies occurs, little attention has been placed on its environmental impacts, especially the health impacts of air pollution from international trade and “goods movement.” As the Focus article describes in this issue of EHP (Sharma 2006), the volume of imports from Asian countries into the United States has skyrocketed. The distribution of these goods from their entry ports to the rest of the United States involves diesel-powered vehicles and equipment every step of the way, creating significant exposures and health impacts in communities along the distribution routes that are just beginning to be assessed.

For example, a $9.97 doll is made in Asia by low-wage workers under conditions that may subject them to a myriad of unregulated hazards. This doll is packed with 10,000 others into a container and loaded onto a marine vessel holding 4,000 other containers carrying dolls, shoes, and electronics. Fueled by low-quality bunker fuel, the ship leaves one of the world’s largest ports in Asia, chugs across the Pacific, discharging nitrogen oxides, sulfur oxides, particulates, and other pollutants into the earth’s environment. Arriving at the Southern California ports of Los Angeles or Long Beach (where 40% of all U.S. imports arrive), the container is unloaded by longshore workers, who breathe exhaust from the idling ship as well as emissions from a row of idling trucks with drivers waiting for their loads. The next leg of the trip is via truck to a railroad yard, situated less than one-quarter of a mile from schools and homes, where the container is placed on a freight train, pulled by a diesel locomotive. Alternatively, the doll may be placed on a big-rig truck and sent for repackaging to a mega-warehouse 50 miles from the ports, an area that was formerly all dairy lands that has now given way to million-square-foot warehouses for consumer goods (drawing thousands of diesel trucks a day into formerly rural communities). Finally, the doll is trucked to her destination, a big-box retailer in suburban Chicago. By this time, she has traveled more than 8,000 miles—on diesel-burning conveyances the whole way.

This itinerary is not unusual for shipping. Today, nearly half of all imported goods sold in Chicago take a route like this from factories in Asia through Southern California ports before heading east. But the low price a mother in Chicago pays for her daughter’s toy reflects none of the human and environmental tolls (referred to as the “externalities of transportation”) that the doll’s manufacture and shipment have taken during its travels. These include tolls on

- The world’s climate, in terms of emissions that may impact global warming
- The workers who made the doll in Asia, where occupational health and safety rules are more lax than in the United States (Wang and Christian 2003) and where wages are a fraction of U.S. wages
- Dock workers, truck drivers, and railroad workers, who may have elevated rates of lung cancer (see, for example, Garshick et al. 2004)—the basis for California declaring diesel particulate a toxic air contaminant in 1998, requiring regulations to reduce risk of exposure

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analyses, of the impact that promotion of international trade and goods movement is having on residents’ and workers’ health—and whether being a “distribution economy” is the best strategy for the U.S. economic future [see, for example, economic questions raised by Haveman and Hummels (2004)].

Such an analysis would need to include: a) externalized health costs of air pollution, including all health end points; b) the cost of loss of manufacturing jobs and benefits of goods movement jobs; and c) other community impacts (noise, aesthetics, traffic congestion, accidents, and costs of expanding infrastructure to handle rising imports).

The issue of international trade, ports, and goods movement lies at the intersection of globalization, economics, transportation, land use planning, sustainability, and health. An environmental health research funding partnership could help bring these diverse interests together as a means of documenting health impacts and searching for public health solutions. Such an innovative effort could be led by the National Institute of Environmental Health Sciences (NIEHS) and involve, at least, the U.S. EPA, the Department of Transportation (including its Federal Highway, Federal Railway, and Maritime Administrations), the Department of Commerce, the Department of Labor, the Office of the U.S. Trade Representative, and the Transportation Research Board of the National Academies.

Finally, as transportation and elected officials around the country call for expanding the nation’s infrastructure (ports, marine terminals, highways, rail lines, and facilities) to promote growth in international trade, there is an urgent need—and a challenge—for “health” to become a more central part of the policy discussion.

The author declares she has no competing financial interests.

Andrea Hricko

Keck School of Medicine
University of Southern California
Los Angeles, California
E-mail: ahricko@usc.edu

Andrea Hricko is an associate professor of preventive medicine, Keck School of Medicine, University of Southern California (USC), and director of community outreach and education at the Southern California Environmental Health Sciences Center, funded by the NIEHS. The center’s scientists (from USC and the University of California, Los Angeles) and outreach program focus significant attention on the health impacts of port and goods movement–related air pollution.

REFERENCES


Cancer treatment can wreak havoc on a child’s appetite at a time when nutrition couldn’t be more important. For help, turn to CureSearch.org, a comprehensive website that covers every aspect of childhood cancer. It connects you to the network of doctors and scientists whose collaborative research has turned childhood cancer from a nearly incurable disease to one with an overall cure rate of 78%. So now you can help get him from barely eating to back to his typical picky self.

And you thought he was a picky eater before he started treatment.
“This is a disease that has a great chance of cure when found early,” said lead author Myles Cockburn, assistant professor of preventive medicine in the Keck School.

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**Melanoma Rising Among Hispanics**

**USC Keck School study underscores the need for skin cancer education in California’s Hispanic communities.**

By Alicia Di Rado

Hispanics in California are increasingly being diagnosed with melanoma, a potentially deadly form of skin cancer, according to a study in the March 1 issue of the journal Cancer, published online Jan. 23.

Since 1988, rates of invasive melanoma have been growing among Hispanic men, according to researchers from the Keck School of Medicine of USC. And more alarmingly, rates of thick tumors in particular – those with a poorer prognosis – have been rising among both Hispanic men and women.

“When a tumor is thick, that usually means it has been developing for a while,” said lead author Myles Cockburn, assistant professor of preventive medicine in the Keck School. “This is a disease that has a great chance of cure when found early, and routine screening can catch early cases. But in this population, the cancer is becoming more common, and it’s not being caught early enough.

“We believe that efforts must be undertaken immediately to educate Hispanic communities about how to prevent melanoma: not only reducing sun exposure, but getting regular skin examinations and monitoring their own skin for suspicious lesions.”

Cockburn and his colleagues conducted the study using 1988-2001 data from the California Cancer Registry, the statewide system for recording the occurrence of new cancer cases and cancer deaths. About 140,000 cancer cases and 50,000 cancer deaths are reported statewide each year.

Because nearly 12 million Hispanics live in California, the state provides researchers the unique ability to study how cancer affects this group. California also has one of the world’s highest rates of melanoma. These
factors allowed the researchers to conduct this first-of-its-kind study.

When they analyzed 14 years of data, the researchers found something they already suspected: that invasive melanoma was increasing significantly among non-Hispanic whites (more than 3 percent a year). But Hispanics’ rates were rising too – a surprising finding, because most melanoma research has focused on non-Hispanic whites, who have the highest melanoma risk.

Hispanic men experienced nearly a 2 percent annual increase in the rate of melanoma over the 14 years. Researchers observed that invasive melanoma increased among Latinas by less than 1 percent a year, but that increase was not statistically significant.

“What gives us pause is not just the increase in the melanoma rate among Hispanic men, but the fact that between 1996 and 2001, the rate actually rose by more than 7 percent annually,” Cockburn noted. “That indicates that the problem may be worsening.”

Moreover, the researchers found that among both Hispanic men and women, thick lesions were becoming far more common than expected. While tumors thicker than 1.5 mm accounted for about 24 percent of non-Hispanic white men’s melanomas, they comprised about 35 percent of tumors among Hispanics.

“This is critical, because most people diagnosed with thin melanomas will survive 10 years, but as few as 40 percent of people with thick melanomas (more than 4 mm wide) will survive 10 years,” Cockburn said. “The best way to improve melanoma survival is to catch melanomas early, while they’re still thin, and that requires regular skin checks.”

Compared to some other common cancers, melanoma is fairly rare among Hispanics, but it is growing. Between 1988 and 1989, 121 Hispanic men and 194 Hispanic women across the state were diagnosed with invasive melanoma; from 1999 to 2001, 350 Hispanic men and 448 Hispanic women in the state were found with the disease.

Although researchers have reported widely on the usefulness of sun avoidance education and routine screening in preventing melanoma among whites, little is known about the success of prevention techniques among Hispanics. Yet, Cockburn noted, the few studies that exist point to a breach in melanoma-prevention practices.

Two studies have shown that Hispanics had a poorer awareness of skin cancer risk factors and of their own risk than whites, even though other research has shown that Hispanics are just as prone to sunburn as are whites. (Sunburn is a measure of the amount of sun exposure that is enough to produce a response in skin and probably contributes to melanoma).

And in a recent comparison of skin cancer prevention techniques, more than twice as many non-Hispanic whites had performed a skin self-exam in the past year compared to Hispanics.

The American Cancer Society recommends everyone receive a skin cancer examination by a physician once a year. In addition, the group recommends monthly skin self-exams in front of a full-length mirror to spot any unusual or growing moles or lesions.

“The word needs to get out about the importance of skin cancer checkups and routine screenings,” Cockburn said, “as well as sun avoidance, in Hispanic communities.”
Air Pollution Curriculum Engages Students in Hands-On Learning
by Carla Truax and Andrea Hricko

High school students in Southeast Los Angeles took to the streets to count traffic and measure particle pollution, in a program sponsored by the Center's outreach program and Communities for a Better Environment.

The week-long curriculum, entitled “Air Pollution, Your Health, and Your Community,” is designed to teach students about the effects of air pollution on health and what can be done to prevent and control the problem. Staff from the Center’s outreach program (Andrea Hricko, Christine Tidwell, and Carla Truax) and Communities for a Better Environment (Yuki Kidokoro, Darryl Molina, and Linda Lam) developed new materials and adapted a curriculum originally developed for the Environmental Health Coalition in San Diego.

Days 1 & 2: The students became environmental health detectives as they learned to assess health hazards in their environment. The course started off with an exercise about diesel exposure, based on a successful program called “ToxRap” developed by the Environmental and Occupational Health Sciences Institute in New Jersey. Through the class activities, students at Huntington Park, South Gate, and South East High Schools spent the week investigating whether air pollution harms the respiratory health of children.

The students also examined indoor air pollution in their own homes, starting with a homework assignment in which they surveyed family members about tobacco exposure and investigated the presence of indoor allergens. Next they learned about types and sources of outdoor air pollution, how air pollution is monitored, and the known health effects of certain pollutants.

Day 3: On a day-long field trip, the students toured and mapped both environmental hazards and community assets in Southeast Los Angeles, then took a trip to see the Ports of Los Angeles and Long Beach. Rene Bermudez and Kevin Pahl gave students a tour of the North Long Beach AQMD (Air Quality Management District) monitoring station, where they learned how air pollution agencies measure pollutants.

During the field trip, students observed truck traffic from the Ports traveling on the freeways and through neighborhoods on surface streets as they transport containers. As part of the field trip experience, groups of students...
did assessments of both the traffic and air pollution levels near their schools. One group counted traffic volume and types of vehicles while other groups measured air pollution, operating USC-owned devices called P-Traks, which measure ultrafine particle pollution from traffic exhaust. When trucks and buses passed by, the students were able to detect a rapid increase in particle levels, an indication that ultrafine particles (those less than 0.1 microns in diameter) were being emitted in the diesel exhaust. The students followed a USC protocol and carefully recorded the traffic counts and particle pollution data on survey forms.

Day 4: Student groups presented their data to the class and interpreted what they learned.

Day 5: For the final day of the class, students drew upon all their knowledge from the week, and learned to look at community and health issues from many different viewpoints. In a role-play exercise, students used what they had learned about public health concerns and air pollution to debate whether or not a (fictitious) new freeway should be built in their community. The students represented different stakeholders (economic interests, parents, elected officials) in the spirited discussion.

This successful curriculum provided students the opportunity to actively examine their environment, gain in-depth knowledge, and think creatively about community solutions.

*Funding for the San Diego curriculum development was provided by an Environmental Justice grant from the National Institute of Environmental Health Sciences (NIEHS) in 2001. Funding for the 2006 updates to the curriculum and its classroom implementation came from a grant to CBE from the California Department of Transportation (CalTrans).*

*For more information, please contact Carla Truax, Outreach Coordinator at (323) 442-2745.*