



# UPDATES In School Health

SCHOOL HEALTH UNIT

Winter 2004-2005

## IMPROVING ENVIRONMENTAL HEALTH FOR CHILDREN: THE ROLE OF SCHOOLS

The role of the environment in the incidence of some cancers has long been considered important. In addition, over the past decade, a variety of other diseases have been suggested as having some association with environmental factors (e.g. asthma, autoimmune disorders). For this reason, environmental public health researchers have begun to examine more carefully the possible links between the environment and a number of health outcomes. While many environmental health initiatives focus on adults, this edition of *Updates in School Health* will showcase several noteworthy pediatric programs in the Massachusetts Department of Public Health's Center for Environmental Health (MDPH,CEH), the Massachusetts Department of Environmental Protection (MDEP), and the Massachusetts Department of Agricultural Resources (MDAR). Local, state and national awareness is increasing about the important relationship between health and the environment, with a particular focus on children.

The feature story highlights the Environmental Public Health Tracking program; a 3-year Center for Disease Control and Prevention-funded initiative seeking to track (through public health surveillance) the rate of pediatric asthma in the Commonwealth and the health effects of PCB contamination on children living in the Housatonic River area of western Massachusetts. Other outcomes being tracked are birth defects and childhood cancers in relation to contaminants in public drinking water. Also in this newsletter you will learn about a major epidemiological study known as the National Children's Study (NCS). This National Institutes of Health (NIH)-sponsored longitudinal study will track 100,000 children to increase our understanding of how the environment affects children's health and development.

The MDPH Center for Environmental Health, in collaboration with the Center for Community Health's School Health Unit, has partnered with school nurses across the Commonwealth to implement a pediatric asthma surveillance system. Massachusetts continues to be a leader in implementing

school health programs that monitor childhood health conditions, many of which may be related to a child's environment.

On average, children spend eight hours a day participating in school-related activities. School buildings house large populations of children and can play an important role in promoting health and a healthful environment. The air quality of a school can impact both health and learning--particularly for those children with pre-existing respiratory conditions such as asthma. Schools play an important role in child health by assuring good ventilation and providing environments free from mold and other environmental contaminants such as certain pesticides, certain paint supplies, etc. In their role as a safety net for children, schools monitor children for lead poisoning as a prerequisite for entry into kindergarten. As an employer, schools ensure their staff and faculty a safe workplace.

The Massachusetts Department of Public Health staff collaborate closely with agencies such as the Massachusetts Department of Education and the Massachusetts Department of Environmental Protection in addressing environmental health issues affecting schools. This newsletter covers critical areas such as indoor air quality, safe drinking water supplies, the safe use of pesticides in schools and how to access assistance should schools need it. We hope that you will find the articles in this edition of *School Health Updates* informative. Each article includes a website or agency to contact for more information. Please save this edition for future reference. Thank you.

Suzanne K. Condon  
Associate Commissioner  
Center for Environmental Health  
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Anne H. Sheetz  
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*"As environmental public health professionals, our mission is to prevent or reduce environmental illness, nowhere is that mission more important than among our pediatric population."*

Suzanne K. Condon, Associate Commissioner  
Center for Environmental Health, Massachusetts Department of Public Health



## NEWSBRIEFS

**Welcome to Barbara Mackey:** Barbara Mackey, MSN, NP, has been appointed the new MDPH School Infectious Disease Response Nurse. Barbara comes with a wealth of experience in public health and mental health, etc. Her new role will focus on working with schools to develop emergency and bioterrorism response preparedness. In this process, she will collaborate closely with preparedness planning groups as well as staff at the State Laboratory Institute and the Bureau of Communicable Disease Control. She will also be part of the School Health Unit, providing consultation to schools on a range of school health issues.

### School Health Website:

In an effort to distribute pertinent information to a large audience, the School Health Unit has been adding materials to the website. Please check the following sites on a regular basis:

<http://www.mass.gov/dph/fch/schoolhealth/index.htm>

<http://www.mass.gov/dph/fch/schoolhealth/eshs.htm>

### Reporting of the Administration of Epinephrine in the Schools:

Whenever epinephrine is administered to an individual experiencing a life threatening allergic event in the school setting, a report must be sent to the Department of Public Health. An updated report form can be found on <http://www.mass.gov/dph/fch/schoolhealth/medadmin.htm>. Thank you to all of you for your assistance.

**New Vision Screening Guidelines:** M.G.L. c. 71, s. 57 has been amended to require:

"Upon entering kindergarten or within 30 days of the start of the school year, the parent or guardian of each child shall present to school personnel certification that the child within the previous 12 months has passed a vision screening conducted by personnel approved by the department of public health and trained in vision screening techniques to be developed by the department of public health in consultation with the department of education. For children who fail to pass the vision screening and for children diagnosed with neurodevelopmental delay, proof of a comprehensive eye examination performed by a licensed optometrist or ophthalmologist chosen by the child's parent or guardian indicating any pertinent diagnosis, treatment, prognosis, recommendation and evidence of follow-up treatment, if necessary, shall be provided."

This will be implemented at the start of school in 2005. The Department is working on new protocols for vision screening. Regional training sessions will be scheduled for the winter and spring of 2005. School nurses, as well as other relevant health professionals, should plan to attend. See the UMASS School Health Institute website for further details.



## ENVIRONMENTAL PUBLIC HEALTH TRACKING (EPHT)

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In 2002 the Massachusetts Department of Public Health's Center for Environmental Health (MDPH/CEH) received federal funding from the Centers for Disease Control and Prevention (CDC) to conduct Environmental Public Health Tracking (EPHT). Massachusetts has entered into a cooperative agreement to develop infrastructure enhancement and a data linkage model for environmental public health surveillance. Unlike research, environmental surveillance is the tracking of certain acute and chronic diseases suspected of having an environmental connection. CDC Director Dr. Julie L. Gerberding states, "...linking environmental and health data will enable a timely response to potential public health problems related to the environment" (CDC, 2004).

Massachusetts is using this cooperative agreement to explore three important health issues: the prevalence of

Systemic Lupus Erythematosus (SLE) in residents of the city of Boston; the relationship of polychlorinated biphenyl compounds (PCB) exposure and developmental disabilities in residents of Berkshire County; and the statewide prevalence of pediatric asthma in children ages 5-14. The PCB exposure and developmental disabilities surveillance project and the pediatric asthma project are featured elsewhere in this newsletter. For further information on EPHT, contact the project coordinator at 617-624-5757 or visit [www.mass.gov/dph/beha](http://www.mass.gov/dph/beha) and scroll down to Tracking.

Environmental Public Health Tracking (EPHT) is the ongoing collection, integration, analysis and interpretation of data about environmental hazards, exposure to environmental hazards, and human health effects potentially related to exposure to

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# PEDIATRIC ASTHMA IN MASSACHUSETTS

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**A**sthma prevalence among children appears to be on the rise. Currently asthma affects more than 12% of Americans under the age of 18, and costs 9.4 billion dollars in direct health care costs annually. Further, it is estimated that asthma accounts for over 14 million missed school days per year. The magnitude of prevalence and the direct (medical) and indirect cost (lost school days and lost parental work days) of this disease have made asthma a priority among public health organizations across the country. While statewide prevalence figures are a convenient way to summarize the overall health of Commonwealth residents, there remains a need to better quantify the scope of the problem at the state and local level, particularly as it relates to the pediatric population. Children represent the largest increase in asthma prevalence.

A standardized pediatric asthma surveillance or tracking system that collects asthma prevalence data at the community level allows public health officials to identify populations with asthma on the local level, evaluate at risk groups, and evaluate the impact of interventions over time more effectively than state-level data. Given the need for a comprehensive, systematic approach to pediatric asthma surveillance in the Commonwealth, the Massachusetts Department of Public

Health (MDPH) developed a proposal to track pediatric asthma through school nurses' offices. This project is being implemented as part of a larger effort aimed at tracking several health outcomes thought to be impacted by environmental exposures. (Look for more information on Environmental Public Health Tracking in this newsletter.)

The MDPH piloted the pediatric asthma tracking project during the academic year 2002–2003 in the 111 school districts participating in the MDPH Essential School Health Service Programs (ESHS). There were 958 public schools that served any of grades K-8 in those districts and were eligible to participate in the survey.

School nurses reported the total number of students with asthma in each school by grade and gender on a standardized survey form. Potential sources for the nurses' knowledge about a child's asthma status included emergency cards, parent resource centers, parent communications, student communications, health care provider documentation, or direct observation of an asthma attack. The percentage of cases with a documented provider diagnosis or medication orders was also requested in the survey.

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## ENVIRONMENTAL PUBLIC HEALTH TRACKING (EPHT) *continued from page 2*

environmental hazards. It also includes the dissemination of information learned from this data collection effort. The mission of EPHT is to improve the health of communities. Using information from an environmental public health tracking network, federal, state and local agencies will be better prepared to develop and evaluate effective public health actions to prevent or control chronic and acute diseases that can be linked to hazards in the environment. As a result, health care providers can provide better care and targeted preventive services. In addition, the public will have a better understanding of what is occurring in their communities and what actions they may take to protect or improve their health (EPHT Program: Closing America's Environmental Public Health Gap 2004, CDC).

The environment plays an important role in human growth and development. Researchers have related exposures to some environmental hazards with specific diseases, for example, exposure to asbestos and lung cancer. Other associations between environmental exposures and health effects are suspected but need further research. However systems that actually track and/or link exposures to health effects are rare, and data is usually not compatible with environmental databases. This makes the linking of hazards (asbestos) to health effects (lung cancer) extremely difficult. With enhanced surveillance, incidence and prevalence trends in certain diseases will be more readily available.

## PEDIATRIC ASTHMA IN MASSACHUSETTS

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School enrollment data was collected from the Massachusetts Department of Education (DOE) or from a school's administrative staff. Schools that did not return a complete survey, or for which enrollment data could not be obtained by September 2002, were not included in the analysis for Year I.

Data analysis was performed with Statistical Analysis Software (SAS) and Microsoft Access. The percent participation of the target population was calculated, along with the breakdown of submitted surveys by type of school. The prevalence of asthma with 95% confidence intervals was calculated for the state, for each participating school district, and by grade level. The range of asthma prevalence among individual schools was also calculated for this report.

MDPH received completed surveys from a total of 760 schools, about 46% all schools serving any of grades K-8 in the Commonwealth. Of the 760 completed surveys, 668 were received from the targeted ESHS schools, indicating 70% participation by target schools. The remaining 92 surveys were received from private schools (52), charter schools (9), or public schools not included in the ESHS but that agreed to participate (31). At the district level, 87 of the 111 targeted ESHS districts (78%) had at least one school that returned a survey. MDPH received at least one survey from an additional 15 districts that were not involved in the ESHS. The reported prevalence of asthma among the 311,600 students enrolled in the 760 schools surveyed was 9.3% (95% CI\* 9.1% - 9.3%). Reported asthma prevalence by school ranged from 0 - 30.8%, while reported asthma prevalence by school district ranged from 2.7% - 16.2%. Reported asthma prevalence by grade ranged from 7.7% to 10.3%.

In a report on asthma in children based on the 2001 Behavioral Risk Factor Surveillance Survey (BRFSS), the Asthma Regional Council (ARC) of New England noted 12.3% of Massachusetts children under 18 have been told by a doctor at some point in their lives that they had asthma. Further, the report indicated that 8.8% of these children currently had asthma. The 2001 CDC National Health Interview Survey (NHIS) reported that 14.4 percent of U.S. children 5 - 17 years old had been told by a doctor that they have asthma, at some point in their lives, and 6.1% had had an asthma attack in the past 12 months.

A school-based surveillance effort similar to that used in Massachusetts (and therefore producing more comparable figures) is discussed in a recent report describing nurse-reported asthma in Connecticut students. Connecticut describes a 9.7% asthma prevalence among its students in grades K-5. Reported asthma prevalence in Massachusetts K-5 students described in this report was 8.8%. Prevalence data for grade 6-8 students in Connecticut are not available for comparison.

While there was notable variation in reported asthma prevalence among school districts during the tracking project's first year, caution should be used when comparing district prevalence estimates. Some district-wide prevalence estimates were based on reporting by only a small percentage of the district's schools and, therefore, may not be representative of that district's actual asthma prevalence. The MDPH expects to obtain more complete and representative data in subsequent years of the survey. Differences in school health systems among districts further complicate the issue of comparability of district asthma prevalence estimates as reported by school nurses.

Pediatric respiratory symptoms have been associated with a number of factors including exposures in the outdoor environment, exposures in the home environment, genetic factors, and lifestyle factors. The MDPH pediatric asthma survey did not include questions about such risk factors, and therefore the data cannot be used to draw conclusions regarding the causes of reported asthma prevalence in any district or school.

The value of the Massachusetts approach to asthma surveillance is several-fold. As part of a separate investigation of asthma in the Merrimack Valley, the MDPH found school nurses and student health records to be a valuable and reliable source of health information. Further, tracking the prevalence of asthma through the schools will make it possible for the first time to assess the magnitude of the problem of pediatric asthma at the local level. While the statewide prevalence of pediatric asthma observed through this project was similar to that seen in other types of surveys, surveillance at the community level makes it possible to observe a wide range of different prevalence values by school district, information that was previously unavailable through data sources that focused on statewide or nationwide data. Community-level asthma prevalence data will be useful in planning and implementing environmental health investigations and public health interventions based on factors specific to the community in question. This report summarizes the first of a three year effort that the MDPH is scheduled to carry out as part of its Environmental Public Health Tracking Project. To view the entire report, visit the web site at [www.mass.gov/dph/beha](http://www.mass.gov/dph/beha) and scroll down for the report **Pediatric Asthma in Massachusetts 2002-2003** under the heading Tracking.

During the second and third years of the project, the MDPH is expanding its target population to include all public, private, and charter schools serving any of grades K-8 in each of the Commonwealth's 372 school districts. Through a separate Environmental Public Health Tracking (EPHT) effort, the MDPH is collecting indoor air quality (IAQ) data in a select number of schools statewide in conjunction with the collection of asthma surveillance data. To read more on IAQ assessments, see the related story in this newsletter. EPHT of asthma using school health records represents an important first step in the establishment of a permanent statewide asthma surveillance system in the Commonwealth of Massachusetts.

\*95% Confidence Interval (CI) of a prevalence is a statistical range used to indicate the stability of a prevalence estimate.

# MASSACHUSETTS DEPARTMENT OF PUBLIC HEALTH'S ASSESSMENTS OF INDOOR AIR QUALITY IN SCHOOLS AND PUBLIC BUILDINGS

Michael A. Feeney, P.Ph., J.D., C.H.O.



The Emergency Response/Indoor Air Quality Program (ER/IAQ) of the MDPH Center for Environmental Health's (CEH) Bureau of Environmental Health Assessment (BEHA) advises government concerning sanitary and other conditions in public institutions

(M.G.L. c. 111 sec. 5). Under this authority, ER/IAQ program staff conduct indoor air quality assessments in public buildings, including public schools, throughout Massachusetts. Assessments are typically conducted at the request of local health/municipal/school officials, concerned parents and others. During an assessment, staff conduct room-by-room inspections. ER/IAQ staff also examine the exterior of a building to determine whether external conditions affect indoor air quality.

One of the most important methods of maintaining indoor air quality relates to adequate ventilation. According to the National Institute for Occupational Safety & Health (NIOSH), two thirds of all IAQ problems are related to the lack of ventilation. To determine the status of a ventilation system, both physical and operational factors must be considered. The physical conditions of a heating, ventilating and air-conditioning (HVAC) system are evaluated through an examination of filtration, location of air intakes/exhausts and ability of air handling equipment to control fresh and return air. The following typically are measured to ascertain ventilation equipment function:

- ❖ Carbon dioxide;
- ❖ Temperature; and
- ❖ Relative humidity.

Moisture and microbial growth also impact the indoor environment and are the second most common cause of IAQ complaints in Massachusetts' schools (MDPH, 1999). During an assessment, ER/IAQ staff conduct visual inspections for sources of mold and/or moisture. Common sources for microbial growth include plants, aquariums and terrariums. In cases where porous building materials (e.g. gypsum wallboard) and paper products (e.g. corrugated cardboard) are water damaged, the BEHA recommends that materials either be dried thoroughly or removed and discarded. The US Environmental Protection Agency (US EPA) and the American Conference of Governmental Industrial Hygienists (ACGIH) recommends that porous materials be dried with fans and heating within 24 to 48

hours of becoming wet (US EPA, 2001; ACGIH, 1989). If porous materials are not dried within this period, mold growth may occur. Consult the US EPA's (2001) document *Mold Remediation in Schools and Commercial Buildings* for more information on mold. This document is available at [http://www.epa.gov/iaq/molds/mold\\_remediation.html](http://www.epa.gov/iaq/molds/mold_remediation.html).

Inspections generally also involve an assessment of other factors contributing to indoor air quality. To determine whether point sources of pollution exist in a building, ER/IAQ staff measure the following additional parameters:

- ❖ Carbon monoxide;
- ❖ Airborne particles; and
- ❖ Total volatile organic compounds (TVOCs).

Measurements for particular parameters are not always indicative of the presence of a point source. For example, TVOC air measurements are only reflective of the indoor air concentrations present at the time of sampling. Indoor air concentrations can be greatly impacted by the use of TVOC containing products. While TVOC levels may be non-detectable, sources for TVOCs may exist (e.g., dry erase products). Thus, staff conduct visual assessments for items/activities with the potential to impact indoor air, including:

- ❖ Point sources of indoor air pollution (e.g. office equipment);
- ❖ Allergens and/or asthma-inducing materials (e.g., pests/pets, latex-containing products, chalk/dry erase products); and
- ❖ Activities that may affect indoor air quality (e.g., wood working, pottery-making).

Following an assessment, staff meet with health and school officials to provide recommendations. Reports are typically sent to local school, health and municipal officials as well as legislative representatives, parents and advocacy groups with an interest in a particular building. Reports are made available to the public on the ER/IAQ website (<http://www.mass.gov/dph/beha/iaq/iaqhome.htm>). Additional resources relating to indoor air quality are also available on the website. For more information regarding indoor air quality or to inquire about an assessment, please contact the ER/IAQ Program at 617 624-5757.

## SCHOOLS AS WORKPLACES

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### INTRODUCTION

Over 100,000 adults work in Massachusetts schools. Considering schools as workplaces has helped shed light on health and safety conditions that may affect students and staff alike. Like any other workplace, a school, by virtue of the activities conducted there (as well as structure, age, ventilation and maintenance) contains chemical, biological and physical hazards that could pose health risks for the occupants. These might include art materials (such as paints or glazes, chemicals from laboratories, dusts, vapors and fumes from vocational shops or construction,) or infectious diseases passed among children and staff. Among the most compelling concerns for Massachusetts schools have been aging building infrastructure and ventilation, asbestos, diesel school bus exhaust, leaking roofs or plumbing, and construction projects with accompanying exposures to dust, paint, adhesives and solvents.

The Occupational Health Surveillance Program (OHSP) within the Massachusetts Department of Public Health, Center for Health Information, Statistics, Research & Evaluation has been conducting surveillance of work-related illnesses and injuries since the late '80s. One indicator of workplace health relevant to school staff is work-related asthma. In 1992, the public health laws were changed to mandate physicians to report cases of work-related asthma to the Department. As with any other reportable disease, such as rabies or West Nile Virus, the identification of a case might be a warning that hazardous conditions exist, and that steps should be taken for prevention.

### WORK-RELATED ASTHMA

Asthma is a chronic inflammation of the airways that causes episodes of wheezing, coughing, or difficulty breathing. Asthma affects 16 million persons in the United States. While children have had the greatest increases in asthma rates over the last 20 years, 70% of asthma sufferers are adults. In Massachusetts, current asthma prevalence among adults (8.9%) was higher than the national average (7.5%).<sup>1</sup>

Work-related asthma is asthma caused or aggravated by work and/or the work environment. Some adults develop new onset asthma, never having had breathing problems as children. Some substances can cause respiratory sensitization or an allergic reaction after a period of exposure. In schools, these substances might be isocyanates in auto-body spray paints and some construction materials, or certain chemicals such as formaldehyde or select disinfectants. Others may have asthma, and find that it gets reactivated or worse while working in their school. All of these are considered work-related asthma. It is estimated

that 5% to 29% of all adult asthma is related to work.

Over 900 cases of work-related asthma have been reported to OHSP. More than half of these reports (55%) have been confirmed by interviewing the person about their asthma and confirming the diagnosis and association with work. The interviews also allow collection of information about industry, occupation, and exposures of concern. OHSP has found that educational services are the second most frequently reported industrial sector among Massachusetts cases of work-related asthma. In fact, in all four states that track work-related asthma, educational services is the third most frequently reported industrial sector, following only auto manufacturing and health services (1993-1999).

People with work-related asthma may not know the exact agents that cause or trigger their asthma; more than half of the school personnel interviewed attribute their symptoms to non-specific causes—indoor air pollutants, bad air, or poor ventilation. In other cases, school staff describe more specific exposures including mold, chalk, construction dust, diesel exhaust, cleaning products or other chemicals (floor finish, formaldehyde, solvents, latex, etc.) as the triggers for their symptoms.

### FURTHER INVESTIGATION AND PREVENTION

The presence of a single case of work-related asthma, referred to as a "sentinel event," may mean that a hazardous condition exists that could affect many people. OHSP may refer schools identified by sentinel work-related asthma cases to another agency such as the MDPH Bureau of Environmental Health Assessment or the Massachusetts Division of Occupational Safety for an on-site investigation. While the majority of people with work-related asthma identified only poor indoor air quality, some identified mold, carpeting, installation of a new roof, or shop chemicals as the likely triggers. Site visits by the two state agencies have provided guidance for needed corrections of leaks and water infiltration or broken ventilation, identified other risks, and promoted prevention activities.

One of the challenges to prevention is the difficulty in diagnosing work-related asthma. Because symptoms may occur at

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<sup>1</sup> Centers for Disease Control and Prevention (CDC). 2004. Asthma prevalence and control characteristics by race/ethnicity—United States, 2002. *MMWR* 53(7):145-148

<sup>2</sup> American Thoracic Society Statement: Occupational contribution to the burden of airway disease. 2003. *Am J Respir Crit Care Med* 167:787-797.

## SCHOOLS AS WORKPLACES *continued from page 6*

night, triggers are not always visible and known. Because schools typically are considered safe environments, health care providers may not suspect asthma, or a connection to work, among school staff. OHSP is working with California, Michigan and New Jersey on information for health care providers about asthma-causing agents that may be present in schools and the characteristics of work-related asthma.

OHSP has also conducted a survey of staff in thirteen elementary schools to help determine whether many school employees have asthma, work-related asthma or other respiratory conditions. The survey queried school staff about symptoms, diagnoses, and the presence of certain triggers in the classroom and in the school. The analysis of these surveys is underway. OHSP also plans to work with school systems in the coming year to assist them in selecting cleaning products that are less likely to trigger asthma.

### CONCLUSION

Work-related asthma is largely preventable. Most of the agents that cause asthma can be controlled through careful building maintenance, preventing and repairing leaks promptly, maintaining ventilation systems, providing local exhaust ventilation for hazardous chemicals in shops and laboratories, and scheduling construction during unoccupied times. If you think you have work-related asthma, ask your health care provider. Any diagnosed case of work-related asthma must be reported to the Occupational Health Surveillance Program by health care providers, by telephone (617 988-3341) on a reporting form, downloadable from <http://www.mass.gov/dph/bhsre/ohsp/crodi.pdf>

### RESOURCES

Copies of the "Occupational Lung Disease Bulletin" are available on-line at <http://www.mass.gov/dph/bhsre/ohsp/sensor/srindex.htm>

"What's that Smell? Simple Steps to Tackle School Air Problems," brochure by Asthma Regional Council (617) 451-0049 [www.asthmaregionalcouncil.org](http://www.asthmaregionalcouncil.org)

Massachusetts Healthy Schools Network website, sponsored by the Massachusetts Public Health Association, with support and assistance from the Healthy Schools Network, EPA and the Multi-Agency Taskforce on Schools (MATS) [http://www.mphaweb.org/pol\\_schools.html](http://www.mphaweb.org/pol_schools.html)

## SHOULD I WORRY THAT I HAVE ASTHMA?

If you run or climb stairs fast do you ever

- |                            |           |          |
|----------------------------|-----------|----------|
| 1. cough?                  | Yes _____ | No _____ |
| 2. wheezing?               | Yes _____ | No _____ |
| 3. get tight in the chest? | Yes _____ | No _____ |

Is your sleep ever broken by

- |                               |           |          |
|-------------------------------|-----------|----------|
| 4. wheezing?                  | Yes _____ | No _____ |
| 5. difficulty with breathing? | Yes _____ | No _____ |

Do you ever wake up in the morning with

- |                               |           |          |
|-------------------------------|-----------|----------|
| 6. wheeze?                    | Yes _____ | No _____ |
| 7. difficulty with breathing? | Yes _____ | No _____ |

Do you ever wheeze if you are in a

- |                      |           |          |
|----------------------|-----------|----------|
| 8. smoky room?       | Yes _____ | No _____ |
| 9. very dusty place? | Yes _____ | No _____ |

*If you answered "yes" to 4 or more of these 9 symptom questions, it is likely that you have undiagnosed asthma or diagnosed asthma that is not properly controlled. Consult your health care provider for proper diagnosis.*

## HOW DO I KNOW IF MY ASTHMA SYMPTOMS ARE WORK-RELATED?

Ask yourself several questions:

1. Are my breathing problems worse at work?
2. Is there a pattern to my breathing problems—are my symptoms worse at night after I leave work?
3. Do my symptoms improve on weekends or school vacations?
4. Are there work activities or areas in the building that I avoid because they cause or aggravate my breathing problems?

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<sup>3</sup> Rutstein DD. 1984. The principle of the sentinel health event and its application to the occupational diseases. Arch Environ Health 39(3):158.

## ENVIRONMENTAL PUBLIC HEALTH TRACKING: DEVELOPMENTAL DISABILITIES IN CHILDREN AND PCB EXPOSURE

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**E**nvironmental public health tracking involves the collection and analysis of data concerning environmental hazards and health effects that may be related to exposure to environmental hazards. Few systems currently exist that track exposure and health effects potentially related to environmental hazards. Due to this lack of existing tracking systems, the Centers for Disease Control and Prevention established the National Environmental Public Health Tracking Program in 2002. Through this program, Massachusetts received funding for three environmental public health tracking-related projects that focus on the following health outcomes: pediatric asthma, systemic lupus erythematosus, and developmental disabilities.

Recently there has been a growing public health concern regarding developmental disabilities and their potential association with environmental exposures. This is due to the apparent increase in the incidence of diagnosed developmental disabilities. Approximately 12 million children in the United States under the age of 18 suffer from developmental disabilities including epilepsy, deafness, blindness, growth and development delays, emotional/behavioral problems, and learning disabilities. Among children in public schools, it is estimated that 5% to 10% have a learning disability and 3% to 6% suffer from attention deficit hyperactivity disorder. Some researchers attribute this increase in incidence of developmental disabilities in part, to improved reporting and varying diagnostic criteria, but these do not explain all of the increase seen in recent years (Schettler, 2001).

The purpose of the developmental disabilities project is to use data from the Massachusetts Department of Public Health (MDPH) Early Intervention (EI) program and the Massachusetts Department of Education (MDOE) to ascertain developmental disabilities in children 0-10 years of age residing in Berkshire County, Massachusetts. This area was chosen because of demonstrated polychlorinated biphenyl (PCB) contamination in floodplain soil, air, surface water, and sediment of the Housatonic River and its tributaries. The Housatonic River runs through these communities contaminated with PCBs from a former electrical manufacturing facility located there. DOE and EI data will then be linked via a geographic information system (GIS) to existing PCB environmental data. The goal of this project is to track developmental disabilities in children and opportunities for exposure to PCBs in order to determine if any analytical study is warranted.

It is probably worthwhile to note that health effects of exposure to environmental contaminants depends on several factors including the developmental stage at which the exposure takes place, duration of exposure, distribution of the contaminant in the nervous system, its concentration in nervous tissue, and the ability of the contaminant to interfere with specific developmental processes (Rice & Barone, 2000). Timing of exposure is particularly important because the central nervous system develops in a series of processes that occur in sequence (proliferation, migration, differentiation, synaptogenesis, apoptosis, and myelination) and are dependent on each other. If an exposure occurs at an early stage in development, this can have an effect on the stages that follow (Mendola, Selevan, Gutter, & Rice, 2002).

This developmental disability focus of the Massachusetts EPHT program will be a critical step in leading to a better understanding of the various types of developmental disabilities and their prevalence. This is particularly important with regard to those developmental disabilities that may have environmental risk factors.

For more information about the CDC's Environmental Public Health Tracking Program please visit the website <http://www.cdc.gov/nceh/tracking/>.

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## PROTECTING OUR CHILDREN FROM LEAD POISONING

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The prevalence of toxic lead in the environment, particularly in older housing, has been a continuing concern of health officials nationwide. In Massachusetts, hundreds of young children are poisoned by lead paint each year and approximately 2,500 have elevated blood lead levels, putting them at what the Centers for Disease Control (CDC) defines as a level of concern for lead in a child's body.

Lead can damage the brain, kidneys and nervous systems of young children. Low levels of lead in a child's body can cause learning and behavioral problems. Very high levels can cause retardation, convulsions and coma. Several studies associate elevated lead levels during the toddler age to lower performance in high-school, increased absenteeism, lower vocabulary and grammatical reasoning scores on standardized tests, and poorer hand-eye coordination (Bellinger & Deitrich, 1994 and Needleman et al. 1990).

Children between the ages of 9 months and 6 years who live in houses built before 1978 (the year lead was taken out of residential paint) are most at risk for lead poisoning. When old paint peels and cracks, or when homes are being renovated and lead paint is disturbed, it creates hazardous lead dust. Lead dust lands on the floor and other surfaces and gets into a child's body when he/she puts his hands and toys in his mouth.

### LEAD SCREENING & KINDERGARTEN ENTRY

A blood test is the only way to know if a child has lead poisoning. Every child under 4 years old in Massachusetts must be tested for lead annually. If a child lives in a high-risk community, he/she will also need to be tested at age four. Children must present evidence of having previously been screened for lead poisoning as a condition for entry to kindergarten. If a child has

never been tested, he/she will need to be tested (regardless of his age) before he/she can enter school.

### SOURCES OF LEAD IN SCHOOLS

Most children get lead poisoning from paint, but lead is also found in other sources such as water, soil, imported ceramics, home remedies, junk jewelry, mini-blinds and Mexican candy. Recently in Seattle, Washington dangerous levels of lead were found in school water fountains, and news reports have been highlighting the excessive lead levels in water around the Washington D.C. area for months. Public health officials are urging schools to be more proactive in testing for lead.

#### To check for lead in paint:

- ❖ Contact the Childhood Lead Poisoning Prevention Program (CLPPP) at (800) 532-9571 for a list of licensed lead paint inspectors.

#### To check for lead in water:

- ❖ Contact the MA Department of Public Health, Center for Environmental Health at (617) 983-6654 or the Department of Environmental Protection at (617) 292-5770.

#### To check for lead in soil:

- ❖ Contact the laboratory at UMass Amherst at (413) 545-2311.

#### To check for lead in an object:

- ❖ Contact the State Laboratory Institute at (617) 983-6900.

<sup>4</sup> MACLPPP Screening and Incidence Statistics, 2004.

<sup>5</sup> For a list of high-risk communities, contact CLPPP.

<sup>6</sup> Bach, Deborah. "Mixed Grades for States' Lead Fight". *Seattle Post-Intelligencer*. April 4th, 2004.

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## PROTECTING OUR CHILDREN FROM LEAD POISONING *continued from page 9*

### INTERVENTIONS

Experts agree that the best intervention is to safely remove the source of exposure from the child's environment. The Massachusetts Lead Law requires making homes lead safe if they were built before 1978 and have a child under the age of six living there.

The first step is to have the home tested for lead by a licensed lead paint inspector. Only people that are **properly trained, authorized or licensed** can fix lead hazards. If you meet the training requirements, you can often do much of the work yourself. It is the responsibility of the property owner (landlord) to pay for the testing and fixing of lead hazards. There is financial assistance available through the *Get the Lead Out* Program at (617) 854-1000. Tax credits and local resources are also available.

School personnel can do their part by promoting lead safer schools. Call the Childhood Lead Poisoning Prevention Program (CLPPP) for more specifics on the following simple steps that will help reduce the risk of exposure:

- ❖ *Renovate safely:* If the building was built before 1978, assume it has lead paint and have staff follow lead safe work

practices. Maintain an intact paint standard.

- ❖ *Keep children away from lead paint and dust:* Encourage hand washing before any meals or snacks. Have staff clean weekly using lead safe methods.
- ❖ *Encourage foods that can help prevent the body from absorbing lead:* Children should eat foods with calcium (milk, yogurt, cheese, and green leafy vegetables), iron (lean meats, beans, and peanut butter), and vitamin C (oranges, juice, and tomatoes).

### CHILDHOOD LEAD POISONING PREVENTION PROGRAM (CLPPP)

In accordance with the Massachusetts Lead Law, the Department of Public Health Childhood Lead Poisoning Prevention Program (CLPPP) provides a full range of prevention services to the children of the state, their families, and others with an interest in the prevention of childhood lead poisoning. For more information, contact our public information number at 1 (800) 532-9571 or visit our website at [www.state.ma.us/dph/clppp](http://www.state.ma.us/dph/clppp).



## STUDY PLANNED TO FOCUS ON KIDS AND ENVIRONMENT

*Frances M. Dwyer PhD, NP, Clinical Coordinator/EPHT, Center for Environment Health*

Could an expectant mother's exposure to certain chemicals put her child at risk of learning disabilities? What role do genetics and pollution serve in the development of asthma? Does exposure to TV have any impact on toddlers? The National Institute of Health (NIH) is preparing the largest study of US children ever. It plans to track 100,000 children from conception to age 21 to increase our understanding of how the environment affects children's health. The National Children's Study (NCS) is coming at an important time. Awareness over the increasing rates of autism, asthma and certain birth defects is bringing this project to reality.

### WHAT IS THE NATIONAL CHILDREN'S STUDY?

The NCS will examine the effects of environmental influences on the health and development of more than 100,000 children across the United States, following them from before birth until age 21. The goal of the study is to improve the health and well being of children. The study defines the "environment" broadly and will take a number of issues into account, including:

- ❖ Natural and man-made environmental factors;
- ❖ Biological and chemical factors;
- ❖ Physical surroundings;
- ❖ Social Factors;

- ❖ Behavioral influences and outcomes;
- ❖ Genetics;
- ❖ Cultural and family influences and differences; and
- ❖ Geographic locations

Researchers will analyze how these elements interact with each other and what helpful and/or harmful effects they might have on children's health. By studying children through their different phases of growth and development, researchers will be better able to understand the role of these factors in health and disease. Findings from the study will be made available as the research progresses.

The study will allow scientists to focus on any differences that may exist between groups of people in terms of their health, health care access, disease occurrence, and other issues so that these differences or disparities can be addressed. The NCS is expected to be one of the richest information resources in the nation for answering questions related to children's health and development. One anticipated outcome is that the NCS will form the basis of child health guidance, interventions, and policy for generations to come. It is anticipated that the preliminary results from the first years of the study will be available in 2008-09. For more information visit the web site at [www://nationalchildrensstudy.gov](http://www://nationalchildrensstudy.gov). To order a free copy of the NCS brochure, NIH Publication No. 03-5187, call the NICD Information Resource Center at 1-800-370-2943.

# CONTROLLING LEAD IN DRINKING WATER FOR SCHOOLS

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## WHY IS LEAD A HEALTH CONCERN?

Lead is a toxic material, known to be harmful to human health if ingested or inhaled. Lead in the body can damage the brain, kidneys, nervous system, and red blood cells. Children, infants, pregnant women, and their unborn children are especially vulnerable to lead. In children, lead has been associated with impaired mental and physical development, as well as hearing problems. The harmful effects of lead in the body can be subtle and may occur without any obvious signs of lead poisoning.

Blood lead levels as low as 10 micrograms per deciliter (ug/dL) are associated with harmful effects on children's learning and behavior. In the late 1970's, CDC estimated that 13,500,000 children had blood lead levels greater than or equal to 10 ug/dL. In 1999-2000, however, CDC's estimation was that 434,000 children had blood lead levels greater than or equal to 10 ug/dL. Although dramatic decreases in the number of children with elevated blood lead levels have been observed, reducing any and all sources of exposure to lead can help to further reduce the number of children with elevated blood lead levels.

## HOW ARE CHILDREN EXPOSED?

Children may be exposed to lead from the environment in such sources as: lead-based paint found in pre-1978 housing (dust or chips), lead-contaminated dust and soil, drinking water, and lead-contaminated materials used in adult occupations and hobbies. In addition, lead is also found in some imported toys and cosmetics. It is, therefore, important to consider all of these sources when determining a child's overall exposure to lead, because several lower amounts of lead may potentially add up to a significant total exposure. Reducing the amount of lead in drinking water is an important part of reducing a child's overall exposure to lead in the environment.

## WHY IS LEAD A SPECIAL CONCERN FOR SCHOOLS?

The on-again, off-again water use patterns at most schools can result in elevated lead levels in drinking water. Water that remains stagnant in plumbing overnight, over a weekend, or during a vacation is in longer contact with plumbing materials and may, therefore, contain higher levels of lead.

## HOW DOES LEAD GET INTO THE DRINKING WATER?

Lead generally enters drinking water from a building's

plumbing system. Lead may be present in various parts of the plumbing system such as lead solder, brass, fixtures, and lead pipes and is picked up by the water passing through the plumbing system. The amount of lead, if any, in a plumbing system will depend on the age of the system and the materials from which the system was constructed.

The amount of contact time between water and any lead source is the greatest contributing factor to lead in drinking water. The longer water remains standing in the plumbing system, the greater the potential for it to absorb lead from any lead sources present. For this reason, the lead concentration is at its highest when water has remained unused overnight or over a weekend. Additionally, factors such as water chemistry and temperature can affect the rate at which water absorbs lead.



## HOW MUCH LEAD IS TOO MUCH?

The United States Environmental Protection Agency (US EPA) recommends that school drinking water not exceed 20 part per billion (ppb) of lead. Massachusetts Department of Environmental Protection (MA DEP) sets a limit of 15 ppb. However, all schools should seek to reduce the amount of lead in drinking water to as close to zero as possible.

## WHAT CAN BE DONE TO REDUCE LEAD LEVELS IN DRINKING WATER?

- \* Use only cold water for drinking and food preparation.
- \* Flush taps before use.
- \* Test the water for lead.

## HOW TO REDUCE LEAD IN SCHOOL DRINKING WATER

1. Flush Taps  
Flushing, or opening up a tap and letting the water run, removes the stagnant water that may have been in contact with lead containing plumbing fixtures. Flush individual drinking water taps for 2-3 minutes (refrigerated water bubblers can take as long as 15 minutes to properly flush out the reservoir.) Or in the case of many taps that need flushing, flush the tap furthest from main pipe for ten minutes to flush out main pipe. Then flush individual drinking water taps to rid stagnant water from the main to the taps.
2. Test Taps  
All taps should be sampled on a five-year frequency. Collect "first draw" samples for lab testing. Water should sit unused in the pipes for at least 8 hours but no more than 18 hours prior to sampling.

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## CONTROLLING LEAD IN DRINKING WATER FOR SCHOOLS *continued from page 11*

Interpret the lab results. If your result is at or below 20 ppb (15 ppb for Massachusetts) usually no flushing is required. If lead exceeds 20 ppb, flush twice daily.

### 3. Flushing and Retesting

Taps that exceed 20 ppb (15 ppb in Massachusetts) should have their first draw samples taken then be flushed. The taps should then be resampled during the midday, just prior to the midday flushing. If midday results exceed 20 ppb, it means that flushing is not effective and other corrective means should be taken.

### 4. Other Corrective Actions

- \* Take tap out of service;
- \* Replace tap with non-lead fixtures;
- \* Replace and repair of lead solder joints, plumbing components, or lead pipes;
- \* Install point-of-use treatment device on the tap; and/or
- \* Chemical treatment of water at the source to reduce amount of lead absorbed.

### 5. Reassessment

After corrective action has been taken the taps should be retested. If results are at or below 20 ppb (15 ppb in Massachusetts), no further action is required. If results are above 20 ppb, twice daily flushing is required until more corrective actions are implemented.

## WHAT HAS MASSACHUSETTS DONE TO HELP?

The MA DEP mailed out a letter to all Massachusetts school superintendents in June 2004 informing them of the need to check drinking water in their schools for lead. Every school should have checked each tap, completed the Maintenance Checklist, and submitted it to DEP. All schools must follow this requirement. If your school has not yet submitted the Maintenance Checklist forms you can get a copy of it on the DEP website at <http://www.mass.gov/dep/brp/dws/lead.htm>.

## MA HEALTHY SCHOOL INITIATIVE

Through the Healthy Schools Council (HSC) established in 2001, Massachusetts is addressing environmental health, safety, and indoor air quality issues in schools. The Council is made up of representatives from several state agencies including the Department of Education (DOE), Department of Public Health (DPH), Department of Labor and Workforce Development, Division of Occupational Safety, Department of Environmental Protection, Board of Higher Education, and others. This inter-agency council has developed a list of the most important issues for schools to address in terms of environmental health and safety, including drinking water quality. The group is preparing a resource booklet that will be distributed statewide by DOE and

others. It will include a checklist for schools to identify important environmental health and safety issues that may be present in a given school building. The DOE, DPH, and DEP encourage the use of the checklist to determine the overall health of your school's environment. The checklist may be viewed at <http://www.mass.gov/dph/beha/iaq/schools.schools.htm>.

## MA DEP LAUNCHES DAYCARE FACILITY EVALUATION PROJECT

DEP, New England Interstate Water Pollution Control Commission (NEIWPCC), EPA, and Worcester State College Community Health Program (WSC) have joined together to launch an initiative to conduct outreach and evaluate lead levels in Massachusetts's daycare facilities. WSC and DEP personnel will review data and identify specific daycare facilities that are willing to have their water supply or plumbing evaluated by sampling or by completion of a DEP Maintenance Checklist. Project personnel will assist in collecting samples that will be sent to an EPA laboratory for analysis. The sample results will be shared with project personnel who will provide appropriate technical assistance to participating daycare facilities.

WSC Community Health Program Director, Helena Semerjian reports that, "This project makes sense for everyone. It focuses on protecting a vulnerable population (children under 6 years old), draws on the experiences and resources of WSC, DEP, NEIWPCC, and EPA; and provides real life experiences for the students of WSC."

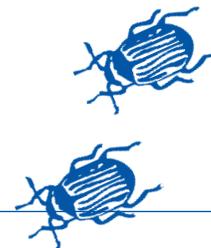
## TECHNICAL ASSISTANCE MATERIALS

EPA has produced documents entitled "Lead in School Drinking Water" and "Sampling for Lead in Drinking Water in Nursery Schools and Daycare Facilities." A limited number of these documents are available from DEP. They can also be obtained by calling the Safe Drinking Water Act Hotline at 800-426-4791. Look for the article on the Massachusetts Childhood Lead Poisoning Prevention Program (MACLPPP) elsewhere in this newsletter. To talk with someone from MACLPPP call 1-800-532-9571.

Lead educational information is also available on the following websites:

- Sampling for Lead in Drinking Water in Nursery Schools and Day Care Centers  
<http://www.epa.gov/safewater/lcrmr/nursery.pdf>
- Lead in Drinking Water in Schools and Non-Residential Buildings  
<http://www.epa.gov/safewater/consumer/leadinschools.html>
- List of Laboratories certified by MA DEP  
<http://www.mass.gov/dep/wes/files/certlabs.pdf>

# MASSACHUSETTS SCHOOL INTEGRATED PEST MANAGEMENT PROGRAM



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**P**esticide policy over the last decade has increasingly been driven by the need to protect the health of children. At the federal level, the pesticide registration process was revised to account for the impacts of pesticides on children. The recent phase-outs of arsenate-based wood preservatives and homeowner-use organophosphate pesticides, such as chlorpyrifos, and diazinon, are due largely to concerns about potential risks to children's health.

At the state level, pesticide risk reduction efforts have focused on reducing exposure where pesticides are used in school settings. By amending the state pesticide statute (Chapter 132 B of the Massachusetts General Laws) in 2000, Massachusetts became one of the first states to enact legislation with the specific goal of preventing the unnecessary exposure of children to pesticides in both public and private schools, daycare centers and school-age child care programs. Responsibility for implementation of the "Children's and Families' Protection Act", was given to the Massachusetts Department of Agricultural Resources (DAR).

This relatively recent law has dramatically changed indoor and outdoor school pesticide use and pest management practices by limiting the types of pesticides that can be used; it requires written parental notification two days in advance of outdoor pesticide use, and mandates the development and implementation of Integrated Pest Management (IPM) plans.

## INTEGRATED PEST MANAGEMENT (IPM)

While the term may seem overly technical, IPM is really just common sense pest management that focuses on eliminating the conditions favorable to the development of pest problems. Traditional pest control might involve the routine application of a pesticide to deal with a pest problem without addressing the reasons why the pest was there in the first place. The IPM approach targets the causes of a pest problem (such as food, water, access, and shelter) not just the symptom (pest infestations), and uses pesticides only when warranted.

An indoor IPM program is basically a maintenance and sanitation program that includes the removal of sources of food, water and shelter and the elimination of conditions that allow pests to enter buildings. Such a program involves monitoring for pest problems on a regular schedule and may include more frequent trash removal, repair of leaking pipes, replacing broken

window screens; caulking of cracks, and the use of pesticides. The school IPM law, however, also effectively eliminates the potential for indoor pesticide exposure by allowing only the use of low risk products such as baits and gels that are placed in areas that cannot be accessed by children.

Outdoor IPM is more challenging because the outdoor environment is more varied and complex. School grounds may include athletic fields, landscaped areas with flowers and shrubs, playground areas and building exteriors. Mosquito control may also be part of an outdoor IPM program. An outdoor IPM program involves regular monitoring for pests, and, depending on the outdoor area, may include the use of insect resistant mixtures of grasses, soil tests, improved dumpster management, redesign of exterior lighting, relocation or removal of certain plants, and the use of pesticides.

Because of the difficulties in managing certain intensively used outdoor areas (such as athletic field turf) without the use of pesticides, the law is not as restrictive in terms of the types of pesticides that can be used. For outdoor uses, the law prohibits the use of a limited number of pesticides due to potential or probable carcinogenicity and toxicity concerns. Potential exposure of children to outdoor pesticides is reduced because applications cannot be made within 150 feet of areas where children are either present or are expected to enter within eight hours after the application has been made. Clear warning signs must also be posted. Furthermore, for outdoor pesticide use, a key provision of the law requires parental notification in writing to be made by the school two working days prior to the application. The notification provides specific information about the pesticide application, including a fact sheet that provides a toxicological profile of the pesticides being used in the outdoor application. A consumer information bulletin that explains the reason for the notification and how to minimize exposure to pesticides is also included.

The law also requires school districts to centralize all of the information about their IPM approach into indoor and outdoor IPM plans. The plans have to be maintained onsite and copies submitted to DAR. An IPM plan is essentially a blueprint for how the school district will solve and prevent pest problems. The plan describes any pest problems, pest control methods that will be used to manage pests, the names of pesticide applicators and any pesticides used. The plan also outlines responsibilities for coordinating pest control activities for the school district and ensuring that the IPM plan is carried out.

To help school districts develop their IPM plans and submit them to DAR, a new interactive school IPM website has been cre-

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## MASSACHUSETTS SCHOOL INTEGRATED PEST MANAGEMENT PROGRAM *continued from page 13*

ated ([www.massnrc.org/ipm](http://www.massnrc.org/ipm)). Through a combination of multiple choice and site-specific questions and fact sheets, this new interactive program helps school personnel to develop and submit their IPM plans online. The plans can then be managed through an online IPM Workbook that allows the school to make updates and changes as necessary. Once the plan is submitted to DAR, it is available for viewing online by the public. Parents and school staff can use the website to determine if the school is in compliance with the law and compare the quality of the plan to other schools in the area. Pesticide applicators can use the site to ensure that the school has complied with the law prior to undertaking any work at the school. Requiring the submission of IPM plans to the state also provides DAR with a convenient compliance measurement tool.

### COMPLIANCE

While the number of schools in compliance is steadily increasing, overall compliance with the law has been weak. Despite extensive outreach efforts and workshops only half of the school districts in the state have submitted plans to DAR. Among daycare centers compliance has been particularly poor with only about 15% of licensed daycare facilities in compliance.

Given the numerous competing interests for the attention of school principals and daycare administrators, it is not altogether surprising that the requirement to develop and submit IPM plans has been unfulfilled in some quarters. A noticeable trend, however, is that schools are coming into compliance when they request pest control services from a licensed pesticide applicator. This is because pesticide applicators must be certified and/or

licensed by the state and an applicator cannot make a pesticide application to school property without ensuring that the school is complying with the IPM law. Schools are also coming into compliance when they are fined by the state for violations. To date ten schools have each been fined \$1000 each for non-compliance.

With the newly developed interactive website, renewed outreach efforts will be directed at the schools and daycare centers over the coming year. Specific attempts will also be made to target parents to ensure that they are aware of the law and can request that their child's schools come into compliance.

For the complete guide to School IPM in Massachusetts please visit the School IPM website at [www.massnrc.org/ipm](http://www.massnrc.org/ipm). Use the site to familiarize yourself with the law, learn about IPM, view IPM plans and check to see if schools in your area are in compliance.

For more information about the school IPM law, contact the following DAR staff members:

*Compliance and Enforcement of the Children's and Families' Protection Act*

Call Enforcement Section at 617-626-1781.

*Pest problems and IPM*

Call Mark Buffone at 617-626-1777.

Email [mark.buffone@state.ma.us](mailto:mark.buffone@state.ma.us)

*School compliance and help on completing your IPM plan*

Call Trevor Battle at 617-626-1775.

Email: [trevor.battle@state.ma.us](mailto:trevor.battle@state.ma.us)



## FISH CONSUMPTION AND MERCURY

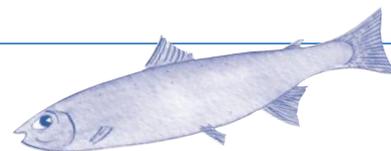
*Julie Watts, Environmental Health Educator, formerly of the CEH, MDPH*

*Martha Steele, Deputy Director, CEH, MDPH*

The Massachusetts Department of Public Health (MDPH) reviewed the current scientific data on mercury exposure through seafood consumption, in particular the National Research Council's report titled, "The Toxicological Effects of Methyl Mercury." MDPH also reviewed several years worth of analysis performed by the Health Department to inform decisions on fish consumption advisories. As a result, MDPH issued a statewide warning for pregnant women not to consume freshwater fish caught in Massachusetts water bodies due to high mercury levels. In 2001 MDPH broadened their advisory to

women of childbearing age who may become pregnant, nursing mothers, and children under 12 years of age to not eat freshwater fish in Massachusetts and to avoid the following marine fish: shark, swordfish, king mackerel, tuna steak, and tilefish. The statewide freshwater fish advisory does not apply to fish stocked in freshwater bodies by the Massachusetts Division of Fisheries and Wildlife (MDFW) and does not apply to farm-raised freshwater fish sold commercially. It also does not apply to those freshwater bodies for which data are available that indicate consump-

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# ASHLAND HEALTH STUDY

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The Massachusetts Department of Public Health's (MDPH) Bureau of Environmental Health Assessment (BEHA) has received state funding to investigate cancer in young adults and historical environmental exposures related to the Nyanza Chemical Waste Dump located in Ashland, MA. The site is the location of the former Nyanza Inc., which operated a dye manufacturing facility at the property from 1965 to 1978. More than 100 different chemicals (including carcinogens) and dye manufacturing compounds have been found at the site. A 1994 health assessment prepared by the MDPH indicated that children were among those likely to have had the greatest risk of exposure. Recent information has been reported to the MDPH that children who lived in the town of Ashland and reported playing on the Nyanza site have developed similar types of cancer as young adults. Of greatest concern is the report of five young men from the same high school graduating class who have developed various types of soft tissue sarcoma.

The Ashland Health Study is a retrospective cohort study, which attempted to identify approximately 2,500 children between the ages of 10 and 18 who resided in Ashland during the years 1965 to 1985. The study period focuses on the period of time when access to the Nyanza site was unrestricted, and human exposures, especially to children, were likely to have occurred. Individuals were identified through lists of graduates from Ashland High School and other area schools for the years 1972 to 1992.

## THE SPECIFIC AIMS OF THE PROJECT INCLUDE:

- 1) To examine exposure from contamination at the Nyanza Chemical Waste Dump to former children and young adults of Ashland as a risk factor for cancer (particularly sarcoma); and
- 2) To determine if cancer rates among former Ashland residents are significantly elevated for those with the greatest opportunity for exposure to Nyanza Chemical Waste Dump compared to residents with no exposure opportunity.

Each study participant was interviewed using a questionnaire that collected information on residential history, play areas and activities during childhood, medical and occupational history, and smoking and alcohol behaviors. A geographic information system (GIS) is used to determine whether correlate play activities and locations of detected contamination at the Nyanza site may be associated with cancer. The current study began in April 1998 and has enrolled 1,387 former Ashland graduates as study participants. The final report of the study results is anticipated by the end 2004. For further information about the Ashland Health Study, please contact the Community Assessment Program at (617) 624-5757 or visit our website at [www.state.ma.us/dph/beha](http://www.state.ma.us/dph/beha).



## FISH CONSUMPTION AND MERCURY

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tion of fish from the water body is safe. For further information on fish stocking and farm-raised fish, contact MDFW at [www.mass.gov](http://www.mass.gov).

MDPH recommends the sensitive populations described previously limit their total consumption of fish not covered by existing advisories to no more than 12 ounces (or about 2 meals) of cooked or uncooked fish per week. This includes canned tuna, the consumption of which should be limited to two cans per week. The MDPH advisory also warns that consumers may wish to choose to eat light tuna rather than white or chunk white tuna, the latter of which may have higher levels of mercury. Very small children, including toddlers, should eat less. (White tuna has a pinker color to it than light tuna.) MDPH recom-

mends that consumers choose a variety of fish and shellfish and obtain them from a variety of sources. **Some kinds of fish are known to have lower levels of mercury and can safely be eaten in larger amounts. These include cod, pollock, haddock, and flounder.**

In partnership with retailers, the Department has mailed out the advisory to over 1000 seafood restaurants and retail and wholesale establishments throughout the state. They are to make this information available to their customers. So far, the response that we received has been very positive. MDPH is currently working on a way to evaluate the effectiveness of this outreach activity.

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