



ILLEGAL TOBACCO SALES TO MINORS SKYROCKET

Two recent projects, managed by Cheryl Sbarra, Attorney and Director of MAHB's Tobacco Control Program, and carried out in collaboration with TobaccoFreeMass, reveal alarming increases in the number of illegal tobacco sales to minors. This increase is occurring at the same time that local board of health tobacco control programs are experiencing unprecedented budget cuts and, in many cases, total elimination.

The first project examined data from the Department of Public Health in some 220 cities and towns in Massachusetts to determine the rate of illegal tobacco sales to minors in 2003. This data was compared with the rate of illegal sales to minors in 2002, before cities and towns lost a significant portion of their board of health tobacco control programs due to funding cuts, or saw their tobacco control programs completely eliminated.

A compliance check occurs when a minor, under the supervision of an adult, attempts to purchase tobacco. Sales rates reported to the Department of Public Health for 2002 were compared with sales rates for 2003. Data from 128 cities and towns whose tobacco control programs were completely eliminated was examined, as well

as data from 92 cities and towns whose tobacco control programs remained funded, but at a greatly reduced level.

As a result of budget cuts to the Massachusetts Department of Public Health's Tobacco Control Program (MTCP), local board of health tobacco control programs in 190 cities and towns have been eliminated. The 112 municipalities that maintain tobacco control programs have experienced drastic budget reductions.

Research indicated that when boards of health conduct compliance checks on a regular, periodic basis, and when penalties are assessed on retailers that sell tobacco to minors illegally, fewer sales to

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Fundamentals of Local Public Health

This October MAHB will launch a new training opportunity for board of health members and staff who find it difficult to attend the on-site Certification Programs. The new distance learning opportunity will encompass all of the materials previously covered in the Primary Certification Program.

This project was funded by a HRSA work force training grant and was developed in partnership with Dr. Gary S. Moore.

BOARDS OF HEALTH LOSING STAFF HIRING AUTHORITY

The statutory authority of elected and appointed Boards of Health dates to the time of Paul Revere, who was Chairman of the first Board of Health in Boston. Boards are empowered to respond quickly and knowledgeably to public health emergencies where rapid response can prevent a bad situation from worsening. The CDC has identified ten essential governance responsibilities for local boards of health, including monitoring health status, ensuring the proper investigation and diagnosis of health

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OVERVIEW OF THE MDPH CENTER FOR EMERGENCY PREPAREDNESS

As many of you may know, the Massachusetts Department of Public Health (MDPH) is the recipient of two federal cooperative agreements, one from the U.S. Health Resources Services Administration (HRSA), which focuses on hospital preparedness activities, and the other from the U.S. Centers for Disease Control (CDC), which focuses on bioterrorism and emergency response. The scope of this funding is broad, and objectives include developing readiness assessments and hospital preparedness plans; upgrading infectious disease surveillance and investigations; expanding laboratory and communication capacity, and enhancing overall bioterrorism preparedness.

To coordinate these efforts, MDPH Commissioner Christine Ferguson created the Center for Emergency Preparedness (CEP), which is led by Associate Commissioner Suzanne Condon. The CEP's role within MDPH is to act as the policy and coordinating hub for MDPH's emergency preparedness activities. The CEP is taking an active role in leading the various MDPH bureaus in the preparation and completion of the HRSA and CDC cooperative agreement objectives; the development of MDPH emergency preparedness policy statements; and development of long-range plans for emergency preparedness and response in the Commonwealth.

Although the CEP has a state-wide focus and mission, there has been considerable emphasis on improving the communication and emergency response structures in the individual communities within Massachusetts. To that end, MDPH has, with the help of the local boards of health, designated seven MDPH Emergency Preparedness Regions in the Commonwealth, and has made over \$4 million available to these Regions for the purposes of furthering activities related to local and regional public health preparedness. In addition, MDPH has dedicated staff to function as Regional Emergency Preparedness Coordinators who will assist the communities in Massachusetts with their overall planning activities.

If you should have any questions about the CEP or its activities please feel free to contact Cynthia Larson, Deputy Director for the CEP, at (617) 624-5289, or via e-mail at Cynthia.Larson@state.ma.us.

SOMERVILLE'S DR. OSLER RECEIVES NALBOH AWARD

NALBOH Regional Director Shephard Cohen named Dr. David Osler MD ,M.P.H. the 2004 recipient of the NALBOH New England Director's award. Dr. Osler, a pediatrician, led the fight to ban smoking throughout the City of Somerville, in the face of strong political, business and libertarian opposition. During his 18 years on the Board of Health, Dr. Osler has implemented many programs and services, resulting in long-term, fundamental improvements in the health of his community.

Dr. Osler will receive his award at the NALBOH conference in Denver in July, where he will be an honored guest of MAHB.

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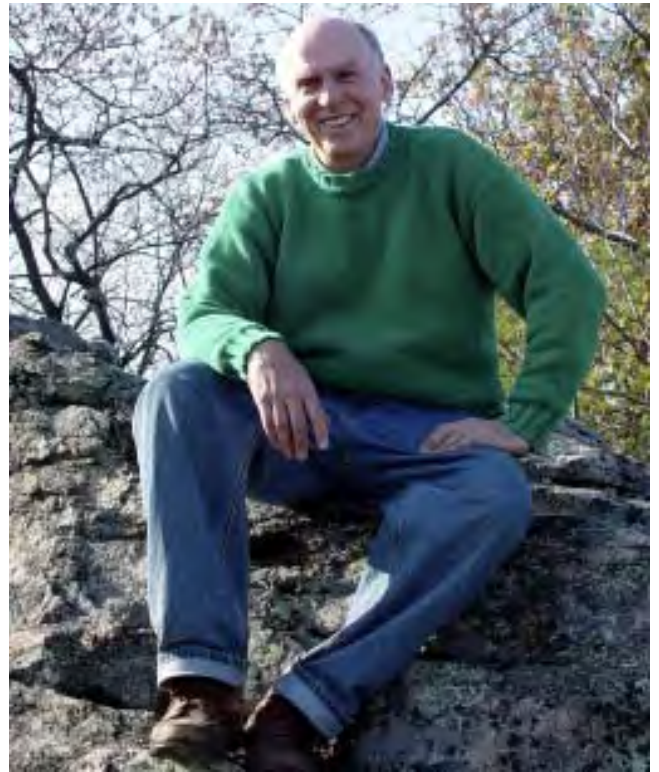
Energy, curiosity, intelligence, love of family and dedication to public health, these attributes all applied to Walter Murphy, who died last September after a brief illness. Walter served as Director of Nashoba Associated Boards of Health since 1986 and was a member of the MAHB Executive Board since 1995.

A former teacher, environmental consultant, and scientist by training, Walter became involved in local public health due to a chance encounter. Peter Cassinari, a recipient of MAHB's lifetime achievement award, former Executive Board member and Littleton BOH member since 1967 recalls how he first got to know Walter - about 20 years ago- when he wrote a letter to the editor supportive of the Board of Health. Introducing himself, Peter mentioned that there was an open seat on the board and asked if Walter would be interested. After serving two years on the board, the directorship of the Nashoba Associated Boards of Health opened up, and Peter suggested that Walter apply for the position. At that time, Walter was performing environmental impact studies of sewer systems, airports and other projects.

Walter and I met as members of the [defunct] Hazardous Waste Site Safety Council. He was a designee of the Commissioner of the Department of Environmental Management (DEM). I was a public member. We became friends through the long months of reviewing a highly controversial (and ultimately rejected) application for a rotary kiln incinerator in Braintree. As Director of NASHOBA, we were in frequent communication, and before long he joined MAHB's Executive Board.

Conversations with Walter were a special pleasure, if sometimes exhausting. With characteristic energy, he was always thinking about matters large and small, and sometimes I was the designated sounding board. He would often call before 8 a.m. - already mid-morning by his internal watch, and leave excited (statically charged) messages on my answering machine. In early 2003, most of our talk centered around the Bioterrorism Cooperative Agreement and the evolving DPH Public Health Preparedness Program. I grew weary of trying to explain why there was so little apparent progress and finally asked him if he would represent MAHB at some of the advisory hearings, which he did. Walter didn't believe in the trickle down theory of public health resources. He was concerned that after the federal funding was gone, local boards would still be struggling to meet day to day public health needs.

He had the gift of making people laugh, sometimes at his own expense. Politically astute, he was a realist but also by nature a humorist. The last few times we spoke, the topic would drift from public health to his cabin on the lake. Walter wanted advice about getting a little dog to share that cabin on the island. He liked the idea of a spunky little white dog.



Walter's family and friends paid tribute to him with a celebration of his life, and the chapel was overflowing. Many remembered his strong character and sense of adventure, whether climbing the White Mountains or working on his cabin on an island on Lake Winnepesaukee.

A high school friend contacted Walter's wife Carolyn recently and shared this recollection. "Even in high school he was already a natural educator, so that revelation that he became a teacher felt natural and comfortable. His foray into environmental affairs also felt like a natural for the Charlie that I knew. Some of my fondest high school memories are of tramping through the wilds (well they felt like the wilds to a kid from Charlestown) of Harold Parker State Forest in North Andover with Charlie leading the way pumping me full of facts about hunting, woodsmanship, and Mother Nature. He was like a walking, talking environmental handbook. I can't say that I always appreciated it all that much at the time. In fact, I can remember my teeth chattering, my fingers getting numb, and my face freezing while I wondered what form of insanity had lead me to get up at 5am on a dead of winter Saturday morning just so I could stumble around in a frozen forest listening to a talking textbook and maybe get killed by a wild animal or a stray bullet from a drunken hunter."

We became friends through work, but it wasn't until after his death that I realized how many dimensions there were the man known to me as Walter, and to family as Charlie, or how many people would deeply miss this cheerful, funny and deeply caring man.

THE EDITOR'S DESK

Due to fallout from the economy, 2003 was the first year since MAHB was founded in 1982 that no Journal or Newsletter was published. This may be one of the last print issues of the Journal, as it is much easier and less expensive to transmit information via the Internet. But for the moment at least, we are happy to be back in print and hope that the information contained herein will be thought provoking and informative. I have tried to avoid instant obsolescence by covering topics that will still be timely six months hence.

These days Emergency Preparedness has taken center stage and by the time you are reading these words, the first year of funding to local coalitions will be over. As Host Agent for two coalitions, I was actively participating in the purchasing and distribution of equipment - from computers to Geiger counters. Some of this equipment will see daily use in the board of health office. Some of it, we fervently hope, will never see the light of day except perhaps in exercise drills.

I am impressed with the dedication of many health agents and public health nurses who have participated in the coalitions throughout the long winter and busy spring months. While the board members may not be as active in the coalitions, it is my hope that they are staying informed and taking advantage of training. The coalitions, which are not yet a year old, offer the possibility of resource sharing and networking that has so long eluded local public health for much of Massachusetts. Once the disbursements of cash and office equipment have ended, it is to be hoped that the coalitions will be a lasting positive legacy of a troubling time.

Meanwhile, the challenges of improving community health continue. Though terrorism and war may have driven accelerating childhood asthma rates out of the headlines these are problems which have not gone away. All too many of today's children will never look back, from middle age, and remember running across a field on a summer day - the memory still despite the passage of time. For too many children today, outdoor exercise is fraught with danger. Roadways are choked with traffic, once rural footpaths are paved over and physical education programs are being sacrificed.

The challenges facing the next generation will be daunting, but is society doing all that it can to ensure that children born today will have the intelligence that was their birthright? Quoting from the abstract of a study published in April 2003 in the New England Journal of Medicine,

" The blood **lead** concentration was inversely and significantly associated with IQ. In the linear model, each increase of 10 μg per deciliter in the lifetime average blood **lead** concentration was associated with a 4.6-point decrease in IQ ($P=0.004$), whereas for the subsample of 101 children whose maximal **lead** concentrations remained below 10 μg per deciliter, the change in IQ associated with a given change in **lead** concentration was greater. When estimated in a nonlinear model with the full sample, IQ declined by 7.4 points as lifetime average blood **lead** concentrations increased from 1 to 10 μg per deciliter.

Conclusions Blood **lead** concentrations, even those below 10 μg per deciliter, are inversely associated with children's IQ scores at three and five years of age, and associated declines in IQ are greater at these concentrations than at higher concentrations. These findings suggest that more U.S. children may be adversely affected by environmental **lead** than previously estimated." Bellinger D. C., Needleman H. L., Eden A. N., Donohoe M. T., Canfield R. L., Henderson C. R. Jr., Lanphear B. P. N Engl J Med 2003; 349:500-502, Jul 31, 2003.

The CDC threshold for lead poisoning is set at 10 $\mu\text{g}/\text{dl}$. According to DPH figures, nearly 38,000 children in Massachusetts have blood lead concentrations that may result in lowered IQ, but do not meet the Federal lead poisoning level. Damage to intellectual ability is irreversible, but many parents are unaware of the risk, since their children do not have actionable levels of blood lead.

Local board members can help to educate parents of young children about the dangers of lead poisoning. For the foreseeable future, public education and enforcement of the existing lead laws are the only recourse.

- Marcia Elizabeth Benes

minors are made. Prior to the budget cuts of 2002, local board of health tobacco control programs conducted four compliance checks annually. Since the budget cuts, compliance checks are less frequent at best and, in most cities and towns without funding, virtually nonexistent.

In cities and towns that have had their tobacco control programs reduced by budget cuts, tobacco vendors illegally sold to minors 73.5% more often in 2003 than in they did in 2002. The increase is even more dramatic in municipalities that have had their programs completely eliminated due to budget cuts. Sales rates in these communities nearly doubled.

In addition, in examining the results from 2003, it appeared to Sbarra and to TobaccoFreeMass that the sales rates were probably even higher than reported in 2003, because so few compliance checks were actually done in 2003. In 2002, when the board of health programs were adequately funded, virtually every tobacco retailer in a city or town was checked. Since so few retailers were checked in 2003, a second project was undertaken. In this project, which is ongoing, MAHB is conducting compliance checks as they were done in 2002. An experienced inspector and an experienced minor, under the management of Sbarra, are conducting compliance checks in virtually every retailer in certain cities and towns. Funding for this project is being provided by TobaccoFreeMass through a grant from the Campaign for Tobacco Free Kids. The results of these checks are even more alarming.

In Pittsfield, 51 retailers were checked. 31 sales were made. This is an illegal sales rate of almost 61%. In Waltham, 63 stores were checked and 32 sales were made. This is an illegal sales rate of 57%. In Norwood, 42 stores were checked and a minor was able to purchase in 24 of them. This is an illegal sales rate of 57%. In Brockton, 131 retailers were checked and 59 of them sold tobacco illegally to a minor for an illegal sales rate of 45%. These checks will continue to be done in more cities and towns. The data suggests to MAHB and to TobaccoFreeMass that cities and towns are no longer able to enforce local youth access regulations through periodic compliance checks as they did prior to funding cuts in 2002, and that illegal sales rates have increased as a result.

Science based research suggests that if illegal sales rates remain under 10% and a comprehensive tobacco control program is in place that provides youth access enforcement, education, outreach, cessation programs and clean indoor air policies, youth smoking rates decline. In 2002, the illegal sales rate to minors in Massachusetts was under 10%, and youth smoking rates were on the decline.

These new alarmingly high rates of illegal sales do not bode well for youth smoking rates. Unless local boards of health are, somehow, provided the resources necessary to enforce their local youth access regulations through periodic compliance checks and enforcement, these high rates will likely soar even higher.

Smoke-Free Worksites Bill Moves Closer to Final Passage

Massachusetts is moving closer to enacting one of the most comprehensive smoke-free workplace bills in the nation, joining Connecticut, Maine, New York, Delaware and California. The law will prohibit smoking in virtually all enclosed workplaces in the Commonwealth, including restaurants, bars and taverns. Exempted from the law will be private residences, private clubs, except when they are open to the public, and cigar bars. Cigar bars must demonstrate that 51% of its revenue is derived from tobacco products.

The road towards passage of this law has been long and arduous; and MAHB has been in the forefront. The bill passed the House in October of 2003 by a resounding 128 to 24. In November of 2003, the Senate passed the bill by a margin of 29 to 8. To view how your Representative and Senator voted, go to TobaccoFreeMass.org. Governor Romney has stated that he will sign the bill once it crosses his desk. "[Romney spokeswoman Shawn] Feddeman . . . said Romney would sign a statewide smoking ban when it reaches his desk. . . 'He believes it is an important public health initiative,' Feddeman said. '[People] have the right to breathe clean air and be free of second hand smoke.'" *Boston Globe*, November 22, 2003.

On April 23, 2004, the six-member Conference Committee worked out minor differences between the House and the Senate versions of the bill and approved a compromise bill. The House passed the Conference Committee bill on May 6, 2004. The bill now moves to the Senate for passage, then to the Governor. The effective date of the bill is July 5, 2004. For updated information on the law and for the specifics of the law, please go to mahb.org or call Cheryl Sbarra, Senior Staff Attorney and Director of the Tobacco Control Program for MAHB.

Hepatitis A Challenges DPH Western Mass. Response Team

On March 16, 2004, more than 1,100 people were screened at the Ludlow Town Hall for potential exposure to hepatitis A virus. Approximately 790 doses of prophylactic immune globulin (IG) were administered to people who had dined at the Two Brothers Pizza restaurant in Ludlow between March 1 and March 12. On Friday March 12, 2004 the public health nurse in Ludlow, Doreen Rae, had been notified that there was a confirmed hepatitis A case in her town. Doreen discovered, while doing the case investigation, that this case was a food handler working in this popular pizza shop. Individuals from the towns of Ludlow, Chicopee and other surrounding towns, including people from regions as distant as Cape Cod, attended the clinic. Hepatitis A can cause serious illness. Symptoms may include fever, fatigue, loss of appetite, nausea and jaundice, and can last about two weeks. Hepatitis A virus is usually found in the stools of infected people and is spread usually through contaminated hands. It also can be spread by contaminated food.

In response to this public health emergency, the Western Massachusetts Department of Public Health dispatched members of its DPH Region 1 Response Team to assist the Ludlow Health Department. Additional support staff was present from the State Laboratory Institute in Jamaica Plain.

The Western Massachusetts DPH Response Team was established in the late fall of 2003 as a natural evolution of the state bioterrorism response program. According to Charlie Kaniecki, District Health Officer for Region 1, "Given the size and diversity of Western Massachusetts (100 + cities and towns), it became apparent that we were overlapping on many different levels and there was a natural need for us to combine our resources and talents to act as a unit to protect the public health; not just in the event of bioterrorism, but in response to the natural course of events that unfold in society at large."

The Western Massachusetts DPH Regional Response Team presently consists of the district health officer (Charlie Kaniecki), a local preparedness coordinator (Donald Snyder), a health educator (Barbara Coughlin), an infectious disease response nurse (Donna DiMartino), a public health nurse (Laurel Pelis), a zoonotics disease specialist and Massachusetts Health Alert Network administrative support person (Claudia Sarti), a strategic national stockpile coordinator (Michael Mozzer), the MDPH immunization program nursing supervisor (Martha Badger), a regional epidemiologist for vaccine preventable diseases (Marija Popstefanija), a regional immunization nurse (Helen Taugher), and an administrative aide (Jennifer McHendry).

"The call came at 5:00 on Friday afternoon," said Kaniecki, "and this was going to be the first time that we actually mobilized to do a vaccination clinic. Last year we had a situation where some of us went to the town of Stockbridge to monitor for SARS in bus loads of tourists coming from Toronto Canada for a religious pilgrimage. It seems to me that we are becoming a unit whose purpose, is in, part to assist the locals."

Other members of the Western Mass. DPH Response Team echoed this sentiment. People really appreciate the presence of a DPH response team," says Laurel Pelis, the DPH Public Health Nurse. "They really, really appreciate knowing that we're here to help on a day to day basis, and not just in times of crisis."

Barbara Coughlin, Health Educator for Western Mass. DPH, had this to say about the Team concept; "I think that the concept is excellent, we have been able to identify one another as players on a day to day basis and not just on a response basis. In my role as the health educator, I feel my job is to assist in getting the message out to their target audiences and make connections with the correct people within the state system. Everything that I needed to respond to the situation effectively was *there*, right down to the telephone numbers that I needed to be able to contact people because of the telephone tree that was set up by the Team. And it worked. I had access and was able to communicate quickly with the Ludlow nurse as well as the State epidemiologists. I was even able to have a discussion with the SNS people about the "what ifs" regarding the amount of prophylactic IG available. On a personal level, it was an extreme learning experience for me in a very positive way."

Regarding the Ludlow hepatitis A clinic, Laurel Pelis says, "I had not had the experience of being involved in something of such a large scale. From my vantage point in the clinical setting, being with ten or twelve other nurses, it just seemed to flow very smoothly. People really worked well together."

During the event itself, the DPH Response Team broke out into assigned roles. Charlie Kaniecki operated as the designated Incident Commander, Barbara Coughlin took the role of the Planner and Logistics Officer, Donna DiMartino acted as the Safety Officer, while other members took on different responsibilities. Immunization was handled by Laurel Pelis and Helen Taugher, as well as a number of other volunteer nurses from the area, while Marija Popstefanija provided screening for individuals and families. Donald Snyder stepped into the role of Support Staff, Claudia Sarti acted as the

Press Liaison, with Doreen Rae, Ludlow public health nurse, functioning as the local liaison between state and local health departments.

Following the September 11 attacks on the New York World Trade Centers in 2001, a National Collaborative Training Plan was proposed by the Center for Disease Control (CDC) in 2002 and outlined some of the essential strategic elements for preparing a competent public health work force. These elements have been applied nationwide throughout many states in an effort to develop training plans to address public health emergency and/or bioterrorism preparedness and response.

As part of the Western Massachusetts initiative to train health care workers and other professionals, the Western Massachusetts Region, Department of Public Health has helped to encourage and facilitate the attendance of public health partners to a variety of trainings provided by the Department. Trainings which are as diverse in nature as the proper use of protective clothing in the event of chemical or biological hazards (an event sponsored by The New England Consortium), to Foodservice Training for food sanitation personnel and regulatory officials.

"The goal is to create a seamless operation between state and local government in times of public health emergencies, crises and disasters," says Kaniecki.

Claire Maranda named Canton Citizen of the Year

The Blue Hills Civic Association has named MAHB Executive Board member Claire Maranda the 2004 "Dr. Richard J. Elkort Citizen of the Year. The BHCA's President Mark Gibbs reported that Claire was selected for her many years of selfless contributions to Canton.

Claire has been elected to the Canton Board of Health for 14 years, serving as chairman for the last five years. She is also active as a member of the Local Emergency Planning Committee and the DPH Advisory Committee on Small Pox.

Among her many contributions to Canton, Claire established the annual Canton Health Fair. She also created and continues to host a cable program "Community Health Concerns". For the past ten years she is a regular volunteer on the Canton Area Help Line and volunteers in the Canton Food Pantry. Until retirement, Claire taught nursing for 21 years at Curry College and is an emeritus member of the faculty, continuing part-time teaching and tutoring.

ISOLATION AND QUARANTINE IN MASSACHUSETTS

*By Elizabeth Sheehy, Health Educator
MDPH*

Introduction

Throughout history, medical and public health workers have contended with disease and outbreaks. Isolation and quarantine were developed to reduce morbidity (disease) and mortality (death) by inhibiting transmission of disease. Although familiarity with large-scale isolation and quarantine has faded, isolation and quarantine are used routinely in Massachusetts to control the spread of communicable diseases. The threat of bioterrorism and emerging diseases, such as Severe Acute Respiratory Syndrome (SARS), has raised issues about implementing isolation and quarantine in the context of modern human rights and liberties.

How are isolation and quarantine defined?

Isolation refers to separating **people who are ill** from other people to prevent the spread of a communicable disease. Isolation is used routinely when ill food handlers are excluded from work or from food handling responsibilities due to hepatitis A, salmonellosis, and shigellosis, or when ill children are excluded from school or day care.

Quarantine refers to separating and restricting the movement of **people who have been exposed** to a communicable disease and are not yet ill—these people are often referred to as "contacts" of the person who is known or presumed to be infected and infectious. An example is food handlers who are contacts of individuals with hepatitis A, salmonellosis, and shigellosis who may be quarantined (excluded from work or from food-handling responsibilities) until certain criteria are met. Animals who may have been exposed to certain diseases, such as rabies, may also be quarantined.

Laws and regulations are in place to define diseases as dangerous to the public health and to establish reporting and isolation and quarantine requirements. Isolation and quarantine are defined in the Massa-

achusetts *Summary of Reportable Diseases, Surveillance, and Isolation and Quarantine Requirements* (105 CMR 300.000).

Are isolation and quarantine voluntary?

Isolation and quarantine are generally initiated by those responsible for protecting the public health, including health care providers, public health nurses, health directors, school nurses, emergency medical technicians.

Isolation and quarantine are usually voluntary. Most people readily understand the need for isolation and quarantine. However, people who are ill with a communicable disease and people who have been exposed to a communicable disease may be legally compelled into isolation and quarantine if they refuse to do so voluntarily.

Who is responsible for enforcement?

The local board of health, in conjunction with other local authorities, is responsible for enforcing isolation and quarantine. Local health departments should develop relationships and formal agreements with local law enforcement, courts, hospitals, schools, and emergency medical services concerning the implementation and enforcement of isolation and quarantine. If initial recommendations are not followed, boards of health have the authority to issue a legal order, enforceable by law with support from local police authorities, if necessary. The Massachusetts Department of Public Health (MDPH) has coordinate authority with local boards of health and is available to provide assistance or consultation when requested. The MDPH Office of the General Counsel can be reached at (617) 624-5220.

What are the laws that govern isolation and quarantine?

Massachusetts General Laws, Chapter 111, in various sections, grant authority to the MDPH to define diseases that are dangerous to the public health, promulgate control regulations, and grant to local health departments authority to invoke isolation and quarantine measures when necessary. MDPH regulations governing isolation and quarantine and disease reporting are contained in 105 CMR 300.000; these require local boards of health, health care providers, and laboratories to report specific diseases to the

MDPH. Massachusetts laws and regulations that pertain to isolation and quarantine can be accessed from the MDPH web site at <http://www.state.ma.us/dph/cdc/epii/reportable/reportable.htm>.

The MDPH recommends that local boards of health consider passing their own definitive and enforcement regulations, however it is not mandatory. The town attorney or city solicitor is the best resource to answer legal questions at the community level. Additionally, MDPH attorneys are available to provide consultation and assistance upon request.

What about the rights of the individual?

Isolation and quarantine are normally undertaken voluntarily. Forced isolation and quarantine should only be the last resort after education has failed. Isolation and quarantine requirements should be as minimally intrusive as possible. When considering options for isolation and quarantine, the “least restrictive measure” sufficient for disease control should be employed. All measures should be in keeping with the legal requirement for due process. A court order may be necessary if individuals refuse to comply with isolation and quarantine. Your town’s attorney should be able to provide assistance with regard to required paperwork and the process for obtaining a court order.

What are the steps to take to obtain a court order for isolation and quarantine?

Local boards of health or their agents, local health directors, the Commissioner of Public Health, the Governor and the United States Surgeon General are examples of those who may issue an isolation and/or quarantine order. The MDPH has recently developed a number of legal documents to be used by local boards of health and attorneys for the purposes of enforcing isolation and quarantine. These documents, along with steps to obtain a court order, will be available on the MDPH website.

Conclusion: Planning Ahead

The effects of isolation and quarantine can be stressful and even devastating. People may be separated from family members and pets. They may be worried about dependent children, elderly parents, or handicapped family members who depend on them for support. Even simple arrangements to obtain food and

necessities are beyond their control. Moreover, people may be forced to stay out of work without pay and may be concerned about the financial burden imposed by isolation or quarantine.

Educating community agencies and the general public about the realities of isolation and quarantine prior to an emergency eases the burden of inflicting difficult measures on reluctant members of the population in the midst of a disaster. Risk communication should include the public health rationale for imposing isolation and quarantine. It should also include information about the range of isolation and quarantine measures, including exclusion in selected settings, home quarantine, and wide scale quarantine in designated facilities.

It is important that both public health professionals and health care providers understand that sharing information for the purpose of disease reporting does not violate the Health Insurance Portability and Accountability Act (HIPAA) privacy rules.

Community planning for isolation and quarantine should address the need for critical resources, i.e. food, shelter, child care, health care, and crisis counseling for affected people and include a list of local agencies and organizations that can provide these essential services.

Additional Information and Resources

More information regarding isolation and quarantine, including a template for local regulations and sample legal documents for local boards of health and their attorneys, is available on the MDPH website at: www.state.ma.us/dph.

COURT CASE SUPPORTS BOH AUTHORITY

by Cheryl Sbarra J.D.

MAHB Staff Attorney

Earlier this year, the Worcester Superior Court upheld board of health authority pursuant to G.L. c. 111, § 122 to examine into all nuisances, determine that a nuisance exists and issue an order that the nuisance be abated. United Comb and Novelty Corp. d/b/a United Plastics v. City of Leominster Board of Health, (2004 WL 233455 (Mass.Super.))

United Plastics began its trucking operations in January of 2002 in a warehouse located in an industrial zone. However, across the street is a residential zone with many homes directly across the road from United Plastics' loading docks.

This particular site had long been a source of complaints from neighbors. The complaints included trucks idling in the street, trucks shining headlights directly into homes, trucks using private driveways to turn around, and loud noises at all hours of the day and night. United Plastics tried to mitigate the problems by hiring a security officer and communicating with neighbors. However, the complaints continued.

In February of 2002, the Leominster Board of Health held a hearing relative to the complaints. Several neighbors testified at the hearing about the problems caused by United Plastics' trucking operations. Their complaints include the inability to sleep at night. A United Plastics representative testified that the company needed to operate at the warehouse until at least midnight.

At the conclusion of the hearing, a motion was made pursuant to G.L.c. 111, § 122 that the Board find that United Plastics' operations constituted a nuisance and that United Plastics be ordered to reduce their hours of operations to allow the neighbors uninterrupted hours of sleep. A specific schedule of operating hours was proposed. The board voted unanimously to accept both proposals.

The Board issued a written Order of Abatement and United Plastics sued, seeking judicial review in the nature of certiorari, claiming that the board acted arbitrarily and capriciously during their administrative hearing.

In upholding the actions of the Leominster Board of Health, the court stated that it would not "... substitute its judgment for that of the administrative body. . . A decision is not arbitrary and capricious unless there is not ground which 'reasonable men might deem proper' to support it." The burden was on United Plastics to demonstrate that the order was unreasonable; and United Plastics failed to meet that burden.

There was ample evidence presented at the hearing to demonstrate that United Plastics' activities constituted a nuisance. "It is rational to conclude that, given the conflict between United Plastics' location in an indus-

trial zone, with its proximity to its residential neighbors resulting in a nuisance and violation of noise ordinances, the Board issued an Order which sought to balance the interests of both parties. The Board is entitled to all rational presumptions in favor of its interpretation of the authority under which it acted.”

THE 4-1-1 ON 9-1-1

by Melinda Calianos J.D.

As towns and cities across Massachusetts prepare emergency plans and begin to consider the actual logistics and potential hazards of emergency response, different parts of local government are being drawn into relationships with public safety and emergency response agencies as never before. As the Board of Health role in emergency response becomes more pronounced, it is imperative that Board members gain a clear understanding of the different parts of the local emergency medical system already at work in the community. The first line of emergency health response is usually the local 9-1-1 dispatch center. Dispatch centers and the dispatchers who work there are the first avenue of response for most health (and other) emergencies. Accordingly, your community’s 9-1-1 dispatch center is an important part of any local public health network. There are over two thousand 9-1-1 dispatchers who regularly work in 267 dispatch centers across Massachusetts. If you count the people who dispatch occasionally, the number jumps much higher.

When a health emergency occurs, by and large, the first person turned to for help is the person who answers the 9-1-1 call – the 9-1-1 dispatcher. The professionals who answer these critical and often frantic calls are, by virtue of the job itself, seemingly invisible helpers working hard in our communities. What happens when you dial 9-1-1? Who is on the other end of the call when a life or death emergency strikes and you dial 9-1-1? What sort of assistance is that person trained to provide? What standards exist for these important jobs and offices?

When an individual in need of help calls 9-1-1 he or she will reach a person invested in helping any caller to the best of his or her abilities and who is seated in front of, among other things, an Answering Point Unit (APU) at a dispatch center. In most communities, the call will go to the community’s dispatch center or “Public Safety Answering Point,” (PSAP) which handles calls for police, fire and Emergency Medical System (EMS). In smaller towns, the call will be routed to the closest “PSAP,” which is an answering location near the town, which handles and is familiar with the police, fire and EMS serving that small town. The telephone technology and machinery required

is standardized by the Massachusetts Statewide Emergency Telecommunications Board (SETB). The standards can be found in M.G.L.A. ch. 6A s.18B and Appendix A of 560 CMR 2.00. Beginning in 1990, these laws were the vehicle to establish “Enhanced 9-1-1,” also known as “E-9-1-1.” All communities have now been upgraded to conform with these regulations. “E-911” and “9-1-1” systems are now one and the same — and all are considered “9-1-1.” These laws ensure that all Massachusetts residents have access to 9-1-1 no matter where they live. Prior to 1990, some areas in Massachusetts – even some as populous and urban as Holyoke – had no access to a local 9-1-1 call centers. Today all people in Massachusetts have access to 9-1-1.

With regards to the 9-1-1 system, there is no difference between one 9-1-1 call center and any other (other than the number of APUs present, which is determined by population served). Each 9-1-1 APU is equipped with, among other things, a screen that immediately displays the name of the phone subscriber, the address of the call, and any special disability indicators known to effect the resident of the address displayed. All dispatch centers are also equipped to handle Silent 9-1-1 calls and those received from special equipment (TTY) for the hearing or speech impaired. M.G.L.A. ch. 6A s. 18B and Appendix A of 560 CMR 2.00 go into great detail as to the network, back-up and machinery necessary for a dispatch center. However, beyond the mechanics of answering a call, little is mentioned for dispatcher training. As a result of the Commonwealth’s low minimum training requirement, the assistance a dispatcher can provide to a caller involved in a health emergency can differ vastly from town to town. It is easy to imagine how this difference can prove critical.

Who are the more than two thousand 9-1-1 dispatchers in the 267 call centers across the Commonwealth? How are they trained? In most towns and cities across the Commonwealth, “civilian” or non-police dispatchers answer and respond to 9-1-1 calls. Many dispatchers in this category are professional dispatchers who work full-time in this field. In other communities, police officers serve as the primary emergency dispatch. In still others, a dispatch center may have both, possibly at the same time.

The job of a 9-1-1 dispatcher is often busy if not hectic. All 9-1-1 dispatchers have many duties and responsibilities relating to medical/health emergencies. Throughout the twenty-four hours of a day emergency dispatchers:

- Receive and process calls for emergency medical assistance,
- Determine the nature and severity of medical incidents,
- Prioritize the urgency of the response,

- Dispatch appropriate emergency medical services (EMS) resources,
- Give post-dispatch and pre-arrival information to callers at the scene of an emergency,
- Relay pertinent information to responding personnel and
- Coordinate with public safety and EMS providers as needed.

Concurrent with these health oriented responsibilities, 9-1-1 dispatchers also have the following general public safety responsibilities to:

- Answer and service police/fire business and emergency phones,
- Provide assistance to callers on both the business and emergency phones
- Enter caller information into the CAD (Computer Aided Dispatch) system for dispatch
- Maintain radio communication with other city agencies (police, fire, animal control, public works etc.)
- Monitor Fire Box alarm and other systems dispatch when accordingly when one is tripped
- Use Commonwealth database systems to check vehicles, people, and items for problems such as registration suspension, warrants and stolen property
- Maintain a multitude of databases (e.g., emergency keyholder personnel for all businesses)
- Provide a link between the community and the public safety personnel on the streets.

All 267 9-1-1 call centers provide these services.

For dispatcher training, the Commonwealth mandates only that:

“Communication personnel shall be trained and have the highest level of experience possible within available resources. Training should include, but is not limited to, the 9-1-1 Call Handling Procedures set forth in the Public Safety Answering Point Administration and Training Sections of the Massachusetts Standards, 560 CMR, Appendix A.” quoted from 560 CMR, Appendix A.

The regulation then describes the information about the machinery and phone system that a dispatcher must know. The mechanics of answering 9-1-1 is described and mandated. Basic identification of a caller and the problem is addressed. Proficiency in the use of TTY/TTD is mandatory. Education in the use of emergency medical information is not mentioned.

Currently the only federal or state mandated training course for Massachusetts dispatchers is a 16 hour course sponsored by Massachusetts Statewide Emergency Telecommunications Board (SETB). The course runs for two consecutive days. The course is conducted in one of the SETB training facilities in Agawam, Reading, Wareham or Westborough. A student must be sponsored by a public safety agency in order to participate in a SETB program. The training focuses on the use of the technology — how to work the sophisticated 9-1-1 telephone equipment. The focus is not on interpersonal skills or emergency medical information or what to do with a report or a request received. (A very limited amount of training on necessary interpersonal skills is included in the training. This portion of the training focuses on the priority of verification of the caller’s address information on the dispatchers’ screen.) Use of the communications system, such as patching callers into EMS, Fire or Police, is the primary goal of the course. It has been described that the state required training and subsequent certification teaches “how to use the equipment not how to work the call.” Once this SETB 16 hour training is completed, a dispatcher is certified and can begin receiving 9-1-1 calls and dispatching appropriate services. The SETB certification is the sole certification necessary for a person to qualify to become a dispatcher. Some municipalities may go on to provide a few manuals and quick on-the-job instruction in addition to the Commonwealth required 16 hour certification, while others ensure their dispatchers receive extensive telecommunications and emergency medical training above and beyond the Commonwealth requirement.

9-1-1 dispatchers can be certified from non-SETB programs to provide specific medical assistance to aid a caller and an injured party while help is on the way. Topics covered in these trainings range from allergies to falls; and cardiac arrest and stroke to poisoning and childbirth to name a few. A dispatcher certified in Emergency Medical Dispatch (EMD) will ask a caller systematized interrogation questions aimed at clarifying the problem and the status of the person suffering the medical emergency, and provide systematized dispatch life support instructions. Pre-arrival instructions are medically approved, scripted instructions given in time-critical situations where correct evaluation, verification and advice given by trained emergency medical dispatchers to callers provide necessary assistance and control of the situation prior to the arrival

of emergency services personnel. Thus, a fire engine or ambulance doesn't have to be the first unit on the scene of a medical emergency—if trained in EMD, a dispatcher can be there within moments, by phone, providing medical information and pre-arrival instructions by phone.

For example, it is well established that the survival rates for a heart attack victim diminish for every minute that passes without assistance to the victim. A dispatcher certified to provide emergency medical information can give instructions to a caller on how to perform CPR on a heart attack victim while the caller is awaiting the arrival of the summoned ambulance, thus increasing greatly the person's chance of survival. Without that training, the dispatcher will remain on the line with the caller until an ambulance arrives, but he or she will be unable to provide this potentially life-saving information.

The certification necessary to share pre-arrival medical information can be acquired in one of two ways. A municipality's 9-1-1 supervisor may choose one of the fine private, national educational organizations that provide training in medical emergency dispatch to educate a new dispatcher. Many of these organizations train on and provide pre-arrival instructions from medically approved, carefully scripted, easy-to-access flip charts or computer screens. However, training dispatchers through private companies can become quite costly for a municipality. Alternatively, there is a relatively new but distinguished dispatch academy, the Massachusetts Public Safety Communication Academy. The academy was launched by several dispatch supervisors across the state who believed it was in the interest of the citizens of the Commonwealth that emergency dispatchers receive consistent, advanced training, including medical emergency training. Dispatch Academy's introductory course lasts five weeks. The curriculum includes, but is not limited to, call classification, hazmat awareness, CPR, interpersonal communication, stress management. Of late, Dispatch Academy has grown, and the Commonwealth now administers and oversees the Dispatch Academy. Now the Commonwealth can offer enhanced dispatcher training similar to private training for a fraction of the cost and soon at no cost to attendees or their sponsoring agency.

While the laws regarding 9-1-1 call centers standardized the basic equipment needed for a 9-1-1 call center, training of the personnel, beyond requiring hours spent learning how to use the equipment, is not uniform. Often unbeknownst to most people in any given community, great discrepancies exist among even neighboring town's call centers. Differences can be vast and critical. The ability to provide life-saving advice, or the lack of that ability, is an important difference amongst 9-1-1 call centers. What is the status of training for your dispatch center? It is worth-

while for municipal health officials to find out. After all, a well trained dispatcher could improve your public's health and chance of survival in an emergency.

Many 9-1-1 dispatch supervisors welcome visitors who are interested in learning what goes on at 9-1-1. It is easy to see how a short visit with your local dispatch center would be educational and time well spent.

Should an emergency occur, boards of Health, when called upon as part of the emergency response effort will function more clearly and efficiently with an enhanced understanding of the other organizations, parties and professions providing emergency services. On an every day level, Boards of Health could also use this understanding to innovate and improve emergency response in their community in their pursuit to protect and improve the public health of the residents of their jurisdiction.

911 Call Centers : A Public Health Resource

In addition to receiving calls for help, 9-1-1 call centers can proactively assist the community with health needs in many ways.

Disability Indicator Form

Each 9-1-1 municipal coordinator has a form to share with the public entitled, "Disability Indicator Form." The filing of these forms with the 9-1-1 Municipal Coordinator will alert public safety officials that an individual residing at a particular address may communicate via TTY, has a disability that may hinder evacuation or transport or has other special needs such as a life support system. The information on this form is then transferred into the system. Should a 9-1-1 call be received from the address indicated on the form, the 9-1-1 operator will immediately see the information appear on his or her caller identification screen and act and plan accordingly. The more forms that are out in the community and returned, the more efficiently a local dispatch center can function.

Are You Okay?

Some municipalities run a computerized calling system called "Are You Okay?." Seniors or the infirm register with the police to be called by the computer at a chosen time each day. If the call is not answered, 9-1-1 dispatchers are alerted, and a police officer is dispatched to the address to check on the health and status of the resident.

TOXICS USE REDUCTION OF HAZARDOUS BUILDING MATERIALS IN RESIDENTIAL BUILDINGS

by Lynn Rose, Environmental Health Consultant

Funded by a grant from the Toxics Use Reduction Institute, UMASS Lowell

This article is a summary of research conducted of more than a decade as part of my work of providing technical assistance to schools and other municipal officials concerned about indoor air quality problems. Most calls for assistance are made following renovation, new construction, or water damage in a facility. The information in this article is provided to increase your understanding of the inherent hazards in standard new and compromised building materials. The goal of this article is to increase community awareness to enable proactive selection of construction materials that do not pose a hazardous exposure to occupants. The information is designed to enhance the ability of inspectors to identify hazards in existing buildings upon receipt of air quality complaints.

The Problem

Overview of Health Hazards in Buildings

Hazardous building materials represent only one of the many hazards found in residential and commercial buildings! Other hazards include: hazardous products used for cleaning, disinfecting, maintenance, personal care, and pest control; combustion gases from appliances and furnaces; biological pollutants from dust and mold, animal dander and fur, insect excrement, and body parts; and moisture problems, which compound other problems such as creating conditions for mold growth, prime pest habitat, and release of volatile organic compounds (VOCs).

The reduction in the toxicity of building materials presents one of the many opportunities to reduce health hazards in building construction, and will be the focus of this article. Other design and construction opportunities to implement healthy strategies not covered here include: landscaping, foundation, radon control, building envelope, air tight construction, ventilation and filtration, heating and air conditioning, and moisture control.

Hazardous Building Materials

The types of hazardous building materials addressed in this article fall into the following categories; VOCs, formaldehyde-based products, solvent-based products, carpet and carpet components, and vinyl products. Although there are other products, these have been selected based on their prevalence in homes, creating a significant pollutant load when added up as illustrated in the following sample of their use in a typical home:

Wood Composite Products which are formaldehyde-based:

- Structural - sheathing, subflooring, composite structural beams
- Infrastructure and Trim – kitchen cabinets, countertops, stair treads, molding
- Furniture – shelving, desks, filing cabinets, couch and chair frames, etc.
- Carpet, Vinyl flooring, Siding, Plumbing

The major health issue related to these materials both during installation and occupancy is that they off-gas hazardous emissions, and/or harbor biological and chemical pollutants. Off gassing is a process that happens when solid materials made from petroleum based and natural products evaporate at room temperature. Chemically unstable materials slowly release contaminants, including some additives such as dyes, solvents, and softeners. The gasses that are released can be absorbed into materials such as carpet, fabric, and sheetrock. They can then be re-released into the air.

Formaldehyde

One of the products that off-gasses indefinitely, is extremely hazardous, and is most prevalent in homes is formaldehyde. It is used as a major ingredient in industrial and building products as an adhesive, anti-septic, germicide, fungicide and preservative. Formaldehyde is a strong-smelling, colorless gas that is chemically unstable. Its instability is due to how it functions after it has been combined in manufacturing with other chemicals (urea or phenol) to form resins. Later,

when the formaldehyde based products are exposed to increased temperature and humidity, they start a chemical reaction which breaks apart the resin, and releases the formaldehyde gas into the air. Urea formaldehyde is more reactive to moisture and as a result, off-gasses more than phenol formaldehyde. Thus, phenol formaldehyde is typically used for external construction applications such as CDX plywood, and OSB (oriented strand board), both of which are used for sheathing. The off-gassing process can continue as long as the material is exposed to sufficient moisture and temperature levels. Gradually, the "off-gassing" declines, but never goes to zero. It always returns when it is exposed to elevated temperature and humidity.

Exposure to formaldehyde can cause eye, skin, and respiratory irritation; wheezing and coughing, fatigue, and skin rash. Health effects can include: sensitization, allergies, cancer, and asthma. Symptoms can be experienced at 0.05 - 1.05 PPM. Acute exposures to formaldehyde are experienced when the building or renovation is first completed and the area is occupied. The total exposure an occupant received is based on a number of variables including; the amount of formaldehyde-based products that are located in a breathing zone, the amount of ventilation, the humidity and temperature levels. Chronic exposures to formaldehyde are based on the levels of humidity and temperature, which exacerbate the off-gassing process. Since formaldehyde is a sensitizer, it can take less and less amount of formaldehyde to cause a reaction in some people. Thus, although the initial amount of formaldehyde off-gassing decreases, some people's tolerance to formaldehyde is reduced following their initial exposure to it, causing them to react to even smaller amounts in subsequent exposures.

Exposure to formaldehyde is considered a high health risk by the California Office of Environmental Health Hazard Assessment, who has determined that no safe exposure threshold level existed for formaldehyde to preclude cancer; the U.S. EPA, who has classified formaldehyde as a "probable human carcinogen" under conditions of high or prolonged exposure; and the International Agency for Research on Cancer, who has also concluded that formaldehyde is a probable human carcinogen. The California Air Resources Board has reviewed recommendations from other public health institutions, including the California Department of Health Services, and recommends

All VOCs can be toxic, harmful to the environment, and extremely flammable or combustible. Health effects of VOCs include nervous system impacts and reproductive and developmental hazards. You can somewhat compare VOCs to alcohol, which is a solvent and has health effects that are very similar to health effects of VOCs.

that formaldehyde levels in homes be reduced above an "action level" of 0.10 PPM, with a "target level" of 0.05 PPM or lower. They state that because of the increased cancer risk, no concentration of formaldehyde can be considered to be absolutely safe.

VOCs are another major hazardous product of concern, with both short and long term off-gassing of emissions. Some VOCs produce emissions for just a brief period, with the major exposure experienced during and immediately after new construction. VOCs are organic solvents that form vapors at room temperatures, and easily evaporate into the air. Short-term sources of VOCs include; oil based paints, adhesives and glues, and solvents and solvent-based products. These products are designed with the solvent to be used as the carrier for a film such as paint or glue, with the intention of quickly evaporating after application to allow the film to dry/cure. Longer term sources that do not dry or cure and continue to off-gas over time, include; asphalt compounds, carpet backing, plastic foams, plastics, and vinyl flooring. All VOCs can be toxic, harmful to the environment, and extremely flammable or combustible. Health effects of VOCs include nervous system impacts and reproductive and developmental hazards. You can somewhat compare VOCs to alcohol, which is a solvent and has health effects that are very similar to health effects of VOCs.

Carpet has a number of issues in addition to the hazardous components it is traditionally made of.

All components of carpet can be hazardous, including the carpet fiber, carpet adhesives, carpet backing, carpet padding, seam sealants, and carpet treatments. Carpet padding contains many chemicals, a few which are tested for by the Carpet and Rug Institute's Certi-

fication Program, including; Volatile Organic Compounds, BHT (butylated hydroxytoluene), Formaldehyde, 4-PC (4-phenylcyclohexene). Although this certification program is controversial for a number of reasons, including the fact that it only tests for a limited number of chemicals, it can be used as a starting point for research. The hazardous ingredient in most carpet adhesives is SBR Latex, which is the largest source of short-term VOC carpet emissions. Seam sealants contain solvents such as toluene, or 1,1,1-trichloroethane, which have high initial emissions. Carpet backing material for wall to wall carpet can be made from polypropylene (can also be the secondary backing) or jute. Backing materials for carpet tiles can be a nonwoven synthetic material. Backing can make up to 60% of the carpet in weight. Binders used to attach the backing to the rug include; synthetic rubber (SBR Latex) which off-gasses VOCs, polyvinyl chloride (PVC) which contains lead and phthalates, ethylene vinyl acetate, and polyurethane. Carpet treatments are hazardous and can include pesticides (antimicrobial, fungicides and insecticides), stain resistance, antistatic, and fire retardants.

Carpet located on cement with no vapor barrier can wick moisture through the cement into the carpet. All types of carpet fiber trap dust, moisture, and pollutants to varying degrees depending on the depth of the pile, the carpet density, and the type of carpet. They also harbor dust mites. Synthetic fibers are traditionally made from petroleum, and these fibers can off-gas. Although wool fibers are natural, they may have a greater capacity than synthetics for trapping VOCs, especially formaldehyde and nitrogen oxides. Also, wool may be dyed with a toxic or a non-toxic dye. It can get infested by moths and is usually treated with insecticides to prevent infestation. Based on research that I conducted on one insecticide treatment on a wool rug, I found that the insecticide used was actually designed for outdoor use. This presents an additional problem as outdoor insecticides are designed to breakdown in the elements of sun and rain, which are not present in the indoor environments. Thus, these insecticides do not break-down as designed, causing longer-term exposures.

Some carpet off-gassing from pollutants will decrease with time. There is very inconsistent information in the literature about this, varying from 72 hours to 4 or 5 weeks, with no specific reference as to which constituents have completely off-gassed.

Carpets contain both short and long types of VOCs. The seam sealants and adhesives will eventually cure (if not installed in a humid environment), but the synthetic fibers, padding and backing materials do not cure, they off-gas from the petroleum feedstock that they are produced from. In terms of health effects to carpet emissions, if someone has been exposed to the higher levels continuously during the initial period of off gassing, they may have become sensitized, and may then react to much lower levels.

The cycle of carpet pollutant emissions shifts from a reduction in the initial high levels of chemical off gassing, to an increase in emissions from biological and other pollutants which either build up in the carpet, or are a result of age or compromised carpet conditions.

Fitted carpets act as a reservoir for trapped toxic substances used in and brought into the home. Recent research on chemical emissions in California schools found significant levels of outdoor pesticides built up in the carpets in the school buildings. Some of these pollutants can be somewhat broken down by ultraviolet light and the outdoor elements, but in an indoor environment, they receive minimal exposure to moisture and light in the carpet.

Carpet creates dust as the fibers break down, carrying carpet pollutants with it as it becomes airborne. Carpets also trap dust and mites and can also serve as a mold habitat. Carpet located on cement with no vapor barrier can wick moisture through the cement into the carpet. Pesticides and cleaners can add to the toxic burden of carpets.

How Can These Issues Be Addressed:

The hierarchy used to most effectively address the issues of toxicity of building materials used in construction:

1. Eliminate Hazard (Toxics Use Reduction)
2. Separate (e.g., vapor barrier or seal)

3. Ventilate (HVAC)

Role of BOH in helping to minimize occupant exposures to hazardous and compromised materials:

Work to prevent indoor air quality issues by encouraging your health agent to provide information on hazardous building materials when responding to IAQ complaints and to building inspectors. Provide resources on hazards in building materials and possible alternative building products for municipal building projects, School Building Committees, homeowners and affordable housing developers.

Develop local policies:

- Replace urea formaldehyde based products with low formaldehyde or formaldehyde free products in municipal and school building construction. At a minimum use the more stable phenol formaldehyde or solid wood or alternative materials where possible.
- Ensure adequate off-gassing time of newly built and renovated buildings prior to building occupancy.
- Work with building inspector to develop policy to require building commissioning of all new and renovated public buildings to ensure that all ventilation systems are functioning as designed.

Consider the maintenance necessary for products. The product itself may not be that hazardous, but the required maintenance products or processes may be hazardous. Finishes for wood floors are an example of a product that is not hazardous, but a hazardous product might be used for a finish. Vinyl floors are an example of a hazardous product that requires a hazardous product to finish it and to strip it off. Wool carpet may not be hazardous, but may require insecticides to kill insect infestations in wool rugs.

Greening Building Materials

Select Less Toxic Products

Carpet - The hierarchy of rug preferences related to toxics reduction:

1. No carpet. *Recommended by asthma organizations!*
2. Natural Fiber Area Rug

3. Natural fiber *wall-to-wall* rug

4. Synthetic *wall-to-wall* rug

Where possible, carpet should be have no latex backing, carpet pad, or treatments, and should be machine washable. They should not be glued, unless using a non-toxic glue. It is preferable to use peel and stick carpet tiles, or carpet that can be fastened down with either double sided tape, a hook and loop fastener, or tacks.

Formaldehyde-Based Products

HUD has a number of initiatives to address the problem of formaldehyde off-gassing in affordable housing. They have set emission standards for plywood and particle board, which must be stamped to certify that it meets HUD emission standards. The HUD stamp will not appear on low-emitting products such as those made with phenol-formaldehyde resins, which do meet the HUD emission limits, or on various other low-emitting formaldehyde products. There are no HUD standards for medium-density fiberboard (MDF), which are a significant source of emissions and are typically used for cabinetry, shelving, and trim which all can be found in areas of high humidity such as kitchens and bathrooms. Mobile home sellers are required under HUD standards to give prospective buyers a ventilation improvement information sheet before a sales agreement is reached.

Minimize use of formaldehyde based wood composite products. Use non-formaldehyde products or phenol formaldehyde (Exterior Plywood) instead of urea formaldehyde (Interior Plywood, MDF Board, Particleboard). There is also a new binder out with PMDI binder which does not off-gas. It uses benzene and isocyanates in its production which can cause occupational exposures, but once manufactured, it is considered to be safe.

VOCs

Use water-based finishes and adhesives.

When a product that off-gasses cannot be replaced with a less toxic product, they sometimes can be sealed. Sealer is a type of coating that is typically used to coat a porous surface to prevent stains and water damage. Sealers and finishes trap the formaldehyde gasses, slowing or preventing the product off-gassing. You can

use a sealer that is a water resistant finish such as oil paint, vapor resistant varnish, polyurethane, oil-based alkyd resin paint. Remember these oil-based products contain solvents, and need to be cured as completely as possible, outside or in a well ventilated area.

Additional Resources and references will be provided on the MAHB online edition of the 2004 Journal.

MAHB Guidebook for Massachusetts Boards of Health: References & Summary of Applicability to Hazardous Bld. Materials:

Chapter 11 - Occupational Safety and Health

BOH refers complaints of hazards arising from workplaces and requests for assistance to the appropriate agencies. It is also to investigate reports of workplace nuisances, and when confirmed, intervene to order operations to cease and the nuisance to be abated.

Chapter 12 - Air Quality, Noise Control, and Indoor Air

BOHs have jurisdiction over public schools, buildings that the general public enters and municipal buildings. The BOH should be prepared to respond to requests for information concerning indoor air quality of these buildings from the community. When complaints concerning indoor air quality are received, including complaints of radon and asbestos, the BOH will need to refer this information to the Bureau of Environmental Health Assessment (BEHA), DPH. BEHA will respond to complaint referrals from the BOH by conducting an investigation of the problem.

Chapter 13 - Environmental Health Assessment

The role of the BOH is to: request information regarding local hazardous waste sites and potential community exposure to contaminants; investigate all environmental health complaints; request toxicological and epidemiological community health assessments in response to complaints of environmental exposures; request assistance to address concerns of indoor air quality in public buildings such as schools; and refer complaints that require public health emergency response concerning chemicals.

Chapter 16 – Housing/Sanitary Code

BOHs should direct their efforts towards maintenance of the quality of housing to prevent development of

health problems and public nuisances and to protect the quality of life. Measures to prevent housing problems may include periodic inspections as well as public education and advice to homeowners and landlords on how to best maintain their property. Relevant Sanitary Code sections:

SECTION V: LEGAL OPTIONS FOR BOH OR PERSONS AGGRIEVED

L. Failure to install electrical, plumbing, heating and gas-burning facilities in accordance with accepted plumbing, heating, gas-fitting and electrical wiring standards or failure to maintain such facilities as are required by 105 CMR 410.351 and 410.352, so as to expose the occupant or anyone else to fire, burns, shock, accident or other danger or impairment to health or safety.

M. Any of the following conditions which remain uncorrected for a period of five or more days following the notice to or knowledge of the owner of said condition or conditions: ... 3. any defect in the electrical, plumbing, or heating system which makes such system or any part of such system in violation of generally accepted plumbing, heating, gas fitting, or electrical wiring standards that do not create an immediate hazard

Chapter 18 - Inspection of Public Areas BOHs share with other local and state officials the responsibility for ensuring that schools are as safe as possible and that they provide a good environment for learning. The BOH has specific duties regarding food services, communicable disease control and the physical facilities.

With cooperation of local building and fire inspectors, conduct sanitary inspections of school facilities for general sanitation and cleanliness.

Investigate and conduct inspections in response to complaints of poor indoor air quality (M.G.L. c. 111 '122).

Inspection of Public Areas - Manufactured Housing Communities

Manufactured housing units and the grounds must comply with 105 CMR 410.000: State Sanitary Code, Chapter II, Minimum Standards of Fitness for Human Habitation.

Chapter 34 - Health Promotion & Chronic Disease Prevention

Although there are no federal or state mandates specific to health promotion and chronic disease prevention activities, BOHs can provide health promotion/chronic disease prevention programs and services or collaborate with local agencies which provide those programs and services. Examples include: providing information and education to community residents and community providers on local food, health/medical care, health promotion and chronic disease prevention resources and activities (e.g. screenings, health fairs, workshops, education materials, public information campaigns, etc.); advocating for policy changes at the local, state and federal levels and seek funding; providing technical assistance and consultation to municipal employees, local worksites, schools, health and social service providers, coalitions, and other community groups interested in implementing health promotion/ disease prevention programs and activities.

Chapter 35 – School Health

Perform environmental inspections and enforcement as required by statute or as needed, including food services, general sanitation, hazardous wastes, indoor air quality, tobacco-free schools, construction site safety and others as needed.

HUMANE SOLUTION TO BEAVER FLOODING

1996 Law Allows For Humane, Affordable, Long Lasting Relief to Massachusetts Communities Struggling With Beaver Related Flooding

The town of Hubbardston has experienced repeated flooding of Route 62 for the past 10 years. Three large culverts (a culvert is a pipe usually running under a road to allow water flow) each approximately 5 feet in diameter were continually being dammed by beaver. In October of 2003 this state highway was under water and had to be closed.

Beaver build dams to impound water in order to create wetland habitat that provide them with access to food, water and safety. To the beaver a road with a

culvert in or under it is essentially a dam with a large leak or hole. Keen at sensing water flow, beaver are drawn to these sites and can quickly block up road culverts. Luckily there is a very simple, legal, inexpensive, humane way to resolve this conflict once and for all. The town called Beaver Solutions, a Massachusetts based company that specializes in resolving human-beaver conflicts. The company recommended a “Culvert Fence” be installed on all three culvert pipes at the site. A culvert fence is essentially fencing that is secured at the end of the pipe and extends out several feet or more that excludes beaver from access to the pipe and subsequently to damming it up. Beaver Solutions boasts a 98% success rate with their culvert fences and guarantees their work for a year to back it up! The town cleared the culverts of any damming debris from the beavers, and a large culvert protective fence system was installed by Beaver Solutions.

This example illustrates the point that The Wildlife Protection Act allows communities and individuals to get the assistance and relief they need when experiencing beaver related flooding. The current law is moderate and comprehensive and allows for a number of different solutions. Although removing beaver from an area where conflicts are occurring will only open up that habitat to other dispersing beaver making removal a short-term solution it should be mentioned that there is still a five and a half month beaver trapping season in Massachusetts (November 1st–April 15th) and the ability to trap and remove beaver outside of trapping season when health and safety are concerns. That’s why the use of flow devices as described above can be so beneficial, they are long-term, humane, and relatively inexpensive compared to trapping and removing beaver annually. Beaver do a lot to enhance our waterways by conserving water, providing flood and drought control, preventing soil erosion, and creating valuable habitat for wildlife; flow devices allow the beaver family to remain in the wetland while solving the existing conflict. The MSPCA has been committed to offering communities assistance with beaver related flooding for years. If you are experiencing conflicts with beaver or other wildlife in your community please call the Living With Wildlife Program at (617)522.7400 or visit us online at www.livingwithwildlife.org You can reach Beaver Solutions by calling Mike Callahan at (413) 585.9145, www.beaversolutions.com.

CASE STUDY: WELLESLEY PESTICIDE AWARENESS COORDINATOR

THE PROBLEM:

1. Pesticide use in and around our homes, yards, schools, offices, parks, malls, restaurants, roadways, railroads, utility lines, ponds, and lakes is so commonplace that our culture has come to believe that these chemicals are safe, harmless and effective.

2. Pesticides are defined by federal law and include: insecticides, herbicides, rodenticides, mildicides, pre-emergents, fungicides or any chemical designed to kill, repel or mitigate any pest. All pesticides are toxic and are regulated by the Environmental Protection Agency.

3. Poison control centers' records indicate that tens of thousands of people are acutely poisoned by pesticides each year. Typical symptoms may include: fatigue, nausea, numbness, dizziness, headaches, low energy, rashes, weaknesses, sleep problems, anxiety, and depression.

4. Adverse health effects go well beyond acute poisoning, and many occur at occupational and civilian levels of exposure. According to a comprehensive pesticide study review by the Ontario College of Family Physicians www.ocfp.on.ca:

- Many studies show positive associations between solid tumors and pesticide exposure, including brain cancer, prostate cancer, kidney cancer and pancreatic cancer.

- Certain pesticides, such as 2,4-D and related pesticides, as possible precipitants of non-Hodgkin's lymphoma (NHL).

- An association exists between pesticide exposure and leukemia. The implication of pesticides in the development of leukemia warrants further investigation and also, political action.

- Remarkable consistency of findings of nervous system effects of pesticide exposures.

- Occupational exposure to agricultural chemicals may be associated with birth defects, fetal death and intrauterine growth retardation.

- Children are constantly exposed to low levels of pesticides in their food and environment, yet there have been few studies on the long-term effects of these exposures. Nevertheless, associations between pesticide exposures and cancer in children were found:

- An elevated risk of kidney cancer was associated with paternal pesticide exposure through agriculture, and four studies found associations with brain cancer.

- Implication of pesticides as a cause of hematologic tumors in children, including non-Hodgkin's lymphoma and leukemia.

- Children have overall increased risk of acute leukemia if exposed to pesticides in utero or during childhood, especially for exposure to insecticides and herbicides used on lawns, fruit trees and gardens, and for indoor control of insects.

5. Human health safety testing for pesticides is incomplete in all cases. No pesticide has been tested for safety in children.

6. After a minimum set of tests, pesticides are allowed on the U.S market and remain there until proven harmful, often through exposure of a sensitive population. Further, personal health risk is balanced against generalized economic gain, allowing, for example, known carcinogens to be sold on the open market. Compare the U.S. policy with the European Union, who is implementing regulations where pesticides are not allowed on the market until proven safe.

7. Given the wide range of commonly used home and garden products associated with health effects, the overall message is to avoid exposure to all pesticides whenever possible and includes reducing both occupational exposures, as well as lower level exposures that occur from the use of pesticides in homes, gardens and public green space. Most, if not all, pests can be controlled effectively with non-pesticide methods.

ADDRESSING THIS ISSUE STATEWIDE & LOCALLY:

by Sara Little

My work began in response to observations when walking in my new home town of Wellesley with my young child, where I noticed pellets on the sidewalks and streets, and bad smells. I investigated what this "stuff" was, which turned out to be pesticides and found a huge body of literature about the toxic effects of these pesticides. Appalled that so many people were using it in complete ignorance. I complained to my sympathetic neighbors for about a year, got angry and didn't accomplish much in the way of changing behaviors. Then, I was hired for the new part-time position of "Pesticide Awareness Coordinator," by Wellesley's Board of Health. This position was created in concert with the Wellesley Cancer Prevention Project (WCPP), a citizen's group that formed to investigate the perceived high incidence of cancer in Wellesley.

To facilitate my work on educating the community about safer alternatives to pesticides, I obtained two grants from the Toxics Use Reduction Institute (TURI) TURN grant program and one from the Department of Environmental Protection (DEP) Municipal Technical Assistance Grant program. This funding was used to develop a strategy for a “Wellesley Pesticide Awareness Campaign,” and then to reach out to share what was learned with other municipalities in the state.

In Wellesley, I worked closely with the Board of Health (BOH), the Natural Resources Commission, and the Department of Public Works to create citizen education materials and to adopt an organic turf management policy for all school and park lands in Wellesley. To create the policy, I also worked with Marblehead’s and Newton’s pesticide awareness groups. This policy is designed to prevent citizens from being exposed to pesticides on town-owned land. It prohibits the use of pesticides on school or park land except in the event of a health emergency as determined by the Board of Health. The land is managed organically using principles of soil fertility, optimum turf mowing and watering, overseeding and aeration to prevent pest outbreaks and reduce weeds.

The BOH communicates regularly with residents and businesses in Wellesley about pesticides and remains involved with pesticide issues in town, including: pesticides proposed for use on town-owned land, school pesticide law violations, pesticide spills and private misuse, and pesticide use on state right-of-ways. The BOH has no regulatory powers over private pesticide use, since state law vests that power in the Pesticide Bureau, but they can make phone calls and report violations to the Pesticide Bureau. They can also help set policy for pesticides used on town-owned land, and can interact with the state around pesticide laws and regulations.

Our extensive public outreach efforts in Wellesley included creating and distributing a brochure and booklet, sending a flyer to all residents, putting a float in the local parade, obtaining and using a high-quality display tent for distributing information at fairs, creating a library display, and distributing information at local stores.

I worked with the Wellesley School Committee to help them comply with the state’s “Act Protecting Children and their Families from Harmful Pesticides.” This act severely restricts pesticide use on school grounds, requires parental notification before each application, and requires schools to have an Integrated Pest Management Plan for controlling pests without relying on pesticides. It also requires BOH approval emergency waivers.

The Wellesley Pesticide Awareness Campaign website gives the “what, why and how” of pesticide use reduction. It includes links to the manual, “Pesticide Reduction Resource Guide for Citizen’s and Municipalities in Massachusetts,” that I created under grants from TURI and DEP. The guide is

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online at the TURI website and provides information to towns on how to jumpstart pesticide use reduction campaigns. It has sections on health effects, scientific references, example citizen literature, policies and resources for toxicity information, and safer alternatives.

Outreach & Networking is Essential - with people and organizations interested in reducing the use of pesticides. These include local garden centers, organic landscapers, stores, environmental groups (Charles River Watershed Association, Massachusetts Audubon, Clean Water Fund, Toxics Action Center, Sudbury Earth Decade, Newton Green Decade, Ecological Landscapers Association, Wild Ones, Polly Hill Arboretum, MASSPIRG), and conservation agents and commissioners (in particular for reducing aquatic herbicide use). I worked closely with the Northeast Organic Farming Association (NOFA) Organic Land Care Committee to access the technical resources and knowledge necessary to control pests without pesticides. NOFA has an accreditation course for organic landscapers. I maintain connections to University of Massachusetts Extension service, as they offer training in land and turf maintenance. These relationships have provided the resources, technical expertise, and opportunity to publish articles, attend fairs, conduct strategy meetings, share and distribute information and resources, fundraise, etc.

I conducted an extensive media campaign, including articles for the local newspaper, appearing on television spots and presenting informational talks locally, and at conferences, events, and BOH meetings throughout the state. Towns I have worked with include: Natick, Medfield, Andover, Stoneham, Sherborn, Lexington, Marblehead, Newton, Lincoln, Longmeadow, Pittsfield, Amesbury, Needham, Sudbury, Waltham, Norwood, and Westwood. Through the grant funding, thirteen local health departments sent letters to all their citizenry encouraging the use of non-toxic pest control (these are available on the TURI website). I also disseminated written information to over 100 towns.

These efforts have resulted in; increased citizen awareness, decreased pesticide use, and adoption of town policy for town land which prohibits pesticide use except in health emergencies for three towns across Massachusetts, in addition to Wellesley. There is also an increased demand for organic products at local garden centers, and requests for

talks on organic lawn care throughout the state. Organic lawn care professionals report that they are now getting more requests for organic lawn care than they can handle.

My outreach strategy evolved from discussion with Pat Beckett (Marblehead), Ellie Goldberg (Newton), Patti Wood (Long Island), and program directors at TURI and DEP, and by using the abundant resources available on the web. I also accessed information from TURI, DEP, EPA, and the national pesticide groups, Beyond Pesticides and the Northwest Coalition for Alternatives to Pesticides.

Wellesley adopted a town policy for park and school lands prohibiting the use of pesticides except in a health emergency. We are helping other towns adopt similar policies. Many people do not believe that pesticides are toxic at low levels, and do not realize the risk of death or permanent disability from either high or low levels of exposure. The landscapers and chemical companies actively attack pesticide reduction activities at all levels, from local to state to federal. Ultimately we need a state law banning cosmetic use of pesticides.

Our modest citizen's group has increased the number of voices asking for local policy action, and I would highly recommend this approach.

Available Resources:

Sarah Little can be contacted at s-little@comcast.net. She has worked with dozens of BOH's from all over the state. See her website listed below. There are a number of agencies which fund pesticide reduction work, including DEP, TURI, New England Grassroots Environment Fund, EPA state and federal, Massachusetts Environmental Trust, as well as numerous private foundations.

Websites:

TURI Website: www.turi.org/community/wel/index.shtml

Wellesley Pesticide Awareness Campaign:

www.ci.wellesley.ma.us/nrc/pesticide

Extoxnet: <http://pmep.cce.cornell.edu/profiles/extoxnet/index.html>

National pesticide reduction organizations with excellent online websites:

Pesticide Action Network: www.panna.org

Northwest Coalition for Alternatives to Pesticides:

www.pesticide.org

WOOD SMOKE - A MAJOR AIR POLLUTANT

Although wood smoke is often associated with healthy outdoor living, it is a growing worldwide threat to public health. Agricultural burning, biomass cooking fuels, wood stoves and the burning of leaves, brush and yard debris all contribute to a cloud of deadly fine particulates and a witches brew of toxic compounds including radioactive isotopes - a legacy of above ground testing of nuclear weapons. Animal studies demonstrate a reduction in disease resistance associated with wood smoke exposure. It can disrupt cellular membranes, depress immune system activity, damage the layer of cells that protect and cleanse the airways, and disrupt enzyme levels.

The health effects of wood smoke exposure include increased respiratory symptoms, increased hospital admissions for lower respiratory infections, exacerbation of asthma, and decreased breathing ability. Population studies have shown that young children, the elderly, and people with preexisting cardiopulmonary disease are most at risk.

Health studies directly link wood smoke with a variety of other health effects, including increased risks of school absenteeism, emergency room visits and hospitalizations for cardiopulmonary conditions and premature death.

WHAT CAN THE BOARD OF HEALTH DO?

Public Education: Wood stoves are a major contributor to winter air pollution. Even the most efficient wood stove burning well-seasoned wood will emit large quantities of unhealthy chemicals and particulates. In circumstances where air quality is endangering public health, it might be justifiable to limit or ban the operation of wood stoves.

Enforcement: It is illegal to burn building debris, household trash or pressure treated lumber in a wood stove.

Consider banning outdoor burning of yard waste and tree trimmings. MAHB has developed a board of health regulation to address this issue.

For more information, contact the American Lung Association, or visit www.lungusa.org and www.masscleanair.org, which contains additional links and resources.

Continued from page 1 Board of Health Authority

problems and hazards, and informing and educating residents about health issues.

As community leaders, board members are also responsible for mobilizing community partnerships to solve health problems, developing policies that support a healthy community, and enforcing regulations to protect health and secure safety. Board members must also assure the provision of health care when otherwise unavailable.

People are dependent upon a functioning board of health when they eat in restaurants, send children to camp, drink private well water, buy hot dogs from a side walk vendor, rent an apartment that loses heat in mid-winter, worry about a chemical spill, or a cancer cluster in their neighborhood, or seek advice, vaccine and reassurance during an epidemic. Unlike other branches of town government, the board of health serves as an arm of the state legislature and is responsible for enforcing state laws and regulations.

The oversight role of the board of health is essential to ensure that the health department is providing necessary services and meeting the needs of all residents. One important aspect of this is the supervision and hiring of the professional staff who act as agents of the board. Because legitimate and essential enforcement activities can put the board of health or their agents in conflict with the regulated community, there is often a degree of tension between the board of health and other members of municipal government. Boards of Health can protect their professional staff from competing priorities and politically motivated interference. Many public health professionals recognize the important role of the elected or appointed board of health in protecting them from political pressure by serving as a buffer between the regulated community and other members of town government, who often have no knowledge of public health issues and regulations.

One result of this natural conflict has been an increase in municipal efforts to usurp the authority of boards of health to employ and supervise agents and assistants pursuant to G.L. c.111, §27 and place the authority in other branches of municipal government. These efforts take various forms. Some municipalities have amended their charters to provide that the Town Manager retains all hiring and firing authority (Lexington). Others have utilized, G.L. c.41, §108A, which enables towns to enact Wage Classification Plans through town meeting. This has been used in Milford in an attempt to usurp the Milford Board of Health's authority to set the salary of its health agent, although there is no case law to support Milford's position that §108A trumps c.111, §27. In other cases, health agents were

transferred into an Inspectional Services department. In these situations, health agents are supervised by building inspectors who have no public health responsibilities.

New town charters often assign the hiring and supervision of health agents to the town manager which can inhibit the ability of health agents to perform their jobs. The main argument for this change is to consolidate management and facilitate communications between departments, but this argument does not withstand careful scrutiny. Ironically, this issue comes at a time when the CDC and Congress are increasingly aware of the need to strengthen the local public health infrastructure. As Incident Command Systems become fully integrated into every community as part of enhanced post 9-11 emergency preparedness, the argument for centralized control by one town-wide appointing authority grows even weaker.

Boards of Health have a legal and fiduciary duty to protect the public health above all else. Other town officials have other obligations. In strengthening homeland security, it is crucial that boards of health are fully empowered so that the public health issues surrounding infectious disease outbreaks, such as when to issue quarantine and isolation orders, can be implemented appropriately and without delay. One only needs to look at how and why China failed to respond to the initial SARS outbreak, an attempt to put commercial interests ahead of public health, to see why an independent board answerable only to public health is critical to protecting the public health.

When the board of health loses managerial control over the agents to a local town official lacking the statutory responsibility for public health, important public health policies and enforcement actions are more likely to be viewed through a political/pro-development lens. Conversely, the board of health is more likely to hire qualified professional staff, since these individuals are acting as agents of the board, and the board itself will be generally more responsive to public health issues than other town officials. People for whom the board of health is the only recourse against health threats and nuisances find it more difficult to have problems addressed when town officials with no background in public health intervene or take a defensive position in favor of the regulated community. If this trend had occurred 10 years earlier, it is doubtful that Massachusetts communities would have made nationally recognized progress on tobacco control. Most of our state might still be dining in smoke filled restaurants.

Boards of health have the motivation to attend voluntary certification programs to learn about their statutory responsibilities and to develop the necessary leadership skills and competencies. At these programs, board members learn that violations of public health can not be grandfathered or permitted to continue because of eco-

conomic hardship. The emphasis is on prevention, whether it be lead poisoning, food poisoning or groundwater contamination. Based upon what is being reported to MAHB, other town officials are often more attuned to commercial interests than to public health, and often view local health regulations and enforcement actions with hostility. For example the closing of a popular lake due to high coliform levels can result in unfavorable publicity for the town. In the movie *Jaws*, local officials were more concerned about attracting tourist dollars than warning people away from dangerous waters. In real life, this scenario is played out many times each year in the conflict between restaurant owners and those seeking clean indoor air. It was a major factor in the initial spread of SARS. The Mayor of Salem caused the city attorney to file an amicus brief (on behalf of a Cape Cod restaurant) with the state Supreme Court seeking to limit Barnstable Board of Health's authority to regulate tobacco. That is an extreme but not atypical example of the conflicts which can occur.

In the event of an emergency, it is not difficult to imagine a scenario where the town administrator would seek to modify or delay the imposition of quarantine or other measures because of conflicting local interests or because they don't want to "unnecessarily cause a panic" or "create unfavorable publicity for their town". By contrast, a well informed board of health, in contact with MDPH, CDC and MAHB, working closely with professional staff, can assist their community by assessing and accurately communicating the risks of a situation. There is an unbroken link from the CDC through the state DPH, to local boards of health and their staff which should not be lightly broken.

Some board members and staff have responded to this issue by commenting that they have a good relationship with their town manager, who consults with the board on hiring, and gives the agents free rein to do their jobs. The problem with this rosy scenario is that it rests solely on the good will and competence of the manager, who is under no statutory or regulatory obligation to either consult with the board or hire competent staff. Should this town manager be replaced by someone who thinks otherwise, there is no provision to change the charter back to the way it was before.

On May 2nd, the Boston Globe published an article on this issue and quoted Senator Richard Moore, co-chair of the Joint Committee on Health Care. "The agent has to serve too many masters. This seems to be a growing concern and one we'll have to look at. I'd prefer that it be solved locally, but [health directors] are our agents – carrying out state law – and we'll have to figure out a way to resolve this issue on a broader basis."

TOXICS USE REDUCTION IN FOOD SERVICE ESTABLISHMENTS

by Beverly E. Anderson, former Lexington Health Director

Problems

Use of Hazardous Products - Restaurant facilities use many chemicals, including; dishwasher detergents, degreasers, specialized floor cleaners, bleach and other sanitizers. They are often used in concentrated form, which can increase the hazard. While many of the cleaning solutions appeared to be low risk, an examination of them revealed that they contained chemicals that could be harmful to humans if the products are not diluted properly. Also, workers are exposed to the chemicals on a chronic basis, posing long term health risks. The problem is compounded by the constant exposure to soap, which "defats" the protective barriers on the skin, increasing the skin's permeability to chemical exposures. We were also concerned about the general environmental impact of chemical usage, and the effect on indoor air quality.

Pest Management Practices - Restaurants have some form of pest management program involving routine spraying and/or placement of pesticides. The pesticide concerns were warranted not just on the basic hazard of such products, but due to unnecessary usage, poor sanitation practices that enhanced the risk of pest problems, and improper application of pesticides both by workers and by contracted Pest Control applicators.

Misuse of Sanitizing Agents in Foods - We found treatment of ready-to-eat foods with improper levels of sanitizing agents used to clean the food may pose a risk to consumers. We were not able to document specific health effects, but promoted precaution given what is known about some of the product components.

Lack of Adequate Ventilation - The indoor environment of the facilities we observed was often small and poorly ventilated. Lack of adequate ventilation reduces the dilution of chemical vapors, compounding the health risk for workers from unnecessary respiratory exposures to hazardous products and pesticides. All of these problems pose potential health and environmental risks.

The Project

The initial concerns that caused our health staff to look into toxics use reduction in food service facilities were based on observations of chemical usage by food service workers during routine inspections, and reports that came to the Board of Health on improper application of pesticides, cleaners, degreasers, etc. A few of the notable incidents involved use of a 50:50 bleach solution to clean a floor

by a municipal worker, direct application of pesticides to produce in a grocery store, and use of a very concentrated product to clean vegetables. We were concerned about the total use of chemical agents in the food service workplace, and the net effect on the workers and patrons of the establishment, and the general environment.

We introduced our concerns to the Board of Health members at routine meetings. They were aware of the issues through their own experiences and supported our efforts to address the identified problems. In addition, their participation was essential to the development of the regulation requiring IPM in food establishments with pest problems.

We started our research on the issue by doing approximately 12 in-person interviews with restaurant managers about their work practices, purchasing practices for cleaning and sanitizing products, the types of pesticide applications they used, and whether they practiced any techniques of integrated pest management (IPM), in addition to other attitudes and factors that compounded the first two issues. We also interviewed them as to whether they had OSHA required safety measures in place, such as chemically-resistant gloves, emergency eye wash stations, training documentation, etc. We also sent out 90 written surveys to managers asking them the same basic questions. The in-person interviews, however, allowed us to get a better sense of how they actually used various chemicals, which the written survey often didn't show, e.g., how much they diluted concentrated products. The results of the survey suggested widespread misuse of concentrated products, low implementation and awareness of IPM practices, lack of familiarity with safety issues and chemical hazards, and other concerns. The results of these surveys formed the basis for subsequent trainings.

We then collected and analyzed material safety data sheets on products used for their potential health effects of substances both alone, and with respect to usage patterns and exposure potential within the food establishment environment. Receptors for the health effect analysis included workers and customers.

We became concerned when our research identified that there is no specific licensing test for a pesticide applicator to take to apply pesticides in a food establishment, as they are only required for food processing plants. Thus, the only guidance for the applicator use and application of pesticides is based on the information provided on the pesticide label. In general, if sanitation is good, then in most cases the services of a pesticide applicator should be minimal. By allowing food service facilities to conduct ongoing application of pesticides without IPM measures, we were allowing them to apply a bandage for poor pest prevention practices, which of course is contrary to what we were trying to achieve. This project concluded that much

of the routine application of pesticides was probably unnecessary, and could be prevented through implementation of IPM measures.

We designed our program based on input from Board of Health staff and members, school food service and custodial staff, and TURI staff. We collaborated with the school staff, some chemical suppliers, food establishments, and with some pest management companies to implement the program. We also consulted with Boston's Inspectional Service Department, which was considering a regulation requiring IPM in food service establishments. We had funding and strong support from the Toxics Use Institute, and support from the town through the use of some municipal equipment and staff time. We accessed resources from the Bureau of Pesticides at the Department of Agricultural Resources, and a variety of chemical databases and worker right-to-know resources on the Internet. Waltham Chemical was helpful with regard to background information on pesticide application issues.

Our target audience was the school food service and custodial staff, food establishment managers, municipal staff, the Department of Public Works staff. Through our funding from TURI, we were also able to conduct four individual training sessions for health agents across the state at the Massachusetts Health Officer Associations trainings. One of our staff members translated the information into Mandarin Chinese for distribution to the many Asian food establishments in our area. We worked on a more limited basis directly with some private pest companies.

Our main program focus was on enhancing awareness of the chemical products (risks, proper usage and management), and promotion of IPM. We developed a training program that food service workers were required to attend, and developed brief instructional booklets on using cleaning chemicals, less toxic cleaning products, and on IPM strategies for distribution to food establishments. Staff from approximately 100 food establishments attended the project's two session training program. Also, since the food service at the school system was a major concern, we held trainings specifically for school staff, and invited other municipal staff (e.g., custodial staff and DPW) who might use similar products. Trainings were run by BOH staff.

Our main challenge in our initial effort was getting the message to our target audience of food establishment managers and employees. We eventually required food establishment managers to attend the trainings. We also worked with an IPM specialist to develop an IPM approach for restaurants, and to integrate our primary messages regarding usage of cleaners, degreasers, pesticides, etc. into a concerted inspection process. We developed a web program to provide information to food service managers and to promote awareness to the general public.

The main challenge we faced when promoting the program's message stemmed from the general perception by the restaurant and cleaning staff that the products either were completely harmless, or that in the case of pesticide applications, the products had been approved by the EPA, and were applied by professionals, so that they were completely safe. The lack of user awareness and resistance to change, were major issues. There was resistance to the recommendation to change cleaning practices in order to avoid using concentration solutions. In response, we focused the training on several issues, including: identifying the hazards and short-term risks of using highly concentrated chemical solutions, the long term risks posed by chronic exposure to such concentrations, and the need for safety precautions during use. We addressed the pesticide usage issues, including the need to improve sanitation, and to implement IPM programs to minimize the need for and cost of pesticide usage.

Another large barrier was the general approach to sanitation itself. Managers that were concerned about pest problems and the related cost of implementing a solid IPM program, found it easier and less expensive to simply bring in a pesticide applicator, and avoid the possibility of inspection problems due to pest infestations. We had to find a way to change that equation.

Most importantly, we had to examine the existing regulations to see if there were provisions we could use to address the pest management issues. The State Food Code clearly allows a health agent to require a food establishment to address pest problems. However, we were concerned that federal and state law might prevent health agents from addressing the use of pesticides directly, as pesticide usage and applicator licenses are handled by the Bureau of Pesticides at the Department of Agricultural Resources. When we looked into the regulatory approach, we determined that the food code does allow Boards of Health to regulate the sanitation measures in general to prevent pest problems, which would include the basic elements of an IPM program.

Our Board of Health passed a regulation based on our recommendations, which required an establishment to work with a professional IPM Contractor to develop an IPM program if a pest infestation occurred, implement an integrated pest management program if they are judged by the health agent to be at high risk for pest problems, and maintain material safety data sheets for all toxics and pest management service reports on site. Since the food safety code supported sanitation measures, which would include a good IPM program, we could promote pest prevention practices without preempting the pesticide-related laws.

Our program was successful in raising awareness of chemical usage within food establishments, and through the development of mechanisms to promote IPM in this type

of facility. The passage of the local regulation requiring IPM also gave inspectors more options regarding long term prevention of pests, while also protecting workers and the environment. School staff involved in the cafeteria management also appreciated the trainings. The results of the initial survey provided useful information to the town about the issues and barriers in food services facilities. The project's trainings may also be applicable to other audiences where chemical usage is high, but the perceived hazard levels are "low".

The program message and activities will be continued through the inspection and training program. The training materials are available on the town's and TURI's web sites.

If other municipalities were to undertake a similar project, I would recommend more in-person interviews, more extensive training that is ongoing and integrated into the routine inspection process. I would also work more on involving private pest companies both in usage analysis and on IPM training and implementation.

AN INTRODUCTION TO COMPLEMENTARY AND ALTERNATIVE MEDICINE FOR HEALTH BOARDS

*By Maggie Hentschel and Karl Berger
Integrative Medicine Alliance*

"The World Health Organization at its 1978 international conference held in the Soviet Union produced the Alma-Ata Health Declaration, which was designed to serve governments as a basis for planning health care that would reach people at all levels of society. The declaration reaffirmed that "health, which is a state of complete physical, mental and social well-being, and not merely the absence of disease or infirmity, is a fundamental human right and that the attainment of the highest possible level of health is a most important world-wide social goal whose realization requires the action of many other social and economic sectors in addition to the health sector." In its widest form the practice of medicine, that is to say the promotion and care of health, is concerned with this ideal."

In the past decade we have seen an increased awareness of complementary and alternative medicine (CAM) in both public and governmental sectors. What today is called alternative medicine covers a wide range of disciplines, most of which are guided by the "healing model" of holistic medicine, which emphasizes the complex interplay between multiple factors: biochemical, environmental, psychological, and spiritual, as opposed to the biomedical model which reduces disease to a disturbance in biochemical process and relies heavily on the "curative model" of care.

Healthcare providers today are faced with challenging issues of health-promotion, disease prevention and management of chronic illnesses for which conventional medicine has offered only limited success. An increasingly knowledgeable patient population is now fueling the CAM movement by seeking alternatives to traditional treatments. The use of CAM modalities by Americans between 1990 and 1997 increased from 34% to 42% of the general population. In addition, the total number of visits to CAM providers increased from 427 million to 629 million within this same time period. This number exceeds the total visits to all primary care physicians combined (386 million) in 1997.³

Just a decade ago, alternative therapies were readily dismissed by physicians as fringe medicine, however today CAM is now beginning to earn attention and academic stature. The growing number of CAM clinics affiliated with hospitals, the expansion of CAM courses within academic medical education, and the increase in CAM benefits offered by insurers offer clear evidence of this trend.

The costs of CAM approaches and their potential risks and benefits provide a public health rationale for subjecting them to critical appraisal. In pursuit of this vision, the US Congress authorized in 1998 the establishment of a new component of the National Institutes of Health—the National Center for Complementary and Alternative Medicine (“NCCAM”)—with a mandate to conduct CAM research, train CAM investigators, and disseminate authoritative information to practitioners and the public. That same year, the *Journal of the American Medical Assoc. (JAMA)* published a series of scientific studies in a special issue dedicated to alternative medicine.

Complementary and Alternative Medicine Therapies by Category

According to NCCAM, CAM is defined as a group of diverse medical and health care systems, practices, and products that are not considered to be part of conventional medicine.

The many diverse CAM therapies are frequently grouped into five overlapping categories: biologically based therapies, manipulative and body-based interventions, mind-body interventions, “energy” therapies, and alternative medical systems. Below is an overview of some of the common CAM therapies and some basic information on training and licensure. For more information on Licensure, Certifying and Training Standards for CAM therapies than what is provided below, the American Medical Student Association has some good reference information.

Biologically Based Therapies

Naturopathic Medicine is a distinct system of primary health care - an art, science, philosophy and practice of diagnosis, treatment and prevention of illness. Naturopathic physicians

are primary health care practitioners, whose diverse techniques include modern and traditional, scientific and empirical methods. Naturopathic medicine is based upon the objective observation of the nature of health and disease, and are continually reexamined in the light of scientific advances. Methods used are consistent with these principles and are chosen upon the basis of patient individuality.

The training program for a naturopathic physician (ND) resembles in part that of a medical physician (MD), and takes place through a 4-year post-graduate training program. The general standard for licensure is graduation from an accredited 4-year ND program, and successful completion of the state licensing board exam. NDs are licensed in every New England State with the exception of Massachusetts and Rhode Island.

Herbal Medicine is one of the oldest holistic systems of medicine. It uses plants, plant parts, their water or solvent extracts, essential oils, gums, resins, exudates or other form of

advanced products made from plant parts used therapeutically to provide proactive support of various physiological systems; or, in a more conventional medical sense, to treat, cure, or prevent a disease in animals or humans. Its therapies are based on the body’s capacity to heal itself. It is incorporated in a diverse number of systems of medicine.

The practice of herbal medicine is a diverse field with practitioners from many several medicinal traditions using herbal medicine in many different ways. Each tradition has its own standards and as a result there is no formal standard for training. Some healing modalities, including Chinese Herbology and Naturopathic Medicine, have their own certification and licensing processes.

Nutritional Supplements Because CAM practitioners commonly stress that each individual is unique on a biochemical level, many consider individualized nutritional supplementation to be an effective mode of prevention and treatment. Popularized in the 1970’s by Dr. Linus Pauling, this modality is used widely by the general public. The practice of nutritional supplementation is broad and it includes everything from megavitamin therapies and other preparations containing a range of ingredients that can be natural or synthetic.

Nutrition started to become more important as a healing practice in the beginning of the 20th century. Nutritional practices are directed at those who are trying to maintain health and decrease symptoms of illnesses through balanced diets. Alternative practitioners embrace a number of diets that are being evaluated as adjunct therapies for chronic conditions such as cancer, inflammatory disease, cardiovascular disorders, allergies, etc. Examples are macrobiotic diet, raw foods diet, detoxification diet, Gerson therapy, vegetarianism, veganism, the Hay diet and the Pritkin diet.

While no global educational standard exists for dietitians/nutritionists, there are general standards required by individual licensing, certifying and registering bodies. Currently 46 states regulate dietitians or nutritionists through licensure, certification or registration. Both nutritionists and dietitians require licensure in Massachusetts.

Manipulative and Body Based Therapies

Alexander Technique In the late 19th century, an Australian actor, Frederick Matthias Alexander, observed a correlation between correct posture of the body and the ability to perform certain tasks. In the therapy he developed that is his namesake, stresses are reduced by teaching patients how to hold their bodies and how to move in healthful alignment. Patients' awareness of the way they move and position their bodies helps their body systems to function more efficiently. Many municipalities in Massachusetts have licensed fully-trained practitioners of Alexander Technique and other forms of movement education such as the Feldenkrais® Method (see below) in conjunction with massage therapy. About 40 members of the American Society for the Alexander Technique, one of the profession's certifying bodies, are based in Massachusetts.

Chiropractic is founded in 1895 by D.D. Palmer of Iowa. It is a system of healing, based on the belief that restoring normal nerve function can cure disease. Chiropractors practice manipulation, especially of the spinal column, along with massage, physical therapy techniques, nutrition counseling, heat therapy and traction. This is one of the most accepted forms of CAM in the United States. The practice is conservative, non-invasive and does not involve pharmaceutical products or surgery.

Doctors of chiropractic attend accredited chiropractic colleges and can currently be licensed in all 50 states, and their services are reimbursed by many medical insurance plans. Each state has its own state licensing board to monitor the practice of chiropractic, including Massachusetts, whose Board of Chiropractors oversees approximately 1,930 licensees.

The Feldenkrais® Method is system of movement education developed in the 1940s by a Russian born atomic physicist, Dr. Moshe Feldenkrais®. This method teaches patients to avoid certain postures and positions that could lead to the development of disorders of the nervous system. Exercises which emphasize posture and breathing are central to this system. According to research, cerebral palsy and multiple sclerosis patients have found Feldenkrais® therapeutic. Initially taught in Israel and the United States, it has been adopted throughout the world. Many municipalities in Massachusetts have licensed fully-trained practitioners of the Feldenkrais® Method and other forms of movement

education (see below) in conjunction with massage therapy. About 35 practitioners in the Feldenkrais® Guild of North America are based in Massachusetts.

Massage is an ancient form of healing and maintaining good health. It has been used in many different cultures. Massage has been shown to promote circulation, enhance the immune system's ability to fight illness, relieve muscle pain, and promote digestion. In addition to the physiological benefits of this modality, massage has definite psychological benefits—it can be used to increase self esteem and to decrease symptoms of depression and is often integrated into various complementary therapies.

There are numerous schools that teach a variety of styles and approaches. While standards differ, training typically includes: anatomy, physiology, pathology, massage theory and technique, and supervised practice. The Commission on Massage Therapy Accreditation currently accredits about 70 schools in the United States. 500 hours is of training is considered to be the average requirement for state or local licensing, although licensing criteria for massage therapy differ greatly by state. Currently 32 states license massage therapy across the country.

Osteopathy was founded by Andrew Taylor Still in the 19th century in reaction to hospital conditions and the medicine he saw practiced during the American Civil War. Osteopaths emphasize the relationship between the musculoskeletal system and organ function and use physical manipulation to correct malfunctions. The first osteopathic medical school was established in 1892 in Kirksville, Missouri. Osteopathic doctors are licensed to practice medicine in all states in the United States and have the same professional rights and responsibilities as medical doctors. Their techniques range from gentle massage to high velocity mobilization of the joints and therefore, these practices are particularly useful in treating back and joint pain. Osteopathy emphasizes treating the whole person.

Training of osteopathic physicians parallels that of allopathic physicians. There are 19 four-year osteopathic medical schools in the United States and coursework is similar to that of allopathic medical school, with an additional 300-500 hours of musculo-skeletal coursework. Osteopathic physicians are licensed to practice in all 50 states. DOs are licensed by the states in which they practice. The Massachusetts Board of Registration in Medicine licenses osteopathic physicians in the Bay State, as it does medical doctors and acupuncturists.

Reflexology is a therapy based on the ancient tradition of foot massage. Early twentieth century physicians discovered that there are organs in the body that can be affected by pressure applied to certain zones in the feet or hands. Stimulation of natural healing powers of the entire body occurs when the feet and hands are massaged. This therapy

is commonly used in combination with aromatherapy or naturopathy. Reflexology is not licensed in Massachusetts, and the field does not have a unifying certifying body, making it difficult to gauge its prevalence in the Commonwealth.

Rolfing was originally developed by Dr. Ida Rolf in the 1950s. Rolfing contains elements of massage and is based on realignment and remodeling of fascia by using elbows, fingers and knuckles. The main uses of this modality are improvement of posture, therapy for sports injury, and alleviation of persistent muscle pain and respiratory problems. In addition, Rolfing has been used to prevent postural or stress related problems. Athletes, dancers and singers often find Rolfing beneficial. Many municipalities in Massachusetts consider Rolfing to be a form of massage or bodywork and license it as such. There are about 20 Rolfers practicing in Massachusetts who are certified by the Rolf Institute, Rolfing's preeminent professional organization in the US.

Mind-body Interventions

Biofeedback The word "biofeedback" was coined in 1969 to describe laboratory procedures that trained research subjects to alter their brain activity, blood pressure, muscle tension, heart rate and other bodily functions that are not normally controlled voluntarily. Biofeedback training is a type of behavior therapy that attempts to change learned responses to stress. It can be very successful in alleviating symptoms (e.g., pain and muscle tension) of a disorder, and its effects can be especially lasting if used in combination with psychotherapy when a patient learns to understand his reactions to stress. Migraine headaches, gastrointestinal cramping (e.g., colitis), high blood pressure, tics, and the frequency and severity of epileptic seizures are some of the ailments treated by biofeedback.

No license is required to practice biofeedback. Therapists can become certified through the Biofeedback Certification Institute of America (BCIA), www.BCIA.org, which is the only certifying agency in the United States. Eleven BCIA-certified therapists practice in Massachusetts, although many more biofeedback therapists do so who are generally licensed in another health care field and practice according to those guidelines.

Hypnotherapy (Hypnosis) is a special psychological state with certain physiological attributes, resembling sleep only superficially and marked by a functioning of the individual at a level of awareness other than the ordinary conscious state. This state is characterized by a degree of increased receptiveness and responsiveness in which inner experiential perceptions are given as much significance as is generally given to external reality. Hypnotherapy is psychotherapy that facilitates suggestion, reeducation, or analysis by hypnosis. It has been officially endorsed as a

therapeutic method by medical, psychiatric, dental, and psychological associations throughout the world. It has been found useful in preparing people for anesthesia, enhancing the drug response, and reducing the required dosage. In childbirth it is particularly helpful, because it is effective in alleviating the mother's discomfort while avoiding drug-induced impairment of the child's physiological function. Hypnosis is highly regarded in the management of otherwise intractable pain, including that of terminal cancer. It is valuable in reducing the widespread fear of dental procedures.

No license is required to practice hypnotherapy in the United States. Several organizations, including the American Society of Clinical Hypnosis (ASCH), www.asch.net, and Society for Clinical and Experimental Hypnosis, have developed codes of ethics that define and limit persons who can be taught hypnosis. There are over 100 ASCH professional members in Massachusetts, whose ranks include many doctors, psychologists, and social workers. The ASCH has developed a voluntary certification program in an effort to implement a standard into the training of practitioners.

Meditation/Mindfulness is private devotion or mental exercise consisting in any of innumerable techniques of concentration, contemplation, and abstraction, regarded as conducive to heightened spiritual awareness or somatic calm. The practice of meditation has occurred worldwide since ancient times in a variety of contexts. In recent medical and psychological studies, skilled meditation practitioners have proved effective in controlling pulse and respiratory rates and to varying degrees, in the symptomatic control of migraine headache, hypertension, and hemophilia, among other conditions. There is currently no formal licensure or certification process for meditation instructors due to the large body of meditation traditions as well as differing opinions in training requirements.

Yoga In a very basic sense, yoga is a system of exercises for attaining bodily or mental control and well-being. The Sanskrit word "Yoga" comes from the root yug (to join), or yoke (to bind together or to concentrate). Essentially, yoga describes a means of uniting or a method of discipline: to join the body to the mind and together join to the self (soul), or the union between the individual self and the transcendental self. In his classical work *The Yoga Sutras*, a 2000-year-old treatise on yogic philosophy, the Indian sage Patanjali defines Yoga as "that which restrains the thought process and makes the mind serene."

Yoga has been practiced in India for thousands of years, and is traditionally used by spiritual seekers as a system of self-development for purification of the body and mind. It is proposed to be a preventive as well as curative system of the body, mind, and spirit.

Each of the many different schools of yoga has its own curriculum for training new teachers. There are no commonly agreed training standards. No license is required to teach yoga and each school has its own certification process.

Energy - Bioenergetic Therapies

Acupuncture is an ancient Oriental form of medicine practiced for millennia. Acupuncture is based on dualistic philosophy of balancing the two cosmic forces of yin and yang. Disease occurs when imbalance blocks the vital life force or qi (chi), which flows through 12 pathways in the body to the major organ areas. The aim is to restore the physical, emotional and spiritual balance of the person. It involves the insertion of small needles into the body at hundreds of points along the 14 vertical meridians and other specialized pathways. Other techniques associated with acupuncture are moxibustion and cupping. Moxibustion is the warming of acupuncture points with smoldering herbs. Cupping is the application of wood, metal or glass cups containing a partial vacuum to the acupuncture site to create blood congestion and is used in treating back pain, sprains, soft tissue injury and to relieve lung congestion.

Researchers have postulated that acupuncture works by stimulating the body to release natural pain killers such as endorphins or enkephalins. Another theory suggests that acupuncture stimulates the release of neurotransmitters such as serotonin or noradrenaline. Others have posited that the minor stimulation of acupuncture points selectively acts on impulse transmission to the central nervous system, thus closing certain neurological “gates” and blocking the transmission of pain impulses from other parts of the body. Another theory suggests that acupuncture causes the body to release vasodilators and histamines. Acupuncture has been proven successful in relieving pain and providing anesthesia.

There are currently more than 50 schools and colleges of acupuncture in the United States, most of which are accredited by the Accreditation Commission for Acupuncture and Oriental Medicine (ACAOM). The National Certification Commission for Acupuncture and Oriental Medicine (NCCAOM) certifies graduates of ACAOM accredited programs. Licensure for acupuncture is available in 35 states, including Massachusetts, where it is managed by the Mass. Board of Registration in Medicine. There are over 400 NCCAOM-certified acupuncturists in Massachusetts.

Qi Gong

Also originating in ancient China, Qi Gong (Chi Kung) is the practice of focused exercises to promote health and well being. All exercises or forms involve four basic elements: mind, sight, movement and breathing. As well as personal healing, some practitioners can heal others by focusing their Chi on the person who is ill.

Therapeutic and Healing Touch is a non-oriental practice of energetic healing. Dr. Dolores Krieger developed it in the 1970. In practicing therapeutic touch, the healer moves their hands 2 to 4 inches above the patient’s body in an effort to sense the trouble spots, the blocked energy within the patient’s body. The healer’s hands sweep over the patient’s body and act as a conduit for energies to be rebalanced to come through the healer into the patient. Healing Touch is considered very similar or even synonymous with Therapeutic Touch.

Therapeutic Touch (TT) is taught worldwide, primarily at universities, and nursing and medical schools and is still most widely utilized by the nursing profession. There is no formal licensing or certifying process for Therapeutic Touch. The scope of practice for nurses in Massachusetts covers the use of both Therapeutic Touch and Healing Touch.

Reiki (pronounced “ray-kee”)

This term can be translated from Japanese as “universal energy of life.” The practice is based on methods from ancient Tibetan medicine. In the mid-1800’s Professor M. Usui rediscovered and propagated this system, and in the 20th century its use reached the US. Students learn Reiki by studying with a Reiki Master. The Master initiates students through a process of energy attunement. Reiki involves the practitioner placing their hands on a number of chakras or energy points on the surface of the patient, who is typically fully clothed. Practitioners then channel this universal energy from the top of their heads down through their hands and into the patient’s body.

Reiki is not currently regulated, and there is no formal licensure or common certification process. Several schools have their own certification processes based on their individual method of training. The scope of practice for nurses in Massachusetts covers the use of Reiki.

ALTERNATIVE SYSTEMS OF MEDICAL THOUGHT

Ayurveda is the oldest system of medicine in the world, principally practiced in India. This system of medicine is named after the Sanskrit words for “Knowledge of Life”. Mental, emotional and physical health based on balancing three doshas or “vital energies.” This is done through diet, yoga, breathing, exercises, massage, herbal and animal remedies as well as purifying techniques. Currently, the Indian government is sponsoring research to validate Ayurvedic medicine and to integrate its practices into Western medicine.

In India the education and training requirements for Ayurvedic medicine are on a par similar to those for a medical doctor. In the United States there are a number of schools that teach Ayurvedic principles and there is no consensus as to the graduation requirements. The California

College of Ayurveda (CCA), currently offers the most complete training program. Graduates receive certification from the CCA, as well as American Institute of Vedic Studies (AIV). There is no formal certifying or licensing in the United States, other than that offered by the CCA.

Homeopathy is a system of medicine founded in the late eighteenth century by Samuel Hahnemann, a German physician. The science of homeopathy suggests that homeopathic remedies stimulate the body's ability to heal itself. Homeopathy is primarily based on a theory of "like cures like", where a substance causing symptoms in a healthy individual will become a cure for similar symptoms in someone who is ill. Such substances that originate from animal, plant or mineral sources are diluted multiple times to produce homeopathic remedies. Homeopathy is widely accepted in Great Britain, France, Germany, Australia, and India and is experiencing renewed interest in the United States.

The Council for Homeopathic Education in the US accredits homeopathic training programs, of which there are more than 30 in the United States. Most of the accredited training programs are post-graduate programs intended for MDs and DOs and offer didactic education as well as clinical experience. The certification process depends upon the background of the practitioner. Most physicians practice homeopathic medicine under the licensure provided by their state medical boards.. Currently, MDs and DOs are the only professions licensed to practice homeopathy in all states.

Traditional Chinese Medicine is based on the philosophy of balance between two cosmic forces, yin and yang and the unobstructed flow of the life force (qi). It involves several modalities such as acupuncture and Qi Gong (see above), Chinese herbology, and Asian bodywork therapies such as shiatsu.

In Chinese herbal medicine, herbs may be taken as teas, which are often bad tasting or raw. Herbs can also be packaged into pills or capsules. Herbal prescription is based on Chinese herbal lore, which matches the TCM interpretation of the symptoms of the patient with herbs, which address those conditions. The National Certification Commission for Acupuncture and Oriental Medicine (NCCAOM) certifies graduates of ACAOM accredited programs in Chinese Herbology. There are 97 NCCAOM-certified practitioners of Chinese Herbology in Massachusetts, most whom are also licensed acupuncturists.

Asian Bodywork therapy is based on the same TCM principles as acupuncture and Chinese Herbology, but instead uses manual pressure, massage, and manipulation to strengthen and enhance the flow of qi through the body. Massachusetts has over 100 professional practitioners of Asian bodywork therapies such as shiatsu (a Japanese

variety) or tuina (a Chinese variety). They are commonly considered licensable as massage therapists in the municipalities where they practice.

Addressing the Challenge of Integrating Conventional and Alternative Medicine- Integrative Medicine Alliance

Is it possible to conceive of an integrative approach to healthcare—one that would bring together the best of what both conventional medicine and CAM have to offer? The great variety of alternative therapies pose equally great challenges for Boards of Health that in a responsible way wish to draw upon the resources of qualified local alternative therapists as part of a more comprehensive, integrative approach to promoting the health of their communities.

Many CAM therapies emphasize the importance of a healthy lifestyle and embrace a preventative model of healthcare that is consistent with the public health paradigm. Yet most of these therapies do not have a licensing structure in place, making the qualifications of many holistic practitioners harder to assess. While clinical trials on the effectiveness of these therapies are growing in number, and universities are beginning to undertake more systematic research, comprehensive and definitive results are many years away.

Nonetheless, Boards of Health need to appreciate that these therapies are widespread in their communities and as such need to be acknowledged, understood, and possibly utilized.

The Integrative Medicine Alliance (IMA) was established in 1999 to advance the public's health by building bridges between conventional healthcare and CAM in New England, and to provide educational resources for healthcare professionals and the general public in the field of holistic and integrative healthcare. Its work has focused on three areas.

- **Website:** The IMA maintains a popular website offering resources in the field of holistic and integrative healthcare, at www.IntegrativeMedAlliance.org. The site provides information for those who are seeking more information about CAM and how to find qualified practitioners, and suggests resources for healthcare professionals seeking to learn about ongoing integrative medical research and practice in New England. In addition, the IMA publishes a free online newsletter focusing on developments in holistic and integrative care in New England.

- **Mobile Clinic:** In order to provide opportunities for caregivers, healthcare administrators and the general public who wish to experience alternative therapies first-hand, the IMA's Mobile Clinic arranges for teams of qualified volunteer CAM therapists to give educational "mini-treatments" and informational talks in hospitals, schools, and health departments, and at health-related events. Therapies on offer have included massage, chiropractic, acupuncture,

Reiki and therapeutic touch. Host institutions have included Beth Israel Deaconess Medical Center, the Mass. College of Pharmacy and Health Sciences, and VA Boston Healthcare.

• **Workshops and Forums:** The IMA offers workshops and forums which support bridge-building between New England's conventional and alternative healing professions. Their aim is to bring together key stakeholders in different forms of healthcare for dialogue, consensus-building, and collaborative problem-solving.

Editor's Note: The unabridged article, including footnotes, Internet resources, hospital and health system resources and bibliography cited by the authors will be available in the Online version of the MAHB 2004 Journal, which can be found at www.mahb.org.

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RABIES CONTROL IN MASSACHUSETTS

by Erica Berl, DVM, MPH; Massachusetts Department of Public Health

Rabies is a viral disease of mammals that is most commonly transmitted through the bite or scratch of an infected animal. The virus is shed in the saliva of rabid animals, so contact with the saliva can pose a risk for infection. Because rabies is almost always fatal, a lot of effort and resources are directed towards the prevention of the disease in humans and domestic animals.

In the United States, several distinct rabies virus variants have been identified in terrestrial mammals, including raccoons, skunks, foxes, and coyotes. In addition to these terrestrial reservoirs, several species of insectivorous bats are also reservoirs for rabies. Bat rabies has been present in Massachusetts since at least 1961 and continues to be a concern throughout the state. Raccoon rabies is a relative newcomer to Massachusetts that first appeared in the state in 1992. Because raccoons are well adapted to urban and suburban areas, humans and domestic animals have many opportunities to come in contact with potentially rabid wild animals.

The widespread use of vaccinations in domestic dogs and cats has dramatically changed the epidemiology of rabies in the United States. Prior to 1960, rabies was most commonly diagnosed in domestic animals. Since then, over 90% of rabid animals reported to the Centers for Disease Control and Prevention are wild animals.

In addition, the improved post-exposure prophylaxis (PEP) that is now available is 100% effective in preventing human deaths when given appropriately. In the United States, the number of human cases has declined from approximately 100 annually during the early 20th century to one or two cases a year during the 1990's. The few deaths that do occur are in people who fail to get medical attention, usually because they were unaware that they were exposed. Worldwide, however, exposure to rabid dogs is the cause of over 90% of human exposures and over 99% of human deaths from rabies.

In Massachusetts, rabies is controlled primarily through the vaccination of cats, dog, ferrets and other domestic animals. Protecting our domestic animals has dramatically reduced human exposure to potentially rabid animals. Massachusetts has also developed protocols which describe the appropriate response to animal bites, scratches and other high-risk animal contacts¹. Proper quarantine and testing of animals and timely administration of PEP to human contacts have almost eliminated cases of human rabies in the state.

The State Laboratory Institute (SLI) at the Massachusetts Department of Public Health (MDPH) assists in surveillance for rabies by testing suspect animals for the presence of rabies. From 1992 through 2003, 39,137 animals were submitted to the Rabies Laboratory at SLI for testing, and 4109 of those tested positive for rabies. Most of the positive animals have been raccoons with a total of 2217 testing positive during this time period. In addition, 1281 skunks, 276 bats, 112 cats, 102 fox, and 78 woodchucks have tested positive. There have also been 6 positive dogs, 4 positive horses, and 13 positive cows. The number of raccoons testing positive peaked in 1993 and 1994, and in recent years, slightly more skunks have tested positive than raccoons.

Domestic animals, particularly cats and dogs, place the greatest burden on the rabies laboratory at SLI.

Dogs and cats accounted for nearly 50% of all submissions between 1992 and 2003 but accounted for less than 3% of all positive animals

In 2003, there were 216 positive animals, which were associated with 96 human and 219 animal exposures. In addition, in 2003, epidemiologists at MDPH logged over 1200 calls about potential rabies exposures. During the year, epidemiologists recommended that a total of 350 people receive PEP. It is not known, however, how many of these cases actually received the series of injections, because the final decision to receive PEP is made by patients in consultation with their health care providers. Since each series of PEP injections can cost over \$1000, the cost of rabies prevention is very high.

Through April 2004, 770 animals have been submitted to the Rabies Laboratory, and 57 have tested positive, including 31 raccoons, 22 skunks, 2 bats, one cow and one fox. These positive animals have exposed 18 humans and 52 domestic animals. Each situation in which there are known exposures to humans or domestic animals requires careful consideration of appropriate control measures.

The positive cow in 2004 was one of two calves that became ill in March. The first calf died and was buried without being tested. Fortunately, when the second calf died, it was submitted to the lab for testing. Nine people, including the farmer, farm workers and veterinarian, required PEP. The calves had been housed with a third calf but kept separately from the rest of the herd. The Bureau of Animal Health from the Department of Agricultural Resources and the local Animal Control Officer instituted a 6-month quarantine for the third calf. They determined that there was no need to quarantine the entire herd since the calves were housed separately, but it was recommended that the herd be vaccinated against rabies. It is not known how the calves contracted rabies, but there were feral cats and skunks seen near the barn, which may have been the source of the virus.

One of the positive skunks tested in 2004 was found in close proximity to a wallaby at a local zoo. The skunk had been incapacitated by an emu in the exhibit. Since emus are birds and cannot get rabies, no quarantine or testing of the emu was needed. The wallaby had been vaccinated against rabies, using a vaccine approved for cattle. Off-label use of the rabies vaccine is a common practice done to protect

exotic animals from developing rabies. There was no evidence that the wallaby had a direct exposure to the skunk, so neither quarantine nor testing of the wallaby was required. The zoo personnel who euthanized the skunk and removed its head for testing used appropriate personal protection and did not need to receive PEP.

A relatively new approach to controlling rabies is the vaccination of free-ranging wild animals through the distribution of vaccine in an edible bait. After the animals eat the vaccine-laden bait, they develop immunity to the virus which should stop the spread of the virus. In response to the spread of raccoon rabies on the east coast, oral rabies vaccination programs were started in several regions of the country, including Massachusetts.

Once raccoon rabies entered the state in 1992, it spread across Massachusetts rapidly from west to east. In 1994, Tufts University School of Veterinary Medicine, the U. S. Department of Agriculture and MDPH initiated an oral rabies vaccine program to try to prevent the disease from reaching Cape Cod. The baits were distributed in 11 towns on the western side of the Cape Cod Canal twice yearly every fall and spring.

The program had been very successful, and no raccoon rabies was found on the Cape for 10 years. However, in March of 2004, the first positive raccoon was identified in Bourne on the Cape side of the canal. Since then, 6 additional positive raccoons have been found in Bourne, 2 have been found in Sandwich and one in Falmouth.

In response to the first positive raccoons found on the Cape, additional baits were distributed in the areas around where the raccoons were found in Bourne. In mid-April, the USDA Wildlife Service initiated a trap, vaccinate and release program of live wildlife around the areas where the positives were found. Almost 500 animals were trapped and vaccinated. Most recently, additional baiting was done in Sandwich, Falmouth, Barnstable and on Massachusetts Military Reservation. It is hoped that the increased baiting and the trap, vaccinate and release program will be effective in curbing the further spread of rabies on the Cape. Such programs have been successful elsewhere such as in Ontario, Canada.

A challenge to rabies control in Massachusetts is the large population of feral cats. Free-roaming cats

A coalition ...[led] by the MSPCA has created guidelines for managing feral cat colonies. ...Recommendations include vaccinating all cats in the colony for rabies and keeping an accurate record of the vaccinations. [including] a system for identifying cats through photographs and ear notching....[or] placing microchips on all vaccinated and neutered cats. In addition, cat colonies should only be maintained at safe distance away from schools, parks and other placed frequented by children.

often live in large colonies and diseases can spread rapidly among them. As well-intentioned citizens attempt to care for these cats, they may be putting themselves in danger of being exposed to rabies. A coalition of animal groups and organizations spearheaded by the MSPCA has created guidelines for managing feral cat colonies. Some of the recommendations include vaccinating all the cats in the colony for rabies and keeping an accurate record of the vaccinations. Keeping records means developing a system for proper identification of the cats through photographs and ear notching. Another possible method may be to place microchips on all vaccinated and neutered cats. In addition, cat colonies should only be maintained at safe distance away from schools, parks and other placed frequented by children.²

Rabies in humans is fortunately very rare in this state, however, it is endemic in wildlife species. Therefore, although we have made great strides in reducing human mortality from rabies, maintaining control over the disease will take constant vigilance and extensive resources.

For more information on rabies, see MDPH's Rabies Website at <http://www.state.ma.us/dph/cdc/epii/rabies/rabies.htm> or call the Division of Epidemiology and Immunization at 617-983-6800.

(Endnotes) ¹ "Rabies Control Plan for Cities and Towns, 2003", available online at <http://www.state.ma.us/dph/cdc/epii/rabies/controlplan/rabiescp.htm>

² To obtain a copy of this guideline, contact Mr. Carter Luke at the MSPCA at 617-522-7400.

On May 20, 2004, the MDPH State Laboratory Institute confirmed the presence of rabies in a 3-month-old puppy that had been imported from Puerto Rico on May 18. The puppy and 5 other dogs were flown to Boston from San Juan, Puerto Rico as part of a stray animal relocation program. Upon arrival at a Gloucester shelter, the puppy was observed to have an unsteady gait. The following day additional neurological signs developed and the dog was euthanized and subsequently tested positive for rabies virus antigen. None of the animals are reported to have been vaccinated against rabies. The remaining five puppies were euthanized and tested negative. Rabies variant typing is pending at the CDC. In Puerto Rico, the mongoose is the dominant terrestrial reservoir responsible for transmission of rabies virus to domestic animals.

The airline transporting the animals, the Centers for Disease Control and Prevention, and the Puerto Rico Department of Health were notified for further follow-up of persons who may have been exposed to this rabid puppy, and to identify other potentially exposed animals. The dogs came from an organization in Puerto Rico that rescues stray dogs. This organization has arrangements with several animal shelters in Massachusetts, and in other states, for importation and adoption of these stray animals. MDPH has identified six people at the Massachusetts animal shelter who were exposed to the rabid puppy and required post-exposure prophylaxis. The MDPH, CDC and Puerto Rico Department of Health investigations are ongoing.

In Massachusetts, interstate animal importations fall under the jurisdiction of the Massachusetts Department of Agricultural Resources which requires that dogs and cats have a valid health certificate indicating non-exposure to rabies prior to importation. Imported dogs or cats that are not currently vaccinated for rabies must be vaccinated within 90 days of entry or acquisition or upon reaching the age of 6 months.

The importation of this rabid puppy illustrates the need to be vigilant for signs of rabies in animals of unknown exposure history. This puppy's exposure to rabies probably occurred before arrival at the shelter in Puerto Rico. The case serves as a reminder that wounds of unknown origin in young animals may not be life threatening, yet could represent a significant exposure to a rabid animal. If this puppy had presented to a veterinarian or a shelter with wounds of unknown origin, euthanasia, or a 6-month quarantine would have been required. Persons adopting animals imported from another state or U.S. territory should be informed of the source of the animal and should also be educated about rabies and other potential zoonotic health risks unique to the animal's area of origin.

NEW ENGLANDERS OFFERED FREE SMOG FORECASTS AND ALERTS

(ENS)www.ens-newswire.com - To help the public prepare if there is poor air quality this summer, the U.S. Environmental Protection Agency (EPA) is offering free air quality forecasts and alerts. Current air quality conditions and next day forecasts are available each day at the agency's website at: <http://www.epa.gov/region1/airquality/smogalrt.html>. These alerts, provided free by EPA in cooperation with the New England states, automatically notify participants by e-mail or fax when high concentrations of ground-level ozone or fine particles are predicted in their area. "Ground-level ozone smog is a significant public health threat in the Northeast," said Robert Varney, regional administrator of EPA's New England Office. "New Englanders should pay close attention to ozone warnings and limit strenuous outdoor activity during air quality alert days. They should also take individual actions to reduce the air pollution that contributes to this public health risk." Ground-level ozone, or smog, is formed when volatile organic compounds and nitrogen oxides interact in the presence of sunlight, particularly when temperatures are high. Ground-level ozone is distinct from ozone in the ozone layer 10 to 30 miles above the earth, which protects from the sun's harmful ultraviolet rays. Cars, trucks and buses are a primary source of the pollutants that make smog. Fossil fuel burning at electric power plants, particularly on hot days, also generates smog forming pollution. Gas stations, print shops, household products like paints and cleaners, as well as lawn and garden equipment, also contribute to smog formation. To help cut ozone-smog the EPA is encouraging people to use public transportation or walk whenever possible. If driving is necessary, go in car pools and combine errands into one trip. The EPA suggest that motorists fill up at the gas station at night to cut down on gasoline vapors emitted into the air during daylight hours when the sun can cook the vapors and form smog.

Again this summer, the EPA is asking that people use less electricity by turning air conditioning to a higher temperature setting and turning off lights and computers when they are not being used. When air quality is poor, the agency asks that people avoid using gasoline powered engines, such as lawn mowers, chain saws and leaf blowers. Ground level ozone is considered unhealthy when average concentrations exceed 0.08 parts per million over an eight hour period. Poor

air quality affects everyone, but some people are particularly sensitive to ozone, including children and adults who are active outdoors, and people with respiratory diseases, such as asthma. Exposure to elevated ozone levels can cause serious breathing problems, aggravate asthma and other pre-existing lung diseases and make people more susceptible to respiratory infection. When elevated ozone levels are expected, the EPA recommends that people limit strenuous outdoor activity. Improvements in air quality are expected as states begin to implement plans to meet the new eight hour ozone standard, but that will not happen this summer. The first step in this process occurred last month when the EPA designated areas that are not complying with the more health protective eight hour standard that replaced the previous one hour ozone standard. All of Connecticut, Massachusetts and Rhode Island, as well as parts of New Hampshire and Maine, are out of compliance. States with these nonattainment areas must submit plans by 2007 detailing how they will meet this tougher ozone standard. **reprinted with permission. Daily ENS updates are available at www.mahb.org.**

The success of the Massachusetts Tobacco Control Program in improving indoor air has demonstrated the significant contribution that local boards of health can make in improving air quality.

Air and noise pollution are among the most challenging areas of board of health regulation and enforcement. Nonetheless, the board of health does have the legal and enforcement tools to address outdoor air quality, especially from small local sources. These small sources can have large impacts on local air quality. Whether controlling construction or surface mining operation dust, enforcing emissions control in "Mom & Pop" industrial operations, or controlling open burning and addressing the health impacts of wood burning stoves in neighborhoods where at risk populations are impacted, the BOH is responsible. For more information, contact MAHB.