

Pesticide Exposure FAQ

Worker Safety

Q: Are rubber gloves adequate protections for health care workers treating a suspected pesticide poisoning?

A: Latex gloves afford health care workers adequate protection from exposure to most pesticides on a poisoning victim's clothing and skin during decontamination. In some cases, protection from exposure may require thicker gauge gloves. Information on required protection is available on the pesticide label, product's Material Safety Data Sheet (MSDS), or through the Florida Poison Information Network (1-800-222-1222).

Q: In the case history provided, what was the source of poisoning?

A: The source of pesticide in the case presentation was coveralls that were laundered after a spill. Laundering does not remove pesticide residue from heavier fabrics and leather. Laundering contaminated articles with other clothes may contaminate the other clothes. Clothing that has been contaminated should be double plastic bagged, then incinerated in a biohazard incinerator. In this case example, when the contaminated coveralls were worn, perspiration slowly leached pesticide from the coveralls and the pesticide was absorbed through the skin.

Q: Is it recommended to use cholinesterase testing when using lock and load closed systems?

A: Lock and load closed systems are a type of pesticide mixing configuration that reduces applicator's potential exposure to pesticides. Nevertheless, it is advisable that applicators, mixers and loaders who work with cholinesterase inhibiting pesticides be enrolled in a health-monitoring program that includes regular cholinesterase testing.

Q: Should workers enter the field after a pesticide is applied?

A: All agricultural pesticides labeled after April 1994 must have the Restricted Entry Interval (REI) stated on the label. The REI must be observed before fieldwork can resume following a pesticide application. Fields that have been treated with a pesticide requiring a restricted entry interval must be marked with signs to warn workers and others that entry is prohibited. Furthermore, a central posting site on the farm must list the dates of all pesticide applications during the previous thirty days.

Q: What clothing or equipment should be worn when applying pesticides?

A: Read and follow the label directions concerning the minimum personal protective equipment required for applying that particular pesticide. Some pesticides may require eye protection, gloves, or respirators.

Medical Emergencies

Q: Where is emergency medical information for treating poisonings available?

A: The first source for health information is the label on the product. The Material Safety Data Sheet (MSDS) accompanies products and has more extensive health and toxicity information. The Florida Poison Information Network (800) 222-1222 is an excellent resource for emergency medical management information.

Q: What laboratory tests are available to confirm a pesticide poisoning?

A: The most specific standard test for organophosphate pesticide poisoning is the red blood cell (RBC) cholinesterase test. Plasma cholinesterase (also known as pseudocholinesterase) may also be useful. For pesticides other than organophosphates, there are few direct biological markers that can indicate poisoning. Urine and blood tests may be able to detect pesticide residues or metabolites to confirm acute exposures.

Q: If a family member swallows pesticides, what should be done first?

A: Read and follow the label's first aid instructions. Call the Poison Information Network for further direction. Call 911 or proceed to the nearest hospital emergency room if any abnormal signs or symptoms are noted.

Q: If a family member has skin contact with pesticides, what should be done?

A: Wash all exposed skin surfaces with soap and water. Read the pesticide label for hazard warnings and first-aid instructions concerning skin irritation. Contact the Poison Information Network, or seek medical attention if irritation persists or worsens.

Q: What are some common symptoms of pesticide poisoning in children?

A: The symptoms of pesticide poisoning in children are generally the same as that for adults except that a lower dose usually is required to produce adverse health effects in children. Because very young children may not be able to express discomfort such as headaches or nausea, symptoms of irritability or hyperactivity may be the most apparent sign of adverse health effect.

Symptoms and Treatment

Q: How would the types of dermatitis from pesticides be treated?

A: Dermatitis due to pesticide exposure is treated in much the same way as dermatitis due to other irritants. Protecting the individual from further exposure, cleaning the area of damaged or irritated skin to prevent infection, applying emollients, topical antibiotics and/or steroid creams also may be indicated.

Q: Is gastric emptying only used for those who ingested pesticides?

A: Yes, gastric lavage is recommended for patients who have ingested organophosphate pesticides.

Q: If a patient with organophosphate ingestion has already vomited, is gastric emptying still recommended?

A: Vomiting that empties gastric content obviates the need for gastric lavage.

Q: Can pesticide poisoning induce psoriasis?

A: Psoriasis may be exacerbated by exposure to any environmental allergen, including pesticides. Persons with questions and concerns about specific medical conditions are advised to consult with their physician.

**Q: Are the following symptoms a result of pesticide poisoning?:
A metallic taste, then change of heart rate; shortness of breath,
then numbness; pain and color change in left arm and leg.**

A :The symptoms described are not known to be specific to any class of pesticides. An examining physician can best evaluate questions and concerns about specific medical conditions.

Q: Comment on clinical manifestations and management of glyphosate poisoning. This pesticide is widely used in industry and households.

A: Glyphosate herbicide, a common over-the-counter weed control product, has very low systemic toxicity in humans and other mammals. Although minor dermal or respiratory tract irritation is possible after high levels of exposure, glyphosate is not capable of causing a poisoning in the way organophosphate pesticides can.

Pesticide Training

Q: How are farm workers trained and educated to work safely with pesticides and prevent poisonings?

A: The United States Environmental Protection Agency (US EPA) requires that agricultural workers be provided with training under the Worker Protection Standard (WPS). For complete information on requirements under the Worker Protection Standard see:

<http://www.epa.gov/pesticides/safety/workers/PART170.htm> or
<http://www.doacs.state.fl.us>

Q: How often do the growers have to give the training?

A: Worker Protection Standard training must be provided in summary form before a farmworker starts the first day of work. A complete WPS training session must be provided within the first five days of employment and repeated at least every five years.

Q: Who monitors the growers to see that the training has been given?

A: WPS violations should be reported to the Florida Department of Agriculture and Consumer Services, Bureau of Compliance Monitoring at their toll-free numbers:

1-800-HELP-FLA (1-800-435-7352) or

(1-800-352-9832)

1-850-488-3314 (toll charges apply)

Pesticide Regulation

Q: How long does it take to register a pesticide in the United States?

A: Registration of pesticides for use in the United States requires extensive health and environmental safety testing that may exceed ten years.

Q: Are pesticides that are forbidden in the United States being sold overseas?

A: All pesticides sold in the United States must be approved for use and registered by the United States Environmental Protection Agency (US EPA). If a pesticide is not registered for use in the United States but is manufactured in the United States for export only, it must carry labels indicating that the product has been approved by the US EPA for export only.

Q: According to a former EPA administrator, aldrin and dieldrin constitute an imminent hazard to man and the environment. Does the State of Florida recognize this and is there any safe level for a combination of banned pesticides?

A: Aldrin and dieldrin are no longer registered for use in the United States. Because these organochlorine pesticides persist in the environment, they will be found in the ecosystem for many years to come. Combinations of hazardous chemicals pose risks usually measured by adding together the risks of the individual constituent chemicals. There are no "safe" levels for any pesticide but many pesticides are detectable in the environment at levels that are not a significant hazard to human health. The State of Florida imposes limits on the acceptable level of these contaminants in soil that may be more stringent than federally mandated levels. If contamination

exceeds acceptable limits, appropriate environmental remediation strategies are required. Soil clean-up levels for probable human carcinogens such as aldrin and dieldrin are based on risks of long-term exposure. Short or intermediate term exposures at those levels do not represent an imminent hazard.

Q: Does the state regulate companies that dispose of pesticide containers in drums containing parathion?

A: Methyl parathion is a Restricted Use Pesticide (RUP) for use in outdoor agricultural settings only. State and federal laws require proper disposal of all pesticide products. Suspected pesticide law violations should be reported to the Florida Department of Agriculture and Consumer Services, Bureau of Compliance Monitoring at:

1-800-HELP-FLA (1-800-435-7352)

1-800-352-9832 or

1-850-488-3314 (toll charges apply).

Q: What is the law regarding sensitized individuals? How does one get on the list?

A: The Florida Department of Agriculture and Consumer Services maintains a current registry of persons who require prior notification of the application of pesticides. The Florida Department of Agriculture and Consumer Services is required to provide a list of these persons on a quarterly basis to all businesses and persons who have a current license or have a limited certificate issued through their Bureau of Entomology and Pest Control. Upon request, the Florida Department of Agriculture and Consumer Services will register any person who pays an initial registration fee of \$50 and submits a medical certificate signed by a Florida physician. To apply for the registry, individuals may call the Florida Department of Agriculture and Consumer Services, Bureau of Entomology and Pest Control at: 1-850-921-4177.

Q: What if other pesticide products contaminate the pesticide product, one of which is not registered? Whose authority does that fall under? Is that allowed in the state of Florida?

A: Pesticide products must meet certain purity requirements for US EPA registration. It is against pesticide and consumer protection laws to sell adulterated products. Various state and federal agencies have jurisdiction to enforce these laws depending on the nature of the violation. Adulterated pesticide products should be reported to the Department of Agriculture and Consumer Services, Bureau of Compliance Monitoring

1-800-HELP-FLA (1-800-435-7352)

1-800-352-9832

1-850-488-3314 (toll charges apply).

Pesticide Labeling & Info

Q: Where is information available about the pesticides applied if a worker becomes sick?

A: The label on the pesticide container is the primary source of information for identifying a pesticide and its potential hazards. The Material Safety Data Sheet accompanying the product provides more detailed information. The Florida Poison Information Network (1-800-222-1222) offers round-the-clock guidance for emergency medical management of pesticide poisoning.

Q: Where is information available for identifying pesticides used in my area?

A: Local agriculture extension agents have pesticide information in the form of crop sheets for the common crops planted in Florida counties. The phone number of your local agriculture extension agent can be found in the phone directory.

Q: Explain the difference between MSDS and label. Why is the label the only information that is required by law and enforced, when there may be important information from other sources?

A: The pesticide label contains information regarding health and environmental hazards and required personal protective equipment. The Material Safety Data Sheet (MSDS) contains more detailed information than can reasonably be contained on a label. Every pesticide manufacturer is required by law to provide specific information on the label and the MSDS. Employers and applicators may have further legal responsibilities to post and/or provide label

and MSDS information in certain circumstances. Relevant state and federal agencies enforce all pesticide laws.

Q: Where is information available on the tolerance limits to specific pesticides for a small child exposed to pesticides in the home?

A: People should use common sense to minimize their exposure to pesticides. In general, pesticides used according to their labeled directions pose virtually no risk of producing significant adverse health effects in adults or children. Pesticide health data often requires research and expert interpretation of extensive toxicological literature. To determine the maximum acceptable exposure limit for a specific pesticide, the US EPA's Integrated Risk Information System (IRIS) is a useful resource. The IRIS database can be accessed at:<http://cfpub.epa.gov/ncea/iris/index.cfm> . Also, the Code of Federal Regulations, part 180 (Tolerances and Exemptions from Tolerances for Pesticide Chemicals) can be accessed at:<http://www.access.gpo.gov/nara/cfr/cfr-table-search.html>

Q: Where can the public access data collected by the health department's surveillance system?

A: Florida Pesticide Exposure Surveillance Reports are available from your local county health department.

Pesticide Home Use

Q: Should clothes be washed with the family laundry after applying pesticides?

A: Clothes that may be contaminated with pesticide residues should always be washed separately from other clothes.

Q: How should unwanted household pesticides be discarded?

A: If possible, use pesticide products according to label directions until the containers are empty. Triple rinse empty containers with water and dispose of them with regular household waste. Or call your local waste management district and ask about disposal of toxic and hazardous materials in your area. Many communities have special days for picking up toxic household wastes such as pesticides.

Q: How harmful is household exposure to insecticide?

A: Pesticides are extensively tested and screened before registration and household pesticides are formulated at very low concentrations. Therefore, pesticides used according to the label directions are not

expected to produce any significant adverse health effects.

Q: How long must an apartment be vacated after extermination for termites?

A: Requirements vary by type of pesticide used. All requirements are listed on the pesticide label. Pest control operators will provide a copy of the pesticide label on request.

Pesticides and Food

Q: Do foreign growers use systemic pesticides that are not necessarily approved for use in the United States? What about imported fruits and vegetables? Whose responsibility is this? How do we find out what is in them?

A: Pesticides sold in foreign countries must be approved for use by the regulatory authorities in that country. Imported products must meet state and federal food safety standards.

In some cases, pesticides that are not approved for use in the United States are approved for use by foreign countries. Most violations are associated with residues occurring on crops for which there is no tolerance, rather than residues that exceed a tolerance. There is no pattern of import violations associated with a particular pesticide or pesticide/crop combination.

Food crops imported into the United States must meet import tolerances for pesticide/crop combinations that are legal in the country of origin. Tolerances are established by US EPA and monitored by the US Department of Agriculture (USDA) to ensure that pesticide residues on imported foods do not pose a threat to human health. USDA's Food Safety Inspection Service and the US Food and Drug Administration (FDA) monitor foods for pesticide residues. More information on the FDA's pesticide monitoring program can be found

at:<http://vm.cfsan.fda.gov/~lrd/pestadd.html> (Division of Food Safety, Florida Department of Agriculture and Consumer Services. Phone: 850-488-0295).

Q: Children should be protected. Can children eat a piece of fruit safely?

A: Federal laws consider foods with residues of pesticide chemicals in excess of established tolerances as contraband subject to seizure as "adulterated." This applies to both raw and processed foods. No adverse health effects to adults or children have been linked to the very low pesticide residues routinely found on some fruits and vegetables, but the health benefits of eating fruits and vegetables

are well documented. Therefore, children can eat fruit and vegetables safely and children should be encouraged to eat washed fruits and vegetables as part of a nutritionally well balanced diet. If concerns about pesticide residues remain, organically grown foods are available.

Q: How do you get rid of chemicals on fruits and vegetables? Explain ways to decontaminate and which produce to avoid. Also, pesticides on fruits and vegetables affect children more than adults because of their weight. How is toxicity in children avoided and prevented?

A: All fresh produce should be washed thoroughly before consumption to remove potentially dangerous bacteria and this process will also help wash off pesticide residues. If people are concerned about the very low pesticide residues found on some fruits and vegetables, they may wish to purchase organically grown foods that are usually free of pesticide residues.

Fruits and vegetables provide important health benefits and people should not avoid consuming them because of fear of pesticide residues.

Q: Is the Food Quality Protection Act banning toxic levels of pesticides on grapes and apples?

A: By August 2006, the US EPA's Office of Pesticide Programs (OPP) plans to have taken a second look at every limit that has been set for an amount of residual pesticide that can remain in a food product. That means that the OPP will be reviewing some 9,700 tolerances that have been set for 470 pesticides. The goal of the reviews is to address the key issues raised in the 1996 Food Quality Protection Act (FQPA): Does the pesticide tolerance allow for possible aggregate exposures? Could residues below the tolerable limit be dangerous when combined with exposures to other pesticides? Does the tolerance sufficiently protect children? And what are the effects of the pesticide on the endocrine system? Based on the reviews, the EPA will set new tolerances, and it is likely that some pesticide uses will be banned altogether.

Q: What is meant by "unreasonable health risk"? How do you define unreasonable?

A: The measurement of "unreasonable" risk involves balancing the probability that harm will occur and the magnitude and severity of that harm against expected benefits to society. All reasonable precautions are taken so that pesticide exposure risks are minimized and benefits to society are maximized. Under the Food Quality

Protection Act (FQPA), the standard of no "unreasonable health risk" has been replaced by "reasonable certainty of no harm". For most effects, US EPA establishes a reference dose based on the lowest "No Observable Adverse Effect Level" (NOAEL) divided by a factor of 100. Estimated exposures above that level are considered unreasonable. An additional safety factor of 10 in the divisor is designed to safeguard the health of infants and children. The resulting standard is the NOAEL divided by a factor of 1000. Potential exposures above that level are considered unreasonable. For cancer, US EPA considers exposures to be reasonable if they are expected to produce no more than one case per million people in the general public.

Health & Environment

Q: Is there a time period for effective use of various containers? Can pesticides seep through plastic, metals, or glass? Also, How safe are the various containers that are used to store pesticides?

A: Pesticide containers are developed and tested to meet US EPA and Department of Transportation requirements. Pesticides should never be transferred from their original containers.

Q: Why is paraquat a common suicide agent in the Far East?

A: Paraquat is a common suicide agent because a relatively small amount is known to be a lethal dose. In many countries, pesticides are not as carefully regulated as they are in the United States and easy accessibility, especially in rural areas, may contribute to the suicidal misuse of pesticides.

Q: Is Agent Orange a paraquat, diquat, or mofamquat?

A: Agent Orange is the name of a defoliant formulation used by the US military in Southeast Asia during the Vietnam War. Agent Orange was not a paraquat, diquat or mofamquat. It was a combination of two chlorphenoxy herbicides, 2,4,5-trichlorophenoxyacetic acid (2,4,5-T), and 2,4-D (2,4-dichlorophenoxyacetic acid). In addition, some Agent Orange formulations were contaminated with TCDD (2,3,7,8-tetrachlorodibenzo-p-dioxin, a toxic byproduct of 2,4,5-T production).

Q: What are the synergistic and cumulative effects of pesticides used on products?

A: There are many chemicals and medicines used today that contribute to our quality of life although their long-term effects may not yet be fully known. The number of chemicals and medicines

used by millions of individuals is so vast that quantifying all potential synergistic interactions and the potential effects on every individual is impossible. The adverse effects of pesticides are researched using animal models before pesticides can be registered with the US EPA. Cumulative health effects are considered by US EPA's risk assessment, before a pesticide can be registered for use in the United States.

Q: Are the pesticide safety levels published from studies on white males?

A: Studies on the health effects of pesticides draw data primarily from animal models. Human studies include controlled experimental toxicology studies, health studies on individuals with occupational exposures, and epidemiological studies on regional populations or groups such as farm families, rural residents, or other groups, including women, children, and non-Caucasian populations.

Q: Are pesticides safe for children? Should children apply pesticides?

A: Pesticides are poisons intended to kill living things and technically no pesticide can be considered "safe" for adults, children or animals. Nevertheless, pesticides may be used safely. The Fair Labor Standards Act prohibits any person under age 16 from being employed in an occupation that requires handling or applying pesticides registered by US EPA. Because children do not recognize pesticide hazards, responsible adults do not permit their children to play with or apply pesticides. All pesticides are labeled with directions for using the pesticide in a manner that minimizes potentially hazardous exposures, including the warning, "Keep out of reach of children."

Q: What are the implications and government response to banned pesticides found at the residential soil clean up target levels for the State of Florida at residences and at schools?

A: Florida guidelines for maximum acceptable pesticide residue levels in soil are as strict or stricter than federal guidelines. The Florida Department of Health and the Florida Department of Environmental Protection conduct risk assessments for contaminated soil sites. Florida Department of Health recommends appropriate risk management strategies designed to reduce potential risks to human health on a case-by-case basis.

Q: What branch of local, state or federal government is responsible for remediating contaminated sites?

A: Federal and state agencies may have overlapping jurisdiction over contaminated sites. Property owners may be responsible for ensuring that their property meets all health and environmental laws regarding pesticide contamination of soil. Legal jurisdiction and responsibility for remediation must be determined on a case-by-case basis.

Q: Is it possible to get well water tested in farming areas? Is there a cost?

A: Testing private wells potentially contaminated by agricultural chemicals can be arranged through the county health department. There is no charge to homeowners living near existing agricultural or historically agricultural areas. For more information, contact the environmental health section of your local county health department.

Q: Are there any studies relating paraquat as a carcinogen?

A: US EPA lists paraquat as a possible human carcinogen.

Q: Are there any connections between pancreatic cancer and pesticides?

A: Some studies have detected an association between pancreatic cancer and chronic exposure to certain pesticides, such as DDT (dichlorodiphenyltrichloroethane) and 1,2 dichloroethane, probable human carcinogens. Regulatory controls are designed to minimize or eliminate human exposure to carcinogenic chemicals.

Q: Is there any evidence of carcinogenicity among any of the organophosphate insecticides?

A: At present, there are many organophosphate pesticides known to be animal carcinogens. None have been shown definitively to be human carcinogens. Exposure to pesticides that are probable human carcinogens can be minimized through proper protective equipment and proper storage, use and disposal. Under the Food Quality Protection Act, US EPA is in the process of systematically reviewing the registration status of all organophosphate pesticides for evidence of significant acute, chronic, cumulative and synergistic adverse health effects.

Q: Have any statistical analyses been conducted documenting the incidence of cancer among agricultural workers applying pesticides?

A: Some epidemiological studies suggest that agricultural workers who are exposed to high levels of certain pesticides over many years face an increased risk for certain types of cancers. Most of these pesticides have since been discontinued from use. The status of the remaining pesticides' re-registration is under US EPA review.

Q: If pesticides are dangerous to our health, why can't their use be discontinued in favor of safer alternatives?

A: Pesticides provide important benefits, most importantly the health benefits of controlling disease-carrying mosquitoes and other pests. A secure food supply, management of natural water resources, and protection of indigenous plant and animal habitats all result from careful use of pesticides. The benefits provided by pesticides to society outweigh the minimal risks they pose when used appropriately. Nevertheless, as technology and toxicological information improves, safer alternatives to existing pesticides are being developed and registered for use while more toxic pesticides are being phased out by US EPA and pesticide manufacturers.

Q: What kind of research is there to create alternative methods? Where is education about these solutions available?

A: Alternative methods of pest control that do not rely on chemical pesticides have a very long history. In fact, the oldest method of pest control is the manual removal of insects from buildings, clothing, hair, and food crops. Academic, private and governmental research is continuously underway to develop more advanced and effective non-chemical pest control methods. The United States Department of Agriculture conducts such research through the Agriculture Research Service. The University of Florida's Institute for Food and Agriculture Sciences (IFAS) is a nationally recognized leader in the development of Integrated Pest Management (IPM) techniques that reduce reliance on chemical pesticides. For more information on IPM, visit the IFAS website at: <http://www.ifas.ufl.edu>

Q: Which pesticides are sprayed from airplanes? What practices are in place to keep the public out of danger?

A: Aircraft may apply a variety of pesticides and/or fertilizers. As with all pesticide applications, aerial pesticide applications are approved by US EPA only after potential environmental and health risks are assessed to be minimal when the pesticide is applied in accordance with the label.

Q: How many cases of definite malathion poisoning due to Florida Medfly Eradication Program were reported to the EPA?

A: Under the criteria in use during 1998, no report of pesticide poisoning attributed to Medfly Eradication Program activities could be classified as a definite case.

Q: Why refer to pesticide poisoning in the farmer only? It is important to talk about toxicity in the general public. Who ingests the farm products? How do we prevent this type of poisoning?

A: The Florida Department of Health is committed to protecting and promoting the health of all Florida residents and visitors. Farmers and farmworkers are among the occupational categories that are likely to receive higher pesticide exposures in the course of their employment than the general public. Pest control operators, and workers involved in the manufacture, storage, distribution, and transportation of pesticides are also at higher risk of exposure. Adverse health effects are more likely to be detected among people who have the higher exposures. Concentrating surveillance for pesticide-related illness among groups with the highest levels of exposure serves the general public by detecting potential adverse effects as soon as possible. Poisoning prevention begins with objective health surveillance.

Q: Where is information available on chemical sensitivity for pesticides for physicians?

A: Multiple Chemical Sensitivity is a complex and poorly understood condition that goes beyond the scope of this teleconference. A federal Interagency Workgroup reviewed existing research on Multiple Chemical Sensitivity and concluded, "It is currently unknown whether MCS is a distinct disease entity and what role, if any, the biochemical mechanisms of specific chemicals have in the onset of this condition." The complete report is available at: <http://web.health.gov/environment/mcs/toc.htm>

Q: If a patient suspects chronic pesticide poisoning, what should be done?

A: Alternative potential disease processes or conditions should be ruled out before making the difficult diagnosis of pesticide poisoning. An accurate occupational/exposure history is helpful in determining whether a sufficient dose has been received to indicate such diagnosis. In some cases, chronic exposure can be confirmed by laboratory tests for pesticide residue or metabolite in blood or fatty

tissue biopsy. Consultation with an experienced occupational medicine physician is recommended.

Grouping Students by Ability Regains Favor in Classroom

By VIVIAN YEE

It was once common for elementary-school teachers to arrange their classrooms by ability, placing the highest-achieving students in one cluster, the lowest in another. But ability grouping and its close cousin, tracking, in which children take different classes based on their proficiency levels, fell out of favor in the late 1980s and the 1990s as critics charged that they perpetuated inequality by trapping poor and minority students in low-level groups.

Now ability grouping has re-emerged in classrooms all over the country — a trend that has surprised education experts who believed the outcry had all but ended its use.

A new analysis from the [National Assessment of Educational Progress](#), a Census-like agency for school statistics, shows that of the fourth-grade teachers surveyed, 71 percent said they had grouped students by reading ability in 2009, up from 28 percent in 1998. In math, 61 percent of fourth-grade teachers reported ability grouping in 2011, up from 40 percent in 1996.

“These practices were essentially stigmatized,” said Tom Loveless, a senior fellow at the Brookings Institution who [first noted the returning trend](#) in a March report, and who has studied the grouping debate. “It’s kind of gone underground, it’s become less controversial.”

The resurgence of ability grouping comes as New York City grapples with the state of its [gifted and talented programs](#) — a form of tracking in some public schools in which certain students, selected through testing, take accelerated classes together.

These programs, which serve about 3 percent of the elementary school population, are dominated by white and Asian students.

Christine C. Quinn, the City Council speaker who is running for mayor, has [proposed expanding the number of gifted classes](#) while broadening the criteria for admission in hopes of increasing diversity. (The city’s [Education Department](#) has opposed the proposal, saying that using criteria other than tests would dilute the classes.)

Teachers and principals who use grouping say that the practice has become indispensable, helping them cope with widely varying levels of ability and achievement.

When Jill Sears began teaching elementary school in New Hampshire 17 years ago, the second graders in her class showed up on the first day with a bewildering mix of strengths and weaknesses. Some children coasted through math worksheets in a few minutes, she said; others struggled to finish half a page. The swifter students, bored, would make mischief, while the slowest would become frustrated, give up and act out.

“My instruction aimed at the middle of my class, and was leaving out approximately two-thirds of my learners,” said Ms. Sears, a fourth-grade teacher at Woodman Park Elementary in Dover, N.H. “I didn’t like those odds.”

So she completely reorganized her classroom. About a decade ago, instead of teaching all her students as one group, she began ability grouping, teaching all groups the same material but tailoring activities and assignments to each group.

“I just knew that for me to have any sanity at the end of the day, I could just make these changes,” she said.

While acknowledging that wide variation in classrooms poses a challenge, critics of grouping — including education researchers and civil rights groups — argued in the 1980s and 1990s that the practice inevitably divided students according to traits corresponding with achievement, like race and class. Some states began recommending that schools end grouping in the 1990s, amid concerns that teachers’ expectations for students were shaped by the initial groupings, confining students to rigid tracks and leading teachers to devote fewer resources to low-achieving students.

“The kids who are thought of as the least able end up with the fewest opportunities and resources and positive learning environments,” said Jeannie Oakes, author of [“Keeping Track: How Schools Structure Inequality,”](#) a popular critique of grouping. “The potential benefit is so far outweighed by the very known and well-documented risks.”

Though the issue is one of the most frequently studied by education scholars, there is little consensus about grouping’s effects.

Some studies indicate that grouping can damage students’ self-esteem by consigning them to lower-tier groups; others suggest that it produces the opposite effect by ensuring that more advanced students do not make their less advanced peers feel inadequate. Some studies conclude that grouping improves test scores in students of all levels, others that it helps high-achieving students while harming low-achieving ones, and still others say that it has little effect.

Proponents of grouping argue that without it, teachers are forced to teach to the middle, leaving out both struggling children and gifted learners. They also say there is a “peer effect,” in which high-achieving children do better if paired with other high-achieving students. Done judiciously and flexibly, they say, grouping can help all students. The reasons for the resurgence are unclear. Some experts attribute it to [No Child Left Behind](#), the 2001 law that strengthened accountability standards for schools. By forcing teachers to focus on students who fell just below the proficiency cutoff, the law may have encouraged teachers to group struggling students together to prepare them for standardized tests.

Technology might have also played a role, Mr. Loveless said, with teachers becoming more comfortable using computers to allow children to learn at different speeds.

In interviews, several teachers said they believed modern-day grouping was not discriminatory because the groups were constantly in flux. But they acknowledged the additional challenge of tailoring instruction to different groups, as they must produce multiple lesson plans and keep closer track of students’ progress.

At Public School 156 in Brownsville, Brooklyn, which enrolls mostly African-American and Hispanic children, many living in homeless shelters, Cathy Vail randomly sorts her fifth graders at the beginning of the year using lettered sticks. After six weeks of testing and observing them, she shifts them into “teams” of seven or eight.

Children may be assigned to different groups for reading and math, and can switch groups if they have shown progress, struggle to get along with other students in a group or need extra help with a particular lesson. Ms. Vail uses thrice-yearly reading assessments and a test before each math unit to make sure children do not remain in groups that are too advanced or too slow for them, she said; one student this year, for instance, has moved up two groups in both reading and math.

Ms. Vail teaches the same lesson, whether it is a math concept or a book, to the entire class, but gives each group a different assignment. Working on each week’s set of new vocabulary words, all four groups draw illustrations and write captions using the assigned words, but she encourages team C, her highest-achieving group, to write more complex sentences, perhaps using two new vocabulary words in the same sentence. She also asks children in team C to peer-teach students in the other groups.

“At the end of the day, they’re learning the same words, but just with different levels of complexity and nuance,” she said.

When she moves students to new groups, she tells them it is because she can best help them there, and she believes they see the grouping positively, she said.

“It has to be done properly — you can’t make a kid feel small because they’re in group A,” her lowest-achieving group, she said. “If you don’t have a stigma attached to the group, then I don’t see the problem.”

In Ms. Sears’s classroom at Woodman Elementary in Dover, the three or four groups of students rotate throughout the day, some being taught on the rug while others work in desk clusters. Before each unit, she groups the 26 children based on initial assessments, takes a few days to observe them in the smaller groups and revises the groups again, sometimes as often as every day.

In the decimal unit, one group might learn to add decimals using blocks they can manipulate with their hands, while another might be able to draw the models on their own. Yet another might practice using the algorithm for adding. The last group might be asked to analyze a word problem and apply the calculation.

“I can really hone in on their performance and see if they need to move up to a group that will help them access the same content in a way that works for them,” said Ms. Sears, who refers to the technique as dynamic grouping. “Are they an abstract learner, are they someone who needs to draw a picture, are they someone who needs to move their body, are they someone that likes to work alone?”

She said the minority children in her class were more or less evenly distributed among the groups.

African-American and Hispanic children make up about 15 percent of Woodman’s population, its principal, Patrick Boodey, said. More than half of the school’s students are eligible for free or reduced lunch. Socioeconomic factors are a stronger indicator of where a student will end up than race, he said, with minorities spread among groups but with many poorer children congregating in lower-tier groups and remedial programs.

Ability grouping in reading has been a common practice at the school for at least a decade, and more teachers are beginning to group children in math as well, he said. The school has so embraced the practice that Ms. Sears will go to Maine this summer to train teachers in two districts in grouping.

“Dynamic grouping is the norm, and it’s going to continue to be,” Mr. Boodey said.