



## Five Things Physicians and Patients Should Question

1

**Do not routinely test urine for metals and minerals in children with autistic behaviors. Toxicologic exposures have not been conclusively associated with the development of autistic behaviors in children. Testing for metals and minerals may be harmful if treatment is guided on the basis of these results.**

Thimerosal or ethylmercury has been used as a preservative in multidose vaccine vials and have been blamed for the increase in autism rates over the past 2 decades. However, studies have failed to show a causative link between environmental exposures and the development of these symptoms. As symptoms of autism occur early in childhood and, possibly, months to years after any potential exposure may have resulted in neurotoxicity, the likelihood of continued presence of such toxicant is low. Parents, however, may be desperate for answers and seek out alternative sources for information and receive advice to obtain laboratory analysis for minerals and metals as causative agents without insurance reimbursement. Finding an abnormal result has led to ill-advised treatments and death in some patients.

2

**Do not order hair analyses for “environmental toxins” in children with behavioral or developmental disorders, including autism.**

The analysis of hair for a broad array of elements and chemicals as a way to diagnose the cause of childhood diseases such as autistic spectrum disorder has no scientific basis. Such assays may not be reliable: hair collection is not precise and it is a heterogeneous matrix; chemicals in hair may not be distributed evenly from the root up the shaft, the assays used may not be accurate technically, and hair can easily be contaminated by external residues of dust, shampoos, conditioners, or other hair treatments. Reports of finding of various metals, etc, can create a severe anxiety in the families requiring further testing by other means. Historically, testing by standard means fail to verify the apparent exposure reported by hair analysis.

3

**Do not order mold sensitivity testing on patients without clear allergy or asthma symptoms (particularly those with chronic fatigue, arthralgia, cognitive impairments, and affective disorders). For those with allergy or asthma symptoms who have not responded to environmental interventions to reduce allergen exposures, mold sensitivity testing may be performed by an allergist or pulmonologist, but should not routinely be performed in the primary care setting.**

Mold can cause sensitization and clinical disease. Skin prick and in vitro tests can effectively identify patients who are sensitized to molds, although this does not always translate to clinical disease. Results of these tests must be interpreted in the context of the patient's clinical presentation.

Exposure to dampness and mold can increase the risk of developing asthma in children regardless of their atopic status and increased symptoms of asthma and rhinitis in individuals who already have these conditions. Interventional studies have found that a multifaceted series of interventions aimed at reducing indoor moisture, removing contaminated building materials, and reducing reservoirs (including carpeting and dust) can reduce exposure sufficiently to reduce symptoms in affected individuals. This implies a causal relationship between exposure to fungi and morbidity and provides a rationale for environmental interventions to reduce it.

4

## Do not order “chelation challenge” urinary analyses for children with suspected lead poisoning.

The “chelation challenge” was formerly used to assess whether a child had a significant body burden of lead, or “lead poisoning,” and whether formal chelation would result in significant clearance of lead. Evidence exists that suggests that the chelation challenge has no better prognostic value than the standard blood lead level. Further, there is some evidence that the chelation challenge may in fact be potentially dangerous. In summary, chelation challenge has no clinical utility in the treatment of childhood lead poisoning today.

5

## With the exception of certain heavy metals (eg, lead), do not routinely use measurements of environmental chemicals in a person’s blood or urine to make clinical decisions.

It is virtually impossible for people not to come into contact with hundreds of chemicals each day—whether those chemicals are in our food, air, water, soil, dust, or the products we use. And it is even more difficult for people to know whether those chemicals are harmful to their health or not. Presence does not mean toxicity.

The measurement of an environmental chemical in a person’s blood or urine does not by itself mean that the chemical causes disease. Advances in analytical methods allow us to measure low levels of environmental chemicals in people, but separate studies of varying exposure levels and health effects are needed to determine whether such blood or urine levels result in disease. These studies must also consider other factors such as duration of exposure. For some environmental chemicals, such as lead, research studies have given us a good understanding of the health risks associated with different blood lead levels. For many environmental chemicals (eg, phthalates, polychlorobiphenyls) more research is needed to assess health risks from different blood or urine levels. Thus, just because a chemical is found to be in the body does not mean that harm will occur. Moreover, these measurements are not helpful to guide clinical intervention or treatment. Pediatric Environmental Health Specialty Units ([www.pehsu.org](http://www.pehsu.org)) can provide additional information about indications, measurement, and interpretation of environmental chemicals in blood or urine, including lead and other heavy metals.

# How This List Was Created

These items are provided solely for informational purposes and are not intended as a substitute for consultation with a medical professional. Patients with any specific questions about the items on this list or their individual situation should consult their physician.

The American Academy of Pediatrics is an organization of 67,000 primary care pediatricians, pediatric medical subspecialists and pediatric surgical specialists dedicated to the health, safety and well-being of infants, children, adolescents and young adults.

The American Academy of Pediatrics' Council on Environmental Health (COEH) consists of pediatricians who have a special interest in children's exposures to environmental contaminants and the care of the environment in which we live. COEH strives to inform pediatricians, parents, communities, and policy makers on environmental issues that can result in harm to children. As a result, the members of the Executive Committee of COEH were queried to provide their scientifically informed opinions as nationally recognized experts in pediatric environmental health to identify diagnostic and management decisions that have resulted in patient harm either from a misdiagnosis or inappropriate therapy. These 5 clinical issues are the result. Various expert committees, councils, and sections of the AAP reviewed and approved the list. The list was approved by the AAP Board of Directors and Executive Committee.

Note: Pediatricians should consult with specialists who are trained in toxicology or environmental health when questions such as these arise. The American Academy of Pediatrics has partnered with the American College of Medical Toxicology (ACMT) to co-administer the Pediatric Environmental Health Specialty Units (PEHSU), a network of pediatricians and medical toxicologists serving individual federal regions to help with education and consultation of children with environmental exposures. PEHSUs are funded by the US Department of Health and Human Services Agency for Toxic Substances and Disease Registry and the US Environmental Protection Agency with a cooperative agreement with AAP and ACMT. Visit: [www.pehsu.net](http://www.pehsu.net)

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The mission of the ABIM Foundation is to advance medical professionalism to improve the health care system. We achieve this by collaborating with physicians and physician leaders, medical trainees, health care delivery systems, payers, policymakers, consumer organizations and patients to foster a shared understanding of professionalism and how they can adopt the tenets of professionalism in practice.



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For more information, visit [www.aap.org](http://www.aap.org).

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