

How *Green* is Your Pediatrician?

By Brian McKenna

Ask your pediatrician about lead, and she'll be able to tell you if your kids need to be tested, but ask her about pesticides from your lawn care company or if it's safe to use DEET insect repellent and she might not have much to tell you. If she's like most MDs she has received only three to four hours of environmental education, and doesn't know about the many hazards that children face.

"There's absolute apathy in many parts of the U.S. medical system towards even thinking about the effects of the environment on health," says Dr. Ruth Etzel, a pediatrician and environmental epidemiologist. "The initial response to even raising the issue is to be laughed out of the room."

But that hasn't stopped Etzel and a team of environmentally conscious pediatricians from repeatedly dusting themselves off and re-entering the fray. "All of us have encountered ridicule," she says, "but with any new discipline in medicine that usually happens ... for the first 25 years."

The Green Book

Etzel's persistence is slowly paying off. In October 2003, under her editorship, the American Academy of Pediatrics will release the second edition of "Pediatric Environmental Health." The "Green Book," as it is known, is a groundbreaking clinical handbook that offers concise summaries of the evidence that has been published in the scientific literature about environmental hazards to children, and provides guidance to pediatricians about how to diagnose, treat, and prevent childhood diseases linked to environmental exposures.

The inaugural 1999 edition, initiated and edited by Etzel while she

served as Chair of the American Academy of Pediatrics Committee on



Dr. Ruth Etzel

Environmental Health, had 33 chapters with information on such topics as diesel emissions ("associated with asthma exacerbation"), pesticides (connected to "certain childhood cancers [including] brain cancers and leukemia"), and molds (linked to infant pulmonary hemorrhage and respiratory illnesses). The new edition has expanded to 43 chapters and has sections on arsenic, gasoline, irradiation of food, and the potential effects of chemical and biological terrorism on children.

Busy physicians want reference tools to answer questions quickly, "and the Green Book is an attempt to put everything in one place," says Dr. William Weil, a Michigan-based contributor. He adds frankly, "but the majority of clinicians don't give a damn. It's very hard to get physicians excited about the issues."

The good news is that an increasing number of doctors are using the handbook. According to an Emory University survey of 266 practicing pediatricians in Georgia – published in the August 2002 *Environmental Health Perspectives* – pediatricians' preferred source of environmental information is the American Academy of Pediatrics, including the Green Book.

Of course that doesn't mean

they're applying the knowledge. Indeed, most respondents reported "low self-efficacy in taking and following up on environmental histories."

Still, Etzel is thrilled by the strong international support for the book and reports that the World Health Organization was so impressed that they are working with her and other members of the American Academy of Pediatrics to create their own international version, due for release in 2004.

"We'd like to see the Green Book become the one authoritative text for environmental health just like the Academy's Red Book has become for infectious diseases," says Weil.

That will require a dramatic improvement in marketing. The Academy's approximate 48,000 pediatricians requested only about 20,000 copies of the 1999 edition even though copies are free for them.

"We're planning lots of media" for the 2003 release, said Etzel.

Against the grain

Etzel and Weil are used to going against the grain. In 1999 they were the only two physicians invited to participate on former Governor Engler's seven-member Michigan Environmental Science Board to establish children's environmental health standards in Michigan. Both vigorously dissented from the final 2000 report that recommended that nothing be changed to improve children's health. Writing the minority opinion, Weil argued that, "the only prudent approach for protecting these especially vulnerable groups would require inclusion of ... an added factor." Weil was referring to a 10-fold safety factor against pesticides as is required by the 1996 U.S. Food

Quality Protection Act. Weil was a member of the National Academy of Sciences panel that recommended that level, which Congress adopted. The *Detroit Free Press* called it “a bitter irony” when “pediatricians’ call for proactive environmental standards [is] ignored.”

But it’s a safe bet that most Michigan medical students and pediatricians know little or nothing about their policy efforts.

“Do you have a basement?”

Etzel notes the irony that pediatricians no longer visit the home and yet “we now have a far better understanding that [home] exposures once thought to be innocuous, such as cigarette smoke, mercury and molds, may actually pose threats to children’s health.” To compensate, the Green Book provides a short “Home Inventory Questionnaire,” that pediatricians are encouraged to use at the first office visit.

Questions elicit knowledge about possible exposures and include, “Are you or your child involved in a hobby at home? Do you use pesticides on your lawn ... in your home? Is your home located near a polluted lake or stream, industrial area, highway, dumpsite, farm, etc.? Do you have a basement?”

Basements are potentially quite toxic as Dr. Etzel herself discovered in 1994 when, as the lead investigator for a Centers for Disease Control and Prevention study, she concluded that a mold named *Stachybotrys* was the probable cause of infants’ lung bleeding and sudden deaths in Cleveland. The mold grows in areas where there has been standing water or flooding. For her efforts she won the prestigious Arthur Flemming award.

The cart before the horse

By itself, the Green Book will likely have minimal impact. A sea change in medical education and

Pediatric Health Resources

Children are not simply little adults. Children’s health experts offer several reasons why extra protection is critical:

- Children in the first six months of life drink seven times as much water per pound as the average adult. Children 1 through 5 years eat three or four times as much food per pound of body weight as an adult. A resting infant breathes in twice as much air per pound than an average adult.
- Children’s behavior exposes them to chemicals in ways different from adults. Normal child development includes a great deal of hand-to-mouth behavior. Lead dust, lead paint chips, and pesticides may reach children through such behavior. Children spend more time outdoors than most adults and are thus more highly exposed to particulates, ozone, and other airborne pollutants. Young children spend hours close to the ground where they are more highly exposed to toxins in dust, soil, and carpets as well as radon and some pesticides.
- Furthermore, there is growing evidence that exposure to very low levels of contaminants during development may have adverse health effects, including effects on the brain, thyroid, and development.

For more information, consult the following resources:

- **Children’s Health Environmental Coalition** offers practical information for parents on how to prevent their children from being exposed to hazards in their homes: www.chechnet.org.
- **Childproofing Our Communities Campaign** is coordinated by the Center for Health, Environment and Justice. The Childproofing Our Communities Campaign is a nationwide grassroots effort led by organizations concerned about children and environmental health. The Campaign’s overarching goal is the reduction and elimination of environmental hazards, which affect children’s health: www.childproofing.org.
- **Children’s Environmental Health Network** is a great general resource and provides a recommended reading list on children’s environmental health: www.cehn.org/cehn/cehreading.html.
- **Healthy Schools Network, Inc. (HSN)** is a national not-for-profit organization, centered on children’s environmental health, and dedicated to assuring every child and school employee an environmentally safe and healthy school through research, information and referral, advocacy, and coalition building: www.healthyschools.org.
- **Our Stolen Future** is the official website for the book, “Our Stolen Future,” which brought worldwide attention to scientific discoveries revealing that common contaminants can interfere with development of the fetus: www.ourstolenfuture.org.

practice is required. Fortunately, Green Book pediatricians and others are working on several fronts towards this end. A centerpiece of this effort is the National Environmental Education & Training Foundation, chartered by Congress in 1990 “to advance environ-

mental literacy in America.” In June 2003 more than 100 leaders in medicine, nursing, and environmental health met in Washington, D.C., to establish a new pesticide education initiative with pediatricians.

They are working to insert

pesticide information into the medical curriculum and to educate physicians in the field.

A point person in the initiative is Dr. James Roberts, Assistant Professor of Medicine at the Medical University of South Carolina. Roberts was a major contributor to the Green Book's pesticide section. "Most of the time when we look at a sick patient the possibility of pesticides doesn't come up unless it's a known suicide," he said. Physicians need "a higher index of suspicion," to diagnose acute and chronic pesticide-related illness.

"There's a lot of animal data and epidemiological data, but little human data," he said. "We haven't looked at skin rashes, asthma, gastroenteritis (non-viral)" as pesticide-related. "Why has there been an increase in attention deficit hyperactivity disorder? If you look at it from a neurological standpoint, there are lots of chemical effects on the nervous system"

Good advice

When asked about DEET, for which the EPA has now required labels detailing their concentration because of concern about possible effects, Roberts said that the Academy recommends no higher than a 30% concentration. The 1999 Green Book edition goes further saying, "a cautious approach is to use ... 10% or less [concentration] on children."

Roberts cited a July 2002 *New England Journal of Medicine* study that compared the effectiveness of insect repellents against mosquito bites. Various concentrations of DEET were analyzed along with "natural" products like citronella and a relatively new soybean-based product called Bite Blocker. He agreed with the study that DEET was the best protector avail-

able, over a long period of exposure.

"I'd like to see information released to parents to gauge the time frame of outdoor activity for their children. If it's just an hour of T-Ball, use a lesser concentration of DEET,

a safer product, including Ontario municipal workers who ordered several cases.

Many activists are very critical of the use of DEET in any concentration. In making its case, Beyond Pesticides, a national group, reports that "researchers at Duke University Medical School led by Dr. Mohed Abou-Donia have published findings demonstrating in laboratory studies that frequent and prolonged application of DEET causes neurons to die in regions of the brain responsible for muscle movements, learning, memory and concentration."

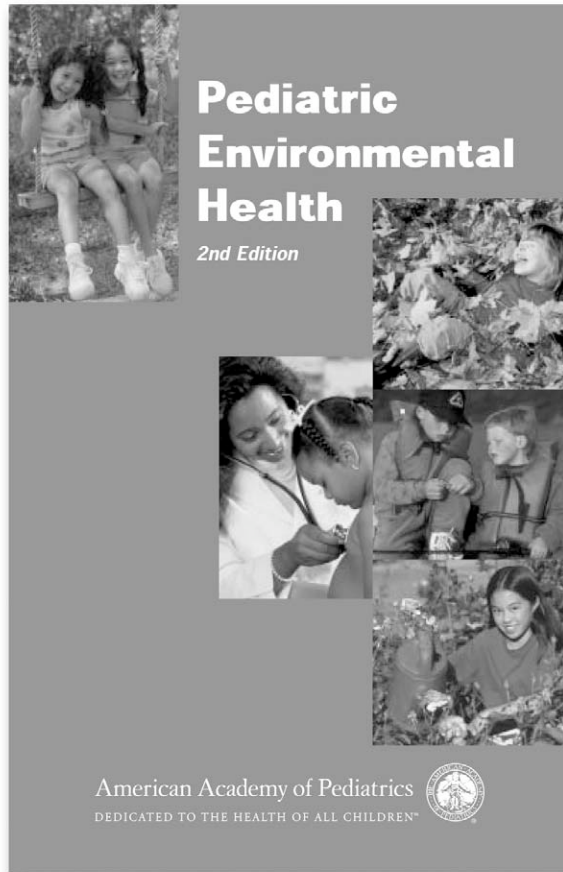
Bite Blocker will not be listed in the 2003 edition since the Academy "stays away from recommendations of any specific products," said Etzel.

If this discussion sounds like splitting hairs one must know that Etzel believes that "activists have taught pediatricians everything they know about working to prevent environmental hazards." She adds that "parents drive pediatricians by sharing questions and concerns." Indeed, parents are activists.

One can begin to imagine a wide array of pediatric interventions to prevent pesticide exposure. Will pediatricians get involved in primary prevention efforts against West Nile that eradicate mosquito larvae with non-toxic agents? Will they investigate organizations like Praxis, a Michigan-based company that uses bioremediation of pests? Fundamentally, will they help lead the charge against corporations that freely, and unnecessarily, apply toxic agents to our food?

Clearly the feedback loop of activist – parent – pediatrician – activist will go on ad infinitum, as it must. It's heartening however when

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The Green Book provides guidance to pediatricians about how to diagnose, treat, and prevent childhood diseases linked to environmental exposures.

but if it's an afternoon of fishing, use a higher concentration."

That's the kind of guidance I'd like to hear from a pediatrician. But is that the best advice available?

Parents as activists

Roberts did not specifically mention Bite Blocker, which the *NEJM* article rated as better than a 4.75% DEET product (Off's Skintastic). In the study Bite Blocker had a mean effective time of 94.6 minutes compared to just 88.4 minutes for the Off product. Bite Blocker has become the "go to" protector for many consumers seeking

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pediatricians like Etzel, Weil, and Roberts help lead the fight. They are among the movement's most important activists.

And they – and their colleagues – are responsible for perhaps the biggest coup of late, according to Etzel. She beamed when sharing the news that the Ambulatory Pediatric Association has created a three-year post-graduate fellowship in pediatric environmental health. The program began in 2001 at three hospitals – in Boston, New York, and Washington, D.C. Fellows will be out practicing in two years. “We now have a seat at the table!” she explained. “In medicine you must get specialty training programs like this to become” institutionalized.

Beyond the clinic

How refreshing to have such

enlightened pediatricians like Etzel, Weil, and Roberts fighting the good fight. One wonders how we can clone them? Etzel provides a clue.

As a junior at the University of Minnesota, Etzel was fortunate to do independent study in Zorvor, Liberia, in West Africa as part of her education. “I saw horrible disease and a lack of public health and sanitation. The needs were so great ... they called to me.” As a result of that experience she abandoned her academic interest in anthropology and chose medicine instead.

Both elements, it appears, were crucial in her development. Third-World travel and anthropology shake up our complacency and make us question our assumptions about the world. Medical education, by itself, rarely does. Its pathophysiological

focus on the body obviates a wide-angle view of our social and environmental health.

Or, as Ruth Etzel puts it: “Good medicine requires ardent advocacy. You cannot be a good doctor without it. Health doesn't take place just in the clinic. You have to go out into the community.”

Feel free to tell your pediatrician about the Green Book. Tell them that they can receive a free copy by calling 1-888-227-1770, or by e-mailing Dr. Ruth Etzel at: retzel@earthlink.net

Brian McKenna is a medical anthropologist who worked in medical education at Michigan State University for six years.

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