

Do not confine your children to your own learning
for they were born in another time.

Chinese proverb

ALLERGIES

A Sensitive Child

From cradle cap to diaper rash, very young children are prone to several types of dermatitis. Until recently, though, allergic contact dermatitis was considered uncommon among this age group. Conventional wisdom held that young children's immune systems were too immature to be sensitized to allergens encountered through skin exposure. But new research casts doubt on conventional wisdom. In a study published in the January 2000 online version of *Pediatrics* at <http://www.pediatrics.org/>, researchers from the University of Colorado Health Sciences Center in Denver demonstrate sensitization at an early age. Their study is unique in that it focuses exclusively on children younger than five years.

At any age, dermatitis symptoms include skin reddening, scaliness, blistering, ulceration, and itching. With contact dermatitis, symptoms follow skin exposure to an irritant (which can affect anyone, regardless of immunological status) or an allergen (which only affects sensitized individuals). Sensitization occurs when an

allergen seeps below the skin surface and is processed by Langerhans cells—immune system cells that carry an allergen fragment, or antigen, to T lymphocytes in the lymph nodes. When this occurs, cells called memory T lymphocytes are produced. These cells release cytokines that attract inflammatory cells, triggering dermatitis. “I think the reason why many people think that the risk of contact sensitization in children is lower than in adults has to do with the fact that people have always thought that the immune system of younger children wasn't capable of reacting to these agents,” says Bernard A. Cohen, director of pediatric dermatology at the Johns Hopkins Children's Center in Baltimore, Maryland. “And the evidence doesn't support that at all.”

The team of Colorado researchers, led by pediatrician Anna L. Bruckner, recruited 95 patients between six months and five years of age who did not have dermatitis. Each child had strips with 24 separate allergen patches affixed to his or her upper back, and the parents were instructed to remove the strips 48 hours later. Two to three days afterwards, the researchers examined the children. Of the 85 children completing the study, nearly 25% exhibited sensitivity to

one or more allergens. Nickel and thimerosal (a preservative used in vaccines) caused the most sensitization reactions, with 11 and 8 reactions, respectively. The researchers indicate that this finding dispels another misperception about sensitization in early childhood: that children have low exposure to contact allergens. On the contrary, nickel is often found in snaps, buckles, and jewelry (worn by caregivers or children themselves), and routine vaccinations ensure exposure to thimerosal.

However, sensitization does not automatically lead to dermatitis, says William L. Weston, a professor of dermatology and pediatrics at the University of Colorado School of Medicine and a coauthor of the study. “Sensitivity on the patch test system used in this study simply means you were sensitized in the past,” he explains. “Future dermatitis depends upon sufficient exposure to the offending substance.” Sufficient exposure varies individually; one person may develop dermatitis after a single exposure, another may require several contacts. Further, the time span between sensitization and repeat exposure is immaterial. “In contrast to antibody allergy, allergic contact dermatitis requires memory T lymphocytes,” says Weston. “The memory lasts 30-plus years, perhaps a lifetime.”

Of more immediate concern, allergic contact dermatitis may affect more children than expected. “This study means that allergic contact dermatitis in children is probably greater than previously suspected and occurs much [earlier] than anyone thought,” Weston states. That can be important with regard to treatment, adds Cohen. “Where it makes a difference,” he says, “is that if you don't recognize that infants and young children can develop contact allergy, then you may not look for an allergen, and you'd miss part of the treatment, which would be eliminating the allergen from the environment or avoiding it.” —Julia R. Barrett

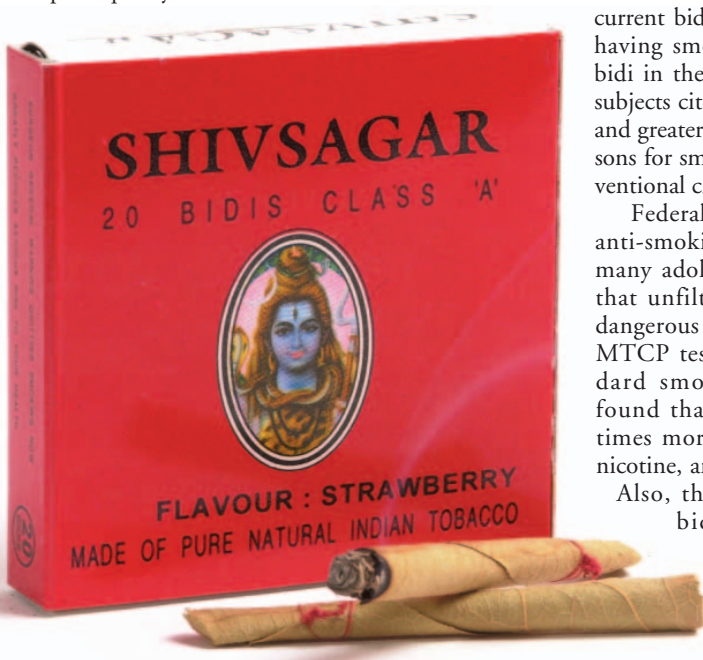


Early ouches. New research shows that children may experience early allergic sensitization from exposure to substances such as thimerosal (a component of vaccines) and nickel (found in buckles and snaps on clothing).

SMOKING

The Bidi Boom

Although most people recognize that smoking is bad for children's health, one smoking trend among teenagers and adolescents that is only recently getting the attention it deserves is the use of bidis, thin, hand-rolled, unfiltered cigarettes made with sundried tobacco that is wrapped in the leaf of the tendu, a plant grown in India's forests. Strong flavors such as vanilla, strawberry, cinnamon, and mango are added to mask the poor-quality



tobacco, and serve to make the taste appealing to children. Bidi use was first observed during the mid-1990s, but several recent reports show that their popularity among teenagers is growing—in 1999, their use nearly equaled that of smokeless tobacco. Considered the “poor man's cigarette” in India due to their lower-quality tobacco content, bidis also cost significantly less than cigarettes, an added bonus to young users. Although bidis, as a tobacco product, may not be legally purchased by minors, they are sold at places such as convenience stores, grocery stores, gas stations, smoke shops, and Web sites, and thus are easily accessible by teenagers and adolescents.

In 1999, the American Legacy Foundation, a public interest organization dedicated to reducing youth tobacco product use and substance abuse, in collaboration with the Centers for Disease Control and Prevention, measured the prevalence of tobacco use among middle school and high

school students. The study, the National Youth Tobacco Survey, revealed that 5% of all high school students and 2.4% of middle school students, respectively, smoke bidis. A report published in the 17 September 1999 issue of the *Morbidity and Mortality Weekly Report* conducted by the Massachusetts Tobacco Control Program (MTCP) assessed adolescents' knowledge and use of bidis. The report summarized preliminary data collected from a sample of Massachusetts adolescents during March and April 1999. Of the 642 youths surveyed, 40% reported that they had smoked bidis at least once and 16% were current bidi smokers (defined as having smoked more than one bidi in the last 30 days). Study subjects cited taste, cheaper cost, and greater ease of buying as reasons for smoking bidis over conventional cigarettes.

Federal health officials and anti-smoking activists say that many adolescents don't realize that unfiltered bidis are more dangerous than cigarettes. The MTCP tested bidis on a standard smoking machine and found that they produce 2–3 times more carbon monoxide, nicotine, and tar than cigarettes.

Also, the leaf used to wrap bidis is denser than paper, thus smokers must inhale more deeply and more frequently to keep a bidi lit.

The Federal Trade Commission requires that bidi importers submit a plan detailing how they are going to comply with the Federal Cigarette Labeling and Advertising Act by labeling their packs and cartons with one of the four standard Surgeon General's warnings before the cigarettes can be imported into the United States. “There may be people getting by without adequate warnings on their product, but we have asked Customs to look out for such cases,” says Michael Osteimer of the commission's division of advertising practices.

Although bidi sales are already illegal for minors, Arizona legislators have taken additional steps by specifically banning bidi sales to adolescents and increasing the penalties for illegal sales. The MTCP has said that additional research is needed to help answer other questions about bidi use such as how restrictions on sales should be enforced and about appropriate labeling of bidi packages. —**Lindsey A. Greene**

Another Reason to Grab the Top Bunk

Researchers from the Universitat Rovira i Virgili in Tarragona, Spain, have determined that sleeping in the bottom bed of a bunk bed may increase the risk of developing asthma. Their study of sibling pairs sleeping in bunk beds, published in the June 1999 issue of the *Annals of Allergy, Asthma, and Immunology*, confirmed that sleeping in the bottom bunk exposes the sleeper to higher amounts of household dust and dust mite allergens, which fall from the bedding of the top bunk as its occupant moves during sleep.

Although higher levels of dust mite sensitization and allergic respiratory disease were not measured in bottom bunk sleepers compared to top bunk sleepers, the prevalence of asthma was significantly higher in bottom bunk occupants. The researchers advise families with a history of allergies to not purchase bunk beds, or to at least put children who are sensitized to dust mite allergens in the top bunk.



Folic Acid Saves Babies in China

A public health intervention project conducted in China by the CDC's National Center for Environmental Health and Beijing Medical University has demonstrated a reduction in neural tube defects by as much as 85% in infants of women who took the recommended daily dose of 400 mg of folic acid more than 80% of the time prior to becoming pregnant. Neural tube defects include spina bifida, the leading cause of childhood paralysis, and anencephaly, which affects the brain and can result in miscarriage, stillbirth, or early death.

Study scientist Robert J. Berry stresses that folic acid intake is important for all women of childbearing age because neural tube defects occur during the first weeks of pregnancy, before many women are aware they are pregnant. Once this period of development is over, Berry says, it is too late to prevent the damage.

Eat Zinc and Be Merry

A report in the December 1999 issue of the *Journal of Pediatrics* states that children may be protected against life-threatening diarrhea and pneumonia, the leading causes of childhood death in developing countries, by consuming sufficient amounts of zinc. In the study, when children from nine countries took 5–20 mg of zinc daily for 2–46 weeks, the risk of developing diarrhea and pneumonia was reduced by as much as 25% and 41%, respectively.

The effect of zinc supplementation on diarrhea compares favorably with other intervention treatments, and the effect on pneumonia is greater than that estimated for any other intervention, say the study authors, who add that these results indicate that adding zinc to the diet of developing country populations may be an important means of improving child survival.

CLIMATE CHANGE

Peruvians Sick of El Niño

As Peruvian officials braced for the effects of El Niño in 1997, they suspected they might be hit with a rash of diarrhea cases. They were correct, as the diarrhea caseload in children doubled during the worst stretches of a 16-month period of above-average temperatures. An international team of researchers led by William Checkley, a researcher in the Department of International Health at the Johns Hopkins School of Public Health and a medical student at Northwestern University, has concluded in a study published in the 5 February 2000 issue of *The Lancet* that higher temperatures triggered a diarrhea outbreak in Lima. The study is one of the first to statistically support the long-suspected link between diarrhea and temperature. Diarrhea annually kills about four million people worldwide, mostly children.

The warming effects of El Niño were felt in Lima, a metropolitan area of about eight million people, from May 1997 through August 1998. The team compared selected

data on hospital admissions and climate factors for the El Niño period to comparable data from 1993 to 1996. During the time for which data were reviewed, 57,331 children under age 10 who were suffering from diarrhea of undetermined cause were admitted to the Oral Rehydration Unit of the 600-bed Instituto de Salud del Niño, Lima's largest public hospital for children. The team found that the historical pattern of diarrhea cases in the Southern Hemisphere—higher in summer (January–March) and lower in winter (July–September)—continued during the El Niño period. But hospital admissions jumped about 20% higher than normal during the summer and up to 100% higher during the winter, leading to an estimated 6,225 more cases than normal during the El Niño period. In the peak summer and winter months of 1997–1998, mean ambient temperatures increased up to 5°C (9°F) above normal.

Along with temperature, the team investigated a possible link with humidity, which averages an unusually high 84% in Lima's coastal setting. They found it was inextricably linked with temperature, with falling humidity strongly correlated with rising temperature.

Although the researchers speculated about the greater increase in cases of diarrhea in winter, they could not statistically test their hunches about which biological or behavioral factors may have contributed to the greater winter incidence. The team did inquire about some year-round factors other than climate that may have boosted the diarrhea caseload, which increased 8% for each 1°C (1.8°F) rise in temperature, even in the pre-El Niño years. But local health officials said there had been no changes on their part in preventive or educational efforts, and unpublished community data suggest that people were not seeking treatment at a higher rate.

The team acknowledges that some potential explanations, such as less-conscientious hygiene and changes in patterns of food availability, remain untested. And Lima's climate, where the data were collected, is distinctive enough that the same pattern may not hold up elsewhere. "It's an interesting finding that needs further study before it can be assumed to apply to other locations," says Janice Longstreth, a toxicologist and president of The Institute for Global Risk Research. —**Bob Weinhold**

CHILDREN'S HEALTH

UNICEF Reports on the State of the World's Children

The world's children are born healthier, are better protected against disease, and are educated in higher numbers than in past decades because of concerted international action focusing on the rights of children, according to a new report released by the United Nations Children's Fund (UNICEF). Looking back at recent improvements in children's lives and forward toward new challenges, the report, *The State of the World's Children 2000*, lays the groundwork for a meeting on children's rights planned in conjunction with a special session of the United Nations General Assembly to be held in 2001.

"Humanity has seen stunning advances and has made enormous strides for children," writes author Carol Bellamy, executive director of UNICEF, in the report. Among the gains is an overall decrease in mortality of children below the age of five. Through extensive vaccination, polio and smallpox have been nearly eradicated and measles has been reduced by 85%. Neonatal tetanus, a major cause of infant mortality, is down more than 25%. Providing vitamin A supplements to at-risk children has reduced blindness, and iodine supplements have lowered the incidence of mental retardation. More children are currently in school than at any other time in history.

Still, critical challenges remain, according to Bellamy. "The world has more children living in poverty than it did 10 years ago," she points out in the report. Furthermore, although mortality in early childhood has decreased throughout much of the world, some regions are seeing declines in overall expected life span, dropping to pre-1960 levels in the areas hardest hit by HIV and AIDS. The AIDS pandemic has had a double impact on children, both infecting them and destabilizing their lives by turning many into orphans. War, violence, and natural disasters in the last decade have also made the world more dangerous for children, according to the report. Wars between poor nations have increasingly included children as both

soldiers and civilian targets.

Social stratification also affects children's lives. Despite academic gains for children in general, girls around the world continue to be educated less than boys. According to Donna Petersen, an associate professor of maternal and child health at the University of Alabama at Birmingham School of Public Health, this is especially problematic because women usually make the health care and economic decisions in families. "If they don't read," she says, "it's that much harder to get the word out to families about issues that impact their health."

The UNICEF report touches only lightly on environmental issues. This is an important oversight, suggests Devra Davis, a senior scientist at the World Resources Institute. "Unlike a lot of things that affect children's health, the environment is something we can do something about directly," she says. Improving disease control, education, and childhood mortality were among the goals of children's rights initiatives set out a decade ago by the United Nations' 1989 Convention on the

Rights of the Child and the 1990 World Summit for Children. Rather than moving on from immunization and nutrition to sanitation and environmental improvement, which were also highlighted in the earlier initiatives, the current report focuses on complex, entrenched social factors such as poverty, war, discrimination against women, and the growing gap between the rich and poor as central problems that must be addressed to improve the lives of children. "Intergenerational patterns of poverty, violence and conflict, discrimination, and disease are not unconquerable," writes Bellamy. "What's more, given the resources the world has at hand, these deadly cycles can be broken within a single generation." The report calls on governments, communities, the private sector, families, and individuals to provide leadership in these areas, and sets the stage for addressing these issues at the planned 2001 meeting.

The State of the World's Children 2000, which was released 13 December 1999, is available on the UNICEF Web site located at <http://www.unicef.org/>. —**Victoria McGovern**



United Nations Children's Fund



Association François-Xavier Bagnoud

In 1989, the Countess Albina du Boisrouvray founded the Association François-Xavier Bagnoud (AFXB) in memory of her only child, a rescue pilot who died in an accident at the age of 24. Today, the association is involved in 17 initiatives for children's health and human rights in 17 countries and provides financial help through partnerships with local groups. The AFXB's Web site at <http://www.fxb.org/> serves to raise awareness of the group's work and features other organizations carrying out similar missions, including the Children With AIDS Project of America, UNICEF's Voices of Youth, and the Children's Human Rights Network of Amnesty International.

Users can learn about the AFXB's projects around the world by clicking on the map that appears by following the FXB at Work link on the home page. From this page, other information is available through four links under the Health & Human Rights heading on the left. The first link, Global Issues, features various publications and links to Web sites that pertain to the health rights of children around the world. The second link, Children's Rights, features information on programs that address topics such as the use of children as soldiers, building child-friendly cities, child labor, and various children's human rights projects. The third link, Focus: Kids & HIV, connects users to information on pediatric AIDS and HIV research programs around the world. This link also includes the Kids Connect Web site, which provides informative tools to teach children about AIDS and HIV. The fourth link, Palliative Care, gives information on training and research programs to help practitioners ease patients and their families through the death and grieving processes.



Other links under the Health & Human Rights heading lead to online reports such as *Children's Rights and Habitat: Working Towards Child-Friendly Cities* and *The State of the World's Children 1998*, both published by UNICEF. Numerous links under this heading lead to other children's health organizations, including the American Academy of Pediatrics, the Vanderbilt Pediatric Interactive Digital Library, and the World Youth Forum of the United Nations System.

The AFXB site features a news page that includes the latest international press releases addressing the AFXB's goals of protecting the rights and health of children around the world. Under the Conference Reports link in the Global Issues section under the Health & Human Rights heading, the first and second International Conferences on Health and Human Rights are highlighted along with mention of the upcoming third conference, to be held in September of this year at Harvard University.

A subset of the AFXB is the François-Xavier Bagnoud Foundation, which carries out various philanthropic activities to help abandoned children. The foundation's largest single project established the FXB Center for Health and Human Rights at the Harvard School of Public Health. The center conducts research on the health rights of children and publishes the journal *Health and Human Rights*. —Lindsey A. Greene

Poison in the Schoolyard

Although a 1989 state law ordered the California Department of Pesticide Regulation to develop regulations to protect citizens from exposures to the pesticide methyl bromide, 2.3 million pounds of the toxic chemical—associated with brain damage and birth defects—are still applied annually near schools, says a 2 March 2000 report by the Environmental Working Group.

The report provides listings of all 1998 methyl bromide use within 1.5 miles of 455 public schools in California by county and school. Computer-assisted analysis conducted by the group found that almost 70,000 California children attend 87 schools near fields that received over 10,000 pounds of methyl bromide each during 1998. The report also notes that between 1995 and 1998, use of the chemical increased by 41% near the 10 schools at greatest risk of exposure. In some areas, students face potential exposure 20 or more times per year. The state's new methyl bromide proposal would still permit application of the chemical near schools during after-school activities and community events.

Toys Still Toxic

Independent testing conducted by the National Environmental Trust and 11 other environmental and public interest groups has found that some U.S.-manufactured soft plastic toys still contain high amounts of phthalates one year after the Consumer Product Safety Commission requested that U.S. toy makers eliminate the chemicals, some of which have been banned from toys in nine European countries because of links to liver and kidney damage. Children may be exposed to phthalates when they chew or suck on toys that contain them.



Of the three types of toys the request applied to—teethers, bath toys, and squeeze toys—phthalates have been removed from only one, teethers. The 17 U.S.-manufactured bath and squeeze toys examined were all found to contain high amounts of phthalates. In addition, the trust warns, teethers manufactured outside the United States may still contain the chemicals—the testing found that eight kinds of teethers made by non-U.S. companies contained 19–55% phthalates by weight.

No More Mercury

The international coalition Health Care Without Harm awarded its first Mercury in Flight Award, which recognizes companies that pledge to end the manufacture and sale of products containing mercury, to the Rite Aid Corporation. Rite Aid, which now stocks only mercury-free thermometers in its 3,900 U.S. locations, was credited as having "set a new national standard for the protection of the environment and public health in pharmacy chains."

Mercury is a potent neurotoxicant, particularly in children. According to the coalition, over 18,000 calls were made to poison control centers and emergency rooms in 1998 because of broken mercury thermometers. Mercury released from broken thermometers into sinks and other drains may enter the environment directly, while mercury spilled onto floors can volatilize in warm rooms, thereby contaminating the air.