

Protect Children From Pharmaceutical Lindane!



Michigan Network for
CHILDREN'S
Environmental
HEALTH

Lindane is the active ingredient in some products used to treat head lice and scabies. Health professional organizations throughout Michigan have supported action to phase out pharmaceutical use of lindane in Michigan. HB 4402 allows use of lindane in pharmaceutical products in Michigan only under the supervision of a physician in his or her office.

What do government agencies and experts say about lindane?

Michigan Department of Community Health:

- “The Michigan Department of Community Health **does not recommend** the use of Lindane to treat scabies patients.”¹
- The same is true for head lice: “The State of Michigan **does not recommend** using Lindane.”²

Health professional organizations in Michigan have supported a lindane phase-out:

- Michigan Chapter of the American Academy of Pediatrics
- Michigan Council of Nurse Practitioners
- Michigan Nurses Association
- Michigan Pharmacists Association
- Michigan Association of School Nurses
- Wayne County Medical Society of Southeast Michigan

U.S. Food and Drug Administration (FDA):

- In 2003, the FDA released a public health advisory for lindane. It cited a variety of concerns, including: “In post-marketing reports, neurologic side effects occurred in patients who misused Lindane, as well as in patients who used Lindane according to labeled instructions. Among adverse events reported in the FDA database, 70% reported neurologic events including seizure, dizziness, headache and paresthesia.”³
- The Agency issued nearly identical Black Box Warnings for lotions and shampoos

containing lindane in 2003: “Lindane lotion should be used with caution for infants, children, the elderly, and individuals with other skin conditions (e.g. atopic dermatitis, psoriasis) and in those who weigh <110lbs (50 kg) as they may be at risk of serious neurotoxicity.”⁴

- An internal FDA assessment concluded: “Lindane was labeled a second line therapy in 1995 because, while it is similar in action to other approved therapies, it has a higher percutaneous absorption than other approved scabicides and pediculocides. This greater systemic exposure may translate to a greater potential for serious adverse events.”⁵

State of California:

- “Commencing January 1, 2002, any product used for the treatment of lice or scabies in human beings that contains the pesticide Lindane shall not be used or sold in the state.”⁶
- “The main source of Lindane in sewers is from the treatment of head lice and the treatment of scabies, which is a mite that can live in human skin.”⁷

U.S. Environmental Protection Agency (EPA):

- “Since 1998, the registrants have voluntarily cancelled a large number of Lindane uses, including direct treatment of livestock, pet products, ornamentals, home lawns, fallow areas, commercial food processing facilities and storage areas, greenhouses, wood

treatment, forestry, Christmas tree plantations, **military use on human skin and clothing**....”⁸

- The U.S. EPA classifies lindane as one of twenty-two “Bioaccumulative Chemicals of Concern” in the Great Lakes.⁹ New discharges of these chemicals are prohibited into “mixing zones” due to “continuing evidence that the highly bioaccumulative nature of these toxic chemicals presents a significant potential risk to human health, aquatic life and wildlife.”¹⁰
- Since 1988, the U.S. EPA has classified lindane as an “Extremely Hazardous Substance” in Section 302 of the Emergency Planning and Community Right-to-Know Act.^{11, 12}
- The U.S. EPA classifies lindane as a “Priority Pollutant” under the Clean Water Act “for the protection of aquatic life and human health in surface water....”¹³
- Lindane is included in the U.S. EPA’s Toxic Release Inventory (TRI) Program,¹⁴ which “requires facilities in certain industries, which manufacture, process, or use significant amounts of toxic chemicals, to report annually on their releases of these chemicals.”¹⁵
- “Lindane and the other HCH isomers are mobile in the environment, and through long-range atmospheric transport, are deposited in the Arctic, where they have been detected in air, surface water, groundwater, sediment, soil, ice, snowpack, fish, wildlife, and humans.”¹⁶
- All uses except pharmaceutical uses are now restricted. “On August 2, 2006, EPA announced that registrants Chemtura USA Corporation, followed by AGSCO Inc, Drexel Chemical Co., and JLM Industries, Inc., requested to voluntarily cancel all remaining pesticide registrations of the organochlorine pesticide lindane. EPA also has made a determination that the remaining uses of lindane are not eligible for re-registration.”¹⁷

U.S. Agency for Toxic Substances and Disease Registry (ATSDR):

- The U.S. ATSDR ranks lindane 32nd of the 275 substances on its list of CERCLA (Superfund) “Priority Pollutants.”¹⁸ This list reflects a “prioritization of substances based on a combination of their frequency, toxicity, and potential for human exposure at NPL [National Priorities List] sites.”¹⁹

International actions on lindane:

- “...Lindane is banned for use in 52 countries,

[and] restricted or severely restricted in 33 countries.”²⁰

- The International Agency for Research on Cancer (IARC), the premier agency on carcinogen classification, currently considers hexachlorocyclohexanes, the class of chemicals to which lindane belongs, as “possibly carcinogenic to humans.”²¹
- The United Nations Environment Programme announced the nomination of lindane to become one of five new contaminants to be added to the original 12 in the Stockholm Convention on Persistent Organic Pollutants (POPS): “Mexico is nominating the pesticide lindane together with a related group of chemicals known as hexachlorocyclohexanes. It explains that producing the 99%-pure gamma hexachlorocyclohexane needed for every ton of lindane results in six to ten tons of unusable isomers. The resulting wasteisomer problem compounds the risks posed by lindane itself.”²²
- The Rotterdam Convention adopted in 1998 includes lindane among the 39 pesticides and industrial chemicals banned or severely restricted for health or environmental reasons by participating parties.²³

Expert Opinions:

Jim Gulliford, assistant administrator for EPA’s Office of Prevention:

- “Jim Gulliford, assistant administrator for EPA’s Office of Prevention, called lindane ‘one of the most toxic, persistent, bioaccumulative pesticides ever registered.’”²⁴

Ann Heil, Senior Engineer, Los Angeles County Sanitation Districts:

- “Lindane can contaminate water resources, especially when its use is widespread. A single head lice or scabies treatment can contaminate 6 million gallons of water - and cost an average of \$4,000.00 to remove from wastewater.”²⁵

These quotations were compiled by the Michigan Network for Children's Environmental Health,
117 N. Division St., Ann Arbor, MI 48104, 734-761-3186 x115, healthykids@mnceh.org, www.mnceh.org.
Emphasis was added by MNCEH.

REFERENCES:

- 1 Michigan Department of Community Health. *Scabies Prevention and Control Manual*. Version 1.0. May 2005. Accessed 12-22-06 at: www.michigan.gov/documents/BHS_NHM_Michigan_Scabies_Prevention_and_Control_Manual_131983_7.pdf.
- 2 Michigan Department of Community Health. *Michigan Head Lice Manual: A comprehensive guide to identify, treat, manage and prevent head lice*. Version 1.0. July 2004. Accessed 12-22-06 at: www.michigan.gov/documents/Final_Michigan_Head_Lice_Manual_103750_7.pdf.
- 3 U.S. Food and Drug Administration (FDA). Center for Drug Evaluation and Research. Public Health Advisory: Safety of Topical Lindane Products for the Treatment of Scabies and Lice. 2003. Accessed 8-5-06 at: www.fda.gov/cder/drug/infopage/lindane/lindanePHA.htm.
- 4 U.S. Food and Drug Administration (FDA). Center for Drug Evaluation and Research. *Lindane Lotion USP, 1% RX Only*, 2003. Accessed 10-17-06 at: www.fda.gov/cder/foi/label/2003/006309lotionlbl.pdf and U.S. Food and Drug Administration (FDA). Center for Drug Evaluation and Research. *Lindane Shampoo, USP, 1% RX Only*, 2003. Accessed 10-17-06 at: www.fda.gov/cder/foi/label/2003/006309shampoolbl.pdf.
- 5 Mathis, L. Lindane Shampoo and Lindane Lotion: Assessment. Center for Drug Evaluation and Research 2003. Accessed 8-16-06 at: www.fda.gov/cder/drug/infopage/lindane/lindanememoassessment.pdf.
- 6 California Assembly Bill 2318, chaptered version, An act to add Section 111246 to the Health and Safety Code, relating to environmental health. Approved by Governor September 5, 2000. Filed with Secretary of State September 7, 2000. Accessed 3-5-08 at www.assembly.ca.gov/acs/acsframeset2text.htm.
- 7 California Assembly Bill 2318, chaptered version, An act to add Section 111246 to the Health and Safety Code, relating to environmental health. Approved by Governor September 5, 2000. Filed with Secretary of State September 7, 2000. Accessed 3-5-08 at www.assembly.ca.gov/acs/acsframeset2text.htm.
- 8 U.S. Environmental Protection Agency. *Lindane Voluntary Cancellation and RED Addendum Fact Sheet: Registrants' Cancellation Request and EPA's Lindane RED Addendum*. July 2006. Accessed 8-17-06 at: www.epa.gov/oppsrrd1/REDs/factsheets/lindane_fs_addendum.htm.
- 9 U.S. Environmental Protection Agency. Great Lakes Initiative, Bioaccumulative Chemicals of Concern Affected by the ban on Mixing Zones in the Great Lakes. Accessed 1-8-07 at: www.epa.gov/waterscience/gli/mixingzones/chemicals.html.
- 10 U.S. Environmental Protection Agency. Great Lakes Initiative, Fact Sheet: Final Regulation to Ban Mixing Zones in the Great Lakes. Accessed 1-8-07 at: www.epa.gov/waterscience/gli/mixingzones/finalfact.html.
- 11 U.S. Environmental Protection Agency. Chemical Emergency Preparedness and Prevention. Background. Accessed 1-8-07 at: <http://yosemite.epa.gov/oswer/ceppoehs.nsf/content/BackGround>.
- 12 U.S. Environmental Protection Agency. Alphabetical Order List of Extremely Hazardous Substances (Section 302 of EPCRA). Accessed 1-8-07 at: http://yosemite.epa.gov/oswer/ceppoehs.nsf/EHS_Profile?openform.
- 13 U.S. Environmental Protection Agency. Water Quality Criteria. Accessed 1-8-07 at: www.epa.gov/waterscience/criteria/wqcriteria.html.
- 14 U.S. Environmental Protection Agency. Toxic Release Inventory (TRI) Program, TRI Chemicals. Accessed 1-8-07 at: www.epa.gov/triinter/chemical/index.htm.
- 15 U.S. Environmental Protection Agency. Toxics Release Inventory (TRI) Program Fact Sheet. Accessed 1-8-07 at: www.epa.gov/triinter/tri_program_fact_sheet.htm.
- 16 U.S. Environmental Protection Agency. Lindane and Other HCH Isomers—EPA Risk Assessment Fact Sheet. 2006. Accessed 8-16-06 at: www.epa.gov/oppsrrd1/REDs/factsheets/lindane_isomers_fs.htm.
- 17 United States Environmental Protection Agency. *Lindane Voluntary Cancellation and RED Addendum Fact Sheet: Registrants' Cancellation Request and EPA's Lindane RED Addendum*. July 2006. Accessed on 8-17-06 at: www.epa.gov/oppsrrd1/REDs/factsheets/lindane_fs_addendum.htm.
- 18 U.S. Agency for Toxic Substances and Disease Registry. 2005 CERCLA Priority List of Hazardous Substances. Accessed 1-8-07 at: www.atsdr.cdc.gov/cercla/05list.html.
- 19 U.S. Agency for Toxic Substances and Disease Registry. CERCLA Priority List of Hazardous Substances. Accessed 1-8-07 at: www.atsdr.cdc.gov/cercla/index.html.
- 20 U.S. Environmental Protection Agency. Lindane and Other HCH Isomers—EPA Risk Assessment Fact Sheet 2006. Accessed 8-16-06 at: www.epa.gov/oppsrrd1/REDs/factsheets/lindane_isomers_fs.htm.
- 21 International Agency for Research on Cancer (IARC). IARC Monographs on the Evaluation of Carcinogenic Risks to Humans. *Overall Evaluations of Carcinogenicity: An Updating of IARC Monographs Volumes 1 to 42, Supplement 7*. Lyon, France. Last updated February 10, 1998. Accessed 10-17-06 at: <http://monographs.iarc.fr/ENG/Monographs/suppl7/suppl7.pdf>.
- 22 United Nations Environment Programme, "New chemicals for control under POPs Convention," Press Release, November 2, 2005. Accessed 1-5-07 at: www.unep.org/Documents.Multilingual/Default.asp?DocumentID=457&ArticleD=5018&l=en.
- 23 United Nations Environment Programme, Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade. Accessed 1-5-07 at: www.pic.int/home.php.
- 24 Cited in *Safer Pest Control Project News*, August 8, 2006. Accessed 8-15-06 at: <http://sppcweb.org/news>.
- 25 Davis, Stephanie. Winter 2002. Practical Waste Reduction. *Environmental Quality Management*. 12 (2): 89-95. Accessed 3-5-08 at: www3.interscience.wiley.com.ezproxy.bu.edu/journal/102526742/issue.



Network Members:

American Academy of Pediatrics (Michigan Chapter) • Arab Community Center for Economic and Social Services (ACCESS) • Association for Children's Mental Health • Autism Society of Michigan • Citizens for Alternatives to Chemical Contamination • Clean Water Fund • Clinton County Family Resource Center • Detroiters Working for Environmental Justice • East Michigan Environmental Action Council • Ecology Center • Healthy Homes Coalition of West Michigan • Learning Disabilities Association (LDA) of Michigan • Local Motion • Michigan Chapter of the National Association of Pediatric Nurse Practitioners • Michigan Coalition for Children and Families • Michigan Environmental Council • Michigan League of Conservation Voters Education Fund • Michigan Nurses Association • Science and Environmental Health Network • Voices for Earth Justice.

The Michigan Network for Children's Environmental Health is a coalition of health professionals, health-affected groups, environmental organizations, and others dedicated to a safe and less toxic world for Michigan's children. Through education, outreach, and advocacy, we seek to protect Michigan's children from adverse impacts caused by exposure to widespread hazardous chemicals.

For more information, contact Gen Howe, MPH, Environmental Health Campaign Director, at 734-761-3186 ext. 115 or Mike Shriberg, Ph.D., Policy Director, at 734-761-3186 ext. 108.

