Texas Preventable Disease NEWS

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contents:



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## INSECT REPELLENTS*

Effective insect repellents have been widely used for many years (Medical Letter, 10:55, 1968). Recently, products containing much higher concentrations of the active ingredients have been marketed in the USA, and some adverse effects have occurred.

THE REPELLENTS -- The most effective topical insect repellent known is diethyltoluamide (N,N-diethyl-m-toluamide), commonly called "deet." Deet is effective against a variety of mosquitoes, chiggers, ticks, fleas, and biting flies; no topical repellent is effective against stinging insects. Other effective repellents currently marketed include ethyl hexanediol and dimethylphthalate. Topical insect repellents are usually effective for one to several hours, but can be removed from the skin by rain, sweating, swimming, or wiping and must be reapplied to maintain effectiveness.

The insect repellents long used by the US Armed Forces include 75% deet or 65% ethyl hexanediol (RL Hooper and RA Wirtz, Milit Med, 148:34, 1983). Several products that equal or exceed these concentrations are now available commercially. The concentration of insect repellent can affect both the duration of effect and the range of insects repelled. Products containing lower concentrations of active ingredients may have to be applied more frequently, but are usually less oily and cosmetically more acceptable, and they may be safer (Table 1).

ADVERSE EFFECTS -- Deet is absorbed through the skin into the systemic circulation; about 10% to 15% of each dose can be recovered from the urine (US Environmental Protection Agency, N,N-diethyl-m-toluamide (Deet) Pesticide Registration Standard, Washington, DC:EPA, 1980). Toxic and allergic reactions have been reported, both locally and systemically. With the lower concentrations used for many years, the most severe toxicity was associated with excessive or prolonged use, particularly in infants and children. With the higher concentrations now available, brief exposure to smaller amounts has caused serious reactions in children and adults.

Toxic encephalopathy, sometimes fatal, has occurred in children sprayed repeatedly with 10% or 15% deet; the number of applications varied from ten in a six-year-old to nightly for three months in a five-year-old child (CM Zadikoff, J Pediatr, 95:140, 1979; HMC Heick et al, J Pediatr, 97:471, 1980).

Eighteen to 24 hours after use of 50% deet, ten soldiers developed burning, erythema, and blisters of the antecubital fossa, followed later by ulceration and scarring (H Reuveni and P Yagupsky, Arch Dermatol, 118:582, 1982). When 75% deet was applied to the antecubital fossa of 77 men, 37 (48%) developed blisters or erosions, followed by local necrosis and late scarring in a few (SI Lamberg and JA Mulrennan Jr, Arch Dermatol, 100:582, 1969).

Local allergic reactions, such as contact urticaria, have occurred with low concentrations of deet in both children and adults (HI Maibach and HL Johnson, Arch

*From: The Medical Letter 1985;27:62-4. Reprinted by special permission of the publisher.

Dermatol, 111:726, 1975; J von Mayenburg and J Rakoski, Contact Dermatitis, 9:171, 1983). More serious reactions have been reported with higher concentrations. Anaphylaxis occurred in one woman after touching someone else who had just applied a 52% deet repellent (JD Miller, N Engl J Med, 307:1341, 1982). One eight-year-old girl, who had developed a rash and altered behavior after a few days' use of a 15% deet repellent, had a grand mal seizure within hours of first use of another product containing almost 100% deet (EH Roland et al, Can Med Assoc J, 132:155, Jan 15, 1985).

The long-term effects of deet are unknown.

CONCLUSION -- Insect repellents can cause allergic and toxic effects in children and adults, especially when used in high concentrations. Prolonged or excessive application of any insect repellent should be avoided.

**Table 1.**
**Some Insect Repellents**

| Product | Form | Ingredients |
|---|---|---|
| **6-12 Plus** (d-Con, subsidiary Sterling Drug) | Aerosol | 25% ethyl hexanediol, 5% deet and isomers |
| | Stick | 56% ethyl hexanediol, 9.1% deet and isomers |
| **Off!** (SC Johnson) | Aerosol | 15% deet and isomer |
| **Cutter Insect Repellent** (Cutter) | Spray | 17.9% deet and isomers, 12% dimethylphthalate, 1% Di-n-propyl-isocinchonmeronal, 1% N-octyl bicycloheptene dicarboximide |
| **Deep Woods Off!** (SC Johnson) | Aerosol, pump spray | 20% deet and isomers, 4% N-octylbicycloheptene dicarboximide, 1% 2,3:4,5-bis (2-butylene) tetrahydro-2-furaldehyde |
| | Lotion | 30% deet and isomers, 4% N-octylbicycloheptene dicarboximide, 1% 2,3:4,5-bis (2-butylene) tetrahydro-2-furaldehyde |
| **Off!**(SC Johnson) | Towellettes | 32.31% deet and isomers, 1.08% 2,3:4,5-bis (2-butylene) tetrahydro-2-furaldehyde, 4.31% N-octyl bicycloheptene dicarboximide |
| **Cutter Insect Repellent** (Cutter) | Stick | 33% deet and isomers |
| | Cream | 51.75% deet and isomers, 13% dimethylphthalate, 1% di-n-propyl-isocinchomeronate, 1% N-octylbicycloheptene dicarboximide |
| **Repel** (Wisconsin) | Spray | 40% deet and isomers |
| **Deep Woods Off!** Maximum strength (SC Johnson) | Liquid | 100% deet and isomers |
| **Jungle Formula** ("Ole Time" Woodsman) | Liquid | 75% deet and isomers |
| **Jungle Plus** ("Ole Time" Woodsman) | Liquid | 100% deet |
| **Muskol** (Plough, Inc) | Spray | 25% deet and isomers |
| | Liquid, lotion | 100% deet and isomers |

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## NOTICE TO READERS

The Editor of Texas Preventable Disease News (PDN) welcomes written accounts of communicable disease and other public health problems encountered and investigated by local health professionals throughout the state. During 1985, numerous articles published in PDN were contributed by individual health care workers in Texas. The Bureau of Epidemiology encourages public health workers to share their experiences and information relating to matters of professional public health interest or concern. Previously published accounts of this nature have been favorably received by the readership. Interested authors are requested to contact the Editor of PDN for additional information pertaining to general guidelines for publication at (512) 458-7207 or Tex-An 824-9207.

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## MEETING NOTICE

This year's Texas Medical Association Annual Meeting in Dallas will highlight at least three programs of interest to public health professionals.

1. Friday, May 9, 1986

SECTION ON PUBLIC HEALTH

9:30 am - Injury Prevention: When to Educate and When Not
Leon S. Robertson, PhD, Branford, Conn.

10:30 am - Motorcycle Injuries in Texas
Linda E. Lloyd, Austin, Texas

11:00 am - Head Injury Mortality in Urban Areas
Ralph F. Frankowski, MPH, PhD, Houston, Texas

11:30 am - Evidence Contrary to the Conventional Wisdom Regarding Teenagers' Experience and Alcohol Use as Causes of Motor Vehicle Injuries
Leon S. Robertson, PhD, Branford, Conn.

2:30 pm - Occupational Disease and Injury Surveillance in Texas
Patricia A. Honchar, PhD, Austin, Texas

2:50 pm - Alcohol and Drug-Related Trauma
Ron J. Anderson, MD, Dallas, Texas

3:20 pm - Resurgence of Pertussis in Texas
Ronald G. Moellenberg, Austin, Texas

4:25 pm - Lyme Disease in Texas -- An Emerging Arthropod Borne Infection
Julie A. Rawlings, Austin, Texas

This section will be held Friday, May 9, 1986, 9:30 am - 5:00 pm, at the Plaza Ballroom C, Plaza of the Americas Hotel, Dallas, Texas.

2. Friday, May 9, 1986

SECTION ON INTERNAL MEDICINE

9:30 am - Overview of AIDS - Introduction

9:35 am - AIDS: Public Health Aspects
Charles E. Haley, MD, Dallas, Texas

9:55 am - Clinical Outcome of Patients Exposed to the AIDS Virus (HTLV-III)
Paul R. Gustafson, MD, Houston, Texas

10:15 am - Opportunistic Infections in AIDS Patients
William L. Sutker, MD, Dallas, Texas

11:10 am - Blood Transfusion Issues Related to AIDS
Jaine M. Jason, MD, Atlanta, GA

11:40 am - Panel Discussion

The morning session will present an overview on AIDS. This section will be held on Friday, May 9, 1986, 9:30 am - 12:05 pm, at the Royal Room, Fairmont Hotel, Dallas, Texas.

3. During Thursday, May 8, and Friday, May 9, a one-hour CME category I program, "The Prevention of Motor Vehicle Trauma," developed by the American College of Preventive Medicine, will be presented at 9:30 am, 12:15 pm, and 4:00 pm at the Pfizer Dialogue Mini Auditorium located in the TMA Exhibit Hall at the Fairmont Hotel.

The TMA non-member registration and attendance fee for allied health personnel is $10.00 which includes all programs.

* * *

## TUBERCULOSIS CONTROL DIVISION NOTES

**Seromycin:**

The Texas Department of Health has been informed that the manufacturer of Seromycin, Eli Lilly & Company, is unable to furnish this drug. Existing TDH stocks are almost depleted. It will be necessary, therefore, for the TDH Tuberculosis Control Division to reserve limited supplies of this drug for high priority patients who are unable to take an alternative drug.

No new patients should be placed on Seromycin, and it may be necessary to discontinue the use of this drug on patients with mycobacteria other than tuberculosis (with the exception of AIDS patients).

This is a critical situation, and the Tuberculosis Control Division has no way of knowing when, if ever, it will be resolved. The Division is working with the CDC and the Federal Drug Administration to resolve this problem.

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