

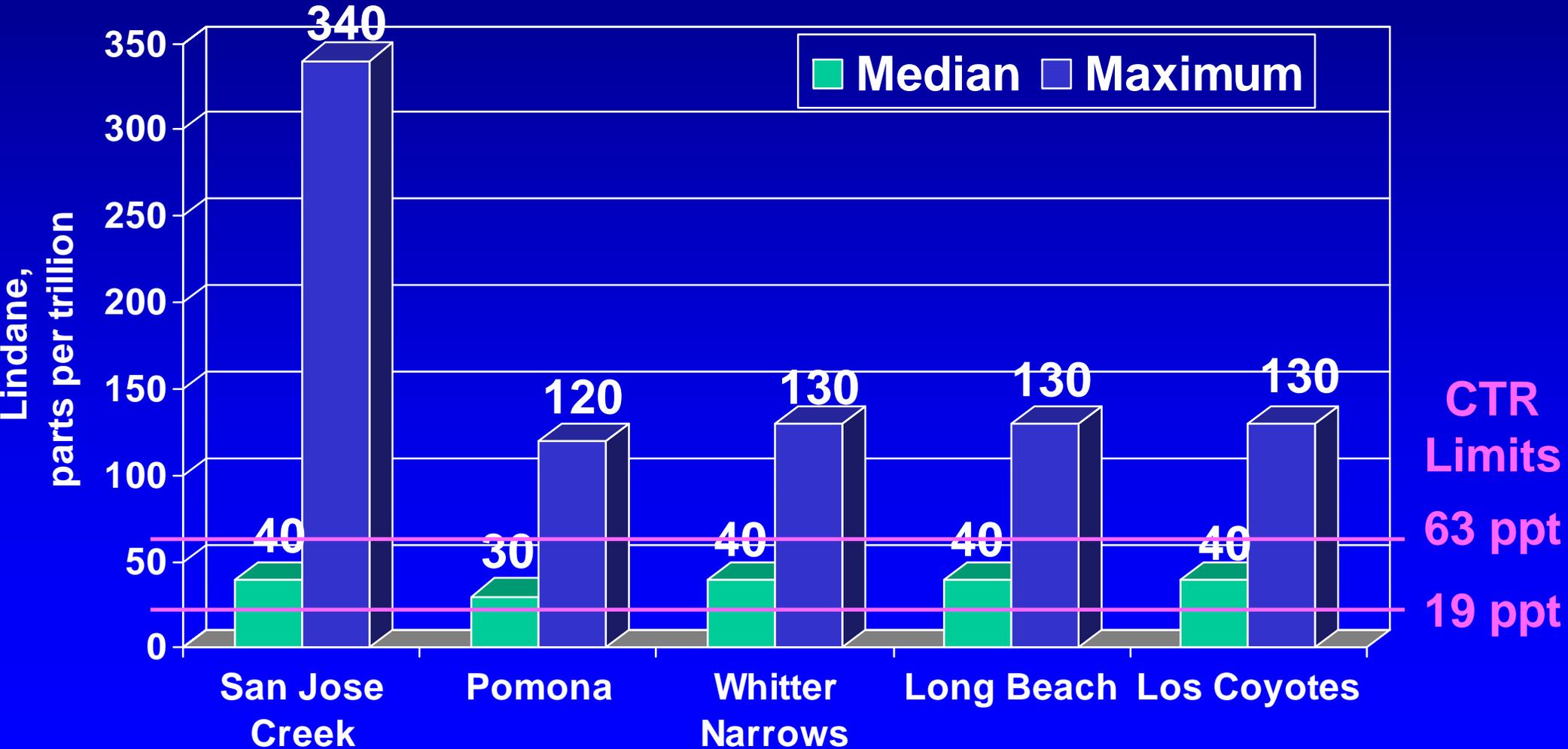
California's Pharmaceutical Lindane Ban

Ann Terese Heil, Senior Engineer

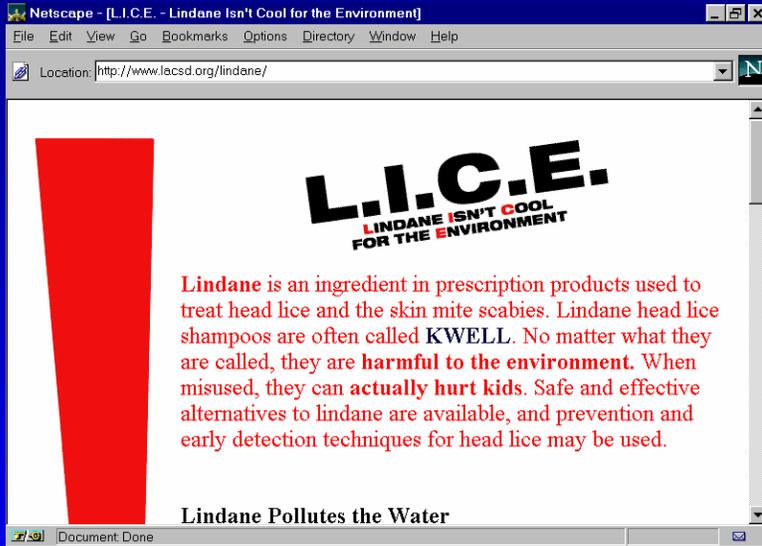
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Lindane Leaving LACSD Water Reclamation Plants, 1988-1997



Outreach Program



Lindane is an ingredient in prescription head lice shampoos. Lindane head lice shampoos are often called **KWELL**. No matter what they are called, they are harmful to the environment. When misused, they can actually hurt kids.

- A single head lice treatment with lindane pollutes 6 million gallons of water, the equivalent of 300 swimming pools.
- Lindane shampoos are rinsed off after use into the public sewers. Even after treatment, lindane passes into creeks, rivers, lakes, and oceans.
- Lindane is toxic in the water even in very small amounts.
- Lindane can contaminate fish and lasts a long time in the environment.
- The Environmental Protection Agency has declared lindane to be a "persistent, bioaccumulative, and toxic" chemical.
- Lindane is absorbed through the skin and affects the nervous system.
- A person being treated for head lice may have seizures or, in rare cases, die when lindane is not used correctly.
- Lindane belongs to the same family of chemicals as DDT and PCBs, which have been banned in the United States.
- Lindane has been banned altogether in 8 countries including Sweden and New Zealand. Many other countries do not allow the use of lindane on humans.
- In California lindane can no longer be used to treat pests on animals, yet it can still be used on our children.

No chemical treatment kills 100% of head lice and their eggs (nits). The most environmentally safe way to treat head lice is by thoroughly combing hair with a metal comb to remove lice and nits, instead of using chemicals. You can get an excellent metal comb from the National Pediculosis Association at 888-542-3654.

To prevent the spread of head lice, children should not share hats, combs, or brushes and parents should comb hair regularly with a good metal comb to catch head lice early.

FOR MORE INFORMATION CALL
(888) 558-LICE
www.lacsd.org/lindane

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Lice remedy called toxic

Lindane: Treatment of
choice pollutes water,
engineer says.



Enactment of Ban

- Assembly Bill 2318 Lowenthal
- California Health and Safety Code Section 111246
- “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.”
- No opposition on record to the bill

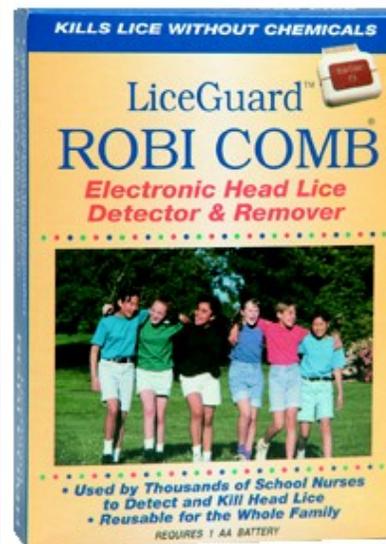


Mechanical Head Lice Treatments



MagiComb

The Incredible Mechanical Lice Comb



Head Lice Treatments - Pesticides

- Malathion (Ovide)
- Permethrin (Nix, Kwellada-P)
- Pyrethrins (R&C Shampoo, Rid, Clear, etc.)



“Non-Toxic” Head Lice Treatments

- Cream rinses
- Homeopathic
- Olive oil additive



Scabies Treatment

- 5% permethrin lotion (Elimite)
- 10% Crotamiton (Eurax)
- Oral Ivermectin (Stromectol; off-label use in US)
- Benzyl benzoate (not commercially available in the US or Canada)



Literature – Pediculicide Efficacy

Product	Killing at 20 minutes	Killing at 3 hours
Malathion (Ovide)	100%	100%
Natural Pyrethrins (A-2000)	60%	100%
Permethrin (Nix)	10%	74%
Lindane	2%	17%

Lindane is least effective on lice

Arch Dermatol
2002;
13(2)8:220-224

Literature - Comparisons

- Arch Dermatol 2002; 138(2): 220-224
“In view of extremely poor pedicuidical and ovidical activity, potential toxic effects on the central nervous system, resistance, and environmental contamination, we see no reason for continued use of lindane in the United States, and ... we strongly recommend its removal from the market.”
- Clinical Inf Dis 2003;36(11):1355-1361
“... the availability of efficacious agents with more favorable safety profiles has virtually eliminated its [lindane’s] use for lice treatment in the United States”

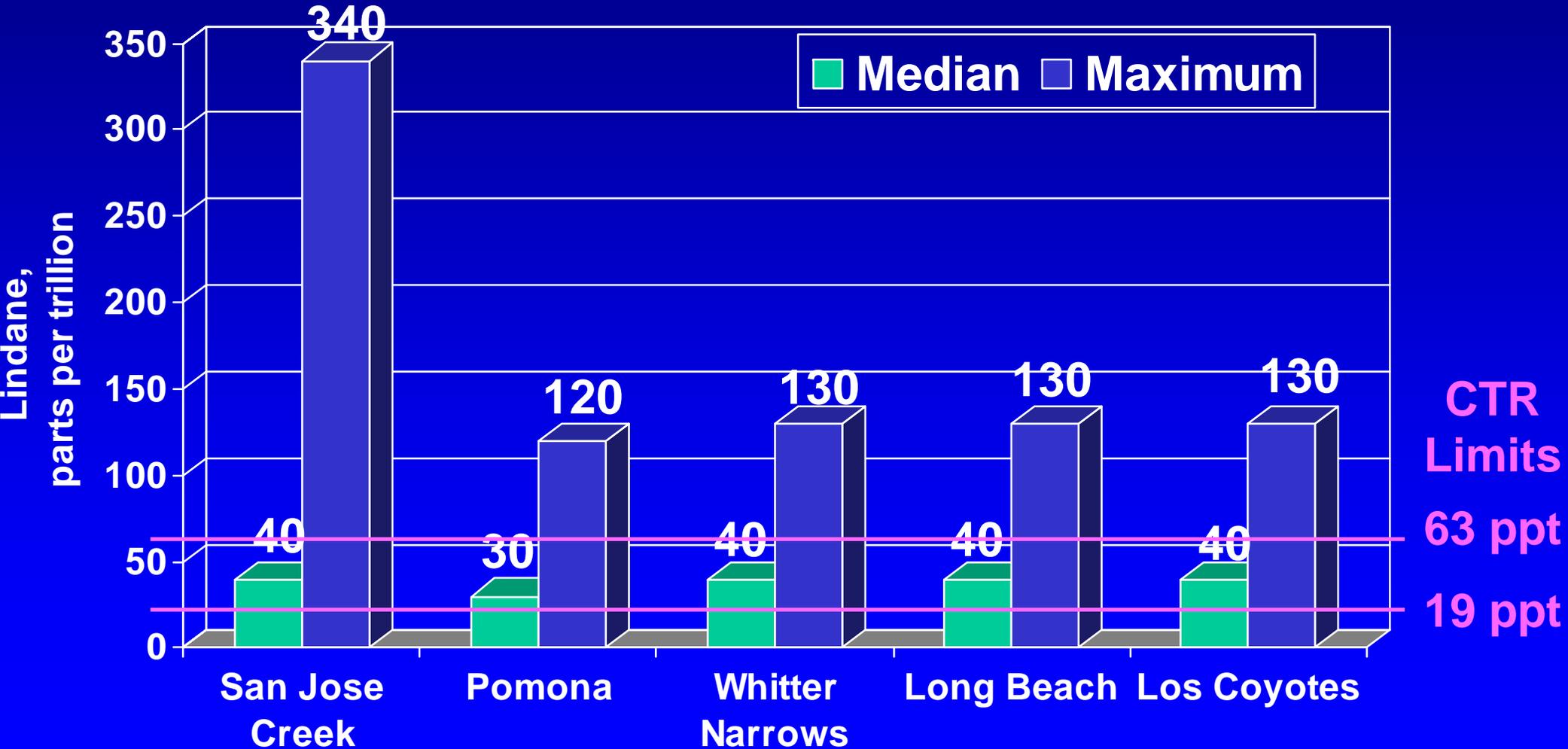
Literature - Comparisons

- Drugs 2001;61(8):1067-88
“permethrin...currently appears to have the best efficacy versus safety profile of topical treatments for scabies and lice.”
- Skin Therapy Lett. 1999;5(1):1-3
“Permethrin is generally the treatment of choice for head lice and scabies, because of its residual effect.”
- Fund. & Clin. Pharm. 2003;17(2):217
On scabies: “It’s [permethrin’s] efficacy seems slightly superior to lindane and less toxic.”

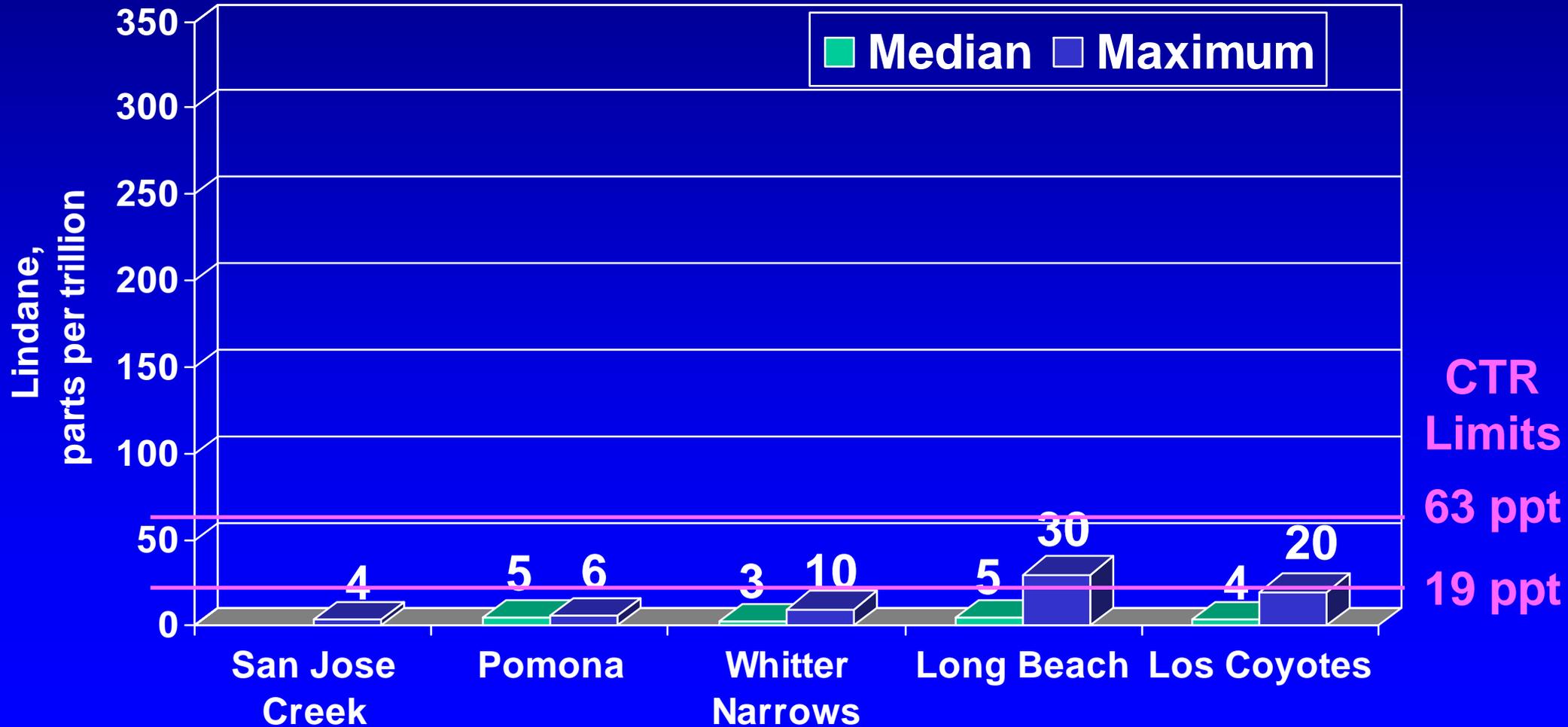
Literature - Comparisons

- Cochrane Database Syst Rev. 2000;(3):CD000320.
On scabies: “Permethrin appeared to be more effective than crotamiton for clinical and parasitic cure rates. Permethrin appeared to be better than lindane for clinical cure rates in two small trials, but had no advantage in the largest trial. Permethrin also appeared more efective in reducing itch persistence than lindane. There appeared to be no difference in clinical cure rates between crotamiton and lindane.”

Lindane Leaving LACSD Water Reclamation Plants, 1988-1997



Lindane Leaving LACSD Water Reclamation Plants, 2003



Implementation

- California Department of Health Services,
Infectious Disease Branch

Dr. Gundala Dunne :

“There haven’t been any problems with not using lindane, and no calls for its return.”

Guidelines on Head Lice Control for School Districts and Child Care Facilities, October 2001: Current product of choice is cream rinses containing permethrin.

Implementation

- California Department of Health Services, Division of Communicable Disease Control

Prevention and Control of Scabies in California Long-Term Care Facilities, Feb. 1999

“Until recently, the standard treatment was 1% Lindane (Kwell). However, the scabies mite has become increasingly resistant to this product and it is no longer recommended for the treatment of scabies. Additionally, neurotoxicity has been reported in some patients following a single application.”

Recommends use of 5% permethrin cream

Implementation

- Los Angeles County Department of Health Services, Acute Communicable Disease Control Unit

Dr. Nguyen :

The ban on lindane “for us hasn’t had much of an impact on the situation [scabies outbreaks].” The number of scabies outbreaks in Los Angeles County in 2002 and 2003 were similar to historical levels.

Implementation

- California Medical Association

Robin Flagg, Public Health

She has received no complaints about the lack of availability of lindane. “In the litany of things physicians complain to us about, this isn’t one of them.”

Implementation

- American Academy of Pediatrics, California Dist.

Chris Kalin, Executive Director

Conducted an informal e-mail survey of its pediatrician leaders around the state. Twelve replied. The “overwhelming response” was that they had stopped prescribing lindane before the ban due to low efficacy and high toxicity. There were no problems implementing the ban.

Implementation

- California Pharmacists Association

Carlo Michelotti, Chief Executive Officer:

There have been no complaints regarding the ban and it was “not even a blip on the radar.”

Physicians “moved very smoothly and seamlessly into alternatives” and there are “other products that do the job just as effectively if used properly.”

Implementation

- Kaiser Permanente (largest not-for-profit healthcare association in the US, serving over 8 million people)

Ken James, KP National Drug Information Services:

“To our knowledge there has been no issues with respect to treating lice with available over-the-counter and prescription agents. We’ve got a number of alternatives to treat lice that are being used including at least one that can be used in resistant cases. In our opinion, we haven’t heard physicians complain that they’re no longer able to efficiently treat lice now that lindane is no longer available in California.” He also has not heard of any problems related to scabies treatment.

Implementation

- California Department of Corrections

Dr. Evalyn Horowitz, Chief of Public Health

The CA Department of Corrections stopped using lindane before the ban took effect. Permethrin is used to treat scabies and a variety of products are used to treat lice. Prison medical personnel indicate that the lindane-free treatments are satisfactory.

Summary

- California's pharmaceutical lindane ban was implemented for environmental and health reasons.
- It reduced wastewater lindane concentrations to essentially zero.
- Safer, more effective alternatives to lindane are readily available and widely used.
- California has experienced no known problems with having pharmaceutical lindane unavailable for the past two years.