

# TREATMENTS FOR HEAD LICE AND SCABIES

*Many different treatments for head lice and scabies are commonly used in place of lindane*



Michigan Network for  
**CHILDREN'S**  
**Environmental**  
**HEALTH**

## HEAD LICE

### Least-toxic treatments

**Manual removal/combing** can be effective, but must be done “every three to four days for two weeks following any session in which a large, adult louse is found” (UpToDate.com).<sup>1</sup> UpToDate.com also recommends adding products containing oils or enzymes, such as cream rinse and olive oil, to hair during each session as this may aid in nit removal by combing.<sup>2</sup>

**Oil-based suffocants**, such as petroleum jelly and mayonnaise “can obstruct the respiratory spiracles of active lice, and potentially block the holes in the operculum of the eggs, thereby suffocating the louse.”<sup>3</sup> Anecdotally, some parents have treated head lice infestations with olive, tea tree, rosemary, lavender, germanium, and eucalyptus oils. While presumably safer, the efficacy of these methods has not been scientifically evaluated.<sup>4,5</sup>

**Other suffocants** can be effective. For example, Cetaphil cleanser<sup>6</sup> is a simple “[d]ry-on, suffocation-based, pediculicide lotion [that] effectively treats head lice.”<sup>7</sup> It is “applied wet and then blown dry with a hair dryer, to form an adherent film. This ‘shrink-wrapped’ film layer completely covers the louse, plugging its breathing holes and causing death by suffocation.”<sup>8</sup> Parents reported that this treatment required less time to perform than others they tried. “There were no reports of local irritation, discomfort, embarrassment, or other adverse symptoms associated with treatment.”<sup>9</sup> The cure rate has been reported as 96% and the “results are comparable or superior to the results previously reported for

treatments with permethrin, pyrethrin, and malathion.”<sup>10</sup>

**Hot air** used during “one 30-minute application” on the head has been shown to be “an effective, safe treatment and one to which lice are unlikely to evolve resistance.” The developers of hot air treatments for head lice and their associates found that their custom-built “LouseBuster was effective in killing lice and their eggs when operated at a comfortable temperature, slightly cooler than a standard blow-dryer.” It “resulted in nearly 100% mortality of eggs and 80% mortality of hatched lice.” Additionally, handheld blow-dryers have been found to be highly effective at killing eggs and moderately effective at killing adult lice.<sup>11,12</sup> Additional research is being conducted on this relatively new treatment.

### Chemical-based treatments

**1% permethrin**, an insecticide, is the only chemical treatment recommended by the American Academy of Pediatrics. It has “low toxicity for humans and does not cause allergic reaction to individuals with plant allergies.”<sup>13</sup> It comes in the form of an over-the-counter cream rinse and “can be used in children as young as two months.”<sup>14</sup>

**0.33% pyrethrins plus 4% piperonyl butoxide** is available over the counter. It “is neurotoxic to lice and has extremely low mammalian toxicity.”<sup>15</sup> “The pyrethrins have a favorable safety profile, and percutaneous absorption is minimal.”<sup>16</sup> The Michigan Department of Community Health (MDCH) recommends two applications of the

shampoo seven to ten days apart.<sup>17</sup>

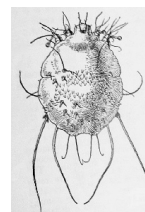
**0.5% malathion** is a highly ovicidal organophosphate pediculicide available by prescription only. The U.S. formulation of malathion is designed to deter the development of resistance.<sup>18,19</sup> Malathion 0.5% is “effective when applied for only 20 minutes. This shorter application time is safer for children and also decreases the likelihood that residual product remains in the hair, further contributing to resistance.”<sup>20</sup> The MDCH and others recommend that malathion

“should be used with extreme caution and only in cases where resistance to other products is strongly suspected” due to the risk of accidental ingestion and its high flammability.<sup>21,22</sup>

**Ivermectin** is an oral prescription drug shown to be effective and “no instances of resistance to ivermectin among head lice have been reported to date.”<sup>23</sup> Treatment for lice is off-label, though “no serious side effects have been reported.”<sup>24</sup>



Human head louse, *P. humanus capitis*



Scabies mite, *S. scabiei*

## SCABIES

### Least-toxic treatments

**2-10% sulfur ointment** contains sulfur mixed with petroleum jelly or cold cream. It is an alternative when other remedies are not advisable, such as on more sensitive patients like newborn babies, pregnant women, and nursing mothers.<sup>25</sup> It is reasonably effective (82%)<sup>26</sup> and also relatively inexpensive.<sup>27</sup>

### Chemical-based treatments

**5% permethrin** is “the treatment of choice” of the Centers for Disease Control.<sup>28</sup> Dermatologists Strong and Johnstone also recommend 5% permethrin as the treatment of choice.<sup>29</sup> It is “well-tolerated and has low toxicity,”<sup>30</sup> and “only a small amount is absorbed through the skin, and this is rapidly detoxified without retention in the body.”<sup>31</sup>

**Ivermectin** is a prescription drug requiring a single oral dose and is shown to be “as effective as lindane...[and] simpler to use” for the treatment of scabies.<sup>32</sup> In addition,

“[i]t is very effective, safe to use, cheap, and convenient.”<sup>33</sup> Treatment for scabies is off-label.<sup>34</sup>

**Benzyl benzoate** is an affordable, topical cream and “is very effective when used correctly” and has been shown to be effective with treatment-resistant scabies. “Because of the side effects and the availability of less toxic agents, this scabicide had fallen into disrepute” and is not allowed for “pregnant and lactating women, infants, and young children less than two years of age.” “However, recent studies have found it to be effective in the management of permethrin-resistant crusted scabies and in combination with ivermectin in patients with relapses after a single treatment with ivermectin.”<sup>35</sup>

**10% crotamiton** is a prescription cream that is “approximately 50-70% effective in the treatment of scabies.” However, the safety and effectiveness in children and safety in pregnant women has not been established.<sup>36</sup>

**Note:** Patients should carefully evaluate the risks and benefits of any treatment in consultation with their doctors. This fact sheet is not intended to take the place of professional medical advice.

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**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, Sierra Club Michigan Chapter, Voices for Earth Justice.

**Our Mission:** Through education, outreach, and advocacy, we seek to protect Michigan's children from adverse impacts caused by exposure to widespread hazardous chemicals.

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