

Faculty Discussion: Definitive Management of Head Lice in the Era of Pediculicide Resistance

The following are highlights from a teleconference among the faculty that took place on May 26, 2004. Elliot F. Ellis, MD, affiliate professor of internal medicine at the University of South Florida, St. Petersburg, moderated the discussion.

Ms Meinking: My first comment is about Dr West's statement that schools can lose funding when children are absent because of no-nit policies. From our research, we are aware of schools in poor districts that were losing millions of dollars in state funding because of absenteeism from lice infestations. After discovering that infestations were not being controlled, putting schools at continual financial risks, the state is no longer penalizing schools and is simply ignoring no-nit policies.

In the regions where we have done our research, lice infestations are so bad that people use veterinary products. Ivermectin, which is a systemic option to failed topical treatment, has been used in this population very effectively and safely. We have used it to treat children and have had very good outcomes. Another topical option is Hair Clean 1-2-3, which is an OTC [over-the-counter] product. It has a 15-minute application time and produces good results.

Dr Hansen: It's also flammable, isn't it, Ms Meinking?

Ms Meinking: Yes, it is flammable because it has a high alcohol content. One reason we investigated this product is because people use all kinds of occlusive products, such as mayonnaise or olive oil. We heard reports of children getting food poisoning because mayonnaise was applied to their hair and left on overnight. We decided to review alternative therapies, including occlusive agents and Hair Clean 1-2-3. The

problem with food items such as mayonnaise is that they become a growth medium for bacteria. Also, they are messy; when they reach body temperature, they begin to drip down the neck. Unfortunately, they have no effect on lice. When we removed the mayonnaise from our patients' heads, the lice were unaffected and were able to crawl. So the idea that mayonnaise immobilizes lice isn't true. Another product that is marketed OTC and claims to kill both lice and eggs on contact is Lice Free!, a sodium chloride product. I was hired by a company that wanted to purchase this product and asked me to evaluate its efficacy. Another evaluation was performed by David Taplin. We both found that the product did not work. Since Lice Free! has such impressive advertising and packaging, I called the FDA [Food and Drug Administration] to ask how the manufacturers could make claims that the product killed on contact when it does not. The FDA responded that the product is considered to be holistic, so it is not regulated as closely as pharmaceutical products, for example.

Dr Ellis: Yes, many nutritional stores and their products are exempt from certain FDA regulations.

Ms Meinking: Another product that was mentioned is the shampoo with tea tree extract. You can also purchase tea tree oil and put it into shampoo, although it is expensive. It can be an irritant. Outside the United States, I have found it packaged with a skull-and-crossbones label.

Dr Hansen: Ms Meinking, would you tell us more about Hair Clean 1-2-3? I think that's one product that many practitioners aren't as familiar with as school nurses are. I

haven't been able to find it in nutrition stores.

Ms Meinking: It is made by a company in Eugene, Oregon, called Quantum. At one time it was carried by Walgreens, Eckerd, and many chain drugstores. But it did not sell very well and was removed from the shelves. It's now available at some health food stores.

Dr Hansen: And you believe it probably has an efficacy rate of over 70%? Are 2 applications used?

Ms Meinking: Yes. There is a 15-minute application period, and it's a nonaerosol spray. It has good ovicidal properties and efficacy of more than 70%. It should be applied twice. I have reviewed the product data and was impressed by it. But this product is 40% alcohol and is flammable, although it doesn't have a flammability label on it.

Dr Hansen: I spent 10 years in pediatrics before I went into dermatology, and I was very concerned about organophosphates. All of these products are insecticides, and I understand why pediatricians shy away from them. But there's been no toxicity with malathion. Frankly, even field exposure to aerosolized malathion produces less mammalian toxicity than many other insecticides. The liquid formulation really is so safe when used as directed. I don't think the organophosphate part of it is even an issue. The flammability is, but if it is used as directed, and if you use a shortened application time....

Ms Meinking: Yes. For 20 minutes. You could have a child sit for 20 minutes and watch him. You could put on a video to keep him entertained.

Dr Hansen: Most children could sit still for 20 minutes. You want to be careful.

Dr Frankowski: Right, but can the mother not smoke a cigarette for 20 minutes?

Dr Hansen: The product is labeled with an international sign with a flame. Since

malathion is a prescription product, patients receive instructions from the pharmacist. There's only so much you can do. Ms Meinking's new data says all of the live lice were killed in 10 minutes. You could treat twice using 10-minute applications.

Ms Meinking: Yes, I followed a child who had only an 8-minute application of malathion, and she had no lice after 2 weeks.

Dr Hansen: But you're trying to kill the nits, really. Your study was aimed at a 20-minute period. That's not very long, really, and takes care of the flammability issue. I think pediatricians are still alarmed by the labeling regarding flammability.

Ms Meinking: Yes, I do, too. I think 10 minutes would work [to kill the nits]. I conducted a study in Panama where everyone lived in a thatched hut. They had their cooking fires inside the thatched huts. Malathion was applied and left on overnight and with no shower cap or head covering. But as I was applying it, for the 10 minutes or so that it took to saturate hair, I could actually see the nits just collapse. Malathion just dehydrates them.

Dr West: There are several things that would help us control the treatment. If you shorten the treatment time and supervise patients, then you can use a product that has a fast and high kill rate.

Dr Frankowski: If physicians begin to prescribe shorter application times for malathion and supervise treatment, so more people begin to feel comfortable using it, what are the chances of malathion resistance occurring?

Ms Meinking: Lice shouldn't become resistant to malathion with the short application and its fast action. Also several other ingredients in OVIDE have pediculicidal properties. Malathion resistance has been documented elsewhere in the world, but resistance to OVIDE has not been documented.

Dr Hansen: So there's malathion resistance

elsewhere but no OVIDE resistance in North America?

Dr Frankowski: Because of the vehicle?

Ms Meinking: Exactly. The terpineol and dipentene are active ingredients.

Dr Hansen: Yes, but the problem with promoting short application times is that the labeling has not been changed. I've been prescribing short application of malathion for my patients for 3 years. But the pharmacist won't tell patients they can do that because it is an off-label use. It would take a lot of money to conduct new studies for the FDA to support a labeling change. That would be the sensible thing to do, though, to eliminate pediatricians' worries about absorption and flammability. Those disappear if you're only applying it for 20 minutes.

Dr Frankowski: Right, that would make a big difference.

Dr Hansen: That's what we should be doing—using shorter applications. If you use malathion for only short periods, then it would not be necessary to use systemic agents. As a pediatrician, I have a basic problem with giving systemic agents like trimethoprim/sulfamethoxazole, or even ivermectin, to treat an ectoparasite. You have to build it up in the child's bloodstream so feeding on the blood kills the louse. It works, but I think it's the wrong model for treating ectoparasites. It's different if you're treating crusted scabies, which is a morbid disease. But to give ivermectin to every child in the country with head lice seems to me an odd model for treatment.

Dr Frankowski: I'd like to highlight Ms Schoessler's comments that school nurses can act as case managers for families that have persistent problems. Then we could be selective about using these other products. Otherwise, everyone wants the easy, first-line treatment. If the school nurse can perform selective screenings of symptomatic children, rather than school-wide screenings, that would be really helpful.

When the AAP [American Academy of Pediatrics] statement came out against no-nit policies, school nurses were outraged. They thought no-nit policies were the best course of action. But there was a case of a child who had long-term head lice from kindergarten on and had never been lice-free. The school nurses realized that the child would be home all of the time, so they began to act as case managers for her. A nurse would come in every morning, 10 minutes before school, and comb out the child's hair and eliminate the lice they found. No other child was infested because the nurses managed the case so thoroughly. Interestingly, everyone assumed the girl had resistant lice. But she was eventually sent to foster parents who were able to follow instructions for an OTC pediculicide, and the child was lice-free after only 1 week.

Ms Schoessler: Yes, family plays a pivotal role. The school nurse or teacher can have a difficult time trying to figure out if the problem is because of resistant lice or treatment failure. That's a huge issue in the school. Unfortunately, the school nurse can't go home with every child to see what the family is doing.

Dr Hansen: But you could apply the malathion for 20 minutes at school.

Ms Schoessler: Well, that becomes an interesting issue because most school nurses are not based at health clinics. We also need to be aware of the legalities of scope of practice for school nurses.

Dr Hansen: Ms Schoessler, what percentage of the school districts in the country do you think have a no-nit policy?

Ms Schoessler: I don't have that information, but I have begun to see schools move away from no-nit policies.

Dr Hansen: If I'm not mistaken, almost 4 years ago in California, about the time they banned lindane, they also instituted a no-nit policy for the whole state.

Ms Schoessler: States may adopt policies

based on the prevalence of infestations in the state. I live in a northern state, so the decline in no-nit policies may have something to do with a lower prevalence of infestations. Some nurses that I speak to who live in southern states deal with the head lice issue differently than we do in the northern areas.

Dr Hansen: I think that someday no-nit policies will be tested for legality. School health law generally requires a compelling reason to exclude a child from school. There must be a public health interest. That is why a child who is HIV-positive cannot be excluded; the disease cannot be easily transmitted, so there is no public health risk. Attending school is actually a property right. Excluding a child is like taking away a car, a house, the child's educational future. It's money out of the child's future if they send him home from school without a compelling public health reason. That's why we don't exclude children for viruses that cause much greater morbidity than head lice. Even juveniles who have been incarcerated have the right to come back to school.

There is no compelling public health reason to exclude a child from school because of lice. The National Pediculosis Association has influenced everyone to adopt no-nit policies. They were well intentioned, but they were wrong. I don't think these policies would stand legal testing. A lawsuit is the only way we're going to get it changed at a policy level. Otherwise, it's going to be school district by school district. As you said in your presentation, Ms Schoessler, the administrators come under pressure, and then they pressure school nurses and teachers.

Ms Schoessler: The National Association of School Nurses [NASN] published a position

statement against no-nit policies in 1999, and it's being updated now. The statement continues to support the point that nit-free policies disrupt the educational process.

Dr Hansen: But some nurses at the local level still feel the pressure.

Ms Schoessler: It's a highly charged subject. If I call parents to tell them that their child has strep throat, where there still are complications in this day and age, I get a completely different reaction than if I call to say, "Your child has head lice." It's so emotionally charged.

Ms Meinking: It can have serious consequences. I've seen parents lose their jobs because they missed work to care for their child who was sent home from school. If a child has repeated infestations, some parents are reported to Health and Human Services by the school.

Dr Frankowski: I think, too, this speaks to the importance of the AAP partnering with the NASN to make sure that we have sound policies and procedures for people to follow. We need to be able to say to parents who are angry, "Let me show you what the guidelines say." It's very valuable to have procedures in print and to be able to calmly and rationally say, "Let's look at this, let's keep everybody's dignity and everybody's best interest at heart, but this reflects the best interests of all students."

Dr Hansen: I can't agree with that more. The Academy's position has been in place since 1972, and the NASN policy has been available since 1999. But I think most school districts in the country still have no-nit policies.

