The enuresis alarm is a highly effective component of treatment to overcome vexing nocturnal enuresis, which affects approximately 5 million children in the United States. An enuresis alarm helps a sleeping child respond to a full bladder by means of a moisture sensor attached to the child’s underwear or a pad on the bed, and that triggers a sound or vibrating alarm that wakes the child so that he can stop urination until he can get to the bathroom. Wearable alarms are more common than either wireless, or bell-and-pad, models.

The literature provides little practical advice for pediatricians to help children and parents overcome problems that can arise with the use of an alarm system. In this article, I outline strategies that will help your young patients optimize treatment using an enuresis alarm.

**Problem #1: The alarm fails to awaken the child**
During the first days or even weeks of treatment with an enuresis alarm, a child may not awaken to even the most piercing alarm. Although this problem typically improves, parents initially must be prepared to wake the child and make sure he is sufficiently awake to go to the bathroom and cooperate with a change of bedclothes before going back to sleep.

I request that, if possible, one parent sleep in the child’s room for one or two weeks at the beginning of treatment, to help the child awaken promptly to the alarm. I advise parents who are unable to sleep in the child’s room to use a baby monitor or intercom to make sure they hear the alarm and quickly get to the child’s room.

**Problem #2: The alarm fails**
The two most common causes of alarm failure lie in the moisture sensor: either it does not get wet or it detaches from the child’s underpants during the night. The correct position of the sensor is the front of a boy’s snug-fitting underpants, and the crotch of a girl’s similarly snug-fitting underwear. If the alarm fails to sound when the child wets, the position of the sensor should be checked. Boxer or baggy shorts and loose-fitting pajama bottoms should not be used with a bedwetting alarm.

A snap-on sensor is more likely to loosen from the underpants during the night than one attached by a clip, often because underpants are too thick, as with the double-thickness crotch common in girl’s underwear. If the snap-on sensor itself becomes loose, try pushing the “female” end of the fastener together. If these measures fail to correct the problem, I instruct parents to investigate less common causes of alarm failure, such as a weak battery, dirt on the sensor, or alarm malfunction. If all else fails, have the parent ask the manufacturer to replace the device.

**Problem #3: The child disables the alarm**
In some cases, the child may awaken enough to detach the sensor, and then fall back to sleep before getting to the bathroom. This can happen so quickly that parents may not hear the alarm. Clip-on sensors may solve this problem, because they are more difficult for the child to detach. If a snap-on sensor is used, wearing a second pair of underpants over the first makes detaching the sensor more difficult for the child. If a wireless alarm is used, the parent can place the alarm unit across the room, which discourages the child from prematurely turning off the alarm because he (she) has to fully get out of bed to turn it off.
Problem #4: The alarm unit is uncomfortable
The alarm on a wearable device typically attaches to the child’s undershirt or pajama top near the shoulder area. The child may complain that the alarm unit tugs at his clothes, or that the plastic box pushes against his chest. One solution to these complaints is to switch to a wireless or a bell-and-pad model that frees the child from a device attached to his bed clothes. A second solution is to position the alarm unit between two undershirts on the child, so that the inside shirt acts as a barrier between alarm unit and the skin.

Problem #5: False alarms occur during the night
False alarms, although uncommon, usually have an easily identifiable cause. Moisture sensors typically work by conduction. The sensor is a two-part metal apparatus with conductivity interrupted by the dry underpants fabric between the two parts. Moisture, either urine or sweat, provides conductivity that triggers the alarm. If the fabric of the underpants is thin or torn, however, the metal sensors may touch, thereby triggering the alarm even though the underpants are dry. Ask parents to make sure that the underpants used with the sensor are not worn out.

Because perspiration also can moisten the sensor and set off the alarm, have the parent of a child who tends to perspire at night keep the child’s room at a lower temperature, or have the child wear a second pair of underpants inside the pair with the sensor.

A girl who has an episode of vaginal reflux can leak a small amount of urine after she goes to sleep, setting off the alarm. The child can be taught to separate her legs when she voids, or sit backward on the toilet. False alarms can also occur if the battery is low, the sensor is dirty, or the alarm malfunctions.

Problem #6: The child wets the bed more than once a night
Nothing does more to exhaust and discourage a child undergoing alarm therapy than waking more than once to the alarm during the night. I address the situation by including the following steps to the treatment plan:

- Have the child void 30 minutes before bedtime and again right before he gets into bed, to ensure an empty bladder at bedtime.
- Have the parents wake the child and take him to the bathroom before they go to bed. The child can be awakened twice, if necessary, before his parents go to bed.
- Encourage the child to restrict his fluid intake after dinner.
- Add a medication, such as desmopressin, to the program.

Problem #7: The bed has to be remade
Changing wet bedding in the middle of the night is a consequence of using bedwetting alarm. One solution is to use disposable underpads similar to the blue pads used in hospitals, which ease the task of managing soiled bedding. Parents can make the bed in this order: mattress, waterproof cover, sheet, underpad, sheet, underpad, sheet, blanket. When the child wets the bed, the parent can remove the wet top sheet and underpad and leave the dry ones in place. Such a setup allows three episodes of wetting in one night before the bed has to be remade. (The blanket may need to be replaced more frequently.)

Problem #8: The child does not recall that she was wet
A child who awakens to the alarm and cooperates with her parents may later forget having done so. She may wake up in a dry bed in the morning, only to be told that she was wet during the night. The child may argue and insist that she was dry.

I address this problem in an anticipatory way by explaining at the start of the program that she may not remember the alarm going off, going into the bathroom, or her parent changing bedding. If she insists that she has been dry, I ask the parents to put a note by the child’s bed after the incident to serve as evidence in the morning.

Problem #9: The alarm wakes siblings
A child undergoing alarm therapy for nocturnal enuresis must use his own bed. Parents should move any sibling sharing a room with the patient to a bed or sleeping bag in another room for the duration of the treatment. If the sibling in another room is bothered by the alarm, parents can create white noise in the sibling’s room with a radio at low

Revised 6.1.2017
Disclaimer: These guidelines are to help the caretaker with treatment at home. However, if you are ever concerned about your child’s health, you should see a physician in person.
Problem #10: The child no longer cooperates
A child who lacks motivation to stop wetting the bed is unlikely to benefit from treatment that involves an enuresis alarm. A lack of early progress can discourage even a motivated child; so, too, can an episode of wetting the bed after a long run of dry nights. Here are tips to help a child stick with the program:

- Ask the child to maintain a calendar-based diary to describe each night as either dry or small wet (wet underpants, dry bedding) or large wet (wet underpants and bedding). Such a diary can help the child track his progress. For example, a child who may be discouraged by having few dry nights several weeks into treatment can be reassured that he is, in fact, having more small wets than when the program began.
- Give children weekly rewards while they are undergoing alarm therapy. These rewards are for cooperating with the program, not for dry nights. Examples include an extra hour of television or computer time, a special outing project with a parent, picking out a movie on the weekend, or an extra portion of dessert.
- Before beginning the program, ask the child the name of an athlete she looks up to. If the child is discouraged by the lack of progress, remind her how hard and long the athlete worked to be at the top of his or her game.

### Comparing selected bedwetting alarms

<table>
<thead>
<tr>
<th>Alarm</th>
<th>Strengths</th>
<th>Weaknesses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Malem (Malem Medical)</td>
<td>Clip-on sensor is secure</td>
<td>Difficult for some children to turn off alarm</td>
</tr>
<tr>
<td></td>
<td>Vibrating and sound alarms available</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Two steps needed to turn off alarm</td>
<td></td>
</tr>
<tr>
<td>Nite Train-r (Koregon Enterprises)</td>
<td>None</td>
<td>Moisture sensor may be uncomfortable</td>
</tr>
<tr>
<td>Nytone (Nytone Medical Products)</td>
<td>Alarm unit attaches to wrist</td>
<td>Moisture sensor may loosen during the night</td>
</tr>
<tr>
<td>Potty Pager (Ideas for Living)</td>
<td>Wireless alarm; vibrating alarm won’t wake siblings</td>
<td>Unreliable alarm; vibrating alarm will not wake parents</td>
</tr>
<tr>
<td>SleepDry (Starchild Labs)</td>
<td>Moisture sensor attaches easily with snaps; alarm is loud</td>
<td>Moisture sensor may come loose during the night</td>
</tr>
<tr>
<td>WetiX (Z-Pack, Inc.)</td>
<td>Wireless alarm</td>
<td>Expensive; unreliable alarm</td>
</tr>
<tr>
<td>Wet-Stop 2 (Palco Labs)</td>
<td>Alarm unit attaches easily with magnetic clasp</td>
<td>Moisture sensor difficult to use; alarm may be muffled if child sleeps prone</td>
</tr>
</tbody>
</table>