by Gina Pera

ADHD Never But Children and Adults with

IT'S MIDNIGHT. IF RAJ STAYS UP MUCH LATER, HE WILL BE USELESS AT WORK TOMORROW.

He is already one careless mistake from losing his job. Against all logic, this highly intelligent computer scientist fights both the internal command ("go to bed now") and encroaching fatigue. "It's not that if I went to bed, I could not fall asleep immediately. I could. It's that I will actively *refuse* to go to bed," he explains. "Instead, I will endlessly scan the Internet, as though my life depends on finding the newest headline. Next thing I know, I awaken at three o'clock in the morning with my head on the keyboard, having won the battle but lost the war." Recently diagnosed with ADHD, Raj had no clue that this is a common pattern with other adults who have ADHD until he talks about it at the local CHADD group.

At eight-year-old Adrianna's home, nighttime can turn nightmarish very quickly. "Just ten more minutes!" she will desperately plead. Her parents usually relent rather than increase sleep-wrecking tension for the entire household. (Adrianna might be tiny but she is *determined*.) The family's therapist attributes the bedtime dramatics to oppositional defiance. In other words, complying with bedtime routines might simply be another thing the child refuses to do without a battle. Adrianna's mother has her doubts: "From the time she was a small baby, my girl had trouble 'settling down' and going to sleep. So unlike her older brother. And when she finally did go to sleep, the slightest noise could awaken her. I figured she had unfortunately inherited my light sleeper disposition, but now I see that for both of us, ADHD might have more to do with it than I ever suspected."

Forty-three-year-old Janelle never attributed her own internal bedtime battles to ADHD, diagnosed five years ago, until a recent surprise discovery. "I've always tended to get really ramped up right after climbing into bed, even if I was dead tired only thirty minutes earlier," she explains. "It was as though all the thoughts I never had time for throughout the day's whirlwind hit me as soon as my head hit the pillow. At least that's how I explained it to myself. Of course, I must admit I typically had little trouble going to sleep if I was getting up the next morning to do something *fun*." The sleeping pills Janelle's physician prescribed left her too groggy the next day. A revelation came when one afternoon, facing a long drive home after a business dinner, she took a "booster" dose of her long-acting stimulant medication. "I fully expected to be kept awake for hours, but instead I fell asleep much faster than I usually do," she says. "Plus, I felt more rested the next morning than I have in decades."

Gina Pera *is the author of the award-winning book* Is It You, Me, or Adult A.D.D.? Stopping the Roller Coaster When Someone You Love Has Attention Deficit Disorder. *She is currently researching her next book,* The ADHD Roller Coaster Guide to Sleep.

These stories illustrate only a few of the myriad ways in which ADHD can affect sleep in both children and adults, creating a sleep deprivation that can both intensify ADHD symptoms and make them harder to treat. (Read the story of one late-diagnosis adult in the Lived Experience column in this issue.)

It is estimated that about eighty percent of people with ADHD struggle with sleep. In fact, 1980s-era diagnostic criteria for ADHD included "restless sleep," later dropped because the causes were deemed "nonspecific." Recent research, however, is zeroing in on ADHD's *specific* potential effects on sleep. As with ADHD symptoms themselves, these effects are highly variable. In other words, don't expect one-size fits-all remedies. Not melatonin. Not sleep medications. Not a double shot of scotch. Instead, know that specific challenges require specific treatments. And that's the critical piece when it comes to ADHD and sleep.

A July 2010 survey of child psychiatrists highlighted insomnia as a major problem among children in mental health treatment, with at least a quarter of these patients receiving sleep medication, ranging from antihistamines to sedating medications for ADHD (such as alpha-agonists like clonidine) and antidepressants (trazodone). The trouble is, we have little data about these medications' safety and effectiveness in treating this population. Behavioral-developmental pediatrician Judith Owens, a sleep expert with Hasbro Children's Hospital in Rhode Island who conducted the study, has called for better evidence-based understanding of appropriate treatment.

Clinical child psychologist Reut Gruber agrees on the need for better guidelines, pointing out that pediatricians and psychiatrists generally have not received good education about sleep. "They do not have the background or the tools they might need to make a good diagnosis," she says. "The first step will be to arrive at a good diagnosis, and then to make sure that you have tried every strategy possibly before resorting to medication. That is, medication can be useful but you need to be clear about why you're using it." In her work at McGill University's Douglas Institute, Gruber is researching the role of sleep in ADHD and the genetics of sleep.

Sleeps *ADHD Can*

The issues

What then are the issues, specifically, that can come between people with ADHD and their ability to consistently get a good night's sleep? It boils down to four categories:

1. Difficulty going to bed.

Can you physically get yourself to bed no matter what

- video remains unviewed on YouTube?
- chores and tasks remain left undone?
- delicious silence hangs in the house?
- burst of energy comes to you when the sun goes down?

2. Difficulty falling asleep.

Can you nod off at the designated hour within a reasonable amount of time without

- hyperactive thoughts flooding your brain?
- knowing that the slightest sound or slimmest shaft of moonlight might awaken you (it usually does!)?

3. Staying asleep (or sleeping peacefully).

Once you fall asleep, will your sleep be disturbed by

- the slightest noise or slimmest shaft of moonlight?
- tossing and turning until you're tangled up in the sheets?
- restless legs syndrome or sleep apnea? (Note: These are specific sleep disorders but commonly co-existing with ADHD; they are most reliably diagnosed through sleep studies, which might include a polysomnogram or a home-based portable monitor.)
- unaddressed allergies that leave you with a stuffy nose that obstructs breathing?

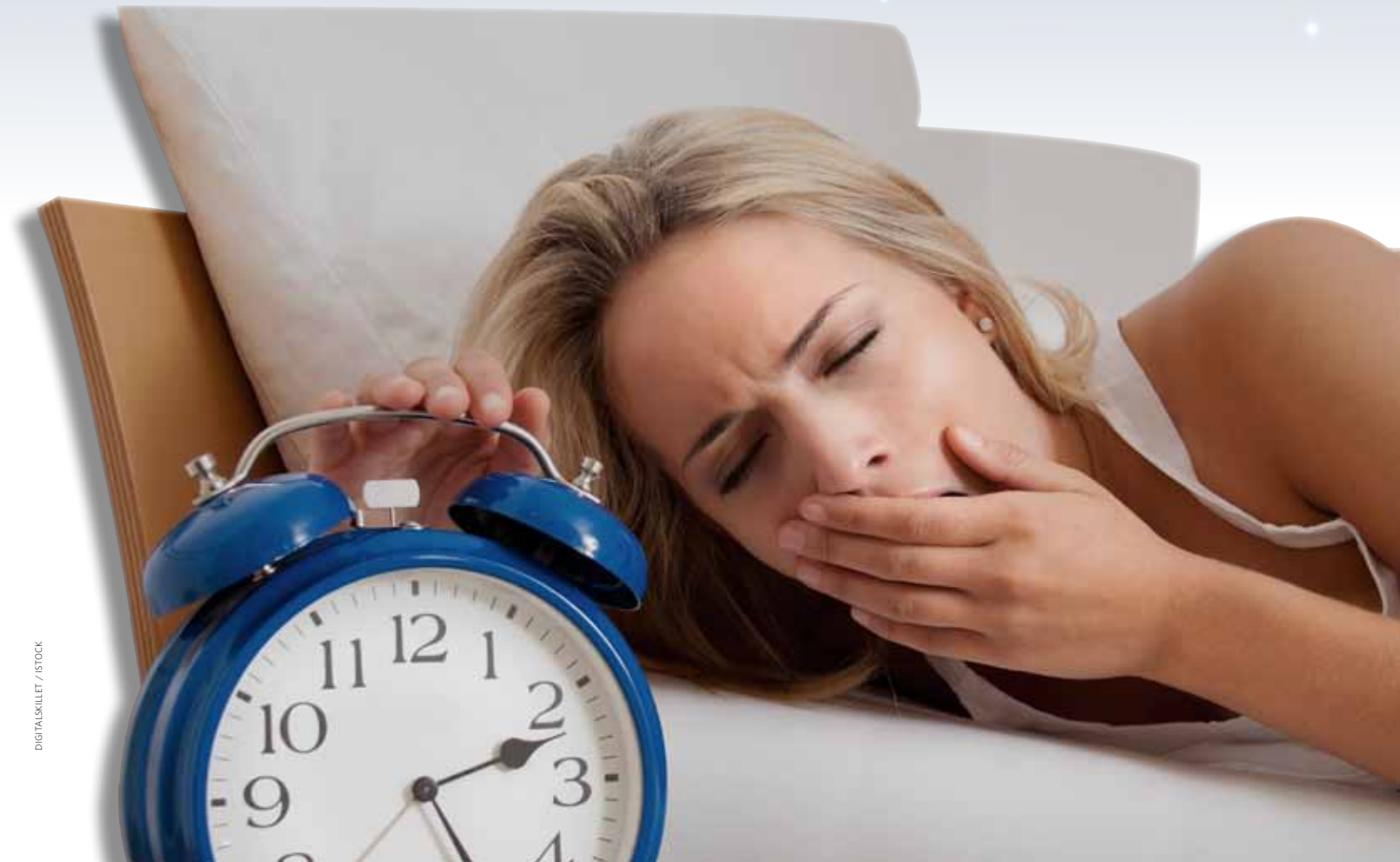
4. Awakening from the "sleep of the dead."

You would expect being hard to rouse at seven o'clock in the morning if you had finally drifted off at three o'clock. But even people with ADHD who have slept a reasonable number of hours experiencing trouble transitioning to an alert state.

The neurobiology of ADHD itself

As you can guess, these four categories typically overlap and cross-pollinate. For example, you might delay getting yourself into bed because you dread facing those hyperactive thoughts once again. Or maybe it is your *daytime* challenges around organization that make a bedtime routine nothing short of the impossible dream. It's important to sit down and analyze where you suspect the key problems lie. Experts recommend starting with good "sleep hygiene," the basic principles that promote good sleep (see the sidebar on page 14).

All that said, there remains one overarching culprit that can conspire in cunning ways to steal your shuteye: the neurobiology of ADHD itself. It's easier to understand when you remember that, at the core, ADHD is a condition of *dysregulation*, including motivation, arousal, and alertness.



DIGITALSKILLET / ISTOCK

First Line of Treatment
Consistent Sleep Habits

Before turning to medication or melatonin to promote sleep, experts advise trying the principles of so-called sleep hygiene, as detailed below.

Consistent bedtime routines, for example, help both children and adults. "But, of course, if this is a challenge for the parents, you cannot expect them to easily do it for the child," says clinical psychologist Reut Gruber, director of the Attention, Behavior and Sleep Lab at McGill University's Douglas Mental Health Institute. "So, it's important that parents become educated in what needs to be done and why."

Moreover, know that neurobiological challenges to sleep might travel in tandem with behavioral challenges. "You need to distinguish between those people who truly have delayed sleep phase, for example, versus those who are not willing to go to bed. There might simply be big-time resistance," Gruber explains. Her latest research study attempts to statistically predict whether a child's longer-than-average "sleep latency" (the amount of time it takes to fall asleep after the lights have been turned off) can be predicted by their circadian rhythm. "I'm still analyzing the data, but right now it seems that both circadian rhythm and behavioral tendencies are involved."

Here are the basic guidelines of good sleep for everyone.

- **Fix a bedtime and an awakening time.** The body can get accustomed to falling asle ep at a certain time. Even if you are retired or not employed, this is an essential part of good sleeping habits. Patricia Quinn, a developmental pediatrician based in Washington, DC, advises sticking to this schedule even on the weekends. "If you stay up late and sleep in," she says, "it's like taking a trip across three time zones each weekend." In other words, you have the equivalent of jet lag.
- **Sleep in a well-ventilated room at a temperature.** Most find a cool (but not cold) room best for sleeping.
- **Block out all distracting noise** and eliminate as much light as possible.
- **Reserve the bed for sleep (and for adults, sex).** This trains your body that the bed is associated with sleeping, not playing video games, watching movies, or surfing the Internet. (Light reading, however, for a half hour might help you wind down.)
- **Avoid heavy, spicy, or sugary foods for four to six hours before bedtime.** These can also affect your ability to stay asleep.
- **Avoid alcohol for four to six hours before bedtime.** Even though alcohol helps some people get to sleep, for most there is a wake-up effect a few hours later.
- **Try a light snack before bed.** Warm milk and foods high in the amino acid tryptophan might help.
- **Exercise regularly but not right before bed.** Regular exercise can deepen sleep, but strenuous exercise within the two hours before bedtime can inhibit falling asleep.
- **Practice relaxation techniques before bed.** Slow stretches and deep breathing can reduce anxiety and muscle tension.
- **Leave your worries at the bedroom door.** Some people write down their worries from the day as a means of easing their minds.

Establish a bedtime ritual. Perhaps a warm bath or a few minutes of not-so-stimulating reading.

—Gina Pera

What does motivation have to do with sleep? Consider Kristin's explanation: "I always have trouble getting myself to bed when I have to work the next day. In my mind, it's like, *Oh, I had better take advantage of this free time, because tomorrow I'll be at work all day.* On the other hand, if I'm booked for a Las Vegas weekend getaway the next morning, there's no problem going to bed!"

What about arousal and alertness? Blake is the poster boy for category four. He routinely goes to bed at ten o'clock at night with his alarm clock set for six o'clock. He nods right off and snoozes undisturbed. Yet, when that alarm goes off, it does not faze him. (It's loud, too; his wife calls it the "thermonuclear alarm.") Finally, Blake heard about the two-alarm strategy for people with ADHD: Set the first alarm in order take the stimulant medication conveniently placed on the nightstand with a glass of water, and set the second alarm thirty minutes later to allow the medication to kick in and promote *arousal* and *alertness.* Children and adults find this strategy helpful.

"We need to keep in mind that ADHD is a medical, physiological disorder," says Patricia Quinn, MD, a developmental pediatrician based in Washington, DC. "Before even discussing the other issues—for example, the adults who say, 'I *like* to stay up late, because the house is quiet'—we must remember that ADHD is associated with distinct physiological issues. For the most part, the most common sleep problems we are talking about with ADHD are not volitional, not something you *choose* to do."

Quinn points to EEG studies done since the 1980s indicating that people with ADHD can have less REM sleep, do not get into stage four sleep (the second stage of deep sleep, where the brain is making slow delta waves), and experience more arousals (awakening or tossing and turning) than people who do not have ADHD. This means they do not get as much restorative sleep as they should. In addition, there is typically trouble with sleep onset—that is, falling asleep.

Let us now examine two neurophysiologic issues that commonly affect ADHD and sleep and strategies for supporting good sleep in people of all ages with ADHD.

Surprise! Sleep requires "organization"

Are you shocked to learn that the most significant ADHD-related obstacle to sleep might be *disorganization*? No, not the kind of disorganization that leaves you climbing over piles of books and clothing just to reach the bed (although that, too, can be a factor if living with clutter leaves you depressed and anxious). Rather, consider the disorganized *brain.*

"A disorganized brain cannot go to sleep," Quinn explains. By contrast, an *organized* brain can focus on the task at hand while tuning out distracting stimuli, whether it is focusing on paperwork or on slumber.

Fortunately, the same strategy that organizes the ADHD-affected brain during the day might also help at night: stimulant medication. Why? Because, as Janelle discovered accidentally in the story related earlier, the stimulant engages the inhibitory systems in the brain—the "brakes," if you will—that keep doze-distracting thoughts and sensations in check.

This solution stands in marked contrast to the popular myth that stimulants are the *primary cause* of ADHD-related sleep

problems. If the physician does not ask about a patient's *lifelong* issues with sleep, however, problems might be mistakenly attributed to the stimulants. Of course, stimulants *might* disturb sleep for some people (though a change in the type of stimulant or the dose might resolve that problem). Sometimes, too, a coexisting condition such as anxiety or depression might be the problem; if that condition is left untreated, it can be exacerbated by the stimulant—and, even independently of stimulants, can thwart restful sleep. The point is that a stimulant can *help* some people get to sleep, though typically a lower dose than the daytime dose.

What about non-stimulant ways to "organize the brain," especially for children and babies? For starters, there is the time-honored tradition of rocking and the rhythm of lullabies. At least one popular book has recommended calming fussy babies by wrapping them tightly; that is also helping them to *organize* their brain. Quinn explains: "The tight wrapping provides feedback through their joints; those deep-pressure receptors stimulate the brain and help to organize it."

Many adults swear by a simple white-noise machine for their children and even themselves. "If it's absolutely quiet, babies and even adults can get too distracted by every little noise," Quinn says. "The white-noise machine triggers the brain's 'brakes' to shut out all the small distractions." In this way, the white noise helps to integrate and organize the stimuli in the brain instead of leaving stimuli scattering in all directions and keeping you awake

Some people with ADHD have difficulty establishing a sleep cycle that is "in sync" with the rest of the world.

Circadian rhythm, melatonin, and resetting your internal clock

There is an old joke about people with ADHD having two kinds of time: *Now* and *Not Now*. At least one study shows measurable challenges around judging the accurate passage of time; that is, even having a "sense" of time. Now researchers hypothesize that time-trouble might be a 24/7 issue, not restricted to waking hours. In fact, these challenges might spring from a "dysregulated" internal clock, causing a condition called "delayed sleep phase."

Reut Gruber explains: "We humans have a biological clock in our brain, meaning our internal rhythm is usually about twenty-five hours. Yet our days are twenty-four hours. So the brain uses cues from the environment to synchronize our internal clock with external daylight. One of these cues is light. What happens in delayed sleep phase is [that] the synchronization is not happening. There is a misalignment between external time and our internal time."

In practical terms, some people with ADHD have difficulty establishing a sleep cycle that is "in sync" with the rest of the world. In fact, one study found a common pattern in more than half of the adults with ADHD studied: They slept best from four o'clock in the morning to noon. That *might* work fine for the lucky souls who can wrap their waking hours around such a schedule; for most of us, however, it is not workable.

What and where is this internal clock anyway? The term refers to the so-called circadian rhythm within most living creatures' brains that regulates periods of rest and alertness. For most humans, that circadian cycle is mostly constant. When the rhythm is stable, we feel sleepy at roughly the same time each evening and awaken naturally at the same time each morning. Circadian rhythm is influenced by two factors:

- **External stimuli,** including exposure to light and the timing of exercise, bedtime, and naps. (See the tips on sleep hygiene in the sidebar, page 14.)
- **Internal hormones,** such as melatonin.

The most benign way to try resetting your clock is through focusing on the external stimuli. For example, make a habit of getting light exposure first thing in the morning and dimming your household lights in the evening.

As for melatonin, it's a common buzzword among people with ADHD when they share sleep strategies, and for good reason. Melatonin plays a role in regulating a dysregulated internal clock. As an over-the-counter supplement, melatonin supplements have traditionally been used to help shift workers and long-distance travelers adjust their circadian rhythm. It's even used to help blind people establish a day-and-night cycle.

Melatonin is a hormone produced by the brain's tiny pineal gland, which is no larger than a grain of rice. This pinecone-shaped gland (hence the name) secretes melatonin in sync with circadian rhythms, releasing more in the dark and less in the light. Darkness causes the body to produce more melatonin, which signals the body to prepare for sleep. Melatonin levels normally rise during mid-to-late evening, remain high throughout the night, and drop during early morning. Yet, many factors can upset this rhythm, such as insufficient exposure to light in the morning or keeping bright lights on in the house during the evening.

Melatonin supplements are generally considered safe in low doses for short-term and long-term use, but be sure to talk with your doctor about taking them or giving them to your child. Gruber warns: "We do not really have any safety insurance; these over-the-counter products are not regulated by the FDA." She recommends starting with establishing routines and trying light therapy before trying melatonin.

Light therapy can simply mean making sure you get morning sunlight exposure and dim the household lights each evening. It can also mean using a light box of the type that is used to help people with seasonal affective disorder (SAD). Generally you use the lights for about thirty minutes each morning, with the bright lining shining indirectly toward your eyes (*never* directly). Talk to your physician about this or read up on trusted medical websites online.

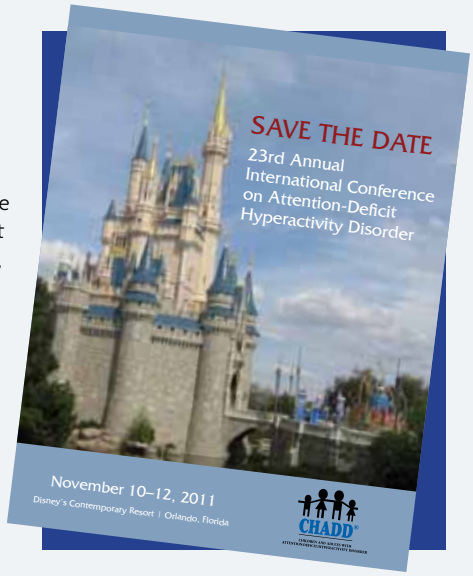
Light therapy and melatonin will not help, Gruber reminds, if your issue is not one of circadian rhythm. "The key is to understand the complexity of ADHD-related sleep issues rather than reduce the complexity and provide the same treatment for everyone," she says.

"Things are only going to be worse if you are walking around sleep-deprived and have ADHD," Quinn reminds. "It is a real issue that needs to be confronted and treated in order to make everything better."

"The key is to understand the complexity of ADHD-related sleep issues rather than reduce the complexity and provide the same treatment for everyone," Reut Gruber says.

SHAE CARDENAS / SHUTTERSTOCK

CALL FOR PAPERS: GENERAL PRESENTATIONS



The CHADD Annual International Conference is the major research, practice and public information conference dedicated to ADHD. Conference sessions will focus on providing current science-based information, and the impact of this information on treatments for individuals with ADHD. The conference will bring together researchers, clinicians, educators, adults, parents, and others. Major goals for the conference are to disseminate the latest developments in research; to facilitate an ongoing exchange about issues related to ADHD by individuals with different experiences and viewpoints; and to increase public understanding of the disorder and its impact.

Proposals for presentations are invited. Empirical studies and best practices science-based intervention strategies are preferred. These can include, but are not limited to, collaborative practices, learning differences, implementation of IDEA and Section 504, advocacy empowerment, research, educational interventions, inclusion, parent training, multimodal treatment issues particular to distinct populations (i.e., age, gender, ethnicity, etc.), co-existing conditions, diagnosis and treatment and innovative programs. Of special interest are presentations that address cultural diversity. These proposals will be organized by tracks--common topics of interest--that foster exchange, debate and dialogue among mental health professionals, educators, families, adults with ADHD and other conference attendees. Sessions for Hispanic/Latino tracks are encouraged and must be submitted in Spanish and English.

CONFERENCE PRESENTATIONS

General Submission Requirements

Please submit your proposal online by January 31, 2011. Only online submissions will be considered.

To submit your proposal, go to the CHADD home page www.chadd.org and click on: Call for Papers

Selection Criteria

Submissions will be evaluated by the members of the Conference Program Review Committee. Criteria for selection will include:

- Appropriateness of subject matter, i.e., relevance to the goals of the conference as outlined in this call for papers;
- an understanding of the context of the presentation, e.g., its relationship to current research, and an understanding about the diagnosis and treatment of ADHD;
- where appropriate, soundness of research design, methodology, and data analysis; and
- potential for facilitating an ongoing exchange about issues related to ADHD by individuals with different experiences and viewpoints, and
- increasing public understanding of the disorder and its impact.

If your abstract is chosen, these guidelines will apply:

- Persons whose presentations are accepted must participate at the time scheduled by the Conference Program Committee.
- Submission of the proposal indicates agreement that CHADD may record the presentation. Recordings are made available for purchase after the conference.
- Presenters will be supplied with standard audiovisual equipment. LCD projectors will be at the presenter's expense. Audiovisual aids are encouraged.
- Presenters must provide handouts in advance, to the Conference Director, by June 1, 2011 for them to be included in the conference program. Handouts are limited to 6 pages and should be provided electronically in Word or Power Point format. Handouts are required for all presentations. Handouts received after the date will not be included in the final conference program and may affect future consideration of submissions. All handouts that miss the cut-off date for submission will be copied at the expense and time of the presenter.

Abstracts must be submitted electronically by January 30, 2011. Notification of acceptance or rejection will be mailed by April 15, 2011.

Questions? Please phone 301-306-7090, Fax: 301-306-7091 or Email: CHADDconference@chadd.org

SCIENTIFIC RESEARCH POSTERS

Research in the area of ADHD related to specific topics of etiology; epidemiology; and social, familial, medical and educational matters will be presented in a research poster session. Abstracts will be selected by a panel of reviewers based on scientific merit as well as on space limitations and the need for a balance of topics.

Submission Requirements

- Abstracts that describe actual empirical research are preferred.
- Abstracts should be no longer than 500 words and contain a description of and backgrounds of conference attendees.

Research poster abstracts must be received by June 1, 2011.

GRADUATE STUDENTS RESEARCH AWARD

An abstract submitted by a graduated student which represents his or her primary efforts will be selected for a special research award. The winner of this award will receive a complimentary conference registration.

If you are interested in being considered for this award, please mark your abstract "Research Award Submission."

Research Award abstracts must be received by June 1, 2011.

INNOVATIVE PROGRAMS

As parents, educators and health care providers become more aware of the needs of children and adults with ADHD and their families, they are finding extremely creative ways of addressing these needs. Such efforts include developing new and innovative programs; modifying existing programs; accommodating the needs of the child and adult through individually designed learning environments that highlight his or her special needs, and developing community-wide collaborative models.

Individuals representing a wide array of innovative programs and services will be on hand to share information with conference attendees.

Innovative Program abstracts must be received by June 1, 2011.

Please submit your research poster, scientific research award and/or the innovative program proposal online. Only online submissions will be considered.

Please submit your proposal online by June 1, 2011. Only online submissions will be considered.

To submit your proposal, go to the CHADD home page www.chadd.org and click on: Call for Papers

Questions? Please phone 301-306-7070, Fax: 301-306-7091 or Email: CHADDconference@chadd.org

CHADD will not be able to underwrite the expenses of presenters accepted from this call for papers.