



A Guide to Managing Overactive Bladder

Written by Karen Crowe.

Text copyright © 2013 Astellas US LLC

Illustrations copyright © 2013 by Norm Bendell

& Jordan Hamm.

Published in 2013 by Astellas US LLC.

Astellas US LLC 1 Astellas Way Northbrook, IL 60062 phone: 1.800.727.7003

e-mail: medical.communications@us.astellas.com

Editorial development by Karen Crowe. Art Direction & Design by Elaine Leonard. Published simultaneously in Canada by Astellas Canada, Inc., Toronto. All rights reserved. No part of this book may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopying, recording, or by any information storage and retrieval system, without permission in writing from Astellas US LLC.

Printed in the United States of America.

Acknowledgements: Thank you to all the patients, family members, and technical advisors who shared their experiences and expertise to make this book a great resource to those who need it.

This book is not meant to replace the expert care of a doctor or nurse. Please discuss your condition with a healthcare provider before initiating any of the recommendations in this book.

Table of **Contents**

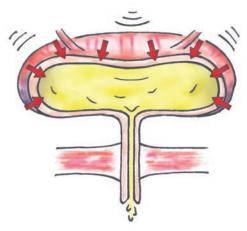


Going Again?!

What Is Overactive Bladder?	5
Burdens of OAB	7
What's the Hold-up?	9
Is This You?	10

Body Basics

How the Urinary Tract Works	12
Normal Urination: A Natural Flow	13
OAB: What Goes Wrong?	14
Factors That Put You at Risk	15
Related Disorders	17



Dens ell

Take Control!

Working With Your Medical Providers	19
Tracking Your Bladder	21
Therapy for OAB	
Make Lifestyle Changes	23
■ Retrain Your Bladder	24
■ Exercise Your Pelvic Floor Muscles	25
■ Drug Therapy	26
Tracking Your Progress	27
Other Bladder Management Options	28
Caring for Someone With OAB	29
Steady As You Go!	32



"My children don't understand why I'm going to the bathroom so much. When we're out, I have to stop them from what they're doing and take them with me. They ask, 'Why are you going to the bathroom again? Do you have to walk so fast?' Yes, I'm sorry—I've got to go! It affects your life in lots of ways."

Tennifer, age 32

Going Again?!

The experiences shared in this book are those of actual patients. If you find yourself identifying with one or more of them, your symptoms may indicate a medical condition called **Overactive Bladder**.

"My wife was taking a shower and I had to go to the bathroom. I couldn't hold it. She came out, and there was a wet spot on my shorts. It was just a little leakage, but nevertheless, it was so humiliating. You try to hide things from those you love because you don't want them to be burdened."

Tow, age 52

"It's definitely a consideration if I'm planning anything. If I'm going away for the weekend, I know I'm going to pack the pads I wear in case of leakage, just as much as a toothbrush or toothpaste. Also trash bags to double wrap the pads just as a courtesy to whoever is emptying the trash. I get concerned about odor, too."

Vickie, age 58



"Sitting around in a conference room, the first time you have to go might not be a problem, but the second time, you feel a little embarrassed. I've made excuses...I might say I have to make a personal call. I don't know if I've ever had myself paged. There are things people will do to cover it up."

John, age 64

What Is Overactive Bladder?

If you're reading this book, you or someone you care for is probably experiencing bladder control problems. There are many types of bladder disorders—this book focuses on Overactive Bladder, or "OAB." It's a condition that's inconvenient, may be embarrassing, and is potentially debilitating. The good news is that it's a condition that can be managed.

Four Symptoms of OAB

You may experience one or more of the symptoms described below on a daily basis, or your symptoms may come and go unpredictably.

Urgency:

a sudden and overwhelming need to urinate immediately. (People without OAB can suppress urges and postpone urination.)



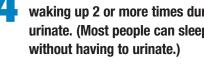
Frequency: urinating more than 8 times a day. (Normal is about 4 to 6 times per day, or every 3 to 5 hours.)

Urge incontinence:

urine leakage (wetting accident) that follows a sudden urge. (The amount can be anywhere from a few drops to the entire contents of the bladder.)



Nocturia: waking up 2 or more times during the night to urinate. (Most people can sleep for 6 to 8 hours without having to urinate.)



You're Not Alone!

Most people have experienced sudden urges (with or without leakage) at least once in their lives. But when uncontrollable urgency, frequency, or leakage become troublesome patterns, it's time to mention this to your doctor or nurse. You might be surprised to learn that an estimated 46 million American adults age 40 and over reported symptoms of OAB at least sometimes—that's about 1 in 3 US adults age 40 and over!

It affects both men and women, and although more common among older adults, OAB affects people of all ages. Overactive bladder is *not* a normal condition at any age, however.

OAB can turn a person's world upside down. But as your doctor (and this book) will explain, there are many treatment options and techniques you can learn to better manage your problem. So there's help to manage your symptoms.

This book isn't meant to take the place of your doctor. He or she is the only one who can diagnose your condition and work with you to determine the best plan for treatment. The information on these pages will, however, help you better understand OAB and your therapy options, and make you feel more comfortable discussing the subject with your medical provider and loved ones.



Burdens of OAB

OAB can affect your lifestyle: **home** routines and relationships, **physical** and **psychological** health, **social** and **sex** life, and your **occupation**. Without treatment, symptoms may start out as merely bothersome, but could deteriorate into a severe condition.

Limitations and Complications

People with OAB often limit their lives. Daily routines can become complicated ordeals when trying to plan around OAB symptoms. Leaving home to run errands or exercise may feel too risky if there's a chance of getting caught in long checkout lines or when restrooms aren't convenient. Your symptoms may have forced you to give up hobbies or activities you've enjoyed, such as attending movies, church services, or sporting events. You may feel reluctant to travel by car or use public transportation, even for short distances from home. And vacations may be out of the question—constantly searching for restrooms in unfamiliar places is anything but relaxing!

OAB can cause people to suffer on the job as well. Productivity may decline due to frequent interruptions for bathroom breaks. Absenteeism can increase (fear of episodes of incontinence keeps some people home; others miss work due to health problems related to their OAB).

You may have adopted undesirable or unhealthy coping behaviors to deal with your condition, such as "bathroom mapping" (habitually looking for restrooms so you'll be prepared when a sudden urge hits) or severely limiting fluid intake in an attempt to decrease frequency. (This can result in other bladder problems, as explained on pages 23-24.)

If you've had wetting accidents, you probably endure additional inconveniences. You may restrict your wardrobe to dark clothes, even during summer, in an effort to hide signs of incontinence products or urine leakage. Perhaps you never leave home without a spare set of clothes. It may seem like OAB has taken over your life!



The Emotional Toll

OAB can have devastating psychological effects. People may experience anxiety, embarrassment, low self-esteem, and loneliness as they endure the daily hassles of OAB or try to hide their symptoms. You may find yourself making excuses or avoiding social interaction, even withdrawing completely from friends and family members. Some people may feel they've lost the ability to socialize or communicate normally. Fear of leakage during intimacy may lead to awkward sexual performance or avoiding intimacy entirely. Frequent nightly awakenings may make you irritable during the day, and you may lack the energy and optimism that once helped you cope.

People who experience incontinence as part of their OAB symptoms may fear others will detect a urine odor, or be worried they'll leak urine onto clothes or furniture. If you've kept your OAB a secret from those closest to you (even your doctor), you have no support system and may feel there is no hope. As your quality of life declines, depression and a sense of isolation may set in.



Physical Health Hazards

Several other health issues have been known to develop alongside OAB:

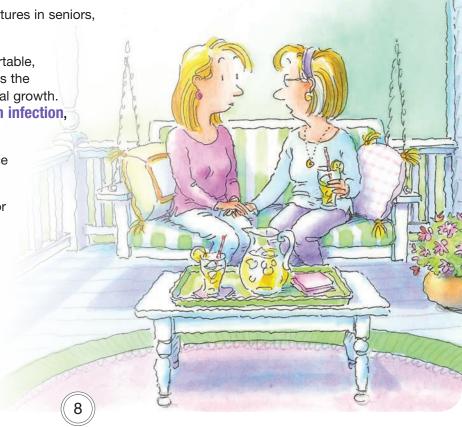
■ Falls and resulting fractures often occur while rushing to the bathroom in the middle of the night, especially among the elderly. (If you get up frequently, are off-balance, and hurry through dark rooms, your chances of injury increase.)

Surgery is sometimes needed to repair fractures in seniors, which may lead to medical complications.

Frequent urine leakage is not only uncomfortable, but it adds moisture to the skin and changes the natural protective barrier, promoting bacterial growth. This leads to rashes, skin breakdown, skin infection, and urinary tract infections.

Incontinence is a major cause for admittance to nursing homes.

So don't delay getting help for your condition or discussing your concern with a family member if you suspect he or she may be struggling with OAB symptoms.



What's the Hold-up?

Unfortunately, the majority of people with OAB go undiagnosed and untreated. Those who *do* see a doctor postpone an average of 3 years before doing so, only seeking help when their condition becomes unbearable. Why, when the effects are so devastating, do people suffer so long in silence?

embarrassed to confide in my doctor.

In the past, people often felt uncomfortable talking about medical problems involving the urinary system.

The media have helped lift this stigma, but some people still feel ashamed of bladder control problems.

I was afraid my doctor would tell me I had to have surgery.

Fear that their bladder problems are only correctable by surgery keeps some people from mentioning their symptoms to their doctor. (Many patients can achieve improvement utilizing nonsurgical approaches.)

I didn't realize how much I had changed my routine, and how much of a problem it had become.

When bladder problems evolve slowly, people may not recognize the true impact OAB symptoms have on their lives.

I dídn't know anything could be done about it!

Many people don't realize they have symptoms of an actual medical condition, or mistakenly believe there is no treatment. OAB is frequently misunderstood by the public, and many myths exist, such as it's just an inevitable part of aging.

I figured it was only temporary, and I'd just put up with it until it went away.

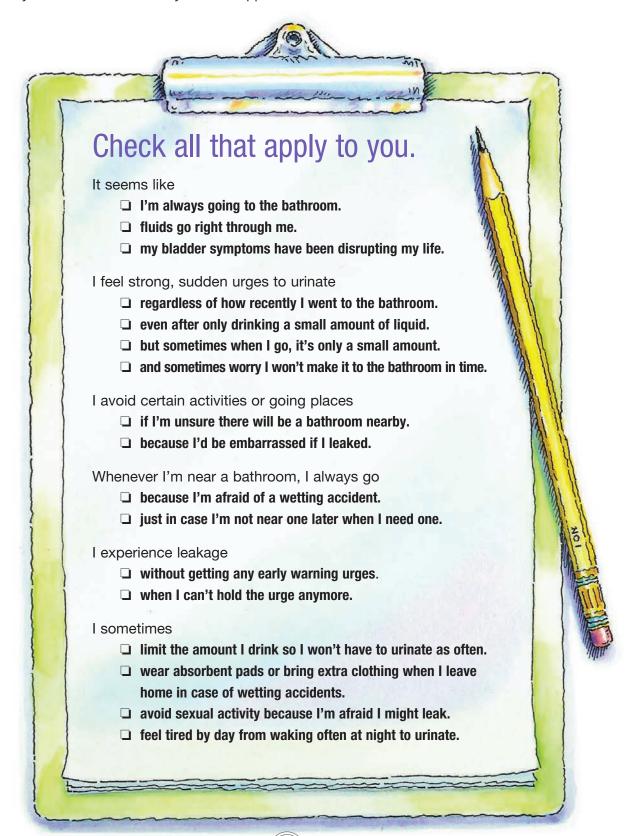
Some people with OAB assume their condition will resolve on its own.

I think my father is in denial, afraid to admit that a problem exists

Some people don't acknowledge their condition because they worry they'll be too much of a burden on loved ones or subconsciously fear they're reaching the end of their independence.

Is This You?

Here is some help starting the conversation. Mark all statements below that describe you, then share this page with your doctor or nurse at your next appointment.





"Sometimes I've thought maybe my bladder problem was just nervousness, because I'm nervous by nature, and maybe over the years it's just taking a toll on me, manifesting itself this way. Or maybe the pants I'm wearing are too tight. It's funny the excuses you make to try to shield yourself from something that's happening."

Debbie, age 42

Body Basics

Knowing how your body works makes it easier to discuss your bladder problems and treatment with your doctor *and* help manage your OAB.

"My own husband doesn't believe that it's really a problem. He thinks I'm exaggerating it, but that's not what I'm doing. He doesn't realize that the urge just hits—and when it hits, I've got to go! I think he thinks that I squirm because I put off going to the bathroom earlier, that I'm lazy."

Tennifer, age 32



"Talking about my bladder problems almost felt like an admission of loss of personal control, of aging. There's a little bit of fear involved, too. What could it be? I don't even know what causes it."

Tow, age 52

"I thought having to go more often was a normal part of getting older, and that I'd have to learn to live with it. But I also take 12 pills a day, including my vitamins, and I don't always eat properly, so I wondered if there was a connection."

Clycle, age 74

How the **Urinary Tract** Works

The urinary tract is a system for eliminating waste (urine) from your body. For the system to do its job, muscles and nerves must work together.

Brain, Spinal Cord, and Nerve Network:

coordinate various functions of urination.

Messages are sent back and forth between
the brain and bladder through your spinal
cord and nerve pathways. (Nerves first alert
your brain that your bladder is reaching
capacity, then carry signals back to the
bladder to hold or release urine.)

Kidneys: filter your blood, removing — waste products and excess water. Your two kidneys process a volume of about 40 gallons of blood a day and produce about 1½ quarts of urine (which is 95% water and 5% waste).

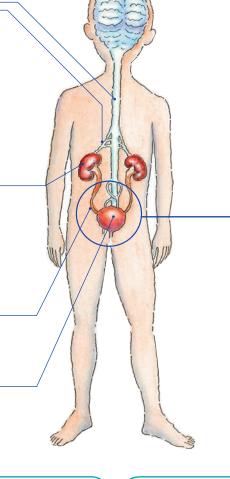
Ureters: two tubes that continuously drain urine from your kidneys to your bladder using muscle contractions and gravity.

Bladder: stores urine until it's expelled from the body. The bladder expands like a balloon as it fills.

Bladder

- Detrusor Muscle: a powerful muscle within the bladder wall. It contracts during urination to force urine out of the bladder.
- Urethra: tube through which urine exits the bladder and body.
- Pelvic Floor Muscles: interconnected network of muscles that support the bladder, urethra, rectum, and vagina and help keep them in place.
- Sphincter: section of the pelvic floor muscles that encircles the urethra and controls the flow of urine. You consciously tighten the sphincter to hold urine in, and relax it to urinate.

Male Genital Area



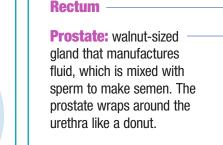
Female Genital Area

Ovaries: two glands that produce estrogen, a hormone that helps keep the pelvic floor muscles healthy, strong, and elastic.

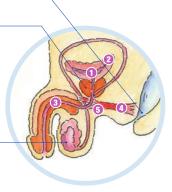
Uterus

Vagina: muscular tube connecting the uterus to the body's exterior. This canal also helps provide support for the bladder and urethra.





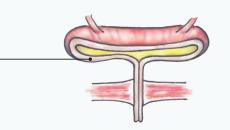




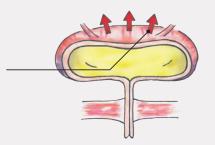
Normal Urination: A Natural Flow

Normally, urinating doesn't require much thought. It's a combination of both voluntary (conscious) and involuntary (automatic) muscle actions that coordinate to hold and release urine.

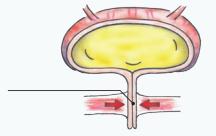
Over the course of a few hours, the bladder gradually fills with urine. The detrusor muscle is relaxed, allowing the bladder to expand. The sphincter stays tightly closed, keeping urine in.



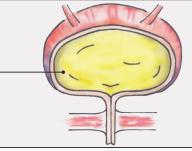
When the bladder volume reaches 8 to 10 ounces of urine, nerves along the bladder send a message to the brain that the bladder is getting full. This sparks the first urge to urinate. (All of this happens automatically.)



People who are continent are able to delay urination if it's not convenient for them to go to the bathroom. They consciously tighten their sphincter. The urge to urinate subsides for a while.

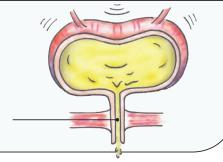


Since the bladder has not yet reached maximum capacity (12 to 16 ounces), it can continue to fill and stretch. (A "full" bladder can expand to accommodate several more ounces.)



When the person decides the time is right to urinate, he or she consciously relaxes the sphincter.

This triggers the detrusor muscle to contract, which forces urine out of the bladder.



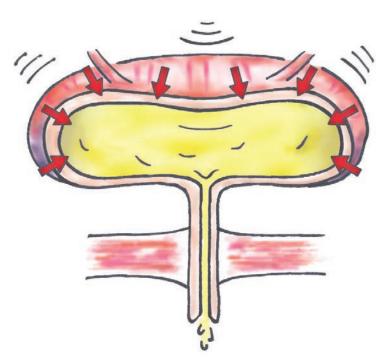
OAB: What Goes Wrong?

An overactive bladder works overtime, contracting more often than it should and at inappropriate times. Experts know *what* is happening in your body, but don't fully understand *why* it occurs.

Uncontrollable Contractions

People with OAB have a detrusor muscle that squeezes

- suddenly (without warning)
- erratically (whether or not the bladder is full)
- **involuntarily** (is difficult to control or stop)
- more often than normal (producing frequent urges before the bladder is full)



Why is the bladder contracting?

If you have OAB, you aren't receiving gradual warning messages that your bladder will soon need to empty. Instead, your detrusor muscle gets incorrect signals from your brain to contract immediately, even though your bladder may not be full. When your bladder contracts, you feel intense urgency (which is a nerve message telling you to release the urine). If you can't suppress the urge or stop the contractions before you reach a bathroom, you leak urine.

What causes inappropriate messages and contractions?

Sometimes OAB symptoms occur when people have medical problems that affect the nerves or muscles of their urinary tracts. Proper communication between the brain and bladder is disrupted due to disease or dysfunction of the nervous system; or pelvic floor muscles are weak, damaged, or abnormal and don't work properly. But more often, OAB is not the result of infection, disease, or injury—it's a mystery why the brain sends too many signals telling the bladder to contract.

Factors That Put You at Risk

Experts have identified factors that aggravate OAB symptoms. Sometimes people have other medical problems (such as infections) that cause temporary bladder symptoms. (When these problems are treated, symptoms improve.) Permanent factors (such as advancing age) are more likely to contribute to OAB symptoms. Which of the factors on pages 15-16 may affect you?

Advancing Age

More than half of people with OAB are over age 65. Here are some reasons why OAB symptoms are more often seen with advancing age:

- Neurological changes occur in the brain and spine as the body ages, and from certain illnesses common among older people. These changes may reduce your ability to coordinate bladder and sphincter contractions during urination, or to sense that your bladder needs emptying.
- Over the years and sometimes with multiple childbirths, the pull of gravity may cause pelvic floor organs to drop or shift (prolapse). This can lead to bladder irritation or obstructed flow of urine, which may cause flare-ups of OAB.
- Urinary tract infections increase among the elderly due to weaker immune systems. The resulting inflammation and irritation may decrease your bladder's capacity, causing detrusor muscle spasms (unwanted contractions).



Declining Estrogen Levels

Women experience a significant drop in the hormone estrogen after menopause (when their menstruation permanently stops). Without sufficient amounts of estrogen, the **tissues** of the bladder, urethra, and pelvic muscles **atrophy,** becoming thinner and drier. This may make them weak and more susceptible to irritation, which may lead to urgency and frequency.

Pregnancy and Childbirth

Women often report temporary symptoms of OAB during pregnancy. **Urine volume increases** due to the extra blood circulating through the mother's body, so pregnant women usually need to empty their bladders more frequently, both day and night. Leakage is also common, especially during the last trimester, when added weight stresses the muscles and nerves of the pelvic floor.

Vaginal delivery causes pelvic trauma—
it compresses the nerves,
blood vessels, bladder, and
other pelvic organs.
Episiotomies, stretching, and
tearing of muscles and nerves
can weaken the pelvic floor
and sphincter and alter the
positions of pelvic organs.
All this trauma increases a
woman's chances of
developing urinary symptoms.

Multiple Medications

Several drugs currently on the market may cause urgency and frequency as side effects. The more medications you take, the greater your chances of experiencing OAB-like symptoms. Types of drugs that may produce these symptoms include:

- Diuretics: remove excess water from the bloodstream, resulting in an increase in urine volume. (Diuretics are commonly used to treat high blood pressure and heart disease.)
- Sedatives, antidepressants, and painkillers: dull the senses (including feeling the need to urinate). Antidepressants can also interfere with nerves that trigger bladder contractions. Sleeping aids may be so effective that you may not be alert enough to sense urinary urges.

Disease of the Nervous System

- Multiple sclerosis (MS): causes intermittent loss of muscle coordination and strength. MS interrupts messages traveling to and from the brain along the spinal cord. Bladder sensation may come and go as MS flares and subsides, but urinary frequency and incontinence often persist.
- Parkinson's disease: causes muscle tremors, rigidity, and possibly bladder dysfunction. The sphincter muscles may become so weak that urinary and fecal incontinence result. Rigid muscles also make getting to a toilet more difficult.
- Stroke: occurs when the flow of blood to the brain is interrupted due to a blood vessel that gets clogged or bursts. The area of the brain that is affected is disabled, and the body part controlled by that area suffers weakness or paralysis. Bladder sensation and/or control may be lost.
- Diabetes: although not initially a neurologic disease, if left untreated diabetes can lead to nerve damage in the bladder, causing loss of sensation and muscle control while urinating.

Prior Pelvic Surgery

An unfortunate side effect of pelvic surgery can be damaged or weakened pelvic muscles, tissues, and/or nerves. OAB symptoms may appear after a hysterectomy, prostatectomy, bladder suspension (surgical repositioning of the bladder), or surgeries to treat fibroids or pelvic cancers.

Prior Pelvic Radiation

Radiated tissue becomes permanently more fragile. So if you've received radiation treatment in the pelvic area, you're more prone to medical problems that trigger overactive symptoms. Such problems include urinary tract infection, injury of pelvic organs from falls, sexual activity, and even pressure from "overholding" (continually delaying too long—15 to 20 minutes—after an initial urge before urinating).

Benign Prostatic Hyperplasia (BPH)

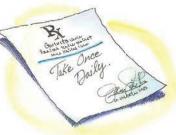
A man's prostate naturally grows larger with age. In some cases, this noncancerous (benign) enlargement compresses the urethra and makes it difficult to pass urine. The detrusor muscle has to work harder to empty the bladder. This can trigger overactivity.

Urinary Tract Infection (UTI)

Bacteria in urine cause infection. This can irritate the bladder's lining, which may trigger the detrusor muscle to contract when it shouldn't. The discomfort of a UTI may also cause frequency. Recurring infections can decrease the sphincter's tone, resulting in incontinence. Your doctor will prescribe an antibiotic, and once your UTI clears up, OAB-like symptoms may go away as well.

Bladder Cancer

If you currently have, or have been treated for, bladder cancer, the tissues of your bladder may be irritated. This can cause OAB-like symptoms.



Being Overweight

Carrying extra weight, even just a few pounds, increases the **pressure** on your **bladder**. Obesity can also reduce blood flow and **damage nerve connections** to the bladder. Even a 5% to 10% weight loss (sometimes less than 10 pounds) can relieve enough pressure on the bladder for your symptoms to improve.

Certain Occupations

Certain types of jobs can make dealing with symptoms of OAB a real challenge. People who are not free to take bathroom breaks sometimes "overhold" their urine, which can cause even greater discomfort. Teachers, nurses, police officers, and even truck drivers often find themselves in these circumstances. And while a job will not cause OAB, it can make things uncomfortable for OAB sufferers.



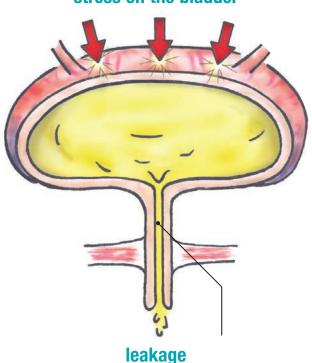
Related **Disorders**

It's possible to have more than one urinary tract problem at a time (including different types of incontinence). Your doctor will diagnose and treat each condition separately.

Other Kinds of Incontinence

Some people experience urine leakage during physical activity or with sudden exertion, such as when they sneeze, cough, laugh, lift, stand up or sit down, exercise, or change positions in bed or during sexual activity. This type of incontinence is called **Stress Incontinence** and is treated differently. Movement puts pressure (stress) on the bladder, and if the sphincter is too weak to hold urine in, leakage occurs.

If you experience symptoms of leakage after sudden urges (due to OAB) as well as during physical activity, you may have a mixed condition called "Mixed Incontinence," which is very common.



stress on the bladder

weak sphincter muscle can't hold urine in

Other Symptoms and Problems

Tell your health care provider if you have any of the following complaints, which are *not* symptoms of OAB. You may need further testing to diagnose and treat other medical problems you may have.

- Pelvic or bladder pain
- Burning during urination
- Blood in urine
- A feeling of incomplete bladder emptying
- Hesitancy (trouble starting urine stream), dribbling (able to urinate only in drops), straining or inability to urinate
- Pain during intercourse



"It took me a year and a half before I did something about my bladder problem. At first I was embarrassed to ask my doctor about it, and I wasn't sure there was anything that could be done. But it had to be controlled somehow, and it *does* help to see what you can do to help yourself."

Joan, age 49

Take Control!

You've lived with the complications and limitations of OAB long enough. It's time to take charge of your symptoms. Here is where the first step begins!

"There's a sense of shame involved, so I didn't tell people or talk to my friends about it. I finally told my doctor because of the leakage. It's not even that much, but the fact that it happens at all is embarrassing, and it scares me. I don't ever want it to get worse."

Mancy, age 45

"The first prescription I tried didn't seem to help much—I was still going often. So I asked my doctor if I could try something else. It's only been a few weeks, but I've been happier with this new medication. I even went on an 8-hour car trip with my family and didn't have to ask them to make extra stops so I could go!"

Marilyn, age 70

"I just want a little control. I don't want to be so stressed out over my bladder, or worry about where the bathroom is all the time. I'd like to one day say, 'It's been 3 hours and I've been sitting at a barbecue, had an iced tea, and haven't even looked around for a bathroom because I didn't have the urgency.' Perfect!"

Myra, age 46



Working With Your Medical Providers

Doctors and nurses are eager to help you—work together as a team! Your openness and effort combined with their guidance and support will be a key to successful treatment.

Do You Need a Specialist?

More and more primary care doctors are asking questions about bladder control as part of routine exams. If yours doesn't, though, don't hesitate to bring up the subject yourself. Your general physician may be able to treat your condition, or if necessary he or she will refer you to a specialist. The following professionals can diagnose and treat OAB.

Primary-care physician (also called "family doctor" or "general practitioner"): provides general medical care.

Internist (also known as "internal medicine specialist"): provides general medical care for adults.

Geriatrician: specializes in the care of aging patients.

Urologist: treats the urinary tracts of men and women and reproductive systems in men.

Obstetrician and gynecologist (OB/GYN): focuses on women's reproductive systems and childbirth.

Urogynecologist: specializes in OB/GYN with additional training in women's bladder disorders.

Physician's assistant or nurse practitioner: certified to perform exams and tests; can diagnose and prescribe treatment and medications; may have a specialty in OAB.



Preparing for Your Appointment

Before meeting with your doctor for the first time, it's a good idea to prepare by doing the following:

Complete the checklist on page 10 if you haven't done so already. It will give your doctor insight into the symptoms you are dealing with.

Fill out the Bladder Tracker

(see pages 21-22). It will provide valuable information about the severity of your condition and what might be contributing to it.

Write down your symptoms, medications you're taking, and any questions you have on page 32 so you don't forget to cover these important issues during your visit.



Open Up to Your Doctor

For some people, it's difficult to bring up their bladder problems for the first time, even if it's with their own physician. But it's the most important step you can take. Until now, you may have been trying to manage your OAB by yourself, putting up with symptoms you just can't tolerate anymore. With treatment, you may be able to live life more normally and stop being ruled by your bladder. If you feel uncomfortable discussing the subject initially, remember: your OAB can't begin to improve until honest discussion occurs. So do your best to share even the details that seem private. And when you have questions, ask them! Your medical providers are there to help you in any way they can.

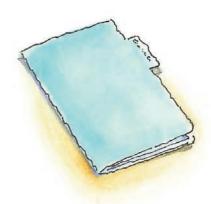
How Is OAB Diagnosed?

Several things will help your medical provider assess your symptoms. Here is what will be covered during your visit:

Your symptoms: You'll be asked about details such as when your symptoms began, which are most bothersome, and if there's a time of day they occur most often. Also important are your bowel habits (type and frequency of bowel movements), changes in sexual activity (avoidance due to your symptoms), and whether you're using absorbent products.

Health history: For an accurate assessment of your current health, you'll be asked questions about your medical history, including previous bladder treatment you've received; pelvic, vaginal, or prostate surgery you've undergone; details about pregnancies, births, pelvic injuries or accidents; and any medicine you're taking, including prescriptions, vitamins, herbal supplements, and over-the-counter medications, such as laxatives or sleeping aids.

Examinations: Your doctor will perform a general physical exam and check for evidence of neurologic conditions such as multiple sclerosis, stroke, or spinal cord trauma, which affect the nerves connecting to the bladder. An abdominal exam will also provide important information, along with a pelvic exam (for women), or a genital and prostate exam (for men).



Urinalysis: You may be asked to provide a urine sample, which will be tested for signs of infection or other health problems.

Blood test: Frequency can be a sign of diabetes, so your medical provider may collect a small sample of blood by pricking your finger and test your blood sugar level to confirm or rule out diabetes.



Your doctor may refer you to a specialist for the following tests:

Ultrasound: A wand that uses high-frequency sound waves to scan the outside of your abdominal area. It produces an image (like an x-ray) of your urinary system on a screen.

Urodynamic testing: A thin tube (catheter) is inserted into the urethra and bladder, and a small probe is placed in the rectum. The catheter is used to fill the bladder with a sterile solution, while the probe takes measurements of detrusor muscle and nerve function. This procedure may cause slight discomfort, but it is not painful.

Tracking Your Bladder

A written record of your daily urinating patterns will give your doctor information about your OAB, including how it affects your life (your routines, social interactions, and personal hygiene) and how to best treat your condition.

Contributors to Your Condition

Tracking urination patterns gives you clues about your OAB, and can actually help you normalize your bladder problems. When you focus on your behaviors, you may notice certain habits that contribute to your OAB. Changing these behaviors can help you decrease your symptoms.



Filling in Your Bladder Tracker

Write down information in the Bladder Tracker for three days and nights in a row. Complete one chart for each day. Take this book with you if you leave the house so you can log bladder activity immediately and keep the most accurate record.

1st column: Write down what you drink during each time period (water, coffee, cola, etc.) and the approximate amount.

2nd column: Put a check each time you urinate during the given time period (even if the amount is small).

3rd column: Note when your urgency is severe enough that you have to rush to the bathroom.

4th column: Details here may help you figure out what triggers your urges (such as washing dishes or performing stressful tasks).

5th column: Write down if you had any wetting accidents and the amount (small: a few drops; large: wetting through to your outer clothes).

6th column: Details here may help you determine what leads to leakage.

DAY 1

TIME SPAN	What did you drink and how much?	How many times did you go to the bathroom?	How many times did you have to <i>rush</i> to the bathroom?	Describe any activity that this interrupted.	How many times did you leak, and what amount?	What were you doing at the time of the leakage?
6 ам-8 ам						
8 ам-10 ам						
10 ам-12 рм						
12 рм-2 рм						
2 рм-4 рм						
4 рм-6 рм						
6 рм-8 рм						
8 рм-10 рм						
10 рм-12 ам						
12 AM-2 AM						
2 AM-4 AM						
4 ам-6 ам						

DAY 2

TIME SPAN	What did you drink and how much?	How many times did you go to the bathroom?	How many times did you have to <i>rush</i> to the bathroom?	Describe any activity that this interrupted.	How many times did you leak, and what amount?	What were you doing at the time of the leakage?
6 ам-8 ам						
8 ам-10 ам						
10 ам-12 рм						
12 рм-2 рм						
2 рм-4 рм						
4 рм-6 рм						
6 рм-8 рм						
8 рм-10 рм						
10 рм-12 ам						
12 AM-2 AM						
2 ам-4 ам						
4 ам-6 ам)

DAY 3

TIME SPAN	What did you drink and how much?	How many times did you go to the bathroom?	How many times did you have to <i>rush</i> to the bathroom?	Describe any activity that this interrupted.	How many times did you leak, and what amount?	What were you doing at the time of the leakage?
6 ам-8 ам						
8 ам-10 ам						
10 ам-12 рм						
12 рм-2 рм						
2 рм-4 рм						
4 рм-6 рм						
6 рм-8 рм						
8 рм-10 рм						
10 pm-12 am						
12 AM-2 AM						
2 am-4 am						
4 ам-6 ам						

Therapy for OAB

A combination of **behavior modification** and **drug therapy** is often prescribed to help treat OAB symptoms. Together, they're more likely to result in success than when either is used alone. Pages 23 to 26 explain therapies most commonly prescribed. Remember to talk with your doctor to see which ones are right for you.

Make Lifestyle Changes

Doctors usually suggest making changes in everyday behaviors as the first line of therapy. You may need to modify what you **drink** and **eat** (suggestions on this page), **lose extra weight**, or **stop smoking**. It's also helpful for **seniors to lie down** for a 1- to 2-hour period each day. (This allows fluid that pools in lower tissues to flow back into the bloodstream, so kidneys produce more urine during the day, reducing nighttime output.)

The Link With What You Drink

Many people with OAB mistakenly limit their fluid intake, hoping to alleviate their OAB symptoms. But drinking less than the recommended 6 to 8 glasses per day can actually cause bladder problems. If you don't drink enough fluids, urine becomes concentrated, which can **irritate** your bladder and cause urgency and frequency. (Urine that is concentrated is dark yellow and strong-smelling.) Concentrated urine also creates an environment where bacteria can colonize (or overproduce), which may lead to **urinary tract infections.**Low fluid intake can also result in **dehydration**, especially problematic for older adults whose total body water is already decreased. This puts them at risk for other problems like **constipation**, an even more serious side effect of not drinking an adequate amount. (More about constipation below.)

never ignore an urge to have a bowel movement. Tell your doctor about any **medication** you're taking, as constipation

How and When to Drink:

- Drink 6 to 8 cups of fluids each day.
- Avoid drinking large amounts at one time, such as with meals. (This fills the bladder with more than it's used to holding in a short time period.)
- Eliminate alcohol and all foods and beverages containing caffeine from your evening meal.
- To reduce nocturia (nighttime frequency), drink the majority of your fluids over the first half of the day, and cut back as you approach evening.

Modifying Your Diet

Avoid foods and beverages that may contain bladder irritants. The most common irritant is **caffeine**, found in coffee, tea, soft drinks, chocolate-flavored products, and more than 1,000 over-the-counter drugs. Caffeine acts as a diuretic, increasing urine production. Other possible foods that may contribute to OAB include: **carbonated drinks**, **spicy foods**, **citric acid** and **tomato-based products**, diet products that contain the artificial sweetener **aspartame**, and **alcohol** (a diuretic, but can also numb a person's awareness of the need to urinate).

Preventing Constipation

can be a side effect of many drugs.

People with OAB sometimes experience constipation (infrequent and difficult-to-pass stools). Constipation can affect how your bladder stores and empties urine. Large, hard stools may put pressure on the bladder, decreasing its ability to hold urine, or push against the urinary tract and obstruct outflow. Pelvic floor muscles can also be weakened from the constant straining and passing of large stools.

Help normalize bowel movements by drinking sufficient fluids, especially water. Eat foods high in fiber (wholegrain bread and cereals, fresh fruits and vegetables). Exercise daily, which helps move food through your intestine. And

Retrain Your Bladder

Another therapy often prescribed for OAB is bladder retraining (gradually conditioning the bladder to hold urine for longer periods). These pages will also teach you some techniques to calm the strong urinary urges you get.

An Urgent Message—How to Respond

When you feel an urge to urinate, your brain has received a message from your nerves telling you that your bladder needs to empty. But remember, if you have OAB, that message may be incorrect—your bladder may *not* be full. In reality, there may only be a small volume of urine in your bladder. So try to think of your urges as early warning signals, not commands to go immediately.

It may seem like the only option you have to relieve the discomfort of an urge is to urinate. And your natural reaction may be to rush to the bathroom the moment one comes on. However, hurried movements may aggravate the feeling of urgency. Rushing can even cause a bladder contraction that results in leakage.

The key is to remember that normal urinary urges follow a pattern: they **grow, peak, subside,** and eventually **stop.**The intense urgency of OAB can't be controlled by will power alone, but the steps of bladder retraining will help condition you to "ride out" your urges until they subside. When you know that normal urinary urges can be inhibited, you will gain confidence that, with practice, you'll be able to suppress your urges again.

Go by the Clock

You may have gotten into a habit of urinating often in an attempt to prevent urgency and wetting accidents. A **urination schedule** can help you break this habit by retraining your bladder to wait longer and hold more. Your doctor will instruct you to urinate at set times, such as once every hour, whether or not you feel the need. As your bladder is able to tolerate holding more without contracting, the time interval between urination is gradually increased until you're able to hold urine for 3 or 4 hours, a more normal pattern. (If you feel time intervals seem to need adjustments in either direction, be sure to discuss with your doctor.)



Suppressing an Urge

What happens if you get an urge to go before your scheduled urination time? Sit, stand, or lie down (whichever works best for you) and use the techniques below to help you wait until the sensation passes. The techniques won't *all* work *every* time, so try them in different combinations. And practice at home before trying them elsewhere (you'll be under less pressure, so success will be more likely, and a change of clothes will be nearby if you need it).

Relaxation: Don't panic—tension increases urgency. Instead, focus on relaxing the area outside the pelvic floor, such as abdominal muscles.

Concentration: Direct your attention toward other body sensations such as breathing. Take 5 to 10 slow, deep breaths. Concentrate on your lungs filling and emptying, your chest expanding and deflating. This exercise can interfere with those false messages of urgency your brain is sending you.

Quick Contractions: Squeeze your pelvic floor muscles quickly and vigorously 5 to 10 times in a row. Quick contractions signal the bladder to relax, and the urge will often subside. (Page 25 offers tips on locating and controlling your pelvic floor muscles.)

Distraction: Play mental games to disrupt the brain's faulty messages of urgency. Try reciting the months in alphabetical order, spelling the names of friends backward, or adding together large numbers.

Self-Affirmations: Believe you will be successful. Reassure yourself with statements such as "I am taking control," and "My body is strong. I can wait!" As you've learned, your mind is a powerful tool at your disposal.

Pace Yourself: Once your urge has decreased, walk calmly—don't run—to the bathroom, or try holding off another 10 minutes or more before going.

Mind Over Bladder

Bladder retraining can take 6 weeks or more. Success often depends on a patient's effort and determination. Setbacks may occur, especially during times of stress, so try to remain optimistic. Keep telling yourself you'll succeed—a positive attitude more likely brings a positive outcome.



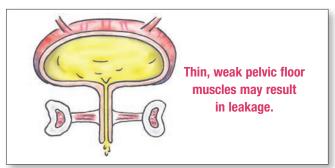
Exercise Your Pelvic Floor Muscles

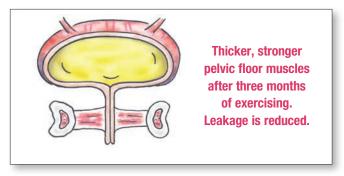
These exercises, also known as "Kegels" (named after the gynecologist who developed them), strengthen the pelvic floor muscles and help you hold urine longer. Weak pelvic floor muscles may contribute to OAB. Doing several quick squeezes of these muscles can also decrease urinary urges and leakage by disrupting the brain's messages that tell the bladder to contract.

A Worthwhile Workout

Learning Kegel exercises may require more concentration than you expect at first. But the more you do them, the easier they'll become. Most patients start noticing that their OAB symptoms begin to improve within a month, but you won't experience the full effects of stronger pelvic floor muscles for several months.

- To locate your pelvic floor muscles, try stopping and starting your urine flow midstream while urinating. The muscle that controls this action—your urinary sphincter—is the one you'll be exercising. (Don't regularly do Kegel exercises while urinating, however, as this can lead to dysfunctional voiding.)
- Squeeze this muscle for three seconds, then relax for three seconds. Repeat 10 times. Do a set of 10 squeezes in three different positions—sitting, standing, and lying down—so that you can gain control of your pelvic floor muscles in all positions. If you tire, rest briefly, then resume. Three sets of 10 squeezes will take about three minutes to do.
- Repeat these exercises at least twice a day, every day. Kegels can be done at any time: while brushing teeth, watching TV, waiting at a red light or in a store line, reading in bed, even while going on a walk. Choose a few activities that you do every day and practice Kegels at those times. Make these exercises part of everyday life.





Just Do It (Right)!

The most common mistake people make when learning Kegel exercises is contracting the wrong muscle. When done correctly, all other muscles should be relaxed. Here are some tips to help you exercise the right ones.

- Be sure you are not tightening your abdominal muscles at the same time. (Abdominal muscles push urine out rather than holding it in.) While squeezing your pelvic floor muscles, place your hand on your belly to feel if it tightens.
- If your upper legs are moving as you exercise, you are squeezing your thighs.
- Do these exercises while sitting down in front of a mirror. If your body rises up and down as you squeeze, you are contracting your buttocks.
- If you find yourself holding your breath while doing Kegels, you maybe tightening your chest muscles.

Help with Kegels

Depending on the severity of your condition, you may need help learning or performing pelvic floor muscle exercises. The following therapies can be combined with Kegel exercises to assist you.

Biofeedback: If you are having trouble locating or controlling your pelvic floor muscles, small sensors can be placed in the vagina or rectum and on the abdomen. When you tighten the right muscles, lights or graphs on a computer screen change and/or a tone sounds, giving you feedback as to when you are doing the exercises correctly.

Electrical stimulation: If you haven't been able to contract your pelvic floor muscles on your own, a small electrode can be placed into your vagina or rectum to exercise the muscles for you. The electrode delivers a painless, low-grade electrical pulse, which stimulates your muscles to contract. You'll feel a mild tightening in your muscles. After receiving a few treatments of electrical stimulation, you will be more aware of how to tighten your pelvic floor muscles and may be ready to begin exercising them on your own.





Drug Therapy

Several medications are available to help treat OAB. No one drug is right for everyone, and each has advantages and disadvantages. Work with your medical provider to determine which is best for you. Although medications generally reduce OAB symptoms, there is no actual cure. Urgency, frequency, and accidental leaks may not be entirely eliminated. However, OAB medications can help.

A Prescription for Relief

Many medications may help reduce frequency and incontinence, which may mean fewer trips to the bathroom, and fewer accidental leaks.

As with most medications, there may be some unwanted side effects. Different types of OAB medications may have different side effects, such as:

- Dry mouth: due to a decreased production in the salivary glands. Continue drinking the recommended daily amount of fluid: six to eight 8-ounce glasses. Chewing gum or sucking on ice chips or hard candy may also help.
- Blood pressure: some patients may experience an increase in blood pressure or blood pressure may worsen in patients with a history of high blood pressure.
- Constipation: results from the bowel slowing down and getting "backed up."
- Dry eyes or blurred vision: eye drops can help lubricate the eyes until you can cut back on your medication. If your vision changes, contact your doctor.



Urinary retention: Medication may relax the bladder such that it doesn't empty sufficiently (and constantly feels full).

Drug DOs & DON'Ts

Here are some simple DOs and DON'Ts to keep in mind as you begin drug therapy.

DU call your physician if you are experiencing a side effect. It's often possible to reduce or eliminate a side effect by changing the dose of your medication or by treating the actual side effect. DON'T stop taking your prescription without first speaking with your doctor about any concerns.

DON'T expect drug therapy to have an instant effect. With some medications, you may see an improvement of your symptoms in the first week or two, but it may take several weeks to see some change. DO remember that your OAB didn't start overnight, and relief won't, either.

U try to be patient if you need to test more than one drug or dosage to find what works best for you. This may take some time, as the trial period for each prescription can't be rushed, and everyone's response is different. So DO

DO continue to practice behavioral therapies recommended by your doctor while you work on drug treatment: monitor your food and fluid intake, practice bladder retraining and Kegels, and keep track of your progress by filling in the Bladder Trackers.



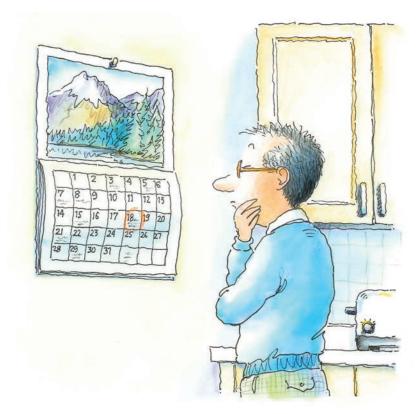


Tracking Your **Progress**

Calendar Checkpoints

Now that you're doing something about your symptoms, it's a good idea to check them from time to time to see how you're improving. Choose either one day a week or a special date of the month and fill in a Bladder Tracker on that date. Compare your progress from week to week, month to month. Bring these records to appointments with your doctor and share the results — both your progress and any setbacks.

So that you have more charts for future use, make several photocopies of the Bladder Tracker on the facing page before filling it in. (The lower half of the chart is shaded to remind you to drink most of your fluids before 6 PM each day.)



TIME SPAN	What did you drink and how much?	How many times did you go to the bathroom?	How many times did you have to <i>rush</i> to the bathroom?	Describe any activity that this interrupted.	How many times did you leak, and what amount?	What were you doing at the time of the leakage?
6 ам-8 ам						
8 ам-10 ам						
10 ам-12 рм						
12 рм-2 рм						
2 рм-4 рм						
4 рм-6 рм						
6 рм-8 рм						
8 рм-10 рм						
10 рм-12 ам						
12 AM-2 AM						
2 am-4 am						
4 ам-6 ам						

Other Bladder Management Options

No therapy is an instant fix. Until your medication and behavioral techniques have a chance to work, you may get some relief using the management strategies described here. These are also options if you have tried therapy but find it ultimately unsuccessful in treating your OAB.

Absorbent Products

Incontinence products absorb urine. They protect clothing, furniture, and bedding from accidents, and you from embarrassment. Products are available from light to heavy absorbency, and include **panty liners** and **pads** for women and **guards** for men (all of which secure to underwear with an adhesive strip), **protective underwear** (products that slip on like cloth underpants), **adult briefs**, and **bed pads** (small, highly absorbent disposable sheets placed on beds or furniture).

Absorbent products have both pros and cons: they help keep skin drier than it would otherwise be, although there may still be some skin irritation, especially if wet products are not changed often. (Frequent changes are also necessary to prevent odor build-up.) Incontinence products help you resume a more normal lifestyle; however, feelings of low self-esteem may still remain. You may find it inconvenient to keep products on hand when you're on the go, and staying in supply may be a costly burden.



Portable Toilets

If you have difficulty walking or trouble making it to the bathroom in the middle of the night, place a portable commode or hand-held urinal close to your bed or within easy access during the day. This will minimize accidents. Commodes can be rented or purchased, and placed behind a screen in the home for camouflage and privacy.



External Catheters for Men

This system involves a condom-like sheath that fits over the penis. It allows urine to drain into a collection bag strapped to the leg. Urine is stored there until it can be conveniently emptied. External catheters come in handy when frequent trips to a bathroom are difficult, such as when traveling. If used improperly or worn too long, skin rash or diminished blood supply may result.

Surgery

Doctors don't recommend surgery unless all other bladder treatments have failed and severe OAB symptoms still persist. One type of surgery involves implanting a small transmitter under the skin in the lower part of the back. The transmitter sends mild electrical pulses through thin wires to nerves that lead to the bladder. The painless pulses disrupt those messages that trigger unwanted bladder contractions. (Your bladder won't get the signal to squeeze until an appropriate volume of urine is reached.) Although this procedure has a good success rate, possible complications include the wire becoming dislodged (making the device ineffective), or additional surgeries needed to correct technical failures of the transmitter.

Caring for Someone With OAB

When the person who has OAB is not you but instead a family member or someone in your care, how do you handle the situation? Here are suggestions for some of the challenges you may face.

Signs to Look For

If you suspect someone in your care has urgency, frequency, or leakage, here are some behaviors or signs you may notice:

- sudden drop in the level of activity or socializing
- reluctance to leave home for more than an hour or two at a time
- urine odor in the home or on clothes
- rushing to the bathroom immediately upon arriving at a destination
- wearing clothing that hides possible accidents, such as loose-fitting pants, long sweaters, or keeping a coat on indoors
- buying feminine hygiene pads after menopause



Speaking Sensitively

It can be difficult to bring up OAB with someone you think may be trying to hide symptoms. You may feel the subject is too personal or that it's not your business. The person in your care may feel embarrassed and avoid discussion. But remember, this person may not seek treatment without your intervention, and OAB can severely affect his or her physical and emotional health. The most important step you can help someone take is seeing a doctor. Here are some reactions people may have when you raise the subject, and ideas for how to respond.

Embarrassment or humiliation: Most people associate wetting accidents with childhood. OAB sufferers may feel that others will view them as childlike or having poor personal hygiene. Reassure the person in your care that OAB is a medical condition with therapy options. By discussing the subject sensitively as a medical issue rather than something to be embarrassed about, you'll set the tone. You might also share this book or parts that you find most helpful.

Depression or fear: People may worry that OAB signals the end of productive life and the beginning of being dependent on (or a burden to) others for care. They may

fear their condition will get worse. Explain that OAB affects adults of all ages, and that the emotions they are experiencing are normal. OAB is *not* a normal condition, however, and doctors can suggest many treatments other than surgery.

Anger or resentment: The constant inconvenience, discomfort, and anxiety associated with OAB may put patients in an unpleasant mood. OAB sufferers may feel they have lost control, that their bodies have let them down. Let them know you recognize their discomfort and concern. Give them hope that therapy may greatly improve their symptoms.

Denial or resistance: Some people may joke about, or minimize, their OAB symptoms. (Women used to wearing pads for menstruation may think wearing them for leakage is acceptable.) Others may block awareness of their condition to avoid facing a diagnosis they fear. (Men often worry their symptoms signal prostate cancer.) Confronting a person who is in denial may cause further resistance. Gently share your concern (and this book) in a private setting, making sure the person feels respected and not criticized.

Under One Roof

How Caregiving Affects You

If you are caring for someone who has OAB, you and others in the household may experience your own emotional turmoil. You may worry about the patient's condition, or at times feel angry—at the situation, the person with OAB, or even yourself. Anger often stems from frustration, which can develop when people feel inadequate, overwhelmed, powerless, or fearful of uncertainties that lie ahead. You may also feel great sadness if the person with OAB is a family member who can no longer manage basic bodily functions. If he or she is a spouse or parent who has been a source of strength for you in the past, this shift in roles can be particularly stressful.

Caring for someone with OAB can also take a physical toll on you, especially if you are elderly yourself. Day-to-day care may range from assisting the patient with toileting, to changing incontinence products, to lifting and turning the person (if bedridden) to prevent breakdown of skin. Your assistance is required both day and night, so sleep may be interrupted several times a night. If caregivers don't get enough rest or time for themselves, they can become overtired, burned out, or resentful. Studies show that prolonged stress weakens the immune system, so be sure to take care of yourself, or your own health may be in jeopardy.

No Hard Feelings

You can reduce your stress by talking through your feelings with a supportive friend or professional. (Others who live in a house are usually too close to the challenges you're dealing with to provide the much-needed perspective.) Ask for help. Sometimes simple discussion will lead you to solutions you didn't think of on your own. But even if your physical situation doesn't change, your morale usually improves. On the other hand, ignoring problems, or denying they are there, will only prolong them.

It's natural to be anxious about certain elements of caregiving. You may fear, for example, that you'll never be able to assist your family member with such personal acts as toileting or placing and removing adult diapers. The fact is, you will grow used to providing this type of care just as you adapted to other challenges in your life.

Meeting With Medical Providers

Of course, doctors and nurses are available if you have questions about therapy or need advice about some aspect of home care. They will need the patient's consent to share information with you, but it's very common for a caregiver to be involved in the treatment plan. In fact, the success of a person's therapy often depends on his or her

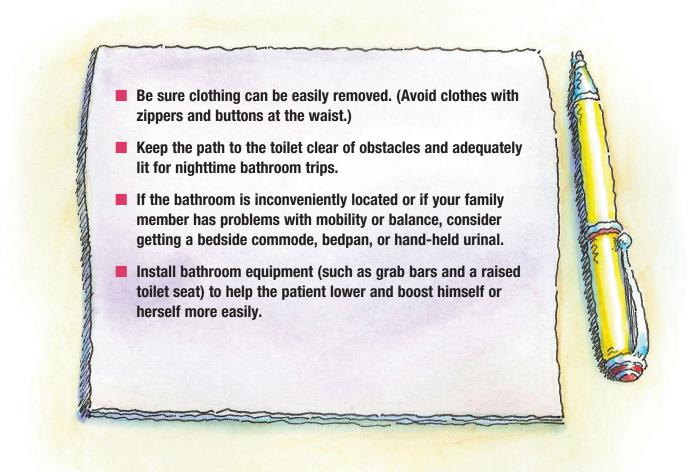
patient's advocate (helping to ask questions and learn about treatment options), but you are also part of the support team. If a person with OAB is having trouble sticking to his or her treatment plan (diet restrictions, pelvic floor muscle exercises, or scheduled urination programs), caregivers are often the ones who pull medical staff aside and report this. Be sure to preserve the patient's dignity, however. And unless the patient's mental faculties are diminished, allow him or her to take the lead in his or her care.

caregiver's participation. You are not only the



Making Toileting Easier

These tips help those you are caring for help themselves and assist them in maintaining their continence.



OAB in Nursing Homes

If the person in your care must be moved to a nursing home, he or she will still need your assistance. Sometimes patients who are capable of managing their symptoms through therapy instead experience a decline when they enter a nursing home. This can be in part due to unfamiliar surroundings, or because staff is not in the immediate vicinity when urinary urges arise.

Continue encouraging your loved one to practice Kegel exercises, his or her bladder retraining program, and quick contractions to reduce urges so he or she can wait for staff to assist with toileting. By helping to manage their OAB, nursing home residents may feel a greater sense of participation and contribution to staying well.

The Silver Lining

Caring for someone with OAB presents many challenges, but it provides opportunities as well. As you offer your services, support, and comfort, both you and the person you are caring for may discover deeper relationships, new strengths, and self-knowledge. To help you stay positive, try to see the potential for personal growth in all situations.

Steady As You Go!

Now that you're better informed about OAB and its treatment, your chances of managing this bothersome condition are very good. Work closely with your doctors and nurses, devote time and effort to your therapy, and believe you will improve. By following these steps, you'll be on the road to managing your symptoms!

Your Notes

Here's a place to record thoughts and questions you might want to address with your medical provider.

Before Your Appointment These are symptoms I'm experiencing: • Urgency • Frequency	During Your Appointment What might be causing my symptoms?
 Urge Incontinence Nocturia These symptoms cause the following problems in my daily routine: 	What are my treatment options?
	What do you recommend for me?
Here are medications I'm taking, including prescription and nonprescription medicines, vitamins, and herbal supplements:	What are the pros and cons of this treatment?
	What kind of results may I expect from this treatment?
	How long will I have to wait to see results?
	Other Questions or Notes