

read as well as his peers. "Loove books! Read 'em all the time," Gus coos. "In fact, I'm a speed reader."

That sort of cover-up isn't unusual among children who have reading problems and can continue into adulthood "because these kids are very smart," co-creator Chris Cerf says. The writers worked closely with experts in learning disabilities to fashion an accurate character. That's why Gus spends his first episode endearing himself to the cast of library denizens, impressing them with his wit and smarts and effectively avoiding having to read until he hops off in a frenetic fit of frustration and misdirected anger.

While the show's creators hope Gus will open minds and soften the stigma that comes with struggling to read, research shows there's more at stake than tolerance. Catching kids who struggle with reading before they enter kindergarten will make a world of difference in whether they complete high school.

Appropriate help by the first grade promises a normal reading ability for 90% of children with reading disabilities, according to the National Institute of Child Health and Human Development. But if help is delayed to age 9, 75% will have trouble throughout school. Unfortunately, it's usually age 9 before educators can recognize a reading disability, which can often masquerade as an attention problem or a behavioral issue, says Sheldon Horowitz of the National Center for Learning Disabilities (NCLD).

In May, NCLD and *Between the Lions* will launch an online screening tool for educators and parents that will help identify those bright youngsters who might be at risk for a learning disability before they hit school. In English and Spanish, the "Get Ready to Read!" tool will be available at [www.ld.org](http://www.ld.org), with a link on the show's Web site ([www.ptskids.org/lions](http://www.ptskids.org/lions)).

The tool, based on 20 years of research, works by having youngsters point to pictures in response to a series of questions. The site will have links to which parents can turn for activities to boost those areas with which a child might have trouble.

The screening tool isn't diagnostic, Horowitz warns, and it isn't meant to hurl youngsters into a world of expert opinion and clinical evaluation. Rather, it's something to which a concerned parent might turn when a doctor or educator says, "Don't worry, He'll outgrow it." And it could bring more children help earlier because it can be used privately at home: 44% of parents who suspect their child might have a learning problem wait a year or more before acknowledging it, according to a 2000 Roger Starch Poll.

And literacy experts agree: One year in the tiny window between ages 4 and 7 is crucial.

## Spanish version ahead

This season will see an infusion of Latino culture, characters and folk tales on *Between the Lions*, but the show will not introduce Spanish language to young viewers. Instead, creators have their future sights set on doing the same show entirely in Spanish.

To introduce Spanish sounds into a show that teaches English language would be confusing, *Lions* creator Chris Cerf says.

The show's Web site this year will have a Spanish component, and the teaching materials and the *Get Ready to Read!* screening tool will be available in Spanish, so that bilingual parents and educators can use it to teach reading in English.

# Insulin without injections

## What was once diabetics' dream is almost reality

By Anita Manning  
USA TODAY

Earlene deMoulied, 42, of Carpinteria, Calif., was diagnosed with diabetes 38 years ago.

Frequent testing of her blood and up to five injections of insulin every day have kept her healthy and active. But she longs for a day when she no longer has to face multiple needle sticks.

Roberta Aikens of Wilmington, Del., was diagnosed with diabetes four years ago, when she was 39. So far, she controls it with drugs, diet and exercise. She doesn't have to take insulin injections — yet. She hopes she never does.

Within the next few years, they and the 16 million others with diabetes may reap the benefits of research that will lead to needle-free insulin. Scientists have long sought a way to deliver insulin, a hormone that helps move glucose from blood into cells, by way of pill, puff or pump. Now, many say, they're in striking distance of success.

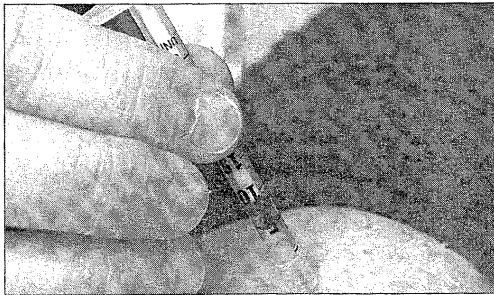
Aikens hopes it happens soon. "I don't want to take a needle," she says. "The thought of taking a needle every day, that's like having cancer. ... It makes you seem sicker."

For deMoulied, new developments offer the promise of a day without needles — for the first time since she was 4. Diabetes, she says, "is a lifestyle. It's a 24-hour-a-day disease with no vacations."

Diabetes is a chronic disease caused by a deficiency or lack of sensitivity to the hormone insulin that results in high levels of sugar, or glucose, in the blood. This glucose buildup starves cells and can lead to blindness, nerve disease and amputation, kidney disease, heart disease and stroke.

About 1 million people have type 1 diabetes: Their bodies produce no insulin at all, and they require insulin injections, sometimes many times a day. More than 90% of diabetics, including Aikens, have type 2. They don't produce enough insulin or can't use it effectively.

Early and continual control of blood glucose levels not only makes patients feel better but also may head off the disastrous complications of diabetes that are so debilitating and expensive to treat, says Christopher Saudek of Johns Hopkins University, president-elect of



By Bob Riba Jr., USA TODAY

**Needles begone:** Earlene deMoulied, who has had diabetes since she was 4, dreams of the time, she won't need as many as five injections every day.

the American Diabetes Association. The ADA estimates that diabetes costs more than \$44 billion a year for treatment alone. "There's a good argument for treatment of diabetes before complications set in."

Saudek and other diabetes experts believe that once non-injectable insulin is available, more people will be willing to take advantage of the treatment earlier in their disease, preventing problems later on.

"The idea of trying to develop alternate ways to give insulin has been thought about quite a lot over two decades," says C. Ronald Kahn, president of the Joslin Diabetes Center at Harvard University. Nasal sprays, patches, even suppositories have been tried with little success, he says, but new technologies are offering real hope.

### Inhaled insulin

Data from large-scale clinical trials of a gadget similar to the inhalers used by people with lung ailments is on track for presentation to the Food and Drug Administration later this year, says Robert B. Chess, chairman of Inhaled Therapeutic Systems of San Carlos, Calif., which developed the device.

Lungs are a natural pathway to the bloodstream, says Chess. If spread flat, a lung's surface measures about 1,100 square feet — "a little smaller than a singles tennis court and about the size of the apartment I lived in before I got married," he says.

This surface is covered with millions of tiny air sacs called alveoli that pass oxygen and other chemicals into the bloodstream, and carbon dioxide back

used in the pump, which is a titanium disk, 3.2 inches by .8 inch. It will infuse insulin directly into the abdomen, near where a functioning pancreas would release insulin, MiniMed's Robert Murtfeldt says. That makes it "more natural than (injected) insulin," he says, and eliminates problems of absorption of insulin that plague some diabetics.

Ultimately, the company is aiming for a device that would combine an implanted insulin pump with a long-term implantable glucose sensor, eliminating the frequent monitoring of blood sugar levels now required.

### Insulin pills

They said it couldn't be done — oral insulin, that is — because when insulin hits the stomach, digestive juices destroy it. "There have been quite a few attempts at making oral insulins in the past but all have failed, largely because the delivery of insulin wasn't consistent enough, or because you had to put huge amounts of insulin in to get a little to the body," says Christopher H. Price, president of Nobex. His company is developing a form of insulin that is able to withstand destruction by digestive enzymes and be absorbed through the walls of the intestines to the portal vein, which transports it to the liver and then to the rest of the body.

Five small studies have been completed, Price says, and data will be presented at an upcoming scientific meeting that "will show we have significantly or completely controlled blood glucose with a single dose taken before a meal." Larger clinical trials are expected to begin next year.

### Insulin mouth spray

Studies also are being done to test a liquid aerosol insulin that is sprayed into the mouth and absorbed through the inner cheek walls.

Pankaj Modi, vice president of research and development for Genexer Biotechnology, presented data in February at a conference in India on studies involving more than 150 patients, mainly in Canada and Europe. Results, he says, were "very encouraging," showing that patients who got three puffs a day of the insulin had a reduction in blood glucose levels compared to those who got puffs of a placebo.

Larger studies will begin in Canada this summer, Modi says, and "if everything works out," it could be available in Canada and the USA by "the end of 2003 or beginning of 2004."