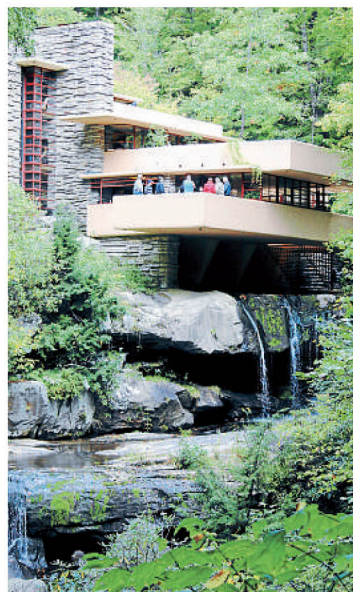


Home | 9F

Tips for hanging things up — before you start banging nails in the wall.

Travel | 6F

Art. Perfection. Not enough closet space. All are apt descriptions of Frank Lloyd Wright's Fallingwater.



Food | 12F

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SUNDAY
GAZETTE-MAIL **F**
November 4, 2012

Celebrations, 4 Linda Arnold, 5 Sara Busse, 8

Life & Style

DARK PATCH MAY BE A RED FLAG

Diabetes risk marker found on back of neck of 1 in 20 W.Va. children

By **Kate Long**
Staff writer

KINGWOOD — When Aubrey Duckworth was 10 years old, West Virginia University's CARDIAC screeners came to Preston County's Kingwood Elementary. They checked fifth-graders' blood pressure, cholesterol, height and weight.

They also checked the back of each child's neck. They were looking for a dark patch of skin, a signal that the child is at risk of Type 2 diabetes.

A week or so later, Aubrey's mother, Gwen, got a letter from CARDIAC saying they had found an AN marker, a dark linear patch, on Aubrey's neck. "They said to show the letter to her doctor," Gwen said.

She took Aubrey to the family doctor. "He looked at the back of her neck and said, 'We need to keep an eye on that.'"

"An AN marker is a warning signal to check for Type 2 diabetes," said pediatrician Dr. Pamela Murray, chief of the Division of General Pediatrics and Adolescent Medicine at WVU Medical Center.

West Virginia is facing a diabetes epidemic that threatens to swamp the state health-care system, Murray said. One in 3 Americans will be diabetic by 2050 if preventative measures are not taken, the Centers for Disease Control and Prevention predicts.

"If we can catch it now in children, we absolutely should," Murray said.

Thousands of West Virginia children — 1 in 20 — have the diabetes-linked marker, according to the CARDIAC project, which screens statewide.

"The fancy name is acanthosis nigricans," Murray said. It translates "dark area."

"Lots of times, it looks like a smudge or dirt," she said. "It used to be only adults, but now, as kids get Type 2 diabetes too, it turns up on children too."

In the past 11 years, CARDIAC screeners have checked 78,751 West Virginia fifth-graders' necks. On average, 5.2 percent had a marker. That's 762 children in the fifth grade alone.

When insulin behaves abnor-



KATE LONG | Sunday Gazette-Mail photos

Diagnosed with Type 2 diabetes, Aubrey Duckworth (left), 14, danced her blood sugar back to normal, doing Zumba with her mom, among other things, after health screeners spotted a marker on her neck that signals diabetes risk. "We're grateful," said Gwen Duckworth (right).



The AN marker shows up as a dark linear patch along the neck. Nationwide, black children develop the AN marker more often.

mally in the body, AN markers may appear as brown-to-black velvety areas encircling the back of the neck, under the arms or in the crook of the elbow or knee, Murray said. "The bad thing is, many parents don't know what it is," she said.

Many teachers don't recognize it either, said Kelli Caseman, director of the West Virginia School-Based Health Assembly. Teachers sometimes refer children to the health center for hygiene issues, she said, "only to find that the dirt on the back of students' necks was AN."

Murray emphasizes that:

■ The marker is not a diagnosis of diabetes. It is a red flag

for pre-diabetes, according to the American Diabetes Association and American Academy of Pediatrics.

■ All pre-diabetic people do not develop a marker. One in 5 children do, according to CARDIAC figures, usually those most at risk. If 762 fifth-graders have markers, five times that number could be pre-diabetic.

■ Most people who develop the darkened patches are overweight, another diabetes risk factor.

"It's usually easier to identify on darker-skinned individuals, but in West Virginia, it's frequent and more visible on white children," Murray said. Nationwide,



THE SHAPE WE'RE IN

black children develop AN — and diabetes — at a higher rate than white children do.

AN markers often fade away if people bring their blood sugar into normal range, she said.

Aubrey Duckworth's marker didn't fade, but she did gain weight. By age 13, she was 6-foot-1 and weighed 287 pounds. Her family doctor referred her to Morgantown.

Murray — who specializes in childhood diabetes and obesity — ordered blood tests. They showed that Aubrey has type 2 diabetes.

"The good news is, we caught it early enough to prevent serious damage," Murray said. Exercise and eat right, she told Aubrey, and you may eventually be able to manage it without medication.

Now Aubrey and her mother do Zumba four times a week. "It's great her mother does it with her," Murray said. The whole family improved their diet, Gwen Duckworth said. "We're all in this with her," she said.

Aubrey has lost 35 pounds so far, more than 10 percent of her weight. Her three-month blood sugar level dropped 32 percent, into normal range. Her AN marker has disappeared. "If you lose 10 percent and exercise, your numbers should drop," Murray said.

This semester, Aubrey's in the marching band, and she has physical education every day, "so she's active every day," her mother said. But West Virginia high school students take only one semester of P.E. in four years. "That's going to be a problem," her mother said.

SEE **PATCH**, 5F

Once a person has diabetes, it doesn't go away. On a recent band trip, Aubrey almost passed out while marching. Now she carries high-protein foods like peanut butter. "If I don't like the school lunch, I can still eat," she said.

"At 14, she's not ready to do this on her own," her mother said. "We're trying to help her develop lifelong habits that will let her manage this disease. We're very grateful this was caught early."

'Can't we check all kids?'

Aubrey's story is an excellent argument for screening children for the marker, Murray said.

"It's important that every parent, teacher, doctor and school nurse be familiar with it. There is a huge amount of diabetes in West Virginia, and this is one way to catch many children early."

"Even if it doesn't catch everybody," thousands could be prevented from getting diabetes, said Jamie Jeffrey, director of the Children's Medicine Center at Charleston Area Medical Center. "Can't we figure out how to check all kids for this?"

Few people disagree. But discussion often bogs down on the question: Who should screen?

"School nurses do other screenings, don't they?" Murray said. "Why not just check the neck too?"

Rebecca King, who directs the state's school nurse program, says school nurses are already overwhelmed and are not the right people for the job. Most counties have only one or two nurses, she said.

Doctors should do any AN screening, she recommends. However, the state Department of Education does not require that doctors check for the marker in the well-child exams children must get for school.

Many children do not have regular doctors, Murray said. "Urgent Care is about the closest they get."

"I do think there needs to be a medical conversation on this subject, and soon," she said.

DOE officials want families to have a regular doctor for each child, King said, "so screening would be more appropriately done in the child's medical home."

"The reality is, we have many kids who never see a doctor any time, except in the ER or an occasional well-child check," said Kelli Caseman of the School-Based Health Center Assembly.

Dark area on the back of the neck?

■ Thousands of West Virginia children have a light-to-dark-brown marker or rash on their neck that signals type 2 diabetes risk, according to WVU's CARDIAC program.

■ Acanthosis nigricans (AN) may also appear under arms, at the back of knees and elbows and in other folds of the body.

■ It can develop on children as young as 6, usually looking like discolored lines or a dirty neck.

■ AN is not a diagnosis of diabetes. It is a red flag that insulin is behaving abnormally in the body, a precursor of diabetes, heart disease and other conditions.

■ All pre-diabetic people do not develop such markers. About one in five at-risk children develop AN, according to CARDIAC statistics.

■ If you think you see AN, get your doctor to check it out. The ADA recommends diabetic testing, especially if the person is overweight and/or has a history of diabetes in the family.

■ Sixteen out of 19 of recent research studies confirm the connection between AN and type 2 diabetes, according to a 2012 summary in the Journal of School Nursing.

SOURCES: The Journal of School Nursing; West Virginia University's CARDIAC program
KYLE SLAGLE | Sunday Gazette-Mail graphic

Stages of the AN marker



KATE LONG | Sunday Gazette-Mail photos

Rebecca King, director of the state's school nurse program, says screenings for the AN marker should be performed by a child's regular doctor, not by a school nurse.

"There may be other ways of doing this that don't add a lot to people's duties," said Sharon Carte, Children's Health Insurance Program director. "For instance, phys-ed teachers check children at the beginning of school. Maybe they could do it."

"AN screening of children is relatively new, so it's still controversial," King argued. As evidence, she points to a 2001 CDC posting that discouraged AN screening, saying insufficient research supports the connection with diabetes.

That posting is now marked "archived for historical purposes."

In June 2012, the Journal of School Nursing summarized recent AN research, most published since 2001 and concluded that "the AN screening tool is easy to use and reliable for use with elementary school-age children of various ethnic groups." Sixteen of 19 studies concluded there is an AN-dia-



"There is a huge amount of diabetes in West Virginia. This is one way to catch many children early," says Dr. Pamela Murray, chief of general pediatrics and adolescent medicine at the WVU Medical Center.

betes association, the Journal said.

"The bottom line is, a lot of kids are developing pre-diabetes who could fairly easily be helped with little expense," Jeffrey said. "Surely we can be creative and find a way to do this."

"Glucose and insulin tests for all children are expensive, but this is a cost-effective screening tool," said Lesley Cottrell, vice chairman of pediatric research at WVU.

The School-Based Health Center Assembly recently created a roundtable to identify areas where children are falling between the cracks, Caseman said.

"We want to look at who's covering what, what needs to be done, and where children fall in the gap," she said. "This an excellent case in point."

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