



A Shot in the Arm

With flu season on the horizon, Magee's pandemic point man is on a mission to increase vaccination among pregnant women.

— By Anna Dubrovsky

When Magee-Womens Hospital of UPMC recruited Richard Beigi, MD, MSc, from Cleveland in 2006, health providers around the world had bird flu on the brain.

UPMC was bracing for a pandemic, and Dr. Beigi, an obstetrician-gynecologist who specializes in infectious diseases, was charged with developing a plan to protect pregnant women from the deadly virus. A human case of bird flu has yet to be reported in the United States, but Dr. Beigi's work in pandemic preparedness has not been for naught. In 2009, a new virus dubbed swine flu spread rapidly around the world, claiming more than 18,000 lives.

"The H1N1 pandemic put all the planning we had done to the test," Dr. Beigi says. "We learned we had done some stuff really well. And there was some stuff we could do better."

The pandemic reaffirmed that pregnant women who get the flu are more likely to become seriously ill, and even die, than non-pregnant women. They're more likely to suffer pregnancy complications, including premature labor and delivery. It also reaffirmed the benefits of vaccination. What troubles Dr. Beigi in the aftermath of the pandemic is that many pregnant women still eschew flu shots.

"We did not do as well as we would have liked with getting high rates of vaccine acceptance."

Before the 2009 pandemic, only about 15 percent of pregnant women nationwide were immunized against seasonal flu, compared to about 50 percent of the general population. "That improved somewhat during the pandemic, and the most recent data suggests that roughly 40 to 50 percent of pregnant women were immunized last year," Dr. Beigi says. "That's better, but there's still a lot of room for improvement."

It's understandable why some pregnant women shy away from vaccines and pharmaceuticals. Drug companies rarely test drug candidates on pregnant or lactating women. Of the thousands of drugs brought to market, less than 1 percent have been tested on and approved for pregnant women, Dr. Beigi says. "That comes from a legitimate desire to not expose fetuses to potentially harmful drugs. But the downside is that we potentially expose them anyway — on a much larger scale — when the drugs become available."

There's no dearth of safety data when it comes to the flu shot. "The research is very consistent," says

Dr. Beigi, who serves on the National Vaccine Advisory Committee. "The vaccine is very safe during pregnancy, and it's been recommended for decades." But fears and misconceptions persist. Some people think they can get the flu from the vaccine, which is untrue. In recent years, it's also been suggested that vaccines cause autism. "That has been completely scientifically refuted, but it still had its effect," he says.

As flu season approaches, Dr. Beigi is counting on obstetricians to educate patients about the vaccine and the potentially devastating effects of the flu on pregnancy. He recently completed a study showing that most pregnant women will accept vaccination if their obstetrician advises it. Of the 573 pregnant women surveyed, nearly two-thirds reported concerns about possible vaccine effects on their pregnancy. But the overwhelming majority (89 percent) reported willingness to accept vaccination if it's recommended by their obstetrician. The study has been submitted for publication. "We're hoping that disseminates into the ob-gyn world and gets the message across that physicians sit in a very powerful position," Dr. Beigi says.

He's not relying on physicians alone. Dr. Beigi and Michelle Moniz, MD, an ob-gyn resident at Magee, are exploring whether the new communication medium of text messaging can be used to increase vaccination rates among pregnant women. Women who enroll in their trial receive general health messages throughout their pregnancy; half of the women also receive messages on flu vaccination. The two-year study is funded by the Amy Roberts Health Promotion Research Award, established by Amy's parents, Dr. James M. Roberts, founding director of Magee-Womens Research Institute, and Mary, in memory of their daughter.

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For more on the Amy Roberts Health Promotion Research Award, see page 18.



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Pregnant women who get the flu shot pass on the protection to their newborns. That’s important because the flu vaccine is not approved for use in infants younger than 6 months, and their risk of flu complications is higher than it is for any other child age group, according to the Centers for Disease Control and Prevention.

When pregnant women do contract the flu, they’re treated much like any other infected person. Since so few drugs are tested on pregnant women, that’s potentially problematic. “When I came here a few years ago, we realized that although pregnant women were known to be disproportionately affected by the flu, there was literally no data on how to use flu drugs in pregnancy,” Dr. Beigi says.

When treating pregnant women, doctors have the difficult task of weighing a drug’s potential risks against its potential benefits. If they choose to medicate, they generally prescribe the same dose that’s recommended for non-pregnant women, crossing their fingers that it will work. But a drug’s effect on a pregnant woman can be quite different from its effect on a non-pregnant one. “Pregnant women are not just heavier women. Their physiology changes,” Dr. Beigi says. “Kidney function changes dramatically. Cardiac function changes dramatically. Liver function changes along with the gastrointestinal system. Those are all the ways that the body distributes and metabolizes drugs.”

Not long after settling in at Magee, Dr. Beigi designed a study of Tamiflu, one of the FDA-approved antiviral drugs for treating the flu. The study, published earlier this year, suggests that pregnant women may need a higher dose of the drug. “When we compared pregnant women to non-pregnant women getting Tamiflu, we found that the levels of the active drug were about 30 percent lower in the pregnant women,” he says. “We don’t know the exact clinical applications of that, but the importance is that we’re starting to study it and finding that there are some differences when you’re pregnant.”



Studying the effects of drugs on pregnant women is no easy task, partly because of government regulations and partly for ethical reasons. “Even when you have drugs that you have no reason to believe are risky — the animal studies show no problems — it’s still very challenging to do that research because of the perception that you may harm somebody,” he says.

Only a handful of institutions are up to the challenge, and Magee leads the way. Says Dr. Beigi: “It takes an institution like Magee, with its leadership structure, dedication to women’s health research, funding, and vision, to make it happen.”



Prevent the Flu

The Centers for Disease Control and Prevention (CDC) recommends yearly vaccination as the most important line of defense against seasonal flu. Flu vaccine comes in two forms: a shot and a nasal spray. The nasal spray vaccine is for use in healthy people age 2-49 who are not pregnant. Pregnant women should get the flu shot. It can be administered during any trimester. Good health habits can also prevent the flu and other respiratory illnesses. On the following page are six tips from the CDC.

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For more information
on seasonal flu, visit
www.cdc.gov/flu.

Flu Prevention Tips

1.

Avoid close contact with people who are sick.

2.

Stay home from work or school when you're sick
so you don't make other people sick.

3.

Cover your mouth and nose with a tissue when coughing
or sneezing, and throw away the tissue.

4.

Wash your hands often with soap and water, especially
after you cough or sneeze. If soap and water aren't
available, use an alcohol-based hand sanitizer.

5.

Avoid touching your eyes, nose, or mouth in case you've
touched something contaminated with germs.

6.

Practice other good health habits. Get sufficient
sleep and exercise, eat nutritious foods, drink plenty
of fluids, and keep a lid on stress.