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Health

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New vaccines expected in near future

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Special to The Journal

WAITS IN pediatricians' waiting rooms may become shorter if several new children's vaccines make it to market. These include vaccines against chicken pox, meningitis, influenza, bronchitis, croup, diarrhea and ear infections. An improved vaccine for whooping cough may be just around the corner, too.

"The idea is to try to eliminate disease," said David Klein, an official of the National Institute for Allergies and Infectious Diseases. "Hopefully, the day may come where a child won't have to go to a doctor more than once a year for a general checkup."

Although some vaccines are several years down the road, others — like a new vaccine for Hemophilus influenzae type b — recently have gone on the market. A major cause of death in young children, this flu is at the root of most bacterial meningitis cases in the United States.

For several years, physicians have used a vaccine that offers some protection, but the vaccine is not effective in infants. Initial studies of new hemophilus vaccines, however, show they prevent infection in children vaccinated as young as 2 months.

The new vaccines have been tested in more than 60,000 infants under 1 year old, and 60% to 100% of the babies were found to generate high enough levels of the hemophilus antibody to protect them from infection. No serious reactions were reported.

In December, the Food and Drug Administration approved the use of one of these vaccines in children no younger than 18 months of age until further studies validate the effectiveness of the vaccine in newborns.

Edward Brink, an epidemiologist with the Centers for Disease Control in Atlanta, said such a vaccine eventually would be given along with DPT (diphtheria-pertussis-tetanus) vaccine to infants at regular intervals starting at 2 or 3 months of age.

An improved DPT vaccine also is on the horizon. Unlike the pertussis — whooping cough — vaccine currently in use in the US, new Japanese vaccines contain pertussis proteins that have been stripped of their toxicity.

The disabling of the toxins does not seem to hamper the vaccines' ability to foster an effective immune response. Initial tests indicate the vaccines are safe and cause less fever, fussiness and irritation than the vaccine currently used.

But tests of two of the new vaccines conducted in nearly 4,000 children recently in Sweden suggest that the vaccines are about 15% to 30% less effective than the current pertussis vaccine — results that don't look promising for FDA approval. More studies need to be done on the vaccines, Klein said. A new pertussis vaccine may not be in use for two or three years.

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Labs test new vaccines for childhood ills

Vaccine, from Page 1D

Another Japanese development is the discovery of a weakened form of the virus that causes chicken pox. The Japanese have used this strain in their chicken-pox vaccine with good results for more than 10 years. This prompted the US drug manufacturer, Merck & Co., to use the Japanese viral strain in its own chicken-pox vaccine, and studies show the Merck vaccine is both safe and effective.

Perhaps more important, the vaccine would protect children with leukemia from the fatal consequences of chicken pox.

"This vaccine will enable leukemic kids to lead a normal life," said Columbia University's Anne Gershon, who has coordinated testing of the vaccine in leukemic children. "They can go to school and not have to worry about being infected with chicken pox."

It was the disappointing results of initial tests of the vaccine on leukemic children that held up FDA approval in 1984, when the vaccine was shown safe and effective in healthy children.

In her most recent study of more than 400 leukemic children, Gershon used a slightly weaker batch of vaccine than previously used. In this study, 85% of the children were protected for more than a year from chicken pox, and only 5% developed the chicken pox rash immediately after vaccination. The affected children were treated with the antiviral drug acyclovir and recovered.

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A major cause of visits to the pediatrician are middle-ear infections, according to the National Center for Health Statistics. Although antibiotics usually cure a child quickly of an ear infection, the fluid that often remains behind the eardrum for several months can cause long- or short-term hearing loss.

Antibiotic-resistant bacteria that prompt ear infections also have emerged in recent years. Spurred by this situation, researchers have developed vaccines to combat the two most common causes of middle-ear infections, streptoccocus pneumoniae and non-typable hemophilus influenzae.

The former is a major culprit behind pneumonia cases, and vaccines for this bacteria are already in use in adults. But these vaccines do not prompt an effective response in children, especially those under 2 years of age, who are most likely to be afflicted with ear infections.

Preliminary studies of a new vaccine for one strain of the pneumonia, however, show that it is safe and prompts a strong immune response in children at an earlier age than present vaccines do. Extensive tests will be needed before FDA approval can be considered.

Non-typable hemophilus influenza vaccines also have been developed that prevent middle-ear infections in animals.

A vaccine to prevent ear infections probably won't make it to doctor's offices until 1995 at the earliest, Klein said.

Because most ear infections follow infection with a respiratory virus, vaccines that combat the microbes behind croup, bronchitis and pneumonia cases also may stave off ear infections. Soon to be tested on humans are vaccines composed of weakened strains of a virus that is a common cause of upper and lower respiratory disease.

Several laboratories also are busily trying to develop a safe and effective vaccine for respiratory syncytial virus, which is one of the leading causes of hospitalization of children.

In addition, early tests on children of a new breed of flu vaccines showed that they are safer and provide more durable and complete protection than flu vaccines currently used. The vaccines are made from weakened as opposed to killed influenza viruses and are given as nose drops.

FDA approval of these vaccines won't be possible until the results are in from large-scale clinical tests of the vaccines. The results are not expected to be available until next year.

A high priority in Third World countries is a vaccine against a diarrhea-causing microbe called the rotavirus. This virus is one of the leading causes of death in developing nations. In the US, more than half of all infants are infected by a rotavirus before they reach their first birthday, said epidemiologist Meishang Ho of the Centers for Disease Control.

Several rotavirus vaccines have been tested in small-scale clinical trials. Although some were effective in tests conducted in a single country, no vaccine has shown across-the-board effectiveness in several countries, probably because each vaccine offers protection only against one or two strains of the virus. Vaccines that may offer more widespread protection are being tested. An accepted rotavirus vaccine is not expected for another 5 to 10 years.