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The research arm of Doctors Without Borders reports vaccines created for industrialized countries are not being adapted for use in the developing world, meaning that millions of children born each year could be receiving less-effective vaccines, or missing out on the basic vaccination package.

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The results of a new study by Epicentre, the research division of Doctors Without Borders, have added to what the group calls a “growing body of evidence” that vaccines may not be one-size-fits-all.

10 Rebecca Grais, director of Epidemiology and Population Health at Epicentre, says vaccines against life-threatening diseases must be modified for use in Africa if they are to protect children.

15 “We want to make sure that the living vaccine and the vaccines that we do have are both adapted to the population where we are working, in presentation and composition, and we want them to be as easy to use as possible for both the mother and for the health infrastructure,” she said.

20 Many areas in Africa don’t have access to adequate refrigeration or electricity to keep vaccines stored at proper temperatures. Bad roads and other logistical issues make getting the vaccines out to communities a challenge. And the vaccines are not always easy to use or administer in proper doses.

25 Grais said these factors must all be taken into consideration during the development and testing phases of a vaccine.

30 She and her team spent two years looking at the incidence of diarrhea among more than 10,000 children under the age of five in Niger. Diarrhea is one of the leading causes of child mortality in Africa and is often caused by an infection known as rotavirus.

35 Epicentre says the two available vaccines for rotavirus were developed and tested in industrialized countries where they have been found to be 90 percent effective. However, those same vaccines are estimated to be only 50 to 60 percent effective when used in Africa and Asia.

40 “There’s been great success in the U.S. and Europe with, in particular, two currently available rotavirus vaccines,” said Grais. “We’ve seen a great decline in the incidence of rotavirus and of course subsequently severe rotavirus gastroenteritis, which may lead to death, and so this has been a success. So the question is: how can we use these vaccines in the best way in the areas of the world with the highest diarrheal burden, which is sub-Saharan Africa?”

45 Grais said that while their study focused on the rotavirus vaccine, its findings are relevant to vaccinations in general.

Epicentre has launched two additional studies looking at alternative methods to deliver tetanus vaccine in Chad and the vaccine for pneumococcal disease in Uganda.

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Researchers hope the findings will further convince pharmaceutical companies that they need to tailor vaccines to the challenges of the developing world.

