Researchers at the University of Birmingham are developing a new, non-invasive saliva test that can identify children missing immunity to tetanus within 15 minutes. This could be a game-changer in developing countries (LMICs) where millions of children miss out on essential vaccinations.

Over 20 million children worldwide don't receive life-saving childhood vaccinations, and the COVID-19 pandemic has worsened the situation. This has led to a decrease in global coverage of the diphtheria-tetanus toxoid-pertussis vaccine, putting more children at risk of serious diseases like tetanus.

The new test is funded by a £1.1 million grant from the Medical Research Council. It's a low-cost lateral flow test that offers a quicker and easier alternative to traditional blood tests for checking immunity. This is particularly beneficial for children who might be apprehensive about needles.

Testing in Rwanda

After successful lab testing the researchers will be evaluating the test in real-world settings in Rwanda. Collaborating with Rwandan partners, they will assess the test's effectiveness and acceptability among the local community.

Tetanus is a preventable bacterial infection with a high mortality rate. While many countries have eliminated the disease, it remains a public health concern in LMICs. This new test can not only identify children needing tetanus vaccination but also potentially reveal gaps in immunization for other crucial diseases.

Dr. Jennifer Heaney, a researcher at the University of Birmingham, highlights the importance of knowing how many people are immune to diseases. This information can be used to evaluate the effectiveness of vaccination programs and identify areas where improvements are needed.

Dr. Christopher Green, from the Africa Centre of Excellence for Sustainable Cooling and Cold-chain (ACES), emphasizes the need for immunity data to guide vaccination planning and deployment. Data from the test can support individual vaccination decisions and provide population-level immunity estimates. This information is crucial for developing efficient and sustainable vaccination policies.

Following successful evaluation in Rwanda, the researchers plan to trial the test in other LMICs to assess immunity levels across different communities and further

support vaccination efforts. This new saliva test has the potential to significantly improve childhood immunization rates in developing countries, protecting children from preventable diseases like tetanus.