1. The situation
Rotavirus is a leading cause of diarrhoea, and diarrhoea is the second leading cause of death in children worldwide. **Rotavirus vaccines** that have been integrated into routine immunization schedules in high-burden countries have had relatively poor performance.

2. The context
CIDRZ is situated at the forefront of diarrhoeal surveillance research in Zambia, and will be conducting laboratory tests with samples from children under five in Lusaka Province.

3. What we want to know
What is the prevalence of markers of **environmental enteric dysfunction (EED)**, and how do they affect rotavirus vaccine immunogenicity? What are the **common causes of diarrhoea** in Zambia after introduction of rotavirus vaccines?

4. Study Design: Diagnostic Testing
Researchers will also use a state of the art molecular based **Luminex platform** to assess the prevalence of 15 common enteric pathogens in stools.

5. Study Design: Serum Samples
Researchers will measure the prevalence of both stool and serum markers of EED in an existing cohort of Zambian infants. We will then evaluate any associations of the EED markers with rotavirus vaccine uptake.

6. What we’ll measure: Laboratory Assays
We’ll test over 2000 stool samples of Zambian children under 5 years old who presented to health facilities with diarrhoea. This will result in describing the comprehensive epidemiology of diarrhoea post-rotavirus vaccine introduction in Zambia. We’ll also evaluate associations between presence of EED markers and rotavirus vaccine seroconversion in order to ascertain the effect of EED on vaccine uptake.

7. Relevance
This study will show the changing diarrhoea epidemiology following vaccine introduction and will improve the global evidence base on live oral vaccine performance.

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