Meet the researcher

A Breath Test for Malaria in Children

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Collaborating Institutions:

Philadelphia (US)
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The challenge

Blood tests are the standard for malaria but are invasive, slow, and often miss infections at low parasite levels. For children, they can be especially difficult.

The solution

This project trialled a non-invasive breath test. By analysing volatile organic compounds (VOCs) in exhaled breath, they found a unique "breathprint" of malaria. A child simply blows into a collection bag. This requires no needles, and no lab-bound process.

Why it matters

Child-friendly Quick and painless.

Accurate Detects malaria, even at low levels.

Responsive Breath markers fade after treatment.

Scalable Simple enough for rural clinics.

Research contribution

Dr. Rosalind Wang, data scientist, led the statistical analysis to identify the key breath markers. Using machine learning (Boruta with Random Forests), Rosalind built predictive models that learned the chemical "signature" of malaria. Her expertise confirmed that while no single molecule was enough, a panel of markers could reliably detect infection.

The impact

This approach proved that malaria leaves a chemical fingerprint in breath that disappears with treatment. This offers a safe, scalable way to diagnose children early and reduce the disease's spread.