

Supporting malaria diagnostic research and development with biobanking activities

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<https://www.finddx.org/what-we-do/cross-cutting-workstreams/biobank-services/>

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Rationale



The differential diagnosis of febrile illnesses in low- and middle-income countries (LMICs) remains a challenge, as health care professionals generally do not have access to adequate diagnostic tools. Malaria is one of the primary aetiologies of fevers in many countries, and a primary cause of mortality, especially in children under 5.



Reliable and timely diagnosis of malaria and other infectious diseases is crucial for effective clinical management of patients presenting with fever.

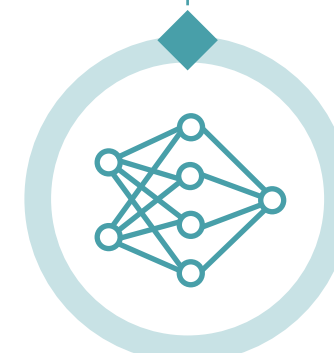


FIND's commitment to ensuring equitable access to accurate diagnostic tools is pivotal in addressing the challenges associated with malaria. Development and roll-out of fit-for-purpose diagnostic interventions is paramount in contributing to the global effort to reduce malaria burden.



However, diagnostic research and development for infectious diseases require the availability and accessibility of well-characterized, high-quality clinical specimens. Still, biomaterials collected from patients suffering from malaria and other LMICs endemic diseases are often difficult to source.

Methodology



FIND has been building a **biobank with fit-for-purpose and well-characterized collections**. The specimens were collected in LMICs from patients with malaria and other febrile illnesses and are publicly available for distribution to any researcher working on diagnostic tools.



The distribution process is facilitated for requesters from the public sector and/or from LMICs. This is aiming to promote **more equitable access to biospecimens** and foster the development of better-fitted diagnostic tools for malaria.



Currently, FIND stores over 168,000 malaria and other febrile illnesses clinical specimens, including blood, urine and saliva, collected from multiple LMICs. **FIND recently deployed a biobank dashboard for better visibility of the available specimens:** <https://find-biobank-dashboard.finddx.org>. Create an account and visit the dashboard to explore the Malaria and AFIs catalogues, as well the other catalogues.

Centralized biobank

UNITED STATES: AFIs, AMR, HCV, Malaria, TB

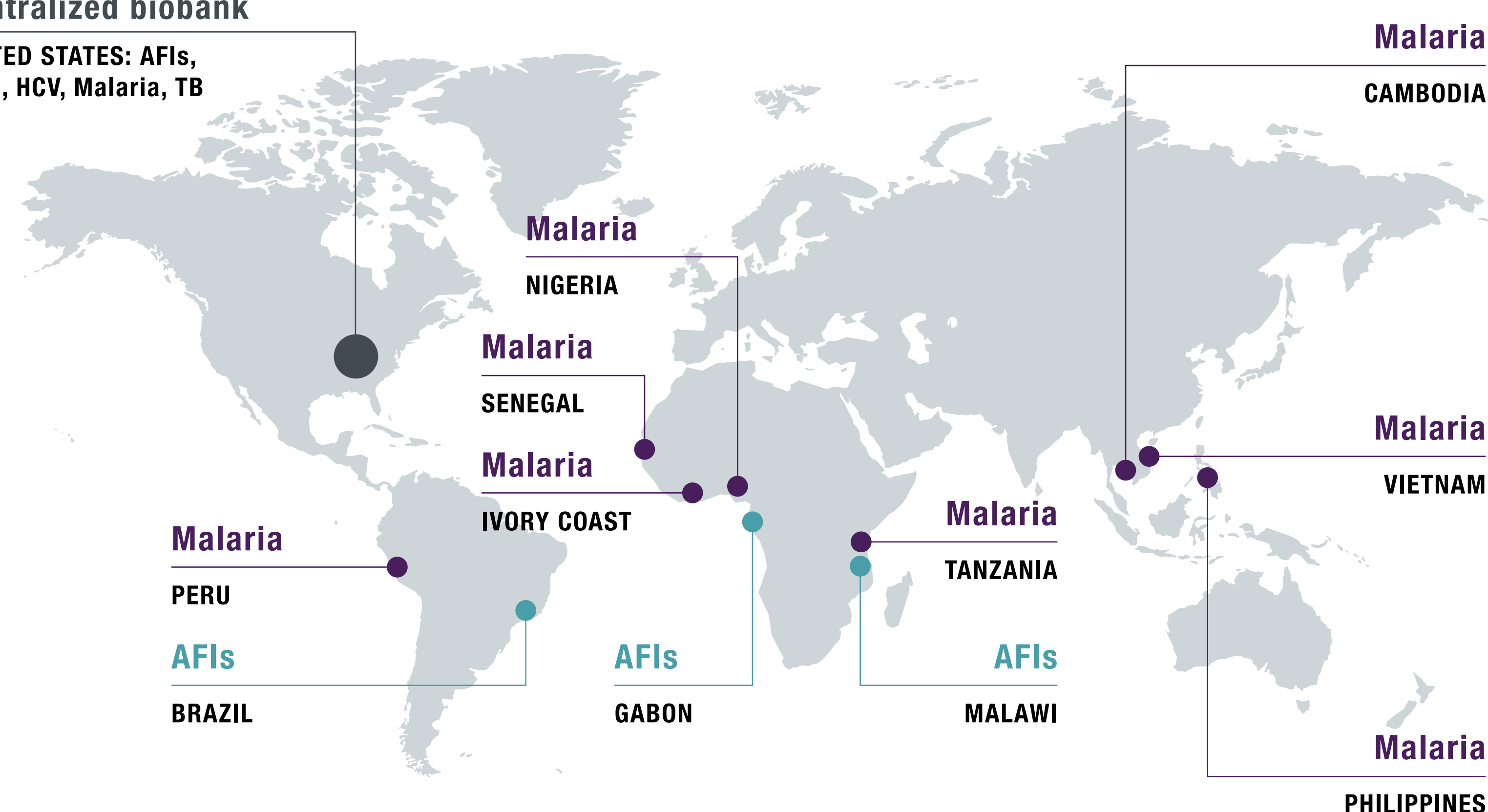


FIGURE 1. COUNTRY ORIGINS OF FIND MALARIA & ACUTE FEBRILE ILLNESSES (AFIs) SPECIMENS (AS OF Q1 2024)

Results and Discussion



Since 2019, 53.5% of malaria and other febrile illnesses clinical specimen distributions were allocated to entities in the private sector, with the remaining 46.5% directed towards public sector entities. 88% of these requesters were from High-Income Countries (HICs) and 12% from LMICs. These distributions represented a total of 5,923 malaria and other febrile illnesses clinical specimens, fulfilling a total of 43 material requests.



The projects utilizing these specimens varied in diagnostic development stages, with 9% at the concept stage, 17% in early development, 29% in proof of feasibility, 26% in validation, and 19% dedicated to diagnostic tools that had already achieved regulatory approval.



Malaria and other febrile illnesses specimens stored in the FIND biobank are thus successfully distributed to a variety of institutions worldwide, spanning both HICs and LMICs, and catering to all phases of diagnostic tools development.

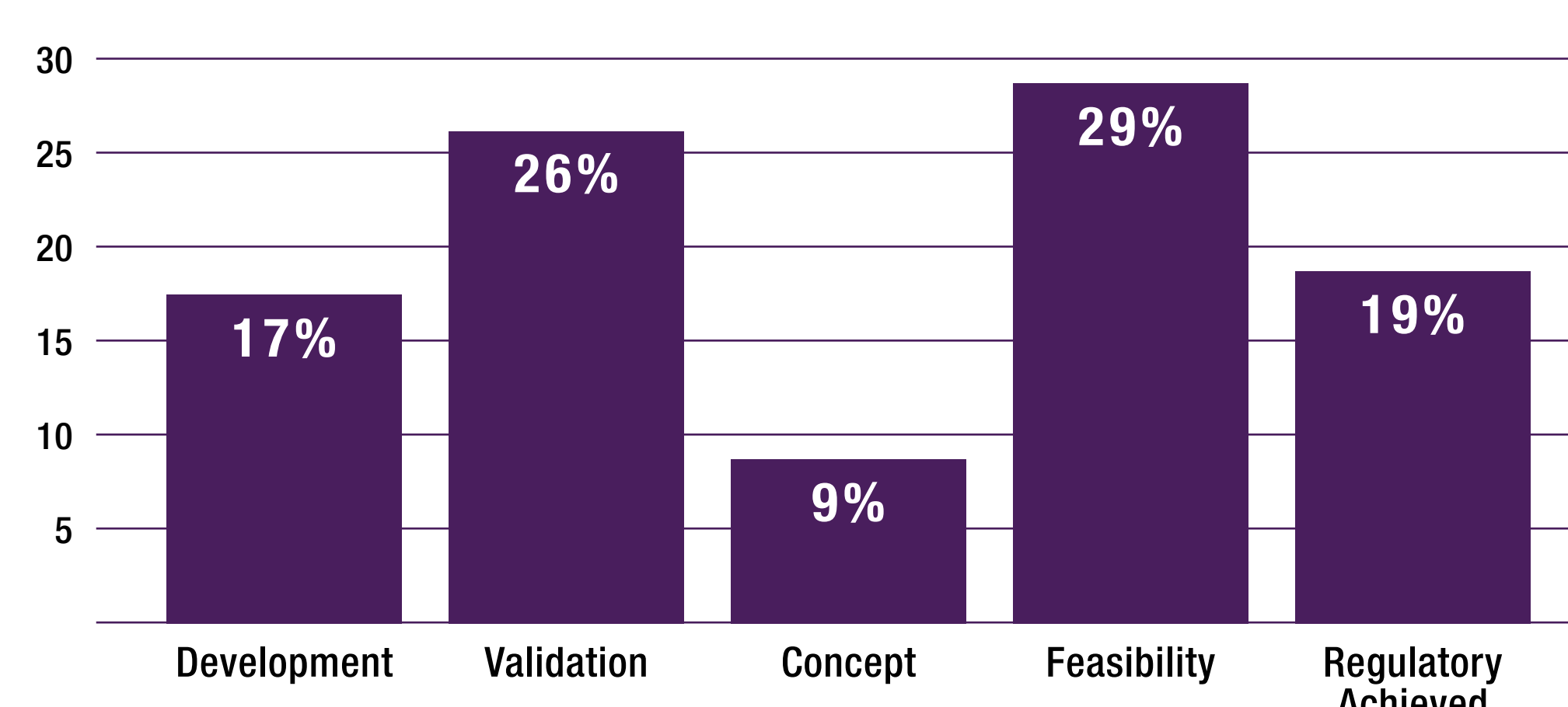
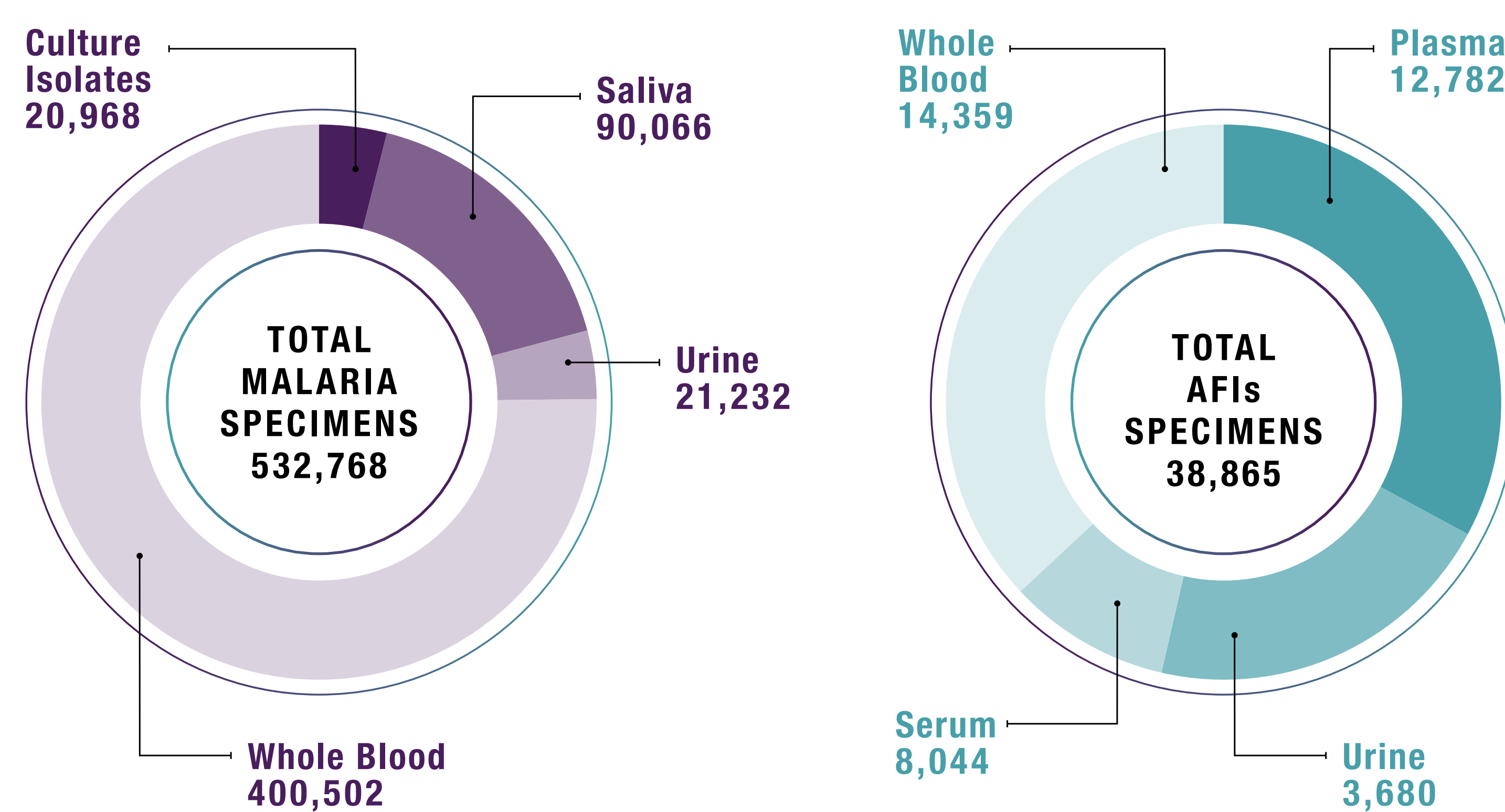


FIGURE 2. OVERVIEW OF REQUESTS FOR MALARIA & ACUTE FEBRILE ILLNESSES (AFIs) SPECIMENS SINCE JANUARY 2019 (AS OF Q1 2024)



Available AFIs: Adenovirus, Bocavirus, Chikungunya, Chlamydia, Dengue, Enterovirus, Flu A/B, Haemophilus influenzae, Metapneumovirus, Mycoplasma, Non-COVID19 coronavirus, Parainfluenza, Pertussis, Rhinovirus, RSV, Streptococcus, Zika.

FIGURE 3. MALARIA & ACUTE FEBRILE ILLNESSES (AFIs) SPECIMENS AVAILABLE PER SAMPLE TYPE (AS OF Q1 2024)

Conclusion

With its biobank, FIND is committed to continuously supporting the global health community efforts in advancing diagnostic tools development for malaria. The challenges identified in accessibility and availability of biomaterials from patients suffering from malaria are not unique, as they also extend to other infectious diseases. FIND's biobanking activities encompass a range of diseases, including tuberculosis and those with pandemic potential. Recognizing the lack of biobanks in LMICs, FIND has implemented a strategic initiative aimed at establishing local biobanking capacity. This initiative seeks to provide a long-term, sustainable, and adequate biobanking service, while also fostering local research on diagnostic tools.