Innovation for vaccines against poverty diseases: The need for new support mechanisms

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Vaccine funding by year and sector

HIV Vaccine Funding by Year and Sector

Malaria Vaccine Funding by Year and Sector

TB Vaccine Funding by Year and Sector

Dengue Vaccine Funding by Year and Sector
Vaccine innovation, as measured by patent filing, by year

Vaccine patent applicants by size of portfolio

Innovation on TB, malaria, HIV, RSV, Dengue vaccines
'major manufacturers' versus 'others'
Measures of Innovation: 'major manufacturers' versus 'others'

Forward citation count

Mean count of forward citations for top 50 cited patent families

- 5 major players
- Other applicants

New patent code

% patent families with new patent codes

- 5 major players
- Other applicants

Unique code clusters

% patent families with unique code clusters

- 5 major players
- Other applicants
Collaborations between the major manufacturers

M1

M2

M3

M4

M5

- dengue
- HIV
- RSV
- malaria
- tuberculosis
Increase in transactional costs

- Public sector funding of research (and Bayh-Dole) resulting in large dominant patent portfolios in public sector (esp TB, HIV, Malaria)

- Major Industry not innovating as much as others

- Many more patents to navigate than before

- Less technical certainty on any of the inventions

  Increased transactional costs to ensure access to enabling technology : Barrier ?
Effect on Business Models
New innovation support mechanisms needed for TB, malaria, HIV,…
Critical components

- A patent pooling or open access method
- Early collaboration of academia and SMEs with vaccine manufacturers (industrialized AND developing country)

- **Funders:** ensure appropriate management of IP, early partnership with industry.
- **Industry:** increase collaboration with other industry players, transparent benefit-sharing.