Vivax Working Group Surveys
Objectives of Survey

Aim: Identify populations at risk of malaria and primaquine induced haemolysis

Primary:
- Quantify the prevalence of microscopic and submicroscopic parasitaemia
- Determine the prevalence and spectrum of G6PD deficiency in patients with and without malaria
Objectives of Survey

Secondary:

- Evaluate novel G6PD + Ultrasensitive malaria diagnostics
- Determine local G6PD + Cyp2D6 genotypes
- Correlate seroprevalence with malaria exposure
- Assess prevalence of parasite polymorphisms associated with drug resistance and HRP2 deletion
- Assess community understanding + health seeking behaviour for Pv
- Evaluate perceptions and behaviour of health staff on PQ radical cure
Study design

Components:

1. Health care facility based survey among malaria patients (~160)
2. Health care facility based survey among non-malaria patients (~120)
3. Cross sectional community survey (~200HH)
4. Social science component study (qual & quant strands)
Key outcomes

- Performance of novel G6PD diagnostics
- Performance of novel malaria diagnostics
- Prevalence of malaria and antimalarial resistance
- Prevalence of G6PDd and local variants
- Prevalence of HRP2 deletions
- Seroprevalence
- Protective effect of G6PDd against malaria
- Perceptions around PQ based treatment
- Perceptions around G6PD testing + operational characteristics
Generic Protocol

- Comparable data from all sites

- Standardized procedures and analyses
  - *Host typing*: G6PD, Cyp2d6, serology,
  - *Parasite typing*: Microscopy, subpatent, whole genome, resistance markers, HRP2 deletions

- Building Local Capacity:
  - laboratory, bioinformatics, analysis

- Pooling of data for greater power

- Good geographic spread
Regional Perspective

- Geospatial Mapping
- Modelling:
  - Interventions
  - Impact
  - Cost
- Support:
  - Malaria Atlas Project
  - Menzies
  - LSTMH
  - ITM Antwerp
  - AMI
  - WWRAN
  - PATH
  - Sanger Institute
  - ...
Call for Surveys

- Call was launched in June 2017
- Budget support capped at US $50,000
- All applications reviewed by the selection panel
  - VxWG co-chair (Alby Bobogare)
  - VxWG co-chair (Ric Price)
  - VxWG Program coordinator (Benedikt Ley)
  - APMEN co-Director for Research Support (Effie Espino)
  - Research Partner (Lorenz von Seidlein, MORU, Thailand)
<table>
<thead>
<tr>
<th><strong>Country</strong></th>
<th><strong>Institute</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Bangladesh International Centre For diarrheal Diseases Research, Bangladesh</td>
</tr>
<tr>
<td>2</td>
<td>Bhutan Royal Centre for Disease Control</td>
</tr>
<tr>
<td>3</td>
<td>Cambodia Malaria Consortium / Institute Pasteur</td>
</tr>
<tr>
<td>4</td>
<td>China 1 National Institute of Parasitic Diseases, Chinese Center for Disease Control and Prevention (NIPD)</td>
</tr>
<tr>
<td>5</td>
<td>China 2 National Institute of Parasitic Diseases, Chinese Center for Disease Control and Prevention (NIPD)</td>
</tr>
<tr>
<td>6</td>
<td>India Medical College and Hospital Kolkata</td>
</tr>
<tr>
<td>7</td>
<td>Indonesia Eijkman Institute for Molecular Biology</td>
</tr>
<tr>
<td>8</td>
<td>Laos Centre for Malaria, Parasitology, and Entomology (CMPE), Ministry of Health, Lao PDR</td>
</tr>
<tr>
<td>9</td>
<td>Malaysia Malaria Research Centre, Universiti Malaysia Sarawak</td>
</tr>
<tr>
<td>10</td>
<td>Nepal Tribhuvan University</td>
</tr>
<tr>
<td>11</td>
<td>Vietnam Vietnam National Institute of Malariology, Parasitology and Entomology</td>
</tr>
</tbody>
</table>
Selection Process

- Scientific context
  - Sites with little data on G6PDd and malaria prevalence (sub-microscopic / microscopic) are preferred
- Local Infrastructure
- Experience and Collaborative Partners
- Budget and Co-funding
Selected Sites & Participants

APMEN funded - 2017
- Bangladesh
- China
- India
- Indonesia
- Laos
- Nepal
- Vietnam

DFAT funded
- Indonesia – Timika
- Indonesia – 2nd site
- Malaysia

Other ??
Bangladesh

- Investigators:
  - Shafiul Alam

- Cross sectional survey

- Social science component

- G6PD spectrophotometry
China

- Investigators: 
  - Duoquan Wang
- Hospital based survey
- Cross sectional survey
- Social science component
India

- Investigators:
  - Arunansu Talukdar

- Hospital based survey

- Cross sectional survey

- Social science component

National Institute of Cholera and Enteric Diseases
Indian Council of Medical Research
Department of Health Research, Ministry of Health and Family Welfare, Government of India
WHO Collaborating Centre for Research and Training on Diarrhoeal Diseases
Indonesia

- Investigators:
  - Rintis Noviyanti and Ari Satyagraha
- Hospital based survey
- Cross sectional survey
- Social science component
Laos

- Investigators:
  - Bouasy Hongvanthong
- Cross sectional survey
- Social science component
Nepal

- Investigators:
  - Prakash Ghimire

- Hospital survey (no spectrophotometry)

- Social science component
Vietnam

- Investigators:
  - Xa Xuan Nguyen
- Hospital survey (no spectrophotometry)
- Social science component
<table>
<thead>
<tr>
<th></th>
<th>2017</th>
<th>2018</th>
<th>2019</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Q1</td>
<td>Q2</td>
<td>Q3</td>
</tr>
<tr>
<td>Protocol development</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Application deadline</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Selection of candidates</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Protocols finalized</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ethics approval</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Training on site</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>All sites operational</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Data analysis</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Publication of results</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Outlook

Collaborative forum
Other locations
Additional partners
Potential for expansion

The more the merrier