

# ROLE OF PRIVATE SECTORS IN PREVENTION & CONTROL OF INFECTIOUS DISEASE: FLU DIAGNOSTIC TEST AND G6PDd MALARIA RESISTANCE

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### THE ROLE OF PRIVATE SECTORS (ALERE INC.):

- a. By developing the Biochip Flu Diagnostic Test to demonstrate the R&D of this product which is technologically and commercially feasible,
- b. By providing a greatly needed accurate and rapid diagnostics to developing and developed nations and preventing the spread of avian and swine flu viruses in humans,
- c. By giving recommendations for flu treatment, such as Relenza, Tamiflu or flu vaccination,
- d. A bioinformatics research for malaria and natural resistance against malaria (glucose-6-phosphate dehydrogenase called G6PDd) will be benefitted in the future for designing G6PDd rapid diagnostic tests as well as the possibility of blood transfusion and gene therapy for malaria, also for reducing malaria cases in epidemic areas.

### PROBLEM:

The emergence of influenza diseases that wide-spread predominantly across Asian countries, i.e. deadly influenza viruses: Avian flu (H5N1) and Swine flu (H1N1)

### The outbreaks:

- China (1997), Europe and Africa (2003 2004), and some Asian countries (2012) for Avian flu, Asia (2009- 2010) for Swine flu
- More than 414,000 patients confirmed cases and nearly 5,000 death (WHO, 2009)

### **SOLUTION:**

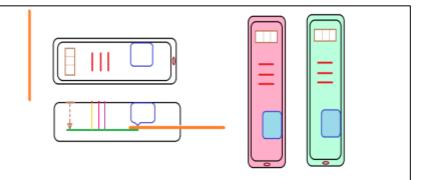
BioChip Flu Diagnostic Strip Test (Alere, Inc.)



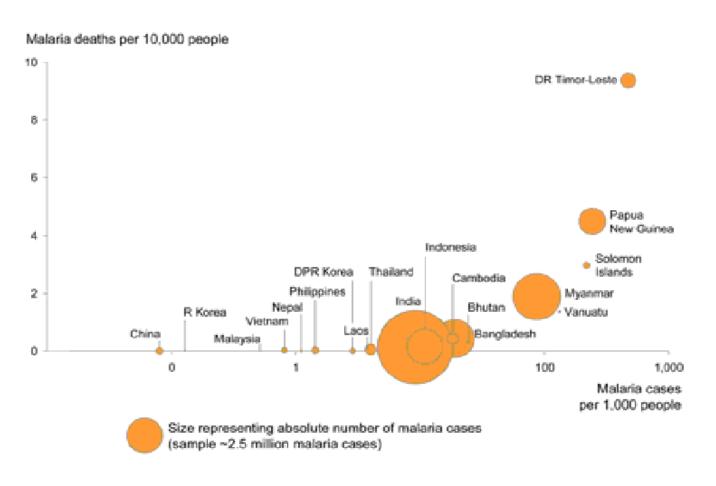


### Cloning, PCR **BLAST**, phylogenetic tree





### **ANOTHER PROBLEM: MALARIA CASES (WHO, 2008)**





### • Solutions:

- Glucose-6-phosphate dehydrogenase (G6PD) deficiency: confers protection against malaria (*Plasmodium falciparum*), increasing fitness in malarial endemic environments
- RDT of G6PDd, blood transfusion, gene therapy

#### **G6PD** in Indonesia

