reinventing global health diagnostics

SCIENTIFIC CREDIBILITY AND VALIDATION
BUILT AND SOLD PROTOTYPES
COMMERCIAL AND CLINICAL PARTNERS
PATENT PROTECTION
PLATFORM TECHNOLOGY
What's the problem we're looking at?

MONEY & MORTALITY

symptomatic

50%

asymptomatic

50%
$5 FOR EACH TREATMENT

78%

50%

50%
3.3 Billion people exposed on a daily basis

500 Million infections at any given time

Out of every 1000 malaria infections, only 500 fevers are identified, 250 tests are performed, and 125 diagnoses are correct.
You said MAGNETIC PARTICLES?
Take a look at our MAGNETO-OPTICAL TECHNOLOGY

How magnetism shows infection

WITHOUT MAGNETIC FIELD

The scattered hemozoin does not block the light from passing through the blood sample.

WITH MAGNETIC FIELD

The iron clumps align in rows, blocking some of the light from passing through the sample.
Meet RAM

Rapid Assessment of Malaria

Database

Fast, Accurate, Low-cost, Sensitive, Reusable, Mechanical

Device $100

Cuvette $0.02
What's the NEW WORKFLOW?
## We built a Competitive Matrix

### WHO Metrics

<table>
<thead>
<tr>
<th></th>
<th>RAM</th>
<th>RDT</th>
<th>LM</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Cost per test</strong></td>
<td>$0.25</td>
<td>$0.69</td>
<td>$0.92</td>
</tr>
<tr>
<td><strong>Accuracy</strong></td>
<td>93%</td>
<td>87%</td>
<td>50%</td>
</tr>
<tr>
<td><strong>Detection Level</strong></td>
<td>1 / uL</td>
<td>200 / uL</td>
<td>100 / uL</td>
</tr>
<tr>
<td><strong>Time</strong></td>
<td>1 minute</td>
<td>30 minutes</td>
<td>60 minutes</td>
</tr>
<tr>
<td><strong>Training Level</strong></td>
<td>Low</td>
<td>Low</td>
<td>High</td>
</tr>
<tr>
<td><strong>Refrigeration</strong></td>
<td>No</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td><strong>Portable</strong></td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td><strong>Quantitative</strong></td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
</tr>
</tbody>
</table>

**Saves $95,000 over lifetime of each device and $400,000 on each RFP bundle**
“A low-cost and low-detection level test would dominate the market for the next decade and is the only hope for eradication.”
- World Health Organization
How big is the COST ADVANTAGE?
ALPHA DEVICES BUILT AND DEPLOYED FOR FIELD TESTING
Phase 1

CURRENT CUSTOMERS & PARTNERS
Let’s take a look at the **PRIVATE MARKET**

- **$13.8B ALL POC Dx**
- **$1.5B MALARIA Dx**
- **$750MM PRIVATE MARKET**
  - Independent hospital chains
  - Independent country approval (short)
  - Weighted average cost is $7.51
  - Distribution agents take 50% of retail/hospital costs
- **$525MM CLINICAL / HOSPITAL POC Dx**
  - Focused on maintaining margins throughout entire value chain

Value proposition: **Razor/razor-blade** model with **low-cost** disposable
And now onto the **PUBLIC MARKET**

- **$13.8B**
- **$1.5B**
- **$750MM**
- **$75MM**

**$750MM PUBLIC MARKET**
- Nonprofit organizations
- Financed yearly
- No switching costs
- Weighted average cost is $0.69
- Pre-existing distribution channels once WHO approves (moderate)

**$75MM ELIMINATION SETTING**
- Focused on active screening of asymptomatic populations for WHO-mandated approvals
- Currently has no market inhabitant

**Value proposition:**
- Extremely low limit of detection in rugged and **portable** device
And now onto the **SALES AND MARKETING CHANNELS**

---

**Malaria RDT product testing: interactive guide**

This interactive guide is designed to help select malaria RDTs with the specific performance characteristics required by national malaria control programmes, based on the results of the WHO-FIND malaria RDT product testing programme Round 1 (2008) and Round 2 (2009).

**Set parameters:**
- Target malaria species
- Minimum panel detection score for P. falciparum (%)
- Minimum panel detection score for P. vivax (%)
- Maximum false positive rate
- Maximum recovery rate
- Test format

**Choose data to display:**
- Panel detection score: 200 parasites/µl
- Panel detection score: 2000-5000 parasites/µl
- Intra-assay
- False positive rate
- Heat stability, 200 parasites/µl
- Heat stability, 2000 parasites/µl

---

**Real-Time Bidding**

- $2.75 CPM
- $2.80 CPM
- $2.35 CPM
- $1.95 CPM
- $1.75 CPM
- $1.25 CPM
Check out our MANAGEMENT TEAM

COO - ALPHONSE F. HARRIS
Boston College JD Physics

CEO - JOHN R. LEWANDOWSKI
MIT PhD Mechanical Engineering

CTO - MARK E. LEWANDOWSKI
Case Western Reserve University BSE Mechanical Engineering

BUSINESS DEVELOPMENT
CLINICAL & MARKET RESEARCH
ENGINEERING
The core

INTELLECTUAL PROPERTY

Sensor

Electromagnetic spectrum

Magnetic field
Not just malaria!

MULTIPLE DISEASES

- Dengue Fever
- Typhoid
- Tuberculosis
- Diabetes
- Sepsis

Free beads

Antigen driven cluster formation

Magnetic beads

Streptavidin

Biotinylated IgG

Incubation

Cluster

Magnet