Home of the black stars

GHANA

SCALING UP IRS

PRESENTATION PREPARED BY:
NAPOLEON GRAHAM COP/RTI

• STEVE KNOWLES; ANGLOGOLD ASHANTI DIRECTOR MALARIA PROGRAM
• DR CONSTANCE BART-PLANGE, HEAD NATIONAL MALARIA PROGRAM
INTRODUCTION

• ANGLOGOLD ASHANTI ANNUAL Report to Society 2004:
  “... Malaria remains the most significant Public Health threat to AngloGold Ashanti operations in Ghana, Mali, Guinea and Tanzania..”
  “Vision and Mission” in line with NMCP goals

• PMI THROUGH RTI:
  IS FIGHTING MALARIA USING INDOOR RESIDUAL SPRAYING AS ONE OF ITS INTERVENTIONS IN CONTEXT WITH THE NATIONAL MALARIA CONTROL PROGRAM VISION AND GOAL
Ghana’s Revised National Strategic Plan 2008-2015

Calls for a reduction of malaria disease burden by 75% by the year 2015 through:

– Increased use of ITNs and IRS
– Prompt and effective treatment with ACTs
– Scale-Up of Home Based Care for U5s
– Increased treatment of malaria in pregnancy
National Strategic Framework

• Key strategic documents:
  – Draft SOP on IRS (December 2010)

• Goal is reduction of disease burden by 75% by 2015, through:
  – Aggressive scale up of IRS to 1/3 of all districts.
  – Scale up of ITMs, ACTs, Home Based Care and IPTp.
  – Additional vector control selectively (larviciding, env. mgmt, etc.)
  – Priorities: vulnerable populations, equity, and public-private partnership.

• MOH/NMCP has a receptive attitude to would-be collaborators, provided they
  work within the national and RBM strategies, and adhere to standards.

• Malaria Vector Control Oversight Committee re-established 6/2009 to enhance
  collaboration and strengthen MOH/NMCP oversight.
MALARIA VECTORS

• Primary Vector
  – Anopheles gambiae complex
    • A. gambiae sensu stricto (s.s.)
    • A. gambiae arabiensis in the north
      » (Appawu et al., 1994)
    • An. melas in southern parts of the country
      » (Appawu et al., 1994)

• Secondary
  – Anopheles funestus
AngloGold Ashanti
OBUASI MALARIA CONTROL PROGRAMME

Scaling up IRS - Progress, Performance & partnership

Malaria Vectors in the Obuasi Municipal Assembly (OMA)

- Primary vectors
  - *Anopheles gambiae* s.s.
  - *Anopheles funestus* s.s.

- Secondary vectors
  - *Anopheles nili* s.s.
  - *Anopheles pharoensis* complex

- 12 sentinel sites used for monitoring vector transmission dynamics
  - 9 sites within the area of intervention (OMA)
  - One each from the three surrounding districts of the OMA and used as non-intervention control
  - Selection based on demographic factors as well as entomological profiles
2010 Objectives Revisited

PMI

• Continue to provide technical, management and operations support to Ghana’s national malaria control strategy.
  ➔ DONE. Further enhanced the program’s reputation for high standards and transparency.

• Treat houses with residual insecticide covering a population of at least 800,000 in 8 districts (2010 target).
  ➔ DONE Covered >850,000 pop. Added 2 new districts smoothly.

• Continue to exceed 85-90% coverage in every community.
  ➔ DONE: Average coverage of >96%

• Continue to build capacity at all levels to ensure the correct application of IRS and sustainability of IRS operations. Encourage country ownership at all levels including community participation.
  ➔ INCREASING YEARLY.

• Prepare the way for national scale-up.
  ➔ PMI/GHS PROGRAM DOING ITS PART. Provided training support to private sector to come on board (ZoomLion).
Malaria Situation in Ghana

- Entire pop. of 23m at risk
- Top cause of mortality and morbidity. 36% of hospital admissions. (Over diagnosed.)
- Estimated 14,000 u5 malaria deaths in 2008
- Major vectors: A. gambiae, A. funestus. Also A. melas on coast and A. arabiensis in savannah.
- Rural EIRs of ≥200 common
- DDT resistance widespread
- Misinformation & myths on malaria widespread

Ghana: Duration of the Malaria Transmission Season

Main transmission season: 11 m (purple) to 6 m (green)
Shorter in the north.

Ghana: Malaria Prevalence Model

Prevalence: 20% (blue) to 90% (red)
Higher in the northeast
IRS SCALE UP IN GHANA - Geographic

**PMI** covering 5 districts in N. Region since 2008. Expanding to 9 by 2011. (RTI/GHS)

**AngloGold Ashanti** covering Obuasi District since 2006.

**AngloGold Ashanti / Global Fund** will cover up to 40 districts by 2015. See color key.

**Lab facilities** in Navrongo (GHS), Obuasi (AGA), Tamale (PMI) & Accra (Noguchi) support ento. & epidemiologic monitoring.

**Mines, oil, plantations & tourist resorts** in Ashanti and W. Region will help support IRS operations.
IRS Scale Up (PMI, ANGLOGOLD ASHANTI)

A. PMI THRU RTI

The 5 Districts Targeted for 2008: Tolon/Kumbungu; Savelugu/Nanton; Karaga; Gushegu; West Mamprusi

IN 2009: East Mamprusi district was added in 2009:

IN 2010: Districts added in 2010 were: Saboba; Cherponi

In 2011 Bunkpurugu-Yunyoo will be added (Base line measurements of entomology & epidemiology parameters on going IRS target

B. ANGLOGOLD ASHANTI

- One district targeted in 2010 - OMA
- Population protected - 230 000
- 100 % structures targeted for IRS

• 2011 + 40 Districts (as per map); 100 % targeted for IRS
By year 4 all 40 districts targeted will be covered.

PMI Districts – districts which have a programme funded by the Presidents Malaria Initiative (USAID)
Obuasi Municipal Assembly boundaries
PMI/RTI AREAS OF IMPLEMENTATION
GHANA: IRS When

<table>
<thead>
<tr>
<th>Which Months are the malaria season</th>
<th>Which months are peak malaria season</th>
<th>Which months are the IRS Spray rounds</th>
<th>One cycle or two per year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Though out the year</td>
<td>May – October</td>
<td>May -July</td>
<td>One Cycle per year</td>
</tr>
</tbody>
</table>

*An operations research (2010 – 2012) to determine the effectiveness of one vs. two spray rounds is ongoing.

ANGLOGOLD ASHANTI

Transmission is all year round peaking June / July & Sep/ Oct

- 5 monthly cycle of spraying (February – June / July-December) (residual efficacy of the insecticide)

- Two spray cycles per year
Insecticides for IRS

The Ghana EPA is the regulatory body in Ghana for Insecticides

ANGLOGOLD ASHANTI

- The insecticide is rotated every 18 months or sooner as dictated by the Insecticide Resistance monitoring plan

- The following insecticides have been used:
  - Organophosphate Pirimiphos-methyl; 620 g/sachet
  - Pyrethroid Alpha cypermethrine; 150 g/sachet
  - Carbamate Propoxur; 310 g/sachet

- 19,000 sachets are used per spray round.
- Records on daily insecticide utilization are maintained and captured by the Malaria Information System
- Quality control – only purchased from pre qualified suppliers.
- All batches are tested in Obuasi malaria Centre laboratory.

B. PMI/RTI

- Pyrethroids (used in 2008, 2009 & 2010)
- Future use considering - Carbamates, Organochlorines, Organophosphate
IRS Planning-ANGLOGOLD ASHANTI AND PMI/RTI

A. ANGLOGOLD ASHANTI - IRS planning
   - Planning meeting prior to each spray round - February and July
   - Review meetings at end of spray round - January and July
   - MaVCOC oversight meetings
   - Monthly Stakeholders meeting - review and planning
     - Insecticide choice, planning, community entry, training, procurement
     - Tools - SP1, SP2, Spray Certificates, HH Data Cards, AGA supervision training.
     - Planned Job Observation Schedules
   - Quarterly meeting prior to compile report for mine Exco meeting
   - Annual report and following years work plan

B. PMI/RTI PLANNING
   - IRS micro planning meetings- before, during and post spray
   - Logistics assessment
   - Monthly review meetings
   - Quarterly Malaria Vector Control Oversight Committee (MaVCOC) meeting
   - Post spray evaluation meetings
   - Annual IRS work plan
   - IRS supervision tools and supervision schedules- monitoring checklist
PMI - IRS Partnership

Excellent collaboration and acknowledgement

The key partners have included:

MOH/Ghana Health Service
  • NMCP
  • Regional Health Directorate
  • Regional technical staff (e.g. malaria focal person and regional biologist)
  • District Health Management Teams

EPA
AGA
Noguchi Memorial Institute of Medical Research
District Assemblies
Traditional and Opinion Leaders
Community Members
Scaling up IRS - Progress, Performance & partnership

IRS Partnerships
- NMCP/GHS
- Obuasi Municipal Assembly
- Noguchi Memorial Institute for Medical Research.
- USAID / PMI
- GFATM

HR / Training
- Organogram – Present
- No national training
- In service training (10 days) conducted prior to commencement of each spray round by internal capacity
- Refresher training / operators assessment done monthly.

- 2011 Scale up organogram
  - 3800 spray operators + support staff.
ANGLOGOLD ASHANTI
MALARIA CONTROL PROGRAMME

Together against Malaria
AGA Malaria Control Limited (AGAMal)

Board of Directors

Programme Director (AGAMal)

Director: Country Partnership (NMCP)

Finance
Operations
PSM
HR
Admin
MISS
M&E/Laboratory
Community Liaison

Zone Manager x 2 / Operations

Finance
HR/Admin
MISS
Stores
IEC/Community

District Superintendent/ Operations x 40

Spray group supervisor
Fin/Admi
Store
MISS
IEC/Community

Team Leader

Team Leader

Team Leader

Team Leader

Team Leader

Spray Operator
Spray Operator
Spray Operator
Spray Operator

Obuasi
Navrongo
IRS Human Resources capacity and systems

- USAID/PMI MOH/NMCP
- Regional Health Management Team
- District Health Management Team
- Operations Manager
- M&E Officer
- District Operations Manager
- Data Clerks
- Site managers, supervisors, spray team leaders, spray operators, IEC implementers, logistics assistants, storekeepers, etc.

- COP RTI/COUNTRY
- Nairobi Regional Office
**National Partnerships (PPP)**

AngloGold Ashanti's programme is a partnership with Ghana Health Service, the National Malaria Control Programme (NMCP) and the local Obuasi Municipal Assembly coupled with the benevolent approval of the Ministry of Health.

A Private Sector Malaria Control Programme would be impossible without the support and consent of the National Government and NMCP – by the very nature of using Insecticides and involving the public, approval must be received from the Ministry of Health and also the Environmental Protection Agency.

An important issue is that it must conform to the National Malaria Plan.

This partnership will be continued into the Global Fund Programme with the addition of the Country Coordinating Mechanism and the Local Fund Agent.
A Reputation for Collaboration

EFFECTIVE COLLABORATION IN PLACE

- The NMCP has been pleased with the transparency of the PMI program (RTI and USG) and its high level of interaction with partners.
Data Transmission/Capturing process

1. Spray Operator’s Daily Card
2. Team leaders’ Card
3. District Data Manager
4. Monitoring and Evaluation Officer
Where Does the Data Go?
Scaling up IRS - Progress, Performance & partnership

IRS reporting

- Malaria cases and mosquito density
- Report cards used to track status (SP 1&2 attached)
- Malaria Information and Surveillance System (MISS) in place
- Weekly reports from Operations
- Monthly and Quarterly report to Exco
- Annual report to Corporate, OMA Health Director & NMCP

IRS outcomes

- 135 000 structures sprayed per spray round (room 5x5x2.5)
- Approx 36 000 stands.
- 94% coverage of all structures in district (all structures are operationally targeted).
- 230 000 people protected
REPORTS

• Weekly updates - Summary of IRS weekly activities
• Daily field records – provisional data/statistics
• Quarterly reports
• Semi-annual reports
• Spray Performance Report
Entomological Sentinel Sites

- 16 Sites
  - Period: 2008-2011
    - Tolon/Kumbungu district: Dimabi, Gbullung, Woriborgu
    - Savelugu district: Diare, Tarikpaa, Nanton district
    - Tamale Metropolis: Kulaa, Tugu, Yong (as control)
  - Period: 2010 (May and September 2010)
    - Saboba District: Sanguli, Sambuli, Bungbaal
  - Period: 2010 – 2011
    - Bunkpurugu/Yunyoo: Kpemale, Nasuan, Yunyoo, Bunbuna (All yet to be sprayed)

- Current levels and trends of insecticides resistance
  - NMIMR
## TREND COVERAGE

<table>
<thead>
<tr>
<th># of districts</th>
<th>YEAR</th>
<th>SPRAYED</th>
<th>TARGET</th>
<th>Coverage</th>
<th>Population reached</th>
</tr>
</thead>
<tbody>
<tr>
<td>FIVE DISTRICTS</td>
<td>2008</td>
<td>254,305</td>
<td>272,286</td>
<td>93%</td>
<td>601,173</td>
</tr>
<tr>
<td>SIX DISTRICTS</td>
<td>2009</td>
<td>284,856</td>
<td>301,704</td>
<td>94%</td>
<td>708,103</td>
</tr>
<tr>
<td>EIGHT DISTRICTS</td>
<td>2010</td>
<td>342,876</td>
<td>352,177</td>
<td>97%</td>
<td>849,620</td>
</tr>
</tbody>
</table>

- WHO guidelines followed aiming at 85% coverage of targeted structures
- Structures = Sleeping rooms / huts in HH
Percentage mortalities of Kisumu strain An. gambiae on different wall surfaces treated with deltamethrin in Sept, Oct and November 2010.

<table>
<thead>
<tr>
<th>DISTRICT/COMMUNITY</th>
<th>SURFACE</th>
<th>Total Ave Percentage Mortality</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Sept. 2010</td>
</tr>
<tr>
<td>NYANKPALA</td>
<td>MUD</td>
<td>76.7</td>
</tr>
<tr>
<td></td>
<td>CEMENT</td>
<td>90.0</td>
</tr>
<tr>
<td></td>
<td>WOOD</td>
<td>78.0</td>
</tr>
<tr>
<td>NYANKPALA</td>
<td>MUD</td>
<td>93.3</td>
</tr>
<tr>
<td></td>
<td>CEMENT</td>
<td>98.3</td>
</tr>
<tr>
<td></td>
<td>WOOD</td>
<td>95.0</td>
</tr>
<tr>
<td>TARIKPAA</td>
<td>MUD</td>
<td>83.3</td>
</tr>
<tr>
<td></td>
<td>CEMENT</td>
<td>98.3</td>
</tr>
<tr>
<td></td>
<td>WOOD</td>
<td>100</td>
</tr>
<tr>
<td>NANTON</td>
<td>MUD</td>
<td>95.0</td>
</tr>
<tr>
<td></td>
<td>CEMENT</td>
<td>96.7</td>
</tr>
<tr>
<td></td>
<td>WOOD</td>
<td>93.3</td>
</tr>
</tbody>
</table>
Coverage in 2009 Spray Round

Coverage at the End of Round III

<table>
<thead>
<tr>
<th>Location</th>
<th>Coverage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gushegu</td>
<td>94%</td>
</tr>
<tr>
<td>Savelugu</td>
<td>98%</td>
</tr>
<tr>
<td>Tolon Kumbungu</td>
<td>98%</td>
</tr>
<tr>
<td>West Mamprusi</td>
<td>98%</td>
</tr>
<tr>
<td>Karaga</td>
<td>99%</td>
</tr>
<tr>
<td>East Mamprusi</td>
<td>95%</td>
</tr>
<tr>
<td>Saboba</td>
<td>99%</td>
</tr>
<tr>
<td>Chereponi</td>
<td>99%</td>
</tr>
<tr>
<td>Total</td>
<td>97%</td>
</tr>
</tbody>
</table>

2010
RTI-IRS Impact-NMCP &NMIMR

– Facility study just undertaken in April 2010.
– Baseline entomological measurements (Saboba & BY)
– Anemia/parasitemia study planned for 2010-2012.
RTI-IRS Challenges and Solutions

- Staffing
- Terrain – Poor road network, hard to reach areas
- Communities widely dispersed – long travel times
- Inadequate district and sub-district data
- Rains
- Political sensitivities/suspicions
IRS challenges

- Obtaining current maps / satellite images and population statistics.
- Data flow from the District Health Administration is not regular

Priorities 2011

- Scale up to 40 districts - see presentation.
- Gaining access to community leaders in new districts
- Scattered communities and poor road network / infrastructure
- Obtaining current maps / satellite images and population statistics.
## OBUASI MALARIA CONTROL PROGRAMME

<table>
<thead>
<tr>
<th>Cases Employee + Contractors</th>
<th>Incidence Rate/1000 Employee + Contractors</th>
<th>MLTIFR</th>
<th>Severity</th>
</tr>
</thead>
<tbody>
<tr>
<td>2009</td>
<td>2010</td>
<td>2009</td>
<td>2010</td>
</tr>
<tr>
<td>Month</td>
<td>Ytd</td>
<td>Month</td>
<td>Ytd</td>
</tr>
<tr>
<td>3375</td>
<td>257</td>
<td>1317</td>
<td>43</td>
</tr>
</tbody>
</table>

### Formulas:

- **Incidence Rate /1000 (Employees + Contractors)**
- **MLTIFR** (Cases x 1,000,000 / Hours worked)
- **Severity** (Days lost / Cases)
IRS quality
- By surveillance sites and results of weekly bioassays
- Direct supervision & observation
- Community feedback

IRS impact
- 76% decline in cases at mine hospital
- Similar downward trend in District
- Marked decrease in mosquito density
- Infant mortality due to malaria virtually zero in District
- 70% increase in school attendance in Obuasi District
- Reduction in costs and Absenteeism due to malaria at the mine
  - Medication monthly cost: 2005 – USD 55,000 / 2010 USD 6,700
  - Lost man days: 2005 – 6,983 / 2010 163
- Data flow from the District Health Administration is not consistent
- Build capacity within the OMA and train data capturers
OBUASI MALARIA CONTROL PROGRAMME

MALARIA - TOTAL CASES 2005-2010
Edwin Cade Hospital - Obuasi

Cases

Months

J F M A M J J A S O N D

2005
2006
2007
2008
2009
2010

Round 1
Round 2
Round 3
Round 4
Global Fund to Fight AIDs, TB and Malaria (GFATM)
Global Fund Round 8
Indoor Residual Spraying (IRS) grant: Ghana

The proposal was a Country application submitted by the Ghana Country Coordinating Mechanism (CCM) of the Global Fund (GF). The proposal writing team compiled the application, which was then approved by the CCM committee and submitted to the Global Fund.

After approval by the GF, AngloGold Ashanti was appointed by the CCM as the Principal Recipient of the grant to implement the Programme.

It is the first time a Private Sector company will be the Principal Recipient of a GFATM grant in Africa and only the second globally.
Global Fund to Fight AIDS, TB and Malaria (GFATM)

Ghana is the recipient of a USD $ 133 million grant for a Malaria Control Programme; focused on Indoor Residual Spraying
The Grant is based on the “Obuasi model” and is be implemented by AngloGold Ashanti

**Partnership with the National Malaria Control Programme (NMCP)**

- The Ministry of Health & GHS has declared support for AGA
- The NMCP and AGAMal are active partners
- The NMCP has pledged full support and the involvement of their regional /district malaria programme officers and infrastructure
- The GHS has offered the use of stores facilities at all levels
Global Fund to Fight AIDS, TB and Malaria (GFATM)
Round 8 grant proposal: Indoor Residual Spraying (IRS) in Ghana

* To Scale up the AGA Obuasi IRS programme to 40 Districts

- AngloGold Ashanti appointed by the CCM as Principal Recipient
- First time a Private Sector company will be the PR in Africa
- AGA Malaria limited (AGAMal) established to implement the Grant
- USD 138 mil over 5 years
- Create 3800 jobs recruited from targeted communities
- AGA Malaria Centre at Obuasi will be National headquarters
  (contribution from AGA Ghana + the existing personnel)
- Zone offices at Obuasi, Wa and Tamale
- Insectary and Laboratory at Obuasi and Navrongo
- Partnership with the Govt. (GHS, NMCP)
ANGLOGOLD ASHANTI MALARIA CONTROL PROGRAMME

By year 4 all 40 districts targeted will be covered

PMI Districts – districts which have a programme funded by the Presidents Malaria Initiative (USAID)
THE GHANA MALARIA PROGRAM

HAS COLLABORATED EFFECTIVELY WITH THE TWO ORGANISATIONS IN IRS IMPLEMENTATION. LOOK FORWARD TO BREAKING THE MALARIA TRANSMISSION COMPLETELY.

Dr Constance Bart - Plange