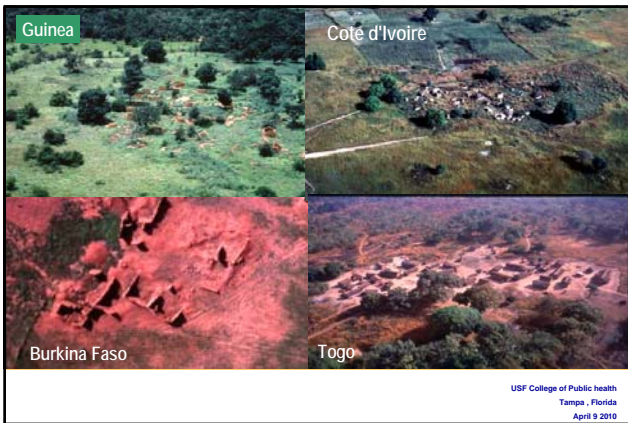


# Community Directed Intervention for Onchocerciasis Control and Public Health Interventions

USF College of Public Health –  
Tampa Florida , April 9, 2010

Dr. Boakye Boatin

USF College of Public health  
Tampa , Florida  
April 9 2010



USF College of Public health  
Tampa , Florida  
April 9 2010

## ONCHOCERCIASIS



- Caused by a parasitic worm *O. volvulus*
- Transmission by a blackfly
- The worm (MACROFILARIA) lives 14 years in the human body, producing millions of microscopic parasites (MICROFILARIA)

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The mf cause unbearable itching, disfiguring skin disease and blindness

### The Disease



epidermis. Source: TDR Image Library

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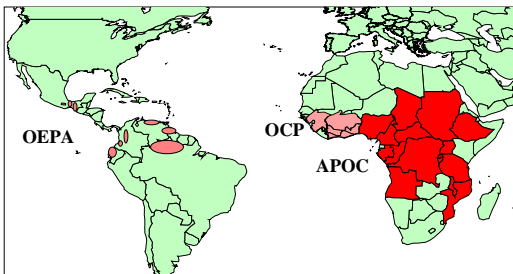
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### Distribution of Onchocerciasis in the world



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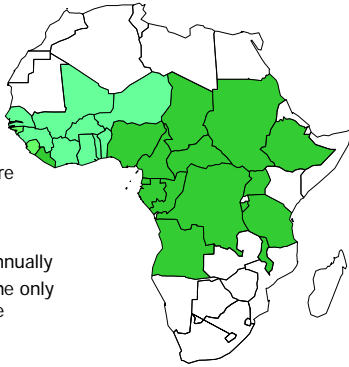
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## Onchocerciasis endemic countries in Africa

- Over 120 million at risk
- 99% of at risk in Africa
- 37 million infected
- 6.5 million suffer from severe itching-dermatitis
- 270 000 are blind
- 40 000 cases of blindness annually
- Ivermectin (Mectizan®) is the only drug for treating the disease



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## Phase 1: Vector Control by insecticide spraying

- In West Africa OCP Countries in over 56000 km of rivers
- No benefit to the already affected
- No child born since spraying began is at risk of the disease or blindness
- Not appropriate for other endemic areas in Africa
- Relatively expensive

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## SKIN-SNIPS FROM TAMALE

In the vanguard of onchocerciasis chemotherapy work

**Dr Kwablah Awadzi** is a pioneer in the use of skin snips for the treatment of onchocerciasis. The snips are used to remove the parasite from the skin. Dr Awadzi is a pioneer in the use of skin snips for the treatment of onchocerciasis. The snips are used to remove the parasite from the skin.

## Decade of achievement

**Dr Adetokunbo Lucas** summarises the scientific progress made by Dr Awadzi and his team.

IN 1975, Dr Kwablah Awadzi became the Director of the Onchocerciasis Chemotherapy Research Centre (OCRC) at Tamale, Ghana, and thus began a decade of solid achievements in clinical and pharmacological research on old and new drugs for the treatment of onchocerciasis. Occupying a wing of the Tamale Northern Regional Hospital, the OCRC pro-

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## Phase 2: Chemotherapy based control

### Ivermectin (Mectizan®)

1987 "Given free for as long as needed to as many as needed"



- Single annual treatment kills 95 % of mfs
- Does not kill the adult worms
- No interruption of transmission
- Required prolonged period of treatment

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## Modelling Impact of ivermectin treatment

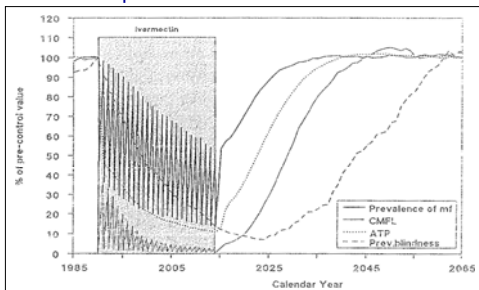


Fig. 4. The predicted epidemiological impact of 25 years of annual large scale ivermectin treatment.

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## Challenges for the delivery of ivermectin

- Research to support large scale drug delivery
  - OCP community trials in 59000 people
  - Community based treatments (NGOs)
  - Community directed treatment with Ivermectin (CDTi)
- Criteria for priority areas to have drug distribution
  - Rapid epidemiological mapping of onchocerciasis (REMO)
  - Rapid epidemiological assessment (REA)
- Serious adverse events in large scale drug distribution
  - Rapid Assessment procedure for Loiasis (RAPLOA) loa

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## Multicountry studies

- 1994: Multi country scientific study on Community based treatment with ivermectin (OCP,TDR)
  - to develop simple acceptable and sustainable methods for Community Directed Treatment with ivermectin ( Community self treatment )
  - Compared programme designed and community designed methods for ivermectin
- 1996: Study results showed that community directed treatment with ivermectin is feasible , effective and likely to be sustainable and
- Conclusion that given adequate supplies communities were capable to collect the drug themselves for treatment of their own community

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## Rapid Epidemiological Mapping for Onchocerciasis (REMO)



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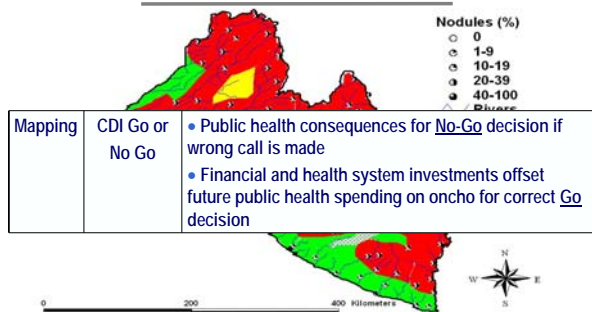
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## REMO/GIS RESULTS IN LIBERIA



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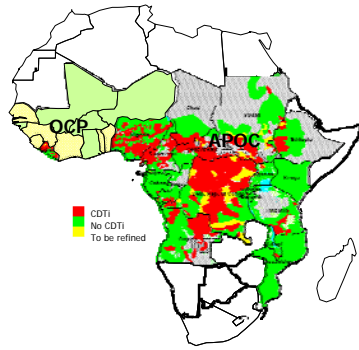
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## Onchocerciasis Endemic Countries in Africa

- 100 million to be covered by 2012



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THE LANCET

## Serious reactions after mass treatment of onchocerciasis with ivermectin in an area endemic for *Loa loa* infection

Jacques Gardon, Nathalie Gardon-Wendel, Demanga-Ngangu, Joseph Kamgno, Jean-Philippe Chippaux, Michel Boussinesq

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## Filaria Journal

Research

### Mapping the distribution of *Loa loa* in Cameroon in support of the African Programme for Onchocerciasis Control

Madeleine C Thomson<sup>1</sup>, Valérie Obsomer<sup>1</sup>, Joseph Kamgno<sup>2</sup>, Jacques Gardon<sup>3</sup>, Samuel Wanji<sup>3</sup>, Innocent Takougang<sup>4</sup>, Peter Enyong<sup>5</sup>, Jan H Remme<sup>6</sup>, David H Molyneux<sup>1</sup> and Michel Boussinesq<sup>2</sup>

Research

### Rapid assessment method for prevalence and intensity of *Loa loa* infection

Innocent Takougang<sup>1</sup>, Martin Meremikwu<sup>2</sup>, Samuel Wandji<sup>3</sup>, Emmanuel V. Yenshu<sup>4</sup>, Ben Aripko<sup>5</sup>, Samson B. Lamle<sup>6</sup>, Braide L. Eka<sup>7</sup>, Peter Enyong<sup>8</sup>, Jean Meli<sup>1</sup>, Oladele Kale<sup>9</sup> & Jan H. Remme<sup>10</sup>

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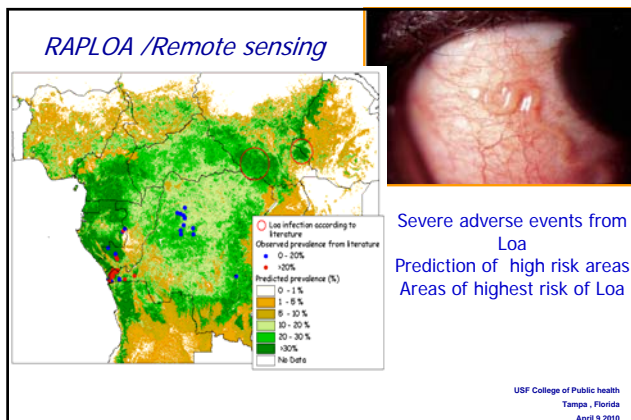
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The new paradigm on how to reach the population  
Community-Directed Treatment (CDTi)

- ✓ Community collects ivermectin (Mectizan®) from the nearest health facility
- ✓ Community decides how and when to distribute ivermectin (Mectizan®)
- ✓ Community *collectively* selects distributors
- ✓ Health Services/NGDOs train and monitor CDT activities
- ✓ CDT empowers local communities

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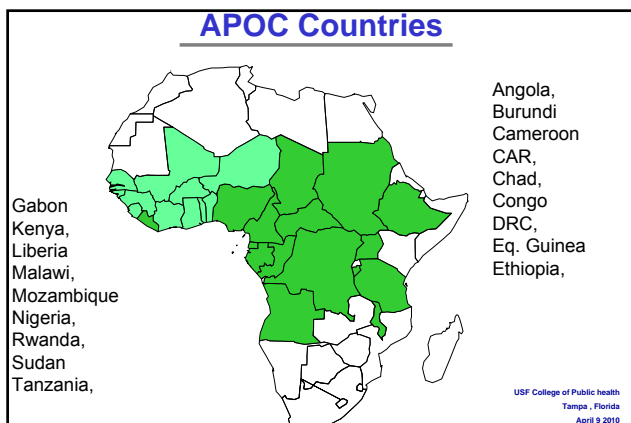
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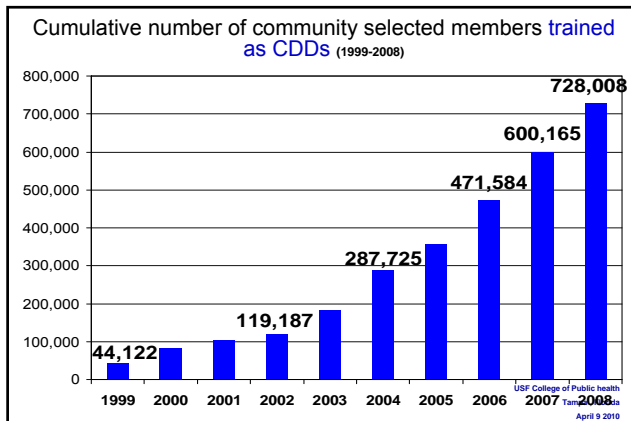
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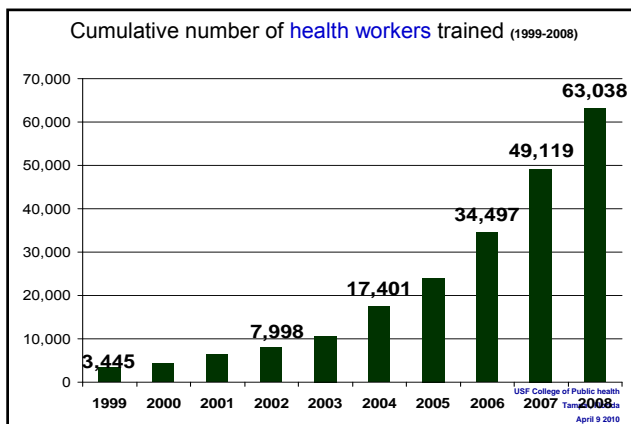
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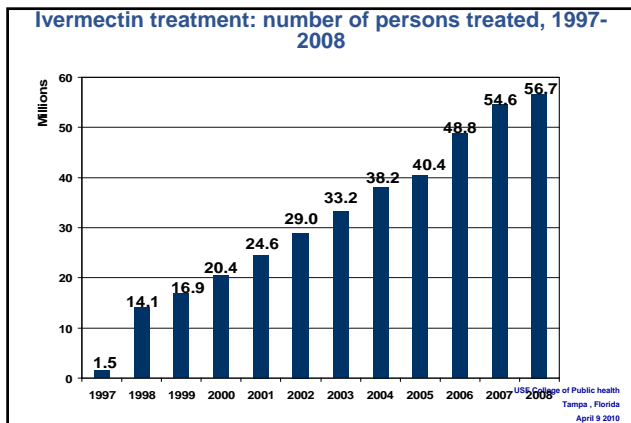
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### Deliverables from Community-directed treatment with ivermectin

- Community Drug Distributors in action in 19 countries
- Over 56 million on ivermectin
- Use of CDDs and network for other public health care delivery
- Extension of CDTi for other interventions required evidence based information



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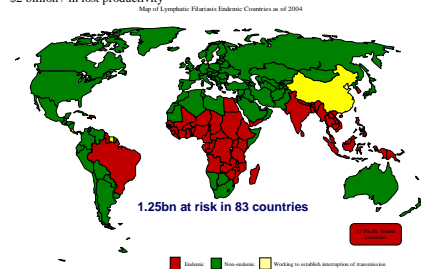
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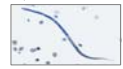
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### Lymphatic filariasis

120 million cases  
5 million DALYs  
\$2 billion+ in lost productivity



Mosquito transmission



Wuchereria bancrofti



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### Lymphatic Filariasis and Onchocerciasis benefiting from CDI

- Co endemicity, overlap, similar drug distribution and strategy facilitates once per year treatment
- Same staff from MOH for Integrated programmes
- NGO's have agreed to work on LF as well as onchocerciasis
- Similar coordinated drug application process via Task Force-integrated, independent oversight Committee
- Co endemicity with Schisto also for triple therapy

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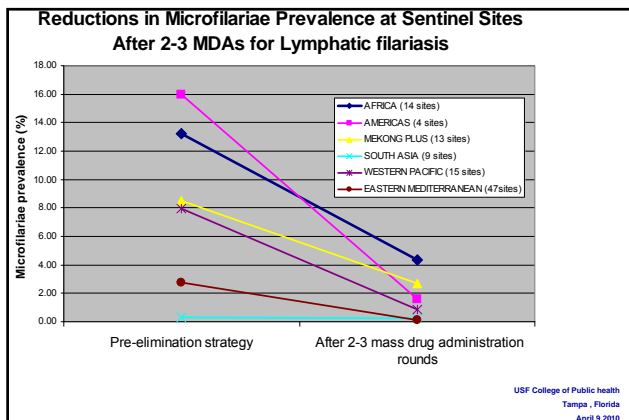
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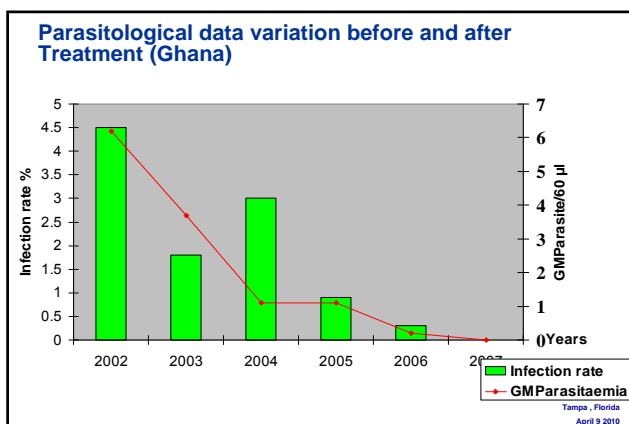
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## Multi-country study on Community-directed Interventions

- Main objective

- To determine the extent to which the CDI process can be used for the integrated delivery of health interventions with different degrees of complexity

- Specific objective

- Determine effectiveness and efficiency of CDI as compared to current systems
- Identify critical factors that facilitate or hinder effective implementation and integration

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## Community-directed intervention

*A health intervention undertaken at the community level under the direction of the community itself*

- Community members collectively

- Decide need/want the intervention (empowered)
- Design the approach to its delivery
- Plan how, when, where and who does the interventions
- What support will be provided to implementers
- Discuss results/adjust the strategy as they see fit

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## Community-directed intervention

*A health intervention undertaken at the community level under the direction of the community itself*

- Health systems

- Introduces concept of CDI and technical aspects of the intervention to the community
- Provides training and supervision
- Ensures adequate supplies and supportive health policies

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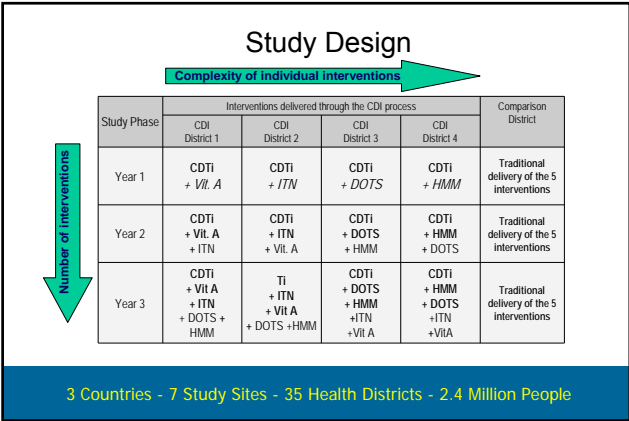
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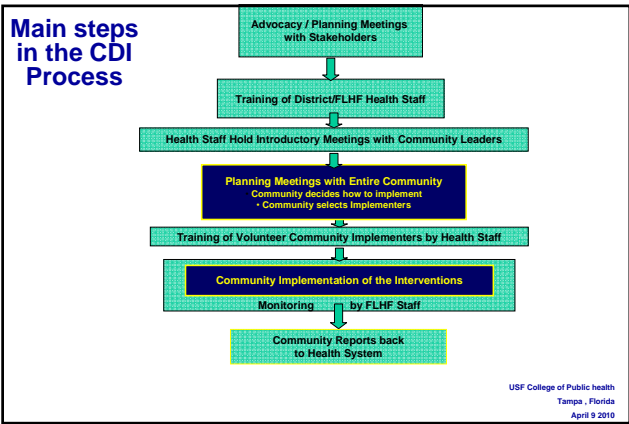
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## Results from the Multicountry Study

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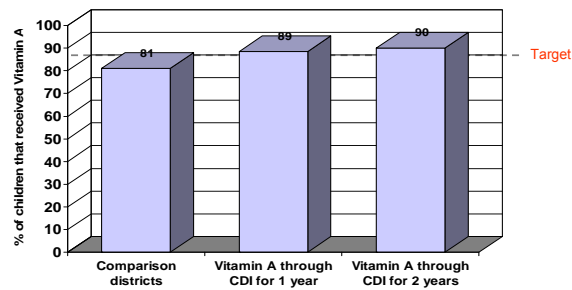
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Vitamin A coverage

P<0.001



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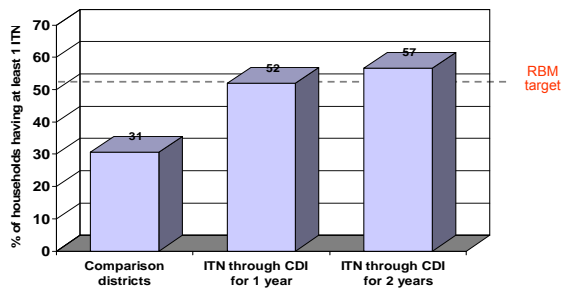
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Households with at least 1 ITN

P<0.001



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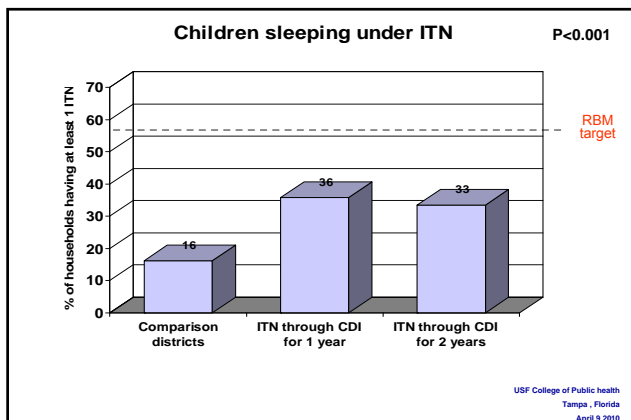
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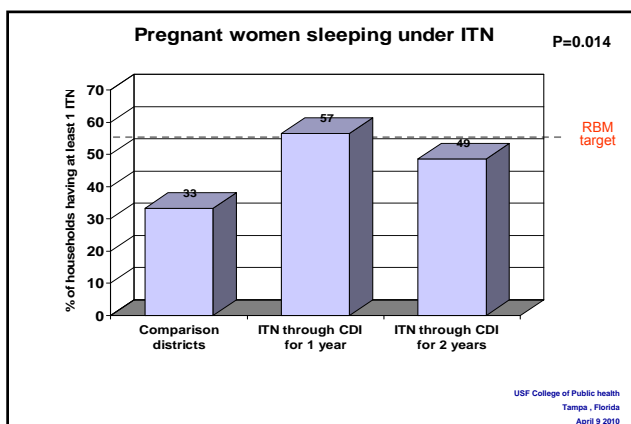
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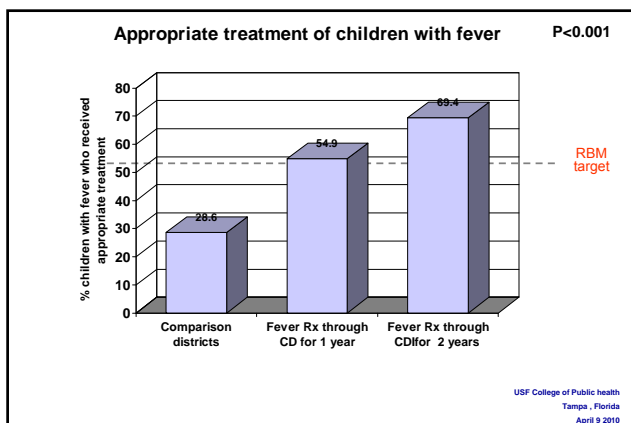
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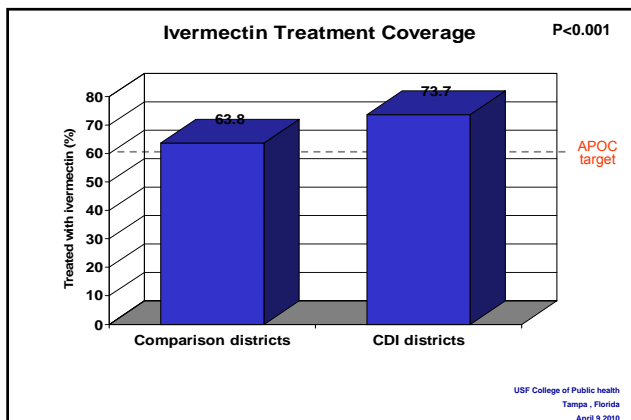
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### Main Conclusion from the study

- CDI approach more effective than current delivery approaches for all studied interventions except DOTS:
  - Malaria home management coverage was two times higher and largely exceeded the RBM target
  - ITN coverage two times higher
  - Vitamin A coverage significantly higher
  - Ivermectin coverage significantly higher
- At least 4 to 5 interventions could be effectively implemented through the CDI process

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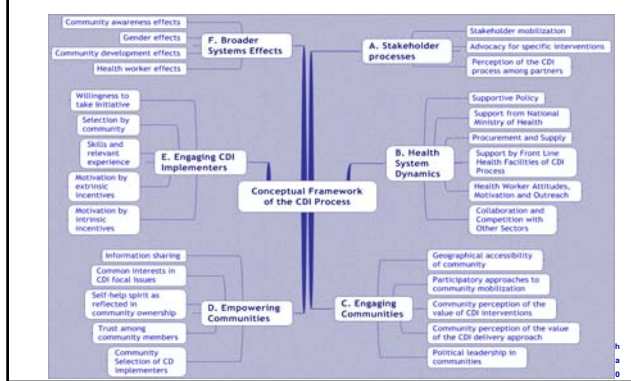
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### **Critical Factors in the CDI Process**




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## Implications for Primary Health Care

- Extension of the CDI strategy beyond current use to enhance integrated approach to health care
- Health workers, policy makers and other stakeholders display significant support for the system
- A cost effective approach to primary health care

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## Broader primary health care effects

- Community awareness
  - Communities increasingly aware of public health issues, health commodities, and their rights to access them
- Gender
  - More women attending meetings, speaking out and being selected as CDI implementers
- Health worker – community interaction
  - Health workers seeing CDI Implementers as partners and involving them more in other outreach public health activities

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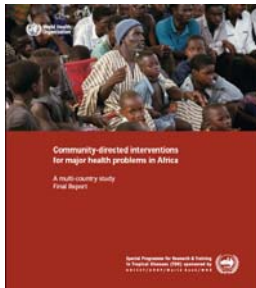
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## Integrated community directed interventions study



Integrated community directed interventions study outcome influences

- policy and practice of public health interventions in Africa, especially in APOC countries
- primary health care

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## Reactions to CDI

**Afriquentlign**  
Actualités africaines en ligne

Actualités - News - Afrique d'aujourd'hui - Afrique de l'ouest - Afrique centrale - Afrique de l'est

**Community-directed health care is way to go in Africa**  
research shows  
Niger - Africa news

**Burkina Faso: Community-directed health works**

**African Villagers Improve Malaria Treatment and Other Health Interventions, WHO Study Documents**

**AFRIK.COM**

**Researcher's Want Disease Control in Hands of African Communities**  
By Ricci Shryock  
Ouagadougou, Burkina Faso  
29 April 2010  
Shryock report - Download (PDF) - Shryock report - Listen (MP3) -

**New research shows a community-controlled approach to fighting illness has doubled the malaria coverage for children in some African villages during the past three years. Ricci Shryock has more from Ouagadougou, Burkina Faso.**

**Africa reports significant progress in community-directed health care**  
Niger - Africa news

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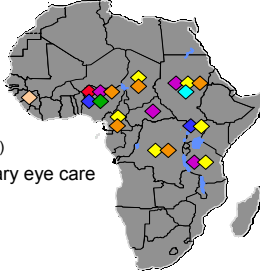
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## CDI network offers a key entry point for many public health interventions

- ◆ Lymphatic Filariasis Treatment
- ◆ Vitamin A Distribution
- ◆ Schistosomiasis Treatment
- ◆ Guinea Worm Intervention
- ◆ Immunizations (polio, measles, others)
- ◆ Eye Care (cataract identification primary eye care)
- ◆ Malaria Bed Net Distribution
- ◆ HIV/AIDS and Reproductive Health



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## Use of CDI for other PH interventions

Country/intervention	ITN	Alb	VIT A	Trac.	PEC	PZQ	G.Worm	HMM
Nigeria								
Uganda								
Cameroon								
Chad								
Ethiopia								
Tanzania								

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### CDI is Pro-poor and Pro-active

- Ethically appropriate, compatible with human rights agenda-fundamental right to health
- High coverage interventions
  - whole communities
  - regular treatment
  - multiple benefits
- NGO commitment
- Compatible with 5 Millennium Development Goals and a multiplicity of targets

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### Millennium Development Goals

- Eradicate extreme poverty and hunger
- Achieve Universal primary education
- Promote gender equality and empower women
- Reduce child mortality
- Combat HIV/AIDS, malaria and other diseases
- Ensure environmental sustainability
- Develop a Global Partnership for Development

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### CDI is Pro-poor and Pro-active

- Unserved, rural and urban, post conflict settings
- Low unit costs/treatment
- Highest potential for success, cheap, safe, efficacious, cross sectoral, demand led and high potential for sustainability
- Benefits entire population, nondiscriminatory

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## Interventions that are appropriate for CDI

The CDI process is an appropriate delivery model for public health interventions with the following characteristics:

- The community can be empowered for its implementation
- The health system accepts to empower communities
- Can be adequately delivered by lay health workers without extensive training
- Disease perceived as an important health problem that affects all sections of the community
- Intervention has a clearly perceived benefit
- Materials expected to be adequately accessible to community

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## Challenges with CDI

- Resistance from established health services
  - reduction /removal of allowances
- Rejection by the community
  - Entry into community
- Breakdown of the system
  - incentives/ motivation ( competing forces from other interventions)
  - Population and CDD fatigue
- Presence of local structure for health delivery e.g India,
- PHC already working effectively e.g Vietnam
- Issue of provision of commodities by the Health services/stakeholders
- Adverse publicity of any on-toward situation
- Sustainability

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## Conclusion

- Community directed intervention (CDI) for onchocerciasis control has brought an enormous relief and hope to the affected population.
- The CDI strategy has tremendous scope and potential to strengthen public health interventions
- The approach forges a useful and practical bridge between the formal public health care system and the community.
- Through the CDI strategy the empowered community becomes a full ally in appropriate public health interventions in society.

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## Acknowledgments

- All the 26 investigators who planned designed and undertook the very first multicountry study on CDTi and their collaborators in 1994-95 ( TDR, OCP, APOC)
- The Onchocerciasis Control Country coordinators in OCP/APOC
- The investigators from Cameroon, Nigeria , Uganda and Tanzania and their collaborators for the Multicountry study on CDI for major health problems in Africa
- The Communities, Ministries of health , Stakeholders, Expert committees, Product development teams.
- Partners and donors involved in the control of onchocerciasis and lymphatic filariasis in Africa
- The USF College of Public Health

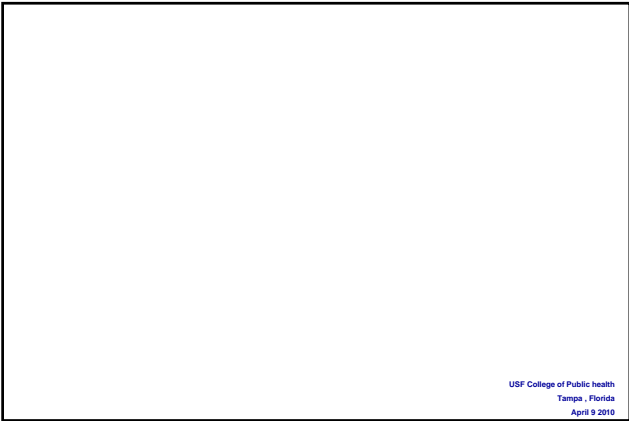
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Thank  
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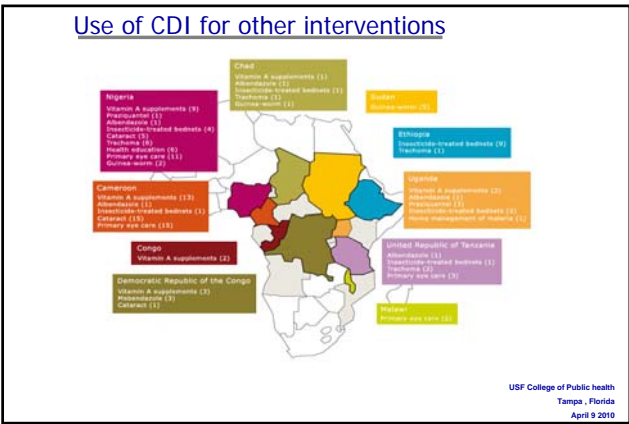
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