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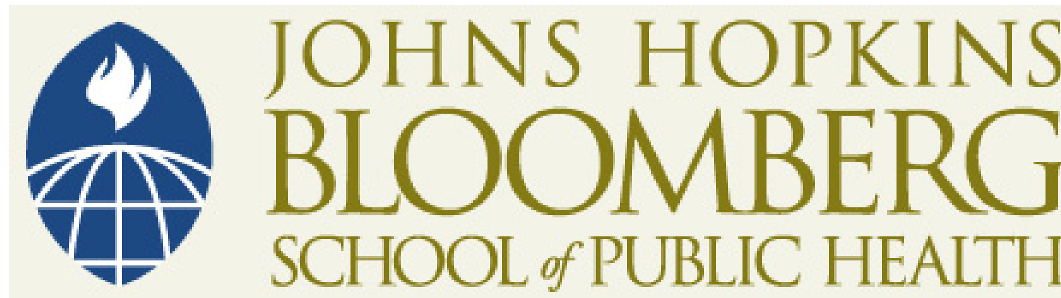

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Behavior Change Interventions for Malaria Programs

Peter Winch

RBM Program Implementation

- RBM is using a new approach to program implementation
  - Decentralized decision-making
  - Collaboration between a variety of partners in implementation
  - Emphasis on behavior change at household and community levels

Key RBM Interventions

- Early and appropriate treatment of malaria, especially in under-fives
- Prevention and control of malaria in pregnancy
- Insecticide-treated mosquito nets

Key RBM Interventions

- Each are supported by the results of high-quality research that has demonstrated their impact
- Nevertheless, limited evidence of significant decreases in malaria-related mortality and morbidity in sub-Saharan Africa, with some exceptions (Eritrea, South Africa, Botswana, southern Mozambique, parts of Tanzania)

Key RBM Interventions

- Why aren't we seeing greater results from implementation of RBM interventions?

Early and appropriate treatment of malaria, especially in under-fives

Early and Appropriate Treatment of Malaria, Especially in Under-Fives

- Approaches to implementation
  - Health facilities
  - Community health workers
  - Mothers
  - Private providers

Early and Appropriate Treatment of Malaria by CHWs: Traditional Approach

- Presumptive treatment of fever with first-line antimalarial
- Referral of cases with signs of severity to health facility
- NO:
  - Use of microscopy or diagnostic tests
  - Training on assessment or management of ARI/pneumonia

Example: CHW Program in Southern Mali

Total Population Distribution 1995

Deichmann, U. 1996. Africa Population Database. National Center for Geographic Information and Analysis, United Nations Environmental Programme, World Resources Institute. Internet: http:// www.grid2.cr.usgs.

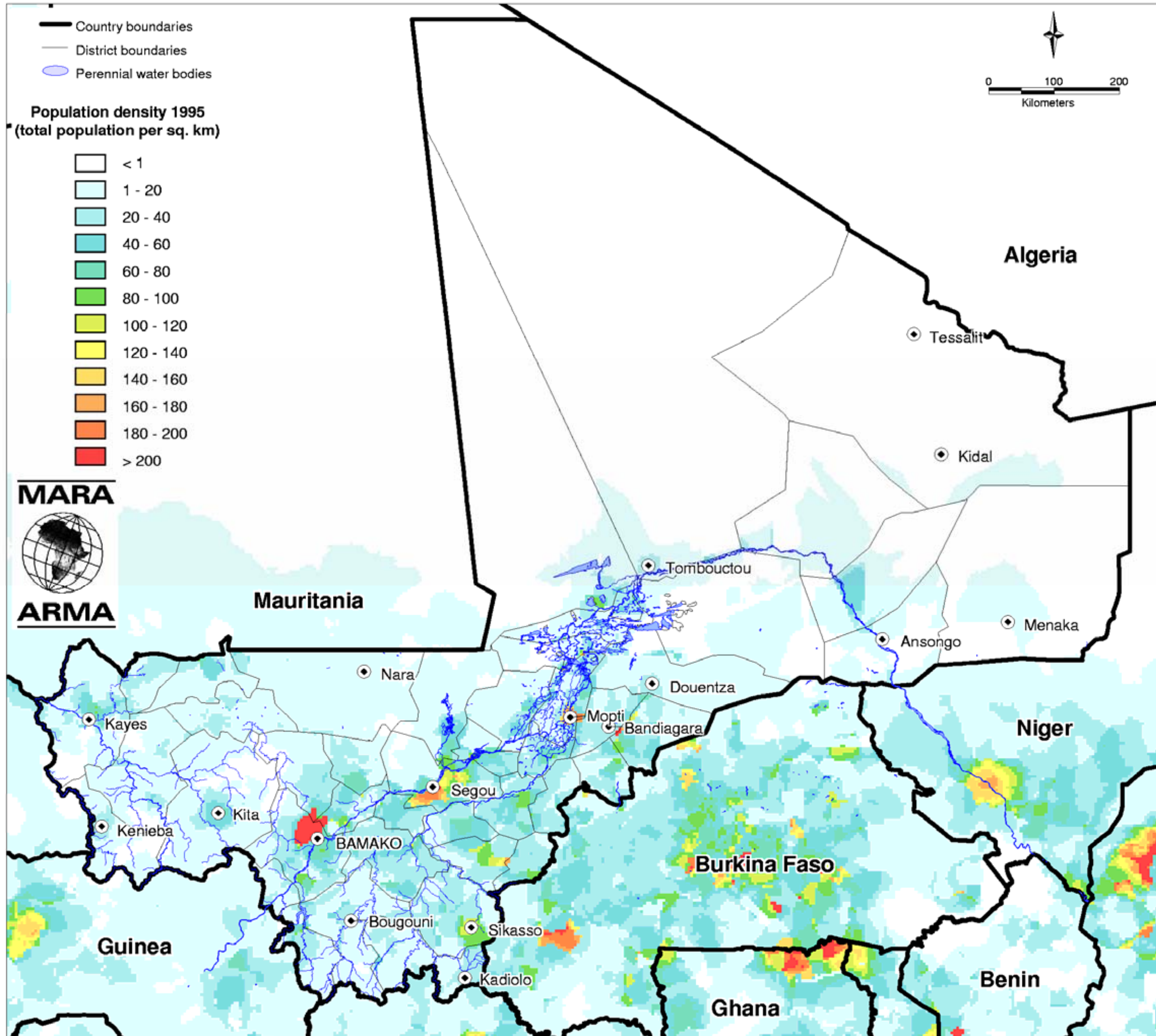


Photo: Peter Winch

Health Indicators for Mali from DHS Surveys

	1995/6 DHS	2001 DHS
Total Fertility Rate 15-49 yrs	6.7	6.8
Under five mortality rate	237.6/ 1000 live births	229.1/ 1000 live births

Photo: Peter Winch

Structure of a Health Zone

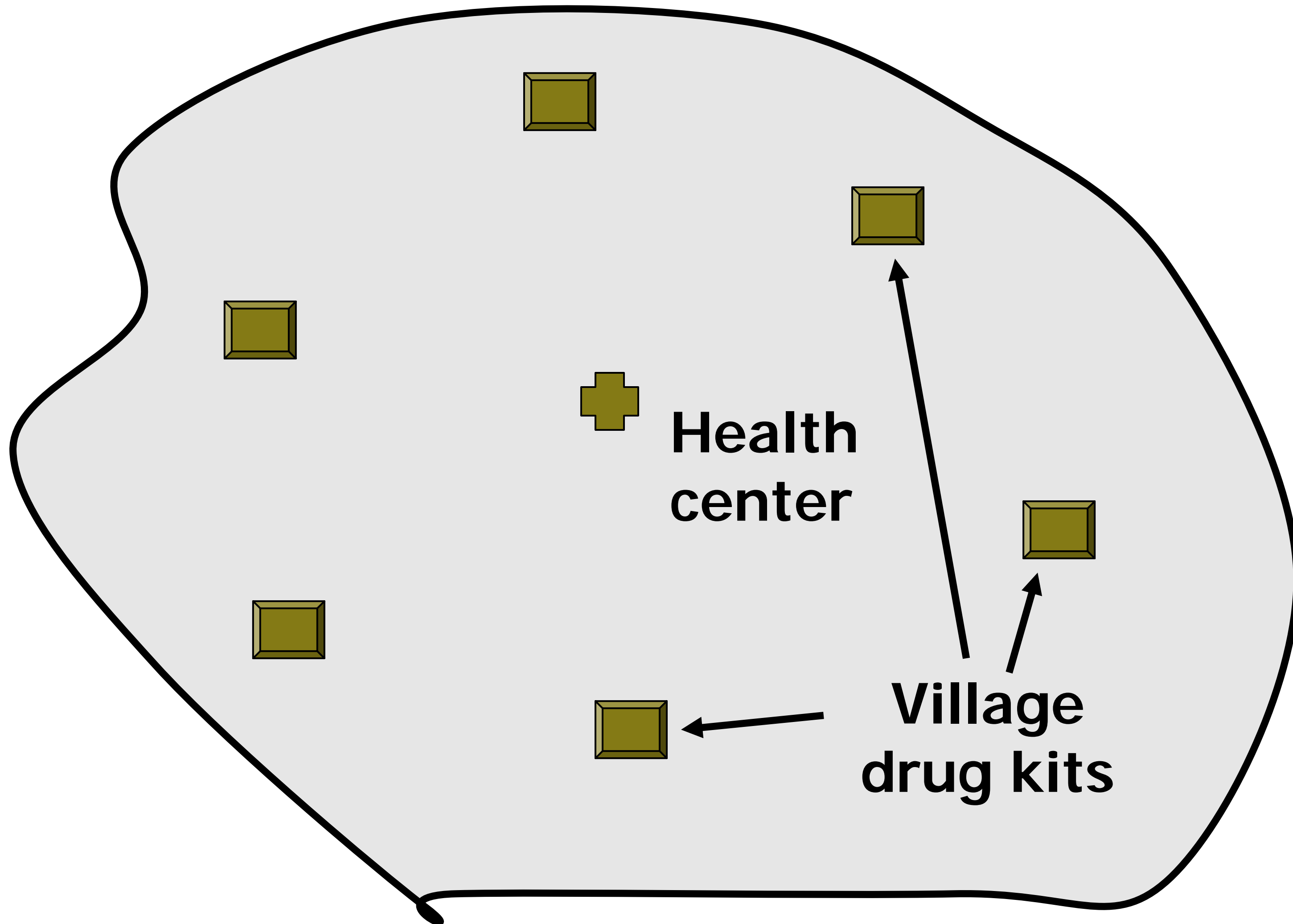


Photo: Peter Winch

Early and Appropriate Treatment of Malaria by CHWs: Current Challenges

- Chloroquine has been the gas in the tank of CHW programs: Safe, effective, and inexpensive. Alternatives are less safe and more expensive.
- Many Ministries of Health feel that Artemisinin Combination Therapy (ACT) should not be placed in the hands of CHWs

Issues Related to ACTs

- High cost
  - If paid by customer: Will customer be willing to pay versus getting chloroquine from the market
  - If paid by government: Will government allow CHW prescribing of ACTs, concern about wastage
- Counseling: Can CHWs effectively counsel parents/patients on ACT administration?
- RDTs: Many governments don't want ACTs given without positive microscope or RDT

RDTs

- Some CHW programs have used microscopy
- Some examples of CHWs using RDTs, minimal training and supervision needed compared to microscopy:
  - Mayxay M *et al.* An assessment of the use of malaria rapid tests by village health volunteers in rural Laos. Tropical Medicine and International Health 2004; 9(3): 325-9.
  - Used ParacheckPf and OptiMAL

Issues with RDTs

- Cost compared to drugs, in Laos study:
  - Paracheck Pf $0.75
  - OptiMAL $1.95
- What to do with people with negative RDT who still want treatment?
- What to do if people have signs of malaria and are very sick, but negative RDT?

Discussion Question #1

- In southern Mali would you:
  - Allow CHWs to dispense ACTs?
  - Train CHWs to use RDTs?
- What do you do with people who test negative with RDTs?
- What behavior change communication would be needed to introduce ACTs?

Sources of Care for Sick Children

Survey conducted in Bougouni District, Mali, April 2004, n=228

Appropriate sources of modern medications/care	**99 (43.4%)**
Community health centre	68 (29.8%)
District referral hospital	2 (0.9%)
Community health worker operating a drug kit	27 (11.8%)
Maternity/nurse's aide	19 (8.3%)
Unauthorized sources of modern medications	**124 (54.4%)**
Vendors in the market	92 (40.4%)
Small shop/ambulatory vendor	43 (18.9%)
Pharmacy	5 (2.2%)
Traditional sources of care	**170 (74.6%)**
Traditional healer	53 (23.3%)
Old "wise" woman	59 (29.9%)
Traditional medications prepared by family	94 (41.2%)

Photo: Peter Winch

Photo: Peter Winch

Sources of Care for Sick Children

Survey conducted in Bougouni District, Mali, April 2004, n=228

Appropriate sources of modern medications/care	What we mostly teach about
Community health centre	
District referral hospital	
Community health worker operating a drug kit	
Maternity/nurse's aide	
Unauthorized sources of modern medications	What we teach very little about
Vendors in the market	
Small shop/ambulatory vendor	
Pharmacy	
Traditional sources of care	
Traditional healer	
Old "wise" woman	
Traditional medications prepared by family	

Intervention Models to Improve Quality of Care in Private Sector

- Increasing quality of care in pharmacies → Accredited Drug Dispensing Outlets
  - www.msh.org/seam/country_programs/3.1.4b.htm
- Vendor-to-vendor interventions
  - www.malariajournal.com/content/2/1/10
- Negotiation ("contracts") with private providers to change behavior
  - Trop Med Int Health. 2002 Mar;7(3):210-9
  - Health Policy Plan. 2000 Dec;15(4):400-7.

Discussion Question #2

- Should the private/informal sector be involved in the introduction of ACTs?
- How should the private/informal sector be involved?

Improving Care During the Rainy Season

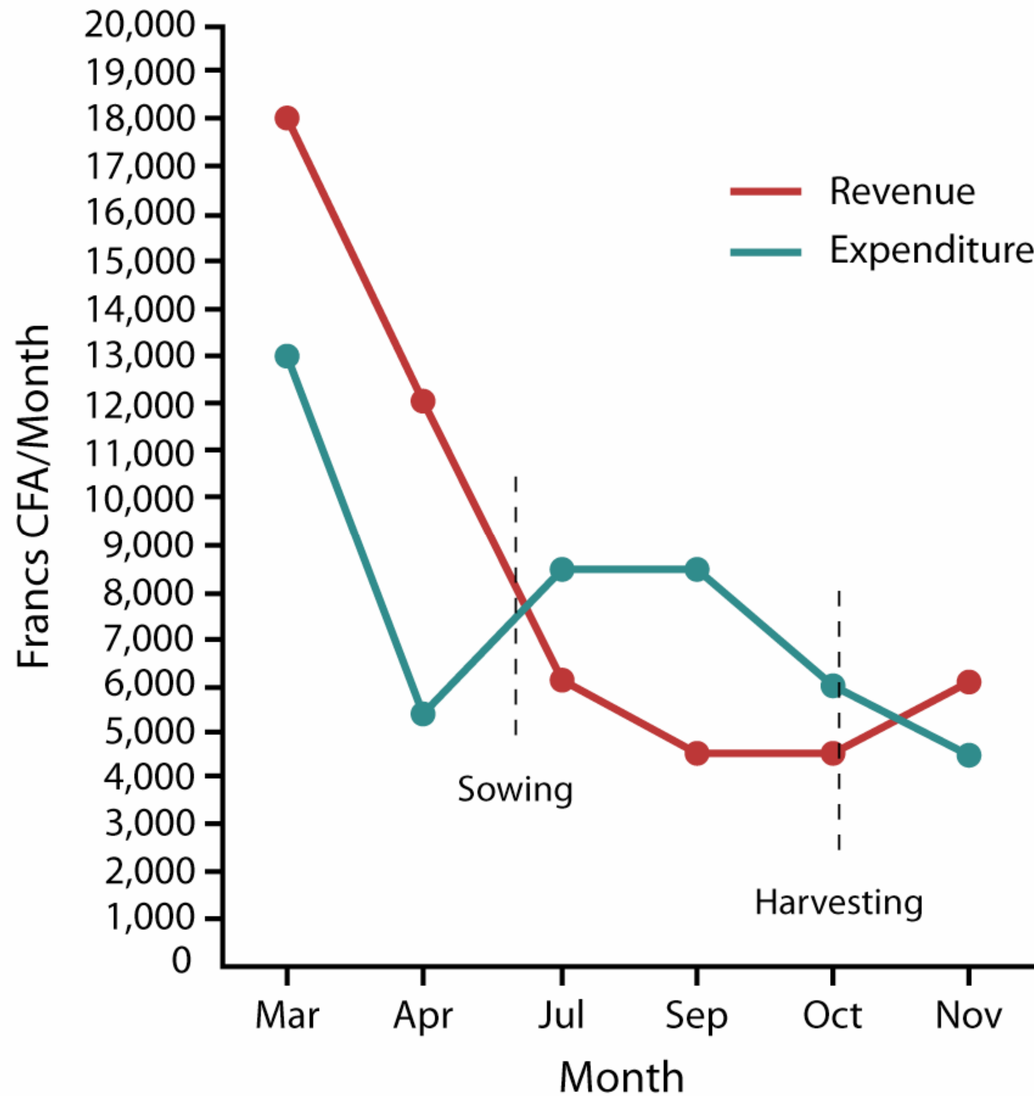
The Major Constraints Converge During the Rainy Season

- How?
- Why is it important?

Seasonality of Household Expenditures and Revenues

- During rainy seasons when malaria transmission is greatest:
  - Decrease in household revenue
  - Increase in household expenditure
  - Increase in workload
- Resulting in:
  - Less careseeking from health facilities
  - Greater use of traditional medicine

Seasonal Variations in Household Expenditures and Revenues, Burkina Faso



Adapted by CTLT from Sauerborn et al.
Soc Sci Med, 1996;43(3):281-290.

CTLT

Seasonal Variations in Patterns of Illness Treatment, Burkina Faso

	Dry season	Rainy season
No. households	566	547
No. individuals	4820	4634
No. ill individuals	867 (18%)	636 (13.7%)
Episodes/person	1.21	1.18
No. illness episodes	1050	752
No. episodes treated	674 (64.2%)	259 (34.4%)
No. treatment episodes	829	282

Discussion Question #3

- How would you improve access to treatment during the rainy season in Burkina Faso?

Discussion Question #4: Constraints on Behavior in Pregnant Adolescents

Burden of Malaria in Pregnancy

- Malaria contributes to negative health impact of both mothers and infants:

<u>Mothers</u>

- 3-15% of severe anemia
- up to 10,000 malaria anemia-related deaths per year

<u>Infants</u>

- 8-14% of all low birth weight
- 30% of preventable low birth weight
- 3-8% of infant mortality

Malaria in Pregnancy

- Pregnancy makes women more vulnerable to malaria, resulting in high morbidity and mortality:
  - Malaria infection can lead to acute disease and anemia
  - Malaria parasites accumulate in the placenta
- Anemia and placental malaria are associated with low birth weight
- Low birth weight is the single greatest risk factor for neonatal death

Prevention Measures

- Antimalarial drugs
  - Chemoprophylaxis
  - Presumptive intermittent therapy (PIT)

- Insecticide- treated materials (ITMs)

Malaria in Pregnant Adolescents

- BIOLOGICAL RISKS:
  - Anemia common in adolescence
  - Risk of malaria in pregnancy during first gestation
  - Reduced pelvic size: Pelvis still growing
  - Risk of toxemia in first gestation

Malaria in Pregnant Adolescents

- SOCIAL RISKS:
  - First pregnancy may not be declared until near the end
  - No autonomy in decision making
  - May have no previous contacts with health system
  - Less access to money

Discussion Question #4: Malaria in Pregnant Adolescents in Country X

- Program is in place, but coverage is limited to referral-care facilities and urban hospitals
- Official policy has been chemoprophylaxis 2 tabs CQ/week from 8th wk, but this policy never implemented
- New policy is treatment with SP twice during pregnancy at beginning of 2nd and 3rd trimesters

Social and Cultural Factors

- Don't want to make their pregnancy public
- May be abandoned by the family
  - Mother and father reject her
  - She goes to live with grandparents
- Drop out of school

Questions for Example #4

- You are director of RBM program in this country. Coverage of program has been restricted to the capital until recently.
  - What are your proposed interventions for preventing and treating malaria in pregnancy?
  - What is your strategy for reaching adolescent girls?