



"With Us Not For Us" Implementing Malaria Control and Elimination Programmes with a Community Participation Approach

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Order of Presentation



- Summary of lessons learnt from the literature about the importance of community participation in malaria control programmes
- Lessons learnt from disease elimination efforts and community participation
- Identify key areas for community participation in progress towards and maintenance of elimination of malaria.
- Some examples of the approaches drawn from work in the Pacific.







WHAT DO WE KNOW ABOUT COMMUNITY PARTICIPATION IN HEALTH





INDIVIDUAL

- Knowledge and perceptions of disease
 - its causality, prevention & treatment
- Vulnerability factors vs Resilience
- Social stigma
- Acceptability of interventions
- Incentive





HOUSEHOLD

- Gender roles and power relationships
- Consideration of cultural norms
- Access)
- Geography / logistics





COMMUNITY

- Community heterogeneity vs social cohesion
- Social environment
- Disease epidemiology and complexity of intervention
- Processes by which communities are engaged / empowered to participate
- Congruence of external targets and local priorities
- Previous success in community participation





GOVERNMENT AND CIVIL SOCIETY

- Reflective of anatomy of political system
- Political advocacy & government/civil society support
- Decentralisation of power and resources
- Health authority commitment to Primary Health Care
- Intersectoral coordination and integration of program in broader development goals
- Human Resources
- Techno-financial support of locally embedded development agencies



Key Preliminary Messages



- Community participation (CP) should be instigated at the outset of a program
- CP requires structure and capacity.
- Where possible, use existing organisations / volunteers structures
- Establish communication channels and engage functioning administrative hierarchy if exists
- Build capacity for community participation and BCC work at the grass roots
- The restriction of community participation to labour-intensive and non-technical activities : perceived communities as low-cost and poor-quality substitutes for services, Meaningful and visible
- Volunteer health workers to access remote communities need supervision; Scale up hindered by inadequacies in health system
- Acceptable universal level, availability and accessibility of health services necessary



A Brief History Of Malaria Elimination



- Previous global malaria elimination attempt in mid 1950s
- Significant political and financial support (WHO, UNICEF, USAID, The Rockefeller Foundation)
- Primary strategy was vector control
- Malaria eliminated from US, Japan, Korea, Taiwan, Spain, Italy, the Balkans, Greece, northern Africa & parts of the South Pacific
- Emergence of resistance, DDT shortages, humanbehavioural factors led to waning political and financial support and eradication was abandoned.
- Realisation of limitations of one-size-fits-all strategy led to shift in focus to a Primary Health Care strategy (Alma Ata Conference 1978)



Malaria



- Taiwan's experience in eradicating malaria in 1964.
 - sound central planning and coordination
 - vigorous execution by strengthened health services and the military anti-malaria unit;
 - considerable technical and financial assistance;
 - adequate supervision at provincial, county and township levels and
 - enthusiastic community participation.



Malaria



- Aneityum, Vanuatu. 1991 1997
 - pilot an eradication program that involved mass drug administration (MDA), impregnated bed nets and larvivorous fish.
 - Community participation consisted of aggressive health education and community meetings to respond to villagers concerns and obtain valuable feedback in order to tailor the interventions for maximum cooperation. High compliance with MDA and bed net use



Onchocerciasis



- In 1996 African Programme for Onchocerciasis
 - a framework for 'community-directed treatment' that put communities directly in charge of drug distribution and administration (ivermectin) and were supported to organise this in a manner that suited them.
 - Elimination was achieved by 2002 in 11 West African Countries,
 - One of the keys to the success and sustainability of approach -feedback mechanism that relies on community participatory research to developed and refine intervention strategies and identify the barriers to participation.





Eradication of Schistosomiasis



- A horizontal, multi-sectoral network for policy formation and planning,
- Another horizontal network at the community level for implementation and reporting that involved mass community participation and vertical communication between the two networks.
- Successful eradication of schistosomiasis in this region took almost 40 years
- Attributed to a sustainable program that was created centrally and integrated locally to match their socioeconomic, cultural, geographical and transmission circumstances

Guangxi, China







Smallpox

- Distinctive enough that schoolchildren in endemic areas could recognize it even under primitive conditions [9],
- Hence education and surveillance is easier.
- 'The people themselves, in effect, told us where smallpox was, and this allowed the elimination of pockets of infection. The identification and containment of smallpox foci, rather than 100% coverage was the key strategy to eradication.' (Fenner 1982)





Polio



Gains in containing transmission of polio have proved fragile.

- Mistrust of interventions may occur in areas of poor development, inadequate healthcare services or among marginalised communities.
- Allaying fears and suspicions of marginalised segments of the population will require improved primary health care as communities have started asking 'why only polio?' when there are many other community development and health priorities
- Obtaining endorsement for the program from community leaders and engaging them is vital for building public confidence and credibility for the campaign which may address some of the acceptability issues
- When properly engaged, religious and community leaders and role models (sport stars etc) became strong community level allies for elimination
- Border and community disease surveillance that is adequate and acceptable







SO WHAT DOES THIS MEAN IN AN ELIMINATION SETTING?



What are the Challenges for Maintaining Community Engagement in Elimination



- Don't have the disease anymore not perceived as a risk?
- Why continue behaviours like sleeping under a net when no longer a problem?
- Why support IRS when mosquitoes no longer a nuisance?
- Need to actively case manage fevers
- Need to "protect borders" risk of importation and capacity of transmission maintained
- A generation who don't remember malaria



Community Participation For What?



- Commitment to the goal of zero transmission, i.e. reservoir of parasites reduced to zero
- Motivated to maintain interventions to the point of zero transmission and then to maintain zero transmission
 - Highest possible coverage
 - Highest possible quality of application
- Need to specify exactly what we expect families to do?
 - Active responses
 - Tolerance of health service responses
- Joint decision making re interventions?
- Experience of provincial malaria staff?





The overall <u>aim</u> of community participation to support elimination is to develop sustainable engagement by communities in the targeted locations to maintain and support malaria control activities and be engaged in the identification of malaria cases, and protection of borders. as defined in the national malaria elimination strategy.



Objectives



- Community based treatment support for people who are using malaria treatment (*vivax* or *falciparum*) (early recognition of fever, active case detection, directly observed treatment and adherence, community based distribution support, test before treatment behaviour)
- Develop and strengthen community self monitoring of community level surveillance
- Community participation to reduce transmission and reservoir of infection (including IRS, source reduction, LLINs)





 Objective - Develop and maintain community based treatment support for people who are using malaria treatment (*vivax* or *falciparum*):

Foci

- Early Presentation (access, availability and use):
- Diagnosis:
- Treatment:





Objective: Develop and strengthen community self monitoring of community level surveillance indicators.

Foci:

- Cases
- Entomology
- Quality
- Access





- Vector Control:
- IRS: Improve community support and engagement in IRS in 2010 and onwards
- LLINs: Improve community engagement with
 LLINs
- Source Reduction: Improve community engagement with source reduction activities



Long Lasting Insecticide Treated Net (LLIN)



Malaria Elimination

- Requires bed net and family sleeping patterns census data <u>for planning</u>
- Requires total coverage and sufficient "effective" nets for all households to achieve mass <u>effect</u>
- The best distribution model is to use a house to house <u>approach</u>
- Needs rapid coverage monitoring to ensure quality <u>of</u> <u>the net distribution</u>
- Requires stringent assessment and follow up using community health volunteers for net coverage and usage

Malaria Control

- Requires household census
 <u>from health facilities</u>
- Based on people to net ratio to facilitate management of the bed <u>net programme</u>
- Distribution model is usually based on distribution points or from <u>health facilities</u>
- Coverage of nets is based <u>on</u> <u>people: net ratio</u>
- Assessment and monitoring: No routine, based on MICS or DHS



Indoor Residual Spraying (IRS)



Malaria Elimination

- To achieve total coverage in hypoendemic area so as to clear the last residual of transmission within a limited time frame
- As an effective synergist to malaria treatment especially in areas with multi-drug resistance or vivax malaria where use of primaquine is not feasible
- The aim in hyper and holoendemic areas is to apply blanket coverage to lower vectorial capacity (mainly longevity) and lower the transmission potential

Malaria Control

Normally not cost effective in hypoendemic areas; high coverage of LLIN can achieve the same objective

In hyper and holoendemic areas, IRS can be used if the vectors are endophilic and endophagic in habits and the operational environment is feasible.







THE PACIFIC EXAMPLES







Individual determinants of participation



- Knowledge and perceptions of disease,
- Vulnerability factors vs Resilience

• Social stigma

- Qualitative research to understand what are the se <u>are</u>
- Working with groups on their understanding of risks compared to other and through existing community structures. Understanding of <u>gendered</u> needs
- Concern regarding design of active case detection to ensure not stigmatising



Individual determinants of participation



 Acceptability of interventions

Incentive

- Acceptability research for RDTs, ACT, PQ, bed nets, larviciding and IRS
- BCC and evaluations
- Integrate with other services
- Role of child education
- Plan to do in-depth studies on why Aneityum continues to sustain zero local transmission and why Santa Isabel worked without "external" intervention













Larviciding and IRS





Determinants of CP - Household

- Gender roles and power relationships
- Consideration of cultural norms
- Access
- Geography / logistics

• Ensure gendered analysis

• Use of qualitative research techniques in formative and evaluative studies





Determinants of CP: Community

- Community heterogeneity vs social cohesion
- Social environment
- Disease epidemiology and complexity of intervention
- Processes by which communities are engaged / empowered to participate
- Congruence of priorities
- Previous success in community participation

- Communities requesting/commencing
- Building upon community structures
- Mainly familiar interventions, well defined epidemiology BUT G6PDD
- Community meetings, Behaviour change communications, use of schools and church organisation
 - Self initiated Aneityum experience, Isabelle
- In some settings and use NGOs

who have



Potential Local-level Stakeholders To Engage



Provincial / Area Health Dept. Representatives Provincial / Areas Council (Government) representatives Union representatives **Provincial Chiefs/village leadership Provincial Women's and Youth groups** Minority group support agencies Church groups and affiliated organisations **Education Department** Tourist industry representatives Locally embedded development agencies



Determinants of CP: Government

- Political system
- Political advocacy
- Decentralisation
- Health authority
 commitment to PHC
- Intersectoral coordination
- Human Resources

- Democracy
- PMs mobilised
- Devolved
- Increasing,
- Limited experience
- Limited in numbers, qualified pool, small nations
- Techno-financial support
- Limited range and depth of technical support, large dependence in external finances



A package



- A package for community participation in malaria elimination will need to be tailored to local contexts but should broadly include:
- 1. Advocacy
- 2. Supportive environment including community structures
- 3. Identifying and mobilising local stakeholders
- 4. Intersectoral collaboration
- Local-level action-orientated community participatory research Integration of malaria interventions (Primary Health Care approach);
- 6. Targeted implementation of locally-appropriate, multi-level behaviour change communication
- 7. Reporting systems that support community feedback to decision makers and the flow of information on program progress to communities;
- 8. Monitoring and evaluation of community participation activities.
- 9. Community volunteers (education, drug distribution, treatment, surveillance)



The Promise of Community Participation:



The rise of community participation is premised on perceived benefits that participation brings to community programs in terms of added efficiency, sustainability and the collective community power.'

Xu 2007



Thank you







References:

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- Ager A: Perception of risk for malaria and schistosomiasis in rural Malawi. *Trop Med Parasitol* 1992, 43:234-238.
- Arora, N.K., R. Dasgupta, and L. Sushant, *The polio* eradication initiative in India : need for evidence based actions. Indian J Med Res, 2007. 126(6): p. 500-1
- Atkinson J, Toaliu H, Fitzgerald L, Taleo G, Riley I, Whittaker M, Tynan A, Vallely A. Community participation for malaria elimination in Tafea Province, Vanuatu: Part I: Maintaining motivation for prevention practices in the context of disappearing disease. [Submitted to *Malar J*, January 2010]
- Atkinson JA, Bobogare A, Fitzgerald L, Boaz L, Appleyard B, Toaliu H, Vallely A: A qualitative study on the acceptability and preference of three types of longlasting insecticide-treated bed nets in Solomon Islands: implications for malaria elimination. *Malar J* 2009, 8:119.
- Atkinson JA, et a; 2009 A cluster randomised controlled cross-over bed net acceptability and preference trial in Solomon Islands: community participation in shaping policy in malaria elimination Malaria Journal 8: 298
- Aylward RB, Linkins J: Polio eradication: mobilizing and managing the human resources. *Bull World Health Organ* 2005, 83:268-273.

- Bates I, Fenton C, Gruber J, Lalloo D, Lara AM, Squire SB,
 Theobald S, Thomson R, Tolhurst R: Vulnerability to malaria,
 tuberculosis, and HIV/AIDS infection and disease. Part II:
 Determinants operating at environmental and institutional level. *Lancet Infect Dis* 2004, 4:368-375.
- Beier JC, Keating J, Githure JI, Macdonald MB, Impoinvil DE, Novak RJ: Integrated vector management for malaria control. *Malar J* 2008, 7 Suppl 1:S4
- Bermejo A, Bekui A: Community participation in disease control. Social Science & Medicine 1993, 36:1145.Tanner M, Vlassoff C: Treatment-seeking behaviour for malaria: A typology based on endemicity and gender. Social Science & Medicine 1998, 46:523.
- Best A, Stokols D, Green LW, Leischow S, Holmes B, Buchholz K: An integrative framework for community partnering to translate theory into effective health promotion strategy. *Am J Health Promot* 2003, 18:168-176.
- Botes L, van Rensburg D: Community participation in development: nine plagues and twelve commandments. *Community Development Journal* 2000, 35:41-58.
- Braun V, Clarke V: Using thematic analysis in psychology. *Qualitative Research in Psychology* 2006, 3:77-101.
- Campbell C, Jovchelovitch S: Health, community and development: Towards a social psychology of participation. *Journal of Community & Applied Social Psychology* 2000, 10:255-270.



References:



- Campbell C, MacPhail C: Peer education, gender and the development of critical consciousness: participatory HIV prevention by South African youth. *Social Science & Medicine* 2002, 55:331-345.
- Campbell R, Starkey F, Holliday J, Audrey S, Bloor M, Parry-Langdon N, Hughes R, Moore L: An informal school-based peer-led intervention for smoking prevention in adolescence (ASSIST): a cluster randomised trial. *Lancet* 2008, 371:1595-1602.
- Chen WI: Malaria eradication in Taiwan, 1952-1964-some memorable facts. *Gaoxiong Yi Xue Ke Xue Za Zhi* 1991, 7:263-270.
- Chilaka MA: Ascribing quantitative value to community participation: a case study of the Roll Back Malaria (RBM) initiative in five African countries. *Public Health* 2005, 119(11):987-994.
- Constantinou, K., *Anopheles (malaria) eradication in Cyprus.* Parassitologia, 1998. 40(1-2): p. 131-5.
- Cook J et al 2010 Using serological measures to monitor chnages in malaria transmission in Vanuatu Malaria Jounral 9: 169
- Delacollette, C., P. Van der Stuyft, and K. Molima, Using community health workers for malaria control: experience in Zaire. Bull World Health Organ, 1996. 74(4): p. 423-30.

- Delor F, Hubert M: Revisiting the concept of 'vulnerability'. Social Science & Medicine 2000, 50:1557.
- Dongus S, Nyika D, Kannady K, Mtasiwa D, Mshinda H, Fillinger U, Drescher AW, Tanner M, Castro MC, Killeen GF: Participatory mapping of target areas to enable operational larval source management to suppress malaria vector mosquitoes in Dar es Salaam, Tanzania. *Int J Health Geogr* 2007, 6:37.
- Espino F, Koops V, Manderson L: Community participation and tropical disease control in resource-poor settings. In: Social, Economic and Behavioural Research Special Topics. vol. TDR/STR/SEB/ST/04.1. Geneva: Special Programme for Research & Training in Tropical Diseases (TDR); 2004: 1-48
- Fenner, F., A successful eradication campaign. Global eradication of smallpox. Rev Infect Dis, 1982. 4(5): p. 916-30.
- Fraser ED, Dougill AJ, Mabee WE, Reed M, McAlpine P: Bottom up and top down: analysis of participatory processes for sustainability indicator identification as a pathway to community empowerment and sustainable environmental management. *J Environ Manage* 2006, 78:114-127.
- Garfield RM, Vermund SH: Health education and community participation in mass drug administration for malaria in Nicaragua. *Soc Sci Med* 1986, 22:869-877.
- Ghebreyesus TA, Alemayehu T, Bosman A, Witten KH, Teklehaimanot A: Community participation in malaria control in Tigray region Ethiopia. *Acta Trop* 1996, 61:145-156.
- Gurtler, R.E., et al., Sustainable vector control and management of Chagas disease in the Gran Chaco, Argentina. Proc Natl Acad Sci U S A, 2007. 104(41): p. 16194-9.





- Harris I elt al 2010A large proportion of asymptomatic Plasmodium infections in low and submi rosopcic paratiste densities in the low tranmission setting of Temotu Province, Solomon Islands: Challenges for maalria diagnostics in an elimiantion sertting Malaria Journal 9: 254
- Henderson RH: Eradication: lessons from the past. Bulletin of the World Health Organization 1998, 76:17-21.
- Hii, J.L., et al., Sustainability of a successful malaria surveillance and treatment program in a Runggus community in Sabah, east Malaysia. Southeast Asian J Trop Med Public Health, 1996. 27(3): p. 512-21
- Hodge FS, Pasqua A, Marquez CA, Geishirt-Cantrell B: Utilizing traditional storytelling to promote wellness in American Indian communities. *J Transcult Nurs* 2002, 13:6-11.
- Hutchinson P, Lance P, Guilkey DK, Shahjahan M, Haque S: Measuring the cost-effectiveness of a national
 health communication program in rural Bangladesh. J Health Commun 2006, 11 Suppl 2:91-121.
- Jacobs B, Price N: Community participation in externally funded health projects: lessons from Cambodia. *Health Policy Plan* 2003, 18:399-410.
- Kaneko A, Taleo G, Kalkoa M, Yamar S, Kobayakawa T, Bjorkman A: Malaria eradication on islands. *Lancet* 2000, 356:1560-1564.

Kaneko A: A community-directed strategy for sustainable malaria elimination on islands: short-term MDA integrated with ITNs and robust surveillance. *Acta Trop* 2010.

•

•

•

•

- Kaseje, D. C. and E. K. Sempebwa (1989). "An integrated rural health project in Saradidi, Kenya." <u>Soc Sci Med</u> 28(10): 1063-71.
- Kidson, C. and K. Indaratna, *Ecology, economics and political will: the vicissitudes of malaria strategies in Asia.* Parassitologia, 1998. 40(1-2): p. 39-46.
- Kironde, S. and M. Kahirimbanyi, *Community participation in primary health care (PHC) programmes: lessons from tuberculosis treatment delivery in South Africa.* Afr Health Sci, 2002. 2(1): p. 16-23
- Laver SM, Wetzels J, Behrens RH: Knowledge of malaria, risk perception, and compliance with prophylaxis and personal and environmental preventive measures in travellers exiting Zimbabwe from Harare and Victoria Falls International airport. *J Travel Med* 2001, 8:298.
- Li S, Huang H, Cai Y, Ye X, Shen X, Shi R, Xu G: Evaluation of a school-based HIV/AIDS peer-led prevention programme: the first intervention trial for children of migrant workers in China. *Int J STD AIDS* 2010, 21:82-86.
- Litsios, S., Arnoldo Gabaldon's independent path for malaria control and public health in the tropics: a lost "paradigm" for WHO. Parassitologia, 1998. 40(1-2): p. 231-8.





- Manderson L: Applying medical anthropology in the control of infectious disease. *Trop Med Int Health* 1998, 3:1020-1027.
- Minja H, Obrist B: Integrating local and biomedical knowledge and communication: Experiences from KINET project in southern Tanzania. *Human Organization* 2005, 64:157-165.
- Morgan M, Figueroa-Munoz JI: Barriers to uptake and adherence with malaria prophylaxis by the African community in London, England: focus group study. *Ethn Health* 2005, 10:355-372.
- Mwenesi HA: Social science research in malaria prevention, management and control in the last two decades: an overview. *Acta Trop* 2005, 95:292-297.
- Narasimham MV, Venkatanarayana M, Rao PK, Brahmam RK, Krishna Rao C, Rai Chowdhuri AN, Rao CK: Voluntary community participation in the control of vector borne diseases-filariasis. *J Commun Dis* 1983, 15:106-110
- Obregon R, Chitnis K, Morry C, Feek W, Bates J, Galway M, Ogden E: Achieving polio eradication: a review of health communication evidence and lessons learned in India and Pakistan. *Bull World Health Organ* 2009, 87:624-630.

- Obrist B, Iteba N, Lengeler C, Makemba A, Mshana C, Nathan R, Alba S, Dillip A, Hetzel MW, Mayumana I *et al*: Access to health care in contexts of livelihood insecurity: a framework for analysis and action. *PLoS Med* 2007, 4:1584-1588
- Okanurak K, Sornmani S: Community participation in the malaria control program in Thailand: a review. *Southeast Asian J Trop Med Public Health* 1992, 23 Suppl 1:36-43.
- O'Sullivan, M., Kenilorea, G, Tamaguci, Y 2010 Malaria elimination in Santa Isabel, Solomon Islands: Assessing the feasibility of a surveillance programmes to prevent introduction of malaria from other islands UQ MIPH Thesis Accepted.
- Panter-Brick C, Clarke SE, Lomas H, Pinder M, Lindsay SW: Culturally compelling strategies for behaviour change: a social ecology model and case study in malaria prevention. *Soc Sci Med* 2006, 62:2810-2825.
- Pistone T, Guibert P, Gay F, Malvy D, Ezzedine K, Receveur MC, Siriwardana M, Larouze B, Bouchaud O: Malaria risk perception, knowledge and prophylaxis practices among travellers of African ethnicity living in Paris and visiting their country of origin in sub-Saharan Africa. *Trans R Soc Trop Med Hyg* 2007, 101:990-995.
- PMSIG 2010 Malaria in an isolated Melanesian Islands prior to the initiation of malaria elimination activities Malaria Journal 9: 218





- Pribadi W, Muzaham F, Santoso T, Rasidi R, Rukmono B, Soeharto: The implementation of community participation in the control of malaria in rural Tanjung Pinang, Indonesia. *Southeast Asian J Trop Med Public Health* 1986, 17:371-378.
- Prokopy, L.S., *Determinants and benefits of household level participation in rural drinking water projects in India.* Journal of Development Studies, 2007. 45(4): p. 471-495.
- Rajagopalan PK, Jambulingam P, Sabesan S, Krishnamoorthy K, Rajendran S, Gunasekaran K, Kumar NP, Prothero RM: Population movement and malaria persistence in Rameswaram Island. Soc Sci Med 1986, 22:879-886.
- Rajagopalan PK, Panicker KN: Feasibility of community participation for vector control in villages. *Indian J Med Res* 1984, 80:117-124.
- Ramaiah KD, Vijay Kumar KN, Hosein E, Krishnamoorthy P, Augustin DJ, Snehalatha KS, Nanda B, Das PK: A campaign of "communication for behavioural impact" to improve mass drug administrations against lymphatic filariasis: structure, implementation and impact on people's knowledge and treatment coverage. *Ann Trop Med Parasitol* 2006, 100:345-361.

Reid H, Vallely A, Taleo G, Tatem A, Kelly G, Riley I, Harris I, Iata H, Yama S, Clements A: Baseline spatial distribution of malaria prior to an elimination program in Vanuatu. *Malaria Journal* 20109:154.

- Rifkin SB: Paradigms lost: toward a new understanding of community participation in health programmes. *Acta Trop* 1996, 61(2):79-92.
- Ruebush TK, 2nd, Godoy HA: Community participation in malaria surveillance and treatment. I. The Volunteer Collaborator Network of Guatemala. *Am J Trop Med Hyg* 1992, 46:248-260.
 - Ruebush TK, 2nd, Zeissig R, Klein RE, Godoy HA:
 Community participation in malaria surveillance and treatment. II. Evaluation of the volunteer collaborator
 Network of Guatemala. Am J Trop Med Hyg Sanchez, L., et al., Intersectoral coordination, community empowerment and dengue prevention: six years of controlled interventions in Playa Municipality, Havana, Cuba. Trop Med Int Health, 2009. 14(11): p. 1356-641992, 46:261-271Sharma VP: Community-based malaria control in India. Parasitol Today 1987, 3:222-226.
 - Sharma VP: Re-emergence of malaria in India. *Indian J* Med Res 1996, 103:26-45.





- Silva KT, Navaratna H, Rao MA, Wanninayaka P, Doolwala S, Karunaratna N, Menike PS, Gunathialaka MW, Dissanayaka K: Malaria control through community action at the grass-roots: Experience of the Sarvodaya malaria control research project in Sri Lanka from 1980 to 1986. In. Geneva: TDR, World Health Organisation 1988: 1-68.
- Sleigh A, Xueming L, Jackson S, Huang K: Eradication of schistosomiasis in Guangxi, China. Part 1: Setting, strategies, operations, and outcomes, 1953-92. *Bulletin of the World Health Organization* 1998, 76:361-372.
- Stewart T, Marchand RP: Factors that affect the success and failure of Insecticide Treated Net Programs for malaria control in SE Asia and the Western Pacific. In. Geneva: World Health Organisation; 2003: 1-36.
- Storey D, Boulay M, Karki Y, Heckert K, Karmacharya DM: Impact of the integrated Radio Communication Project in Nepal, 1994-1997. *J Health Commun* 1999, 4:271-294
- Tanner M, Lwihula GK, Burnier E, De Savigny D, Degremont A: Community participation within a primary health care programme. *Trop Med Parasitol* 1986, 37:164-167.
- Tanner M, Vlassoff C: Treatment-seeking behaviour for malaria: A typology based on endemicity and gender. Social Science & Medicine 1998, 46:523

Tilak R, Tilak VW, Bhalwar R: Insecticide treated bednet strategy in rural settings: can we exploit women's decision making power? *Indian J Public Health* 2007, 51:152-158.

•

•

- Toe LP, Skovmand O, Dabire KR, Diabate A, Diallo Y, Guiguemde TR, Doannio JM, Akogbeto M, Baldet T, Gruenais ME: Decreased motivation in the use of insecticide-treated nets in a malaria endemic area in Burkina Faso. *Malar J* 2009, 8:175.
- Tognotti E: Program to eradicate malaria in Sardinia, 1946-1950. *Emerg Infect Dis* 2009, 15:1460-1466.
 - Tynan A, Atkinson J, Toaliu H, Fitzgerald L, Taleo G, Riley I, Whittaker M, Vallely A. Community participation for malaria elimination in Tafea Province, Vanuatu: Part II Social and Cultural Aspects of Treatment seeking behavior for people of Tanna Island. Submitted to Malaria Journal
 - van der Plight J: Perceived risk and vulnerability as predictors of precautionary behaviour. *British Journal of Health Psychology* 1998, 3:1-14.
 - Wellings K, Collumbien M, Slaymaker E, Singh S, Hodges Z, Patel D, Bajos N: Sexual behaviour in context: a global perspective. *Lancet* 2006, 368:1706-1728.
- Wijesinghe R et al 2010 Exploring provider and community responses to new malaria treatment regime in the Solomon islands Submitted to the Malaria Journal





- World Health Organisation W: Communication for behaviour impact to roll back malaria. In., Trial edn. Geneva: World Health Organisation; 2002.
- WHO Eliminating River Blindness. Highlights from TDR'S Making a Difference: 30 Years of Research and Capacity Building in Tropical Diseases [http://www.who.int/tdr/topics/ir/oncho_story.pdf]
- Xu, Q.W., *Community participation in urban China: Identifying mobilization factors.* Nonprofit and Voluntary Sector Quarterly, 2007. 36(4): p. 622-642.
- Yasuoka J, Mangione TW, Spielman A, Levins R: Impact of education on knowledge, agricultural practices, and community actions for mosquito control and mosquitoborne disease prevention in rice ecosystems in Sri Lanka. *Am J Trop Med Hyg* 2006, 74:1034-1042.

