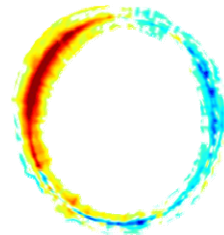


Early-Warning Systems for Health

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The IPCC has identified building public health infrastructure as “the most important, cost effective and urgently needed” adaptation strategy for climate change (WHO-UNEP-WMO 2003).

This type of no regrets action in health and other development sectors is realizable and essential to achieve the MDGs and adapt to a changing climate.



Getting research into policy and practice....

We like to believe that advantageous innovations sell themselves - obvious benefits will be widely realized, adopted, and innovations will diffuse rapidly.

The history of scurvy control in the British Navy challenges this... Scurvy killed more sailors than all other causes of death, including warfare.

In 1601 Capt. J. Lancaster sailed 4 ships from England to India – testing the effectiveness of lemon juice in preventing scurvy - he gave 3 tsps lemon juice every day to the sailors on 1 of his 4 ships. These men stayed healthy. By the halfway point, 110 of 278 sailors on his other 3 ships (control group) had died from scurvy and so many of the crew were sick that Lancaster had to transfer men from his “treatment” ship to staff the other ships. Further supporting experiments followed.

In 1795 lemon juice became part of the diet of all Royal Navy crews on long voyages. Scurvy was immediately wiped out.

In 1865 the British Board of Trade adopted a similar policy, and eradicated scurvy in the merchant marine service.



Malaria in Africa

There are approximately 500,000,000 cases of malaria per year, and >1,000,000 deaths. Most of these are in sub-Saharan Africa.

Malaria is a major public health problem in Africa and its control is critical to achieving the MDGs.

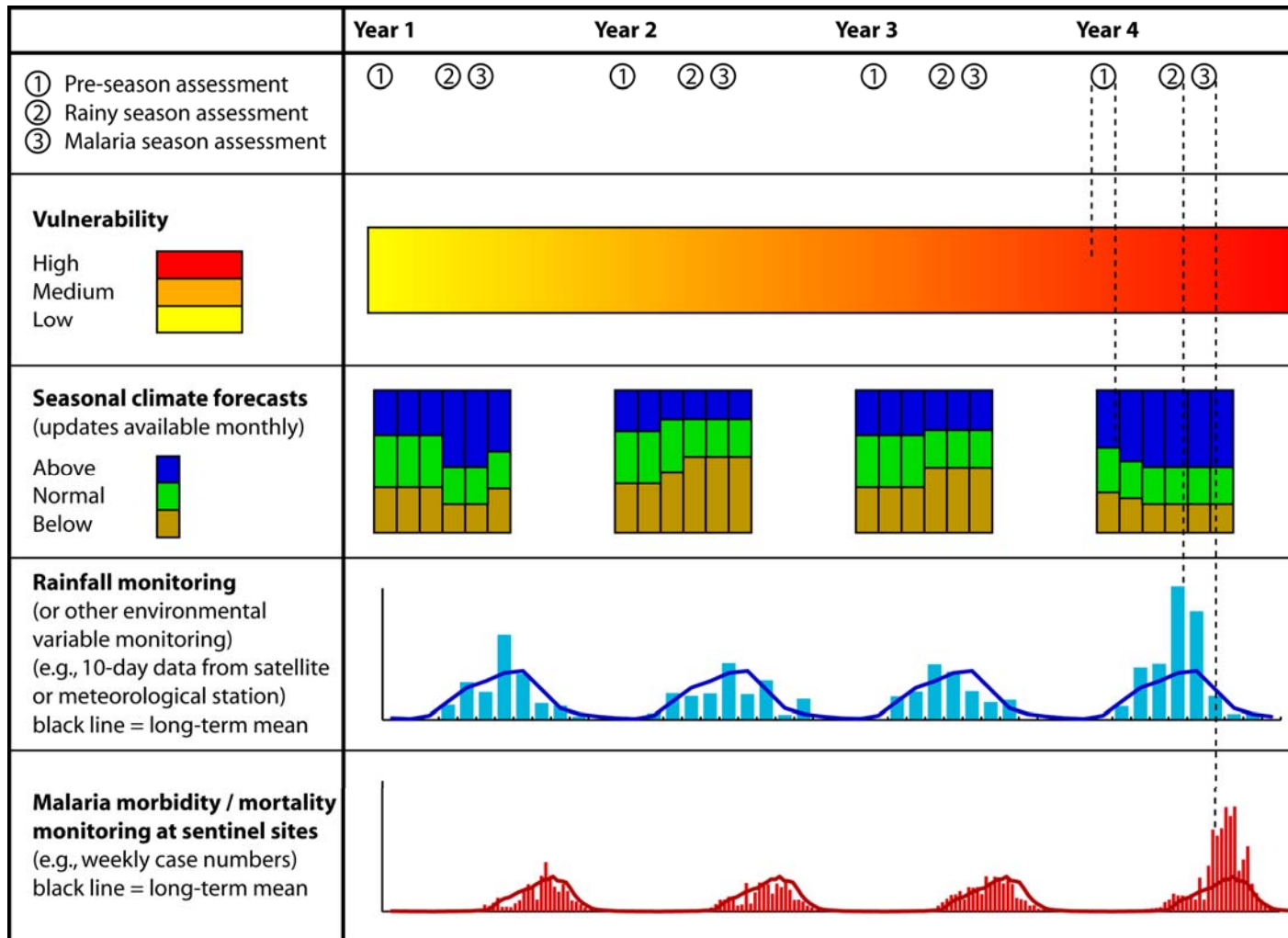
The Global Strategic Plan for Roll Back Malaria 2005-2015 has stated that

“Six out of eight Millennium Development Goals can only be reached with effective malaria control in place.”



Demand for integrated early warning systems..

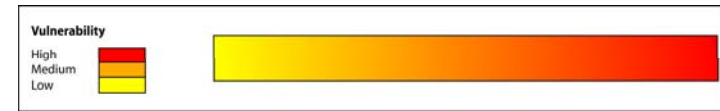
Integrated MEWS gathering cumulative evidence for early and focused epidemic preparedness and response (WHO 2004)....



>>> Planning & Response



Vulnerability monitoring



Example in practice: Botswana ...

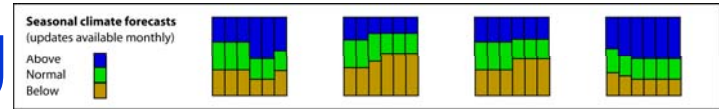
Routine assessment of drug efficacy in three sentinel sites, susceptibility of the vector to insecticides, and coverage of inside residual spraying (IRS) achieved each season

Requests regular assessments of drought and food security status from the SADC Drought Monitoring Centre and disseminates the information to the epidemic prone DHTs

Recognised need for extra vigilance in malaria control programme monitoring, and surveillance among its most vulnerable groups, including those co-infected with HIV, TB, etc.



Seasonal Climate Forecasting



Example in practice: Botswana ...

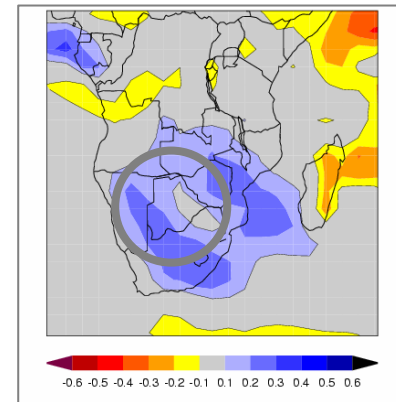
SCF offers good opportunities for planning and preparedness. NMCP strengthen vector control measures and prepare emergency containers with mobile treatment centres



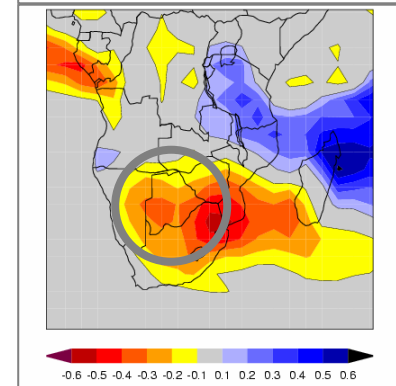
DEMETER Forecasts

DJF precipitation composites

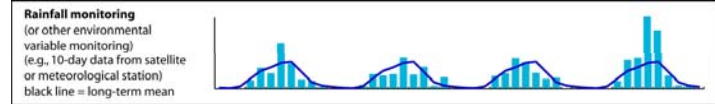
High Malaria years



Low Malaria years

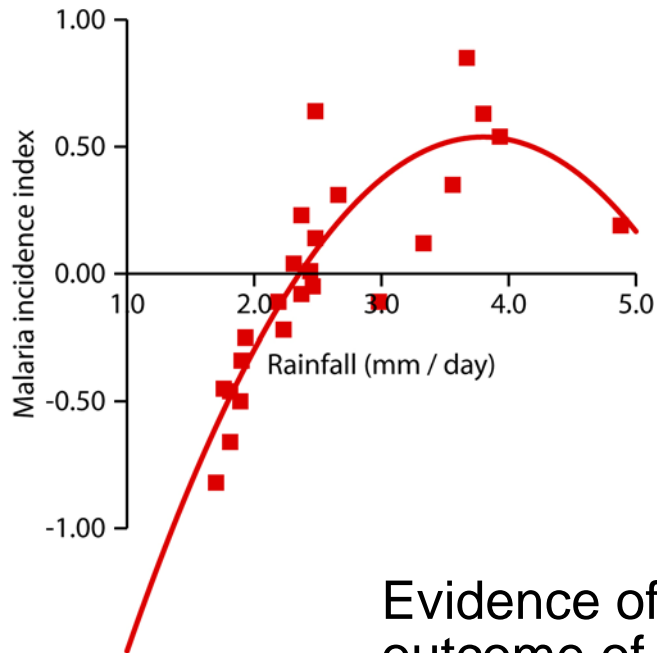


Environmental monitoring



Example in practice: Botswana ...

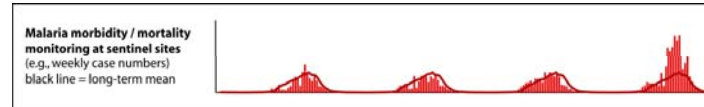
Environmental monitoring enables opportunities to focus and mobilise more localised response, e.g. vector control and siting of emergency treatment centres....



Evidence of impact of climate variability on specific outcome of interest (Thomson, et al. *AJTMH*. 2005)
Evidence of timing/effectiveness (Worrall, et al. in press)



Case surveillance



Example in practice: Botswana ...

Of a number of indicators (WHO 2004) the NMCP uses case thresholds defined for three levels of alert ...

Threshold 1- 600 unconfirmed cases/week >>> Action Plan 1.

Threshold 2- 800 unconfirmed cases/week >>> Action Plan 2.

Threshold 3- 3000 unconfirmed cases/week >>> Action Plan 3.

OKAVANGO SUB-DISTRICT

ACTION 1: When district notification reaches/exceeds 600 unconfirmed cases/week

DEPLOY EXTRA MANPOWER AS PER NATIONAL PLAN

- ◆ Request 4 nurses from ULGS by telephone/fax
- ◆ Collect the 4 nurses from districts directed by ULGS
- ◆ Erect tents where needed
- ◆ Catchment areas to deploy volunteers in hard-to-reach areas
- ◆ Print bi-weekly newsletter to inform community about epidemic

ACTION 2: When district notification reaches/exceeds 800 unconfirmed cases/week

DEPLOY MOBILE TEAMS PER DISTRICT PLAN

- a) Each team to be up of a Nurse or FEW, a vehicle and a driver
- b) Deploy teams as follows:

TEAM AND DEPLOYMENT AREA	VEHICLE	Reg No
Team A: Qangwa area	Council	
Team B: Habu/ Tubu / Nxaunxau area	Council	
Team C: Chukumuchu / Tsodilo / Nxaunxau area	Council	
Team D: Shakawe clinic (vehicle and driver only)	DHT vehicle	
Team E: Gani / Xaudum area	Gani HP vehicle	
Team F: Mogotho / Tobera / Kaputura / Ngarange area	Mogotho HP vehicle	
Team G: Seronga to Gudigwa area	Gudigwa HP vehicle	
Team H: Seronga to Jao Flats	Boat	

- c) Deploy MO at Shakawe and 2 more nurses as per National Manpower contingency plan

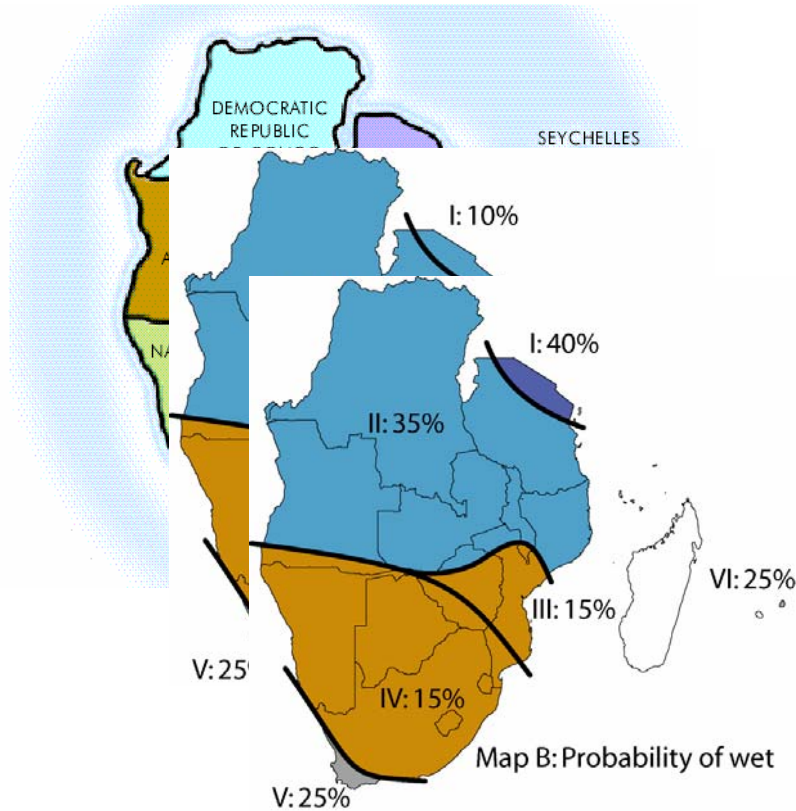
ACTION 3: When district notification reaches/exceeds 3000 unconfirmed cases/week

DECLARE DISTRICT DISASTER

- a) Call for more outside help (manpower, vehicles, tents, etc)
- b) Convert some mobile stops to static treatment centres
- c) Station nurses at the static treatment centres
- d) Station GDA to assist nurse eg cooking for patients on observation
- e) Erect tents with beds and mattresses (6 - 10 beds/tents) at selected centres
- f) Station vehicles at selected centres
- g) Deploy MO or FNP at Seronga
- h) Station officer from MOH to co-ordinate epidemic control with DHSCE

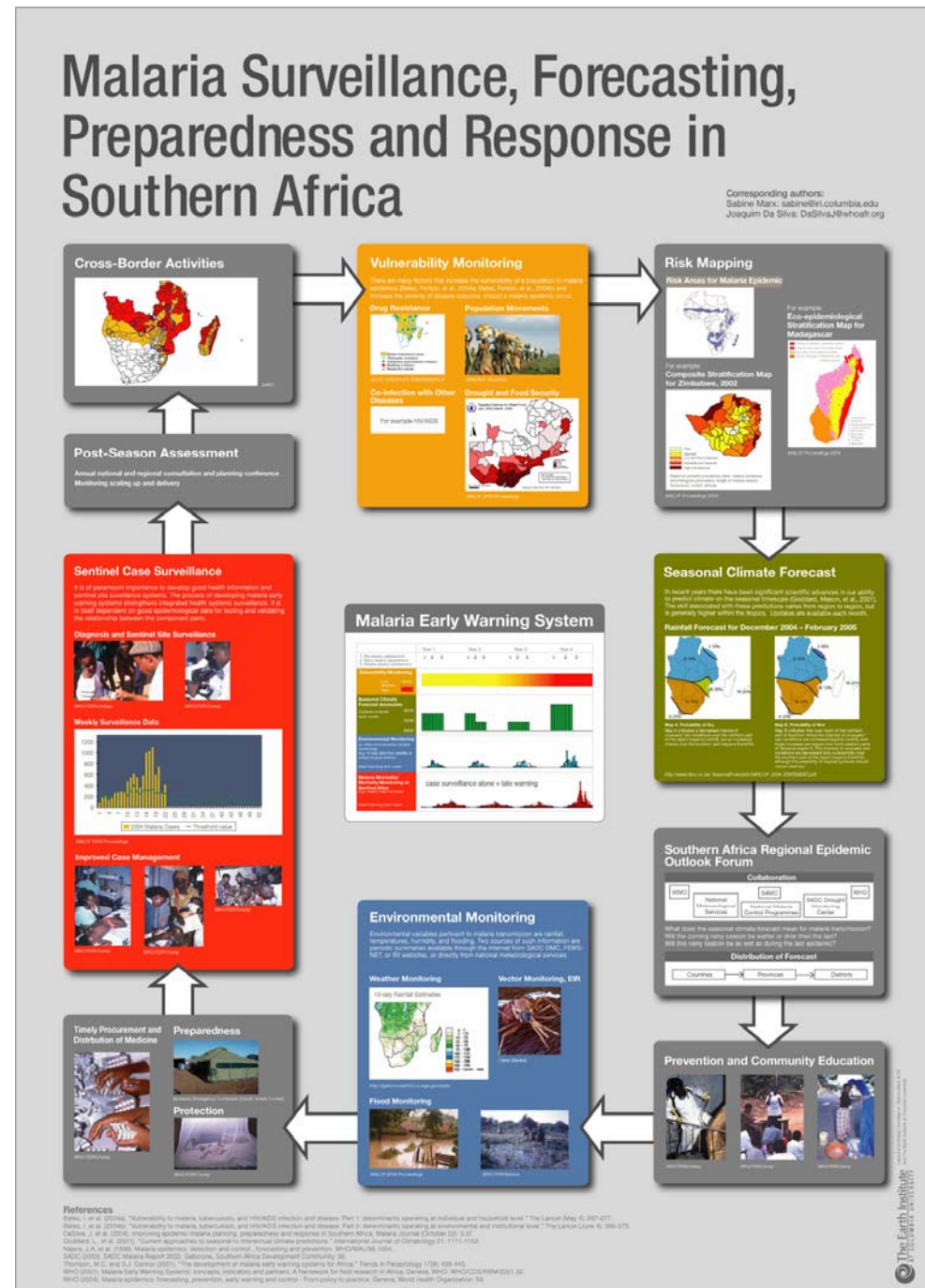


These results discussed at 1st SA Regional Epidemic Malaria Outlook Forum, Harare, 2004



Improving epidemic malaria planning, preparedness and response in Southern Africa. (DaSilva, et al. 2004)

<http://www.malariajournal.com/content/3/1/37>



Conclusions

For seasonal climate forecasts, and climate information more generally, to be used in routine decision making health policy advisors need:

Evidence of the impact of climate variability on their specific outcome of interest, and

Evidence that using climate information is a cost-effective means to improving health outcomes, and

Evidence that the information can be practically useful within their decision frameworks.

