

## “ COUNTING TO REDUCE COUNT ”

### Surat - The City In India With Universal Mosquito Born Disease Surveillance

Dr. Vikas Desai<sup>1</sup>, Dr. K. G. Vaishnav<sup>2</sup>, Priyanka Jariwala<sup>1</sup>, Dr. Suresh Rathi<sup>1</sup>, Dr. Hemant Desai<sup>2</sup>  
<sup>1</sup>Urban Health and Climate Resilience Centre, <sup>2</sup> Health department Surat Municipal Corporation

Malaria is not unique to Surat, of course, nor is disease surveillance.

But what is unique as per the statement of Mr. Vyas , Senior malaria surveillance worker is

**“Most other municipal corporations start doing door-to-door disease surveillance only when there is an outbreak. We do it round the year. There is strict monitoring.”**

Despite rapid population growth, cases of mosquito-borne parasitic diseases such as filariasis and malaria are steadily declining in Surat City.

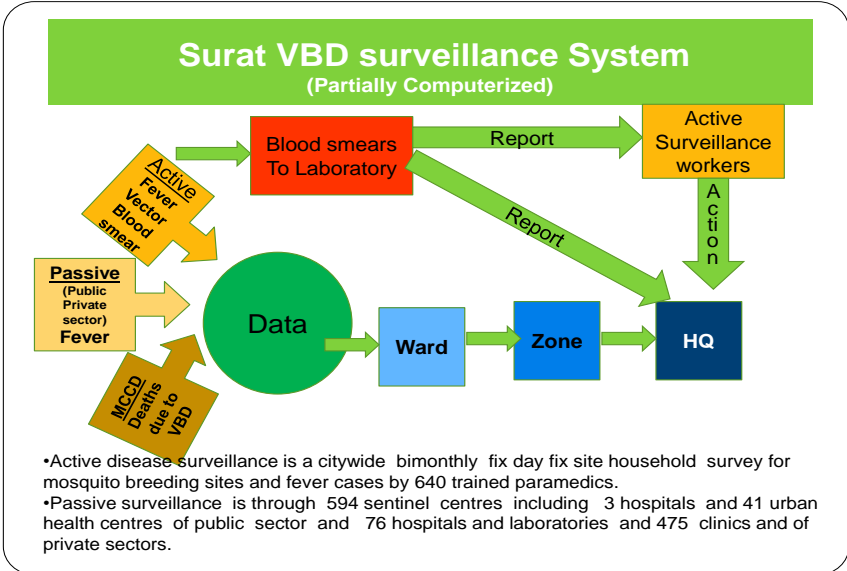
(How Surat became India’s public health leader — and stayed that way, Patralekha Chatterjee, City scope, June 5, 2015)

Surat is a coastal city with just comfortable temperature and humidity for mosquitoes to grow and spread disease, high migration rate, rampant construction activities and climate change trend are add on risk to mosquito born diseases in the city. Vulnerability of city to mosquito born diseases is evident from history of mosquito born disease trend in the city , hub of Filariasis (Elephantiasis) till eighties, malaria in eighties and nineties and a recent entry of Dengue 2000 onwards.

According to the climate change experts, it is only a matter of time. The city of Surat (population 4.5 million), in the state of Gujarat on the west coast of India, will soon be exposed to recurrent flooding, with the risk of malaria and dengue fever epidemics in its aftermath. It also faces higher temperatures, which may force companies to relocate. So its citizens are planning for twin disasters that rapid urban development and global warming bring in their wake. (Indian city of Surat anticipates worst effects of climate change , Julien Bouissou, Monday 15 September 2014 10.00 BST )

Mosquito born diseases are first to be recognised health threat linked to climate change , due to greatest adaptability and survival capacity of mosquitoes to this adversity. Evidently this also indicates impending threat of upsurge of mosquito born disease like Malaria and Dengue as well as vulnerability to new infections like Chikungunya and Zika virus infections . For city like Surat a economic hub Mosquito born diseases are not only a health but economic threat also.

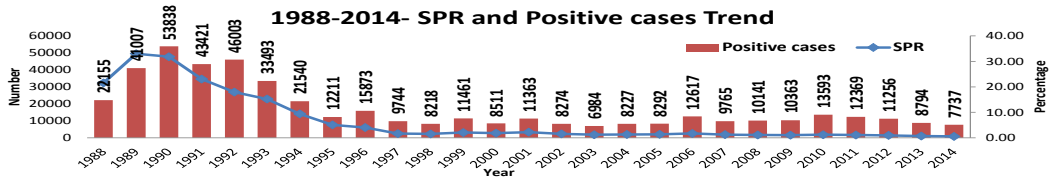
A regular , quality, real time disease surveillance need of the city is a lesson learnt by the health department of Surat Municipal corporation (SMC) following high toll of malaria (‘87-’92) and post floods outbreaks of plague(1984) and Leptospirosis (2006 onwards). Surat experience also endorses that strong routine surveillance system for epidemic control.



Surat is the first city in India with universal almost real time mosquito born disease surveillance system under urban health system. Compliments goes to the SMC as this is funded from local self government fund. To further upscale quality and timeliness of the information surveillance data management there is

a plan for universal technology based surveillance instead of partial .What mosquito born disease surveillance system contributes to is information about ongoing trend and clustering or outbreak forecast for timely action preventing spread of disease in the city. A battalion of four hundred plus trained surveillance workers under the supervision of assistant insecticide officer at zone under the technical guidance and watch of Insecticide officer visit every house of the city at every fifteen days , check intra domestic water storage for mosquito breeding , records fever cases, take their blood for malaria testing , provide them treatment and manage peridomestic mosquito breeding under active surveillance system. They also manage insecticide fogging and spray as per National program guidelines. These surveillance efforts are further complimented by passive mosquito born disease surveillance by collecting daily mosquito born disease case information from more than six hundred public and private hospitals, clinics and laboratories.

## Malaria trend – Surat city



**High endemicity phase**

- Rapid Population growth - Migration, construction, extended city limits
- 1994 olague brought Health on forefront
- Initial phase of VBDC surveillance

**Low endemicity phase**

- Capacity building –DFID Urban malaria project
- Efficient surveillance system
- Intersectoral planning and review
- Rapid Growth sustained
- 15 floods
- City limits extended
- Higher rate of Climate change

Such intensive unique, universal mosquito born disease surveillance system requires skilled manpower and updates , which is managed by regular trainings, supportive supervision of

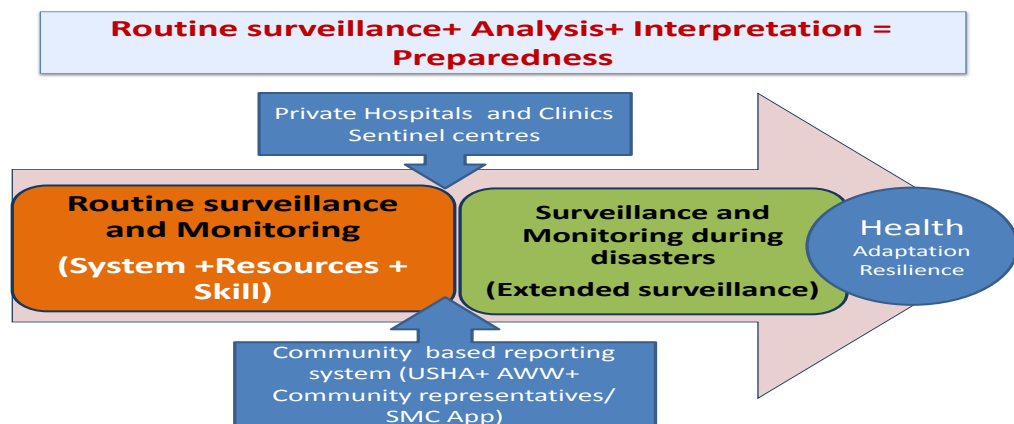
surveillance workers and operational research projects supported by national and international organisations under vector born disease control unit of Health department of SMC .

A major contribution of this universal mosquito born disease surveillance system of Surat city is evidence based confidence in the system . It has also contributed to sustained control of malaria since 1993 even with unprecedented population influx (in migration) , city limit extension (adding rural periphery with incomplete infra structure coverage), growth of construction activity , climate change and seven floods (in 1994-2014) . From range of total malaria positive cases of 20,00 to 54,000 per year in high transmission phase (1988-1994) it has dropped to 8,000 to 11,000 in low transmission (2000 – 2015).

what city needs to sustain this control, in this era of climate change is to sustain vigilant surveillance by skilled workers and partnership of private medical system and community and technology support . The first **city** with universal mosquito born disease surveillance system in India needs recognition in this Malaria control month celebration (June) .

Learnings from vector born disease surveillance system of Surat city are encouraging .

- Routine vector born disease surveillance system is an urban health resilience measure
- Co benefit of routine surveillance system is preparedness and timely action during disaster (Floods ) and epidemics .



UHCRC have prepared “Disease Surveillance To Health Management Information System” an evidence based action plan for Surat city . The same is to facilitated up scaling overall health surveillance system in the city , include climate analysis , technology supported surveillance system, expansion of private sector reporting system (UrSMS), initiation of community surveillance system and to ensure effective use of data for planning, implementation and monitoring of health of the city in a “ Health and Climate Observatory” mode. .

Health And Climate Surveillance Is Important Tool To Understand Human Reaction And Tolerance To Climate Change and Resilience “What Is Not Good For Health Is Not Good For Climate”