

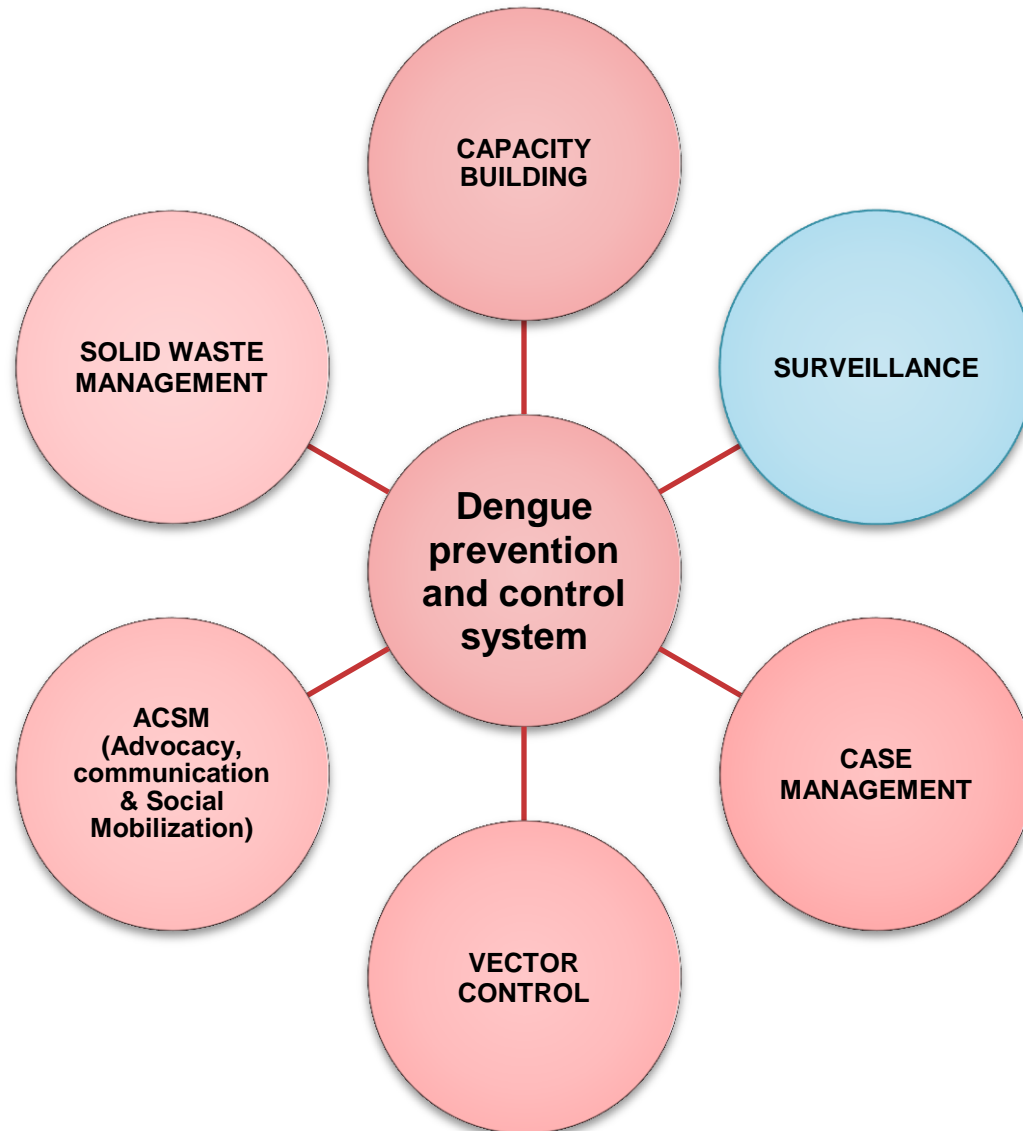
Dengue Fever: Surveillance, notification and response in Pakistan

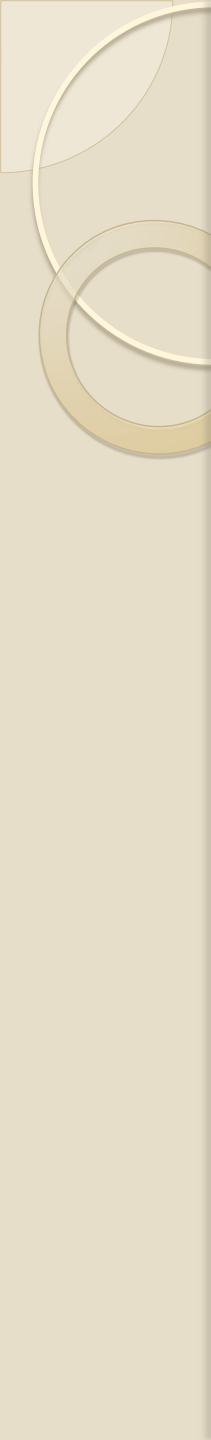


Dengue fever is:

- **endemic in Pakistan with seasonal rise in cases.**
- **recently, the transmission of dengue fever has intensified in the country with increased incidence and geographic expansion.**
- **sporadic cases are being reported from the all provinces**

National Strategy





Surveillance is the systematic collection, analysis and interpretation of notifiable disease closely integrated with the timely dissemination data to those responsible for preventing and controlling disease. Notification of communicable disease

supports surveillance at both a local and national level.

Dengue fever cases reported from Pakistan, 2009–2013

Year	Suspected cases	Cases laboratory Confirmed	Deaths
2006	4961	1931	41
2007	2304	1226	18
2008	2792	2469	17
2009	1940	1085	13
2010	15901	11024	40
2011	252935	17057	219
2012	3913	39	0
2013 ^[22/11]	9037	2164	0

<http://www.emro.who.int/surveillance-forecasting-response/outbreaks/dengue-fever-in-pa...> 11/20/2013

Notification Hierarchy

- ❖ Active disease and vector surveillance based on:
A strong health information system to involve the clinical and laboratory-based early detection and develop a quick reporting system from:

National Health Management (NIH)



Provincial Health Management (DGHS)



District Health Management (EDOH)

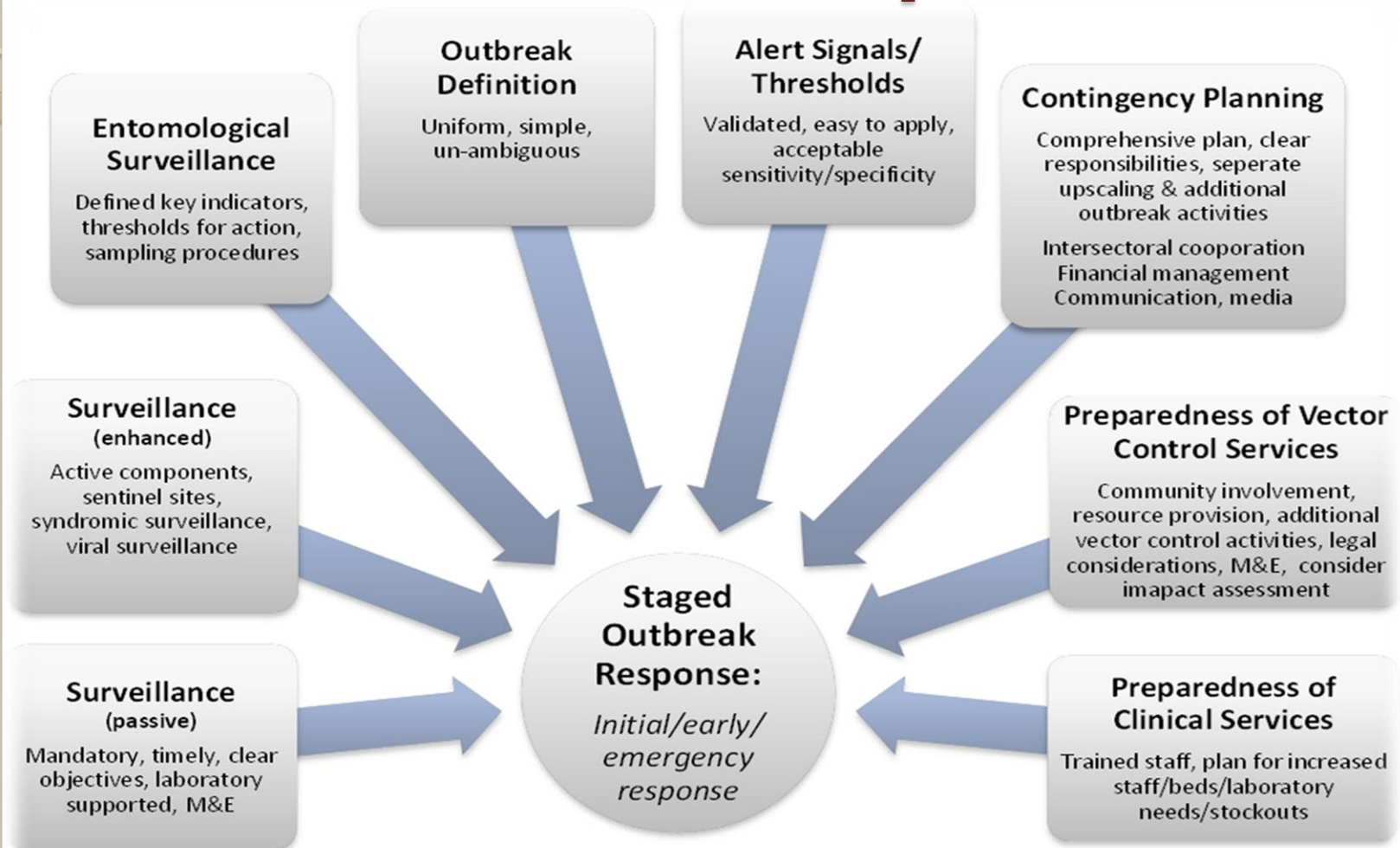


FLCF

(BHU/RHC/THQ/DHQ/TCHF)

- ❖ Immediate Case Response for integrated vector management
- ❖ Aware the Community for self protection and early diagnosis & treatment
- ❖ Involve all stake holders

Model Of Dengue Surveillance And Outbreak Response



Organisation of disease surveillance

- National guidelines, obligatory notification
All stakeholders should have guidelines for surveillance and obligatory notification of suspected and confirmed cases of dengue , including private sector.
- Laboratory confirmation
100% confirmation (IgM/ IgG); of laboratory required.
- Data transmission
Electronic: Punjab only, paper based, partly electronic: other provinces
- Data analysis
At sub-national (province) and national level.

- Case classification
 - Revised WHO classification [1] for clinical management used the dengue fever/dengue hemorrhagic fever/dengue shock syndrome classification.
- Active surveillance in sentinel sites only during outbreaks
- Use of alert signals
 - By NIH
- Routine evaluation of the surveillance system ? not

Organisation of entomological surveillance including community involvement

- Larval surveys and outbreak alert
Conducted in all districts.
- Routine vector control by
fogging, IRS and Larviciding by temephos etc
- Vector control issues
Lack of resources, supervision and local involvement in decision making.
- Vector resistance.
Vector susceptibility status.
- Social mobilization
By using various methods

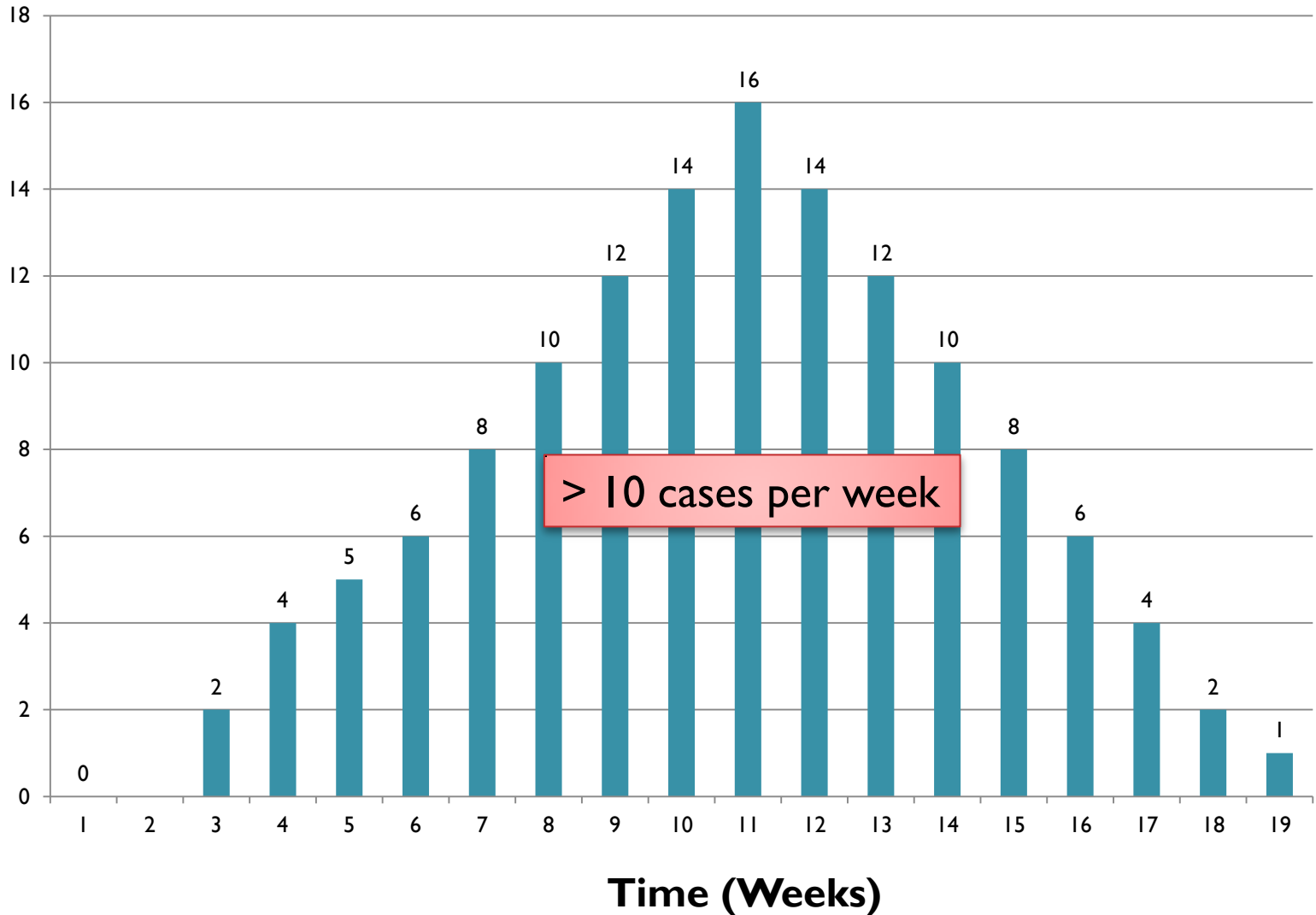
• Epidemic preparedness and outbreak response

- Outbreak response plans All districts with varying quality and details
- Outbreak response committee Defined in all districts
- Outbreak definition use the $2SD^*$ of weekly cases above the historical mean or the “moving average”
- Delay of outbreak response Difficult to assess due to lack of cooperation.

* Case numbers 2 Standard Deviations (SD) above the mean of the preceding five years shown in endemic channels

Example of an epidemic curve

Number of Cases



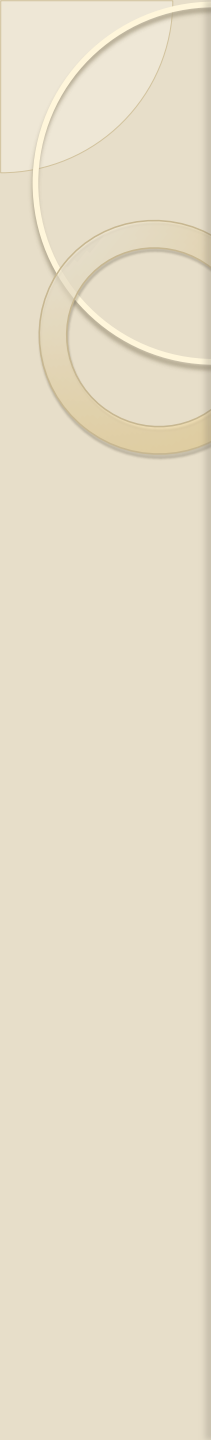
• Epidemic preparedness and outbreak response

- Time lag seems to be usually above 2 weeks but often much longer.
- Alert signals and early response Signals used:
 - entomological indices,
 - increased virus positivity rate,
 - change of serotype,
 - increased case numbers,
 - increased number of fever cases,
 - increased population movement.
- Information on several signals is collected in some times but not used for early response because of uncertainty about the validity of the trigger (particularly entomological indices), budget limitations, staff shortage and delay in analysis.



- **Epidemic preparedness and outbreak response**

- Successful response activities to a certain extent;
 - satisfactory vector control,
 - improved clinical management,
 - improved coordination (intra-and inter-sectoral)
 - and better information systems
- Room for improvement;
 - Improved planning,
 - training,
 - involvement of local staff,
 - enhanced community participation,
 - faster solution of budget constraints,
 - and better cooperation among stake holders

- 
- **Epidemic preparedness and outbreak response**
 - Coping with dengue outbreaks in hospitals (surge capacity);
 - Positive experiences:
 - Epidemic response plans;
 - establishing special dengue treatment units;
 - stock-out management.
 - getting additional beds and staff,
 - timely resource allocation,
 - stock-out management (particularly intravenous fluids and blood products) and clinical management by untrained staff.



Thanks