



# What we have learnt on principles for establishing lab networks ?

## *Example of Iran and France*

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FMD National Reference Laboratory*

# Laboratory diagnosis is one of the key elements in the control of FMD

- Detects and confirms outbreaks (emergency response)
- Investigates outbreaks (typing, vaccine matching, sequencing,...)
- Estimates incidence of the disease
- Estimates vaccination coverage and efficiency
- Conducts surveillance within the country and imports

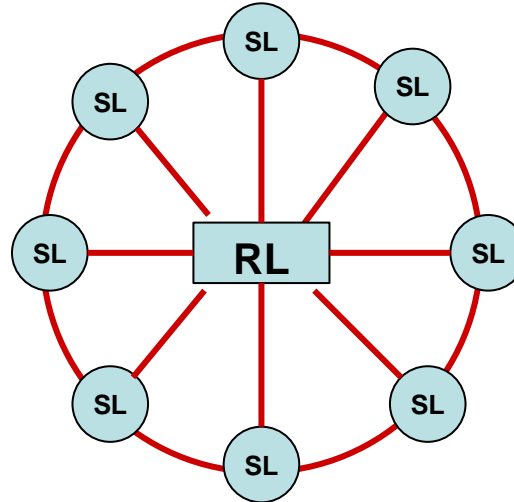


# MAIN DIFFICULTIES

- **Laboratory capacity**
- **Availability of reagents**
- **Laboratory staff training**
- **Quality of analysis**
- **Limited number of staff**
- **Low-throughput analysis**
- **Delays in transporting samples to laboratory**
- **Uncoordinated diagnostic (No communication between labs, Data not shared, different tests used...)**
- **...**

# How to improve laboratory diagnostic capability?

## Establishment of coordinated laboratory networks



- There is no universal model of the network
- Should be adapted to the local situation and needs
- Can be updated over time

# Exp 1: French FMD Laboratory Network

**NRL (Maisons-Alfort)**  
**BSL3 facilities**  
**Epidemiologists**  
**Virologist**  
**Laboratory Technicians**

**5 Departmental Veterinary  
Laboratories  
(01, 22, 29, 72, 81)**  
**BSL3 facilities**  
**Localisation**

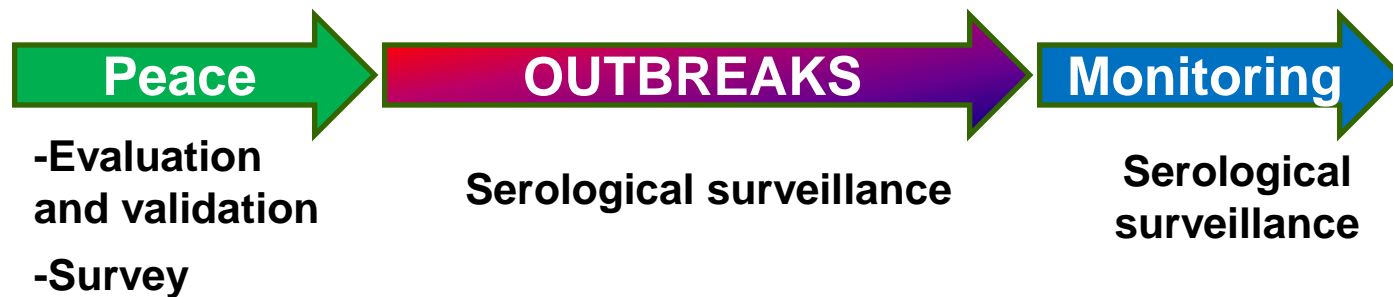


# Role of French National Reference Laboratory

- Performs the first-line analysis of suspected cases of FMD and all further analyses,
- Provides scientific and epidemiological monitoring,
- Provides expertise and technical support,
- Organizes training and proficiency testing,
- Develops, optimizes and validates analytical methods,
- Evaluates diagnostic methods,
- Conducts research

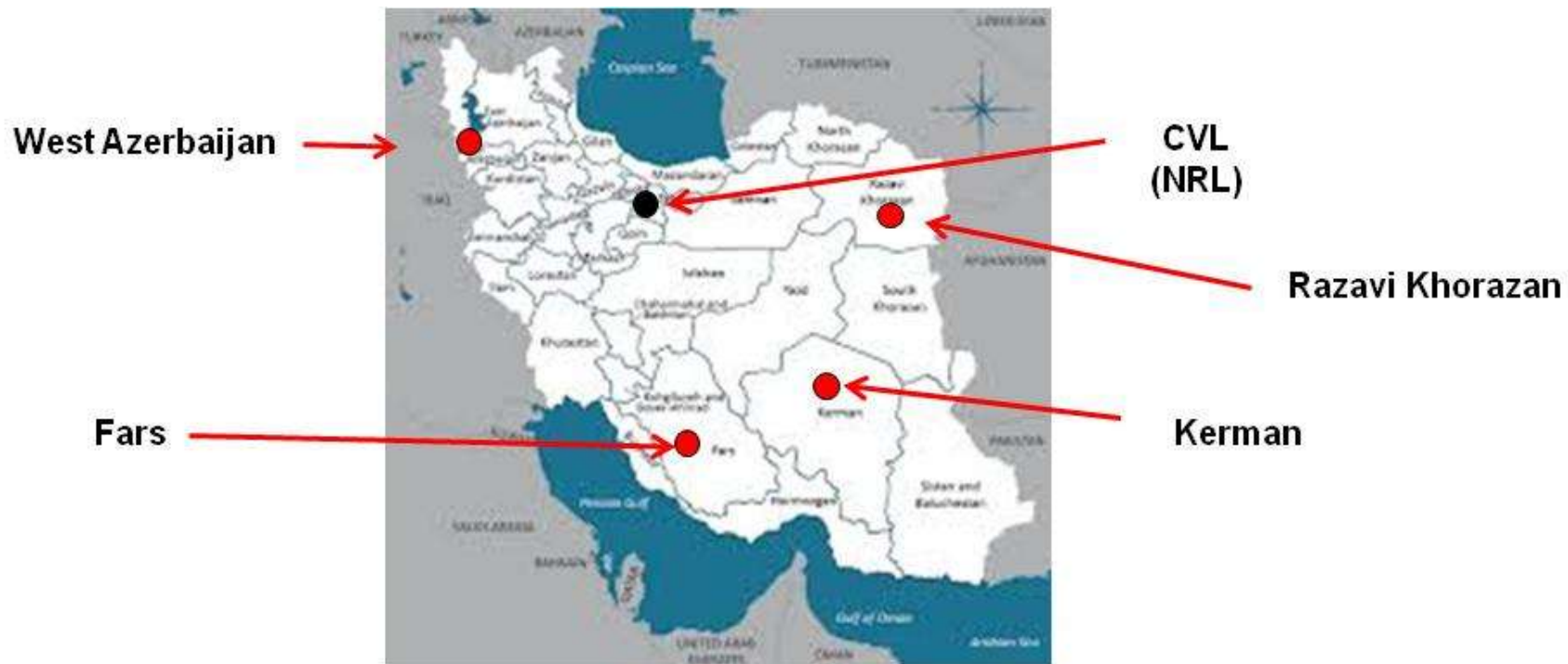
# Role of Departmental Veterinary Laboratories

- Able to conduct high-throughput analysis (ELISA)
- Participate in the evaluation and validation of methods.
- Conduct serological surveillance (NSP ELISA)
- Provide support for serological investigations during outbreaks (ELISA)
- Provide support for serological surveillance after outbreaks (ELISA)





# Exp 2: Iranian FMD Laboratory Network



**Objective:** - improve FMD diagnostic capacity and quality  
- improve early FMDV detection



# Role of Iranian National Reference Lab (CVL)

- **Conducts VI, Ag-ELISA, RT-PCR, serological tests,**
- **Provides expertise and technical support,**
- **Organizes training,**
- **Organizes proficiency testing for SNLs,**
- **If necessary, confirms the results of tests performed by a laboratory of the network,**
- **Collects data and reports**

# Role of Iranian Sub-National Labs

- **Perform FMDV detection and typing (RT-PCR, Ag-ELISA)**
- **Send positive samples to NRL for further testing**
- **Conduct serological surveys (ELISAs)**
- **Send data to NRL**
- **Participate to proficiency test organized by NRL**

# Main results in Iran

- **Improvement of laboratory capacity,**
- **Increased involvement in the diagnostic of FMDV,**
- **Increasing the speed and number of FMDV detection and typing,**
- **Improvement of quality of analysis** (quality assurance, PT...),
- **Establishing contacts between laboratories and sharing best practices and data,**

# Main Issues in developing and sustaining lab networks

- The willingness and commitment of the veterinary services and laboratories
- Formal establishment of the network and agreements (NRL & SNL)
- Formal establishment of operating rules and roles, adapted to local situation and capacity of laboratories
- The legitimacy of the NRL and acceptance by others
- Financial commitment (meetings, training, staffing, Kits...)
- Staff turnover (commitment, personal relationships, skill...)
- Sufficient flexibility and training as required (Changing technology and FMD situation)
- Maintain contact between laboratories (ex annual meeting)

# CONCLUSION

- **Laboratory networks improve diagnostic capability**
- **They should be formally established and adapted to local situation and needs**
- **Success of laboratory network and its sustainability depends on willingness and commitment of each partner**
- **Continuing effort is required to sustain the network and deal with issues that may interfere with its growth and development (ex. funding, staff turnover, training needs, changing FMD situation...)**

# Thank you for your attention



**“Unity makes strength”**