

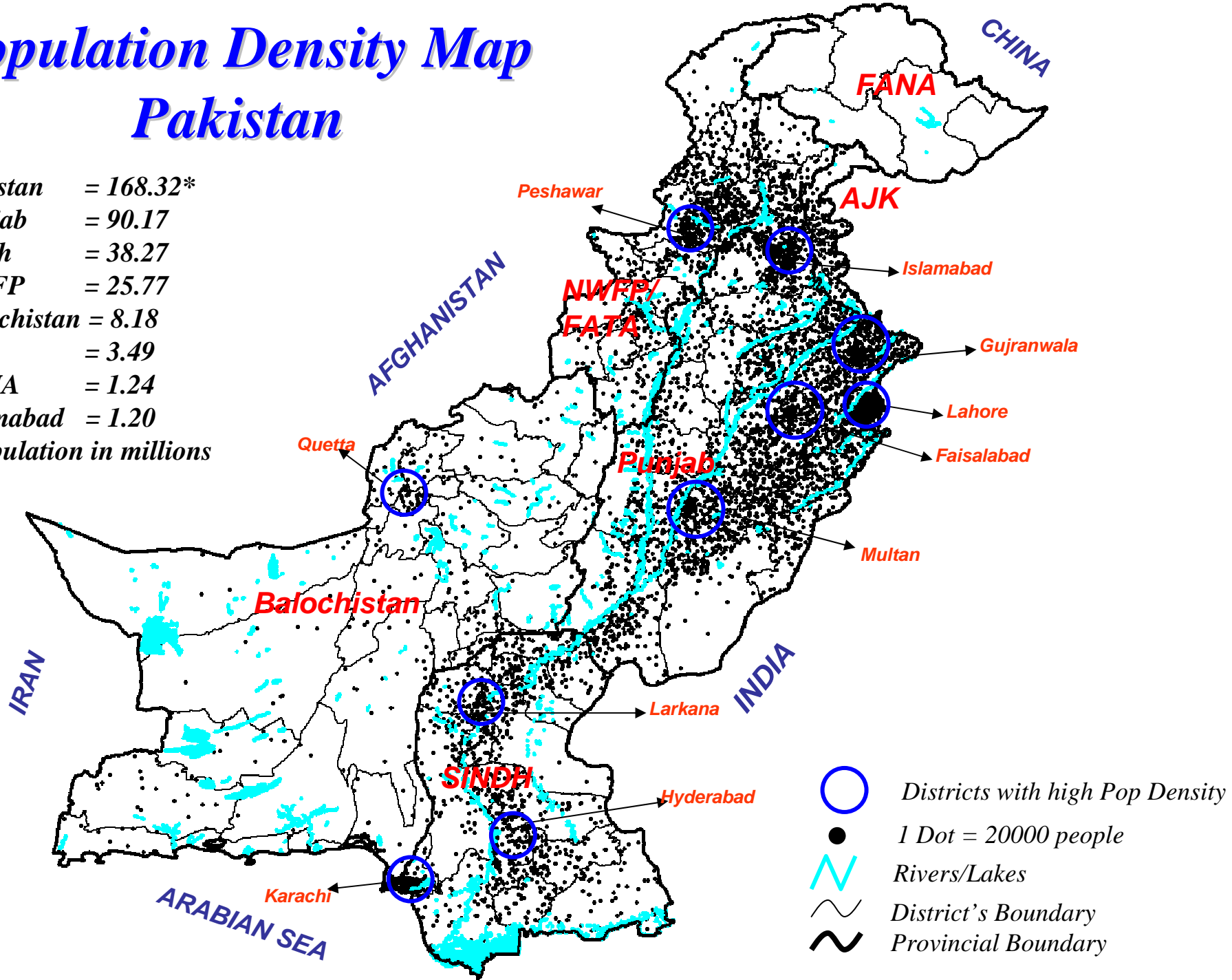
# Epidemiology, Surveillance and Control of CCHF in Pakistan








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# Population Density Map Pakistan

Pakistan = 168.32\*  
 Punjab = 90.17  
 Sindh = 38.27  
 NWFP = 25.77  
 Balochistan = 8.18  
 AJK = 3.49  
 FANA = 1.24  
 Islamabad = 1.20  
 \*Population in millions



-  Districts with high Pop Density
-  1 Dot = 20000 people
-  Rivers/Lakes
-  District's Boundary
-  Provincial Boundary

# CCHF Outbreaks History in Pakistan

• **1976**

- Nosocomial outbreak
- Rawalpindi & Balochistan
- Shephard, surgeon and care taker died
- 17 confirmed cases including 3 deaths

• **1978**

- Zoonotic (camel)
- Afghanistan/Balochistan
- 8 personnel died by eating infected camel

• **1987**

- Nosocomial
- Balochistan
- 1 Patient & 1 Surgeon died

• **1994**

- Nosocomial
- Balochistan
- 3 confirmed cases
- All survived

• **1998 Kholu**

• **2002/2003**

- Animal handling/ Nosocomial
- Rawalpindi/ Islamabad
- 45 confirmed cases including 20 deaths

• **2004**

- Balochistan
- 47 reported cases including 18 deaths

• **2005**

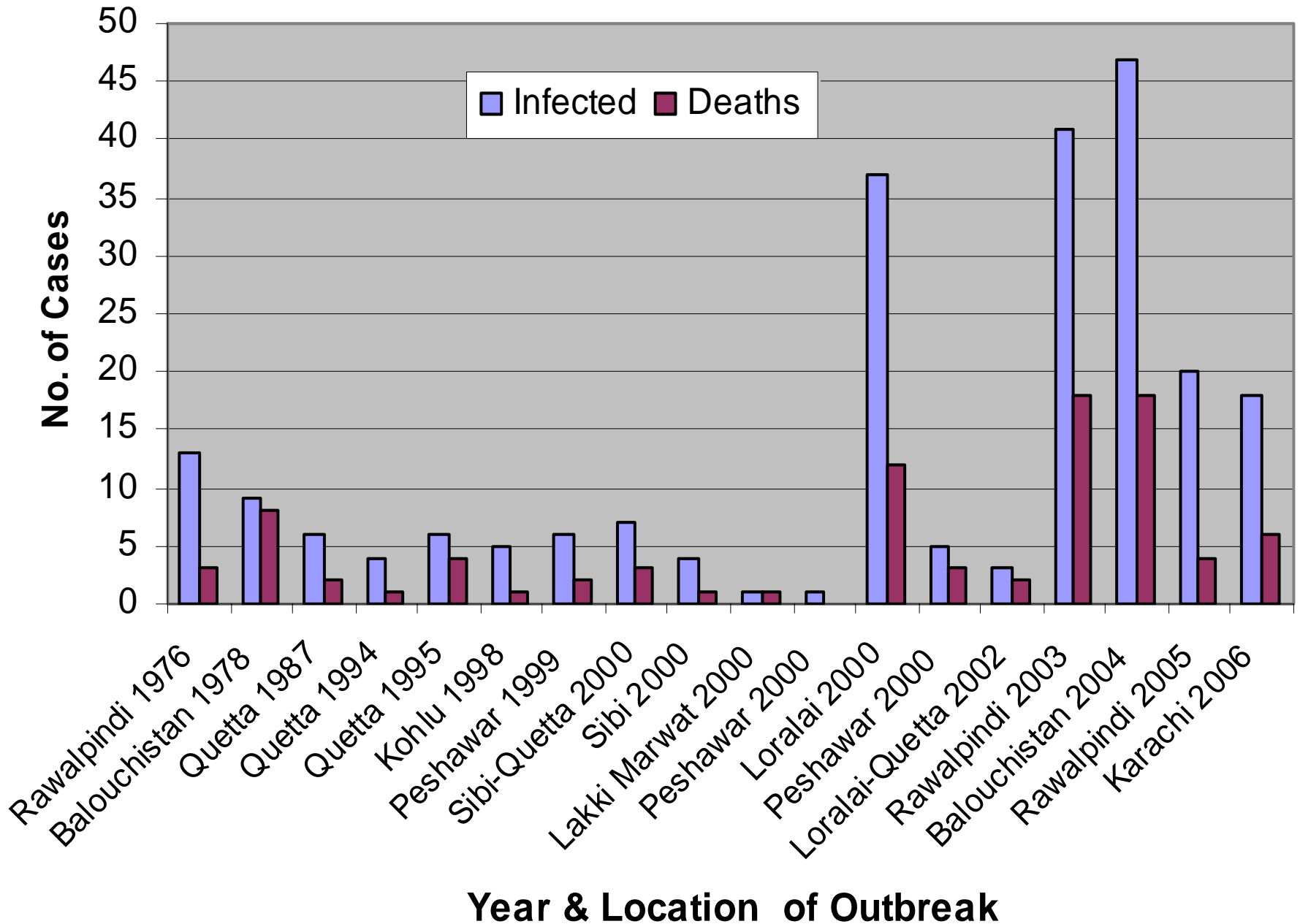
- Balochistan
- 70 reported cases with 20 confirmed
- 4 cases died

• **2006**

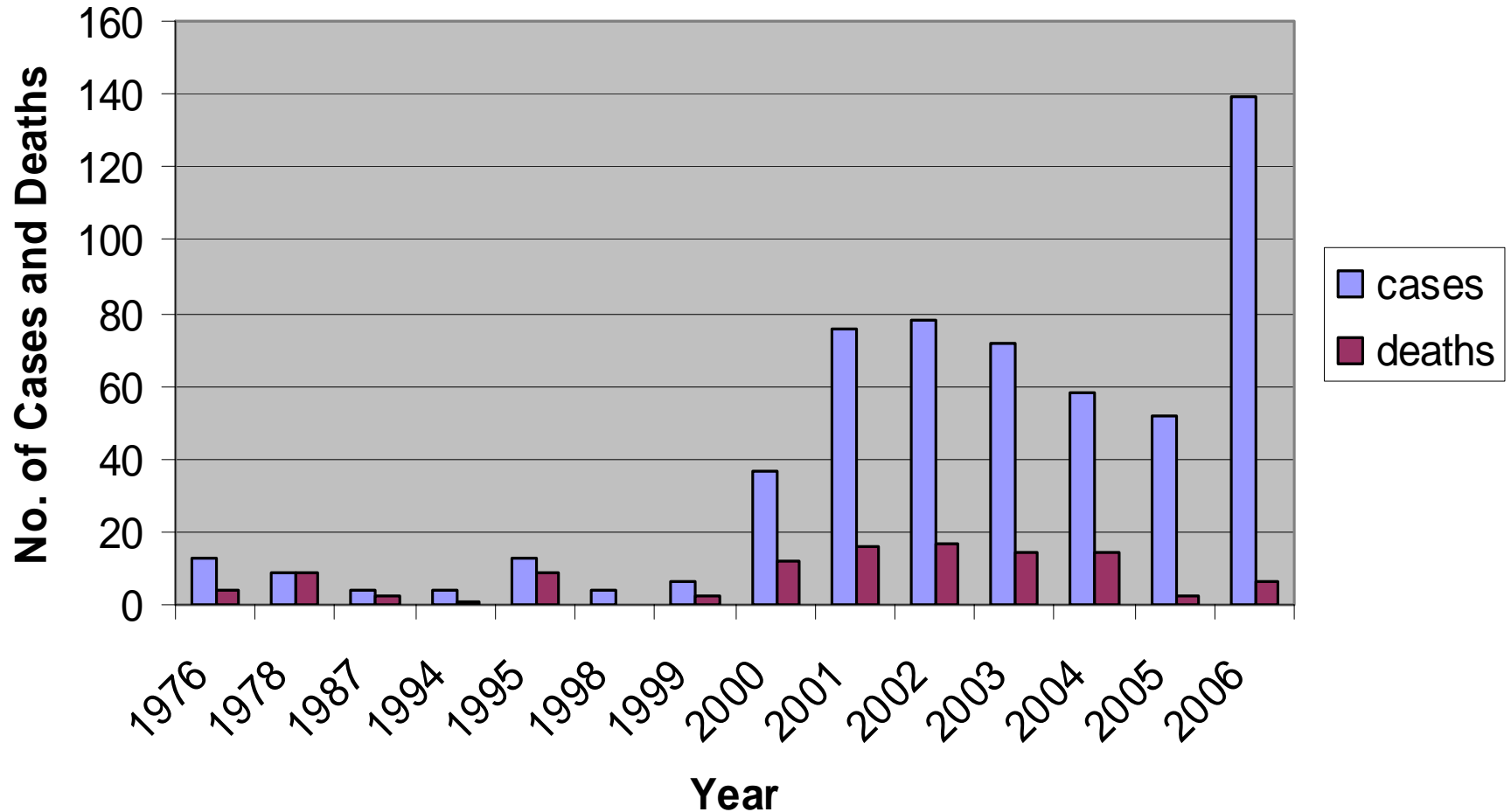
- Sindh (Karachi)
- 18 confirmed cases including 6 deaths



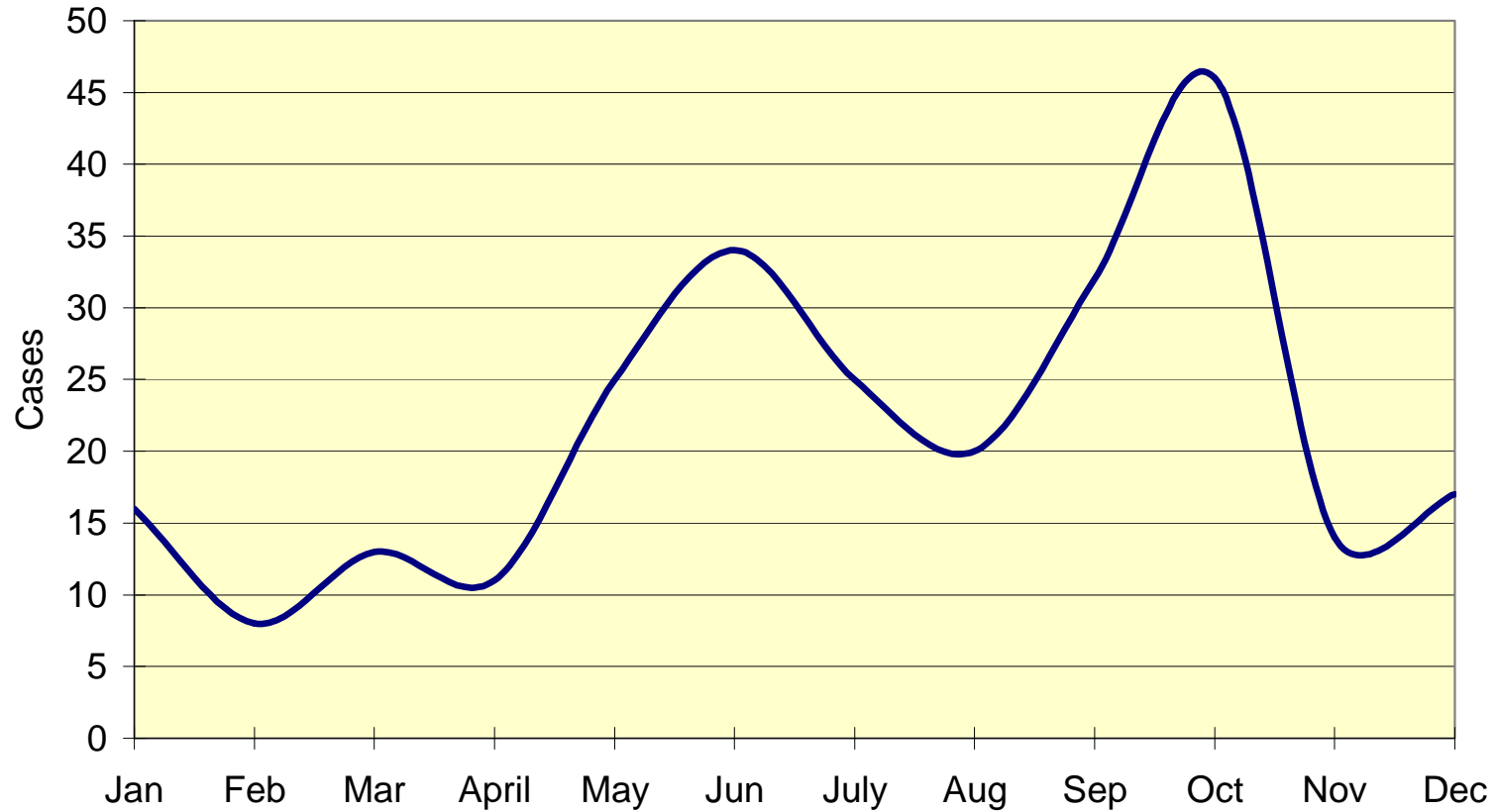
# Outbreak History of CCHF in Pakistan



# CCHF Reported Cases & Deaths in Pakistan, 1976-2006

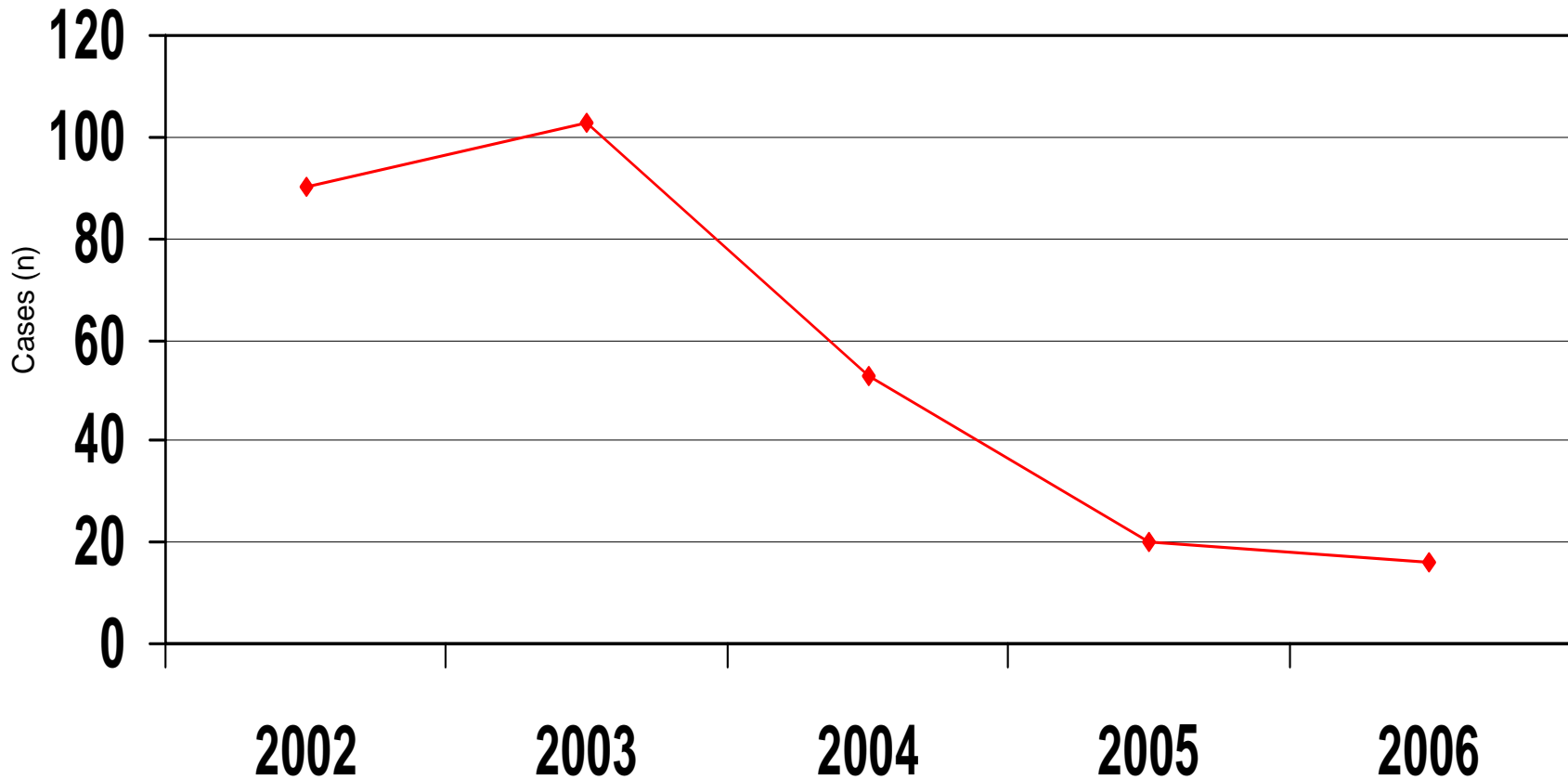


# Monthly Distribution of Confirmed CCHF cases 2002-2006



# Trends of CCHF in Pakistan, 2002-2006

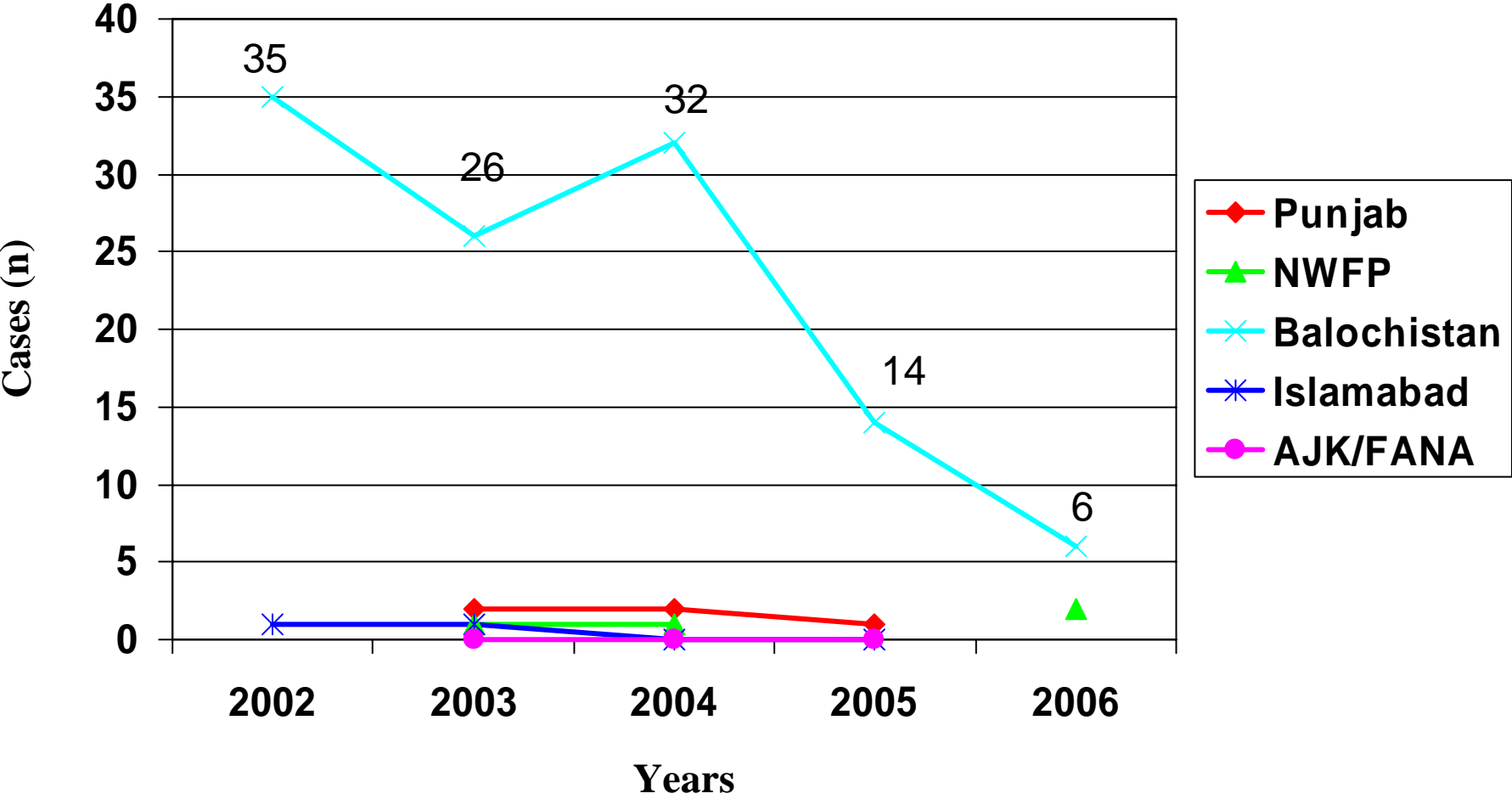
Trend of CCHF in Pakistan 2002-2006



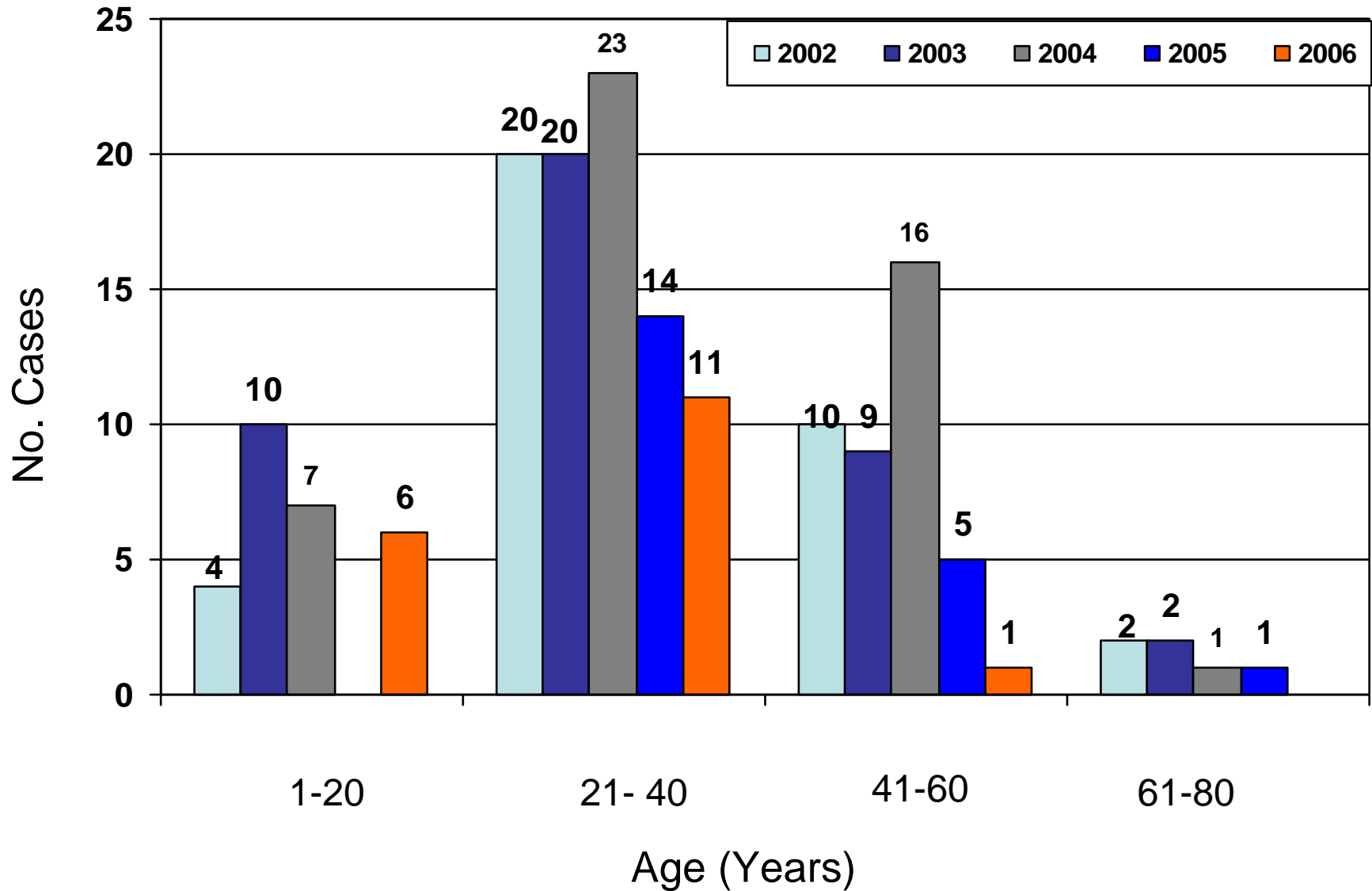
Year



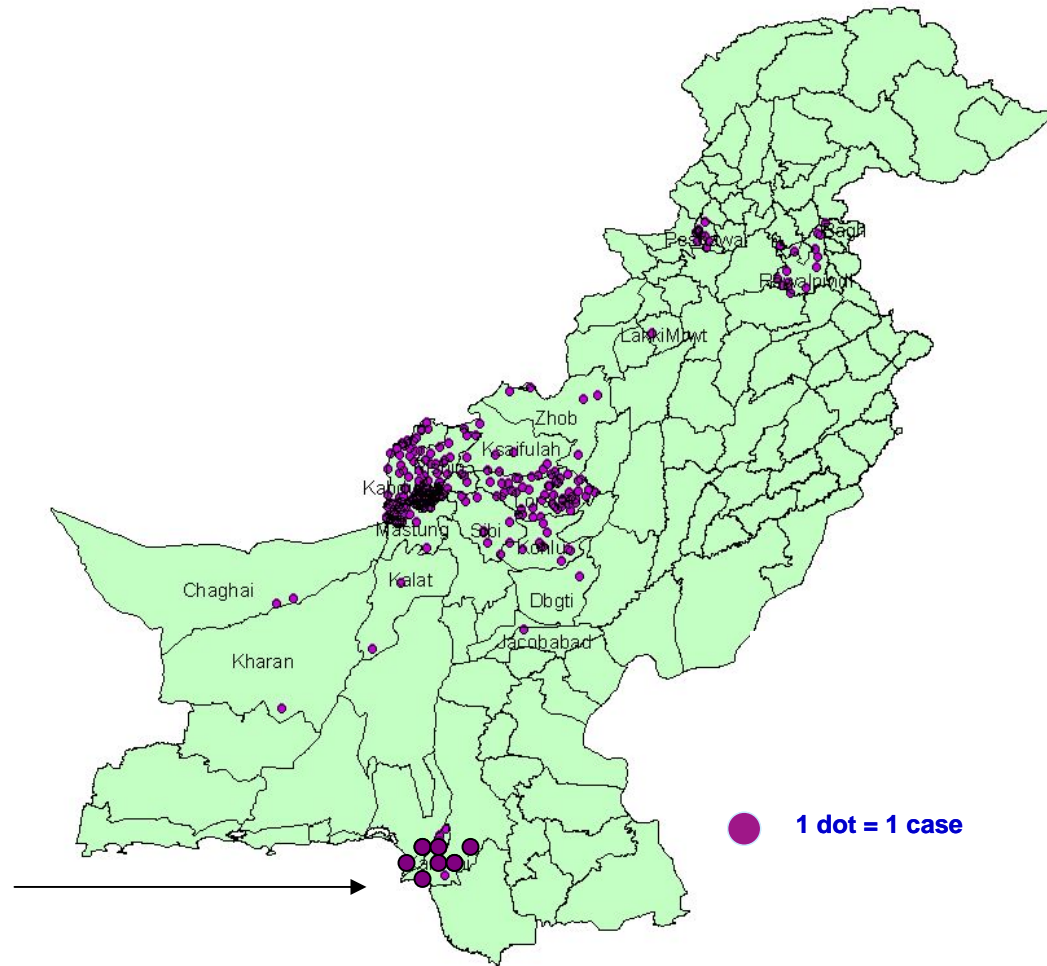
# Confirmed CCHF Cases by Province-Pakistan, 2002-2006



# Distribution of Confirmed CCHF Cases by Age Group, 2002 – 2006



# Geographical Distribution of CCHF Cases, 1976-2006



**Recent CCHF outbreak, 2006**

10 confirmed cases from Karachi, Sindh

# CCHF-Prevention and Control

## Investigation and Surveillance during Outbreak

- **Team of expertise including epidemiologist, medical specialist, entomologist and pathologist**
- **Mobile laboratory for field surveys and sample collection**
- **Strict observation of all suspected cases**
- **Immediate therapy of probable/confirmed cases**

# Prevention and Control

## Public Health Care Practices

- Training workshops about personal health care practices and the concept and implementation of Disease Early Warning System (DEWS)
  - » Mode of transmission through tick bites
  - » Handling ticks
  - » Tick control using acaricide
- Distribution of informative literature regarding Case definitions, management and prevention of infectious diseases
- Protection of hospital staff and high risk group like closely attending family members
- Avoiding travel to tick infested areas especially during tick active period-spring to fall
- Application of Tick repellents
- Biosafety trainings and health education campaigns addressing the butchers and animal handlers
  - » Well managed Livestock production facilities
  - » Tick control by animal dipping

# Management of the CCHF Cases and Biological materials

- The patient should be treated in a separate room under strict barrier nursing
- Only designated medical / Para-medical staff and attendants should attend the patient
- Start immediate treatment without delaying laboratory confirmation
- Immediate laboratory diagnosis
- All secretions of the patient and hospital clothing in use of the patient should be treated as infectious and should be autoclaved before incinerating.
- All medical and para-medical staff and attendants should wear disposable gloves, disposable masks and gowns (gowns should be autoclaved before sending to the laundry or incineration)
- Every effort should be made to avoid spills, pricks, injury and accidents during the management of patients. Needles should not be re-capped but discarded in proper safety disposal box

# Management of the CCHF Cases

.....continued

- All used material e.g. syringes, gloves, canulla, tubing etc, should be collected in autoclave-able bag and autoclaved before incinerating.
- All instruments should be de-contaminated and autoclaved before re-use.
- All surfaces should be decontaminated with liquid bleach.
- The samples for laboratory testing should be properly collected, labelled, sealed, and decontaminated from outside with liquid bleach and packed in triple container packing.
- The designated laboratory should be informed about the sample and it should be transported to the designated laboratory with great caution, ensuring there would be no breakage or spills.
- After the patient is discharged, room surfaces should be wiped down with liquid bleach to kill the virus and the room should be fumigated.

# Present Capabilities of Virology Department, NIH, Pakistan

- CCHF virus isolation by Cell Culture and animal inoculation
- Serological assays for CCHF IgM and IgG
- Molecular diagnosis based on RT-PCR
- Molecular Characterization and Sequencing
- BSL3 construction in progress

# CCHF Surveillance

Epidemic investigation cell  
Disease Early Warning system  
World Health Organization