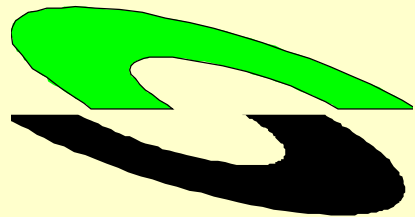


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# CCHF in Tajikistan

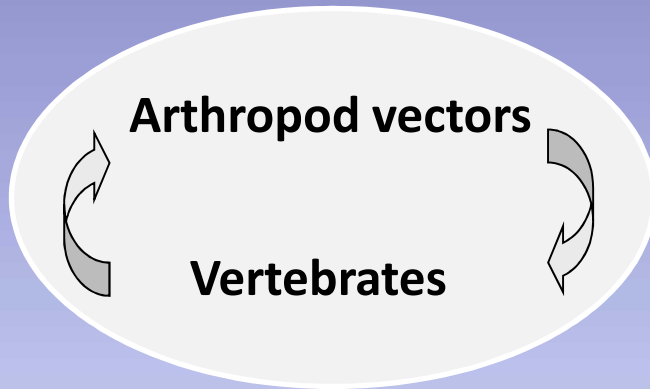
Farida Tishkova, Roger Hewson, Viktoriya Dzhuraeva, Turonsho Khikmatov

*SAC Meeting on*

**Emerging and Reemerging Infectious Diseases**

September 14 – 15, 2015 Fondation Mérieux Les Pensières  
Conference Centre

# Crimean-Congo Haemorrhagic fever



**Hyalomma tick**



**Zoonotic transmission to humans**

**Human infection is very severe**



## Clinical Features

- Incubation period 2-9 days
- Haemorrhagic state develops 3 - 5 days
- Petechial rash / ecchymoses in the skin
- Bleeding from the mucous membranes  
Epitaxis, Haematuria, Haemoptysis  
Highly infectious
- Death 7-9 days  
[massive bleeding / cardiac arrest]

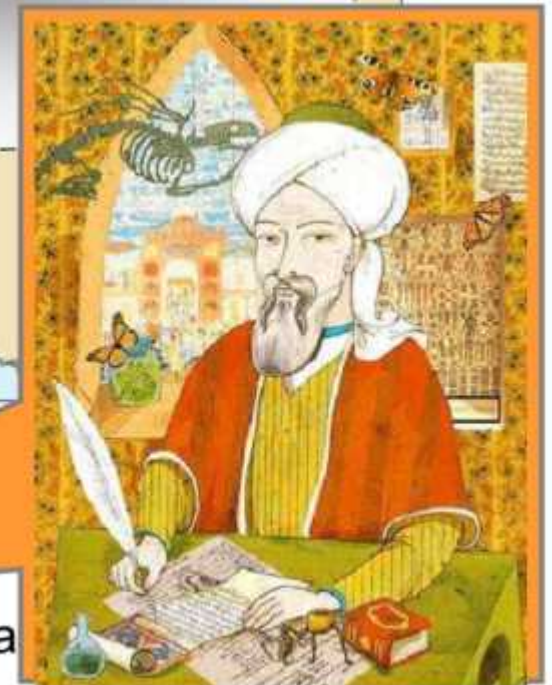
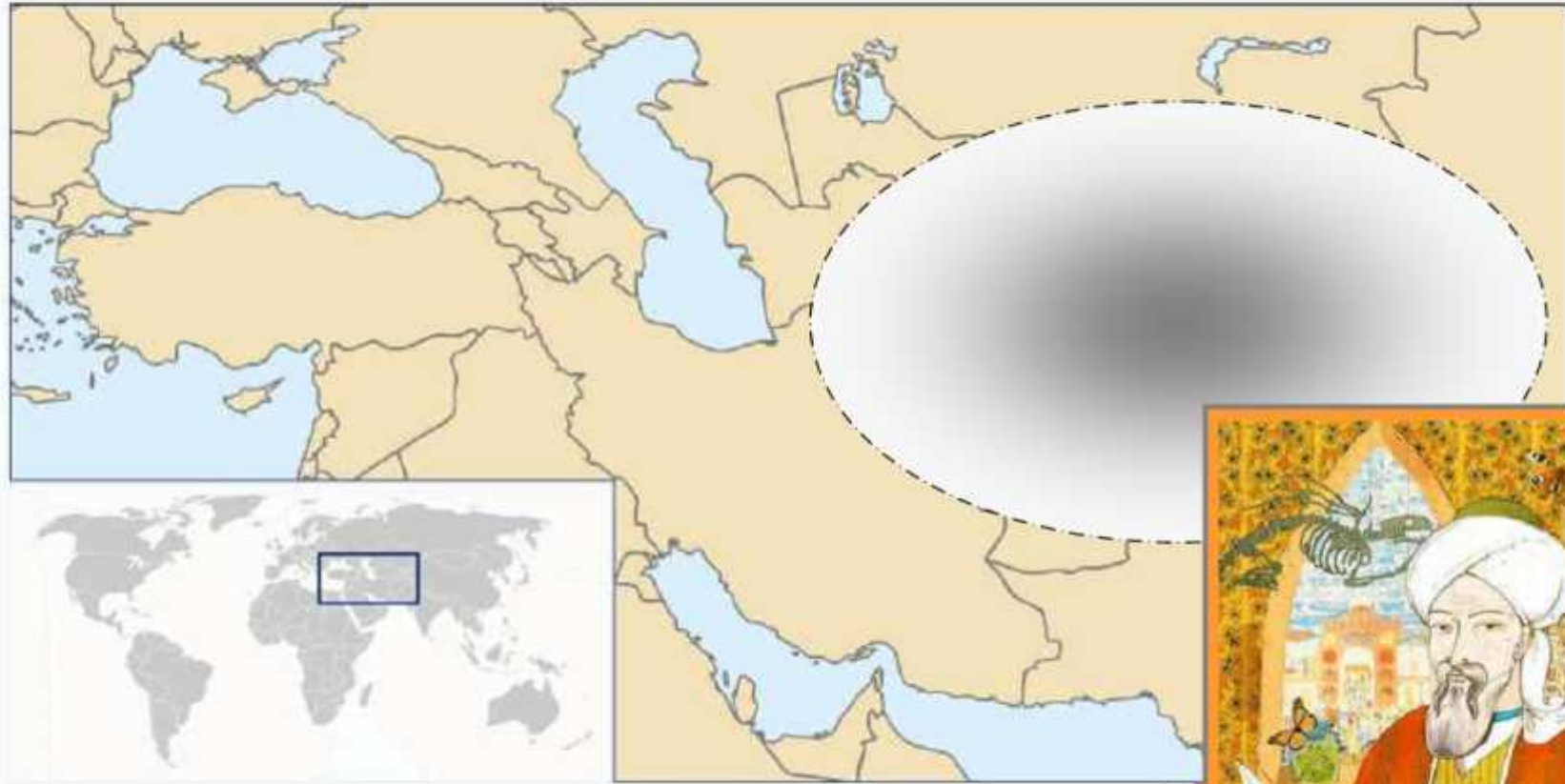
# CCHF virus spread in Central Asia

[Afghanistan, China, Iran, Pakistan, Kazakhstan, Kyrgyzstan, Russia (southern areas), Tajikistan, Turkmenistan, Uzbekistan]





# Tajikistan: Historical focus of Haemorrhagic Fever & other arboviruses



1<sup>st</sup> Descriptions of Central Asian / Crimean Haemorrhagic Fever

- 1136 Tajikistan / (Zayn al-Din Sayyed)
- 11<sup>th</sup> century A.D. Abu Ali Al-Husayn ibn Abd Allah ibn Sina

# Institute of Preventive Medicine Dushanbe



Пажушишгохи Илми-Тадкикоти  
Амрози Вазорати тандурустии  
Тоҷикистон

1932– Tropical Diseases Institute

1955 – Stalinobod Institute of Epidemiology and Hygiene

1976 – Tajik Research Institute of Epidemiology and Hygiene

1993 – Tajik Research Institute of Preventive Medicine

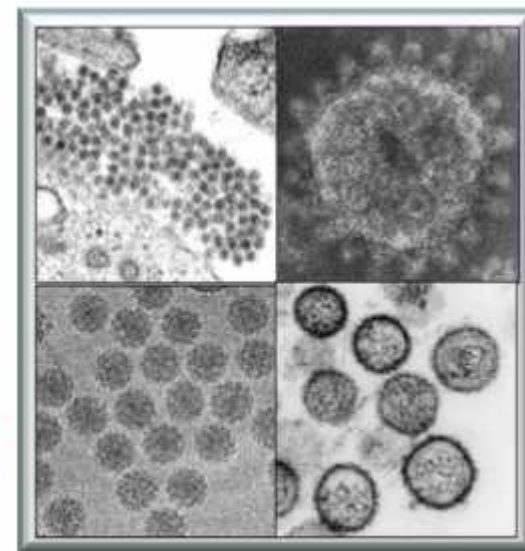
## ❖ Development of local diagnostics

- Virus amplification in suckling mice
- Antigen purification with acetone
  - Antigen capture
- Production of ascities fluid
  - Antibody capture
- Complement fixation

Highly  
Infectious  
Hazardous  
work



## ❖ Surveillance & vector control





# Collapse of Soviet Union / Civil War 1991 - 1997

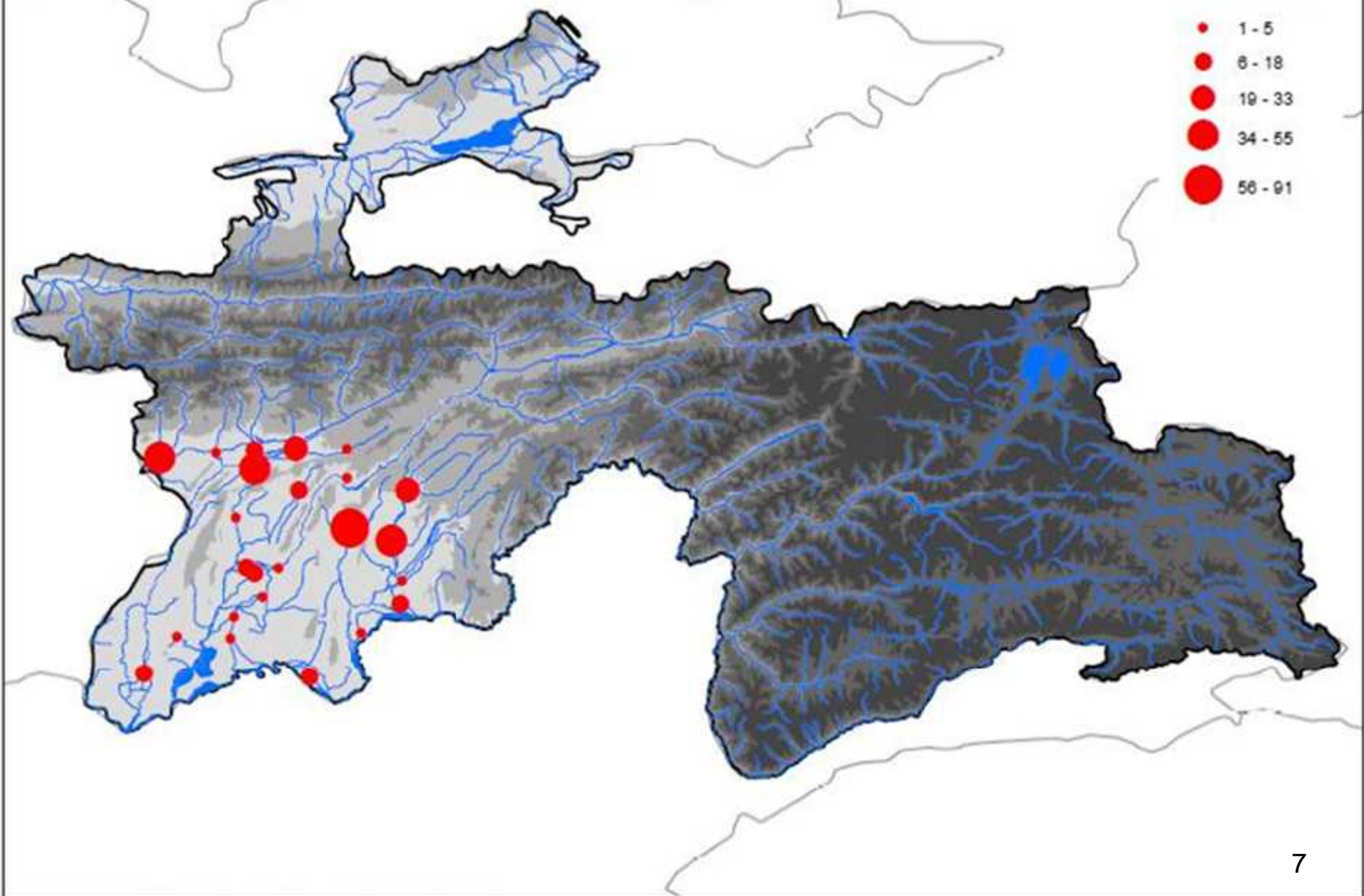
Highly pathogenic viruses continue to circulate



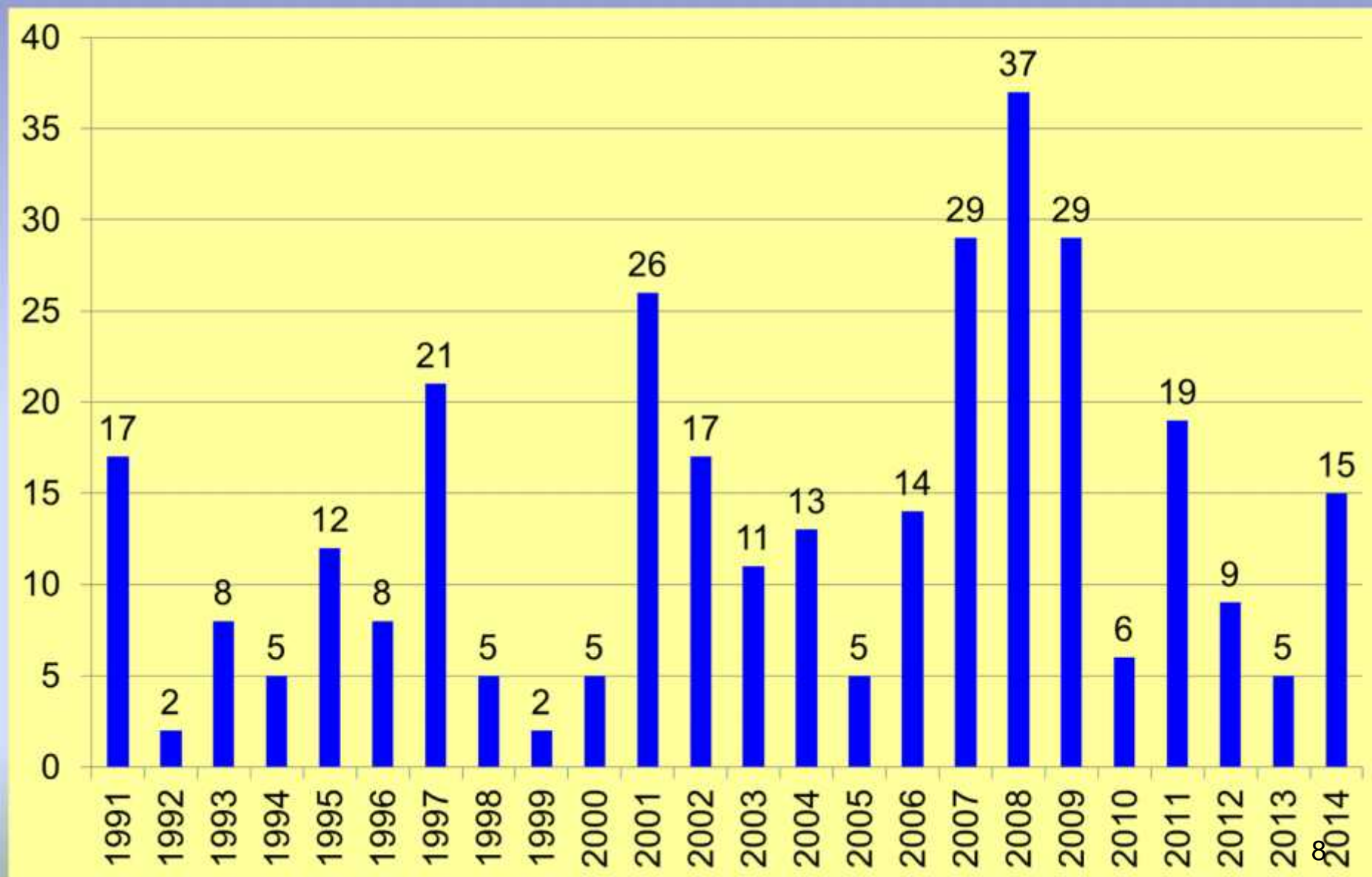
## Unchecked emergence and re-emergence of arbovirus disease

- Crimean Congo Haemorrhagic Fever
  - Seasonal outbreaks [10-30 cases / year]
- West Nile Fever
  - Currently unknown [~1000s / year]
- Sindbis Fever
  - Currently unknown [~100s / year]
- Sand fly fevers
  - Currently unknown [~100s / year]
- Issuk- Kul Fever
  - Currently unknown [~100s / year]

## CCHF cases in Tajikistan during the last 20 years

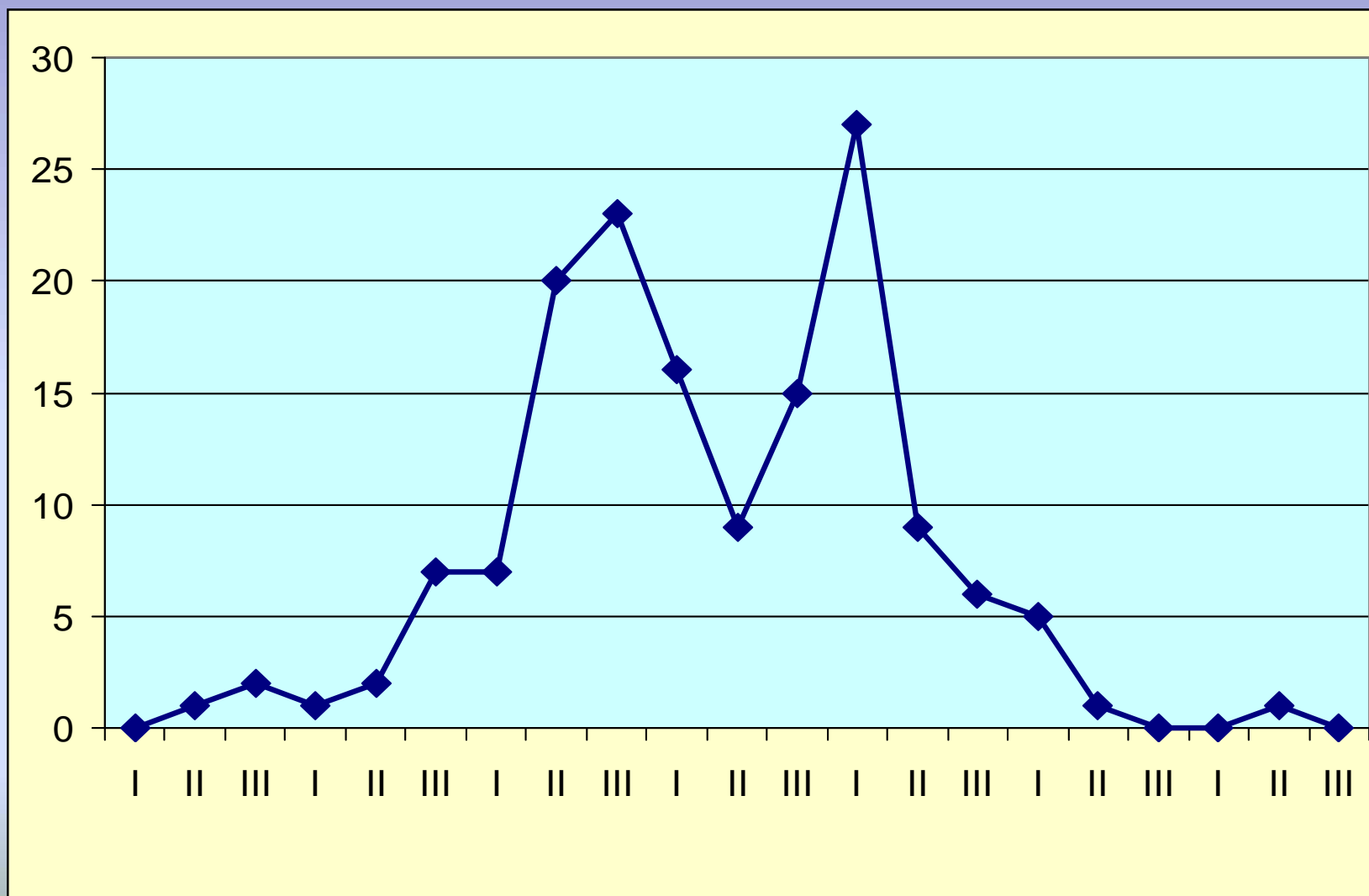


## Number of registered CCHF patients in Tajikistan during 1991-2014

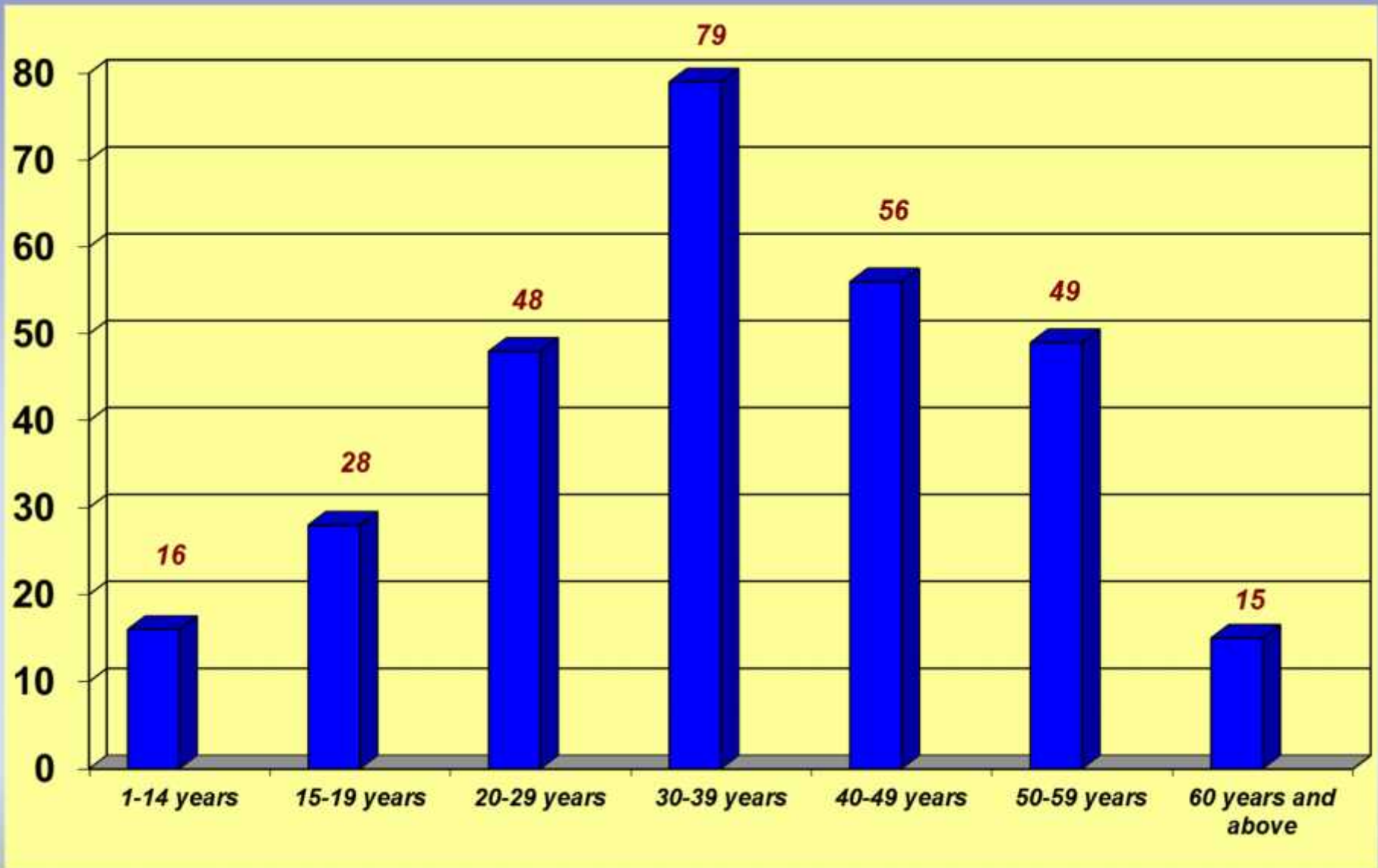




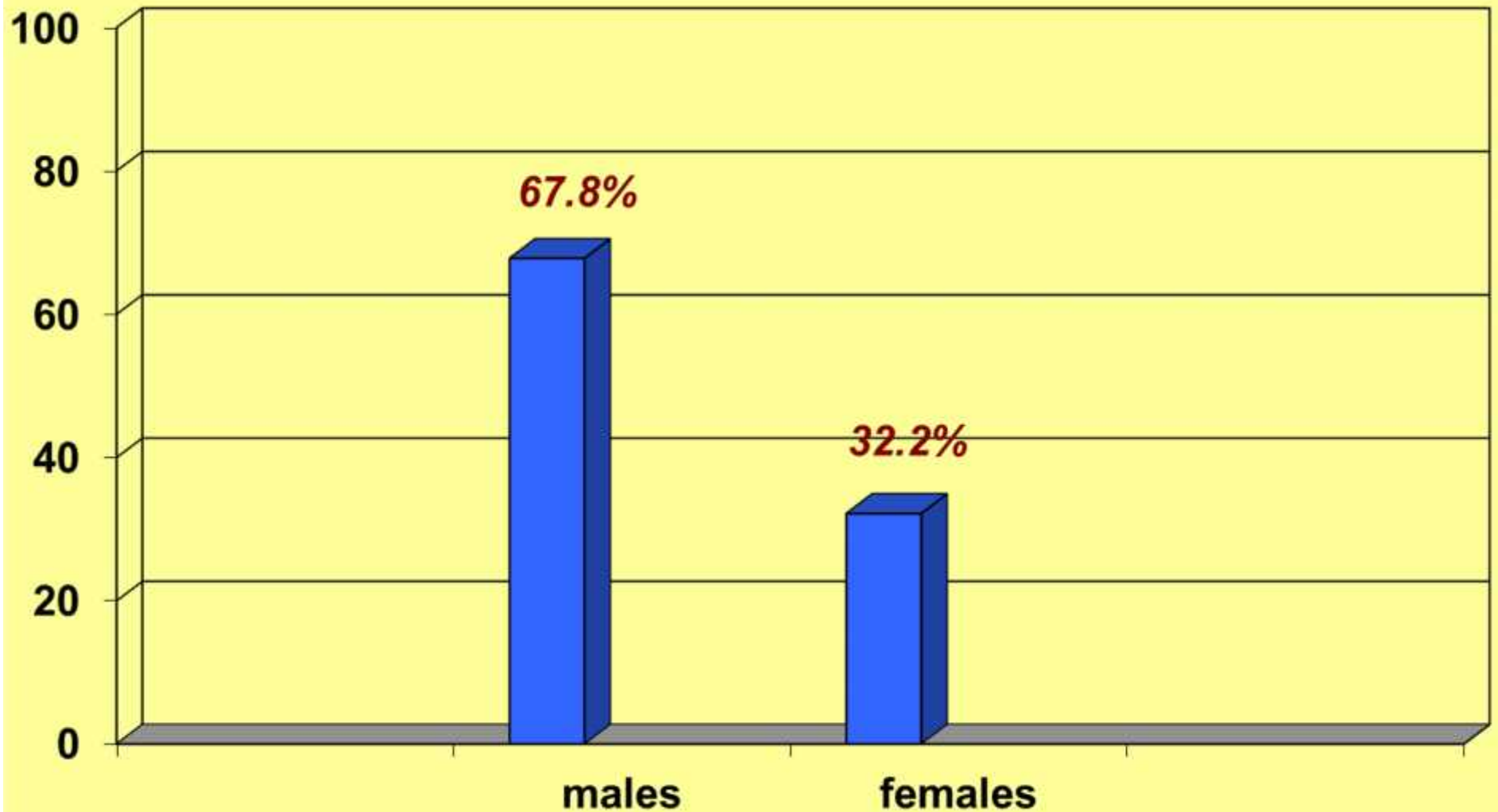
## Seasonal CCHF prevalence in Tajikistan during 1991-2004



## Total CCHF cases by age

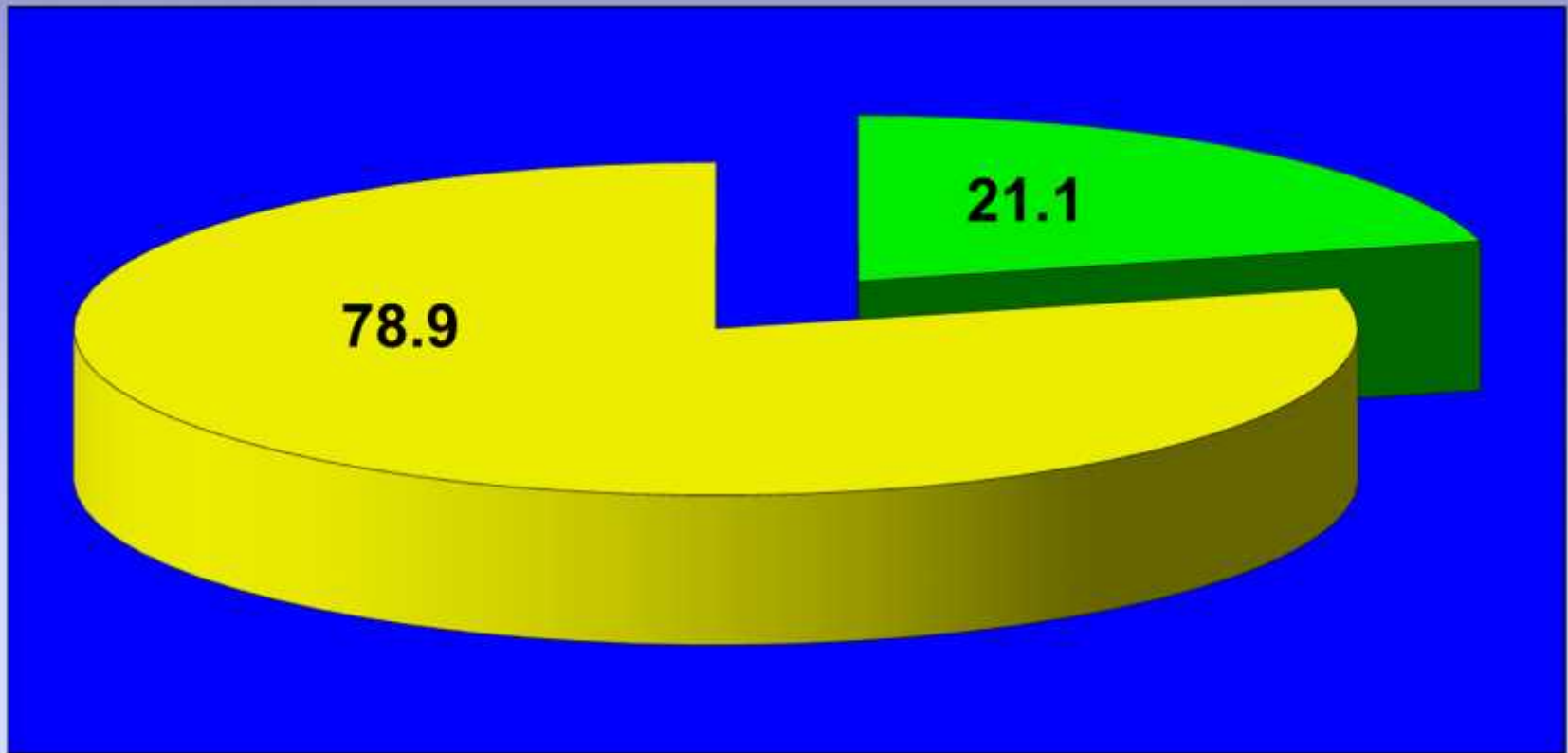


## Percentage of CCHR cases by sex attribute





## CCHF cases outcomes



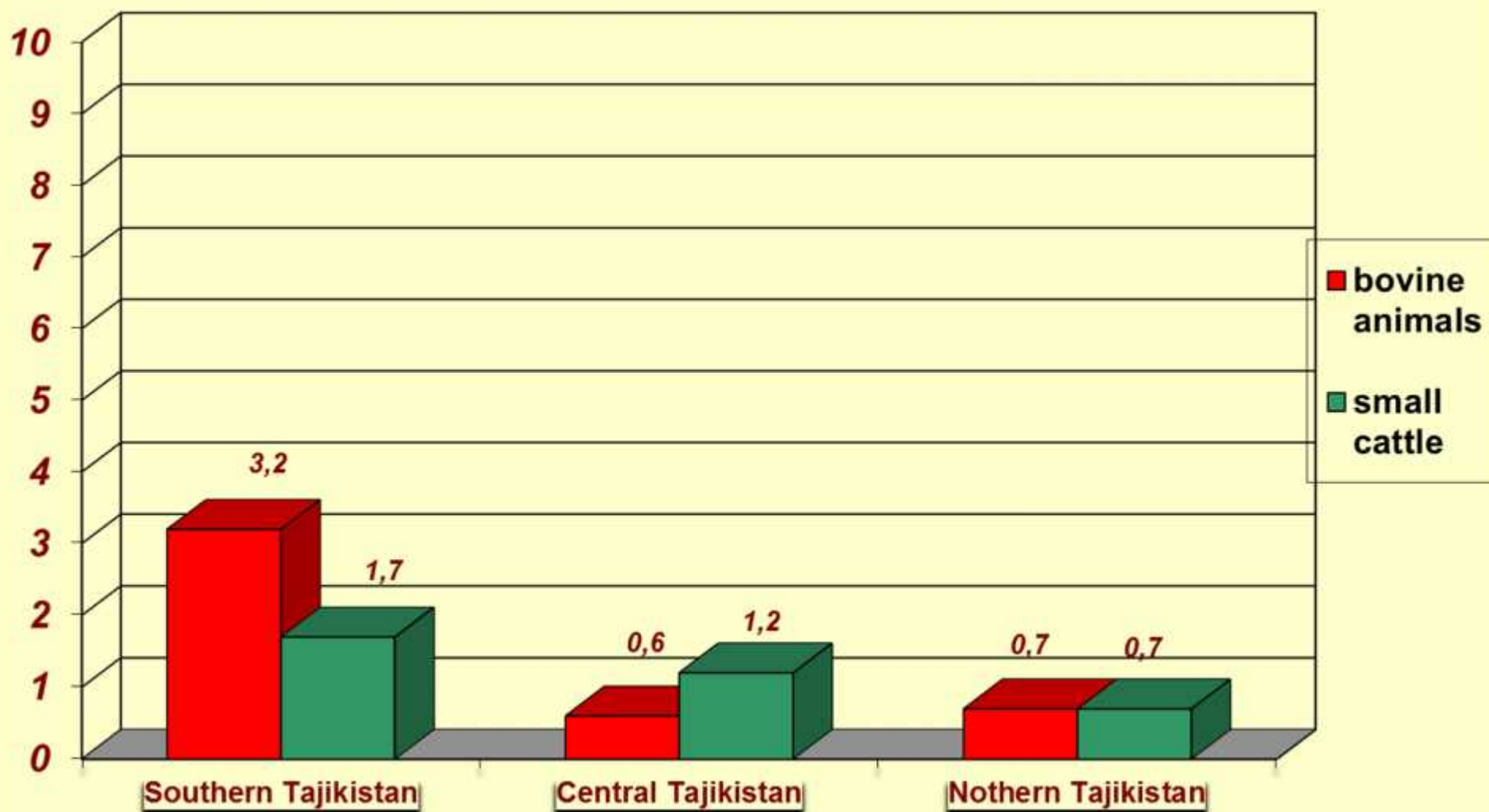
■ death

■ recovery

## Infection transmission ways (321)

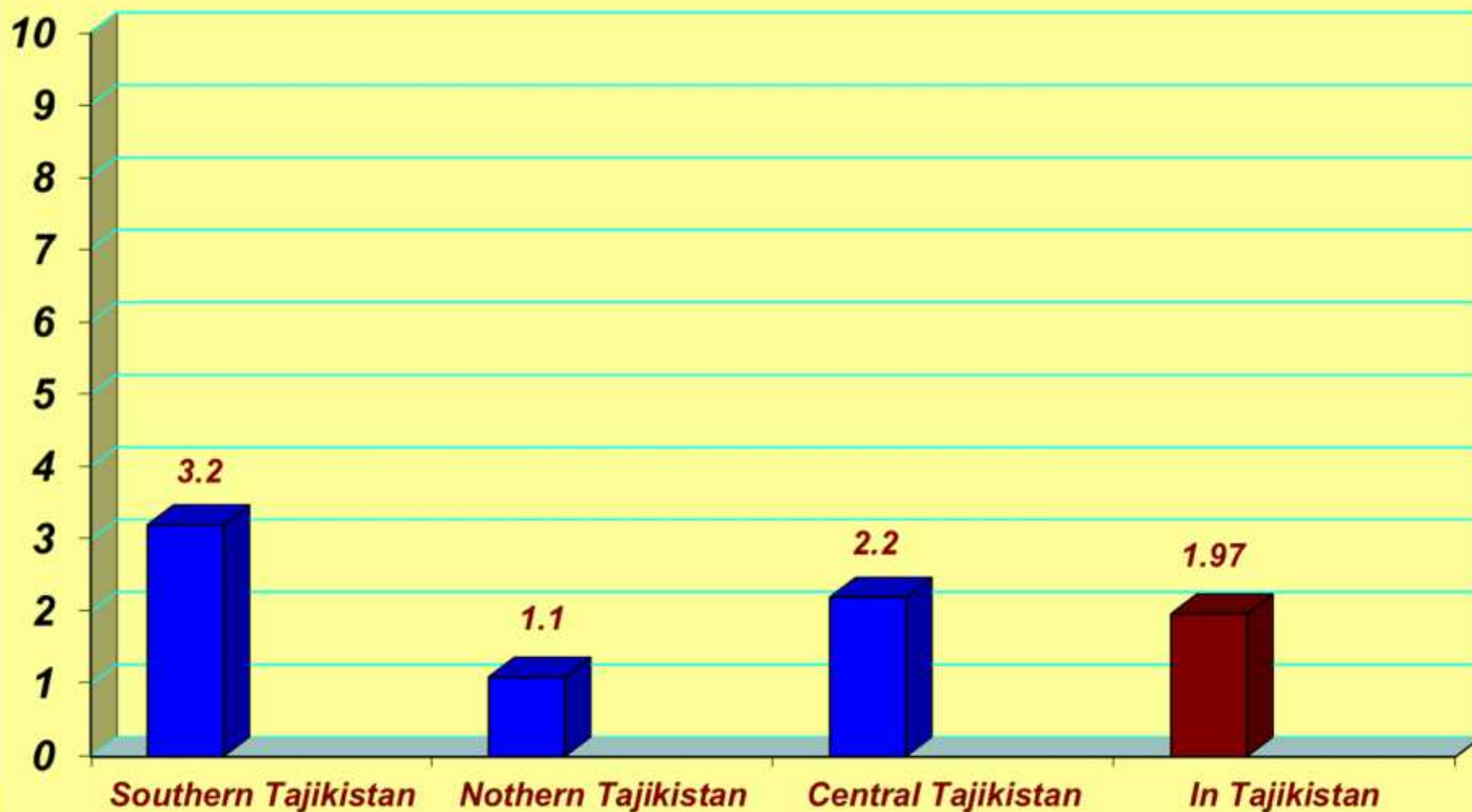
- **16** - cases through contact with infected cows;
- **207** - cases in the result of tick bite;
- **98** - cases in the result of contact with CCHF infected humans (incl. **28** cases among medical workers)

## Investigation results of livestock (bovine animals and small cattle) for CCHFV antibodies' presence





## The results of serological screening of people for CCHF



(ii) Equipment and PPE for arthropod collection:



PPE for Mosquito collection using  
back pack aspirator



Tick collection







# Technical progress: Achieved public health & scientific benefits

- Better monitoring of arbovirus disease

Information feedback to local communities

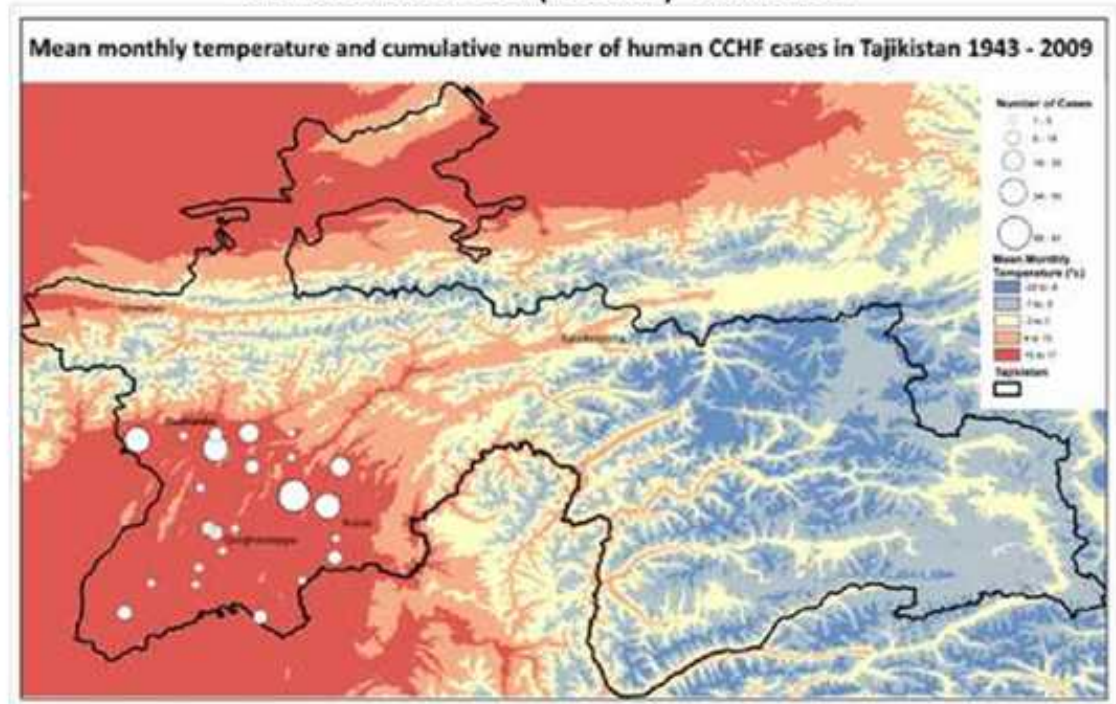


Raising awareness of CCHF disease

Associations with cattle, sheep and ticks

Establishment of reporting lines to MoH

- Development of risk maps for public awareness of (CCHF) disease



Raising awareness of potential new areas of endemic (CCHF) disease

# **Counter proliferation / Threat reduction Biosecurity benefits**

## **Region inaccessible to Western scientists prior to 1997**

Infectious disease problems, emergent zoonoses, vectors and mammalian reservoir species virtually unknown to the international scientific community

## **Capable scientists gainfully employed in public health programmes**

**Introduction of new technology avoids need to culture viruses as reagents**

**Reach back to WHO collaborating centre laboratory for virus isolates**

**Local understanding of disease hot spots and implementation of LOCAL measures to limit and avoid infection in humans training PH officials clinics**

Access to emerging disease patterns in Central Asia enables IPM & HPA reference labs (including international community) to:

- Keep pace with emerging (virus) disease.
- Study, learn, update and share assays
- Report and help control problems locally before they become more wide-spread



## A real difference: 14 year old infected with CCHF

- Tick bite to the leg day 1
- Suspect typhus type fever
- Haemorrhagic symptoms day 10
- IMP contacted and samples sent for testing
- Absence of IgG and IgM antibodies in ELISA
- But PCR +ve
- Patient isolation
- Instigation of Ribavirin treatment





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**Thank you for your attention!!!**