

## Susceptible species & Vectors

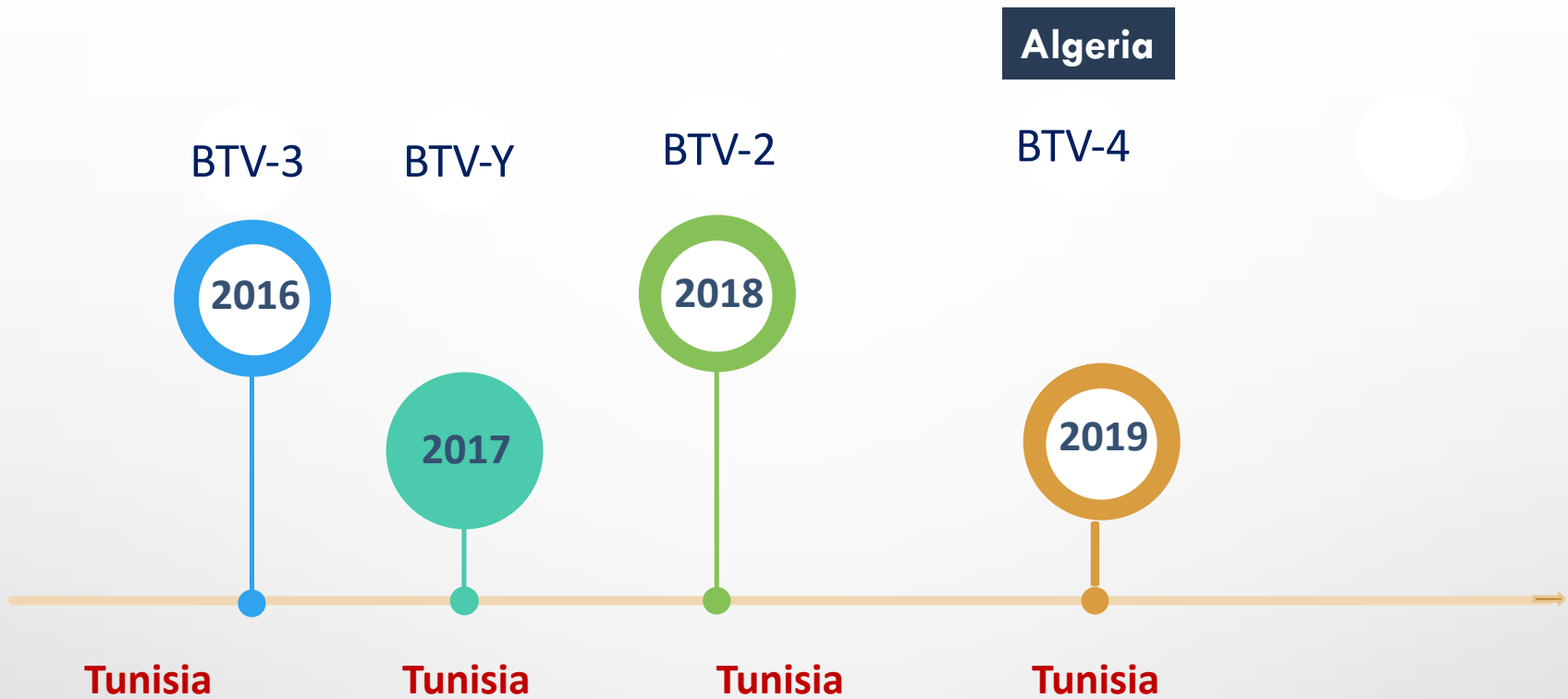
Considered as reservoirs in the past with **no** clinical signs, cattle and goats express clinical signs with certain serotypes (BTV-8, BTV1, BT4)

Certain serotypes are associated with an unusual host range (BTV-8, BTV-1)

BTV-8 (European strain):transplacental transmission  
oral infection

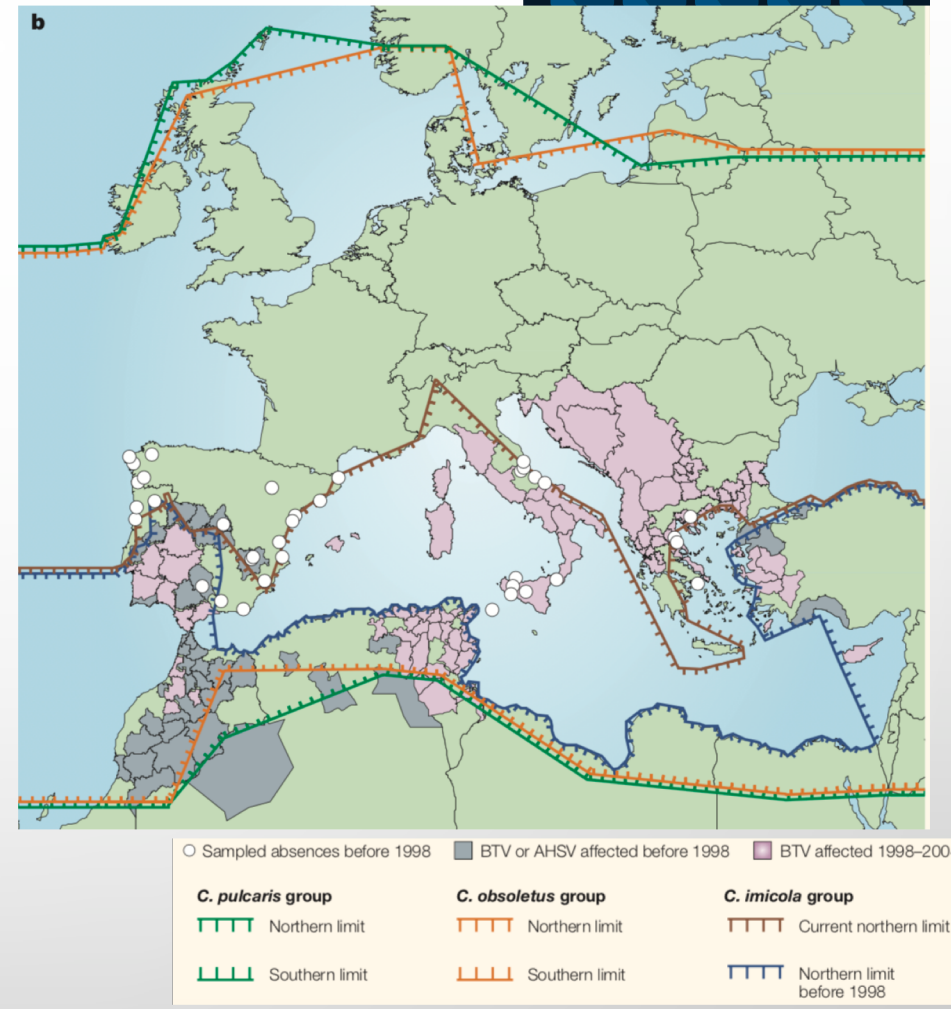
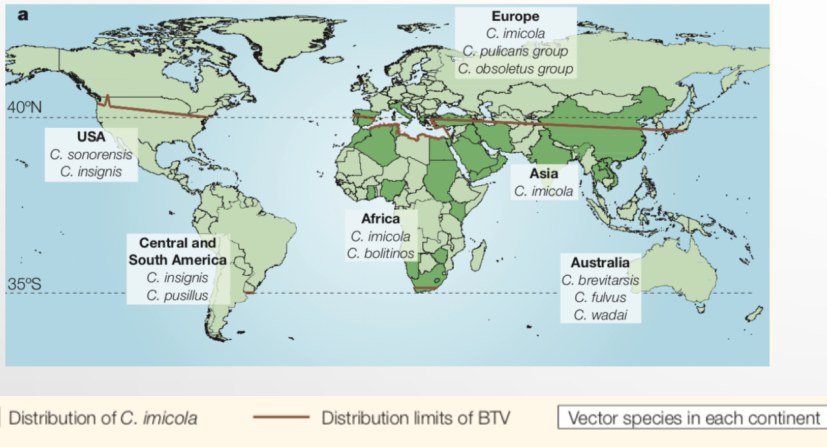
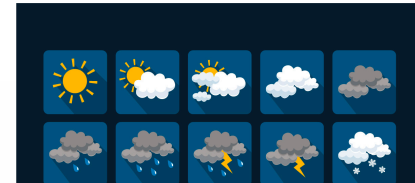
Novel serotypes 25-26, 27: contact-transmission suspected or confirmed

# Recent BTV circulation in North Africa



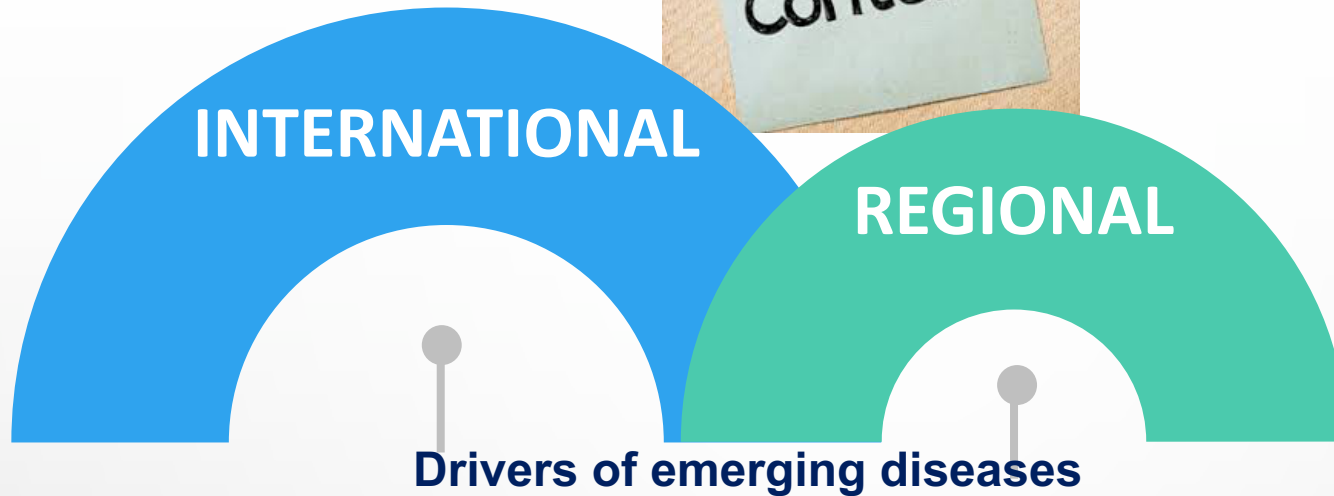
**Libya 2018 (serology):** BTV-1, BTV-2, BTV-3, BTV-4, BTV-9 and BTV-26.

# Climate



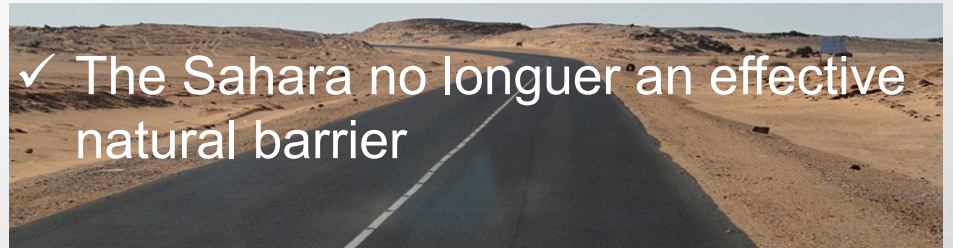
<https://doi.org/10.1038/nrmicro1090> Purse, B.V. et al. 2005.

# CONTROL STRATEGIES



- ✓ Global climate change
- ✓ Rapid globalisation (trade of animals and animal products)
- ✓ Expansion of human population

- ✓ Dissemination of diseases around the Mediterranean basin



- ✓ The Sahara no longer an effective natural barrier

- ✓ Border permeability among North African countries

- ✓ Political unrest in the region

**Enhanced transmission** → **Colonization of new territories**



## Sanitary prophylaxis

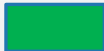
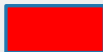
- ✓ Animal movement control
- ✓ Quarantine
- ✓ Sentinel herds
- ✓ Identification, surveillance and tracing
- ✓ serological survey
- ✓ vector control

## Medical prophylaxis

- ✓ Live attenuated and killed BTV serotype specific vaccines
- ✓ attenuated vaccines (reassortment with field strains)

Measures	Algeria	Morocco	Tunisia
Vector control	Green	Green	Green
Vaccination*	Red	+/-	+/-
Dipping / Spraying for control of vectors	Green	Green	Green
Treatment of affected animals	Green	Red	Green
Movement control inside the country	Green	Green	Green
Quarantine	Green	Green	Red
modified stamping out	Red	Green	Red
screening	Red	Red	Green
Surveillance within containment and/or protection zone	Red	Red	Green
Surveillance outside containment and/or protection zone	Red	Red	Green

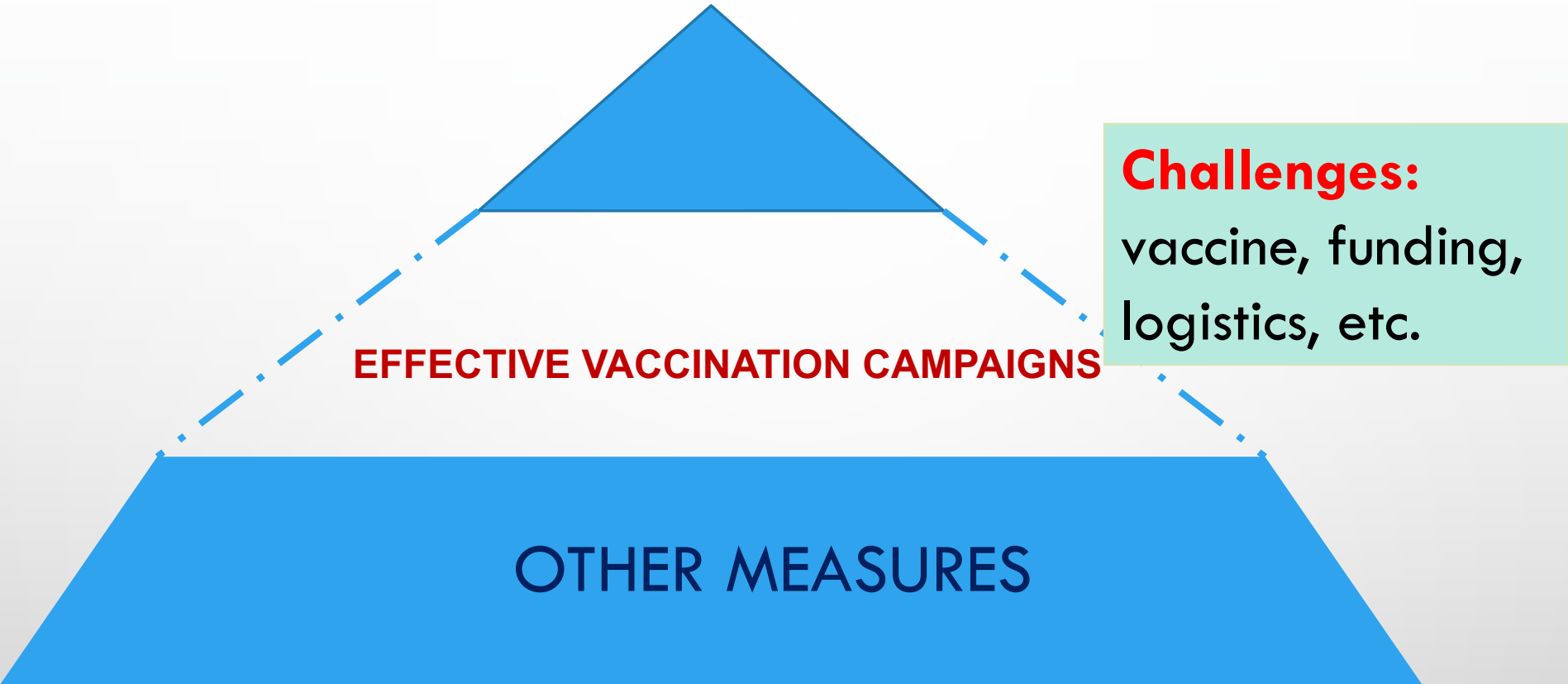
\* Vaccination when applied is not regular throughout the years

 Measures implemented  
 Measures non implemented

## Control strategy based on:

- Vaccination and vector control in Morocco and Tunisia
- Vector control in Algeria

Control of BT

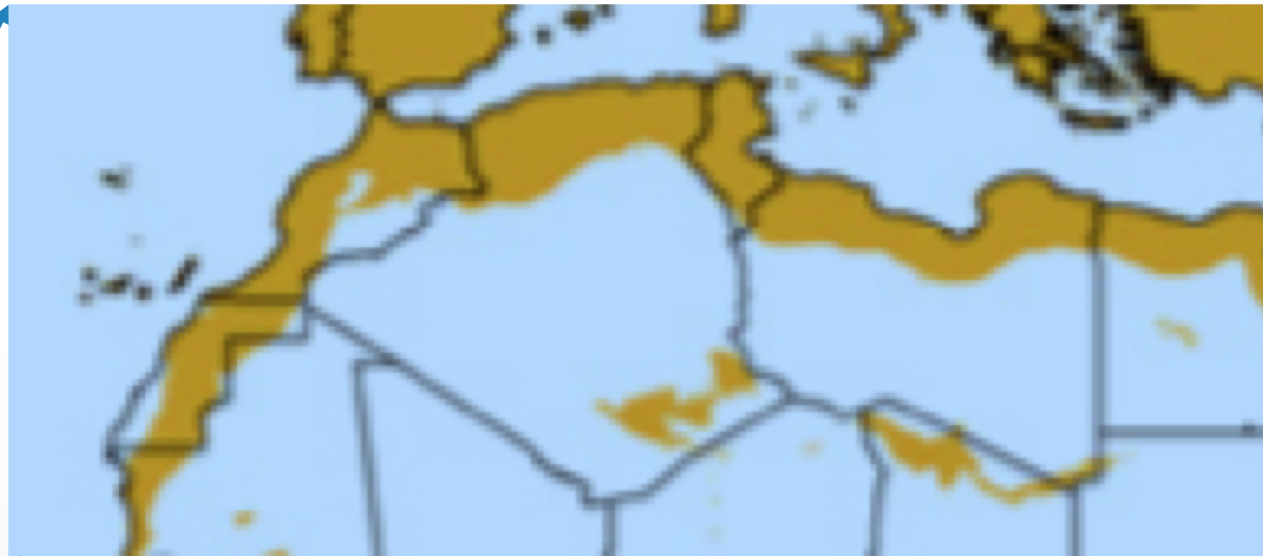


**Challenges:**  
vaccine, funding,  
logistics, etc.

**EFFECTIVE VACCINATION CAMPAIGNS**

OTHER MEASURES

STRATEGY



## Predicted potential distribution for BTV under future climatic conditions

**Orange areas are modelled suitable conditions**, white areas are unsuitable conditions for BTV occurrences. Doi:1371/journal.pone.0150489.g004



## Concluding remarks

- ❑ Since its first incursion in North Africa, the number of new introductions of viruses has been in the rise in the region;
- ❑ Unfortunately taking into account all risk factors new incursions will probably be recorded in the future;
- ❑ In view of the nature of the virus and development of new scientific research tools, new serotypes will probably be identified and added to the already long list;

- ❑ As the geographical distribution of the insect vector species generally limits the distribution of the disease, the introduction of new competent vector will enhance the spread of the disease;
- ❑ North African countries need to develop a harmonised strategy with a common objective to prevent and control BT taking advantage of new technologies;
- ❑ In the interest of all countries around the Mediterranean basin, veterinary services in North Africa need to be strengthened.