

Q-fever epidemic in The Netherlands Lessons Learnt



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KYRGYZSTAN, 2018



Q-fever in The Netherlands



**Farm visit: Queen Beatrix
and Gerda Verburg,
Minister of Agriculture**

GP was the first addressing
this epidemic in men!

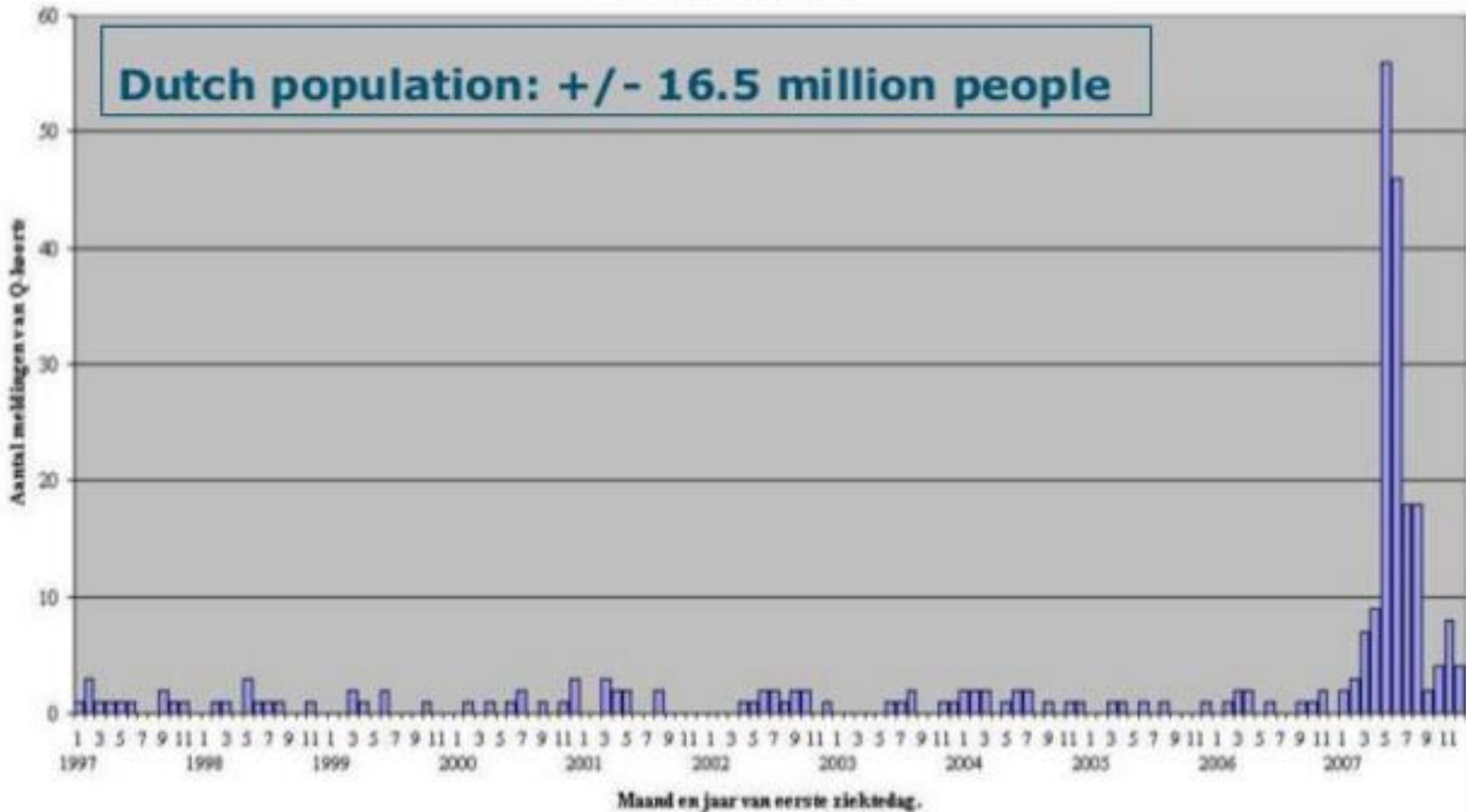


Q-fever in the Netherlands

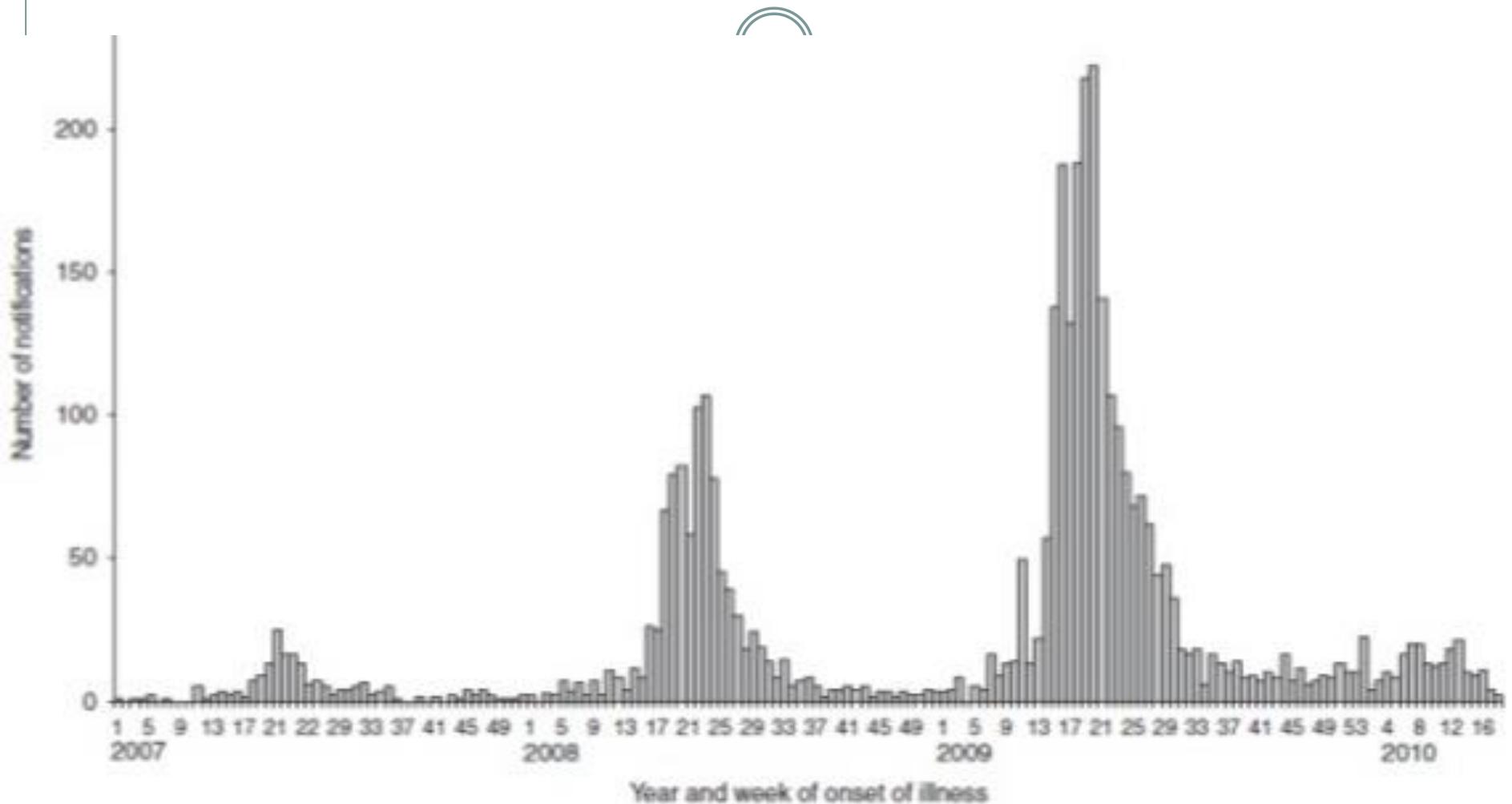


- Endemic, in a dormant state
- Animal disease in sheep, cattle goats,
 - Rarely fatal for animals
 - Reproductive problems: abortions, stillbirth
- Human disease:
 - Latency period 2-5 weeks
 - Acute form: flue-like self-limiting/ pneumonia
 - Post Q-fever Chronic Fatigue Syndrome
 - Chronic Disease: endocarditis
- Since 1975 notifiable for humans in NL
 - Until 2007 annually in NL around 20 cases

Q-fever in The Netherlands 1997-2007



Q-fever in The Netherlands 2007-2010



Q-fever in the Netherlands, observations



Animal Disease

- Abortion rates up to 80% per herd
- 2005
- Dairy goats, sheep
- Southern part NL
- In spring



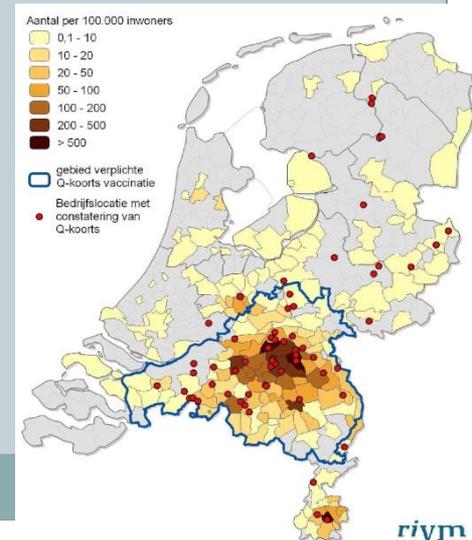
Human Disease

- 2007
- males, age around 50
- Southern part NL
- in spring

Farms with abortions due to Q fever

	2005	2006	2007	2008	2009	Total
Dairy sheep farms	—	1	—	1	—	2
Dairy goat farms	2	6	7	7*	6	28

* Including one farm with animals at two locations.



Q-fever in The Netherlands 2007-2010

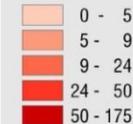


- > 4000 patients with Q-fever (laboratory confirmed)
- 600 hospitalized
- 11 patients died

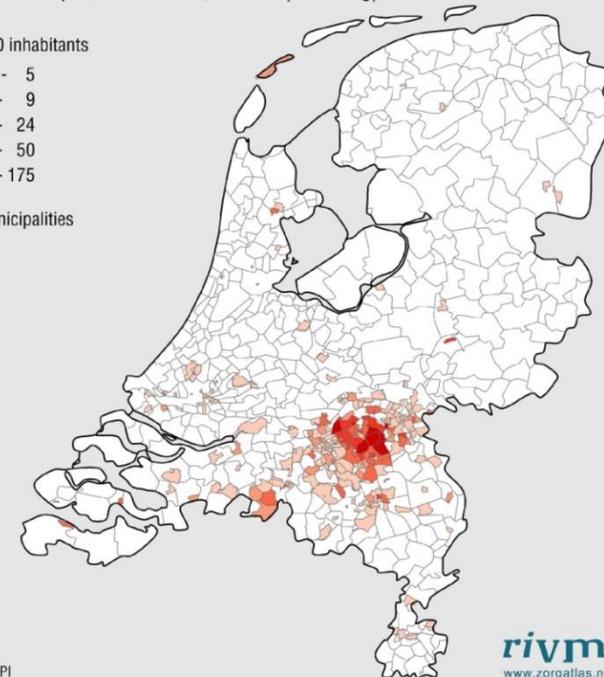
- Connection dairy goats-humans:
 - Epidemiological findings
 - Genotyping data:
 - ✦ One predominant type same
 - ✦ in humans and goats

Q fever notifications 1 January - 31 December 2008
by four-position postal code areas, n = 994 (6 missing)

per 10,000 inhabitants



□ Municipalities



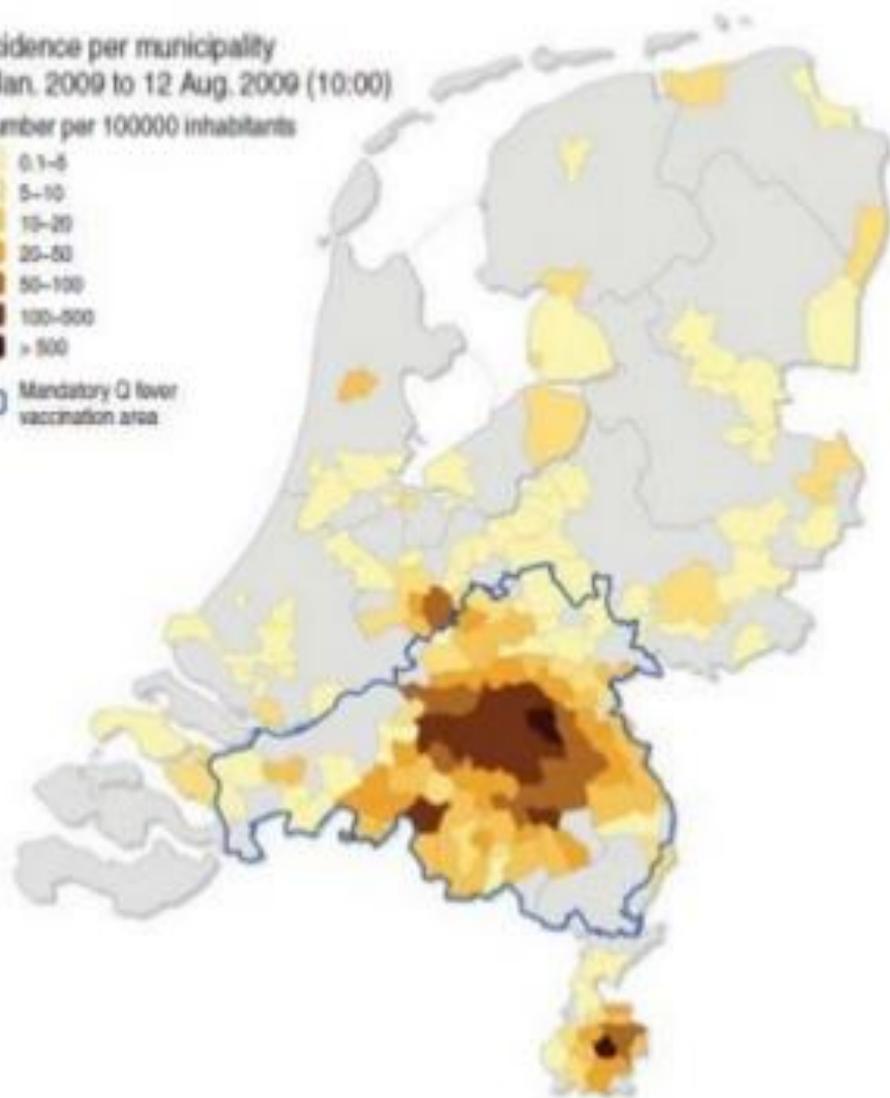
Human cases 2009

Incidence per municipality
1 Jan. 2009 to 12 Aug. 2009 (10:00)

Number per 100000 inhabitants



Mandatory Q fever vaccination area

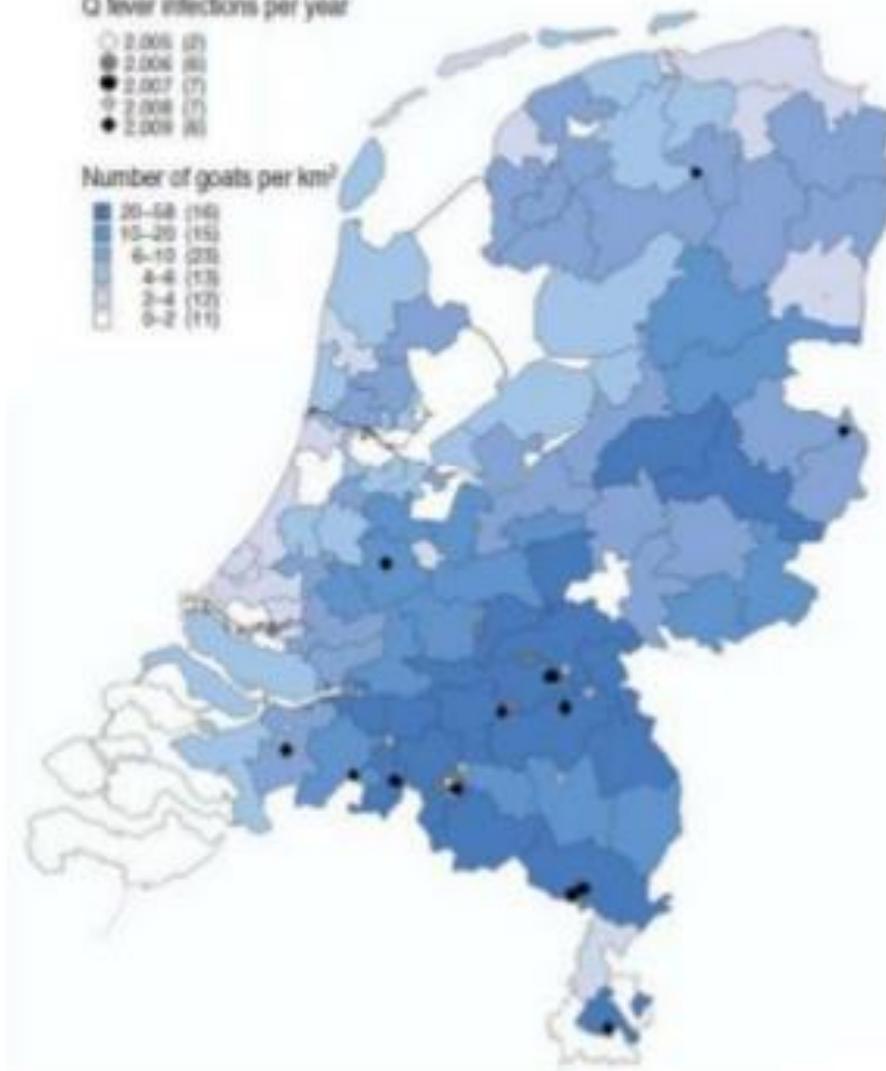


dairy goat/sheep farms 2005-2009

Q fever infections per year



Number of goats per km²



Q-fever: Transmission



- Infected animals shed *Coxiella Burnetti* in milk, urine faeces, vaginal fluids that can contaminate the farm environment.
- Aerosol: most common
 - Parturient fluids/ placenta
 - Urine, faeces, milk
 - Windborne: contaminated dust, manure, birthing products
- Direct contact
 - helping animals during birthing
- Ingestion
- Anthropods (ticks)

Measures to control the human outbreak



In the veterinary field > dairy goats

- Notification of abortions and positive farms
- Improved hygiene
 - Manure control
 - Visitors ban
 - Transport ban
- Stop excretion
 - Breeding ban
 - Vaccination
- Eliminate risk animals
 - Culling of pregnant goats on positive farms (n= 50.000)

Jan Mankes

1889
1920



Goats in The Netherlands

Increase after swine fever epidemic in 1997
Transition of Pigfarms into goat farms.....

‘Poor men’s cow’

1995: 76.000

2009: 375.000

**(3.000 goat farms
Herds 600-7000)**



Probable causes of the outbreak



- Strong increase in the number of dairy goat herds and goat numbers
- Influenced in-herd dynamics of *Coxiella Burnetii*?
- Introduction of a more virulent strain or genetic shift to a more virulent strain?
- Lack of basic hygienic measures
- Too many animals in a densely populated country

The Dutch Q fever situation lessons learned?

November 19, 2013

One Health Summit 2013

Hendrik-Jan Roest, CVI, Lelystad, NL

Kitty Maassen, RIVM, Bilthoven, NL

Arjen van de Giessen, RIVM, Bilthoven, NL

Fred van Zijderveld, CVI, Lelystad, NL



Q-fever epidemic in The Netherlands

Lessons learnt, wake-up call

- The risk of outbreaks of zoonoses is increasing: intensive livestock farming , increased mobility, animal transport.
- Better preparedness: awareness, education, hygienic measures
- Share information
 - In the human medical chain
 - In the veterinary chain
 - Human ↔ Veterinary
- One health approach
 - Practitioners, policy-makers and researchers
 - Attention from the media



Thanks for your attention

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