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PLAT4M 2BT PSITTACOSIS

From Q fever control to Psittacosis prevention

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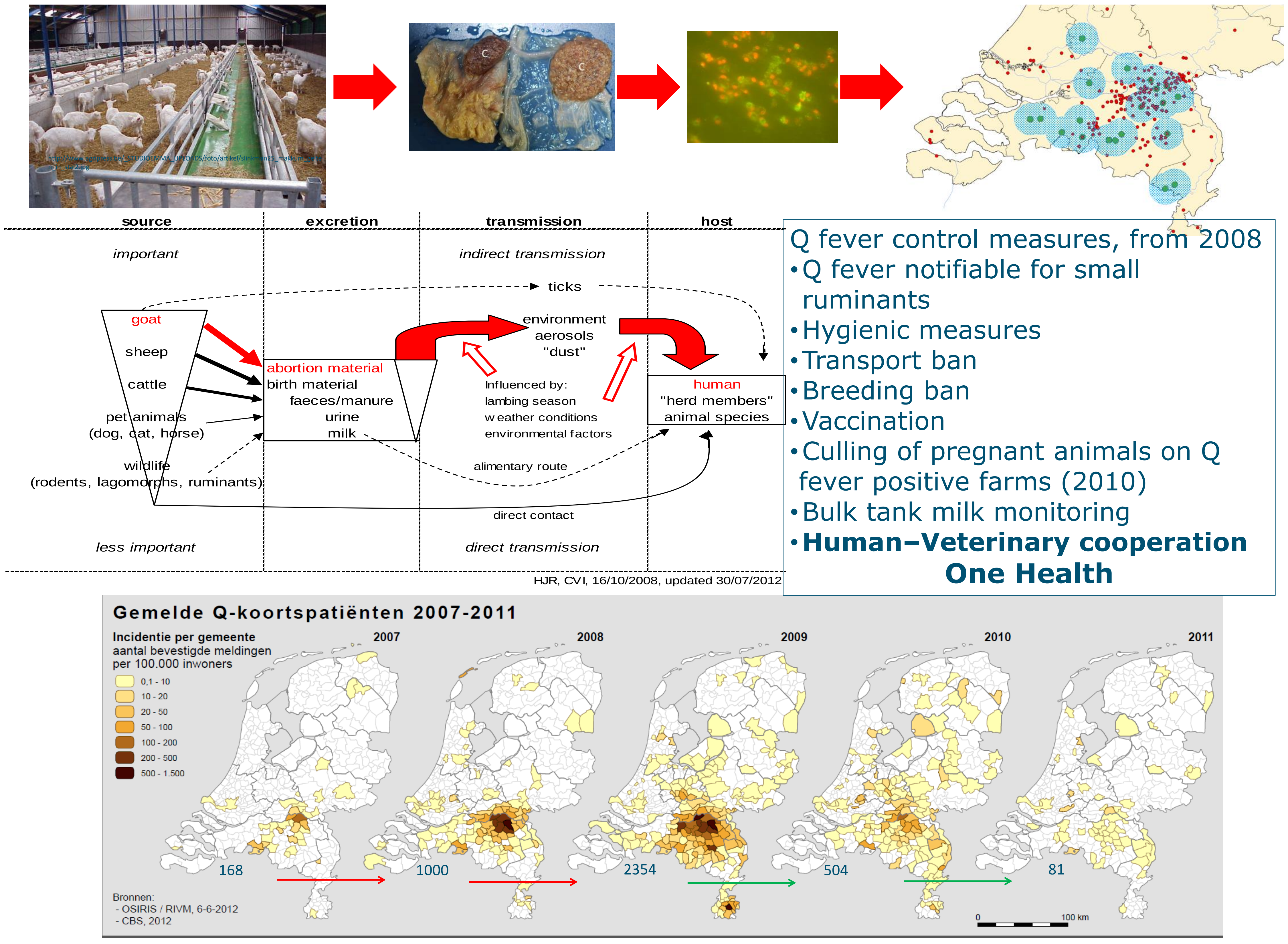
Introduction

The Q fever epidemic in the Netherlands, from 2006 to 2010, is the largest Q-fever outbreak ever reported with 4,250 notified human cases and an estimated number of more than 50,000 infected persons. Dairy goats and dairy sheep were the source of the outbreak and this resulted in culling of 58,150 pregnant goats and 848,906 vaccinated dairy goats and dairy sheep (Figure 1).

Key in the control of the outbreak was identification of the source by molecular confirmation of the epidemiological links between human cases and goat farms. Furthermore data-exchange between the human and animal health chain was vital for a timely response.

These lessons are now applied in an ongoing study on the zoonotic disease Psittacosis. Psittacosis is caused by the bacterium *Chlamydia psittaci* and can lead to a severe pneumonia in humans similar to Q fever. The disease is notifiable, but underreported, in humans and pet birds. The bacterium can be further subdivided into genotypes based on its outer membrane protein A gene (*ompA*). The genotypes are associated with different bird hosts, which aids source finding.



Q fever control measures, from 2008

- Q fever notifiable for small ruminants
- Hygienic measures
- Transport ban
- Breeding ban
- Vaccination
- Culling of pregnant animals on Q fever positive farms (2010)
- Bulk tank milk monitoring
- **Human–Veterinary cooperation**

One Health

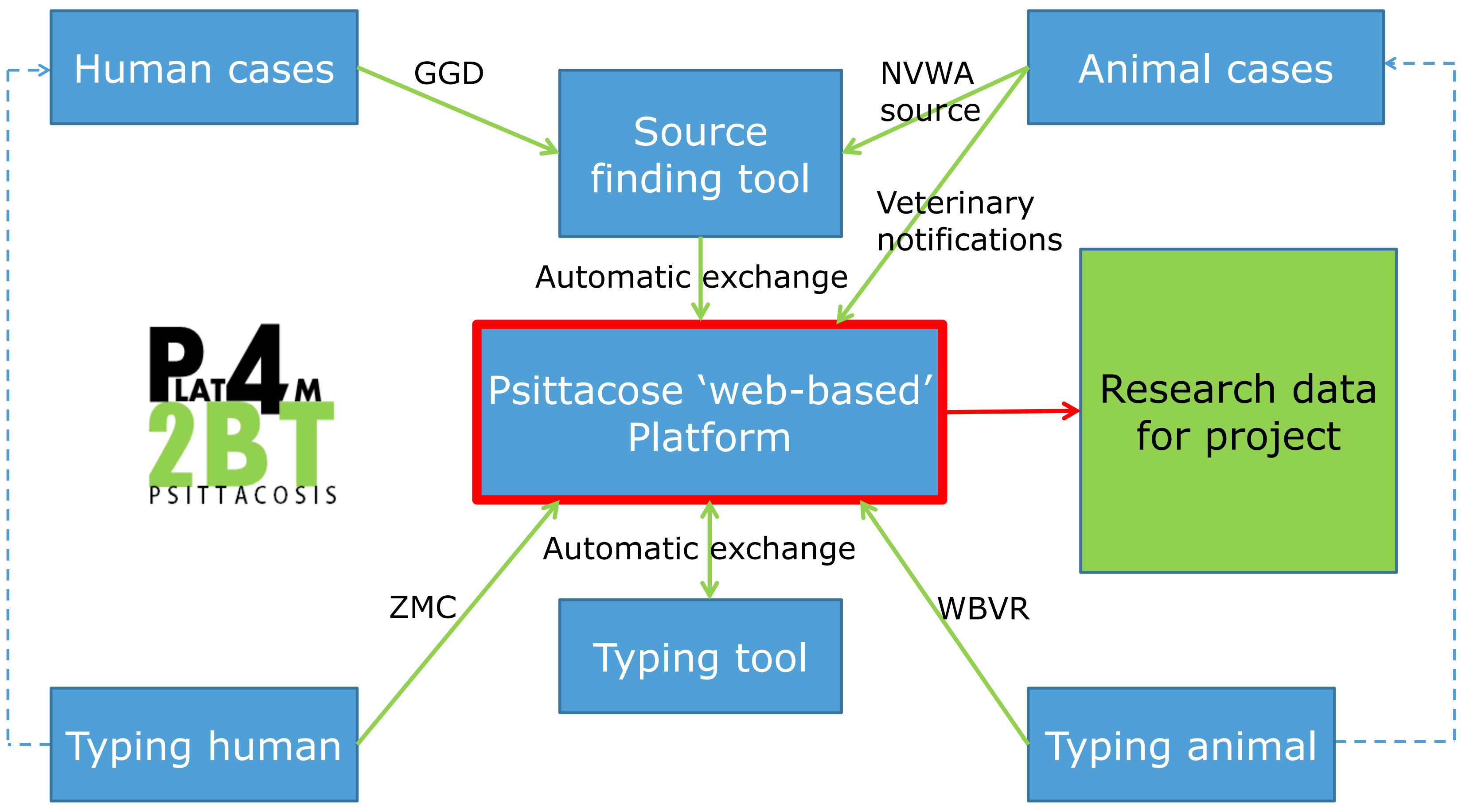
Figure 1. Summary of the Dutch Q fever outbreak.

Objective

Establishing a 'One Health' data exchange platform that connects human cases to animal sources via clinical, epidemiological and genotyping data for the underreported zoonotic disease psittacosis.

Methods

• identifying existing data and data sources of psittacosis • designing a web-based platform to incorporate all available data (Figure 2) • Designing an *OmpA* typing tool to facilitate genotype comparison of human- and animal *C. psittaci* isolates (Figure 2) • Overcome legal barriers on database use in relation to privacy legislation • Additional research was initiated to increase knowledge on the prevalence of *C. psittaci* in human and animals in the Netherlands.


Human cases

GGD

Source finding tool

NVWA source

Animal cases

Veterinary notifications

Automatic exchange

Psittacose 'web-based' Platform

Research data for project

Automatic exchange

ZMC

WBVR

Typing tool

Typing human

Typing animal

Figure 2. Overview of the integration of human and animal data in the web based platform to facilitate source identification of human psittacosis cases. GGD: municipal public health service; NVWA: Food Safety Authority; ZMC: Zuyderland Medical Centre; WBVR: Wageningen Bioveterinary Research.

Results & Conclusions

- A prototype web-based platform and typing tool was established including automatic exchange with existing databases.
- Legal issues on database use to meet privacy regulations were complex and demanding. This hampered the progress of platform use and the project. Special attention should be given to database legal issues.
- A first assessment of psittacosis in Dutch layer farms indicate that *C. psittaci* is not present on these farms.
- Exploratory spatial analysis of human psittacosis notifications in the Netherlands showed a large cluster that covered a highly poultry-dense area but also the presence of additional clusters in areas that had a low poultry density.

References & Acknowledgements

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For additional information visit:
http://www.wageningenur.nl/nl/show/Plat4m2Btpsittacose.htm