Presentation at BVA Congress
24 – 26 September 2009
Cardiff, UK

Potential public health effects of abandoning Tick and Tapeworm controls

Dilys Morgan

Health Protection Agency Centre for Infections

Regulation (EC) No998/2003

UK Pet Travel Scheme (PETS) introduced 2000

In July 2004, EU regulation for Pet Travel Scheme introduced for the non-commercial movement of pet animals (dogs, cats and ferrets) between EU Member States and territories and third listed countries

5 countries additional control measures (Sweden, Finland, RoI, Malta, UK)

Regulation (EC) No998/2003

European Commission (EC) recently reviewed regulations

Further temporary extension proposed

When derogation will expire ➔ full harmonisation

Unless there is a good case why not….

So why do we need to keep the controls???

Introduced primarily

To prevent:

Tapeworm *Echinococcus multilocularis*

Live ticks especially *Rhipicephalus sanguineus*

from entering and establishing in UK

Previous risk assessments

EC commissioned veterinary RA by EFSA:

Echinococcus Jan 2007 “Risk of dogs and cats to become infected with EM as final hosts in endemic areas is greater than negligible” …. “abandoning of additional measures will increase the risk of introducing the parasite into an area considered free of Em” (5 countries)

Ticks 2007: concluded insufficient evidence to inform full risk assessment (UK, RoI, Malta)

Previous risk assessments

Defra commissioned qualitative veterinary RA to provide evidence for EFSA

Taylor report published Aug 2006 and looked at

- Likelihood of importation
- Likelihood of establishment

of exotic diseases into UK

Previous risk assessments (2)

5 diseases considered high significance:

- Echinococcus multilocularis (Em)
- Babesiosis (*Babesia canis, gibsoni*)
- Dirofilariasis (*Dirofilaria immitis*)
- Leishmania (*L. infantum, donovani*)
- Ehrlichiosis (Ehlichia canis, E chaffensis, E ewingii)

Human risks = Echinococcus

Public health risks

Both focussed mainly on animal health consequences

HPA 2008

- Reviewed finding of previous risk assessments
- Extensive literature reviews
- If publications lacking, Expert consultation
- Evidence that UK is free of diseases
- Burden of disease in MS

Tickborne Infections Humans

If controls relaxed, three possible scenarios

Introduction infected tick from species found in UK➔ infection established in UK tick population

Introduction of novel tick with associated pathogen ➔tick +/or infection could become established in UK or one off seasonal outbreak

Novel tick without associated infection, may be able to established and then be potential vector if disease introduced

Tickborne Infections Humans

Tickborne encephalitis (TBE) virus

Main vector Ixodes ricinus

***Rickettsia conorii* (Mediterranean Spotted Fever)**

Main vector Rhipicephalus sanguineus

***Francisella tularensis* (Tularemia)**

Variety of vectors

TBE

Increasingly important international public health problem in Europe ↑ cases + range is extending

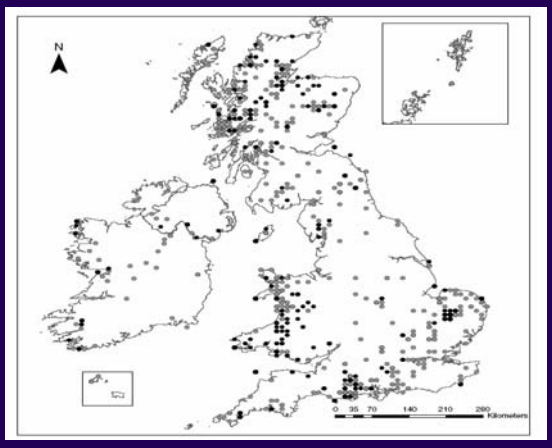
Serious manifestations age dependant, often long-term

Severe cases of TBE require an extended period of hospitalisation

Indigenously acquired TBE infection has not been recorded in the UK although the tick vector (primarily *Ixodes ricinus*) and wildlife host species are ubiquitous

Expert opinion varies as to could become established in UK, although risks may be increasing.

Ixodes ricinus



The tick is a reservoir and vector of a large number of pathogens and is widely distributed across the UK

Other pathogens of public health importance in Europe

- *Francisella tularensis* (Tularemia)
  - Range of ticks –once established trans other vectors
  - Increasing geographical range
  - OBs Spain=> Sweden/Finland
- *Rickettsia conorii* (Mediterranean Spotted Fever)
  - *Rh sanguineus*
  - *Increasing geographical range, moving North*
- Crimean-Congo haemorrhagic fever virus (CCHF)
- *Babesia microti* (Babesiosis)
- *Anaplasma phagocytophilum* (human anaplasmosis)

Tick-borne diseases

- Less known and documented
- Harder to quantify the risk
- However, if there is any potential risk difficult to justify abolishment of current public health measures
- Once introduced, very hard to control

One to avoid

Tapeworm Echinococcus multilocularis

Causes human alveolar echinococcosis

Tapeworm
Echinococcus multilocularis

Rare - one of the most pathogenic zoonoses

Can take 5-15 years to present - if untreated always fatal

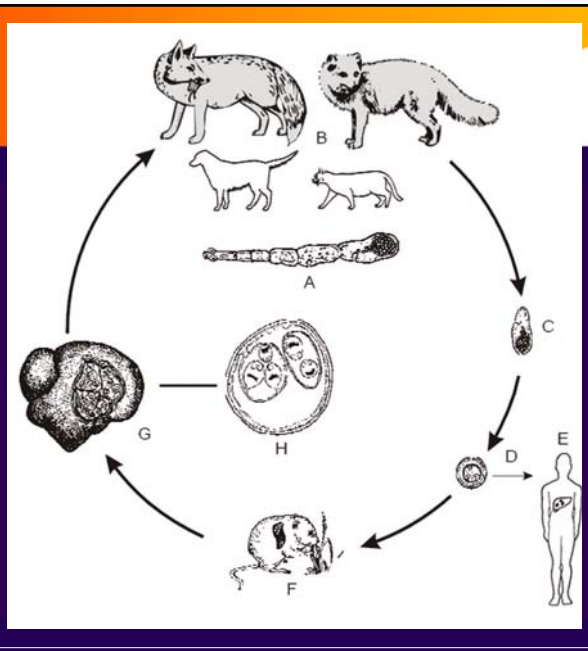
➔ malignant cyst formation around body (liver; lungs; brain)

Difficult to treat - surgery, and usually lifelong chemotherapy and medical follow-up

Estimated $6000-$1800 pa => $300K over lifetime

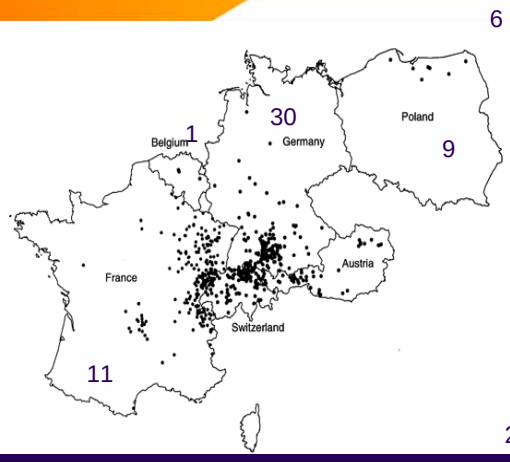
Majority cases require hospitalisation:

average 35 days + multiple stays



(A) Adult parasite. (B) Foxes principal definitive hosts; (dogs, other canids, and cats)
(C) Proglottid with eggs. (D) Egg with oncosphere. (E) Infection of humans. (F) Rodent infected with metacestodes. (G) Rodent liver with metacestodes. (H) single metacestode cyst with protoscoleces.

Last accurate data



- Based on 532 diagnoses from 1982 to 2000 from Echinococcus Registry
- Dots represent place of residence of 1-5 patients.

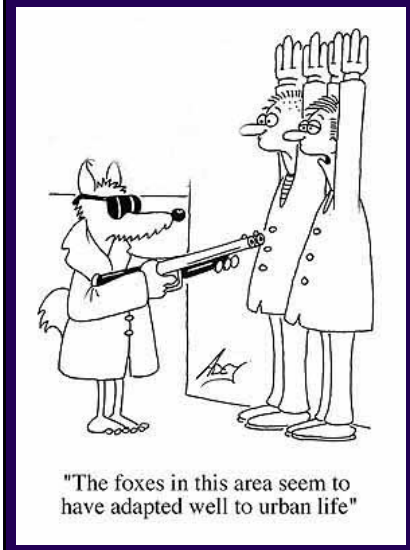
Why is UK at risk?

Em widely distributed across Europe in reservoir host red fox (Vulpes vulpes)

Parasite prevalence in foxes in Europe increasing and geographical range is extending

Increased incident rates in humans related to prevalence rates in foxes

Why is UK at risk? Urban foxes



"The foxes in this area seem to have adapted well to urban life"

UK has one of the highest urban fox density rates in Europe

Contamination by foxes of densely populated urban areas represents new risk

Risk to UK

If introduced by dog [and lesser risk from cats]:

Few ecological barriers

Preferred intermediate hosts present:

- field vole (Microtus agrestis) present in high densities and
- conservation strategies for protected species such as water vole (*Arvicola terrestris*) may increase risk

Could quickly lead to enzootic cycle of transmission and infection being established

Why retain tick and tapeworm controls?

Once introduced, very difficult to eradicate

Tick borne disease

Less convincing case

If there is any potential risk - difficult to justify abolishment of current public health measures

E multilocularis

Is not present in UK

Imperative that infection not introduced

Farmer killed by rabbit flu from animal he s

Daily Mail Reporter

an infection fou
Apparently it is n

RABID RODENTS HEADING HERE

INVASION OF THE KILLER CHIPMUNKS

FACT FILE

ANTHRAXED

Deadly microbe scare as drum-maker dies

Escaped vampire bats spark rabies alert

BRITAIN is under threat from a deadly invasion of rabid Venezuelan vampire bats.

The lethal blood-sucking creatures escaped from the hold of a cargo ship in Portsmouth on Friday.

A dock worker said: "It

Health Protection Agency

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INVASION OF THE KILLER CHIPMUNKS

FACT FILE