Practical Delivery - Poster Abstracts

Stopping TB Spread In England: From Evidence and Advice To An Action Plan

Delegates at the conference will have been able to see a presentation on the spread research project being undertaken by the AHVLA, Weybridge.
Parallel to this research, Defra has developing a policy with the aim of stopping TB spread at the edge. This has been seen as a key piece of our eradication programme, as without stopping the onward spread of TB, it will be very hard to eradicate the disease. The policy has gained input and support from stakeholders through the TBEAG (the English advisory group) and during the recent TB Strategy consultation.
This poster will cover the:
- Background to the policy
- Sources of evidence feeding into the policy (complementing but not repeating any presentation/poster by the AHVLA, Weybridge team)
- What we know about TB epidemiology at the edge – including graphs, prevalence and incidence data etc.
- Map of the edge area in England
- Measures to control TB in the edge, including testing changes, and the social changes, such as TB awareness and education meetings and the local Eradication groups

Post Syndrome In Swine: Anatomo Pathological Description of Some Forms of Bones Tuberculosis In Pigs
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Introduction
Potts disease is a presentation of extrapulmonary human tuberculosis observed in the spinal vertebrae. The lower thoracic and upper lumbar vertebrae are the areas of the spine most often affected. Spread is initially haematogenous to a vertebral body: it may then advance to a neighbouring joint cavity resulting in tuberculous arthritis. After the vertebral body collapse there is the formation of a paravertebral abscess. The abscess may compress the spinal cord causing paresis/paralysis.

Materials and methods
In 2013 and first half of 2014 during a domestic slaughtering survey 155 white pig carcasses were submitted for inspection.

Results
7 subjects (4.5%) presented diffuse areas of necrosis involving spinous processes and vertebral bodies
which appeared eroded. The lesions were mostly identified in the cervical, thoracic and lombar tract. In two cases we observed the destruction of the bone marrow and the consequent compression of the spinal cord. Numerous granuloma were found, also, on the visceral surface of the pleura with the involvement of the underlying ribs.

**Discussion/Conclusions**
In the author’s opinion no data are available in literature about this disease in swine. Epidemiological investigation were actuated to identify the cause of this high prevalence. Nobody received as food dairy milk products except for one case which is a farm that have had, also, positive TB cattle one year ago. This was, probably, the beginning of the outbreak. The owner sold the piglets of an infected sow. This showed that transmission of the bovine tuberculosis through milk could be possible.

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**Tuberculin Test Training Demonstration DVD**
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**Key words**
Bovine TB, Intradermal Tuberculin Test

The standard method for detection of bovine TB (bTB) in the live animal is the Tuberculin Test. This involves the intradermal injection of sterile Bovine purified protein derivative Tuberculin and the subsequent detection of swelling at the site of injection 72 hours later. This may be performed using Bovine Tuberculin alone, as in the Single Intradermal Test or as the Single Intradermal Comparative Tuberculin Test (SICTT) using Avian and Bovine tuberculins, as routinely applied in the Irish bTB Eradication Programme. The SICTT is used mainly to differentiate between animals infected with TB and those sensitised to Tuberculin due to exposure to other mycobacteria or related genera. The test involves the intradermal injection of Bovine Tuberculin and Avian Tuberculin into different sites usually on the same side of the neck and then measuring the response 72-hours later. The test when carried out correctly is highly reliable and has been assessed under Irish conditions as 90-98% sensitive and 99.95% specific. This reliability however is dependant on the proper intradermal injection of both tuberculins together with accurate recording and reporting of the clinical observations at the time of injection and with the accurate characterisation, measurement and comparison of the reactions 72 hours later. The purpose of this recording is to demonstrate the correct application of the SICTT in accordance with the following: EU Directive 64/432, W.H.O. manual of Diagnostic Tests and Vaccines for Terrestrial animals and the requirements under the Irish Bovine TB Eradication Programme.

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**Management Of Persistent Herd Breakdowns In Endemic TB Areas: Enhanced Investigations Using A Variety Of Tools and Collaborative Working Across Industry**
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**Keywords**
Enhanced investigation, epidemiology, collaborative working

**Introduction**
All herds suffering a TB breakdown are visited by government vets and epidemiological investigations are
conducted to determine the potential origin of infection, identify actions for case management and advise the farmer on best practice (including biosecurity) and requirements to eradicate infection from their herd.

**Materials and Methods**

A pilot study and the subsequent implementation of a policy of enhanced management of persistent herd breakdowns (those lasting more than 18 months or with continual re-infection), with specific reference to the breakdown herds investigated in the South West Region of England.

**Results and Discussion**

Persistent breakdown herds benefit from enhanced investigation and a variety of tools are available to use as part of this investigation in order to drive towards eradication of infection in that herd.

Tools include collaborative working across government agencies, with commercial organisations and private vets as well as charitable organisations.

Ancillary blood tests may be employed to enhance the sensitivity of the testing regime; biosecurity may be improved and other herd health factors are considered.

Support to the farmer in business continuity is an important consideration and allows adaptation of enterprises to encourage best practice for TB eradication.

This enhanced investigation will encourage best practice for protecting the herd against reinfection, and in the long term will reduce breakdown duration, and reducing the risk of disease spread.

The investigations will allow the identification of contributing factors, enabling targeted interventions in the drive towards eradication of bTB.

**Milk Yield and Reproductive Performance of Holstein Cows Seropositive For Tuberculosis**

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**Keywords**

Pregnancy per artificial insemination, tuberculin, services per pregnancy, milk production

Bovine tuberculosis is a grave, chronic and debilitating disease of dairy cattle. None of the studies done in the past have characterised the impact of this disease on productivity of cows; therefore, the aim of this research was to study if seropositivity for tuberculosis hampers reproductive performance and milk production in high-yielding Holstein cows. For this purpose, 1,044 healthy cows and 105 cows seropositive for tuberculosis were used. Seropositive cows were from various large commercial dairy operations. Cows that reacted to an intradermal injection of tuberculin, a purified protein derivative prepared from a culture of *M. bovis* were taken out from their barns and translated to an isolated new dairy facility. Cows with a proven 3-year freedom from infection were placed in the same barn as the seropositive cows, but in an isolated section and served as control animals. The reproductive performance of cows seropositive for tuberculosis was impaired; overall pregnancy per artificial insemination differed (P<0.05) between seropositive and healthy cows (16.9 vs. 20.7). Seropositive animals required 4.52 ± 2.94 services per pregnancy compared with 4.34 ± 2.72 for control cows. The intervals between calving and conception were similar between seropositive (154 ± 78 days) and seronegative animals (150 ± 77 days). Control cows tended (P=0.08) to produce more milk than seropositive cows over a 305-day lactation (10,684 ± 1,720 vs. 10,345 ± 1,736; 3 milkings per day, mean ± SD). It was concluded that seropositivity for tuberculosis exert a detrimental effect on both reproductive performance and milk yield.
EA Review Of The Efficacy and Cost Effectiveness Of Applying Badger Control Fencing Around An Area Within A 4,500 Acre Estate In A Hotspot Area for Bovine Tuberculosis in Protecting From Further Reactor Disclosure At Comparative Intradermal Skin Test for *Mycobacterium bovis*

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An organic farm in Staffordshire grazing 3000 ewes, 150 hinds and 400 cattle lies on 4,500 acres accessed by wild deer and showing badger activity has suffered bovine Tuberculosis (bTB) disclosed by single intradermal comparative cervical test (SICCT) and confirmed in many cases by visible lesions (VL) at post mortem over recent years, with 53 reactors in the past 2 years.

Since badgers (*Meles meles*) are acknowledged to make significant contribution to bTB in cattle (Borne and others 2007) the housing and feed store (Cote) was contained by badger fencing. A second area (Longshaw), housing cattle was not. The cost was £10,000.

Badger exclusion measures can be 100% effective if appropriately maintained (Judge 2011). Thus an investigation over a fourteen day period studied the presence of badger activity within and outside the protected area, repeated at Longshaw.

Results demonstrated badger activity in the vicinity of both Cote and Longshaw. No badgers were seen within the protected area, whereas there were 2 incidents of badgers roaming up to the cattle housing at Longshaw.

Whilst it is concluded by Defra that 6% of new cases of bTB in cattle are likely to be derived directly from badgers, amplification within the cattle population indirectly implies involvement in 50% of cases of bTB in cattle. Also bTB in cattle may be eliminated if exposure to infected badgers were prevented (Donnelly and Hone 2010). Based on the last 2 years breakdowns, it is likely that such measures will be economically viable here.

References

Donnelly, C.A., Hone, J. (2010) Is there an association between levels of bovine TB in cattle herds and badgers? Statistical communications in Infectious Diseases


Effectiveness Of 100mm Netting In Preventing Badger Ingress To Cattle Habitation

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Keywords
bTB, cluster, welfare, severity

During the in-depth exploration of the epidemiology of bTB in the East Monmouthshire cluster, a key issue identified was the role of welfare cases. East Monmouthshire, a defined area in South East Wales, is a bTB endemic area. A number of herds with bTB incidents also have a history of cattle welfare problems. The
aim of this presentation is to investigate whether the severity of bTB incidents is correlated with poor cattle welfare.

Bovine TB and welfare data was obtained from the national TB database and local intelligence. Herds were categorised on the nature and extent of the welfare findings and bTB incident. The incident data for welfare cases was compared, by herd type (beef/dairy) and herd size, to the overall incident data for East Monmouthshire.

Of the six herds identified with concurrent bTB incidents and welfare concerns, five herds had incidents longer in duration and four had incidents with more cattle disclosed by bTB testing than the mean and median figure for the same herd type and size in East Monmouthshire, with a predominance of beef herds affected in this way.

Whilst the number of incidents investigated was small, the information implies an association between the standard of cattle welfare and severity of bTB incidents. Further details of the interpretation and direction of this association will be available in poster format at the conference.