The comparative tuberculin test – are we overcorrecting?

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In the comparative skin test used in Britain & Ireland, separate injections of 0.1 ml bovine and avian tuberculin (protein extracts of mycobacterial cultures) are made in the dermis of the neck. The reaction to these allergens is measured as an increase in skinfold thickness (mm) after 72 hours.

In the [single intradermal cervical] **comparative tuberculin test** (SICCT test), the increase with avian tuberculin is subtracted from the increase with bovine tuberculin. This is intended to compensate for reactions to "environmental" mycobacteria, believed to react with both bovine and avian tuberculin

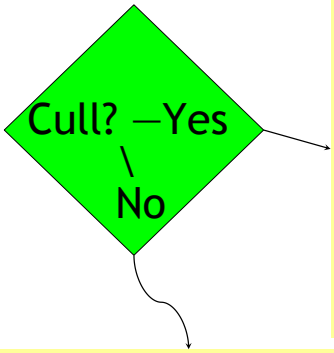
The size of the difference between bovine & avian reactions is generally the criterion for culling "reactors"

In *reactors*, the reaction to bovine tuberculin is greater than that to avian tuberculin by >2 or >4 mm, requiring a statutory cull with compensation.

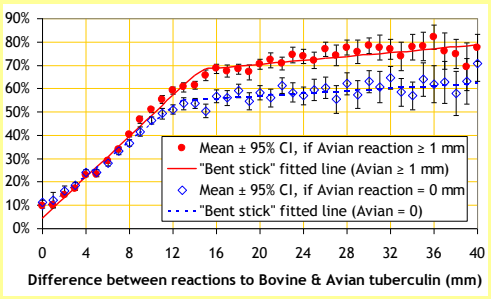
>2 mm is "severe" interpretation, used when there is post-mortem evidence of infection – this increases sensitivity at the expense of specificity

"Dangerous Contacts" are culled without any reaction to tuberculin, thus contributing data for zero differences in the graph on the right

Note that animals with avian reactions ≥1 mm have greater post-mortem evidence of infection: does this mean increased specificity and lower sensitivity?

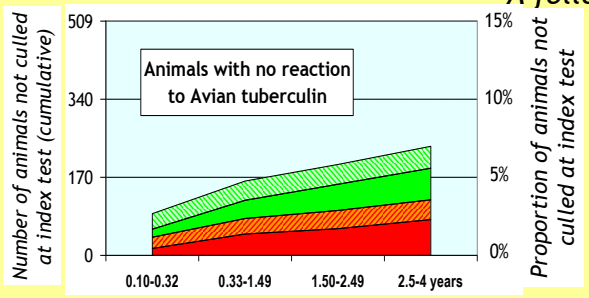


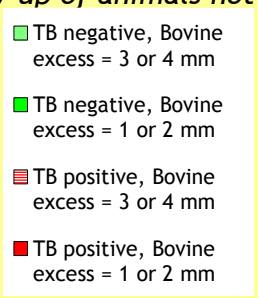
Proportion of animals with post-mortem evidence of infection: Avian reaction ≥ 1 mm *vs* no avian reaction

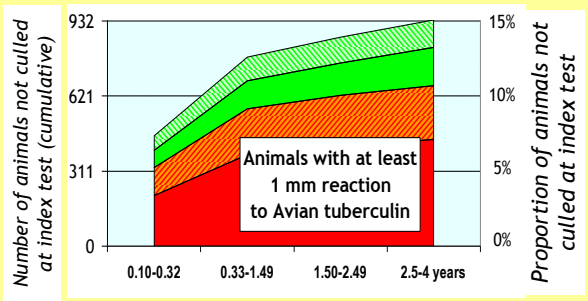


Does having an avian reaction in "passed" tests increase the risk of TB in future?

A follow-up of animals not culled





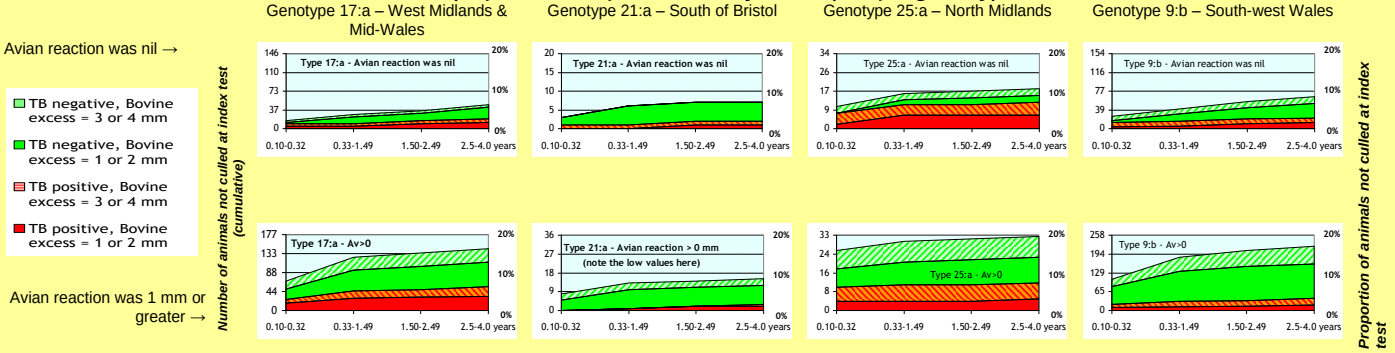


In the follow-up, **animals with a reaction to avian tuberculin at the index (first) test** that were **not culled then** were **twice as likely to be removed for TB control in the next 4 years** and three times as likely to have post-mortem evidence of TB than animals with no reaction to avian

(The number of animals disclosed after 0.33 years is likely to be underestimates of future TB, because animals may be commercially slaughtered before TB being detected. Many fattening cattle are never tested (Mitchell *el al* 2005) and the sensitivity of routine slaughterhouse inspection is low (Defra Project SE 3230: Conlan *et al*, in press)

The avian reaction at the "passed" test increases the risk for most genotypes of *M bovis*

Follow-ups for areas of the country with specific genotypes



Proportion of unculled animals with bovine reactions having avian ≥1 mm	**54.7%**	**64.4%**	**48.9%**	**62.6%**
Comment	**The type most frequent in Gloucestershire, now the county with the highest prevalence**	**Local AHVLA office is aware that animals with avian reactions are at increased risk of bTB**	**Animals in Type 25:a areas that "pass" the test seem to be the most likely to go down later**	**The pattern for Type 9:b areas resembled that for Type 17:a, to which 9:b it may be related**

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