



European Food Safety Authority

**Animal health and welfare surveillance  
during meat inspection:  
*EFSA perspectives***

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## Risk assessment

## Risk management

Provide objective information  
*(to assist with informed policy-making)*

Scientific  
information

Policy decision-  
making



- To minimise public health hazards
- To contribute to animal health and welfare surveillance
- To address meat quality concerns

## The purpose of AHAW surveillance:

### • Early detection

- *Requires high coverage and continuous investigation*
- *For epidemic diseases, eg FMD (UK 2001)*

### • Case-finding

- *Value of meat inspection may be limited, given biased nature of slaughter population*
- *May trigger a response, if regulated condition*
- *For welfare conditions, such as broken bones, joint abscesses etc*

### • Estimating prevalence

- *Value of meat inspection may be limited, unless population of interest is the slaughter population*
- *Used with respiratory disease, to monitor farm performance*



*Meat inspection*

The quality of AHAW surveillance is measurable:

- Early detection (*sensitivity ... probability of detection*)
- Case-finding (*detection fraction*)
- Estimating prevalence (*assessing precision [random error] and bias [systematic error]*)



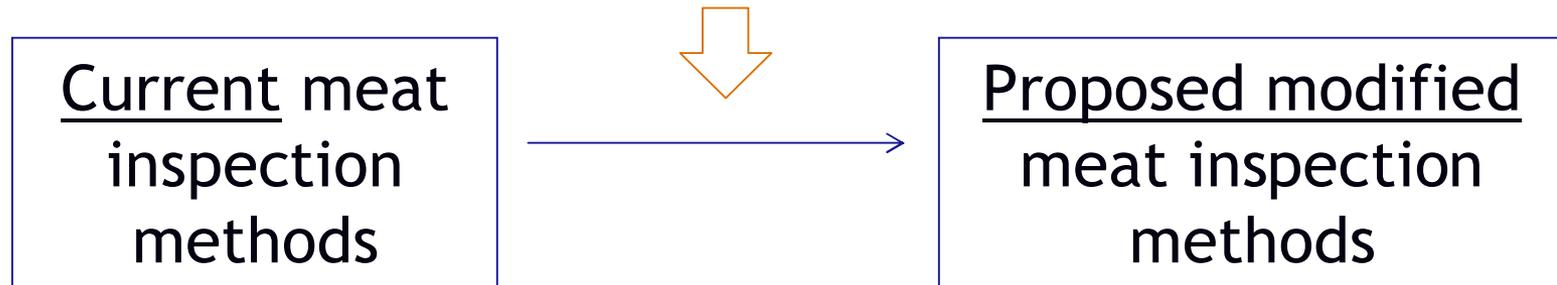
*Meat inspection*



*Tuberculin testing*

The overall surveillance system can include several *surveillance system components (SCCs)*

*Proposed changes in the  
light of public health risks  
[BIOHAZ, CONTAM]*



*Given the need for equivalent achievement of objectives, what are the implications for:*

- Surveillance and monitoring of animal health and welfare, and*
- (Individual) animal health and welfare.*

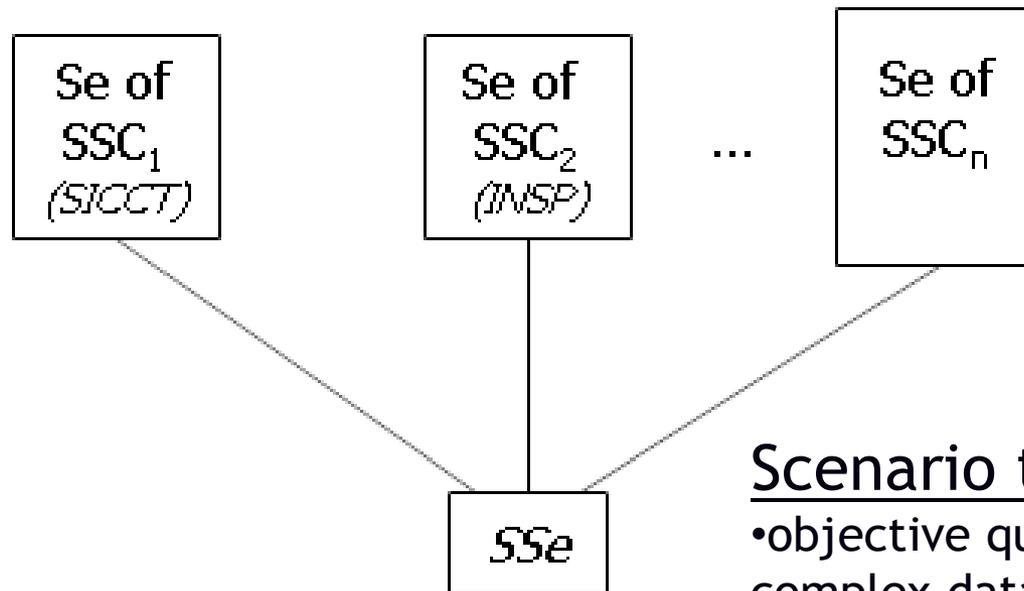
Current meat  
inspection  
methods



Proposed modified  
meat inspection  
methods

Surveillance quality  
(*current vs proposed modified*)

- a. For meat inspection only
- b. For the overall surveillance system (*meat inspection, all other surveillance system components*)



## Scenario tree methodology

- objective quantitative analysis of multiple complex data sources
- Use of stochastic modelling to represent each SCC, and the overall system

Literature review

Expert opinion

Surveillance data can only be used for decision-making if:

- *available, and*
- *used to improve the health and welfare of animal populations*

These issues were beyond the scope of this opinion.

- Proposed shortened duration of transport and lairage
  - Minimal (negative) impact
- Proposed removal of palpation and incision from *post-mortem inspection*
  - ... *see following*
- Proposed risk categorisation of pigs and abattoirs
  - Differential approach, based on public health risks

- *Proposed removal of palpation*
  - Reduced detection probability for conditions that change organ consistency
    - *Subacute toxic liver damage, interstitial pneumonia*
- *Proposed removal of incision*
  - Reduced detection probability for lesions of small-medium size within organs (normal shape, regular form)
  - *Endocarditis, lung/liver abscess, granulomas, cysticercosis, lung alveolar oedema*

- There will be some reduction in detection probability with a shift from the current to the proposed modified (*visual only*) systems of pig meat inspection. *The magnitude of this reduction will vary, depending on the disease/condition.*
- Neither the current nor proposed (visual only) systems are effective in detecting all abnormalities.

Proposed adaptations (to address public health hazards) are only now being finalised.

*Implications for AHAW surveillance are currently under review.*

## Exotic diseases (avian influenza) ... *detection probability*

Surveillance systems component (SSCs)	Detection probability		
	Animal level	Batch-level	
		Batch size:	Batch size:
		30,000 birds	
Abattoir inspection (SSC1)			1.0
Clinical suspicion			1.0
Serology (SSC3)	0.0243	1.0	1.0
Combined	0.0361	1.0	1.0

A range of different (*and effective*) surveillance methods (components) are

available

## Endemic diseases & welfare conditions ... *detection fraction*

Disease/welfare condition	Detection fraction			Relative benefit SSC1 over SSC2
	Individual surveillance	Meat inspection	Combined	
Aspergillosis	1.0	0.902	0.0	0.049
Colisepticaemia	0.849	0.021	0.003	0.0
IBD				0.038
Ascites				0.831

For some diseases and conditions, the relative contribution of meat inspection to AHAW surveillance is very high

Assuming batch size = 10,000 birds and, coverage = 100% for each surveillance component

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