



EFSA's scientific report on epidemiological indicators for meat inspection of swine

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Outline of the presentation

- Request for the technical assistance related to meat inspection mandate
- EFSA's report on epidemiological indicators for meat inspection of swine
 - Approach taken
 - Indicators proposed
- Progress with the meat inspection mandate
 - other animal species

Meat inspection mandate from Commission – Technical assistance (Annex 2)

Terms of reference (ToRs):

- Define harmonised epidemiological criteria (e.g. prevalence, status of infection, production systems) for **specific hazards already covered by current meat inspection** (trichinellosis, tuberculosis, cysticercosis, ...) and for possible additional **hazards identified in a scientific opinion** on the hazards to be covered by inspection of meat (see Annex 1), which can be used **to consider adaptations of meat inspection methodology**.
- Provide a summary of comparable data from Member States based on the above defined harmonised epidemiological criteria, if existing, e.g. from ongoing monitoring in humans, food or animals.
- Recommend methodologies and minimum monitoring/inspection requirements to provide comparable data on such harmonised epidemiological criteria, in particular if comparable data are missing.

Key definitions and decisions made within the mandate

- To use term “**indicators**” instead of “criteria” and to cover only biological hazards
- **Harmonised epidemiological indicator (HEI) =** prevalence or incidence of the (biological) hazard at a certain stage of food chain or an indirect measure of the hazards (such as audits of farms) that correlates to a human health risk caused by the hazard
- **HEIs** to be compatible with the new meat inspection methods proposed by the EFSA opinion
- **HEIs** were prepared by EFSA’s Expert Working Group in close collaboration with Biological Hazard panel and its Working Group

Selection of the epidemiological indicators

- The HEIs were selected through harmonised approach, which included
 - Listing the most important risk factors related to the hazard throughout the entire meat chain (farm to fork)
 - Identifying the possible indicators for public health and for changes in meat inspection
 - Evaluating the possible indicators based on their quality, appropriateness, data availability and feasibility and using a scoring system
 - the most appropriate indicators (HEIs) selected for each hazard

Hazards covered by the epidemiological indicators (HEIs) for pigs

- Hazards: *Salmonella*, *Yersinia*, *Toxoplasma*, *Trichinella*, *Cysticercus*, *Mycobacteria*
- HEIs proposed include
 - Prevalence of the hazard in animal populations or on carcasses
 - Auditing of farms (controlled housing conditions) or animal transfer or slaughterhouse conditions
- A set of epidemiological indicators suggested for each hazard
- The indicators can be used by risk managers for different purposes, alone or in combinations, at national, regional or at herd/ farm level



The foreseen use of epidemiological indicators (HEIs)

- The information from the epidemiological indicators (HEIs) may be used by the Commission and Member States to
 - consider if adaptations in current meat inspection methods may be applied (e.g. use in risk analyses);
 - help to categorise farms/ slaughter batches/ slaughterhouses according to risk related to a particular hazard in the proposed new pork safety assurance framework; and
 - set targets for final chilled carcasses as foreseen in the proposed new pork safety assurance framework.
- By combining information from different HEIs the influence of transport/lairage or slaughter process on the hazard carriage / carcass contamination may be assessed

Epidemiological indicators – *Salmonella* - pigs

Hazard: *Salmonella*

Indicators (HEIs) (animal/ food category/other)	Food chain stage	Analytical / diagnostic method	Specimen
HEI 1 <i>Salmonella</i> in breeding pigs	farm	Microbiology- serotyping	Pooled faeces
HEI 2 <i>Salmonella</i> in fattening pigs prior to slaughter	farm	Microbiology - serotyping	Pooled faeces
HEI 3 Controlled housing conditions at farms (breeding and fattening pigs)	farm	auditing	
HEI 4 Transport and lairage conditions (both breeding and fattening pigs)		Auditing	Time, mixing
HEI 5 <i>Salmonella</i> in fattening pigs – in coming to slaughter process (evisceration)	Slaughterhouse	Microbiology- serotyping	ileal contents
HEI 6 <i>Salmonella</i> in fattening pigs –carcass after slaughter process prior to chilling	Slaughterhouse	Microbiology - serotyping	Carcass swab
HEI 7 <i>Salmonella</i> in fattening pigs –carcass after slaughter process and chilling	Slaughterhouse	Microbiology - serotyping	Carcass swab

Epidemiological indicators – *Yersinia*, mycobacteria - pigs

Hazard: *Yersinia* – lack of information on risk factors

Indicators (animal/ food category/other)	Food chain stage	Analytical method	Specimen
HEI 1 <i>Y. enterocolitica</i> in fattening pigs - incoming to slaughter (evisceration)	Slaughterhouse	Microbiology (detection - biotyping)	Tonsils or faeces
HEI 2 Slaughter method- separation of head	Slaughterhouse	Auditing	
HEI 3 <i>Y. enterocolitica</i> in fattening pigs – carcasses after slaughter process prior to chilling	Slaughterhouse	Microbiology (detection - biotyping)	Carcass swab
HEI 4 <i>Y. enterocolitica</i> in fattening pigs – carcass after slaughter process and chilling	Slaughterhouse	Microbiology (detection - biotyping)	

Hazard: *Mycobacterium*

Indicators (animal/ food category/other)	Food chain stage	Analytical method	Specimen
HEI 1 Human pathogenic mycobacteria in pigs at slaughter	Slaughterhouse	Visual meat inspection + Microbiology	Suspected lesions

Epidemiological indicators for *Toxoplasma* and *Cysticercus* - pigs

Hazard: *Toxoplasma*

Indicators (HEIs) (animal/ food category/other)	Food chain stage	Analytical diagnostic method	Specimen
HEI 1 Farms with officially recognised controlled housing conditions (including control of cats and boots)	farm	auditing	
HEI 2. <i>Toxoplasma</i> in breeding pigs from officially recognised controlled housing conditions	slaughterhouse	serology	blood
HEI 3. <i>Toxoplasma</i> in all pigs from non-officially recognised controlled housing conditions	slaughterhouse	serology	blood

Hazard: *Cysticercus*

Indicators (HEIs) (animal/ food category/other)	Food chain stage	Analytical diagnostic method	Specimen
HEI 1 <i>Cysticercus</i> in all pigs (both fattening and breeding pigs)	slaughterhouse	Visual meat inspection + PCR	meat

Epidemiological indicators – *Trichinella* - pigs

High risk pig populations and wildlife targeted

Hazard: *Trichinella* in pigs

Indicators (HEIs) (animal/ food category/other)	Food chain stage	Analytical diagnostic method	Specimen
HEI 1 <i>Trichinella</i> in free-range and backyard pigs (both fattening and breeding pigs)	slaughterhouse	digestion	meat
HEI 2 <i>Trichinella</i> in pigs from non-officially recognised controlled housing conditions (both fattening and breeding pigs)	slaughterhouse	digestion	meat
HEI 3 Farms with officially recognised controlled housing conditions and <i>Trichinella</i> free status	farm	auditing	
HEI 4 <i>Trichinella</i> in wildlife: wild boar, bears, raccoon dogs, foxes, jackal, wolf, lynx etc.	environment	digestion	meat

Progress made with HEIs for the other animal species

- The same approach as for pigs will be applied for the other animal species covered by the meat inspection mandate
- The reports on HEIs to be published at the same time as the relevant opinions
- Working group (WG) on poultry started in June 2011
- WG on bovine animals will start in January 2012
- WGs on small ruminants, farmed game and solipeds to be established in 2012



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**Thank you for
your attention !**

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