# From traditional to visual-only inspection in Denmark

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#### Introduction and aims

#### The EU Meat Inspection Regulation 854/2004

- Allowed use of risk assessments, when considering to change meat inspection
- For young calves and finishing pigs, raised indoors
  - For pigs, indoors meant under controlled housing conditions as specified in the EU Trichinella Regulation

#### In Denmark, it was decided to look at pigs

- Phase 1: Assessing the effect of visual-only inspection (VOI)
  - Using risk assessments
  - Only for finishing pigs raised under controlled housing conditions
- Phase 2: Slaughtered pigs with lesions indicating prior septicaemia,
  - Assessing the microbiological burden and effect of de-boning

## Objective, materials and methods

# To illustrate what the effect would be of changing inspection to VOI

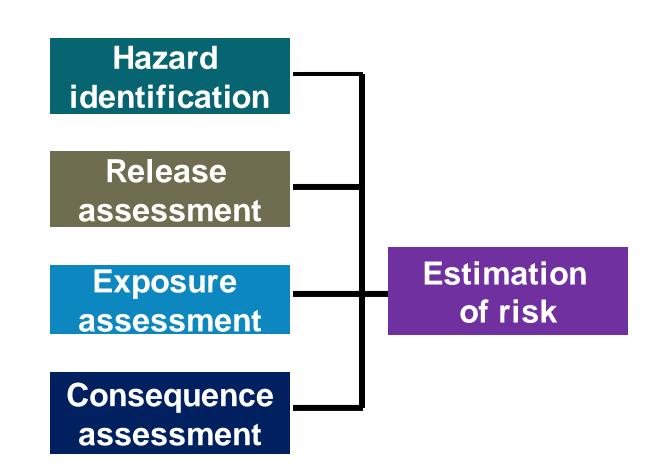
- Cut-by-cut, palpation-by-palpation
- OIE approach to risk assessment

#### Up-to-date in-country data used

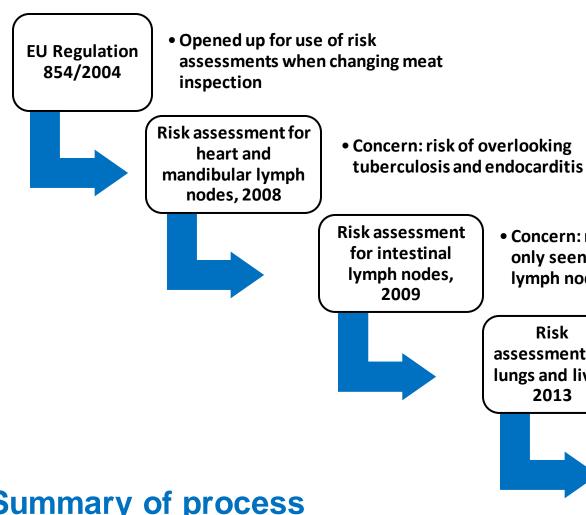
- Danish meat inspection database
- Own collection of samples taken during inspection/slaughter
- Worldwide literature
- Expert opinion

#### Collaboration

Academia-Authority-Industry







Concern: risk of overlooking

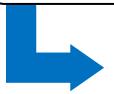
• Concern: risk of overlooking disease only seen in intestines and their lymph nodes

Risk assessment for lungs and liver, 2013

• Concern: risk of overlooking septicaemia resulting in embolic pneumonia and liver abscesses



• Concern: meat from pigs with lesions indicative of prior septicaemia may harbour high microbiological burden



**Effect of de-boning** pigs and sows with lesions indicative of prior septicaemia, 2014-2020

Concern: overlooking osteomyelitis unless carcass is de-boned

**Summary of process** in Denmark in pigs 2004-2020

### Results – in general

#### Finishing pig have few lesions of importance to food safety

- In DK, seriously ill pigs are euthanised on-farm due to animal welfare control
- The body is clearing itself after an infection
- Very low count of bacteria in muscles also found occasionally in healthy controls

#### In most cases, lesions are macroscopically observable

- Except from endocarditis and small abscesses in lymph nodes
- Embolia in lungs may be overlooked, if few and only located deep in the tissue

#### Bacteria involved are usually not foodborne, but considered occupational hazards

- May cause infections in existing wounds in humans
- Lungs not considered edible tissue



**Tail bite** 

Infection

Septicaemia

Clearing of infection from body

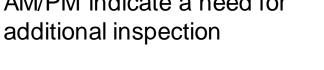
#### Results - VOI

#### The approach led to a gradual implementation of VOI

#### For indoor finishing pigs, routine incisions/palpation were abandoned

- 1. Mandibular lymph nodes
- 2. Heart
- 3. Intestinal lymph nodes
- 4. Liver
- 5. Lungs

Unless data/findings during AM/PM indicate a need for



#### Experience was gained regarding how to modify the slaughter line

- Enabling inspection of plucks hanging over intestines
- Mirrors and lights to ensure inspection and documentation



# Results - Suspicion of septicaemia

#### Presence of lesions indicative of septicaemia needs careful evaluation

 In Denmark, so-called "pyaemia" investigation undertaken in the rework area

Acute cases → Total condemnation

Chronic cases → De-boning

#### Studies of septicaemia provided evidence

- Low microbiological burden of carcass
- Targeted cutting will ensure that osteomyelitis cases will be detected
- Hereby abscesses are removed

Deep cut along femur Seperation of tenderloin from spine Inspection of entire spine Inspection of ribs, sternum and costochondral junctions Deep cut along shoulder

Changed to targeted cutting due to our work

#### Conclusion

#### Today, VOI in place for finishing pigs

 Traditional inspection in place for outdoorreared pigs, slaughtered on export-abattoirs

#### **Changes implemented gradually**

 As acceptance of equivalence was obtained from important trade partners

=> People involved in meat inspection became accustomed to VOI

#### Pyaemia investigation updated

Handling of prior septicaemia was updated
from de-boning to targeted cutting

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Review



Modernising meat inspection of pigs – A review of the Danish process from 2006-2020

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If you want to know more, please read our paper

Thank you for your attention