

DTU



# Danish *Campylobacter* Action Plan

**- broilers, food & environment**

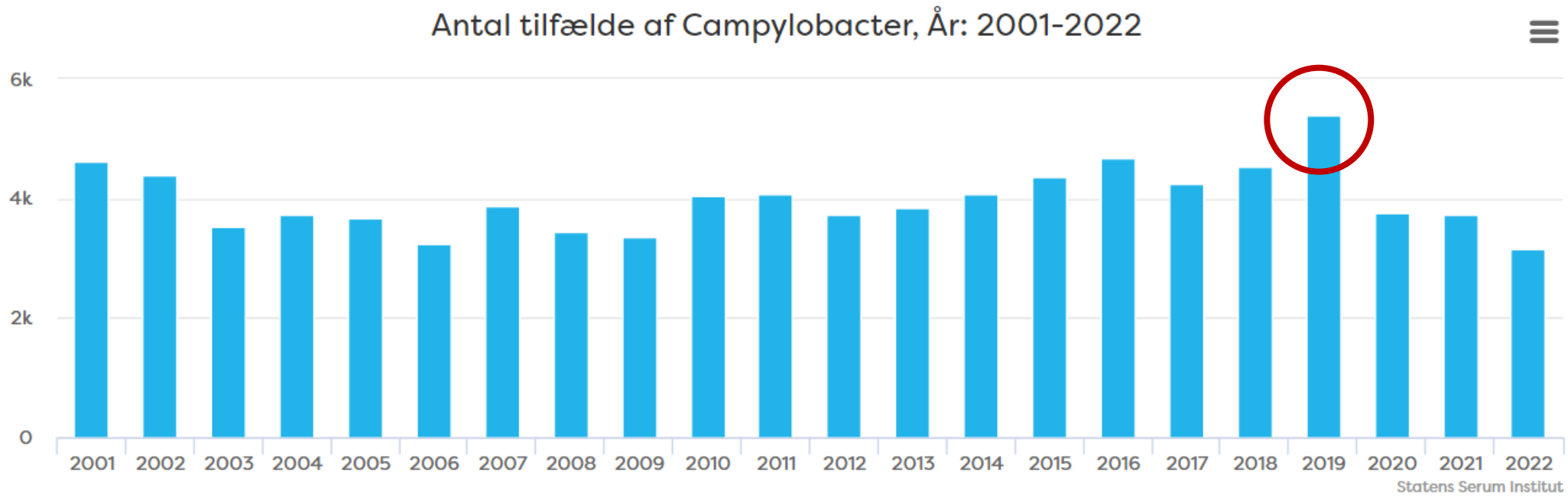
Senior researcher, Annette Nygaard Jensen  
National Food Institute, Technical University of Denmark,  
Research Group for Food Microbiology and Hygiene

# Background – Campylobacter in Denmark

Most frequent cause of foodborne infections in Denmark

2019: **5389 cases** - peak due to **outbreak caused by chicken meat**

2020-2021: Drop probably related to covid - less travel activity and focus on hygiene



<https://statistik.ssi.dk//sygdomsdata#!/?sygdomskode=CAMP&xaxis=Aar&show=Graph&datatype=Laboratory>

# Danish Campylobacter Action Plans...

Since 2003.....

Strategy for controlling campylobacter in broiler flocks and on meat at slaughterhouse

## Development of action plans:

Collaboration between

- authorities (Danish Veterinary and Food Administration - DVFA),
- relevant industry
- National Food Institute, Technical University of Denmark (DTU)



## Organisation:

- Steering group  
&
- Working group



# Danish Campylobacter Action Plans...

1<sup>st</sup> 2008-2012

Action plan for Campylobacters in broilers

2<sup>nd</sup> 2013-2016

Action plan for Campylobacter present in broilers, foods and the surrounding environment

3<sup>rd</sup> 2018-2021

Action plan for Campylobacter present in broilers, foods and the surrounding environment

4<sup>th</sup> 2022-2026

**Action plan for Campylobacter in broilers, foods and in the environment**



# Danish Campylobacter Action Plan 2022-2026

## Aim:

- Reducing the risk of human infections from Campylobacter in chicken meat
  - estimated based on 'Relative Risk' model  
(updated and specific for individual slaughterhouses)
- Number of positive broiler flocs remains at the level from 2020  
(*despite an increase in production forms with high risk of campylobacter (outdoor)*)
  - i.e.

Conventional	< 15%
Outdoor	< 65%
- & Overall reduction within a five-year period

# Danish Campylobacter Action Plan 2022-2026

## - implementation plan

### Bilag 1. Implementeringsplan

Nr.	Afsnit	Indsats	Beskrivelse	Ansvarlig	Periode	Status	Bemærkninger
1	4.	Mål	Evaluere antallet og størrelsen af sygdomsudbrud relateret til kyllingekød som et potentielt mål for sygdom relateret til kyllingekød.	FVST	2023-2024		
2	4.1	Mål	Udarbejdelse af ny baseline for den relative risiko og fastsættelse af mål for de enkelte slagterier.	FVST, DTU	2022		
3	5.1	Evaluering og tilpasning af overvågning i slagtekyllingeproduktion	Evaluere den nuværende overvågning af campylobacter i produktionen af slagtekyllinger og evt. tilpasse overvågningen, herunder i forhold til valg af prøvetype, udtagingssted og størrelse af stikprøve.	FVST	2022		
4	5.2	Overvågning af kyllingekød i detail	Fortsætte og tilpasse den nuværende overvågning af campylobacter i detailledet og offentliggøre resultaterne på Fødevarestyrelsens hjemmeside.	FVST	2022-2026		
5	6.1	Deling af data samt øget brug og optimering af sekvensbaseret typning	Fastlægge hvordan sekvensbaseret typning kan bruges i større omfang til at afdække problemer på slagterier og i besætninger samt til at opspore smitekilder, i det omfang det er økonomisk realistisk.	FVST	2022-2025		
6	6.1	Deling af data samt øget brug og optimering af sekvensbaseret typning	Afdække hvilke data, der kan deles mellem fjerkræslagterier og myndigheder for at få iværksat en hurtig smitteopsporing, og hvordan dette kan foregå.	FVST	2023-2025		
7	6.1	Deling af data samt øget brug og optimering af sekvensbaseret typning	Arbejde for at udvikle en billigere og hurtigere metode til typning af campylobacter. Metoden skal bidrage til en mere finmasket overvågning, en hurtigere opfølgning ved sygdomsudbrud og til at genere realtime data på slagterier for at tilpasse indsatser over for campylobacter.	FVST	2024-2025		

16	7.1.3	Indsats ift. at motivere besættningsejere	Evaluere og vurdere effekten af incitaments-ordninger på slagterierne, herunder økonomiske ordninger.	Branchen	2022-2023		
17	7.2	Indsats på slagterier	Gøre måleredskabet for målopfølgelse (den relative risiko, RR) mere anvendelig som støtteværktøj for slagterierne.	FVST	2022-2023		
18	7.2	Indsats på slagterier	Fortsætte anvendelse af det udarbejdede materiale for kritiske procestrin på store og små slagterier samt løbende evaluere og vurdere, om slagteprocessen kan optimeres for de identificerede kritiske procestrin.	Branchen	2022-2026		
19	7.2	Indsats på slagterier	Evaluere og evt. implementere tiltag, der kan modvirke overførsel og spredning af campylobacter.	FVST, branchen	2022-2023		

29	10.	Forbrugeroplysning	Udsende information via bl.a. sociale medier for at gøre forbrugeren mere bevidst om campylobacter samt oplyse om forholdsregler for at undgå sygdom pga. campylobacter.	FVST	2022-2026		
30	13.	Evaluering af indsatser	Løbende evaluering af indsatser og en afsluttende evaluering af de samlede indsatser.	FVST	2023-2026		

# Surveillance in broiler production



## Surveillance scheme:

- Cloacal swabs from each flocks representing the farm/house level
- Tight skin samples from random selected flocks representing the slaughterhouse hygiene
- Neck skin samples from random number of flocks representing slaughter hygiene

## Activities in the new action plan:

- Evaluate and eventually adjust surveillance (type of sample, sampling site and size)
- Surveillance of Danish and imported chicken meat in retail  
continue and adjust current surveillance – develop model for publishing results on DVFA website



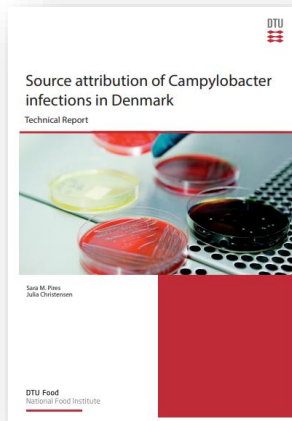
# Source attribution:

## Sharing of data & increased and optimized use of sequence based typing:

- Determine if sequence based typing (WGS) can contribute to resolve Campylobacter problems in herds, slaughterhouse as well as source attribution
- Clarify which data can and should be shared between slaughterhouses and authorities to promote faster source attribution
- Development of cheaper and faster methods for typing

## Source attribution of Campylobacter infections and clarification of other sources:

- Repeat the source attribution assessment with focus on poultry and assess potential inclusion of alternative sources
- Study genetic data to elucidate contamination between broilers and cattle (direction)



# Danish Campylobacter Action Plan 2022-2026

## - Continued efforts to prevent Campylobacter in broiler production:

### - In herds:

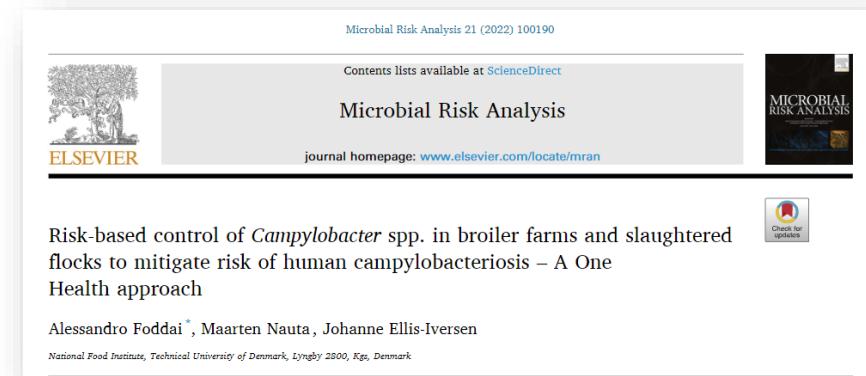
- develop best practice for partitioned slaughter

### - In 'problematic' herds:

- identify high risk herds – and use that information more actively in the control (Foddai et al. 2020)
- and clarify interventions to control Campylobacter for each type of high risk herd

### - In outdoor flocks

- implement interventions targeting the intestinal level of Campylobacter (SafeChicken 2022-2024)
- optimize biosecurity, management and maintenance of facilities



# Danish Campylobacter Action Plan 2022-2026

## - Continued efforts to prevent Campylobacter in broiler production:

### - Motivation of herd owners

- information showing how positive flocks affect human infections
- easier access to the 'Campylobacter history/development' in herds (app)
- evaluating effect of economic incentives

### - Efforts at slaughterhouse

- 'relative risk' model is a useful tool to follow the risk reduction in each of the four largest slaughter houses individually
- focus on 'critical process steps' (optimization?)
- assess and implement means to prevent spread
- assess and implement means to reduce the Campylobacter level (SafeChicken 2021-2024)
- guidance document on hygiene related to farm sale



# Danish Campylobacter Action Plan 2022-2026

## - Continued efforts to prevent Campylobacter in broiler production:



**Ministry of Food, Agriculture  
and Fisheries of Denmark**

Danish Veterinary and  
Food Administration

## - Efforts in public control:

- Conduct special controls in small slaughterhouses focusing on slaughter hygiene
- Competence development related to meat inspection in broiler slaughterhouses

# Knowledge generation:

## - Provided via research projects

### - **Assess measures to reduce the Campylobacter level in the gut**

- Investigate the potential of feed additives as a means to reduce Campylobacter (intervention studies) (SafeChicken 2021-2024)

### - **Assess special characteristics of different Campylobacter**

- Investigate if specific characteristics in certain Campylobacter promote colonisation, persistence or enhance the risk of human infections

### - **Assess importance of contamination from the environment**

- Investigate the significance of the environment as source of Campylobacter and quantify the contribution to human infections

# Danish Campylobacter Action Plan 2022-2026

## Consumer education:

- Info e.g. via social media to enhance awareness of Campylobacter risk



## Evaluation and assessment of effect:

- **The impact of the various efforts will be evaluated continuously.....**

# Thanks to

Marianne Sandberg, DTU Food