



What is behind mastitis treatment registrations?

Line Svennesen

Carsten Enevoldsen

Ilka Klaas

Department of Large animal Sciences

University of Copenhagen



Background

- **Udder health evaluation?**
- **Mastitis treatments recorded in large databases used for analysis and herd health management**
(Bartlett et al., 2001; Seegers et al., 2003)
- **Incomplete mastitis treatment data available in the Danish Cattle Database (DCD)**
20% data missing in 2000
8 % data missing in 2008
(Bennedsgaard et al., 2003; Wolff et al., 2012)
- **Mastitis treatments highly depend on the farmers' selection of cows and decision on calling the vet**
(Vaarst et al., 2002)
- **Large herds with several employees makes detection and selection complex and inconsistent?**

Background

HYPOTHESIS:

Mastitis treatment registrations in DCD

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Treated mastitis cases

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Mastitis cases observed in the herd

Aim: to describe the path from detection to registration of mastitis cases and understand the interaction between different actors in the process of selecting cows for antibiotic treatment

Case herd

- **Organic farm – all treatments by the vet**
- **Key indicators 2013:**
 - **600 cowyears**
 - **9,500 kg ECM**
 - **300,000 cells/ml SCC (test-day)**
 - **0.3 mastitis treatment cases per cowyear**



How was cows selected for antibiotic treatment?

- **Observation of 6 milkings**
- **Following herd veterinarian for 2 days**
- **Interviews of:**
 - **Milkers (8 persons)**
 - **Herd veterinarian**
 - **Herd manager**



Results - Interviews

Procedure:

- **Milkers detected mastitis**
 - **Clinical signs \geq abnormal milk after 2 minutes pre milking**
- **Herd manager selected for treatment**
 - **Based on clinical signs (milkers'), SCC, history of mastitis, weekday, herd situation**
- **Herd veterinarian treated**
 - **10 % were not treated**
- **Registration in the vet's billing system**
- **Registration in DCD by vet's secretary**

Intensive data collection

multiparous cows - december 12 to april 13

Observed clinical cases

- **Milkers' registrations of clinical signs**
 - **Mild**
 - **Moderate**
 - **Severe**
- **Monthly registration of cows with a dry quarter and cows having milk separated due to subclinical or mild untreated mastitis**

Routine registrations available

- **Treatment registrations from the herd veterinarian's billing system**
- **Treatment registrations from the DCD**

Missing registrations?

Treatment registrations from herd veterinarians' billing system



Treatment registrations from the Danish Cattle Database

- **Vet records close to 100 % transfer to DCD**
- **Billing system were assumed to be in good agreement with treatments performed in the herd**

Missing treatments?

**Milkers' registrations of clinical signs
mild < moderate < severe**



Treatment registrations from herd veterinarians' billing system

	Mild	Moderate	Severe
Total number registered by milkers	73	10	2
% Treated with AB by the vet	20 %	50 %	50 %

- **Herd manager or vet decided not to treat?**
- **Milk was separated without treatment**
- **Cows had dried off individual quarters**

Missing informations?

**Milkers' registrations of clinical signs
mild < moderate < severe**



Treatment registrations from herd veterinarians' billing system

But 58% of the treated cows were not registered by the milkers...

- **Milkers forgot to register**
- **Herd manager selected cows with high SCC**

Which cases?

Treatment registrations in DCD

- Treated cases
- Some severe cases
- Some mild and moderate cases
- Some subclinical cases
- No chronic cases

Not in treatment registrations in DCD

- Most of mild cases
- Most of subclinical cases
- All chronic cases

Treatment thresholds???
It's complicated...

Any given day during the study period in the case herd...

330 multiparous cows were taken to the milking parlour

- **3 cows were treated because of mastitis (new case every 2nd day)**
- **16 cows were not treated but the milk was separated because of mastitis (abnormal milk)**
- **60 cows had a dry quarter because of previously chronic mastitis (new case every 5th day)**

Challenge for herd health management and research...

Human decision factor

- There are different treatment thresholds
- The vet only sees the 'top of the iceberg'
- Few clinical cases found at milking are treated
- The more severe the signs, the more likely to be treated

Analysis of treated cases without knowing treatment thresholds is problematic!

But how do we get closer to the true number of clinical cases?