What determines antibiotic treatment in relation to udder health in Danish dairy cattle herds?

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Objectives

• Identify differences between farms regarding treatment

• Identify determinants for differences
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• Identify determinants for differences

➢ Use this information e.g. when developing herd-specific health management programs
Data

Retrieved from the Danish Cattle Database:

• 1500 cattle herds with
  – Milk yield recordings
  – At least 90% Danish Holstein cows

• Milk yield
• SCC
• PCR
• Clinical registrations
• Treatments

• Animal movements, reproduction and calving, drying-off
Treatments
Data

Registered dry cow treatments on 1169 farms:

- 504 farms with registered treatments, PCR and clinical registrations
Data

- Dry cow treatment (yes/no)
- Last SCC
- Average milkyield
- Parity
- Treatment during lactation (yes/no)
- Last lactation (yes/no)
- Clinical registrations (yes/no)
- PCR (no or negative/positive – cut-off 37)
## Data

- Dry cow treatment (yes/no)
- Last SCC
- Average milkyield
- Parity
- Treatment during lactation (yes/no)
- Last lactation (yes/no)
- Clinical registrations (yes/no)
- PCR (no or negative/positive – cut-off 37)

**Logistic regression** for each farm
Univariate logistic regression
farms with clinical registrations and PCR

- log(SCC)
- average milk yield
- clinical registration

- PCR
- treatment in same parity
- last lactation

- PAR 2
- PAR 3
Multivariable logistic regression

farms with clinical registrations and PCR

![Graphs showing distributions of log SCC, milk yield, clinical registrations, PCR, parity 2, parity >= 3, treatment during lactation, and cow's last lactation.](image)
Multivariable logistic regression
farms with clinical registrations and PCR
PCA

Example for hierarchical clustering on PCs, cut at 3 clusters
Conclusion

• There are three groups of farmers concerning treatment:
  – Parity and culling
  – Production
  – Health indicators

• Use this information to examine/propose control measures taking specific farmer preference into account.
Questions?

Thank you for your attention.