Progress with Reduction in Antimicrobial Drug Use in Dutch Dairy Cattle

Harrie van den Bijgaart
Auckland, 9 February 2018
Take home message

‘The gain outweighs the pain’
Drivers for reduction

- Combatting antimicrobial resistance in human health care and animal health care
- Reducing risk of veterinary drugs in food
Actors

• Government (Departments of Agriculture & Health)
• Animal production sectors
• Veterinarians
Developments 2007 - 2010

- 2008: Public-private convenant
- 2010: Target setting for reduction in antimicrobial drug use as compared to 2009
  - -20% by 2011
  - -50% by 2013
  - -70% by 2015
- 2010: Establishment of NL Veterinary Medicine Institute (SDa)
  ➔ Registration and benchmarking
Developments since 2011

• 2011: Advice of Public Health Council on antimicrobial use in animal husbandry

• 2012: Preventive use of antimicrobials prohibited

• 2012: New formulary and guidelines for vets (1\textsuperscript{st}, 2\textsuperscript{nd}, 3\textsuperscript{rd} choice substances)
Obligations for farmers and vets

- On-farm availability of
  - Farm health plan
  - Animal treatment plan
  - Prepared by vet and farmer
  - Annual evaluation

- All treatments in national registration system

- Restrictions on critical substances (<0,1 DDDA)
Guidelines on antimicrobial use at dry-off of cows

Figure A1. Flowchart explaining the guideline on the use of antimicrobials at dry-off in dairy cattle. Adapted from the Royal Dutch Veterinary Association (KNMvD, 2014). SCC = the SCC of the last milk recording that occurred ≤6 wk before dry-off.

Effects of reduced intramammary antimicrobial use during the dry period on udder health in Dutch dairy herds

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Definitions

• Defined Daily Dose Animal (DDDA):
  • Treated kg/average kg present
  • Expressed in DDDA/year
    (ESVAC EMA – London)
Development in sales of antimicrobials in kg of active substances for NL livestock (source: FIDIN)

-64% since 2009
Development in antimicrobial use per sector in DDDA for NL livestock (source: LEI, SDa)

Turkey
Veal: -37%
Broilers: - 57%
Pigs: - 56%
Dairy cattle: - 48%
## Use of 1\textsuperscript{st}, 2\textsuperscript{nd}, 3\textsuperscript{rd} choice antimicrobials with dairy cattle

Based on DDDA

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<tbody>
<tr>
<td>1\textsuperscript{st} choice</td>
<td>47.1</td>
<td>61.2</td>
<td>72.6</td>
<td>73.1</td>
<td>74.1</td>
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<tr>
<td>2\textsuperscript{nd} choice</td>
<td>51.5</td>
<td>38.6</td>
<td>27.3</td>
<td>26.8</td>
<td>25.8</td>
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<tr>
<td>3\textsuperscript{rd} choice</td>
<td>1.4</td>
<td>0.2</td>
<td>0.1</td>
<td>0.1</td>
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### Proportion of dairy cattle farms in benchmark zones

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<tr>
<th>Zone Type</th>
<th>DDDA&lt;sub&gt;F&lt;/sub&gt;</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
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<tr>
<td>Target zone</td>
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<td>56</td>
<td>55</td>
<td>91</td>
<td>93</td>
<td>94</td>
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<tr>
<td>Signalling zone</td>
<td>4 - 6</td>
<td>40</td>
<td>42</td>
<td>8</td>
<td>6</td>
<td>6</td>
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<tr>
<td>Action zone</td>
<td>&gt; 6</td>
<td>4</td>
<td>3</td>
<td>1</td>
<td>1</td>
<td>0</td>
</tr>
</tbody>
</table>

For more data see [www.autoriteitdiergeneesmiddelen.nl](http://www.autoriteitdiergeneesmiddelen.nl)
Also some to the negative....

- % herds with more than 25% new infections after calving has increased from 6.5 to 8.5%
- Transition period requires attention

PhD Thesis Christiaan Scherpenzeel, 2017
Average NL herd bulk milk somatic cell count for cows
Arithmetic mean of single values

![Graph showing the average somatic cell count from 2005 to 2017. The count decreases from around 200 cells/mL in 2005 to below 150 cells/mL in 2017.]
Penalizations in inhibitor testing on NL herd bulk milk
Next steps

• Specific targets per sector (poultry, pigs, veal, dairy cattle)
• No regulatory enforcement but providing tools to those lagging behind
• Focus on:
  • Housing system/environment
  • Incoming cattle
  • Feed (don’t feed contaminated milk to calves!)
  • Milking (equipment/hygiene)
  • Management

• Dairy:
  • More robust animals
  • Selective dry-off
Conclusions

• Successful reduction of antimicrobial use in Dutch dairy cattle
• Parallel improvement in udder health management
• Limited negative consequences

→ ‘The gain outweighs the pain’
Veterinary motto...

Use as little as possible....

....and as much as necessary
Quality in food safety

Thank you for your attention!