MRSA: moving forward on the basis of evidence

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Plan

- What do we know?
  - Emergence and spread
  - Convergence and divergence
  - Food borne risk
  - Hygiene measures

- What do we need to know?

- What do we need to do?

- What do we say?
MRSA timeline

1961
Emergence of MRSA in humans
UK
HA-MRSA

1990s
CA-MRSA
United States

2005
First reports
In farm animals
Netherlands
NT-MRSA
Methicillin-resistant *Staphylococcus aureus*

- MRSA has been known for a long time as a major human health problem.
- Originally, MRSA infections were almost exclusively found in hospitals (H-MRSA). Nowadays MRSA infections are increasingly emerging in community settings.
- Only recently a new strain of MRSA has been found in food animals (St 398 or NT).
- So far a connection between the newly emerging strain of MRSA in animals and traditional human MRSA has not been established.
Cascade effect?

1961
Emergence of MRSA in humans
UK
HA-MRSA

1990s
CA-MRSA
United States

2005
First reports
In farm animals
Netherlands
NT-MRSA
Convergence and divergence among HA, CA and NT-MRSA

Divergence
- Pathogenicity, Antibiotic resistance phenotype
- Exposed sub-populations

Convergence
- Companion animals and humans
- Transmission through skin contact or fomites
  - But not fully understood in relation to NT 398
No Food borne risk

- CDC
  - ..thus far there is no documented role for meat consumption or handling in MRSA transmission *

- VWA
  - ...is het onwaarschijnlijk dat het voorkomen van NT-MRSA op levensmiddelen van dierlijke oorsprong een relevante factor is bij de verspreiding van MRSA binnen de humane populatie.**

* CDC response to question of Jim Collins, House of representatives, 4 Feb 2008
** Voedsel en Waren Autoriteit, January 2008
Hygiene measures

- Hygiene measures have an impact in health-care settings and communities
- Ditto in veterinary hospitals
- Do they work on farms?
  - Hygiene measure on farms have been challenged
  - They should not be dismissed too quickly
What do we need to know?

- 1961: Emergence of MRSA in humans
  - UK
  - HA-MRSA

- 1990s: CA-MRSA
  - United States

- 2005: First reports
  - In farm animals
  - Netherlands
  - NT-MRSA

How it happened?
How MRSA spreads among animals?
How does MRSA spread back to humans?
Are hygiene measure on farms useful?
What do we need to know?

- **EFSA***
  - Frequency of MRSA in food animals
  - Occurrence of NT-MRSA in humans
  - Risk factors for spread
    - Selective pressure, movement of animals, husbandry practices
  - Origin of the problem
  - Impact on human health

- **Khanna***
  - Longitudinal studies of MRSA acquisition by pigs


**Methicillin resistant *Staphylococcus aureus* colonization in pig and pig farmers, Veterinary Microbiology128, 2008, 298-303
What do we need to do?

- IFAH-Europe remains committed to responsible use on farm
  - EPRUMA tool
  - Do we do enough to educate farmers and veterinarians on the necessity of responsible use?
- Hygiene measures on farm
- Continued monitoring of NT-MRSA
What do we say?

- NT-MRSA is different from HA-MRSA and CA MRSA
- Food is not a risk
- Up to now, the role of NT-MRSA in human disease is not known
Conclusion

• IFAH-Europe supports the scientific research undertaken by EFSA and the national authorities and will welcome any discussion on its possible contribution

• IFAH-Europe is committed to the responsible use of antimicrobials