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• More than 12 colleagues involved in research of:
  – Antibiotic use and use patterns and its impact on immunity and resistance in zoonotic and animal pathogens
  – Interventions to reduce antimicrobial resistance
  – Non-antibiotic alternatives to treat bacterial infections
  – Human behaviors regarding antibiotic use in treatment of mastitis
  – Classroom and online education
Antibiotic Use and Resistance in Livestock Production
Antibiotic use leads to the emergence, accumulation and dissemination of AR within and among populations of subjects and the environment.

Antibiotic use in agriculture considered a major contributor to AR and risk to human health.

Easy to get the impression that reducing or banning antibiotic use in livestock production will take care of the resistance problem:

- President’s Council of Advisors on Science and Technology (PCAST)
- Union of concerned scientists
- News stories: PBS Frontline Monday night
• All production uses of antibiotics in livestock production to be phased out by 2016

• May affect
  – Productivity
  – Health
  – Welfare
Reducing Antibiotic Use in Livestock

• A prudent question is if reducing antibiotic use will be considered enough?

• Lessons from Europe and comparing AR in organic vs conventional livestock production
  – Some reduction in antibiotic use
    • Increased use of others
  – Some reduction in AR
    • But increase for others
  – A slow process
  – Not a silver bullet!
Can We Do More?

• Can we do more to reduce antibiotic use?
  – Alternatives to antibiotics
    • For prevention and treatment
  – Better treatment programs & use policies
  – Changing human behavior

• If we really want to make an impact
  – We need to look for new innovative interventions to reduce antibiotic use in general (rather than just banning them) and to reduce AR
A Dutch Farmer Conquers MRSA Colonizing His Family and His Pigs
• Eric van den Heulen
• Pig farmer from Holland
• Four of five in his family and his pigs were colonized by MRSA
• Daughter denied access to hospital for heart surgery because of MRSA colonization
• What would be the point in clearing her and the rest of the family of MRSA if they would just get re-colonized from the pigs?

Can we do more?
Can we do more?

• van den Heulen started two things:
  – Better sanitation
  – Feeding probiotics AND spraying probiotics on pigs and the environment several times weekly
3 years later:
  – MRSA was gone, and
  – He only uses 5% of the antibiotics he used 3 years ago
  – His barns smell better

Perhaps it is possible to do more than merely banning antibiotic use in order to reduce AR...!? 

At the same time improve overall health of animals and people working with them
Thank you!