







SUPERBUGS
HOW do we get them?



DEFINE: Superbug

- Bacterial infection
- Medicine can not stop its spreading
- Therefore, **multi-drug** resistant bacteria
- Medicine depends on antibiotics for
 - Cancer –chemotherapy
 - Organ transplants
 - Surgeries
 - childbirth

What are the SOURCES OF SUPERBUGS

- Antibiotic treatment by doctor is “viewed” as panacea
 - Led to overuse
 - Liberally requested and prescribed
 - Don’t antagonize the patient

BUT

It is not ALL the doctor's fault

- Many patients "stop" taking the Rx when they "feel" better
 - This KNOCKS down the bugs BUT
 - Does not KNOCK out the pathogenic bacteria
- SO this is as highly effective way to SELECT bacteria to become RESISTANT next time!
- Cause: LACK of patient compliance
 - Lack responsible behavior!!!!!!

Campylobacter

1 of 18 pathogens of concern

- "No conclusive evidence of a DEFINITIVE link between use of antibiotics in food animals and emergence of drug resistant *Campylobacter*"
 - can cause food illness if
 - Food is not properly handled and cooked
 - Regardless of whether it carries antibiotic resistance

Raw Milk –**best** source of *campylobacter*

- On-line—**SAYS**
- **Q: "Won't raw milk make me sick?"**
 - **A:** "Not if it is properly collected from cows fed organic grass (and a minimum of grain). ETC!"
 - **Q: "Can anybody drink raw milk?"**
 - **A:** "Yes, with a nod to those folks whom it just doesn't suit, but there are a few important exceptions, ETC."
- **USDA and FDA SAYS**
 - do not CONSUME!

Should Milking Cows be BLAMED?



SO, is milk a culprit????

- Are there antibiotics in milk that reach the food supply? -----

— YOUR answer should be FACT!!!

- All milk (both regular and organic) is tested for antibiotics---at ALL farms and processing plants
- Less than 0.02% show contaminants

What about *S. aureus*?

(common source of food poisoning)

- Live on our skin or in our nose (1 of 4 people)
- NOT related to livestock production BUT
- Form of this is called methicillin-resistant *S. aureus* (MRSA)
- MRSA is bad SUPERBUG
- NEW research suggests
 - Controlling water transporter system of bacterial cells —why we need good research!

MRSA--

- The deadly MRSA USA300 strain has genes that make it immune to toxins on the skin, but the microbe can't always escape engulfment by humans' white blood cells .

MRSA--????



MRSA--????



OPPOSITE

Barnyard dust helps kids!

- 10.6% grade school children have asthma
 - According to CDC
 - Chronic and frightening
- New research:
 - Exposed to animals-more neutrophils
 - Type of White blood cells
 - Part of body's innate immune system
 - Neutrophils were newly emerged from bone marrow-ready to react to microbial invaders

References

- New England Journal of Medicine
- Science Signaling
- Critical Reviews in Food Science and Nutrition
- FDA Mandates –Guidances 209, 213
- Journal of the American Medical Association
- OIE – World Organization for Animal Health (European Commission)
