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Zoonoses, Zoonotic Agents and Antimicrobial Resistance in the European Union in 2004

A very large number of traceable zoonotic events occur each year in the EU. Most result in mild illness but some are very serious/fatal. Tracing policy varies from one state to another but most events are caused by contaminated food or drink. People can carry disease while suffering no ill-effects and pass the disease on to others through food handling.

Animal diseases can be carried to humans by direct contact, contact with animal wastes, contaminated water and in food and feeds. Agents include bacteria, viruses, fungi, parasites and prions. Some zoonoses are endemic in wildlife.

Bacteria were the cause of the majority of confirmed zoonotic infections in humans in the EU in 2004:

- Salmonellosis 192,703 cases (42 per 100,000)(principally from raw hen egg, [broiler] flesh and egg products, probably transmitted in animal feeds, between 2% and 18% of fresh poultry meat samples test positive, below 10% in pig meat, outbreaks have also been traced to foods washed with contaminated water, disease in humans is usually reversible, but was reported to have led to 12 deaths)
- Campylobacteriosis 183,961 cases (47 per 100,000)(principally from broiler meat and drinking water, some surveys find >80% contamination in poultry meat at slaughter, it can also be caught from unwell (diarrhoeic) pets, isolation of cooked and uncooked foods should improve prevention, long term effects possibly include Guillain-Barre syndrome, reactive arthritis, irritable bowel syndrome)
- Yersiniosis 10,381 cases (2.4 per 100,000)(source rarely identified but most likely to be of pig or cattle origin, intestinal disturbance is usually reversible but can cause acute arthritis)
- E Coli [HP-VTEC] infections 4, 143cases (1.3 per 100,000)(<1 in ten cases develop serious kidney disease, usually < 5% of likely food sources are contaminated, source of contamination is usually faecal matter from cattle,
- Listeriosis 1,267 case (0.2 per 100,000)(fatality rate = 8%, critical contamination level = 100 cfu/g, contamination most often found in fish, sometimes in cheese, can cause serious neurological disease)

Can all be shed by asymptomatic farm animals and some pets.

There were also 2, 349 cases of parasitic zoonosis-trichinellosis, toxoplasmosis and echinococcosis (combined), 1, 337 cases of brucellosis, 86 cases of tuberculosis (of cattle origin), 2 cases of rabies.

Resistance to antimicrobial agents is increasing for salmonella, campylobacter and E coli. Resistance is mainly to drugs used in animal husbandry streptomycin, sulfonamides, ampicillin, tetracycline. Use of antibiotics as growth promoters has been banned since Jan 2006 but they can be used to treat mild diseases.

Comment

Tracing the source of zoonosis outbreaks is inconsistent across the EU yet is practicable and could be commissioned in individual cases. Most, but not all infections are traceable to commercial food activity; some diseases are endemic in wild and companion animals. Exposure via food would be subject to strict liability.

Statements of disease status can be misleading and could lead to unfounded confidence in food handling and preparation.

People may carry the disease and remain asymptomatic.

Zoonoses are usually reversible but significant numbers of people are permanently harmed.

It seems likely that the number of diseased animals will increase as live transport becomes more common. Unless surveillance, tracing and prevention work is stepped up, the probability is that there will be more human cases. Live transport is subject to strict control; records must be kept.