Antibiotic use in the UK poultry sector

Antibiotics are commonly used in the poultry industry for the treatment and prevention of respiratory diseases and other bacterial infections; often administered to groups of poultry via their drinking water. It remains legal within the EU for poultry producers to routinely mass-medicate flocks of birds with antibiotics - even when no disease has been diagnosed in any birds within the group (prophylactic use).

Since 1 January 2012 the UK poultry meat industry has adopted voluntary measures proposed by the British Poultry Council on the use of antibiotics classed by the World Health Organisation as 'critically important' for human health: the modern cephalosporins and fluoroquinolones.[i] Since this time, the industry has phased out use of the modern cephalosporins completely and use of the fluoroquinolones for disease prevention (prophylaxis) in one-day-old chicks.

UK poultry farmers continue to use fluoroquinolones in groups of adult birds, although significant reductions have been made to use of these antibiotics in 2015 compared with 2014 levels. One of the main uses of fluoroquinolones in poultry is for treatment and prevention of serious infections like septicaemia, gastroenteritis, respiratory diseases, and for mycoplasma infections including the highly infectious Mycoplasma Galliseptum (Gs). These antibiotics - important for treating serious human *Campylobacter* infections - may be added to the drinking water of flocks of poultry, when no disease is present in most of the birds in a flock.

The only fluoroquinolone which is licensed for poultry in the UK is Enrofloxacin, with several other products licensed for use in poultry in other EU countries. About half a tonne of active ingredient of this antibiotic was sold for use in poultry production in 2015 to British Poultry Council members (which represent circa 90% of all meat birds produced in the UK). Most of this was used in turkey production.

Progress in this sector

Data collected and published in early 2016 by the British Poultry Council demonstrates that the industry has reduced overall antibiotic use by 44% between 2012 and 2015, and that use of fluoroquinolones by the poultry industry was significantly reduced by 48% in 2015 compared with 2014.[ii]

The overall reduction of antibiotic use in 2015 is a welcome development, in particular the reductions to use of fluoroquinolones, which are no longer used by British Poultry Council members as a first line treatment.

However, prior to this, use of these important antibiotics in the poultry industry had been steadily on the rise for a number of years, with the UK poultry meat sector reporting an increase in the use of fluoroquinolones from 2012-2014.[iii] Current use is therefore about 25% lower than in 2013.[iv]

Does this go far enough?

Efforts to reduce overall antibiotic use in this sector have been very successful. However, the British Poultry Council members are still overusing antibiotics in comparison to poultry producers in other European countries.

The statistics published by the British Poultry Council suggest that, even without considering any of the antibiotics used in egg-layers or in game birds, British chicken and turkey farmers are using about 44 mg per kg of population correction unit (PCU; the European livestock unit), whereas in Denmark poultry farmers use about 21 mg/kg.[v] [vi] In Sweden, antibiotic use in poultry is even lower, with just 28 out of 3,191 broiler flocks receiving any antibiotics in 2015, and the average rate of use being below 1 mg/kg.[vii] In Finland no antibiotics have been used on any broiler farm since 2010.[viii]

These large differences suggest that much of the antibiotic use in British poultry farming is still unnecessary and avoidable. It is also having a large effect on the levels of antibiotic resistance in poultry: the graph below shows the results of harmonised testing for antibiotic resistance in E. coli from broilers. The graph shows that the levels of resistance are much lower in the Nordic countries than in all other countries, including the UK.[ix]

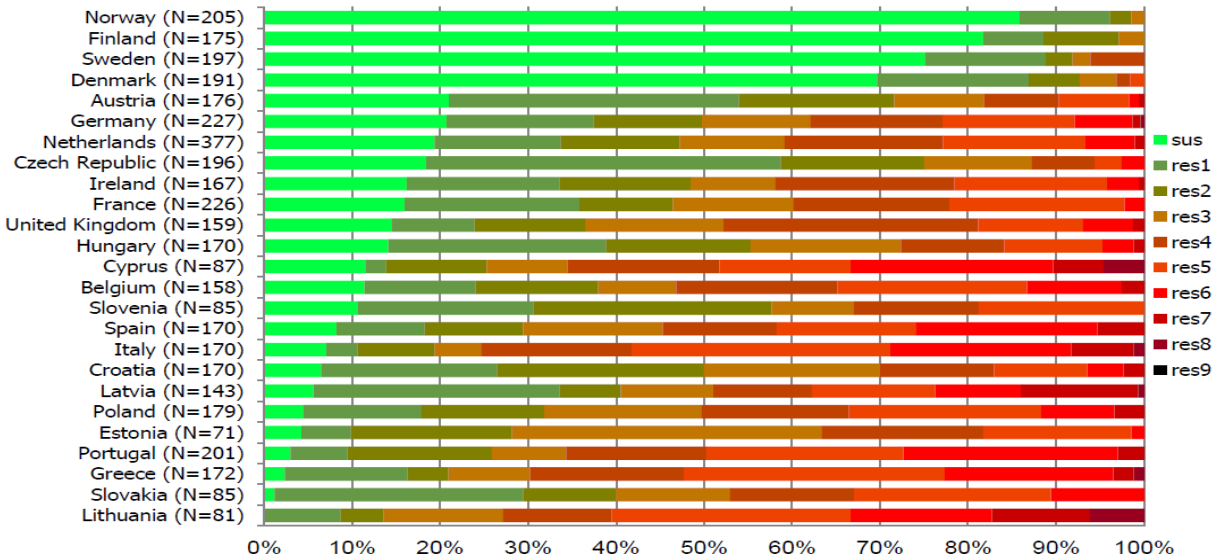

Figure 73: Frequency distribution of *Escherichia coli* isolates completely susceptible and resistant to one to twelve antimicrobials in broilers in reporting countries, 2014

Despite the recent reductions to fluoroquinolone use by the poultry sector, resistance to these crucial drugs is increasing in both poultry and humans in the UK. Public Health England data shows that the resistance rate in human Campylobacter jejuni infections in England was 48% in 2015 – a record high.[x] In 2014, fluoroquinolone resistance in retail poultry meat also reached a record high of 49%.[xi] The UK's rising fluoroquinolone resistance rate in human Campylobacter is strongly linked to the use of these antibiotics in poultry.[xii] [xiii]

The European Food Safety Authority and the European Centre for Disease Prevention and Control have referred to the use of fluoroquinolones in poultry as "a compelling example of how antimicrobial resistance in food and animals may impact the availability of effective antimicrobial agents for treating severe human Campylobacter infections".[xiv] According to the European Medicines Agency, for many of the listed indications for which fluoroquinolones are used, alternative treatments are available - although availability varies between different EU countries.[xv]

What more must be done?

The UK poultry industry must build on the excellent progress made to date by working to phase out the use of fluoroquinolones entirely. Countries including the US, Australia, Denmark, Finland, Iceland, Norway and Sweden do not use fluoroquinolones in poultry due to concerns around human resistance. These countries have much lower levels of resistance in human Campylobacter infections than EU countries which continue to use the antibiotics in poultry.[xvi]

Routine preventative administration of antibiotics to groups of animals has already been banned or phased out in a number of European countries, including Sweden, the Netherlands and Denmark. These moves are in line with EU Commission's guidelines for the prudent use of antimicrobials in veterinary medicine, which state that routine prophylaxis must be avoided.[xvii]

Veterinarians should directly supervise metaphylactic antibiotic use, and regularly visit farms.

The Alliance to Save our Antibiotics is calling for:

- **A ban on the routine, preventative mass-medication of flocks of entirely healthy birds**
- **A ban on the use of fluoroquinolone antibiotics in poultry (including off-label use)**
- **A target for reducing antibiotic use in poultry to 20 mg/kg PCU within 5 years.**

Recommendations for action

In consultation with wider representatives from the poultry industry, the Alliance to Save our Antibiotics has identified three potential measures to optimise animal welfare and immunity, mitigate the risk of zoonotic diseases and - ultimately - reduce the need for antibiotics in this sector:

1) Reduce stocking densities

The crowding together of animals at high stocking densities can facilitate the spread of disease. [xviii] *In addition, animals reared intensively may be more susceptible to infection due to immunosuppression*[xix]*. The chronic stress induced by intensive production means the risk of infection is potentially greater in these systems, despite the risk of environmental exposure to bacteria for animals reared outdoors.*

According to the SCAHAW Report, the stocking density should be no higher than 25kg/m2 (12.5 birds per square metre) 'for major welfare problems to be largely avoided'. Above 30 kg/m2 (15 birds per square metre) there is a 'steep rise in the frequency of serious problems'. [xx]

Lower stocking densities can reduce the requirement to thin flocks (removing heavier birds from the flock for earlier slaughter), thus reducing acutely stressful events which can pre-dispose animals to infection.[xxi] [xxii] *Thinning is also a reported risk factor for Campylobacter colonization of birds.*[xxiii]

2) Choose slower-growing breeds

Intensively farmed chickens reared for meat are often continuously selected for rapid growth. Chronic stress resulting from rapid growth rate selection has also been shown to lead to immunosuppression in chickens, reducing their ability to fight infection[xxiv].

Research suggests that Campylobacter in slower-growing breeds is more likely to remain in the gut rather than penetrating the meat and other tissues [xxv] *(which increases the risk of human infection).*

While there is a need for more detailed research into the effects of fast-growing breeds on disease resistance, evidence suggests that slower-growing breeds, of the type typically used in higher welfare systems, are generally healthier and may be at lower risk of Campylobacter infection.[xxvi] *In the Netherlands, antibiotic use in standard broilers in 2015 was over five times higher than with slower-growing broilers.*[xxvii]

3) Maximise bird welfare and prioritise a shift to extensive systems

Good animal husbandry must be a key part of strategies to prevent disease outbreaks and reduce antibiotic usage. Switching to extensive production systems could help to optimise bird health and welfare.

Animals farmed with full access to the outdoors in conditions which are not overly intensive require fewer antibiotics than those farmed entirely indoors.[xxviii] *Studies have shown that higher antibiotic usage in animals equals higher antibiotic resistance, and that pig and poultry farms which do not routinely use antibiotics tend to have lower levels of resistant bacteria.*[xxix] [xxx]

Organic farming systems, which prohibit routine preventative antibiotic use in groups of animals, demonstrate the reduced requirement for antibiotics in extensive flocks. Studies by British government scientists of UK poultry farms showed that the majority of organic poultry farms used no antibiotics at all during the two year study.[xxxi]

Litter quality also has a correlation to enteric diseases, as well as the foot health of birds. Where indoor systems are used, high quality litter should be used and maintained.[xxxii]

"In production systems with high density of animals or poor biosecurity, development and spread of infectious diseases is favoured, which leads more frequently to antimicrobial treatment...This provides favourable conditions for selection and persistence of resistant bacteria."

European Medicines Agency

"The prevalence of resistance in the agricultural sector is generally higher in animal species reared under intensive production systems."

Food and Agriculture Organisation of the United Nations

Proving it's possible

Public pressure prompts supply chain shift in the Netherlands

In December 2015 the Netherlands' three biggest supermarkets, Jumbo, Albert Heijn and Lidl, announced they would stop selling meat from the fastest growing breeds of chicken (known as plofkip, or 'exploding chickens'). This move was a result of a public campaign by animal welfare organisation Wakker Dier, which aimed to shine the spotlight on the welfare implications of the huge national consumption of chicken from fast growing breeds. In 2014, the average citizen consumed 18.4 kilograms of chicken annually - most of this from fast growing birds. These birds would usually live just 42 days in a closed pen, in which time they reach a slaughter weight of at least two kilograms. The resulting health issues arising from such conditions, such as respiratory illness, lesions and cardiac problems, typically require flocks to be routinely medicated with antibiotics.

Wakker Dier's campaign resulted in sales of 'plofkip' chicken in Dutch supermarkets falling by half. This in turn has enabled farmers to switch to slower growing broilers without fear of overproduction, falling prices, or a surge in imports of chicken from other countries with lower standards.

This market certainty has supported an increased in the share of slower growing broilers in the Netherlands from around 10% in 2015 to around 20% in 2016.

These slower growing birds are less prone to health problems, meaning that reliance on routine antibiotics is reduced. Dutch figures show that 2015 levels of antibiotics used in standard broilers was over five times higher than usage levels in slower growing broilers. The impact of the Dutch retailers' commitment - and the incentive it provides for other supply chain actors - is likely to have significant positive implications for national veterinary antibiotic use levels.

For further information please contact

Emma Rose
Co-ordinator
Alliance to Save our Antibiotics
erose@saveourantibiotics.eu

Cóilín Nunan
Scientific Adviser
Alliance to Save our Antibiotics
coilin.nunan@phonecoop.coop

www.saveourantibiotics.org

The Alliance to Save Our Antibiotics is an alliance of health, medical, environmental and animal welfare groups working to stop the over-use of antibiotics in farming. It was founded by Compassion in World Farming, the Soil Association, and Sustain in 2009, and is supported by the Jeremy Coller Foundation

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