STRATEGY FOR DEVELOPING AND IMPLEMENTING A PROGRAMME OF SURVEILLANCE FOR ANTIMICROBIAL RESISTANCE IN ANIMALS IN ENGLAND AND WALES

SUCCESS AND OUTPUT FROM THE SURVEILLANCE STRATEGY DOCUMENT AS OF JULY 2008

PUBLISHED OBJECTIVE	SUCCESS AND OUTPUT
Objective 1: Provide information on the prevalence, patterns and trends of antimicrobial resistant microorganisms in animals and their environment and their spread.	• VLA publishes an annual Sensitivity Report which details results on prevalence, patterns and trends of AMR resistant bacteria in animals. • Defra funded R&D on this aspect of AMR is listed below. Details about all of these projects are available on the Defra Website. • Project OD2003 The effect of antimicrobial treatment and withdrawal on the population dynamics of enteric bacteria expressing resistance. • Project OZ0328 A monitoring, control and education package to assist the turkey industry with reduction of Salmonella and antimicrobial resistance and achieving EU targets. • Project VM02110 Epidemiological study of the incidence of antimicrobial resistant bacteria in pigs at slaughter. • Project OD2023 Potential risk to human and animal health from the emergence and spread of beta-lactamase resistance in animals in GB. • OD2020 MRSA in cattle - an investigation into selected properties of isolates recovered from clinical veterinary diagnostic samples.

To look at the details of any of the R&D Projects listed above please go to the following weblink http://randd.defra.gov.uk/. Under the "Search" tab on the left of the screen, type the project number of interest under "Keywords" and follow the links to project objectives and reports.

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Objective 2: Produce this information so that it can be related to patterns detected in similar microorganisms in foodstuffs and humans.	• HPA annually publish reports on this, such as Trends in Antimicrobial Resistance in England and Wales 2004-2005 and Antimicrobial Resistance in England, Wales and Northern Ireland 2006, which have a veterinary results section. • VLA annually publishes its Sensitivity Report, see Objective 1. • The HPA and VLA have been working on harmonisation of methods for testing various bacteria against various antimicrobials. This work is continuing and more methods will become fully harmonised with time. • Defra funded R&D on this aspect of AMR is listed below. Details about all of these projects are available on the Defra Website. • Project OZ0501 Antibiotic treatment of commercial broiler flocks: incidence and mechanisms of fluoroquinolone resistance in Campylobacter. • Project VM02136 Development of rapid response gene profiling for identification of antimicrobial resistance genes in enterobacteria from food animals and humans. • VM02205 followed on from VM02136 – also developing methods between VLA and HPA. • OD2020 – adopted methods used in human labs for identifying MRSA. • FSA funded projects to consider the prevalence of *Campylobacter* and *Salmonella* in frozen and fresh retail chicken. • FSA funded surveys to determine the prevalence of *Salmonella* in whole shell eggs.

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Objective 3: Investigate any relationship that might exist between the prevalence of resistance to antimicrobials in animals, the pattern of use and the amounts of antimicrobials sold for use in animals.	• VMD annually publish a Report on the Sales of Veterinary Antimicrobials sold for use in the UK. Reports are available for 1993-2006. • A Cross-Government Overarching Report was published in 2007 which drew together information from 2004 on prevalence and incidence of AMR bacteria in humans, animals and food. The report also considered population sizes and amounts of antimicrobials used. This was the first time these data had been consolidated in one report. • Defra funded R&D on this aspect of AMR is listed below. Details about all of these projects are available on the Defra Website. • VM02209 What is the relationship between the veterinary use of antimicrobials and drug resistance in zoonotic pathogens? • Project OD2015 Effect of repeated use on development of resistance. • Project OD2025 Investigating the impact of use of antimicrobials on development of resistance in dogs and horses. • Project OD2026 Impact of clinical treatment on AMR carriage in dogs.

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Objective 4: Investigate any relationship that might exist between the prevalence of resistance to antimicrobials in animals and husbandry methods, non-antimicrobial constituents of animal feed, vaccination or hygiene procedures.	• Defra funded R&D on this aspect of AMR is listed below. Details about all of these projects are available on the Defra Website. • Project OD2010 Use and abuse of non-antibiotic antimicrobials as major contributors toward the development of antimicrobial resistance. • Project VM02103 Proactive health management - farm risk management and antibiotic usage in pigs. • Projects OD2008 and OD2005 Stored farm waste and AMR transfer in composting and slurry environments. • Project OD2006 Investigation of persistence of antimicrobial resistant organisms in livestock production. • Project OD2015 The effect of mineral supplementation on AMR.
Objective 5: Use the data generated to guide and encourage the responsible, prudent and judicious use of antimicrobials by the veterinary profession and animal keepers and thus prolong the efficacy of these valuable drugs.	• Defra support the Responsible Use of Medicines in Agriculture (RUMA) Alliance, and their responsible use guidelines for the five major food producing animals (pigs, poultry, cattle, sheep, fish). VMD has links on its website to each of these guidelines.

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Objective 6: Address the issue of cross correlation with parallel human antimicrobial resistance surveillance schemes.	• The HPA and VLA have been working on harmonisation of methods for testing various bacteria against various antimicrobials, see Objective 2. • HPA annually publish reports on this, see Objective 2. • A Cross-Government Overarching Report was published in 2007 which drew together information on prevalence and incidence of AMR bacteria in humans, animals and food, see Objective 3. • VLA organised and hosted the first International Conference on ESBLs in Animals in 2008, which had speakers from the veterinary and human fields and covered all aspects of known ESBL research and surveillance in animals and humans. • Defra, in collaboration with the Bella Moss Foundation, organised and ran the first International Conference on MRSA in Animals, in 2006, which had speakers from the veterinary and microbiology fields covering all aspects of known MRSA research and surveillance in animals.
Objective 7: Use the data generated to identify areas for further research and investigation.	• Completed Defra AMR R&D projects are reviewed at DARC Group meetings to discuss their policy implications. • DARC Members are provided with a review of all AMR R&D projects annually to consider the implications of this work on AMR Policy. • Occurrences of MRSA in companion animals and ESBLs in livestock were identified during routine testing and as a result an MRSA Sub-Group has been developed and an ESBL Sub-Group is being developed, with Secretariat provided by Defra FFG and VMD respectively. • VLA organised and hosted the first International Conference on ESBLs in Animals, see Objective 6. • Defra, in collaboration with the Bella Moss Foundation, organised and ran the first International Conference on MRSA in Animals, see Objective 5.

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