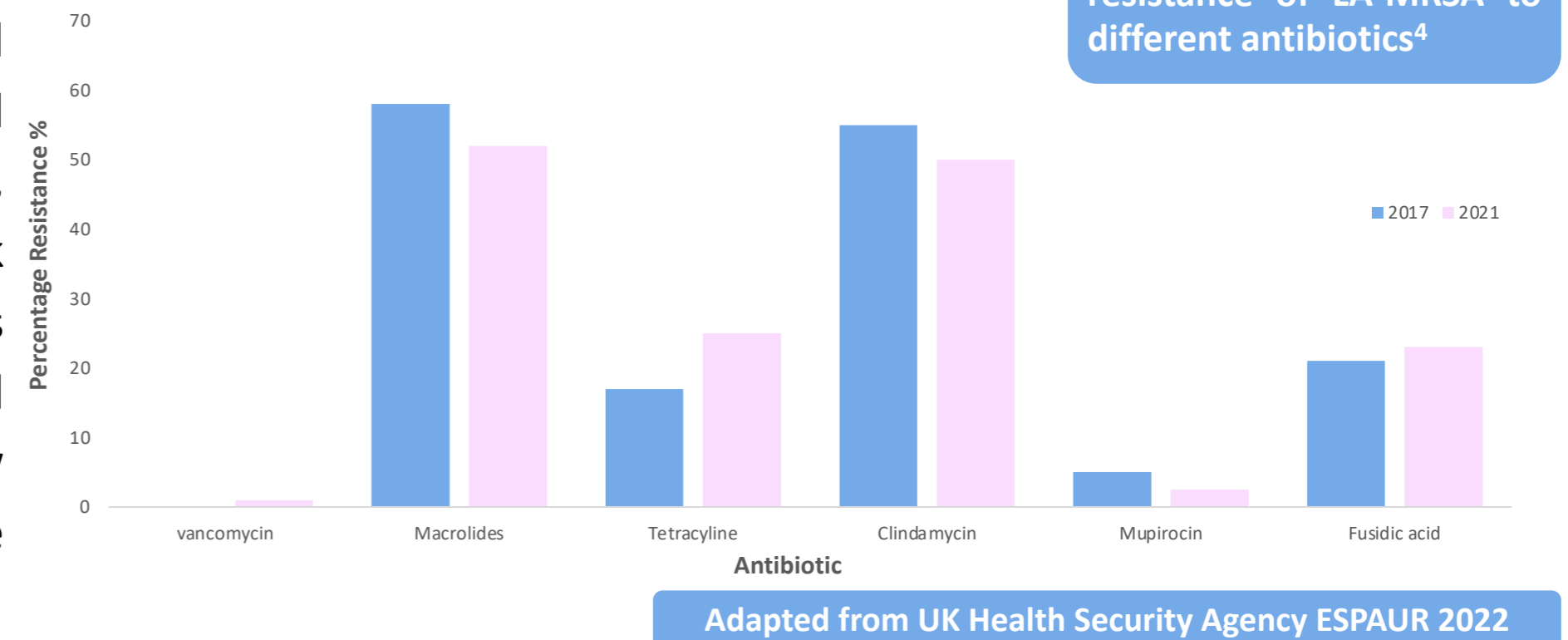


The role of the Vet in Antimicrobial Resistance: Prevention and control of LA-MRSA in the UK pork industry.

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1 BACKGROUND

Staphylococcus aureus is a gram positive commensal bacterial of humans and animals¹. Due to the over and improper use of antibiotics in both human and animal medicine, it has given rise to MRSA (methicillin-resistant staphylococcus aureus), resistant to a multitude of different antibiotics²(see figure one). LA-MRSA (livestock associated MRSA) is of particular concern in the pork industry world-wide with cases arising in the UK posing a threat to both human and animal health^{1,2}. Since initial reports of the pathogen on pig units in 2014³, the UK prevalence has been low however importing live pigs and pork products from areas with high prevalence increases the risk of wider distribution throughout the UK³.



2 Vets Involved

Official Veterinarian (OV)

- Work carried out by an OV is required by Law⁵.
- Involved in identification of notifiable diseases, mandatory testing and issuing export or import health certificates⁵.

Criteria for becoming an OV:

1. MRCVS/ FRCVS⁵.
2. Official Controls Qualification (Veterinary) OCQ(V)⁵.

Registered Pig Veterinarian (RPV)

- 95% of pig farms in the UK are assured by Red Tractor⁶.
- Red Tractor standards must be met to work⁷.

Criteria for becoming an RPV:

1. Register with Red Tractor Assurance⁷.
2. Registered member of the Pig Veterinary Society⁶.
3. Undertake AHDB Pork Real Welfare training⁷.
4. Must be a member of the RCVS and actively work in farm animal practice⁷.

3 The Role of the RPV

The RPV is involved in farm-based management techniques to prevent the spread and development of LA-MRSA⁸. Included in this is aiding in the development and implementation of **farm assurance schemes**^{6,8} and the formulation of farm specific **veterinary health plans**^{8,9,10}.

Encompassed in both is the responsible use of antibiotics, biosecurity procedures and specific housing requirements which can aid in the prevention of LA-MRSA⁹.

NB: All UK animal antibiotics are POM-V so can only be prescribed by a Veterinarian¹⁰.

4 The Role of the OV

OV's are important in the detection of LA-MRSA from overseas and the prevention of its spread in the UK¹⁰ through screening the importation of live breeding stock and pork meat.

Importing Breeding Stock:

After the initial UK outbreak in 2014 the National Pig Association (NPA) introduced a new UK LA-MRSA imports protocol:

1. Pigs intended for importation and the originating herd require MRSA testing¹¹.
2. Isolation required upon arrival¹¹.
3. Mandatory **notifiable disease** testing by **OV**
4. Additional **MRSA testing** by **OV** or **RPV**¹¹.

NB: Red Tractor assured farms must follow NPA imports protocol.

Importation of Pork Meat:

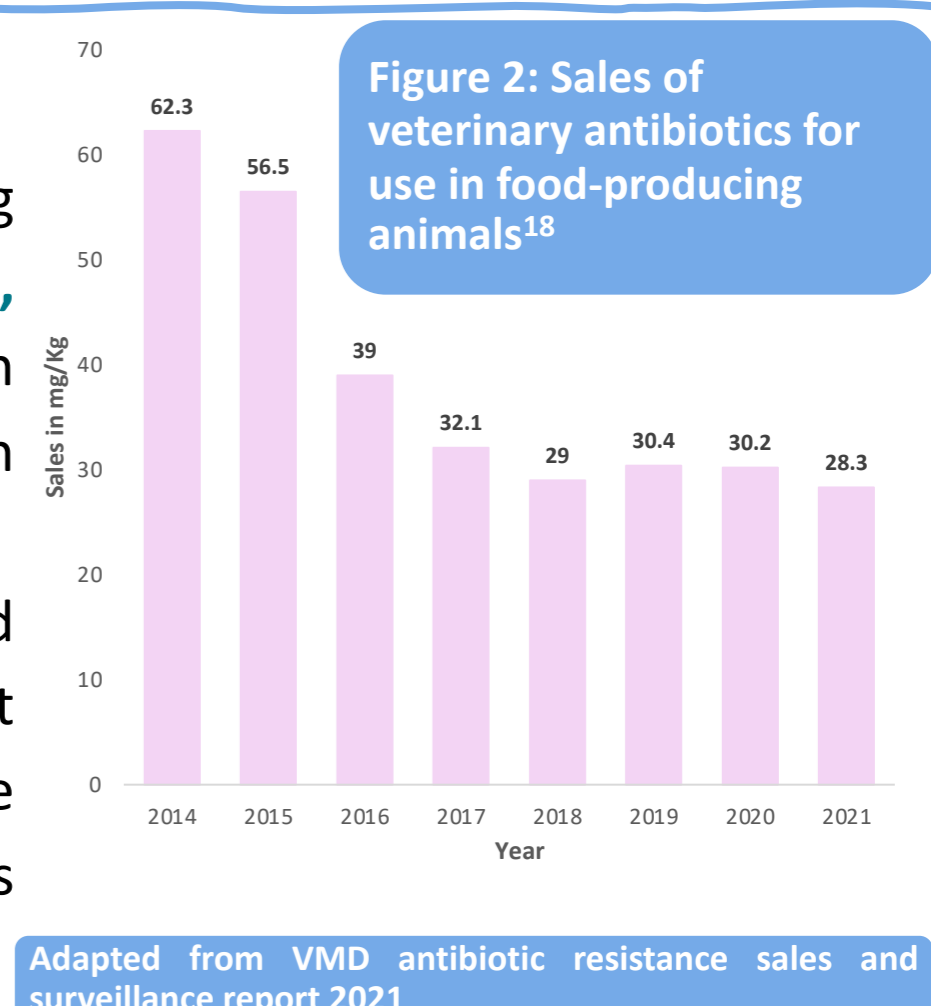
- In 2024 **veterinary border checks carried out** by an **OV** will be required at border control points¹².
- Herd health records and consignments are examined by the OV and a Common Health Entry Document (CHED) can be issued if certain criteria is met¹².
- There is no specific MRSA guidance, but examination of health records will highlight any cases of MRSA¹².

Requiring additional qualifications to carry out MRSA testing could hinder the efficacy of the role. Due to COVID-19 and Brexit the RCVS reported a **42% decline** in registrations between 2019 and 2021¹³. Furthermore, only **5%** of UK vets work solely in **production animal practice**¹⁴ and just **4.5% hold government qualifications**¹⁴. This leaves a finite number of individuals meeting the necessary criteria for testing making process of the role itself less efficient. Furthermore, under the Veterinary surgeons Act 1966, individuals that hold the M/FRCVS qualification can diagnose animal disease (not notifiable)¹². Recruiting these qualified individuals could enhance the role of the vet in testing for MRSA and mitigate its spread and entry to the UK¹⁵.

5 Antimicrobial Stewardship

There are five main components to the role of the vet when practicing antimicrobial stewardship: **commitment, prevention, detection, optimising use and surveillance**^{16,17}. This has been successful in reducing antibiotic usage on farms demonstrated through a reduction in sales (figure 2)¹⁸.

Studies have shown a **9%-30% decrease** in **resistance** with reduced use^{15,19} however Crespo et al (2021) suggests reduced usage will not decrease MRSA prevalence due to bacterial stability¹⁷. Therefore the role in prevention by implementing biosecurity and hygiene measures and educating the public is more prominent in mitigating spread¹⁷.



6 Vets in Education



- Wash hands thoroughly²⁰
- Cover open wounds²¹
- Wash all work clothes^{20,21}
- Dedicated PPE and footwear for working with animals²¹
- Inform healthcare professionals regarding working with livestock²¹

References:

