

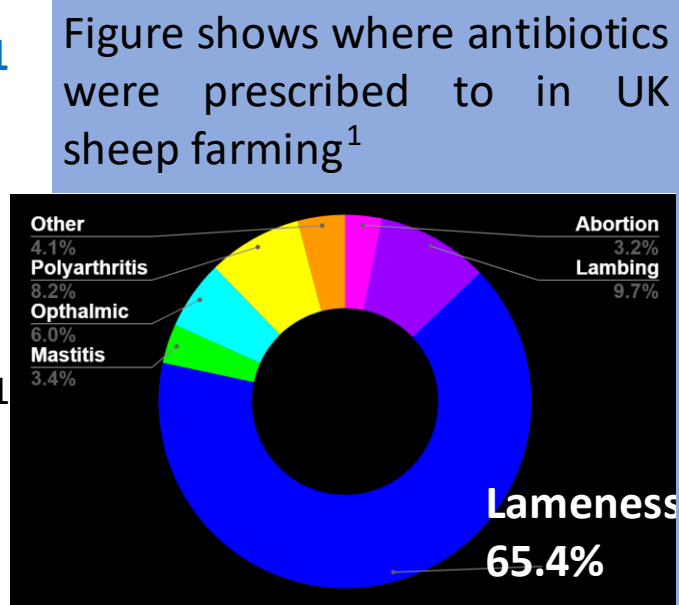
Role of The Vet in Antimicrobial Resistance: How Tackling Lameness in Sheep Can Reduce The Threat

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Why Should The Vet Be Tackling Lameness?

- Just **4.3% of sheep** farms had **no antibiotic use** between August 2015 and July 2016 with **lameness accounting for 63.5% of prescriptions of antibiotics**¹
- 21% variation in antibiotic prescription** by practices while 80% of antibiotics used by just 39% of flocks¹

These statistics all highlight the key role not only lameness plays in antibiotic use but also the **role that the vet and practice culture plays in the prescription** of antibiotics to sheep in the UK. Therefore it is vital the vet plays a role in reducing the use and therefore helping to reduce the threat of antimicrobial resistance.



What Advice Should The Vet Be Giving?

Early detection, treatment with an antibiotic spray and use of injectable antibiotics is key.² Regular foot bathing using zinc sulphate solution can help treat and reduce lameness³ Isolation of infected sheep reduces the bacteria in the environment, reducing the lameness prevalence

Vaccination with Footvax has been shown to result in a 14.95% reduction in footrot cases.⁴ However, greatest results were seen where farms vaccinated for over 5 years⁵ Persistently infected sheep are a constant reservoir for disease. A three strike and cull system helps reduce this²

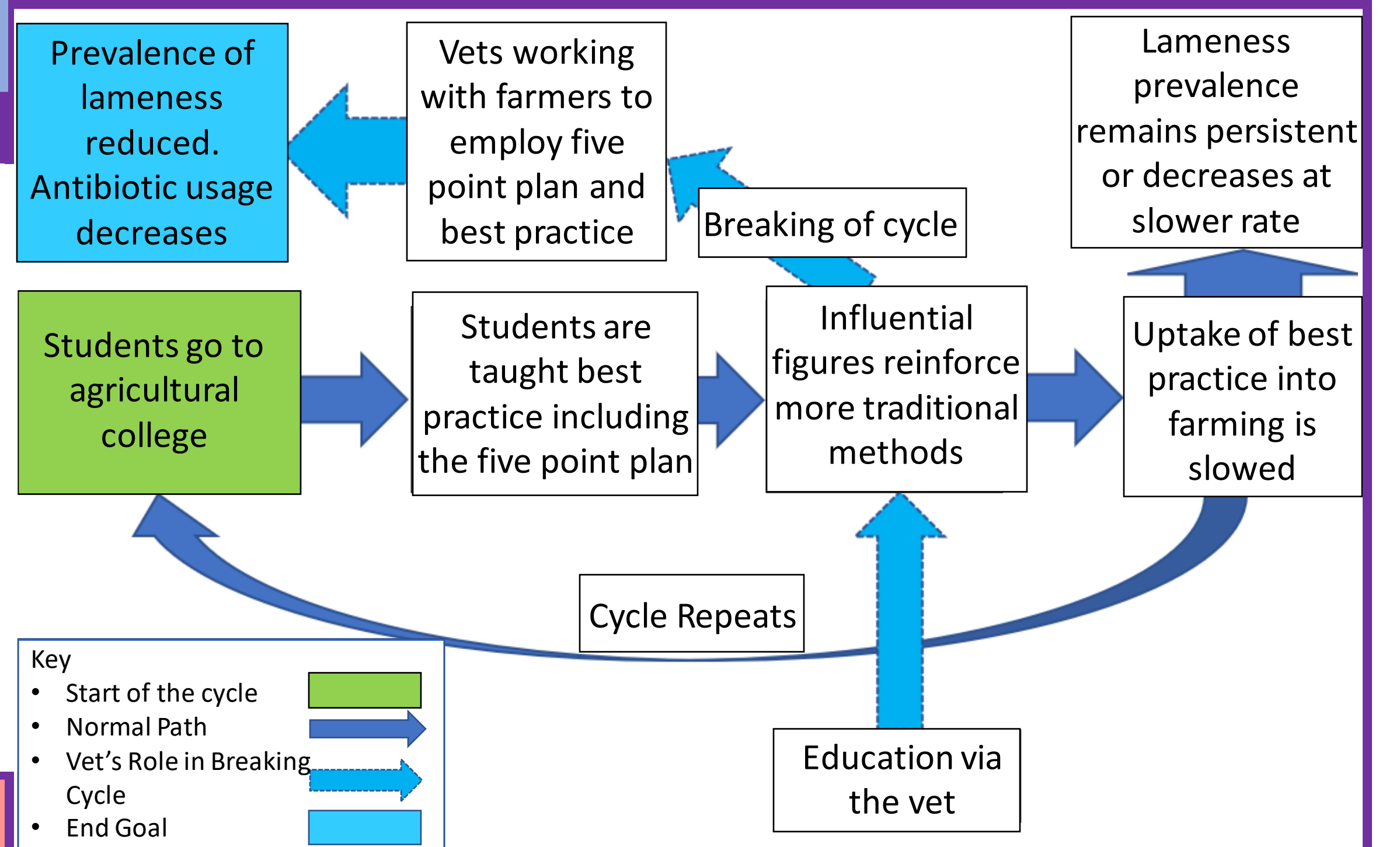
Best Practice: The Five Point Plan

Treat, Vaccinate, Cull, Quarantine, Avoid

Dichelobacter nodosus and *a trepaneme*, the bacteria causing infectious foot disease both have multiple strains. Quarantine helps prevent the introduction of new, potentially resistant, bacteria into a flock. Reduced lameness associated with over 21 day quarantine⁷

Role of The Vet in Education

Only **11%** of British sheep farmers conform to **best practice** in lameness prevention.⁸ The flow chart highlights the negative cycle inhibiting uptake of best practice into UK farming. While students understand the importance of best practice in reducing lameness, they are led to believe it is not commercially possible.⁹ Vets must appreciate their ability to influence the older generation to sway their opinions and **break this cycle**. This will **reduce lameness, cut antibiotic use and reduce the threat of antimicrobial resistance**.



Role of the Vet in Developing New Technology

Early detection means early treatment, reduced spread of disease and so reduced lameness prevalence. However, detection currently relies on the farmer which is problematic because sheep are prey species **designed to hide weakness, flock size to farmer ratio is increasing** and sheep **only spend 2% of the day walking**.¹⁰ Vets are developing an ear tag that uses an accelerometer and a gyroscope to detect changes in movements of sheep lying, walking and standing. With an overall **80% accuracy**, the vets role in technology development could help reduce the antimicrobial resistance threat.¹⁰ The role should also be extended to improving current technologies. Slow uptake of the five point plan is due to **practical limitations**. Expectations of zinc sulphate foot bathing requiring sheep to stand in solution for 15-30 minutes are unachievable given current technologies.¹¹

Warning: Technological advances in the sheep industry are slow

Electronic identification (EID) is a current technology that could be used to more efficiently monitor lame sheep. However, while 99% of farmers use EID, only 21% take advantage of them for stock management with most citing the legal requirement as the main reason why they use them.¹² Therefore, the vet also plays a role in encouraging uptake of new technologies to tackle lameness.

Conflicting views: The Science Behind Sheep Hoof Health Care Has Changed

Foot trimming was to expose the anaerobic bacteria that causes foot rot to the air in an attempt to kill the bacterium ¹³	Now the damage of foot trimming to sheep is better understood due to the aggravation of the dermis , the potential to cause toe granulomas and potential to spread disease through equipment ¹³
Formalin footbathing to harden the hoof	Now understood to cause more damage to a hoof with foot rot by causing toe granulomas, increasing lameness ¹⁴

The vet has **always played a role** in advising best practice for hoof health shaping methods employed by farmers. Research into this has enabled a better understanding of what is best practice. Therefore, overall, the vet has a **continuous role** of advising farmers on the latest understanding of best practice to improve lameness prevention standards, drive down antibiotic use and **reduce antimicrobial resistance**.

