

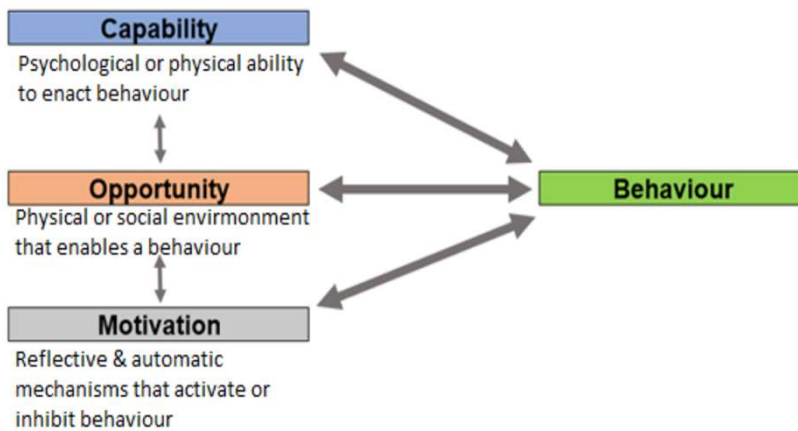
# Factors influencing dairy farmers' antibiotic use: An application of the COM-B Model

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**Background:** In dairy farming, mastitis treatment is the most common reason for Antimicrobial Resistance (AMR). Traditionally blanket dry cow therapy (BDCT) in which all cows receive antibiotic treatment, was used prophylactically to prevent and manage disease spread. In recent years there has been a move towards selective dry cow therapy (SDCT) in which only clinically infected cows are treated with antibiotics. Understanding farmers' motivations to implement recommended practices needs to be better explored to reduce and refine antibiotic use (ABU) on dairy farms. **Objectives:** This study aimed to explore farmer attitudes towards ABU, using the COM-B model as a framework, to identify predictors of changing to SDCT and suggest interventions to encourage its uptake.

**The COM-B Model:** The COM-B model of behaviour change proposes that an individual must have sufficient levels of *capability* (Psychological and physical, e.g. knowledge, skills), *opportunity* (physical and social, e.g. time, social cues) and *motivation* (reflective and automatic e.g. intentions and planning) in order for a target behaviour to change.

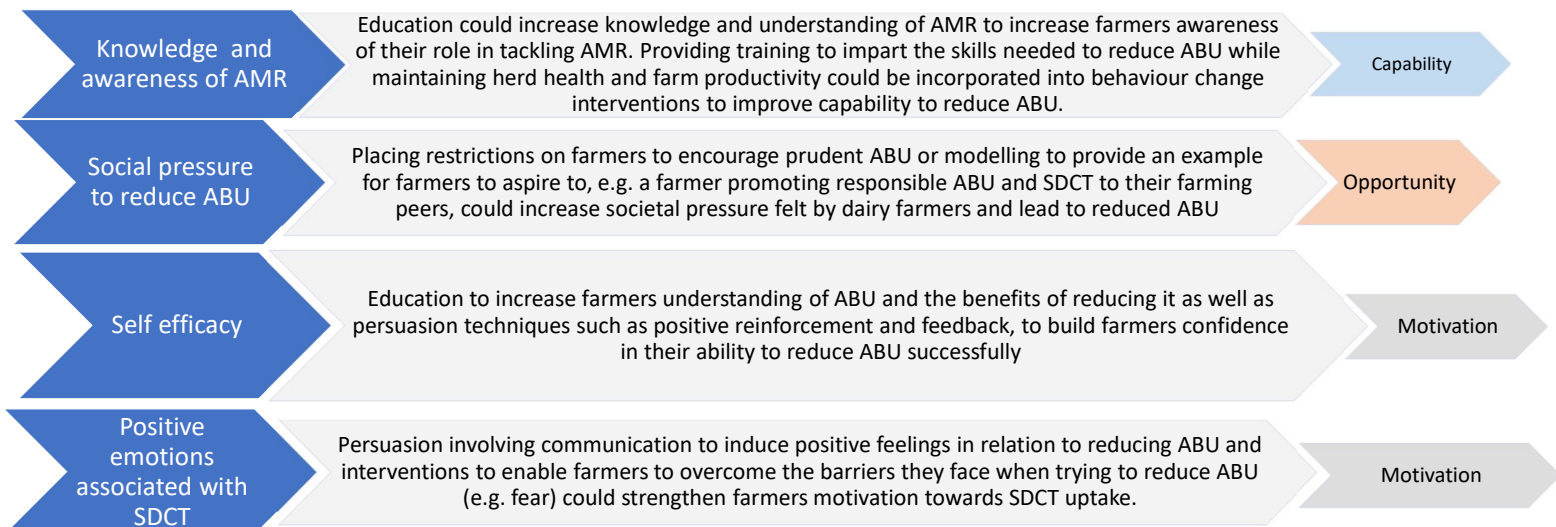


Application of the COM-B model to key ABU behaviours on dairy farms will provide an understanding of the factors which are most likely to influence responsible behaviour amongst dairy farmers, thus enabling identification of appropriate targets for behaviour change interventions.

**Methods:** 240 dairy farmers on the island of Ireland were surveyed online using Survey Monkey. Questionnaire items were generated by conducting an extensive search of relevant literature and were based on the COM-B model of behaviour change. All data was analysed using IBM SPSS Statistics version 25. Logistic regression was used to determine predictors of SDCT uptake.

**Findings:** Knowledge and awareness of AMR and ABU (Capability), social pressure to reduce ABU (Opportunity) and self-efficacy i.e. believing in their ability to change behaviour, and positive emotions associated with SDCT (Motivation) were all significant predictors of farmers having moved towards SDCT. Direct logistic regression found these items explained between 25.4% and 39.5% of the variance in making changes to dry cow therapy practices and correctly classified 83.81% of cases.

**Recommendations:** Based on the intervention functions of the Behaviour Change Wheel, recommendations to promote the factors found to influence behaviour change in relation to SDCT uptake can be seen in the figure below.



**Conclusion:** Educating farmers on the importance of responsible antibiotic use is not enough to achieve the desired outcome of prudent antibiotic use on farms. A multifaceted approach, with interventions encompassing each of the predictors highlighted by the COM-B model should be taken to encourage farmer behaviour change and promote SDCT.