

ACRONYM: REDUCEAMU

Title: Piloting on-site interventions for reducing antimicrobial use in livestock farming in emerging economies

Keywords: Antimicrobial use, livestock, emerging economies, One health, Interventions

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Abstract:

Increasing intensification and expansion of the livestock sector in emerging economies is a large user of antimicrobials, driving the global emergence of antimicrobial resistant bacteria in livestock, humans and the environment. The objective here is to test interventions aimed to reduce antimicrobial use (AMU) in livestock in emerging economies using the pig production in Thailand as a study case. Regulations may not be sufficient to reduce AMU in the livestock sector and can therefore have limited impact on the resulting development of AMR in the biota. Thus, there is a need to find interventions that do not depend solely on regulation. The novelty is that we will test interventions by computer simulations based on primary data generated through a *One Health* approach. Based on known distributions of pig production we will record knowledge, attitudes and practices related to AMU and animal management among pig farmers. Then we will collect samples from pigs, pig farmers and control human subjects who are not in contact with pigs and perform phenotypic and molecular analysis of the AMR profiles. Using these data-sets, we will do spatial analyses and model the impacts of altering variables for practices related to AMU, animal management and farm structure, with emphasis on farmers' incentives, to explore whether these would be expected to lead to a reduction in AMU. Ultimately, we will assess if such a reduction can be related to the burden of AMR in pigs, pig farmers and non-exposed humans. Finally, we will assess the economic and social feasibility of the tested interventions.