

Let Them Graze Ducks!: Using Agent-Based Modeling of the Village Poultry Sector in Thailand to Identify Measures that Control Influenza Transmission While Mitigating Negative Socioeconomic Impacts

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I would like to thank the Consortium on Law and Values in Health, Environment and the Life Sciences again for selecting me to be a Consortium Scholar for 2011-12. I have included below a summary of the work that I have been able to complete with this generous funding. My research focuses on avian influenza infection of free-grazing ducks in Central Thailand. The Consortium grant has been used to characterize and quantify the contact network of these free-grazing duck flocks and the rest of the local poultry sector. In addition to providing important descriptive information of flock movements and contacts, this information is being utilized to generate an agent-based model of the network.

I conducted a data collection trip to Thailand in August and September, 2011. During this trip, my research assistant and I interviewed 35 free-grazing duck owners, poultry traders, farm owners and other members of the local poultry sector. These interviews were in-depth and meant to answer our predetermined questions as well as extract new information. The funds for the majority of the travel and work were provided by the Consortium grant. With this generous support, we learned an immense amount about what these people do on a daily basis and what contacts they make that could facilitate the transmission of avian influenza.

Model development has been moving forward, and I presented the first version of the model at my doctoral defense seminar in May. The preliminary model is already being revised, and its functionality is being improved, allowing the interactions represented in the model to more closely reflect the frequency and type of contacts reported in the real world.

This grant from the Consortium on Law and Values in Health, Environment and the Life Sciences has been vital to this project and to completing my dissertation. Understanding what puts free-grazing duck flocks at risk for exposure to influenza viruses is a key focus of my thesis. Avian influenza is a disease that is transmitted primarily through the movement of poultry and poultry products. Once this agent-based model is finalized, the role of each of the poultry network components can be assessed, and opportunities for disease control can be hypothesized and assessed.

I look forward to acknowledging your support in any publications that result from this work. I give my sincerest thanks to the Consortium for facilitating and adding value to my dissertation research through this award.