



One Health Studies of Pig Associated Zoonoses in Smallholder Pig Production in Lao PDR

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Introduction

Pig-raising is an important livelihood in rural Laos. Village-based pig production systems also pose a health risk from a number of pig-associated zoonotic diseases. Between 2006 and 2015 two ACIAR and one ILRI funded research projects were implemented in collaboration with animal and human health authorities of the Lao Government to study sero-prevalence of pig production diseases and zoonoses.

Material and Methods

Overall 2341 human and 1356 pig serum samples were randomly collected from 81 villages in 8 provinces as well as from slaughterhouses. Integrated surveillance methodologies were used to obtain baseline sero-prevalence of pig diseases and pig-associated zoonoses, together with structured questionnaires to determine associated disease risk factors at the village and householder level. Socio-economic livelihood studies were also conducted.



Woman focus group meeting



Blood sampling from pig

Results

Sero surveillance estimates in human and pigs

Pathogen	%, (95% CI)	
	SPSP/ILRI Project	PZP Project
Human		
Japanese encephalitis (JE)	4.8 (2.8 - 7.0)	39.4 (36.6 - 42.3)
Hepatitis E	63.1 (43.9 - 53.3)	37.9
Trichinella	49.5 (35.6 - 63.6)	19.1 (17.1 - 21.1)
Taenia solium IgG	2.6 (0.9 – 4.6)	8.4 (6.9 - 9.9)
Cysticercosis solium IgG	3.8 (0.3 - 8.4)	2.2 (1.4 - 3.0)
Pig		
Trichinella	14.4 (10.3 - 18.4)	Not tested (NT)
Hepatitis E	81.3 (76.8 - 85.8)	21.9 (7.9 - 37.4)
JE IgG	73.95 (68.9 - 79.0)	76.0 (53.1 - 95.1)
JE IgM	13.0 (7.8 - 18.2)	5.2 (2.7 - 7.6)
Cysticercosis	NT	68.5 (64.7 - 72.2)
T. solium (Carcass inspection)	NT	0.8 (0.1 - 1.6)
T. Hydatigena (Carcass inspection)	NT	22.4 (19.0 - 25.7)
Classical Swine Fever (CSF)	5.3 (2.2, 10.9)	NT
PRRS	6.9 (3.3, 12.9)	NT
FMD (NSP ELISA)	1.5 (0.2, 5.5)	NT

Conclusion

- The trans-disciplinary involvement and capacity building of agencies and staff has generally proven very beneficial.
- The studies highlight the burden of pig zoonoses and production diseases and need for continued surveillance and communication between livestock owners and veterinary and public health authorities in order to control the disease in the Lao PDR.

Output:

- Generated recommendations for control and future research
- produced IEC materials, conducted public awareness and communication campaigns.
- Public health and animal health intervention implemented.
- Oral and poster presentations at the international and national.
- Numbers of articles published.



Village education campaign



Pig health intervention



School education campaign



Public health intervention in a selected village

References

- ACIAR_Final Report_SPSP_AH/2009/001: Increased productivity and reduced risk in pig production and market chains – locally referred to as “One Health Smallholder Pig Systems Project (SPSP)”
- ACIAR_Final Report_PZP - AH/2006/161Management of pig-associated zoonoses in Lao PDR
- Final Report of Results of the EcoZEID Laos Project: A participatory Ecohealth study of smallholder pig systems in upland and lowland Laos