

**RISK ASSESSMENT TO DEMONSTRATE FREEDOM OF HIGHLY
PATHOGENIC AVIAN INFLUENZA (HPAI) IN TIMOR LESTE**

This thesis is presented for the degree of Doctor of Philosophy

by

Acacio Cardoso Amaral, BVSc, MTVSc.

School of Veterinary and Biomedical Sciences

Faculty of Health Sciences

Murdoch University

Western Australia

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DECLARATION

I declare that this thesis is my own account of my research and contains as its main content work which has not previously been submitted for a degree at any tertiary education institution.

(Acacio Cardoso Amaral)

ABSTRACT

The highly pathogenic avian influenza (HPAI) virus was the cause of a pandemic of avian influenza which affected poultry from most parts of the world. In contrast to most Southeast Asian countries where HPAI is endemic, Timor Leste is currently free from HPAI. The current study was designed to collect data to confirm that Timor Leste is actually free from HPAI and to identify potential risk factors that might be involved in the introduction of HPAI into the country. Data to confirm freedom were collected from various sources, and included biological samples for HPAI testing from regions with a high risk of infection.

The analysis of existing animal health data (2004 to 2006) found that, with the exception of a survey in June 2004, there was no evidence of HPAI being present in Timor Leste. In the survey of June 2004 low titres were found indicating previous exposure to HPAI virus (H5 and H7). As only two serological positive samples were found and there were no reports of outbreaks of clinical disease typical of HPAI, it is likely that the results were false positives.

As no surveys had been undertaken in Timor Leste since March 2006, as part of the current study, targeted surveillance was conducted in July 2009. As all samples were negative the findings support the belief that Timor Leste was free from HPAI at the time of sample collection.

Although the country may currently be free from HPAI, the country is at risk of having an incursion of HPAI through certain high risk practices. These include the smuggling of live chickens, the lack of awareness of HPAI by farmers, a lack of

adoption of biosecurity measures by households owning poultry and the extensive poultry management system adopted.

A risk assessment that was conducted as part of this study demonstrated that the probability of entry of infection through a smuggled chicken was high. The most important factors that would contribute to the entry of HPAI included: an increased number of chickens smuggled; increased number of smugglers; and the prevalence of AI in Nusa Tenggara Timur (NTT). On the other hand the risk decreased by: strengthening the detection, confiscation, and submission of smuggled birds by the Border Police Units (BPU) and by increasing the destruction of smuggled poultry by quarantine staff.

Although there were many putative risk factors identified for HPAI, it was confirmed that Timor Leste was free from HPAI, however the control measures to prevent the introduction of HPAI into the country should be reinforced and target the most influential factors identified in this project.

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TABLE OF CONTENTS

DECLARATION	I
ABSTRACT... ..	II
ACKNOWLEDGMENTS.....	IV
TABLE OF CONTENTS	V
LIST OF TABLES.....	IX
LIST OF FIGURES.....	XI
CHAPTER 1: GENERAL INTRODUCTION	1
1.1 BRIEF DESCRIPTION OF THE NATURE OF AVIAN INFLUENZA	1
1.2 HPAI STATUS IN TIMOR LESTE.....	3
1.3 SCIENTIFIC CONTRIBUTION OF HPAI RISK ASSESSMENT IN TIMOR LESTE	3
1.4 AIMS OF THIS THESIS	4
1.5 THESIS STRUCTURE	4
CHAPTER 2: LITERATURE REVIEW	7
2.1 INTRODUCTION.....	7
2.2 EPIDEMIOLOGY.....	9
2.2.1 Aetiology	9
2.2.2 Differentiation of LPAI and HPAI	11
2.2.3 The evolution of the AI viruses	11
2.2.4 Host range.....	14
2.2.5 Transmission.....	16
2.2.6 Major pathways for the introduction of AI into poultry	25
2.2.7 Factors influence the survival and transmission of AIV	32
2.2.8 Clinical description of avian influenza	33
2.2.9 Differential diagnosis of avian influenza	36
2.2.10 Diagnosis of Avian influenza	37
2.2.11 Prevention and Control of avian influenza	39
2.2.12 Distribution of HPAI H5N1 in the world	41
2.2.13 HPAI H5N1 in Southeast Asia	42
2.2.14 HPAI in Indonesia	44
2.2.15 HPAI in Australia	47
2.2.16 Status of HPAI in Timor Leste	47
CHAPTER 3: PRODUCTION SYSTEM AND MARKET CHAIN FOR POULTRY IN TIMOR LESTE.....	48
3.1 INTRODUCTION.....	48
3.2 MATERIALS AND METHODS	49
3.2.1 Map creation	49
3.2.2 Study areas.....	49
3.2.3 Data collection.....	50
3.2.4 Statistical analysis and classification of high and low risk districts	51
3.3 RESULTS.....	52
3.3.1 Village poultry production.....	52
3.3.2 Marketing of village poultry	59
3.3.3 Marketing of poultry eggs	62
3.4 DISCUSSION.....	65
3.4.1 Main poultry industry	65
3.4.2 Performance of poultry	66
3.4.3 The loss of poultry in Timor Leste	67
3.4.4 Poultry marketing and their movement between high and low risk districts	69

3.4.5	The potential impact on households if HPAI is introduced.....	71
3.5	CONCLUSIONS.....	72
CHAPTER 4: DEVELOPMENT OF MODELS TO ESTIMATE THE NUMBER OF VILLAGE CHICKENS IN TIMOR LESTE.....		74
4.1	INTRODUCTION.....	74
4.2	MATERIALS AND METHODS.....	75
4.2.1	Data gathering method.....	75
4.2.2	Method of calculations.....	75
4.2.3	Description of input variables for the model.....	76
4.2.4	Calculation of the village chicken population.....	81
4.2.5	Implementation.....	82
4.2.6	Sensitivity analysis.....	83
4.3	RESULTS.....	85
4.3.1	Number of village chickens in Timor Leste.....	85
4.3.2	Number of poultry (village chickens and ducks).....	85
4.3.3	Annual poultry growth rate.....	87
4.3.4	Sensitivity analysis.....	88
4.4	DISCUSSION.....	89
CHAPTER 5: ANALYSIS OF EXISTING SURVEILLANCE DATA ON AVIAN INFLUENZA IN TIMOR LESTE.....		92
5.1	INTRODUCTION.....	92
5.2	MATERIALS AND METHODS.....	93
5.2.1	Method of data collection.....	93
5.2.2	Methods and procedure of testing samples.....	93
5.2.3	Method of calculating confidence intervals.....	94
5.2.4	Determination of level of disease freedom.....	94
5.3	RESULTS.....	97
5.3.1	Survey locations.....	97
5.3.2	Species targeted and type of samples collected.....	98
5.3.3	Laboratory results.....	99
5.3.4	Analysis of freedom from disease.....	104
5.3.5	The influence of the minimum expected prevalence on the confidence in disease freedom.....	106
5.4	DISCUSSION.....	107
5.4.1	Serological surveys in Timor Leste.....	107
5.4.2	HPAI status in Timor Leste based on existing data.....	109
CHAPTER 6: ANALYSIS OF FACTORS THAT HAVE THE POTENTIAL TO BE INVOLVED IN THE INTRODUCTION OF HIGHLY PATHOGENIC AVIAN INFLUENZA (HPAI) INTO TIMOR LESTE.....		111
6.1	INTRODUCTION.....	111
6.2	MATERIALS AND METHODS.....	112
6.3	RESULTS.....	114
6.3.1	Risk of disease in the three regions of Timor Leste.....	114
6.3.2	Risk pathways for the entry of HPAI into the three regions of Timor Leste.....	115
6.3.3	Overall risk pathways in all regions.....	116
6.3.4	Risk of individual districts having an outbreak of HPAI.....	116
6.3.5	Risk category for individual districts.....	121
6.4	DISCUSSION.....	122
6.4.1	Risk of individual regions having outbreaks of HPAI.....	122
6.4.2	Important pathways for the potential introduction of HPAI into Timor Leste.....	123
6.5	CONCLUSIONS.....	130
CHAPTER 7: A TARGETED SEROLOGICAL SURVEY TO DEMONSTRATE TIMOR LESTE IS FREE FROM HIGHLY PATHOGENIC AVIAN INFLUENZA.....		132
7.1	INTRODUCTION.....	132
7.2	MATERIALS AND METHODS.....	133

7.2.1	Selection of sites	133
7.2.2	Selection of sampled poultry	135
7.2.3	Collection of samples	135
7.2.4	Determination of confidence intervals of prevalence	136
7.2.5	Sample testing method.....	136
7.2.6	Determination of level of disease freedom	136
7.3	LABORATORY RESULTS	137
7.3.1	Results of testing sera	137
7.3.2	Test results of swabs	140
7.3.3	Prevalence of AI based on results of testing of sera and swabs.....	140
7.3.4	Calculation of confidence level of HPAI freedom.....	141
7.4	DISCUSSION.....	142
7.4.1	The historical absence of HPAI in Timor Leste	143
7.4.2	Surveillance of wild birds	145
7.4.3	Veterinary services for AI.....	146
7.5	CONCLUSION	149
CHAPTER 8: ANALYSIS OF RISK FACTORS THAT MAY BE INVOLVED IN THE INTRODUCTION OF HIGHLY PATHOGENIC AVIAN INFLUENZA (HPAI) INTO TIMOR LESTE: BASED ON TARGETTED SURVEILLANCE		150
8.1	INTRODUCTION.....	150
8.2	MATERIALS AND METHODS	150
8.2.1	Statistical analysis.....	151
8.3	RESULTS.....	151
8.3.1	Number of households interviewed	151
8.3.2	Analysis of the questionnaire.....	151
8.4	DISCUSSION.....	170
8.4.1	Important risk factors identified	170
8.4.2	Means of communicating AI risk	180
8.4.3	Control and prevention of AI.....	180
8.5	CONCLUSIONS	181
CHAPTER 9: RISK ASSESSMENT OF THE ENTRY AND ESTABLISHMENT OF HIGHLY PATHOGENIC AVIAN INFLUENZA (HPAI) INTO TIMOR LESTE.....		182
9.1	INTRODUCTION.....	182
9.2	MATERIALS AND METHODS	183
9.2.1	Hazard identification	183
9.2.2	Risk question	183
9.2.3	Risk quantification method.....	184
9.2.4	Risk pathways.....	184
9.2.5	Scenario tree calculation method.....	188
9.2.6	Formulation for HPAI risk of entry and outbreak.....	189
9.2.7	Collection of Data.....	191
9.2.8	Implementation.....	191
9.2.9	Simulation and sensitivity analysis method	194
9.3	RESULTS.....	194
9.3.1	Experts interviewed and results of interviews	194
9.3.2	Summary of input parameters for P(Entry) and P(Outbreak)	198
9.3.3	Risk of release or entry	198
9.3.4	Risk of exposure leading to an outbreak	203
9.3.5	Sensitivity analysis	206
9.4	DISCUSSION.....	208
9.4.1	Risk of entry	208
9.4.2	Probability of entry	211
9.4.3	Risk of establishment.....	212
9.4.4	The probability of having an outbreak.....	213
9.4.5	The impact of risk of HPAI in Timor Leste.....	214

CHAPTER 10: GENERAL DISCUSSION AND CONCLUSIONS.....	215
10.1 INTRODUCTION	215
10.2 DISCUSSION	215
10.2.1 AI epidemiology.....	215
10.2.2 HPAI status in Timor Leste.....	218
10.2.3 Risk factors involved in HPAI introduction	219
10.2.4 Category of risk areas in Timor Leste	221
10.2.5 Risk of entry into Timor Leste	221
10.2.6 HPAI prevention in Timor Leste	222
10.3 CONCLUSIONS.....	222
10.4 LIMITATIONS OF THE STUDY AND THE NEED FOR FURTHER STUDIES.....	223
APPENDIX 1: QUESTIONNAIRE FOR THE POULTRY INDUSTRY.....	224
APPENDIX 2: QUESTIONNAIRE FOR POULTRY MARKETING	226
APPENDIX 3: QUESTIONNAIRE FOR EGG MARKETING	227
APPENDIX 4: QUESTIONNAIRE FOR ESTIMATION OF THE RISK OF INTRODUCING HPAI INTO TIMOR LESTE: EXPERT OPINION.....	228
APPENDIX 5: QUESTIONNAIRE FOR TARGETED SURVEILLANCE TO DEMONSTRATE FREEDOM FROM DISEASE.....	235
APPENDIX 6: QUESTIONNAIRE FOR QUANTIFICATION OF RISK OF ENTRY	246
REFERENCES	249

LIST OF TABLES

Table 3.1. Number and gender of chickens in the surveyed villages (n = 76).	53
Table 3.2. Number of village chickens in the 13 districts.	54
Table 3.3. Performance of poultry in the surveyed villages.	55
Table 3.4. Poultry losses reported by farmers.	56
Table 3.5. Frequency of consumption of poultry by interviewed households (n=1089).	58
Table 3.6. Factors causing loss of eggs (n=520).	58
Table 3.7. Frequency of egg consumption by 1069 households	59
Table 3.8. Total eggs sold by farmers and their prices	59
Table 3.9. Sale of poultry	61
Table 3.10. Prices of poultry in high and low risk districts (USD).	62
Table 3.11. Frequency of selling eggs from poultry (n=387).	63
Table 3.12. Price (US cents) of poultry eggs (n=357).	64
Table 3.13. Number of eggs sold from high and low AIV risk districts.	64
Table 3.14. Price of eggs in high and low AI risk districts (US cents).	65
Table 4.1. Poultry population in Timor Leste (source: Livestock Office and Statistics Office).	74
Table 4.2. Variables used to estimate the population of village chickens	76
Table 4.3. Number of households, chickens and average number of chickens per household in 2004 (Census 2004)	78
Table 4.4. Results obtained from a spreadsheet to estimate the number of village chickens in one of the 442 villages in Timor Leste	84
Table 4.5. Estimated change in the number of village chickens in each district for the period 2004 to 2009	85
Table 4.6. Proportion of ducks per district in Timor Leste	86
Table 4.7. Estimated total poultry population (chickens and ducks)	87
Table 5.1. Sensitivity and Specificity of the c-ELISA and HIT	95
Table 5.2. Sensitivity and specificity of the c-ELISA and HI modelled in PopTools.	96
Table 5.3. Summary of sensitivity and specificity of diagnostic tests used to determine freedom from HPAI	96
Table 5.4. Location of poultry sampled from June 2004 to March 2006. Data from joint survey by NAQS-Australia and MAF Timor Leste	97
Table 5.5. Survey results of joint NAQS/MAF sampling 2000-2006.	102
Table 5.6. Calculation of disease freedom from the historical data with an MEP of 10%	105
Table 6.1. Median, minimum and maximum risk value (Likert Scale 0 to 5) of Timor Leste's three regions.	114
Table 6.2. Number and percentage of experts believing different regions of Timor Leste will have an outbreak of HPAI*	114
Table 6.3. Median and range of the score for risk pathways for the introduction of HPAI into the West, Central and East regions of Timor Leste	118
Table 6.4. Risk categories for different pathways of introducing HPAI into the West, Central and East regions of Timor Leste.	119
Table 6.5. The OR for different potential means of introducing HPAI into the three regions of Timor Leste	120
Table 6.6. Median and range of risk value category of individual districts in Timor Leste.	121
Table 6.7. Categorisation of districts into high and low risk.	121
Table 6.8. Odds ratio (OR) and 95% confidence intervals of 13 districts for the introduction of HPAI	122
Table 7.1. Source of sera and swabs from various species and districts in Timor Leste.	138
Table 7.2. Laboratory results from testing of sera for AI and HPAI originating from birds from various sites	139
Table 7.3. Results from testing 64 pools of swabs (320 individual swabs)	140
Table 8.1. Questionnaire respondents in the various villages in 5 districts	152
Table 8.2. Type of animals (n=3712) kept in the surveyed households (n = 159)	153

Table 8.3. Proportion of village chickens according to age group in surveyed areas (n=97).....	153
Table 8.4. Source of water for poultry (n=159).....	155
Table 8.5. Distances of households surveyed to markets (n=143)	156
Table 8.6. Average price of poultry sold (n=115).....	158
Table 8.7. Source of fighting cocks (n=109).....	159
Table 8.8. Methods adopted by households to ensure they purchased healthy chickens (n=108).....	162
Table 8.9. Months when birds were reported as being sick or dying.	165
Table 8.10. Cause of poultry disease as identified by surveyed households (n=158)	167
Table 8.11. Measures taken to prevent poultry diseases by 157 households*	168
Table 8.12. Sources of information for households on Avian Influenza (n=96)	168
Table 8.13. Actions taken by 153 households if AI was suspected to be present in their birds	169
Table 8.14. Methods adopted by households to prevent family members from getting AI (n=148)..	170
Table 9.1. Nodes of the scenario tree models leading to HPAI entry.....	187
Table 9.2. Nodes of the scenario tree models for exposure leading to an HPAI outbreak	188
Table 9.3. Excel spreadsheet for modelling expert opinions (E.g. number of smugglers smuggling chickens)	193
Table 9.4. Summary of the results from the interviewed experts	195
Table 9.5. Summary of probability branches of the scenario tree	198
Table 9.6. Seroprevalence and virus isolation in NTT (Dr. Maria Geong, personal communication)	200
Table 9.7. The results of the calculations to determine the probability of entry	202
Table 9.8. The probability of having an outbreak of HPAI.....	205

LIST OF FIGURES

Figure 2.1.	A graph displaying the number of outbreaks of HPAI in 51 countries in poultry from 2003 to 1st October 2010 (source OIE 2010b).....	43
Figure 3.1.	Map of Timor Leste showing its 13 districts. White areas are Indonesian territory.....	50
Figure 3.2.	Map of Timor Leste showing border districts and marketing centre [high risk districts (red)] and non border districts [low risk districts (green)]. White is Indonesian territory.	52
Figure 3.3.	Source of poultry eggs purchased (n=140).....	63
Figure 4.1.	Future projection of village chicken population.....	88
Figure 4.2.	A spider plot showing the effect of each parameter on the estimated total chicken population (2009)......	89
Figure 5.1.	Avian influenza test procedure.....	94
Figure 5.2.	Map of Timor Leste showing districts that had been sampled in previous surveys (turquoise), districts not covered (grey) and Indonesian territory (white).	99
Figure 5.3.	A graph showing how the MEP influences the confidence limit of HPAI freedom on the survey conducted in June 2004. (H0: The country is infected with HPAI and H1: the country is free from HPAI).	106
Figure 6.1.	Map displaying Timor Leste's 3 regions. Green (West), orange (Central) and yellow (East). White is Indonesian territories.	115
Figure 6.2.	Map of Timor Leste showing districts that were ranked as high (Red), medium (orange) or low risk (green) for an outbreak of HPAI. White areas are Indonesian territory.	117
Figure 6.3.	An example of the destruction of eggs illegally smuggled from NTT in Oecusse District	126
Figure 6.4.	Australian Pelicans at Lake Tasi Tolu, Dili – Timor Leste	127
Figure 7.1.	Survey sites for targeted surveillance in July 2009. Orange (surveyed districts), yellow (other districts) in Timor Leste. white is Indonesian territory.....	134
Figure 7.2.	The influence of MEP on the confidence limits of HPAI freedom. H0: the country is infected with HPAI and H1: the country is free from HPAI.	142
Figure 8.1.	Poultry for sale at a permanent market in Dili district	157
Figure 8.2.	A typical fighting cock that is smuggled into Timor Leste.	160
Figure 8.3.	A typical local fighting cock in Timor Leste.....	160
Figure 9.1.	Release assessment scenario tree outlining how HPAI could be introduced into Timor Leste	185
Figure 9.2.	Scenario tree illustrating exposure assessment and risk of consequences of HPAI	186
Figure 9.3.	A spider plot showing the influence of the input parameters on the risk of having at least one infected chicken entering Timor Leste (based on P(Inf) of NTT AI serosurveillance study)	206
Figure 9.4.	A spider plot showing the influence of the input parameters on the probability of having an outbreak of HPAI in Timor Leste (produced by using P(Inf) from NTT AI serosurveillance study).	207