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President's Report

Most of our activity this quarter has been involved in preparation for the coming meetings, firstly in Auckland in October/November. Dave Marks and his team have done a great job in defining a program and organising a venue which promises to be most enjoyable. If you haven't already done so, it would be advisable to book flights and accommodation soon. Details are elsewhere in Dander.

We will also be producing a meeting following the Australian Poultry Science Symposium being held at the University of Sydney in February 2007. A call for papers for this meeting is in this edition of Dander. We are hoping to give this meeting a "Public Health" theme and we are investigating sponsoring overseas experts to make this of high value as possible.

AVA Issues

I have met with the AVA executive and their concerns over our relationship with them are reaching a cusp. AVPA is the only SIG now not to fall in line with the AVA constitutional requirements on membership. I have expressed our commitment to maintaining our historic membership structure. This is difficult as the AVA values

our association with them. As this matter comes to a head, we may need to consider becoming an associated entity in our own right and develop some sort of "advisory" role to AVA on poultry matters. We'll adapt to these needs only when they become necessary.

The AVA policy on Beak Trimming, which many of our members laboured over some time ago, is still only in "draft" status. To be ratified as official AVA policy, it must be debated at AVA Policy Council level. I've been invited to attend the next one (20-22 October) and put the case and open it for discussion/debate. From some of the correspondence inputs, this could be fairly involved and may need a lot of explanation. For example, one comment addressed basic opposition to intensive farming, so misunderstanding will be the biggest hurdle here. If any of you have good photos of cannibalised birds and beak trimmers in action I'd appreciate being able to use them. Any other members who'd like to attend this meeting would be most welcome.

Looking forward to seeing you all in Auckland!

Peter Groves

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The Australian Veterinary Poultry Alliance is a Special Interest Group of the Australian Veterinary Association. Membership of the AVPA is available to individuals and groups working in, or interested in, any veterinary aspect of poultry.

Dander will be published quarterly (March, June, September and December). Contributions are welcome. Electronic copy is requested. Deadline for copy is by the end of the second week of the month of publication. Please send information on abstracts of interesting papers, summaries of reports, case histories, social news etc. to Kevin Whithear, School of Veterinary Science, The University of Melbourne, 250 Princes Highway, Werribee 3030, Victoria <kevingwt@unimelb.edu.au> fax 03 9731 2366.

Summary of Important Upcoming Scientific Meetings

- October 2006** **AVPA New Zealand Conference.** Waipuna Hotel & Conference Centre, Auckland. October 31 – November 1. Contact: Dr Dave Marks. Email: davidmarks@xtra.co.nz.
- February 2007** **Australian Poultry Science Symposium.** Webster Theatre, University of Sydney. February 12-14. Contact: Prof. T. Scott. Email: toms@camden.usyd.edu.au. Web: <<http://www.vetsci.usyd.edu.au/apss>>.
- February 2007** **AVPA Sydney Conference.** Webster Theatre, University of Sydney. February 14-15. Contact: Dr Peter Groves. Email: "Peter Groves" zo48866@bigpond.net.au. There will be a joint session with APSS on the morning of February 14.
- March 2007** **56th Western Poultry Disease Conference.** Riviera Hotel & Casino Las Vegas, Nevada. March 27-29. Contact: Dr Bruce Charlton. Email: bcharlton@ucdavis.edu
- September 2007** **XV Congress of the WVPA.** China International Conference Center for Science and Technology (CICCST), Beijing, P.R.China. September 13-16. Fax: +86 10 62174126. Email: llwang@wvpc2007.org. Web: www.wvpc2007.org. Abstracts must be submitted to the Congress Secretariat via the WVPC website no later than 28 February 2007. AVPA member Amir H, Noormohammadi is the Houghton Lecturer at the WVPA Congress.
- June-July 2008** **23rd World's Poultry Conference and Sixth Asia Pacific Poultry Health Conference.** Brisbane Conference and Exhibition Centre. June 29 - July 4. AVPA Contact Dr Kevin Whithear; Email: kevingw@unimelb.edu.au.
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Sixth Asia Pacific Poultry Health Conference

The 6th Asia Pacific Poultry Health Conference (AP6) will be held in conjunction with the 23rd World's Poultry Conference (WPC2008) in Brisbane from 20 June to 4 July 2008.

Poultry Health topics at the conference will be incorporated into the AP6 stream and this part of the Program, including a Plenary Session, will be organised by an AVPA Scientific Program Committee. Nobel Laureate, Professor Peter Doherty will give a plenary address on Avian Influenza.

While details need to be discussed and decided, it is probable that all delegates will pay the same registration fee and will be able to switch between sessions of their choosing. A conference on Marek's Disease in Townsville will follow WPC2008 and AP6 on 6 July to 10 July, 2008.

June - July 2008 looks like being a very exciting month for conferencing, so all AVPA members are encouraged to start planning for it now.

MEMBERSHIP MATTERS

Membership List

Thanks to all members who have renewed their AVPA subscriptions for 2006. If you haven't done so, please take out your chequebook now and make out a cheque of \$49.50 to the AVPA and post it to the Honorary Treasurer today. **AVPA requests that members pay their annual subscriptions directly to AVPA rather than through the AVA.** A membership renewal form is on the back page of this edition of Dander. Sustaining members will be contacted individually about renewing memberships for 2006.

2006 Financial Members: Caroline Ash, Phillip Ashby, Trevor Bagust, John Barnett, Carol Bates, Peter Beers, Susan Bibby, Doug Black, Pat Blackall, Wayne Bradshaw, Glenn Browning, David Buckley, Graham Burgess, Brian Burke, Eleanor Chaine, Peter Claxton, Kim Critchley, Mike Cundy, Peter Curtin, Wieslaw Demkowicz, Elizabeth Evans, Gordon Firth, Peter Gray, Tom Grimes, Peter Groves, David Hampson, Bob Hughes, Clive Jackson, Rod Jenner, Noel Johnston, Bob Johnston, Brian Jones, Wayne Jorgensen, Vivien Kite, Azadeh Laghai, Mark Lindsey, Margaret MacKenzie, Michael McDermott, Paul McQueen, Con Malliadis, David Marks, Krystyna Minkiewicz, Linden Moffatt, Iain Mortimer, Robert Morton, Kerry Mulqueen, Amir Noormohammadi, Frank Pace, Barry Philips, Bruce Remington, Grant Richards, Julie Roberts, Simon Robinson, Ambrosio Rubite, Peter Scott, Margaret Sexton, Wafa Shinwari, Via Sfetsas, Jo Sillince, Peter Spradbrow, Jillian Templeton, Andrew Turner, Greg Underwood, Aileen Vanderfeen, Steve Walkden-Brown, John Walters, Ben Wells, Kevin Whithear, Pam Whitley, Sarah Wiley.

Student Member: Gabriel Brown.

Life Members: Balkar Bains, Leon Barlow, Roger Chubb, Dinah Fry-Smith, Paul Gilchrist, Harvey Langford.

Please see the AVPA website for information on sustaining members and links to websites

AVPA Sustaining Members 2006

Sustaining members contribute funds that help defray costs of services to members of the AVPA. We thank all sustaining members for their active interest and support.



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Annual Scientific Meeting of the American Association of Avian Pathologists (AAAP), Honolulu, 16th-19th July 2006

Tom Grimes, Peter Groves and Peter Scott

Introduction

Each year the AAAP organises a one-day Scientific Seminar on a specific poultry disease topic followed by a 3-day scientific meeting consisting of oral and poster presentations on avian health matters. The topic for the scientific seminar this year was "Impact of Subclinical Immunosuppression on Poultry Production" with presentations on IBDV, CAV, MDV, ALV and REV. The seminar was introduced with an excellent overview of the avian immune system. There were a total of 124 oral presentations and 180 poster presentations during the 4-day meeting. The proceedings of the meetings can be downloaded at www.aaap.info/. A short synopsis of some of the topics is given below.

Vaccines

There were a number of presentations on genetically engineered and vector vaccines, an increasing number of which are now registered. Such vaccines include in ovo delivery for prevention of avian influenza (FPV and NDV vectors), Newcastle disease (HVT vector), ILT (HVT and FP vectors), IBD (HVT vector) and MG (FP vector). While this approach has advantages of automation and immunising against a number of diseases with one vaccination, the cost of these vaccines, particularly if a full dose of the vector needs to be administered, may limit the use at this stage.

Other vaccine reports included an in ovo-delivered coccidiosis vaccine, an inactivated *Clostridium perfringens* vaccine for use in breeders to control necrotic enteritis in broilers, a live attenuated mass-administered CAV vaccine for broilers and a live attenuated *E. coli* vaccine. Future use will determine the cost-effectiveness of these vaccines.

Peter Groves presented a poster on the successful use of an autogenous inactivated salmonella vaccine containing representatives of three serogroups in meat breeders.

Avian Influenza

Details were presented of a USDA-Industry program for monitoring and control of Low Path H5/H7 AI that has been implemented for the live bird marketing system and which is shortly to be extended to larger units within the commercial poultry industry. There were presentations on outbreaks of Low Path AI H3N2 (caused cessation of egg production) and H4N8 AI in turkeys, an ELISA test for the differentiation of infected and vaccinated animals (DIVA) using a natural truncated NS1 protein of AIV which may be the test of choice in AI vaccination programs incorporating DIVA in the future and details of the AI Co-ordinated Agricultural Project on "Prevention and Control of AI in the USA" (www.agnr.umd.edu/aicap) which includes researchers from 17 US institutions.

Avian Leucosis

ALV subgroup A contaminated Marek's disease vaccines of two companies in 2002, likely as a result of a contaminated SPF flock, causing ALV-A infection of

poultry flocks. Fortunately, there were no significant harmful effects reported. Apparently the virus, which had the envelope of an endogenous ALV, grew slowly and was not detected in tests undertaken in SPF flocks and vaccines in the USA. Myeloblastosis-associated virus type 1 (MAV-1) was isolated from myeloid tumours that resembled those caused by ALV-J in other cases of ALV disease.

Inclusion Body Hepatitis (IBH)

IBH due to vertical transmission of adenoviruses has occurred in the USA and Canada in the last few years. Various serotypes have been involved. These occurrences resemble similar IBH outbreaks in Australia in the past which were prevented by a live Type-8 Fowl Adenovirus Vaccine. Autogenous killed vaccination of breeders has been used for control in some of the USA cases.

Gangrenous Dermatitis

There were a number of papers on this disease, which was ranked as the 3rd most important disease of broilers in the USA in 2004. *Clostridium perfringens* and *Clostridium septicum* were isolated from the skin lesions. Experimental models for reproduction of the disease were described.

Runting Stunting Syndrome

RSS, also called cystic enteritis in the USA, has been very prevalent in the USA in the last three years. Transmissible viral proventriculitis may be involved in some suspected RSS cases. Only partial reproduction of RSS has been achieved with reoviruses, avian nephritis virus (an astrovirus) and rotavirus. IBDV immunosuppression may predispose.

Food-Safety

While campylobacter prevalence has decreased in poultry and humans in recent years in the USA, Salmonella has increased in prevalence with Salmonella Kentucky becoming predominant. One paper by the senior veterinarian of one large chicken meat company described measures within the company's processing plants to identify the most important six control points for salmonella contamination so that improved control within the company's processing plants could be implemented.

Other

Group 6 IBDV variants are now widespread in the USA, Latin America and Europe according to one speaker. A recommendation was that this variant should be included in killed IBD vaccines for breeders in these countries as there is no live vaccine containing this variant strain.

Acknowledgement

The authors would like to thank Intervet Aust. for funding to attend the meeting.

Importation & Exotic Diseases Subcommittee Report

Importation of Live Vaccine (Paracox)

The AVPA Subcommittee on Importation & Exotic Diseases has examined the documentation provided by AQIS on the coccidial vaccine Paracox and offers the following comments.

Risk of genetic recombination

Paracox master seed is a stabilate prepared presumably from *Eimeria* isolates that have been attenuated. Reversion to virulence was also tested. However, while it is acknowledged that all the *Eimeria* species present in the Paracox combination are present in Australia, it is not clear that the 2 *E. maxima* strains in the vaccines are present in Australia.

It is not known that any of the *Eimeria* strains selected for this vaccine are genetically identical to Australian *Eimeria* strains. The consequences of the imported vaccine genotypes recombining and re-assorting with Australian field strain genotypes have not been assessed or have not been made public. Consequences could include the emergence of different drug resistance pattern or the emergence of genotypes of different virulence.

Risk of contamination

The AVPA Subcommittee believes that the balance of the available scientific data (rather sparse and of variable quality) supports the ability of *Eimeria* species to carry pathogens of quarantine concern. The risk of the presence of these pathogens in the Paracox master seed could be negligible considering its widespread use and various test performed over many years in many countries. However, propagation of the vaccine strains in SPF eggs may introduce a risk depending on the quality and testing of the SPF flock.

According to the AQIS public consultation paper the flock and eggs are tested in accordance with EP and BP standards. However, the AQIS paper highlights the fact that the final product is not tested for all tests identified in the Live Vaccine Policy. The justification put forward is the treatment with sodium hypochlorite

Evidence provided to AQIS by Schering Plough validating the virucidal capabilities if hypochlorite is not available to the AVPA and it is not clear if Schering Plough Pty Ltd has provided the full kinetics of inactivation studies including all the agents of quarantine concern to the Australian Poultry Industry (eg CAV). Examination of the scientific data in relation to the virucidal capability of hypochlorite raises some concerns associated mainly with the scarcity of any scientific data to inspire confidence, the lack of any repetitional sound experiments to demonstrate the virucidal effects and the variability of the methods and non standardised approach in the few experiments that examined this issue.

The AVPA Subcommittee recognises the potential lethal impact of 1% hypochlorite on a large variety of pathogens but also is mindful of the ability of some pathogens (eg duck hepatitis virus) and viral particles to survive this concentration. There is insufficient data to assess the viability or the titres of these pathogens in the various *Eimeria* life cycles. It is also not clear from the available scientific data what viral particles and nucleic acids are present in *Eimeria* species and hence it is not easy to assess the quarantine consequences.

Inconsistencies with existing policies on importation of live vaccines & SPF eggs

Unless AQIS is considering the introduction of a third classification- 'almost inactivated' or 'almost live', Paracox should be assessed as a live vaccine as it is a live vaccine. Live vaccines are recognised as higher risk than inactivated vaccine and the Australian policy is to produce live vaccines in Australian derived SPF eggs. The same degree of risk that could be argued for the Paracox master stabilite could be applicable to any master seed vaccine imported to Australia in Australian SPF eggs. Vaccines that are produced in Australia from imported Master Seeds (eg MDV) in Australian SPF eggs are fully tested by AAHL.

The same degree of risk that is applicable to the commercial Paracox vaccine is applicable to Australian produced coccidial vaccines. Even under 'Critical National Need' requirements for the importation of SPF eggs, flock testing and final product testing are more rigorous than what is apparently proposed.

Since coccidial vaccines are produced in Australia from Australian SPF eggs, the following requirement should be applicable to any live vaccine:

1. The requirements of Australian manufacturers of coccidial vaccines to use Australian SPF eggs.
2. Consistency of, manufacturing standards, safety and efficacy requirements between local and overseas vaccine production.

Summary

The consequences of the imported vaccine genotypes recombining and re-assorting with Australian field strain genotypes should be considered.

The risk associated with the master seed could be very low but the propagation of the vaccine strains in SPF eggs introduces an additional element of risk that is largely but not completely mitigated by 1% hypochlorite. AVPA is not aware of a conclusive study to demonstrate the inactivation of all pathogens of concern by 1% hypochlorite.

AVPA as a scientific group believes that all experimental work by Schering Plough to support the effectiveness of inactivation should be transparent and available for examination in order to assess the conclusiveness of the data.

The requirement for live poultry vaccines to be produced in Australian SPF eggs should apply to this live vaccine.

Consistency in manufacturing standards and testing requirements between locally produced vaccines and overseas produced vaccines is essential.

Chicken Meat IRA

The AVPA Subcommittee on Exotic Disease & Importation is currently finalizing the response to the Chicken Meat IRA.

George Arzey Convenor

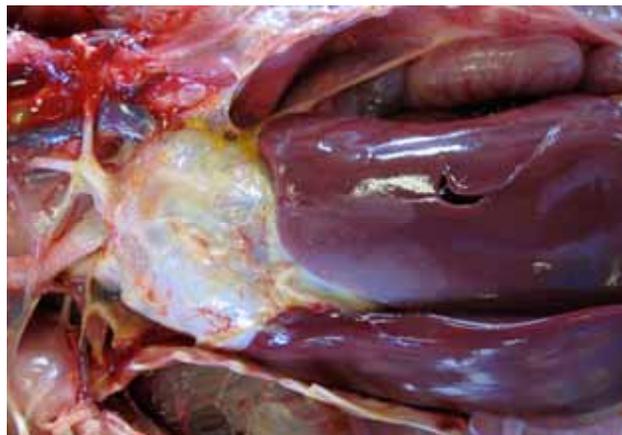
What's Your Diagnosis?

History: An adult domestic brown layer fowl of unknown age was submitted to the Melbourne University Veterinary Clinic. According to the submitter, about 90 out of 140 hens in his small free-range flock have died during the last month (May) with some birds showing yellowish discoloration of faeces before they die. Previous medications include copper sulfate, multivitamin and cod liver oil. The owner is mainly concerned if he or his wife could catch the diseases from birds.

Clinical examination: Moribund, a very poor body condition (weights 1.25 kg), dull expression of eyes, exudation of mucopurulent exudates from nostrils upon compression of the sinuses, hyperkeratosis of the leg skin (scaly leg), a large number of lice (*Menacanthus stramineus*) on the skin and feathers around the vent.

PM findings: Atrophy of the breast muscles, slightly deviated sternum, moderately enlarged liver, a small area of liver with a thin film of fibrin on capsule, fibrinous pericarditis, severely enlarged and mottled spleen, slightly pale kidney, urate deposits in ureters, mild cloudiness of some airsacs, mucous exudates in infraorbital sinuses but trachea and lungs grossly within normal limits.

Histopathology: Heart with degeneration of myocardial fibres, interstitial infiltration of mononuclear inflammatory cells particularly plasma cells, a thick layer of fibrin, necrotic cell debris and a mixed population of inflammatory cells but no visible bacteria on epicardium; liver with several small areas of hepatocytic necrosis with accumulation of fibrin and inflammatory cells particularly phagocytes, some granuloma formations, accumulation of fibrin and increased number of Kupffer cells within sinusoidal spaces, and perivascular infiltration of lymphomonocytic cells; spleen with accumulation of a large amount of fibrin in peri-ellipsoidal areas and infiltration of a large number of plasma cells all through but no visible bacteria; trachea and lung with no significant findings. Special staining of the tissues with Giemsa did not provide any further clue on the cause of the lesions.



Bacteriology: Impression smears from pericardium, liver and spleen stained with Machiavello did not reveal any visible bacteria; inoculation of conventional bacteriological media with swabs taken from pericardium, spleen and liver did not result in growth of a visible bacterial colony; *Chlamydothila* spp PCR using swabs taken from pericardium, liver and spleen was negative.

Answer: Go to page 12

AVPA New Zealand Scientific Meeting

The next AVPA Scientific meeting will be held in Auckland New Zealand on Tuesday 31 October and Wednesday 1 November 2006 at the Waipuna Hotel & Conference Centre, 58 Waipuna Road, Mt Wellington Auckland.

Registration for the 2 day meeting is \$60 NZ

Accommodation is also available at the conference venue.

The rate for the AVPA is \$150 NZ for a single \$170 for a twin share (excluding GST and breakfast). Fifty (50) rooms have been reserved for conference delegates.

Delegates should arrange their own bookings at Waipuna Hotel & Conference Centre by Phone: 09 526 3029, Fax: 09 570 0155 or Web: www.waipunahotel.co.nz

Provisional Scientific Program

AVPA Scientific Meeting – Auckland New Zealand 2006

Tuesday 30 October and Wednesday 1 November

Waipuna Hotel & Conference Centre

Tuesday 31 October

Time	Topic	Speaker
0800	Registration	
0850	Opening and Welcome by AVPA President	Dr Peter Groves
0900	The New Zealand industry IBD eradication program	Natalie Gerber
0930	Dealing with diagnostic uncertainties; investigation of infectious bursal disease seropositivity on two commercial free range layer properties	Paul Bingham
1000	Risk factors for exposure to endemic ND viruses.	Vivien Kite
1030	Morning Tea	
1100	NZ issues with the welfare codes	Mike Brooks
1130	NZ MAF/Industry broiler welfare survey	Caroline Bagshaw
1200	Biosecurity, welfare, biological performance and antibiotics	Dave Marks
1230	An overview of biosecurity New Zealand's technical response policies to avian influenza viruses of regulatory concern	Andre Van Halderen
1300	Lunch	
1400	Morsel of evidence; Chunks of doubt	George Arzey
1445	NZ IBD RA	Howard Pharo
1515	Afternoon Tea	
1530	Biosecurity risk programmes in the commercial poultry industry in New Zealand	Natalie Gerber
1600	NZ experience with <i>Salmonella</i> vaccination	Julie Wagner
1630	<i>Campylobacter</i> ; update on epidemiology and control in animals and man	Nigel French
1700	How accurate farm records and routine post-mortems make the vets life easier	Susan Bibby
1730	OGM	Dr Peter Groves, President AVPA
1900	AVPA Dinner	

Wednesday 1 November

Time	Topic	Speaker
0900	Applying avian immunology for sustainable poultry production	Kent Dietemeyer
0930	Continuing education for avian veterinarians online; is it desirable, is it feasible?	Trevor Bagust
1000	Morning Tea	
1030	AI surveillance in NZ	Ron Thornton
1100	AI control plans in wild bird species	Kate McInnes
1130	Disease risk pathways within the New Zealand commercial poultry industry with special reference to AI	Tom Rawdin
1200	AI vaccine Fort Dodge	Phil Learbach
1230	Lunch	
1330	Environmental stressors influencing experimental infectious bronchitis	Rob McFarlane
1400	Disease control in New Zealand avian endangered species	Kate McInnes
1430	Maternal antibody issues associated with export of New Zealand poultry	Neil Christensen
1500	Rapid detection and quantification of infectious laryngotracheitis virus using real-time polymerase chain reactions	Alireza Mahmoudian
1530	Close and Afternoon Tea	

Avian Influenza, human pandemics, mathematics and poultry

George Arzey

Since the destruction of all poultry in Hong Kong following the 1997 outbreak of avian influenza that resulted in 6 human fatalities out of a population of approximately 7 million, Hong Kong SAR actions have been praised as a significant step taken to minimize the risk of a human pandemic.

The destruction of poultry in Hong Kong had served some important aspects of controlling the poultry outbreak in an epidemiological scenario that enabled perpetuation of the infection and it is not my intention to question the actions taken in Hong Kong SAR

The acceptance of such actions as a tool to minimize the risk of a human pandemic implies also the acceptance that poultry are an important potential source of a human pandemic and that a human pandemic from H5N1 is an imminent risk. Many public health experts warn that the world might be close to a repeat of the flu pandemic of 1918, which killed millions.

The World Health Organisation (WHO) has warned that a global Bird Flu pandemic is now inevitable. The Western Pacific region Director of the World Health Organisation, Doctor Shigeru Omi, said; “the outbreak is not a matter of if, but when”. This statement is dated December 2004 (24/12/2004, ABC Rural News).

Was this a premature panic attack? The question about the inevitability of an H5N1 human pandemic occupies the mind and primordial instincts of many.

It has been postulated that purely on mathematical grounds; the size of the poultry population, the size of the human population and the close contact between poultry and humans would suggest that a human pandemic arising out of Asia is imminent.

Indeed an additional argument used is that human pandemics generally originate in the Chino-Asian region.

It has also been suggested by the ‘gloom and doom’ brigade that once the virus reaches Africa with its vast AIDS infected population, poverty and poultry husbandry of questionable hygienic nature, H5N1 will become the Fourth Horseman of the Apocalypse.

Indeed H5N1 has emerged in the African continent but with the exception of Egypt where 6 human casualties have been reported, human casualties (or clinical cases) have not been reported since its emergence in February 2006 in Nigeria (Djibouti 1 clinical case). Of particular significance also, is the absence of human cases in India.

Human H5N1 cases & (fatalities) 1997-2006

Country	1997	2003	2004	2005	2006
Hong Kong	18 (6)	2 (2)			0 (0)
Vietnam		3 (3)	29 (20)	61 (19)	0 (0)
Thailand			17 (12)	5 (2)	3 (3)
China		1 (1)	0 (0)	8 (5)	12 (8)
Cambodia				4 (4)	2 (2)
Indonesia				17 (11)	48 (40)
Turkey					12 (4)
Iraq					2 (2)
Azerbaijan					8 (5)
Egypt					14 (6)
Djibouti					1 (0)
Total	18 (6)	6 (5)	46 (32)	95 (41)	102 (68)

Although the acquisition of H5N1 by humans following contact with infected poultry and the infected environment is believed to be the main mechanism for acquisition of the infection, it is worth mentioning that H5N1 cases have not been found amongst any of the following groups regardless of the lack of adequate precautions (PPE) in many cases.

- catchers, cullers and persons involved in disposing of infected flocks (whether or not they were wearing appropriate protective equipment);
- persons involved in survey work collecting dead birds;
- persons involved in survey work undertaking capture of live birds, ringing, or taking faecal specimens;
- visitors to parks and zoos;
- visitors to public farms;
- park keepers & groundsman of any kind;
- animal / bird keepers at zoos and parks;
- persons collecting and processing refuse (including birds that have died of H5N1);
- veterinarians;
- workers at animal refuges.

Mathematics, epidemiology and AI

Applying mathematics to the spread and behaviour of avian influenza appears as a logical approach. Indeed, epidemiology is partly based on mathematical and statistical concepts. However, applying this discipline in its pure form to biological entities may result in challenging new concepts and very challenging views of the established dogma.

Sir Fred Hoyle, a renowned mathematician and astronomer in a paper published in the Journal of the Royal Society of Medicine in April 1990 argued that on the basis of epidemiological review of various events during the 1977 Avian Influenza epidemic in the UK, the patchiness of global incidences, the distribution of AI attack rate in various schools and the notification rate of human AI under various population densities, it is most unlikely that influenza is being spread as contagions do by aerosol and close contact between infected individuals.

In another paper published in Current Science Vol. 78 N^o 9 May 2000, the authors stated the following; " *With the many major advances in medical and biological science that have taken place in recent years, it would seem remarkable that we are still unable to come to grips with the problem of influenza. In spite of our ability to produce detailed sequences of bacterial and viral genomes, the emergence of a new epidemic or pandemic strain of the influenza virus is still shrouded in mystery*"

The paper discussed the appearance of influenza in remote, extremely isolated populations in Italy at the same time that it appeared in populated areas. It discussed the spread of the 1918 Spanish flu in Alaska, an area occupied by less than 50,000 people spread thinly over an area the size of Europe in January 1919 under blizzard conditions that prevented any human travel.

It discussed the evidence for the origin of influenza viruses in the Stratosphere and the relation of the Alaskan influenza to the movements of cold air from the stratosphere to ground level in Alaska at the time of the incident.

The authors were even able to correlate the timing of peak solar activity (sunspots) and meteorite movements through the stratosphere to earth with the timing of major influenza pandemics and epidemics in the last century.

Mathematical concepts were indeed able to support the validity of the etymological derivation of the 13th century derived word-Influenza from the Latin *Influentia* signifying the influence of the stars on the occurrence of this disease.

Has science advanced at all since the 13th century?

The poultry Industry has certainly advanced and some of these advancements are being blamed by some sectors to contribute to the threat of a global disaster.

Mathematical concepts were used to support the prediction of 2YK at the turn of the last century (the 2000 collapse of all decent computers and computer applications in the universe).

Mathematics, 'clever' epidemiology and statistics combined together have the capacity to question important aspects of the biological concepts that are guiding medicine and veterinary science. The entire epidemiological concept of disease spread between flocks could be questioned and the much revered biosecurity concept may collapse and be replaced with solid roofs over sheds and cities to prevent infection by meteorite showers.

Based on reported (or misreported) pandemic intervals of 10-11 years, the New York Times in 1976 predicted the arrival of a human pandemic originating from swine influenza.

Subsequently 2 scientific panels were formed by the Centre of Disease Control in the USA and these panels predicted the probability of the arrival of the next human swine pandemic within a few years to be **10%-25%** (Panel 1) and **40%** (panel 2) [Emerging Infectious Diseases W R Dowdle, Vol 12, 2006, www.ourcivilisation.com/aids/chap3.htm].

As an interesting comparison, the World Economy Forum assessed the risk of H5N1 pandemic in 2006, based on medical opinions to be **10-20%** (www.weforum.org).

Medical opinions on the probability of H5N1 pandemic appear to be tilted towards the positive odds.

Perhaps Dr Jeffrey Taubenberger's statement "Despite an explosion of data on the 1918 virus during the past decade, we are not much closer to understanding of pandemic emergence in 2006 than we were in understanding the risk of H1N1 swine flu in 1976" (Emerging Infectious Diseases Jan 2006) is the most honest answer among speculations offered by many renowned scientists.

The near consensus among so many so-called "influenza experts" about the inevitability of H5N1 pandemic without the actual understanding of the genetic changes that are required for such an event, is indeed a unique scientific phenomenon that can be best described as a hunch not necessarily generated by individuals independently of their peers. Perhaps, the current hunch is akin to the same scientific hunch that led to the instigation of nationwide vaccination program against the Swine Human Pandemic in 1976, a pandemic that never materialized but its speculative prediction of arrival was driven by a

misleading belief by many that they mastered the art of understanding the cycle of human pandemics and it was overdue.

Perhaps the hunch is correct this time?

Nevertheless, at this stage of our scientific knowledge it is a pure hunch and any predictions based on the pretence that one understands the cycle of AI infection in the universe (and presumably the association between the meteorite showers and AI pandemics has not been adopted widely by the scientific community) are not easily sustainable.

In August 2006 PNAS (PNAS | **August 8, 2006** | vol. 103 | no. 32 | **12121-12126**) reported that H5N1 mixed with 4 or 6 human virus internal protein genes (from H3N2) resulted in reduced replication and no transmission of the virus among infected ferrets. The acquisition of these human virus genes by H5N1 was insufficient to enable the virus to develop pandemic capabilities even after serial passages in a mammalian host. On the contrary its ability to replicate and spread was negatively affected.

These results highlight the complexity of the genetic basis of influenza virus transmissibility.

Influenza pandemics and poultry

Historically, there is no justification to associate human pandemic or epidemics with the presence of avian influenza in poultry.

Examination of outbreaks of avian influenza in poultry around the world would reveal that prolonged outbreaks in large geographical areas affecting millions of birds have not resulted in a human pandemic although all that is required theoretically is the integration of some viral RNA segments of poultry AI virus into a human AI virus.

The following poultry epidemics have been reported with H5 and H7 prior to the emergence of H5N1 in SE Asia:

1878-1935 - Italy

1890-1930 - Germany

1923-1945 - Egypt

1924-1929 - USA 10 States

1930-1955 - Hungary, Switzerland, France, Belgium, China, Japan, USA, Argentina, Brazil

1959-1999 (18 epidemics)

1992- H9N2 in various countries in different regions

1994- H9N3-widespread in China

1996-1998 – Pennsylvania (LP)

1997-2001- Italy

2003– The Netherlands, Germany, Belgium, USA.

The total number of poultry affected during these outbreaks has been estimated from various sources to be in the vicinity of 95,000,000. Mathematically it is difficult to argue that in the past realistic opportunities were not present for reassortments between human and poultry AI virus presented during outbreaks. Since in most previous outbreaks no effective OH & S measures were taken to

prevent the spread of poultry AI virus to humans, it is even possible to argue that the mathematical chances of reassortments were higher in previous outbreaks than with H5N1.

There is no known inherent requirement for a reassortment of a pandemic virus to originate from a highly pathogenic avian influenza virus. Indeed, all of the viruses known to have infected humans (H1, including the 1918 pandemic virus, H2 and H3 subtypes) all have motifs at the cleavage site indicating they would be cleaved only by trypsin like enzymes, thus, indicating a non-highly pathogenic nature. (Ilaria Capua & D J. Alexander *Acta Tropica* 83 (2002) 1–6).

Therefore, considering the wide presence of LP AI viruses among poultry flocks in many countries including the USA where co-circulation of these viruses among the pig population, regarded as the ultimate mixing vessel for human pandemics, the mathematical concept would suggest that a human pandemic originating from poultry AIV of the LP or HP type should have occurred many times over a long time ago.

There is no evidence indicating that poultry avian influenza viruses have ever been involved in any Human AI pandemic or epidemic; including 1918, 1957 and 1968. (Taubenberger et al *Jan 2006 Emerging Inf. Dis.*).

The circulation of H5N1 among a significant proportion of the mammalian population in some parts of SE Asia including dogs, cats, pigs and humans with no evidence of viral reassortment between mammals and avian viruses, is perhaps an important clue that human pandemics are not easily explainable by mathematical understanding or simplistic rules of chance nor should we expect meteorites, sunspots and space dust to follow biological rationale.

Perhaps another element to remember is the short-term memory of many scientists who venture into a funeral style ballad on each occasion that a cluster of human infection is suspected in Indonesia.

Are these the same scientists that have proclaimed the inevitability of the H5N1 human pandemic when human clusters were reported in Vietnam in 2005 and Turkey in 2006?

Epilogue

Historical data does not provide the slimmest reason to associate poultry avian influenza outbreaks with human pandemics or epidemics.

The reasoning by some that ongoing outbreaks of H5N1 in poultry are mathematically more likely to lead to the emergence of H5N1 human pandemic could be questioned.

Despite an explosion of data on the 1918 virus during the past decade, we are not much closer to understanding of pandemic emergence in 2006 than we were in understanding the risk of H1N1 swine flu in 1976" and resorting to 'prophecy' based on dubious mathematical understanding of the biological principles is almost as reliable as tea leaf reading. Admittedly, many still believe that Tarot cards and tea leaf reading provide a reliable methodology of predicting the future without resorting to a direct divine communication.

Perhaps science has advanced since the 13th century?

It would be indeed challenging to explain these advancements to a woman in the border villages in Nigeria standing beside an empty chicken coop being asked by western journalists how she balances the dietary protein, carbohydrates and fibre requirements of her family?

Even more challenging is to try to explain the cost of sampling 105,000 wild birds in Europe or 20,000 wild birds in Africa to a poultry farmer in Nigeria.

In midst of the holy grail of searching for the first wild duck to arrive in the USA carrying the H5N1 and the techno-financial wizardry of producing the ultimate vaccine to combat the possible H5N1 pandemic, it is indeed a relief that meteorite surveillance has not emerged as the ultimate prediction tool of H5N1 pandemic. Perhaps this enormous \$ savings could be channelled to a less scientific operation – putting food on peoples' tables?

WVPA Bureau Member Report

Tempus is certainly fugitting for all of us In fact it is a sobering (?) thought that by this time next year, quite a number of our Members will have participated in the 15th **World Veterinary Poultry Association Congress (WVPC-15) BEIJING, SEPTEMBER 12 -15 2007.**

You probably will have received a First Flyer for this Congress in the snail mail a couple of months back - but if perchance it's been lost, buried in a "deep litter" filing system or gone elsewhere before you could get your details straight – all you need to do is to go to www.wvpc.2007.org. There you can get a super show of color and movement - and all the details you would need for starting to line up timings, and forward budgeting if needed.

Incidentally, **Abstracts are now being accepted**, and the deadline for Submission of these will be 28 February 2007. PLEASE don't leave it to the last to submit details.

And as a small TOURISTIC pitch from me on behalf of this Congress:

This Congress Venue is only around 12 hours from Melbourne - and there no probs getting direct flights there. Almost every week we hear news about the Economic progress in China - So why not go up and get an eyeful for yourself - and try Beijing Duck in that City - and even consider taking the family too (HI BRUCE!).

Certainly China will be a topic of great interest and import now and during the next decade, for all of us who are getting on with or lives early in this 21st Century. Remembering also, the Chinese have 7 millennia of recorded history. Plenty of history as well as culture there too. The Great Wall and the Ming Tombs for starters, and you can view them both within just one day.

But focussing in on Poultry Production, Avian Health and China; the poultry industry in China has come from "SBA" in 1982 (when Tom Grimes, Bill Stanhope and myself first went there for AusAID). Indeed Australians – and significant numbers of our AVPA membership have had the opportunity to play a special role in avian health to support China's modern intensive poultry industry, now the world's largest.

So you'll probably find at this Beijing Congress that AVPA members are being welcomed as "Old Friends" to China.

This WVPA Congress is rather special too, in that it will have as its Leading Speaker, our AVPA colleague Dr Amir Noormohammadi, who will deliver the Houghton Oration. "Good Onya Amir!". So let's be there to lend him a really health round or three of applause!!

And, as the Vice-President of the WVPA now, I am scheduled to be in Beijing 13-17 November this year reviewing 2007 arrangements - so should be able to give you guys even better oil on the Scientific and the Social Programs for the next issue of *Dander*.

Just to complete, on the topic of Newsletters, the WVPA each year puts out its own Newsletter, *Aerosols*, which is compendium of Reports from around 20 Countries who have formal membership of the WVPA. As a paid-up member of AVPA, you can expect to be getting a copy in your letterbox within the next few weeks. The contents are both enjoyable and interesting. So even if you can't get away to go live to the WVPA Congress, then you will certainly be able to savour the international news items being submitted from each of our sister national Veterinary Poultry Associations, which together are the avian health-in-production professionals for this truly global poultry industry of ours. Thanks are due to AVPA's Past-President Peter Scott, and to Kevin Whithear as Editor of *Dander*, for their help and comments in my preparing the Entry for Australia that you will see in this current issue of *Aerosols*.

If you don't get your copy of *Aerosols*, or for any other WVPA-related query, please don't hesitate to call me on (03) 9731-2011 (I'm based at the University of Melbourne Veterinary Clinical Centre Werribee now) or to email me at <trevorjb@unimelb.edu.au>

Website of the WVPA is at <http://wvpa.net>, so why not put it in Favourites, now.

Trevor Bagust

WVPA Bureau Member

Successful AVPA Candidates at 2006 Australian College of Veterinary Scientists Examinations

Congratulations to Soy Rubite and Susan Bibby who are our most recent Members of the Australian College of Veterinary Scientists (Avian Health Chapter).

A brief background about Soy follows:

I am Ambrosio "Soy" T. Rubite, 40 years old and a proud Australian after acquiring citizenship in November 2002.

I finished my degree Doctor of Veterinary Medicine from the University of the Philippines at Los Banos in 1989 and in the same year I attained first place in the Philippine Licensure Board Examination.

After graduation, I worked with poultry in the Philippines including as breeder farm supervisor, manager and broiler extension veterinarian. I pioneered a small company back in 1994, Tyson Agro-Ventures Incorporated, as Broiler Contract Growing Manager to what is now the second biggest poultry company in the Philippines.

I was to be promoted as an Assistant Vice-President of the company but adventure beckons. I met Dr. Kevin Whithear in the launching of the MG-MS vaccines in Manila in 2000, a few months before migrating to Australia. I wrote Dr. Trevor Bagust an 'out-of-the-blue' letter which he kindly responded to and I was also introduced to the Masters Degree in Avian Health offered at Melbourne University. I was interviewed by Dr. Peter Scott for the RIRDC scholarship and it was the start of a dream adventure come true.

Dr. Scott hired me to work for Eatmore Poultry while studying my MVS (Avian Health in Production). Baiada Poultry bought Eatmore back in July 2002. I am now working as the Victorian Veterinarian for Baiada Poultry looking after the health of broiler breeders, hatchery, broilers and processing plant.

I really enjoy the challenge of the job and the company of the people in the poultry industry and at Melbourne University.

My special thanks to Drs Trevor Bagust and Amir H Noormohammadi for their help in my preparation for the College examinations.

Australian Poultry CRC Newsletter

The Australian Poultry CRC publishes a monthly electronic newsletter called eChook which provides information about the CRC's activities and people.

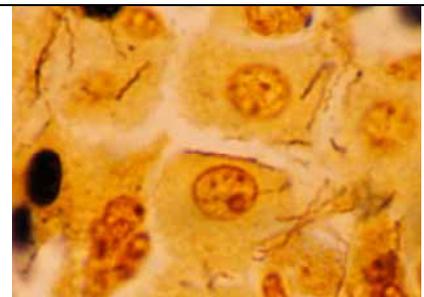
AVPA members can access the newsletter via the CRC website <<https://www.poultrycrc.com.au/index.php?>> by going to previous issues in the News section and following the links to subscribe or by directly contacting the editor Chris Day by email chrisday@poultrycrc.com.au.

Answer to What's Your Diagnosis?

Further tests: Warthin Starry staining of the tissues revealed a very large number of slender spiral bacteria all through the liver a small number in pericardial inflammatory tissues but none within spleen.

Diagnosis: Avian Spirochaetosis

Thanks to Amir H. Noormohammadi for providing this case.



avpa



The Australian Veterinary Poultry Alliance

Tax Invoice

ABN: 63 008 522 852

Application for New or Continuing Membership

Please note – continuing members need only complete details if these have changed

Name: _____

Phone: _____

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Fax: _____

Address: _____

Mobile: _____

Email: _____

Qualifications: _____

Special Interests: _____

Are you a member of the Australian Veterinary Association? YES/NO

(Note: Membership of AVPA does not provide membership of AVA)

Membership fees are due by the 31st of January, 2006

The annual membership fee is \$49.50 (inc GST) for individuals

Please find enclosed cheque made out to the Australian Veterinary Poultry Alliance for the current year.

PLEASE NOTE: DO NOT SEND AVPA MEMBERSHIP FEES DIRECTLY TO THE AVA OFFICE. THEY SHOULD ONLY BE SENT TO THE AVPA TREASURER

Signed: _____

Date: _____

Please return the completed form to:

Dr Peter Gray

The Treasurer AVPA

Inghams Enterprises

5 Bayswater Road, Rathmines NSW 2283