



Clinic for Birds and Reptiles  
University Leipzig, Germany

## Common zoonosis in exotic birds

M. Krautwald-Junghanns



**Common** zoonosis in exotic birds?

**none!**

## Diseases and death in humans due to infectious zoonotic agents in Germany

	Disease		Death	
	n	/10 <sup>6</sup> i.	n	/10 <sup>6</sup> i.
Salmonellosis	196.392	2.395		
Virushepatitis	13.711	167	1.217	14,8
Virus-Meningo-Enc.	2.584	32	245	3,0
Bact. meningitis	1.785	22		
Tuberculosis			558	6,8
Shigella	1.610	20		
Q-Fever	273	3,3		
<b>Chlamydiosis</b>	<b>107</b>	<b>1,3</b>	<b>5</b>	<b>0,06</b>
Gasodema	98	1,2		
Leptospirosis	47	0,6		
Listeriosis	33	0,4		
Toxoplasma	33	0,4		
Brucellosis	21	0,3		
Trichinosis	21	0,3		
Botulism	19	0,2		
Tetanus	8	0,1		
Rabies	0	0,0		

## Source of chlamydia psittaci infection in humans

Infection from	No./ infected humans	%
Psittaciformes and canaries	21	26,2
Pigeons	11	13,8
Chicken and ducks	10	12,5
Birds of unknown species	16	20,0
Source unknown	16	20,0
professional exposition : Poultry slaughteries Zoo shops etc.	4 2	5,0 2,5
Sum	80	100,0

Statens Serum Institut, Copenhagen, 2000

contact frequency:

540 healthy people, 12.7 % positive,  
majority having daily or weekly contact to birds  
Harkinezhad et al., 2009

## *Chlamydiosis-Cases in Germany*

<b>Psittacines</b>	<b>Humans</b>
• 2007: 155	72
• 2008: 137	86
• 2009: 157	26
• 2010: 76	25
• 2011: 48	?

Underestimated?

Vanrompay et al., 2010: 39 psittacine flocks – 30% positive,  
13% of breeders positive (all having positive parrots)



# Psittacosis-VO

- Anzeigepflicht → Amtstierarzt entscheidet über Vorhaben
- Maßnahmen:
  - Bestandssperre
  - Kennzeichnung
  - Schutzkleidung, Personenrestriktion
  - amtliche Kontrolluntersuchungen
  - Verbringungsverbot
- Behandlung oder Töten, wenn Behandlung nicht erfolgsversprechend



# Epidemiology and pathogenesis

- Transmission via secretion/aerogen: feather dust, faeces...
- Latent infected carriers play an important role!
- Often after predisposing stress factors



# Therapy

Klinik für Vögel und Reptilien

Tetracyclines, Quinolones - i.m., oral

Vanrompay et al., 2010:

46,2% of breeders used antibiotics  
as „prophylaxis“

44% of these flocks were  
*Chl. psittaci* positive

effective in diseased birds (reticular bodies)  
elementary bodies remain infective in feather dust for months



# Tuberculosis (human)

---

Obligatory pathogenic mycobacteria in humans:

*Mycobacterium leprae*

## ***Mycobacterium tuberculosis* complex (MTC)**

*M. tuberculosis*  
*M. bovis*\*

*M. africanum*  
*M. microti*  
*M. canettii*  
*M. pinnipedii*

\*Ledwon A, Szeleszczuk P, Zwolska Z, Augustynowicz-Kopec E, Sapierynski R, Kozak M. Experimental infection of budgerigars (*Melopsittacus undulatus*) with five *Mycobacterium* species. *Avian Pathol.* 2008 Feb;37(1):59-64.

Fitzgerald SD, Zwick LS, Berry DE, Church SV, Kaneene JB, Reed WM. Experimental inoculation of pigeons (*Columba livia*) with *Mycobacterium bovis*. *Avian Dis.* 2003 Apr-Jun;47(2):470-5.

# Avian Tuberculosis

---

Non tuberculous mycobacteria (NTM):

*M. genavense*

*M. gordonae*\*

*M. nonchromogenicum*\*

***Mycobacterium avium* complex (MAC)/  
*Mycobacterium fortuitum* complex (MFC)**

*M. a. subsp. avium*

*M. fortuitum*\*

*M. intracellulare*

*M. a. subsp. paratuberculosis*

*M. a. subsp. hominissuis*

*M. a. subsp. silvaticum*

*M. chelonae*

\*Hoop RK, Böttger EC, Pfyffer GE. Etiological agents of mycobacterioses in pet birds between 1986 and 1995. J Clin Microbiol. 1996 Apr;34(4):991-2.

## Avian Tuberculosis

- No scientific prove of a transmission pet bird - humans
- *M. tuberculosis*: transmission humans - parrot
- Zoonotic potential: *M. avium-complex*, *M. genavense...*, oral infection
  
- diagnosis and treatment difficult
- *M. avium* resistant against mostly all drugs in human medicine (pr: acithromycin, th:isoniazid, cefpodoxin)

# Other bacteria

- *Salmonella typh. /ent.*
- *Campylobacter jejuni*
- *Erysipelotrix rhusiopathiae*
- *Pasteurella multocida*
- *E.coli*
- *Pseudomonas aeruginosa*
- *Yersinia pseudotuberculosis*

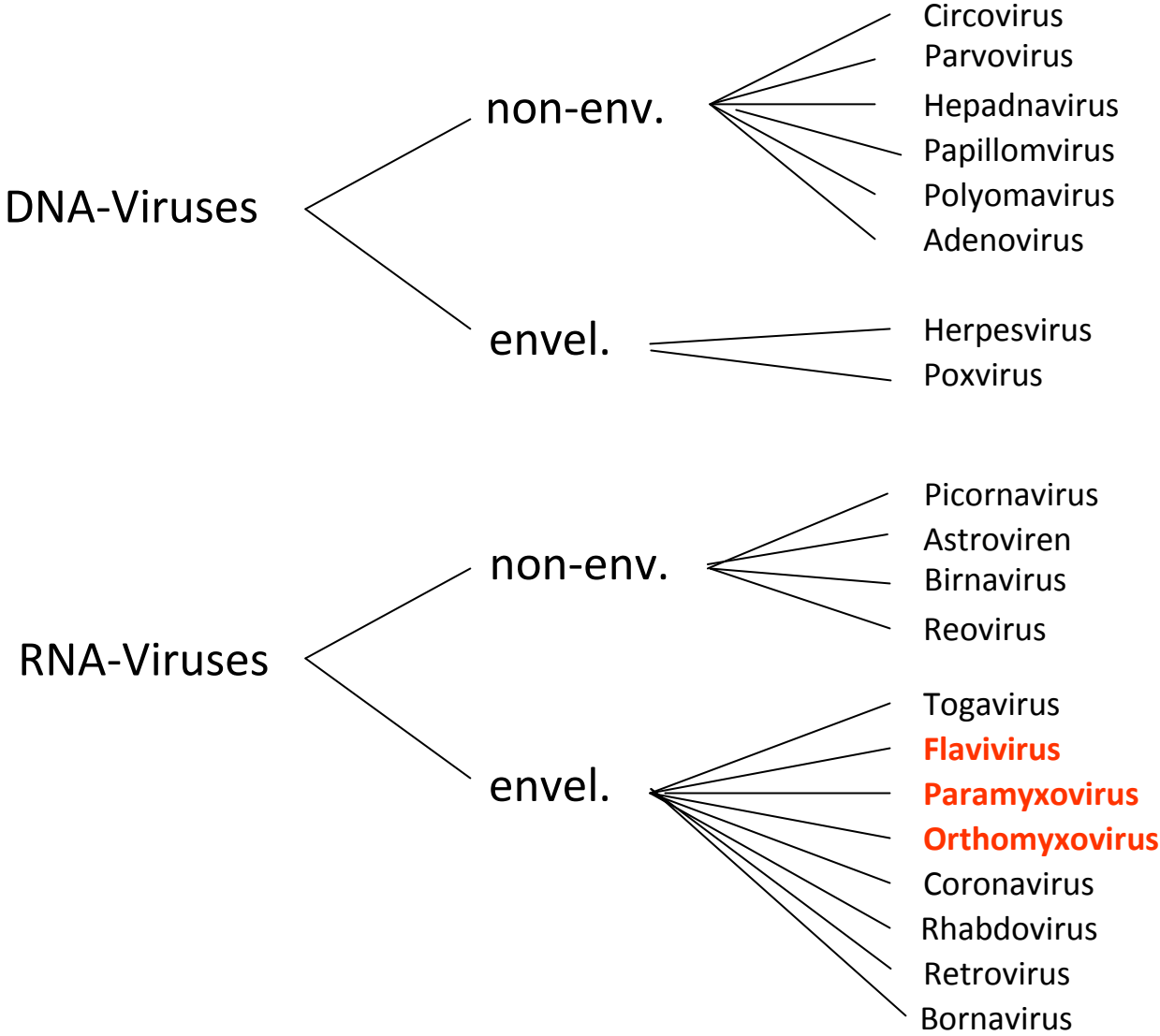
poultry, (ducks)

wild birds, poultry

wild birds, poultry



# Avian viruses



# Influenza A

- all birds susceptible, H5, H7
- horizontal transmission via secretion/excretion
- Avoid contact to waterfowl, poultry
- Cave: asian imports

H5N1 affected birds in 2006 in Germany:  
344 wild birds (60.000 tested)

---

No Columbiformes

1% Passeriformes

Swans!

> 90% waterfowl

< 10 %

Carnivorous  
species

Until now no known infection of men via mammals, pet birds and wild birds



# PMV-1 (Newcastle Disease)

- all birds susceptible  
transmission through  
secretion, excretion,  
horizontal



## West Nil

Diseases in humans often mild,  
undetected, flu-like  
< 1% encephalitis, meningitis

# West Nil

- transmission via insectes (culex)
- mainly corvidae and other wild passeriformes susceptible, (raptors) (men)  
some species (f.e.psittaciformes) are known to be incompetent hosts
- reduction of insectes
- birds in closed aviaries in endangered areas