

MINISTRY OF EDUCATION AND SCIENCE OF UKRAINE  
SUMY NATIONAL AGRICULTURAL UNIVERSITY

Department of epizootology and parasitology



APPROVED:

Head of Department Epizootology and Parasitology

2020 p.

Kassich V. Y.

Curriculum

Microbiology, virology, epizootology, infectious diseases

(cipher and name of the discipline)

For graduate students in specialties

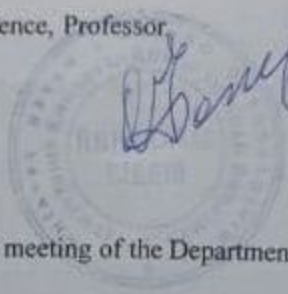
211 Veterinary science

Sumy - 2020 years

Work program on discipline "Microbiology, virology, epizootology, infectious diseases" for graduate students in the specialty 211 Veterinary science

Developers:

Fotina G.A. Doctor of Veterinary Science, Professor



The work program is considered at the meeting of the Department of Epizootology and Parasitology

Protocol from "15" 1.03.2020 year

Head of the Department of Epizootology and Parasitology

[Signature] (Kovalev B.P.)

Agreed:

Dean of the Faculty [Signature] (Oleksandr Nechiporenko)

Methodist of the training department [Signature] (I. M. Topanik)

Registered in electronic database: date: 03.07 2020 p.

### 1. Description of the discipline

Name of indicators	Branch of knowledge, direction of training, educational-qualification level	Characteristics of the discipline	
		full-time education	
Number of credits - 1,5	Branch of knowledge: 211 Veterinary science		
Modules - 1		<b>Year of training:</b>	
Content modules : 1		2020-2021	
		<b>Course</b>	
		2	
		<b>Semester</b>	
		4th	
Total hours : - 150 )		<b>Lectures</b>	
Weekly hours for full-time study: classroom - 3 independent work of the student - 1	Education level: <i>postgraduate</i>	- 36	
		<b>Practical, seminars</b>	
		- 36	
		<b>Laboratory</b>	
		-	
		<b>Independent work</b>	
		- 78	
		Type of control: <b>Computer testing</b> <b>Oral questioning.</b>	

The ratio of the number of hours of classroom studies to independent and individual work is: for full-time study in the spring semester - 48/15.

## **2. Purpose and tasks of the discipline**

Curriculum is aimed at trained and trainee veterinary professionals. It seeks to provide, in a compact format, an introduction and easily accessible reference for the more commonly encountered zoonotic diseases and some discussion of the issues surrounding zoonoses, and their societal and economic impact. This discipline discusses zoonoses not only within the context of domestic disease, but also in the wider world. Veterinary problems become more international every day, with the massive increase in numbers of people travelling from place to place for business or pleasure. This makes it increasingly necessary for us, as healthcare professionals, to widen our horizons, so that we can respond appropriately to patient needs.

**The purpose of** teaching a subject is to familiarize post-graduate students with Veterinary and sanitary measures that promote the efficiency of livestock breeding, methods of diagnosis, treatment and sanitary measures, disinfection, as well as viral, bacterial, highly contagious and exotic animal diseases..

**The objectives of the** study of the discipline - Methods of diagnostics, treatment and elimination of viral, bacterial, fungal (including highly contagious and exotic) diseases of cattle, principles of carrying out of veterinary and sanitary measures and improvement measures that promote efficient livestock management.

## **3. PROGRAM OF EDUCATIONAL DISCIPLINE**

### **Module I. Content module 1. Introduction to zoonoses**

#### **Topic 1. Introduction to zoonoses**

A basic definition. Causative pathogens. Emerging zoonoses. Routes of transmission. Ingestion. Direct contact. Fomite spread. Vectors. Importance of zoonoses. Risk groups.

#### **Topic 2 . Zoonoses of companion animals**

Birds. Cryptococcosis Mycobacterium avium complex Psittacosis (ornithosis) Cats and dogs Cat Scratch Disease Echinococcosis Hookworm Ancylostomiasis. Cutaneous larva migrans or creeping eruption. Ringworm. Scabies. Toxocariasis (visceral larva migrans and optical larva migrans). Toxoplasmosis

Horses. Glanders farcy. Leptospirosis. Miscellaneous zoonoses of companion animals

**Topic 3. Zoonoses of agricultural animals.** Birds. Newcastle disease. Influenza. The current HP H5N1 outbreak. Vaccine development. Cattle. Brucellosis. Foot-and-mouth disease. Pseudo-cowpox . Q fever. Tapeworm. Bovine tuberculosis. Sheep. Chlamydiosis (gestational psittacosis). Giardiasis. Orf. Pigs Ascariasis. Pasteurella. Streptococcus suis. Trichinosis or trichinellosis

**Topic 4 Prion diseases** Animal TSEs and BSE. The significance of scrapie. Chronic wasting disease

**Topic 5 . Anthrax.** Disease in animals. Transmission . Diagnosis. Treatment. Cutaneous anthrax. Prophylaxis. Prevention. Cases associated with drum makers. Potential as a biological warfare agent

**Topic 6. Rabies (hydrophobia).** Rabies elsewhere in the world. Disease in animals. Transmission. Diagnosis. Treatment. Prophylaxis. Vaccination regimens. Other related viruses. Case histories. Prevention

**Scientific publications** . Scientific research and source of knowledge of scientific publications. Monograph , dissertation dissertation, preprint, abstracts and materials of the scientific conference, collection of scientific works.

Scientific nonperiodic edition: book, brochure, scientific collections, journals.

Types of monographs: scientific and practical.

Forms of coverage of the results of scientific work: abstracts, abstracts, abstracts. Types of lectures: informative, extended or consolidated, scientific.

**Inventive activity.** Research results: new technological processes and aggregates, materials and connections, devices and structures can make the subject of invention or discovery.

Oral transmission of information about scientific results. Report, reports at meetings, seminars, symposiums, conferences. Conversations with personal meetings.

#### 4. STRUCTURE OF EDUCATIONAL DISCIPLINE

Modules	Types of work	Module name	Forms of training
Module 1	Audit work	Module I. Content module 1. <b>Introduction to zoonoses.</b>	Lectures,
			Training
			Consultations, individual lessons
			Control measures (module control, checking)
Module 1	Independent work	Module I. Content module 1. <b>Introduction to zoonoses</b>	Summarizing additional subjects of discipline Individual research work

**Table structure of the course**

Form Teaching	Normative data						Control of educational work
	Course	Semester	Total (year)	Lecture classes (year)		Independent work (hours)	Modular control 1 The final one control (offset)
				Lectures (year)	Practical classes (hours)		
Daytime	2	4	1 50	36	36	78	4 semesters

#### 5. IN THE POWER OF KNOWLEDGE AND THE POSSIBILITIES OF ASPIRANTS (AIMS OF THE TRAINING PROGRAM)

The content of the goal
<ul style="list-style-type: none"> <li>• Postgraduate student should know: Veterinary and sanitary measures that promote the efficiency of livestock breeding, methods of diagnosis, treatment and sanitary measures, disinfection, as well as viral, bacterial, highly contagious and exotic animal diseases.</li> <li>• Methods of diagnostics, treatment and elimination of viral,</li> </ul>

	<p>bacterial, fungal (including highly contagious and exotic) diseases of cattle, principles of carrying out of veterinary and sanitary measures and improvement measures that promote efficient livestock management.</p> <ul style="list-style-type: none"> <li>• Methods of diagnostics and elimination of viral, bacterial, fungal diseases of small cattle, principles of veterinary and sanitary measures and sanitary measures; principles of preventive antiepidemiological veterinary and sanitary measures in horses; methods of diagnosis, treatment and elimination of viral, bacterial, fungal diseases of horses.</li> </ul>
	<p>Postgraduate student must be able to: analyze a scientific problem and find algorithms for its solution; to formulate a hypothesis, to heuristic evaluate, to derive empirically verifiable consequences from it, to compare it with experimental data and practice; apply a systematic method to understand the structure of theories and problems of modern science methodology.</p>
	<p>Post-graduate student must have skills: summarizing literary sources; public speaking; independent work on studying materials of educational discipline; free possession of the conceptual apparatus; operating terminology when performing training tasks and presentations at seminars, conferences, etc.</p>

## 6. FORMS OF CONTROL

The specifics of teaching the subject is to use three types of control: current, modular, and final.

Current control includes:

- testing (t) - this form of control allows you to check the preparation of postgraduate students for each class; is conducted on a regular basis on a selective basis;

- training (t) - is carried out with the aim of formulating skills and abilities of postgraduate students in practical direction, formation of modern scientific thinking, ability to make responsible and effective decisions;

- independent work (cf.) - this form of control allows to reveal the ability to clearly, logically and consistently answer the questions posed, the ability to work independently;

- Individual and post-graduate research work (ANDR) - conducted with the aim of obtaining practical skills and abilities in using and researching scientific sources, writing articles, abstracts, writing reports, developing presentation materials, using theoretical and empirical research methods.

Final control is conducted in the form of an exam, which is aimed at supervising the postgraduate students' knowledge.

## 7. THEMATIC PLANNING OF EDUCATIONAL DISCIPLINE

### Full-time education

II / II	Title of topic	Lectures (hours)	Practical classes (hours)	Himself. p apot (course) (year)	Total (h)	Modular control
	Module I. Content module 1.					

	<b>Topic 1. Introduction to zoonoses</b>	6	6	10	22	40
	<b>Topic 2. Zoonoses of companion animals</b>	6	6	10	22	
	<b>Topic 3. Zoonoses of agricultural animals..</b>	6	6	10	22	
	<b>Topic 4 Prion diseases</b>	6	6	15	27	
	<b>Topic 5. Anthrax.</b>	6	6	15	27	
	<b>Topic 6. Rabies (hydrophobia).</b>	6	6	18	30	
	Individual research work	-	-			
	Total	36	36	78	150	150

## 8. PLANNING THEORETICAL COURSE

### Full-time education

	Title of the course, lectures and their contents	Number of hours	Points	Bibliography
Module I. Content module 1.				
1	<b>Topic 1. Introduction to zoonoses</b> A basic definition. Causative pathogens. Emerging zoonoses. Routes of transmission. Ingestion. Direct contact. Fomite spread. Vectors. Importance of zoonoses. Risk groups.	6	1	Basic summer. [3, c. 4-39; 5, p. 6] Add summer [1, c.4-39] [3, p.66-79]
2	<b>Topic 2. Zoonoses of companion animals</b> Birds. Cryptococcosis Mycobacterium avium complex Psittacosis (ornithosis) Cats and dogs Cat Scratch Disease Echinococcosis Hookworm Ancylostomiasis. Cutaneous larva migrans or creeping eruption. Ringworm. Scabies. Toxocariasis (visceral larva migrans and optical larva migrans). Toxoplasmosis Horses. Glanders farcy. Leptospirosis. Miscellaneous zoonoses of companion animals	6	1	Basic summer. [3, c. 4-39; 5, p. 14] Add summer [1, pp. 99-119] [1, c. 142-179]
3	<b>Topic 3. Zoonoses of agricultural animals.</b> Birds. Newcastle disease. Influenza. The current HP H5N1 outbreak. Vaccine development.	6	1	Basic summer. [3, c. 4-39; 5, p. 57] Add summer

	Cattle. Brucellosis. Foot-and-mouth disease. Pseudo-cowpox . Q fever. Tapeworm. Bovine tuberculosis. Sheep. Chlamydiosis (gestational psittacosis). Giardiasis. Orf. Pigs Ascariasis. Pasteurella. Streptococcus suis. Trichinosis or trichinellosis			[1, c.223-271] [1, c.272-303] [2, c.337-369]
4	<b>Topic 4 Prion diseases</b> Animal TSEs and BSE. The significance of scrapie. Chronic wasting disease	6	1	Basic summer. [3, c.4-39; 5, p. 49] Add summer [1, c.223-271] [1, c.272-303] [2, c.337-369]
5	<b>Topic 5. Anthrax.</b> Disease in animals. Transmission . Diagnosis. Treatment. Cutaneous anthrax. Prophylaxis. Prevention. Cases associated with drum makers. Potential as a biological warfare agent	6	1	Basic summer. [3, c.4-39; 5, p. 16] Add summer [1, c. 180-188] [1, c. 189-222]
6	<b>Topic 6. Rabies (hydrophobia).</b> Rabies elsewhere in the world. Disease in animals. Transmission. Diagnosis. Treatment. Prophylaxis. Vaccination regimens. Other related viruses. Case histories. . Prevention	6	1	Basic summer. [3, c.4-39; 5, p. 86] Add summer [1, pp. 64-98] [2, p.75-81]
	Total	36		

## 9. PLANNING PRACTICAL STORIES

### Full-time education

	Title of the course, practical classes and their contents	Number - st hours.	Points	Bibliography
Module I.				
1	<b>Topic 1. Introduction to zoonoses</b> A basic definition. Causative pathogens. Emerging zoonoses.	6	2	Basic summer. [2, c. 7] Add summer



	<p>Routes of transmission. Ingestion. Direct contact. Fomite spread.</p> <p>Vectors.</p> <p>Importance of zoonoses.</p> <p>Risk groups.</p>			[1, c.4-39; 3, p.66-79]
2	<p><b>Topic 2. Zoonoses of companion animals</b></p> <p>Birds. Cryptococcosis Mycobacterium avium complex Psittacosis (ornithosis)</p> <p>Cats and dogs Cat Scratch Disease Echinococcosis Hookworm Ancylostomiasis. Cutaneous larva migrans or creeping eruption. Ringworm. Scabies. Toxocariasis (visceral larva migrans and optical larva migrans). Toxoplasmosis</p> <p>Horses. Glanders farcy. Leptospirosis. Miscellaneous zoonoses of companion animals</p> <p>1.</p>	6		<p>Basic summer.</p> <p>[2, c. 8]</p> <p>Add years.</p> <p>[1, pp. 99-119; 1, c. 142-179]</p>
3	<p><b>Topic 3. Zoonoses of agricultural animals.</b></p> <p>Birds. Newcastle disease. Influenza. The current HP H5N1 outbreak. Vaccine development.</p> <p>Cattle. Brucellosis. Foot-and-mouth disease. Pseudo-cowpox . Q fever. Tapeworm. Bovine tuberculosis. Sheep. Chlamydiosis (gestational psittacosis). Giardiasis. Orf.</p> <p>Pigs Ascariasis. Pasteurella. Streptococcus suis. Trichinosis or trichinellosis</p>	6		<p>Basic summer.</p> <p>[2, c. 11]</p> <p>Add summer</p> <p>[1, c.223-271]</p> <p>[2, c.337-369]</p>
4	<p><b>Topic 4 Prion diseases</b></p> <p>Animal TSEs and BSE.</p> <p>The significance of scrapie.</p> <p>Chronic wasting disease</p>	6		<p>Basic summer.</p> <p>[2, c. 12]</p> <p>Add summer</p> <p>[1, c.223-271]</p> <p>[1, c.272-303]</p> <p>[2, c.337-369]</p>
5	<p><b>Topic 5. Anthrax.</b></p> <p>Disease in animals.</p> <p>Transmission.</p> <p>Diagnosis.</p> <p>Treatment.</p> <p>Cutaneous anthrax.</p> <p>Prophylaxis. Prevention.</p> <p>Cases associated with drum makers.</p> <p>Potential as a biological warfare agent .</p>	6		<p>Basic summer.</p> <p>[2, c. 14]</p> <p>Add summer</p> <p>[1, pp.180-188]</p> <p>[1, pp. 89-222]</p>

6	<b>Topic 6. Rabies (hydrophobia).</b> Rabies elsewhere in the world. Disease in animals. Transmission. Diagnosis. Treatment. Prophylaxis. Vaccination regimens. Other related viruses. Case histories. . Prevention	6		Basic summer. [2, c. 16] Add summer [1, pp. 64-98] [2, p.75-81]
	Total	36		

## 10. INDEPENDENT WORK POSTGRADUATES

### Full-time education

	Title of the course, their content	Number of hours	Points	Bibliography
Module I. Content module 1.				
1	<b>Topic 1. Introduction to zoonoses</b> A basic definition. Causative pathogens. Emerging zoonoses. Routes of transmission. Ingestion. Direct contact. Fomite spread. Vectors. Importance of zoonoses. Risk groups.	10	2	Basic summer. [1, c. 7] Add summer [1, c.4-39; 3, p.66-79]
2	<b>Topic 2. Zoonoses of companion animals</b> Birds. Cryptococcosis Mycobacterium avium complex Psittacosis (ornithosis) Cats and dogs Cat Scratch Disease Echinococcosis Hookworm Ancylostomiasis. Cutaneous larva migrans or creeping eruption. Ringworm. Scabies. Toxocariasis (visceral larva migrans and optical larva migrans). Toxoplasmosis Horses. Glanders farcy. Leptospirosis. Miscellaneous zoonoses of companion animals	10	2	Basic summer. [1, c. 15] Add summer [1, pp. 99-119; 1, c. 142-179]
3	<b>Topic 3. Zoonoses of agricultural animals.</b> Birds. Newcastle disease. Influenza. The current HP H5N1 outbreak. Vaccine	10	2	Basic summer. [1, c. 21 Add summer [1, c.223-271]

	development. Cattle. Brucellosis. Foot-and-mouth disease. Pseudo-cowpox . Q fever. Tapeworm. Bovine tuberculosis. Sheep. Chlamydiosis (gestational psittacosis). Giardiasis. Orf. Pigs Ascariasis. Pasteurella. Streptococcus suis. Trichinosis or trichinellosis 2.			[1, c.272-303] [2, c.337-369]
4	<b>Topic 4 Prion diseases</b> Animal TSEs and BSE. The significance of scrapie. Chronic wasting disease	15	2	Basic summer. [1, c. 29] Add summer [1, c.223-271] [1, c.272-303] [2, c.337-369]
5	<b>Topic 5. Anthrax.</b> Disease in animals. Transmission. Diagnosis. Treatment. Cutaneous anthrax. Prophylaxis. Prevention. Cases associated with drum makers. Potential as a biological warfare agent	15	2	Basic summer. [1, c. 35] Add summer [1, pp.180-188] [1, pp. 89-222]
6	<b>Topic 6. Rabies (hydrophobia).</b> Rabies elsewhere in the world. Disease in animals. Transmission. Diagnosis. Treatment. Prophylaxis. Vaccination regimens. Other related viruses. Case histories. Prevention	18	2	Basic summer. [1, c. 42] Add summer [1, pp. 64-98] [2, p.75-81]
	Individual research work		10	Basic summer. [2, c. 17]
	Total	78		

## 11. Methods of training

### 1. Methods of learning by the source of knowledge:

1.1. **Verbal** : story , explanation , conversation (heuristic and reproductive), lecture , coaching , work with the book (reading, transcribing, writing out, drawing up a plan, reviewing, annotation, making tables, charts, reference notes, etc.).

1.2. **Visual** : demonstration , illustration , observation.

1.3. **Practical** : laboratory method, practical work, exercise, production-practical methods.

**2. Methods of learning by the nature of the logic of knowledge.**

2.1. **Analytical** (*essence: a part- time schedule to examine their essential features*).

2.2. **Methods of synthesis** (*essence: the unification of the analysis of elements or properties of an object, the phenomenon into one whole*).

2.3. **Inductive method** (*essence: the study of objects or phenomena from individual to general*).

2.4. **Deductive method** (*essence: the study of objects or phenomena from the general to the individual*).

2.5. **Productive method** (*essence: these are conclusions from general to general, from partial to partial, from one to one*).

**3. Methods of training by the nature and level of independent mental activity of students.**

3.1. **Problem** (*problem-information*)

3.2. **Partial search** (*heuristic*)

3.3. **Research**

3.4. **Reproductive** (*essence: possibility of application of the learned in practice*).

3.5. **Explanatory-demonstrative**

**4. Active teaching methods ( for example )** - use of technical means of training, brainstorming, crossword puzzles, contests, debates, round tables, binary classes, business and role games, talk shows, trainings, use of problem situations, excursions, classes in production , group research, self-knowledge, simulation training (built on simulation of future professional activities), use of teaching and control tests, use of reference notes of lectures , *etc.*)

**5. Interactive Technologies teaching (for example )** - the use of multimedia technology, interactive whiteboard and spreadsheets, case - study (method of analysis of specific situations), cooperation graduate (cooperation) **and others** .

**12. Accounting and control**

Management of research work of subjects of scientific activity can not be carried out without such instruments as accounting and control. They are carried out for the purpose of successful and effective implementation of complex target programs and operational plans.

Post-graduate study, department and dean's office are registered and controlled by means of reports, reviews, inspections of documented work, etc. One form called itiv to fulfill graduate of individual plans is planned stages of the work specified in the schedule under review Supervisor s graduate.

The normative documents on the postgraduate study stipulate that the individual plan of research work for a postgraduate student shall be approved by the academic council of the faculty upon the submission of the department, on which it is fixed. To carry out the research work, a postgraduate student is appointed by a scientific supervisor from among the doctorates or professors.

When conducting research on the border of adjacent issues, it is allowed to have two executives and a consultant.

Postgraduate student is obliged to master profound professional knowledge, to acquire skills of independent research work, to have a wide scientific and cultural outlook. Postgraduates may be seconded to scientific centers and leading educational institutions of Ukraine, as well as abroad, for conducting research on the chosen topic.

Post graduate students studying in isolation from production and without separation should work on a single individual plan of research work on the chosen subject of the dissertation.

### **13. Recommended Books**

#### **Basic**

1. ALKALAF A.N., WARD L.A., DEARTH R.N. & SAIF Y.M. (2002). Pathogenicity, transmissibility and tissue distribution of avian pneumovirus in turkey poults. *Avian Dis.*, **46**, 650–659.
2. BAYON-AUBOYER M.H.C. TOQUIN A.D. & ETERRADOSSI N. (2000). Nucleotide sequences of the F, L and G protein genes of two non-A/non-B avian pneumoviruses (APV) reveal a novel APV subgroup. *J. Gen. Virol.*, **81**, 2723–2733.
3. BENNETT R.S., NEZWORSKI J., VELAYUDHAN B.T., NAGRAJA K.V., ZEMAN D.H., DYER N. GRAHAM T., LAUER D.C., NJENGA M.K. & HALVORSON D.A. (2004). Evidence of avian pneumovirus spread beyond Minnesota among wild and domestic birds in central North America. *Avian Dis.*, **48**, 902–908.
4. CHIANG S.J., DAR A.M., GOYAL S.M., NAGARAJA K.V., HALVORSON D.A. & KAPUR V. (2000). A modified enzymelinked immunosorbent assay for the detection of avian pneumovirus antibodies. *J. VetDiagn. Invest.*, **12**, 381–384
5. Anonymous. *Farmwise*. London: Health & Safety Executive, 2005.
6. Zinsstag J, Schelling E, Wyss K, Bechir M. Potential of cooperation between human and animal health to strengthen health systems. *Lancet* 2005; **366**: 2142–5.
7. En Health. *Environmental Health Risk Assessment – Guidelines for assessing human health risks from environmental hazards*. Department of Health and Ageing and enHealth Council, Canberra, 2002.
8. European Academies Science Advisory Council (EASAC). *Combating the Threat of Zoonotic Infections*. London: Royal Society, 2008.
9. Wells DL. Domestic dogs and human health: An overview. *Br J Psychol* 2007; **12**: 145–56.
10. Schoen AM. The healing power of pets. In: Gorrel C (ed.), *Kindred Spirits*. New York: Broadway Books, 2001.
11. Siegel JM, Angulo FJ, Detels R, Wesch J, Mullen A. AIDS diagnosis and depression in the Multicenter AIDS Cohort Study: the ameliorating impact of pet ownership. *AIDS Care* 1999; **11**: 157–70.
12. Powers JH. Antimicrobial drug development – the past, the present, and the future. *Clin Microbiol Infect* 2004; **10**(suppl 4): 23–31.

12. World Health Organization. Animal to human transplantation – future potential, present risk. Press release. Geneva: WHO, 2 May 2005

21. Muir DA, Griffin GE. *Infection Risks in Xenotransplantation*. London: Department of Health, 2001. Available at: [http://www.doh.gov.uk/pub/docs/doh/76035\\_doh\\_infection\\_risks.pdf](http://www.doh.gov.uk/pub/docs/doh/76035_doh_infection_risks.pdf).

Extra

1. Guay DR. Pet-assisted therapy in the nursing home setting: potential for zoonosis. *Am J Infect Control* 2001; **29**: 178–86.
2. Bender JB, Shulman SA. Reports of zoonotic disease outbreaks associated with animal exhibits and availability of recommendations for preventing zoonotic disease transmission from animals to people in such settings. *JAVMA* 2004; **224**: 1105–9.
3. CDC. Compendium of measures to prevent disease associated with animals in public settings, 2005: National Association of State Public Health Veterinarians, Inc.(NASPHV). *MMWR* 2005; **54**(RR-4): 1–13.
4. Kahn LH. Confronting zoonoses, linking human and veterinary medicine. *Emerg Infect Dis* 2006; **12**: 556–61
5. Department for the Environment, Food and Rural Affairs (DEFRA). *Zoonoses Report UK*. London: Defra, 2006.
6. World Health Organization. *Overcoming Antimicrobial Resistance – World Health Report on Infectious Diseases*. Geneva: WHO, 2000.
7. Report of the House of Lords Select Committee on Science and Technology. *Resistance to Antibiotics*, 3rd report. London: House of Lords, March 2001.
8. SMAC (Standing Medical Advisory Committee), Department of Health. *The Path of Least Resistance*. London: HMSO, 1998.
9. Advisory Committee on the Microbiological Safety of Food. Report from the Defra Antimicrobial Resistance Co-ordination Group (DARC) on the Government's Actions to address the Recommendations of the ACMSF report on Microbial Antibiotic Resistance in Relation to Food Safety – ACM/730 March 2005.
10. Collignon P, Angulo FJ. Fluoroquinolone-resistant *Escherichia coli*: food for thought. *J Infect Dis* 2006; **194**: 8–10.

#### 14. Information resources

1. library, library reading room, Internet .