

Zoonoses and Food Hygiene News

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Zoonoses and Food Hygiene News, published four times a year, provides a medium for disseminating technical information on matters related to zoonoses and food hygiene generated in the world, particularly in Nepal. The editors welcome submissions on these topics with appropriate illustrations and references. The views and opinions expressed in the News are those of the authors.

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Impact Assessment and Control of Cysticercosis in the Indian Subcontinent

Continue from previous issue of Vol 12 No. 4 October-December 2006

1.2.2. Flemish institute: Department of Virology, Parasitology and Immunology, Faculty of Veterinary Medicine, Ghent University

Table 3: Summary presentation Flemish unit

| | |
|---|--|
| Year of establishment, and major milestones in terms of its further development. | |
| Status within the university | One of the 12 department of the Faculty of Veterinary Medicine, that is one of the 11 faculties at the Ugent. |
| Academic Personnel (2005, number, status, level of education) | The department employs 37 academic staff members (PhD, DVM, MSc Molecular Biology, MSc Biology MSc Biochemistry) |
| Overall budget (2005 or most recent year). Institutional budget and donor funding | |
| Links to relevant other national | Institute of Tropical Medicine, Antwerpen Belgium: collaboration on research and |

| | |
|--|---|
| and international collaborating institutes (name, nature, max. 10). | teaching in tropical diseases Moredu Research Institute, Edinburgh, UK: collaboration on research in veterinary parasitology Institute of Neuroepidemiology and Tropical Neurology (IENT), Limoges, France: collaboration on research in neurocysticercosis International Livestock Research Institute, Nairobi, Kenya: collaboration on research in veterinary parasitology University of Pretoria, South Africa: collaboration on research in veterinary parasitology and on e-based learning |
| Elaboration on how this proposal fits into the long term development plan of the unit. | The laboratory of parasitology has a long experience in tropical parasitology. Veterinary public health problems, including zoonotic diseases that are transmitted by food or water, are one of the main focuses in the departmental plan. The approach is both fundamental (developing diagnostic tools) as applied (impact assessment, control). |
| Ongoing academic activities (teaching, research etc.) relevant to the project | Parasitic zoonosis course 4 th year Veterinary Medicine PhD students Richar Rodriguez (Ecuador) and Nynke Deckers (Belgium) on cysticercosis Research projects on cysticercosis in Vietnam (VLIR-OI) and Zambia (VLIR-IUC) |

Flemish promoters:

Prof. Dr. J. Vercruyse (DVM, Dipl. EVPC), head of the Department of Virology, Parasitology and Immunology. President of the World Association for the Advancement of Veterinary Parasitology. He has a long experience in the field of tropical medical and veterinary parasitology. Since 1985 promoter and coordinator of 30 projects on human and animal parasitic diseases in Belgium and the tropics. Author and co-author of approximately 280 scientific papers in international journals with peer review.

List of other VLIR-UOS funded activities (last 5 years)

- Epidemiology, genetic predisposition and control of polyparasitism infections in humans in Cameroon. OI 2003-06 (199,000€)
- Strengthening of the diagnostic capacity of the National Veterinary Laboratory in Kigali. OI 2002-05 (245,718€)
- Institutional collaboration with the University of Zambia. Sub-project at the School of Veterinary medicine. UIC 1998-2007
- Epidemiology of zoonotic diseases of the domestic pig in Northern Vietnam. OI 2001-2005 (12,500,000 BEF)
- Strengthening of intervention capabilities and research on dynamics and control of schistosomiasis in different ecological areas. OI 1999-2001 (7,894,460 BEF)
- Contrôle des infections parasitaires humaines dans le bassin du fleuve Sénégal. OI 1998-2000 (7,600,000 BEF)
- Strengthening of the National Institute of Veterinary Research in North and Central Vietnam; OI 1997-2000 (16,408,050 BEF)

Motivation and interest

Community-based research on cysticercosis, one of the research topics of my department.

Zoonotic problem approached by a mixed team comprising veterinarians, medical doctors and community health workers.

Prof. Dr. P. Dorny (DVM, PhD, Dipl. EVPC), Guest professor at the Department of Virology, Parasitology and Immunology. Head of the Department of Animal Health, ITM. President of the Belgian Society of Parasitology. He has a long experience in the field of tropical medical and veterinary parasitology. Has worked as a permanent expert in a VLIR-OI project in Malaysia (1990-93). Author and co-author of approximately 100 scientific papers in international journals with peer review.

- List of other VLIR-UOS funded activities

- Institutional collaboration with the University of Zambia. Sub-project at the School of Veterinary medicine. UIC 1998-2007: co-promoter
- Epidemiology of zoonotic diseases of the domestic pig in Northern Vietnam. OI 2001-2005 (12,500,000 BEF): co-promoter
- Strengthening of the National Institute of Veterinary Research in North and Central Vietnam; OI 1997-2000 (16,408,050 BEF): co-promoter
- Health and husbandry of sheep and goats in Malaysia. OI 1990-1993 (18,000,000 BEF): permanent expert

Motivation and interest

Community-based research on cysticercosis. Immunodiagnosis of taeniasis/cysticercosis. South-south collaboration.

Zoonotic problem approached by a mixed team comprising veterinarians, medical doctors and community health workers. Elaboration of interventions in the tropics.

1.3. Description of the present situation

General

- *presentation of the sector, its importance (reference to indicators and data) and problems*

In the socio-economically disadvantaged communities of the Indian subcontinent, the poor levels of hygiene and overcrowding, along with a lack of veterinary attention and zoonotic awareness, exacerbates the risks of transmission of diseases from animals to man (zoonoses). There is ample evidence for the widespread occurrence of neurocysticercosis caused by *T. solium* in India. The disease is widespread in virtually all states although it varies significantly between different states. There are certain unique features of the disease in India. The solitary form of the disease (solitary cysticercus granuloma, SCG) is the commonest presentation of the disease (2/3 of all cases with NCC), while it is mainly a multi-lesional disease in other endemic areas of Asia, Latin America and Africa. Anywhere between 26 and 50% of all Indian patients presenting with partial seizures are diagnosed with a SCG on the CT-scan. The other unusual feature of the disease is the low proportion of pork eaters amongst Indian patients with NCC. More than 95% of Indian patients with NCC are vegetarian or do not consume pork. Serological assays revealed exposure to the disease in 21.5% of 107 neurological patients in Mumbai. It is intriguing that this parasite maintains and actually causes disease in humans in a region where pig keeping and pork consumption is marginalised. Official data on the incidence of human cysticercosis are not available, and those on taeniasis and

porcine cysticercosis are old and unreliable due to the small sample size and inaccurate diagnostic tools.

Very few data on cysticercosis are available from Nepal. Often patients from Nepal seek neurological treatment outside their country, especially in India where NCC is regularly diagnosed. The fact that seven out of eight epileptic Gorkha (Nepalese) soldiers serving with the British army in Hong Kong were diagnosed to NCC indicated the prevalence of the disease in parts of Nepal. Recently very high prevalence of human taeniasis and porcine cysticercosis were found in communities in the Kathmandu valley (See table 4).

The population of pigs in Tamil Nadu was 3,20,000 (2004 census). Based on accounts of the local veterinary doctors, the population of pigs in our rural community is small and the population of pigs in the individual villages around Vellore range from 20 to 140.

Situation in Kathmandu valley?

The zoonotic pork tapeworm, *Taenia solium*, is becoming an increasing problem in Nepal with high prevalence of porcine cysticercosis and human taeniasis/cysticercosis detected in epidemiological studies undertaken in different parts of the country. Pigs farming and marketing have increased dramatically in the country in recent years due to increased consumer demand for pork as the country's caste system has become relaxed. Postmortem surveys of pigs at slaughter establishments in Kathmandu and Dharan municipality showed 14% (34/250) of pigs positive for Cysticercosis. Antemortem detection of *T. solium* infection of pigs in a Syangja district community indicated 32% (136/419) of pigs positive by lingual examination while 24% (48/201) was serologically positive by Enzyme-linked Immuno-electro Transfer Blot (EITB) and 6% (12/201) showed evidence of old infection or exposure with 42 kDa and 50 kDa. A human helminthological survey in Syangja district in central Nepal indicated a very high prevalence of taeniasis with 43% positive (77/180) while in Tanahun district 18% were positive (28/152). Taeniasis infection appears directly related to the ethnic groups surveyed and their food habits, literacy rates and hygiene and sanitation. The prevalence of taeniasis of the ethnic groups surveyed, i.e. Magars, Sarkies, Darai and Bote, were found to be 50%, 28%, 10%, and 30%, respectively. Magar people are known for rearing pigs and eat much more pork compared to other ethnic groups while the Sarkies are the poorest of the ethnic groups and are known to consume rotting carcasses of cattle. At this time the species of *Taenia* infection these different ethnic groups has not yet been identified. Human Cysticercosis cases were reviewed on the basis of hospital-based data. During the past five years, records from Patan Hospital, Bir Hospitals and Kanti children Hospital report 62, 4 and 11 Cysticercosis cases seen in Kathmandu, respectively. These hospitals have different standards with regard to diagnostic capacity, reporting and recording systems. Currently there are only six neurosurgeons and six CAT scanners active in Nepal all of which, except for one CAT scanner in Dharan, are located in Kathmandu. It is known that neurocysticercosis cases from Nepal are also being diagnosed and treated at hospitals and clinics in India.

Table 4: Prevalence data on taeniasis and cysticercosis in India and Nepal (Rajshekhar et al/ Acta Tropica 87 (2003) 53-60)

| Country | Human cysticercosis | Taeniasis (%) | Porcine cysticercosis (%) |
|---------|---------------------|---------------|---------------------------|
| India | NA | 2 | 9.3 |
| Nepal | NA | 10.5 | 32.5 |

(Rest information about project to be continued in next issue.)

FREE DOG RABIES VACCINATION IN BIDUR MUNICIPALITY OF NUWAKOT DISTRICT

Ms. Minu Sharma and Dr. D. D. Joshi

| | | |
|--------------|---------|-------------------------|
| 19 Feb. 2007 | 7 | Devi Ghat |
| 19 Feb. 2007 | 8 & 9 | 9 Ward Office |
| 20 Feb. 2007 | 10 & 11 | Ganesh Temple (Trisuli) |
| 20 Feb. 2007 | 2 & 3 | Nuwakot (Indrachwok) |

With the same general and specific following objectives NZFHRC and Donative Unit for Rabies Vaccine to Nepal made an agreement for this free dog rabies vaccination in different municipalities of Nepal.

General Objective

- To control rabies in dogs and cats population in Bidur Municipality
- To control human rabies cases due to suspected rabid dog and cat bite cases
- To organize mass public health awareness program in Bidur Municipality

Specific Objectives

- Vaccinated all pets dogs and cats, community dogs and stray dogs against rabies in all wards of Bidur Municipality
- Carry out community health awareness about rabies in humans and animals
- Carryout deworming of pets brought for vaccination
- Prepare a final report of Bidur covered in the project.

Methodology:

Bidur Municipality, Department of Livestock Services, Department of Health Services, NZFHRC and Donative Unit for Rabies Vaccine to Nepal (DURVN) were main organizations, which directly participated in the program. Mass awareness and vaccination program was carried out in coordination with respective municipalities, DLSO, DLS, and DHS. The project was implemented by NZFHRC, Kathmandu, Nepal and supported by DURVN, Tokyo, Japan. Eleven thousand five hundred (11,500) doses of vaccine have been received as donation from Japan through MERIA-17, rue Bourgelat 69002 Lyon- France.

Epidemiology and disease control division of DHS is a state run department responsible to promulgate health policies and ensuring good health of the people. Epidemiology and Disease Control Division has in the past run programs to control rabies and is the focal point of action in issues pertaining to zoonoses, as rabies and Japanese encephalitis.

DLS is the state run department responsible to livestock services including animal health care. Department's due expertise in animal disease control proved effective as facilitators in working out plans and carrying out the vaccination program. The District Livestock Service office of Nuwakot provided with JT/JTAs as vaccination technicians for campaign and was direct participants in the campaign.

Project Areas and Duration:

The project was implemented in all the 11 wards of Bidur Municipality. The Municipality was decided the vaccination date, time and location or site of vaccination. The vaccination program was carried out three days from February 18 to 20, 2007. Vaccination time was from 8 A.M. to 1 P.M. The detailed schedule of vaccination is given below in table no.1.

Table 1: Dog Rabies Vaccination Schedule in Bidur Municipality Nuwakot District Nepal.

| Vaccination Date | Ward No. | Vaccination Center |
|------------------|----------|-------------------------|
| 18 Feb. 2007 | 5 & 7 | Pipal Tar |
| 18 Feb. 2007 | 3, 4 & 6 | Battar Pati |
| 19 Feb. 2007 | 1 | Ganesh Temple (Dhungya) |

Publicity:

Extensive publicity was done over the national and local newspapers and mobile loud speakers. Pamphlets, leaflets and calendars were also distributed one month in advance to create awareness regarding need to vaccinate dogs against rabies and its public health importance. Publicity was followed up with a next comprehensive effort from the ward representatives and public health workers few days before vaccination to inform and motivate the residents to bring their pets to vaccination centers. News regarding vaccination was published in local/national dailies and weeklies and added to the publicity efforts.

Type of vaccine used:

Rabisin, an inactivated adjuvanted vaccine was used for mass vaccination campaign. Each dose of this vaccine contains an inactivated rabies antigen (fixed virus), at least 1IU, Aluminium (as hydroxide), at most 2mg, and Merthiolate, at most 0.1mg.

RESULTS

Bidur Municipality has 11 wards. Ward 5 and 6 covered remote area but other all wards belong to urban and same-urban area. During the vaccination camping we found many rabies cases. To control the rabies disease, Municipality frequently runs the dog-killing program by poisoning. In Bidur municipality very few people has dogs and cats. Around the Bidur Municipality total 200 dogs are estimated. Lack of the knowledge some people they did not brought their dog because they thought that we kill their dog. Dog ecology and dog population study was carried out in Bidur municipality and human dog population ratio was 20:1 respectively. Therefore the pet dog population was very less in number brought for vaccination.

We set-up seven camps to cover the 11 wards. Total 145 dogs and cats were registered and vaccinated in Bidur Municipality. Among them 138 dogs and 7 cats. Other animals 5 guinea pigs were vaccinated. In every center male dogs number is higher than the female dogs. In village area community dog population was very high but urban area it's very low.

Table 2: Center wise, Age and sex wise distribution of dogs and cats vaccinated against rabies.

| Center | 3m. - <2yr. | | | | >2 yr. - <5yr. | | | | > 5 yr. | | | |
|-------------------|-------------|----|---|----|----------------|----|---|----|---------|----|---|----|
| | M | % | F | % | M | % | F | % | M | % | F | % |
| Battar Pati | 3 | 4 | 2 | 10 | 7 | 23 | 1 | 12 | 3 | 30 | 0 | 0 |
| Pipal Tar | 4 | 6 | 3 | 15 | 1 | 3 | 0 | 0 | 1 | 10 | 0 | 0 |
| Ganesh Mandir | 6 | 9 | 1 | 5 | 2 | 6 | 1 | 12 | 0 | 0 | 0 | 0 |
| Ward no. 9 Office | 25 | 36 | 2 | 10 | 6 | 19 | 2 | 25 | 4 | 40 | 4 | 57 |
| Devighat | 11 | 16 | 5 | 25 | 4 | 13 | 2 | 25 | 0 | 0 | 0 | 0 |
| Ganesh Mandair | 8 | 12 | 7 | 35 | 6 | 19 | 2 | 25 | 2 | 20 | 2 | 29 |
| Nuwakot | 12 | 17 | 0 | 0 | 5 | 16 | 0 | 0 | 0 | 0 | 1 | 14 |
| Total | 69 | 10 | 2 | 10 | 3 | 10 | 8 | 10 | 1 | 10 | 7 | 10 |
| | | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

According to above table no. 2, total 7 center were set for vaccination. Among them highest dogs and cats were vaccinated in ward 9 office with a coverage number 43 and lowest was in pipal tar with a coverage number of 9. During the vaccination we found that in Bidur Municipality has very few dog population. But in village area dog population is quiet higher than urban area.

FREE DOG RABIES VACCINATION IN VYAS MUNICIPALITY OF TANAHU DISTRICT

Ms. Minu Sharma and Dr. D. D. Joshi

The theme of the free dog rabies vaccination, general and specific object, methodology, publicity and types of vaccine used during the campaign are almost same as mention in Bidur municipality mentioned above in this news.

Project Areas and Duration

The project was implemented in all the wards of Vyas Municipality. The Municipality was decided the vaccination date, time and location or site of vaccination. The vaccination program was carried out four days from March 10 to 13, 2007. Vaccination time was from 8 A.M. to 1 P.M. The detailed schedule of vaccination is given below in table no. 3.

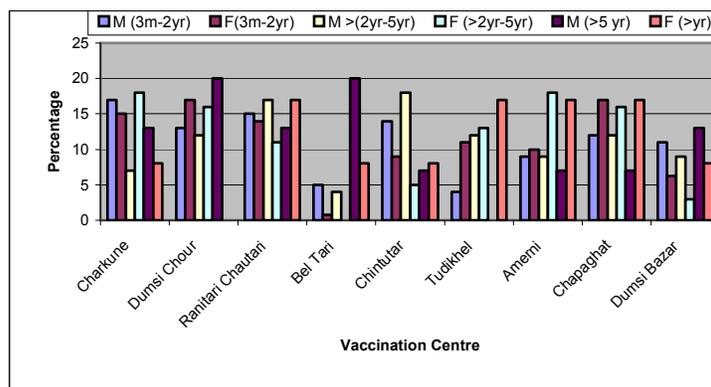
Table 3: Dog Rabies Vaccination Schedule in Vyas Municipality Tanahu District Nepal.

| Vaccination Date | Ward No. | Vaccination Center |
|------------------|------------|-------------------------|
| 10 March 2007 | 2, 10 & 11 | Tudikhela (Khula Chaur) |
| 10 March 2007 | 1 | Charkune Chautara |
| 11 March 2007 | 1, 3 | Amerni (Bus Park) |
| 11 March 2007 | 3, 5 and 9 | Dumsi Chour |
| 12 March 2007 | 7 and 8 | Chapaghat |
| 12 March 2007 | 6 | Ranitari Chautara |
| 13 March 2007 | 3 and 4 | Beltari Chautara |
| 13 March 2007 | 5, 6 and 9 | Dumsi Bazar |

RESULT

Vyas Municipality has 11 wards. We set up 10 vaccination camp to cover the 11 wards. This kind of program was not yet before, it was new and benefited for them. Very few wards of Vyas municipality were cover the urban area, otherwise hole wards cover the semi-urban and remote area. Through the 10 vaccination camp total 562 dogs and cats were vaccinated against rabies vaccine, among them 506 were dogs and 56 were cats, majorities of them were dogs. In every vaccination camp numbers of dogs and cats were vaccinated, people were participated nicely to bring their pet and community dogs. The highest number 83 was recorded in Ranitari Chautari and lowest vaccination number 24 was in Beltari.

Vyas Municipality in every vaccination center people brought their dogs and cats in large number by being in last dates of the vaccination, reasons for effective publicity and coordination between NZFHRC and Vyas Municipality. The graph showing distribution of population of dogs and cats in different vaccination sites at Vyas Municipality is presented in graph no. 1.



Graph no. 1: Center wise, age and sex wise distribution of dogs and cats vaccinated against rabies.

NEWS:

NZFHRC organized two days (10-11 April 2007) Workshop with the support of WHO, DLS, DHS. Workshop titled was "**Workshop for Consensus Building amongst National Alliance Partners to Eliminate Canine Rabies in Nepal and Development of the National Strategic Plan**". The main theme of workshop in collaboration with WHO, DLS, DHS and NZFHRC to develop a National Rabies Control Plan with the long-term objective of five years towards not only control but with the elimination of rabies from Nepal by the year 2027.

Dr. Durga Datt Joshi, Executive Chairman of this centre has gone to participate in *7th Indian Veterinary Congress and XIVth Annual Conference of Indian Association for the Advancement of Veterinary Research (IAAVR) Conference Indore, MHOW, India, February 8-9, 2007*. He has presented a technical paper titled "**Cysticercus Infection; Newer Strategies for its Control and Eradication**".

Dr. Durga Datt Joshi, Executive Chairman, NZFHRC has gone to participate in *First Annual Conference of Rabies in Asia (RIA) Foundation March 3-4, 2007, Bangalore, India*. He has presented a paper on "**Rabies Situation and Control Programme in Nepal**".

Dr. Durga Datt Joshi, Executive Chairman of this centre has gone to participate in *22nd International Congress of Hydatidology and International Symposium of Zoonoses May 15-19, 2007 Athens, Greece*. He has presented a technical paper titled "**Epidemiological Aspect of Cystic Echinococcosis/Hydatidosis in Nepal**".

**From: Zoonoses & Food Hygiene News, NZFHRC
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TO:

Dr/Mr/Ms

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