



**International
Collating Centre**

INTERNATIONAL COLLATING CENTRE
Information Exchange on Infectious Equine Disease
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Fourth Quarter Summary Report: October - December 2020

This article provides a summary of international disease outbreaks during 4Q 2020. It should also be noted that additional summary reports were kindly received that included further information on disease occurrence for that country but which had not been reported in previous real-time ICC reports. This additional information is identified by * in the tables and text where relevant throughout this report. The information from the ICC interim (real-time) reports are available on the interactive ICC website, which can be found at <http://jdata.co.za/iccvviewer/>.

The data presented in this report *must be interpreted with caution*, as there is likely to be some bias in the way that samples are submitted for laboratory testing and subsequently reported. Consequently these data do not necessarily reflect true infectious disease frequency within the international equine population. A country with no reported outbreaks of a disease does not necessarily equate to the disease not being present in that country. Each table below summarises the number of disease outbreaks reported by a country. Each reported outbreak may involve more than one animal.

Reproductive Conditions

Country	CEM	EHV-1	EVA	Leptospirosis	Nocardiosis	PHF
France	-	3	-	1	-	-
Germany	*	3	*	-	-	-
Japan	-	*	-	-	-	-
Netherlands	-	2	-	-	-	-
UK	-	1	-	-	-	-
USA	-	*	-	*	*	*

*relates to additional summary information reported at the end of the quarter, but which was not reported via ICC interim reports

Contagious Equine Metritis (CEM)

Germany



*Three cases of CEM in Icelandic stallions were reported. Positive diagnoses were confirmed by PCR and reported after the quarter end.

Equine Herpes Virus-1 (EHV-1) Abortion

France



Three outbreaks of EHV-1 abortion with single cases in each were reported - including one in a Thoroughbred and one in a French Trotter. Positive diagnoses were confirmed by PCR on fetal tissues or placenta.

Germany



Three outbreaks of EHV-1 abortion with single cases in each were reported – all in vaccinated Thoroughbreds. Positive diagnoses were confirmed by PCR on fetal tissues.

Japan



*Five outbreaks of EHV-1 abortion involving seven Thoroughbreds were reported after the quarter end. Positive diagnoses were confirmed by PCR. Six of the seven animals were vaccinated

Netherlands



Two outbreaks of EHV-1 abortion with single cases in each in unvaccinated animals were reported. Abortion took place in seventh or eighth months of gestation. Positive diagnoses were confirmed by PCR on fetal tissues or vaginal swab.

UK



One case of EHV-1 abortion was confirmed in a vaccinated Thoroughbred on a premises in Suffolk. Positive diagnosis was made based on gross post-mortem findings and PCR.

USA



*Four cases of EHV-1 abortion were recorded in Kentucky and reported after the quarter end.

Equine Viral Arteritis (EVA)

Germany



*One case of EVA in a Warmblood stallion was reported. Positive diagnosis was confirmed by PCR and virus isolation and reported after the quarter end.

Leptospirosis Abortion

France



One case of leptospiral abortion was reported in a six-year-old French Trotter. Positive diagnosis was confirmed by PCR on placenta.

USA



*Two cases of leptospiral abortion were diagnosed in Kentucky and reported after the quarter end.

Nocardiosis

USA



**Amycolatopsis* and/or *Crossiella equi* were detected in several cases of nocardioform placentitis and abortion and reported after the quarter end.

Potomac Horse Fever (PHF)

USA



*One case of PHF with clinical signs of abortion was reported in Kentucky after the quarter end.

Respiratory Conditions

Country	EHV-1	EHV-4	EHV-1 &-4	EHV-2 &-5	EHV-4/ Strangles	Flu	Flu/ EHV-4	<i>R. equi</i>	Strangles
Belgium	-	2	-	-	1	-	-	-	1
Canada	-	-	-	-	-	2	-	-	1
France	2	14	2	-	-	3	-	-	5
Germany	*	*	-	*	-	3*	-	*	*
Netherlands	2	2	-	-	-	2*	-	-	13*
UK	-	-	-	-	-	3	-	-	-
USA	-	-	*	*	-	16	1	*	13

*relates to additional summary information reported at the end of the quarter, but which was not reported via ICC interim reports

Equine Herpes Virus-1 (EHV-1) Respiratory Infection

France



Two outbreaks of EHV-1 respiratory infection were reported with single cases in each. Positive diagnoses were confirmed by PCR on nasopharyngeal swabs.

Germany



*One case of EHV-1 respiratory infection was reported. Positive diagnosis was confirmed by PCR and reported after the quarter end.

Netherlands



Two outbreaks of EHV-1 respiratory infection were reported with two unvaccinated cases in one outbreak and five unvaccinated cases in the other. Clinical signs included pyrexia, nasal discharge, cough and leg oedema. Positive diagnoses were confirmed by PCR on nasopharyngeal swabs.

Equine Herpes Virus-4 (EHV-4) Respiratory Infection

Belgium



Two outbreaks of EHV-4 respiratory infection were confirmed with single cases in each. One case had a co-infection of EHV-2 &-5. Clinical signs included pyrexia and cough. The other case, in a three-year-old, had a co-infection of EHV-2. Positive diagnoses were confirmed by PCR on nasal swabs.

France



Fourteen outbreaks of EHV-4 respiratory infection were confirmed with single cases in 11 outbreaks and two cases in three outbreaks. Positive diagnoses were confirmed by PCR on nasopharyngeal swabs in 12 outbreaks. The other two outbreaks were confirmed either by PCR on blood or by PCR on tracheal lavage.

Germany



*One case of EHV-4 was confirmed in a pyrexical animal. Positive diagnosis was confirmed by PCR and reported after the quarter end.

Netherlands



Two outbreaks of EHV-4 respiratory infection were reported. One in a group of four unvaccinated foals with positive diagnoses by PCR on a pool of two nasopharyngeal swabs. The other outbreak was in a five-month-old foal with clinical signs of lethargy, increased breathing and oedematous legs. Positive diagnosis was confirmed by PCR on a nasopharyngeal swab.

*One additional outbreak was reported that took place in December, but reported after the quarter end involving one case in Friesland. Clinical signs include nasal discharge. Positive diagnoses were confirmed by PCR on a nasopharyngeal swab.

Equine Herpes Virus-1 & -4 (EHV-1 & -4) Respiratory Infection

USA



*EHV-1 & -4 infections occurred in numerous states, primarily associated with respiratory illness in foals and were reported after the quarter end.

France



Two outbreaks of EHV-1 &-4 were reported with a single case in each. Clinical signs included pyrexia, nasal discharge and lymphadenopathy. Positive diagnoses were confirmed by PCR on nasopharyngeal swabs.

Equine Herpes Virus-2 & -5 (EHV-2 & -5)

Germany



*Five cases of EHV-2 & EHV-5 in foals showing respiratory signs were confirmed by PCR after the quarter end.

USA



*Numerous cases of infection with or both viruses were diagnosed in several states some, associated with upper respiratory disease, and were reported after the quarter end.

Equine Herpes Virus-4 (EHV-4) Respiratory Infection/Strangles

Belgium



One outbreak of EHV-4 respiratory infection and *Streptococcus equi* (strangles) co-infection in a number of unvaccinated foals was reported. Clinical signs included pyrexia, cough, nasal discharge and lymphadenopathy. Positive diagnoses were confirmed by PCR on nasal swabs.

Equine Influenza (EI)

Canada



Two outbreaks of EI were reported. One outbreak with two cases in unvaccinated Welsh Crosses and the other outbreak with a single five-year-old gelding. Clinical signs included cough, pyrexia and nasal discharge.

France



Three outbreaks of EI were confirmed with single cases in two outbreaks and two cases in one outbreak. Positive diagnoses were confirmed by PCR on nasopharyngeal swabs.

Germany



Three outbreaks of EI were reported with single cases in each, however, two of the cases were from the same premises, but reported separately. Clinical signs included pyrexia and nasal discharge. Positive diagnoses were confirmed by PCR on nasal swabs.

*One additional outbreak was reported that took place in December, but was reported after the quarter end involving seven mostly unvaccinated animals on a single premises. Clinical signs included cough, pyrexia and nasal discharge. The animals ranged in ages from yearlings to 11-years-old. Positive diagnoses were confirmed by PCR on nasopharyngeal swabs.

Netherlands



Two outbreaks of EI were confirmed, the first with a single case with clinical signs of pyrexia and inappetence. Positive diagnosis was confirmed by PCR on a nasopharyngeal swab. The second outbreak involved six unvaccinated foals with clinical signs including cough and one presenting with purulent conjunctivitis. Positive diagnoses were confirmed by PCR on a pool of three nasopharyngeal swabs.

UK



Three outbreaks of EI were confirmed with single cases in each. All animals were unvaccinated including one Thoroughbred (non-racing). Clinical signs included pyrexia, nasal discharge, cough and conjunctivitis. Positive diagnoses were confirmed by PCR on nasopharyngeal swabs.

USA



Sixteen outbreaks of EI were confirmed during 4Q 2020, 10 involved single cases, three involved two cases, two involved three cases and one involved 40 cases. The outbreak involving 40 cases was in California where it was reported that nearly 40 Burros had died

from an outbreak of EI. The deaths were first seen in mid-October and occurred mostly in the Reche Canyon area near Moreno Valley and Colton with approximately six deaths occurring in Moreno Valley.

USA

Equine Influenza (EI)/Equine Herpes Virus-4 (EHV-4)



A single case of EI with a co-infection of EHV-4 was reported.

Rhodococcus equi

Germany



**Rhodococcus equi* was reported in two foals with abscessating bronchopneumonia, which were reported after the quarter end. Positive diagnoses were confirmed by PCR and culture.

USA



**Rhodococcus equi* infection is endemic and widespread in the USA. A single outbreak was confirmed in Kentucky after the quarter end.

Strangles

Belgium



A single case of strangles was reported in an unvaccinated 15-year-old with clinical signs of nasal discharge and lymphadenopathy. Positive diagnosis was confirmed by PCR on a nasal swab.

Canada



A single case of strangles was reported in a Standardbred yearling in a premises on Prince Edward Island.

France



Five outbreaks of strangles were reported, four involving single cases and one involving five cases. Clinical signs included depression, pyrexia, nasal discharge, cough and lymphadenopathy. Positive diagnoses were confirmed by PCR on nasopharyngeal swabs.

Germany



*Eight cases of strangles were reported after the quarter end. Positive diagnoses were confirmed by PCR and culture for five cases and culture only for three cases. Clinical signs included pyrexia, swelling and submandibular lymph node abscessation and nasal discharge.

Netherlands



Thirteen outbreaks of strangles were reported, 11 involving single cases, one involving two cases and one involving three cases. Clinical signs included pyrexia, nasal discharge, cough, swollen throat, submandibular lymphadenopathy and abscessation and poor appetite. Positive diagnoses, in the majority of outbreaks, were confirmed by PCR on nasopharyngeal swabs, however, one outbreak was confirmed by PCR on guttural pouch lavage and one other confirmed by PCR on abscess material.

*Two additional outbreaks were reported that took place in December 2020, but reported after the quarter end; both involving single cases on separate premises in Gelderland and North Holland. Clinical signs included enlarged submandibular lymph nodes, pyrexia and nasal discharge. Positive diagnoses were confirmed by PCR on nasopharyngeal swabs.

USA



Thirteen outbreaks of strangles were reported, all involving single cases. Clinical signs included pyrexia, nasal discharge, submandibular lymphadenopathy and abscessation, lethargy, cough and decreased appetite.

Gastrointestinal Diseases

Country	Clostridial Enterocolitis	Lawsonia	Rotavirus	Salmonellosis
Argentina	-	-	1	-
USA	*	*	*	*

*relates to additional summary information reported at the end of the quarter, but which was not reported via ICC interim reports

Clostridial Enterocolitis

USA



**Clostridium perfringens* was detected in nine cases of *C. difficile* and in two cases of enterocolitis, which were reported after the quarter end.

Lawsonia Enteropathy

USA



*Thirteen cases of infection with *Lawsonia intracellularis* were recorded in Kentucky and reported after the quarter end.

Rotavirus

Argentina



An outbreak of rotavirus was confirmed in 40 vaccinated foals aged between 20-40 days, on a single-premises during November and December. The disease was clinically mild and after two or three days of symptomatic treatment and hydration the foals recovered well.

USA



*One case of rotavirus infection was confirmed in Kentucky and reported after the quarter end.

Salmonellosis

USA



*Three cases of salmonellosis were reported after the quarter end; two of *Salmonella* Group C1 and one of an ungrouped *Salmonella* species.

Neurological Conditions

Country	EEE	EEE/WNV	EHV-1	WNV
Austria	-	-	-	2
Canada	2	-	-	-
France	-	-	-	1
Germany	-	-	-	4
Italy	-	-	-	2
Netherlands	-	-	1	-
Spain	-	-	-	11
USA	22	1	7	16

*relates to additional summary information reported at the end of the quarter, but which was not reported via ICC interim reports

Eastern Equine Encephalitis (EEE)

Canada



Two outbreaks of EEE, one with a single case and one involving two cases in unvaccinated animals were confirmed. Clinical signs included seizures, paddling of limbs, profuse sweating, muscle fasciculations, ataxia, drooling, deviated muzzle and recumbency. One animal died and the two others were euthanased.

USA



Twenty-two outbreaks of EEE, all single cases, were confirmed in states including Florida, Michigan, Minnesota, North Carolina, South Carolina and Wisconsin.

Eastern Equine Encephalitis (EEE)/West Nile Virus (WNV)

USA



One case of EEE with WNV co-infection was reported in Florida in a vaccinated two-year-old. Clinical signs included vision impairment, in-coordination and laminitic signs in the front limbs.

Equine Herpes Virus-1 (EHV-1) Neurological Disease

Netherlands



A single case of EHV-1 neurological disease was reported in an unvaccinated animal on a premises in Friesland. Clinical signs included pyrexia and hind limb paresis. Positive diagnosis was confirmed by PCR on a nasopharyngeal swab.

USA



Seven outbreaks of EHV-1 neurological disease, all involving single cases, with the majority vaccinated, were reported including in the following states - California (three outbreaks with 11 cases), Florida, Michigan and Oregon with single cases in each. Clinical signs included ataxia, hind end weakness, respiratory signs, urine retention and urine dribbling.

West Nile Virus (WNV)

Austria



Two outbreaks of WNV with single cases in each were reported. One of the animals was euthanased.

France



Two separate outbreaks of WNV with a single case in each were reported on separate premises in Corse du Sud.

Germany



Four outbreaks of WNV were reported.

Italy



Two outbreaks of WNV were reported with a single case in each.

Spain



Eleven outbreaks of WNV were reported with further outbreaks confirmed within each report.

USA



Sixteen outbreaks of WNV were reported, all with single cases, in the following states - California, Colorado, Florida, Idaho, Kansas, South Carolina and Utah.

Miscellaneous Conditions

Country	AHS	EHV-2	EIA	Lepto	Pigeon Fever	Piro	PHF	Tetanus	VS
Canada	-	-	-	-	1	-	-	-	-
France	-	-	-	2	-	-	-	-	-
Germany	-	*	-	-	-	-	-	-	-
Japan	-	-	-	-	-	-	-	*	-
Romania	-	-	1	-	-	-	-	-	-
South Africa	*	-	-	-	-	*	-	-	-
Switzerland	-	-	-	1	-	-	-	-	-
USA	-	-	6	-	11	-	3	-	1

*relates to additional summary information reported at the end of the quarter, but which was not reported via ICC interim reports

African Horse Sickness (AHS)

South Africa



*AHS is endemic in South Africa except in the AHS controlled area in the Western Cape Province. AHS cases have occurred sporadically within the endemic area of South Africa, in two of the nine Provinces (Gauteng and Mpumalanga), totalling three cases. There were no cases of AHS in the Western Cape Province, either in the infected part of the province or in the AHS controlled area.

Equine Herpes Virus-2 (EHV-2)

Germany



*A mare with keratitis was confirmed as EHV-2 positive by PCR after the quarter end.

Equine Infectious Anaemia (EIA)

Romania



One outbreak of EIA affecting two animals on one premises was reported in Romania.

USA



Six outbreaks of EIA were reported, five involving one case and one involving two cases, all on premises in Texas.

Leptospirosis

France



Two outbreaks of leptospirosis were confirmed with a single case in each on premises in Finistère and Loire Atlantique. Positive diagnoses were confirmed by PCR on aqueous humor.

Switzerland



One outbreak of leptospirosis was confirmed with a single case in the canton of Glarus. Positive diagnosis was confirmed by PCR on urine.

Pigeon Fever

Canada



One outbreak of pigeon fever was confirmed in a vaccinated two-year-old on a premises in British Columbia.

USA



Eleven reports of pigeon fever were received with further confirmed outbreaks within each report. All outbreaks were in the state of Washington.

Piroplasmosis

South Africa



*Piroplasmosis is regarded as endemic in South Africa and sporadic cases were reported from 8 of the 9 provinces of South Africa after the quarter end. These included two in Eastern Cape, one in Free State, 21 in Gauteng, two in Kwa-Zulu Natal, five in Mpumalanga, one in Northern Cape, two in North West Province and nine in Western Cape.

Potomac Horse Fever (PHF)

USA



Three outbreaks of PHF were confirmed, two involving one case and one involving two cases in Kentucky and Washington. Clinical signs included anorexia, lethargy, diarrhoea and inappetence.

Tetanus

Japan



*One case of tetanus strain type *Clostridium tetani* was reported after the quarter end.

Vesicular Stomatitis (VS)

USA



One outbreak of VS on a premises in Texas was confirmed.

*A further outbreak was confirmed at an equine facility in Missouri after the quarter end.

Results of a serological and qPCR survey conducted in Korea in 2020 by Animal & Plant Quarantine Agency (APQA)/Korean Racing Association

2020 serological survey

A serological survey was performed for African Horse Sickness (AHS), Vesicular Stomatitis (VS), Equine Infectious Anaemia (EIA), Equine Viral Arteritis (EVA), Japanese Encephalitis (JE), West Nile Fever (WNF) and Equine Influenza (EI) to investigate serological evidence for these infections in horses raised in South Korea.

Serum samples from 1,323 horses including Thoroughbred stallions, broodmares, racehorses, ponies and riding horses were collected. Sample collections were performed by the Korean Racing Authority (KRA) and the tests were conducted by the Animal & Plant Quarantine Agency (APQA) of South Korea.

African Horse Sickness (AHS)

All samples tested negative with commercially available ELISA test kits.

All *Culicoides* spp. collected from five locations of KRA tested negative.

Vesicular Stomatitis (VS)

All samples tested negative with commercially available ELISA test kits and VN test.

Equine Infectious Anaemia (EIA)

All samples tested negative with commercially available ELISA test kits and AGID test.

West Nile Virus (WNV)

All samples tested negative with commercially available IgM Antibody Capture ELISA test kits and VN test.

Equine Viral Arteritis (EVA)

Three of 1,323 samples tested positive (0.2%) for antibody detection with commercially available ELISA (VMRD; USA) and VN test. All seropositive horses were imported stallions with a history of vaccination, which explained the seropositive results.

Japanese Encephalitis (JE)

Viral neutralisation tests were performed and 1,090 samples of 1,323 (82.4%) tested positive for antibody. All seropositive results were due to vaccination.

Equine Influenza (EI)

Haemagglutination inhibition tests were performed and 1,260 samples of 1,323 (95.2%) tested positive for antibody. All seropositive results were due to vaccination.

Piroplasmosis (*B. Caballi, T. equi*)

A commercially available cELISA (Antibody test kit; VMRD USA; OIE authorised method) was performed and two samples of 1,323 (0.15%) tested positive for *T. equi*.

Surra (*T. evansi*)

All of the 265 samples tested were negative (0%) with commercially available CATT/*T. evansi* kit (AT&-PU, Belgium).

2020 PCR survey for Contagious Equine Metritis (CEM)

KRA conducted examination for CEM in 2,232 samples from Thoroughbred stallions and broodmares registered in the Korean studbook (<http://studbook.kra.co.kr>).

One sample out of 2,232 tested positive (0.04%) by qPCR on venereal swabs, which compared with 3 of 2,236 (0.13%) testing positive in 2019. The positive horse has not been in service and is under movement restrictions. The positive horse has undergone treatment and will be tested by APQA until three negative results are obtained.

Active surveillance of Equine Infectious Anemia (EIA) among racehorses in Japan Yuta Kuramochi, DVM. Administrator of Japanese Counsel of Equine Health

The Japanese Ministry of Agriculture, Forestry and Fisheries (JMAFF) concluded that Japan eradicated EIA based on the results of the surveillance covering all the horse population consisting of 70,133 horses including racehorses, riding horses or wild horses in Japan in 2017. Then, the Japanese horseracing industry consisting of Japan Racing Association (JRA) and the racecourses held by local governments implemented the voluntary sampling surveillance for EIA by agar gel immunodiffusion, or AGID, test with 95% confidence level (Cannon and Roe, 1982. Livestock disease surveys, a field manual for veterinarians) in 2020. We randomly extracted more than 58 horses from the racehorses kept in each training centre or racecourse with population size ranging from approximately 300 to 2000 horses and took serum samples from them in Autumn 2020.

Table 1 shows the results of the surveillance. No EIA positive horses were detected, suggesting that the disease prevalence of EIA in the Japanese racehorse population is less than 5 % with 95% confidence level. The Japanese horseracing industry will continue this surveillance annually in the future.

Table 1: results of EIA surveillance with AGID test in 2020.

Training center (TC) /Racecourse (RC)	JRA/municipal government	Sampling size (n)	Positive horses (n)
Miho TC	JRA	60	0
Ritto TC	JRA	60	0
Obihiro RC	Hokkaido	60	0
Monbetsu RC	Hokkaido	59	0
Morioka RC	Iwate	60	0
Mizusawa RC	Iwate	60	0
Oi RC	Tokyo	60	0
Urawa RC	Saitama	60	0
Funabashi RC	Chiba	60	0
Kawasaki RC	Kanagawa	60	0
Kanazawa RC	Ishikawa	60	0
Kasamatsu RC	Gifu	60	0
Nagoya RC	Aichi	60	0
Sonoda RC	Hyogo	60	0
Kochi RC	Kochi	60	0