



**International
Collating Centre**

**INTERNATIONAL COLLATING CENTRE
Information Exchange on Infectious Equine Disease**

*Generously supported by contributions from
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Second Quarter Summary Report: April - June 2021

This article provides a summary of international disease outbreaks during second quarter 2021. 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 * or # 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/iccviewer/>. 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	EHV-4	S. zoo
Belgium	-	3	1	1
Canada	-	1	-	-
France	-	4	-	-
Germany	10	2	-	-
Ireland	-	3	-	-
Japan	-	1	-	-
Netherlands	-	2	1	-
Sweden	-	5	-	-
UK	1	3	-	-
USA	-	*	-	-

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

Contagious Equine Metritis (CEM)

Germany



Ten outbreaks of CEM were reported – one with three cases and nine with single cases mainly in Icelandic horses. Positive diagnoses were confirmed by PCR on genital swabs.

UK



One outbreak of CEM was reported in an imported three-year-old Arab stallion on a premises in Devon. The animal was imported in October 2020 from Europe and had no clinical signs of infection. The diagnosis was made following targeted investigative testing after it came to light that another linked stallion on a premises in the Netherlands had tested positive for CEM on routine testing. The initial positive diagnosis was made by PCR on a penile swab.

Equine Herpes Virus-1 (EHV-1) Abortion

Belgium



Three outbreaks of EHV-1 abortion with single cases in each were reported on premises in Flemish Brabant and Namur. Positive diagnoses were confirmed by PCR on fetal lung and fetal liver tissue.

Canada



One case of EHV-1 abortion was reported on a premises in Ontario. Abortion occurred on day 315 of gestation.

France



Four outbreaks of EHV-1 abortion were reported with one outbreak with two cases and three outbreaks with single cases in each on premises in Manche and Seine Maritime. Positive diagnoses were confirmed by PCR on fetal tissues in three outbreaks and placenta in one.

Germany



Two outbreaks of EHV-1 abortion were reported with one outbreak with two cases and one outbreak with a single case. In the outbreak with two cases both animals aborted during their tenth month of gestation. Positive diagnoses were confirmed by PCR on dry swabs and PCR on endometrial and placental swab in the single case.

Ireland



Three outbreaks of EHV-1 abortion with single cases in each were reported – all were in Thoroughbreds. Positive diagnoses were confirmed by gross pathology, histopathology and PCR.

Japan



Three separate outbreaks of EHV-1 abortion were reported involving single cases in vaccinated Thoroughbreds on three separate premises during 2Q 2021. Positive diagnoses were confirmed by PCR and LAMP by Hokkaido Hidaka Livestock Hygiene Service Center and Hokkaido Iburi Livestock Hygiene Service Center.

Netherlands



Two outbreaks of EHV-1 abortion with single cases in each were reported. One mare had a non-viable foal and the other aborted at 10 months gestation. Positive diagnoses were confirmed by PCR on a vaginal swab in one case and PCR on a fetal lung aspirate and mare vaginal swab in the other.

Sweden



Five outbreaks of EHV-1 abortion with single cases in each were reported. Positive diagnoses were confirmed by pooled samples from fetal organs (spleen, liver and lung) and placenta.

UK



Three outbreaks of EHV-1 abortion with single cases in each were reported on premises in Berkshire, West Sussex and Yorkshire. Positive diagnoses were made by PCR on fetal and placental tissue and histopathology.

USA



*A total of eight cases of abortion/perinatal death were reported after the quarter end.

Equine Herpes Virus-4 (EHV-4) Abortion

Belgium



One case of EHV-4 abortion was reported in a vaccinated animal on a premises in East Flanders. Abortion took place during the 9.5 month of gestation. Positive diagnosis was confirmed by PCR on fetal lung and liver tissue.

Ireland



One case of EHV-4 abortion was reported in a Thoroughbred. Positive diagnosis was confirmed by gross pathology, histopathology and PCR.

Streptococcus zooepidemicus Abortion

Belgium



One case of *Streptococcus zooepidemicus* abortion was reported on a premises in West Flanders. Positive diagnosis was confirmed by PCR on fetal lung and liver tissue.

Respiratory Conditions

Country	EHV-1	EHV-4	EHV-1 &-4	EHV-2 &-5	Equine Adeno virus	Flu	<i>R. equi</i>	Strangles
Belgium	3	2	-	-	-	-	-	-
France	10	21	-	-	-	2	-	14
Germany	1	-	-	-	-	3	-	1
Italy	11	2	-	-	-	-	-	-
Netherlands	4	1	-	-	-	-	-	19 [#]
Norway	1	-	-	-	-	-	-	-
Sweden	10	-	-	-	-	-	-	-
Switzerland	-	1	-	-	-	-	-	7
Tunisia	-	-	-	-	-	1	-	-
UK	4	-	-	-	-	6 [#]	-	-
USA	4	-	*	*	*	10	*	35

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

[#]reported after the quarter end

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

Belgium



Three outbreaks of EHV-1 respiratory infection were reported with two outbreaks with one case and one outbreak with two cases. The outbreak with two cases involved two animals that had returned from a showjumping event in Opglabbeek with diagnoses confirmed by PCR on nasopharyngeal swabs.

France



Ten outbreaks of EHV-1 respiratory infection were reported with seven outbreaks with one case, one outbreak with two cases, one outbreak with three cases and one outbreak with six cases. Positive diagnoses were confirmed by PCR on nasopharyngeal swabs.

Germany



One case of EHV-1 respiratory infection was reported on a premises in Nordrhein-Westfalen. Clinical signs included pyrexia. Positive diagnosis was confirmed by PCR on a nasal swab.

Italy



Eleven outbreaks of EHV-1 respiratory infection were reported. Nine outbreaks involved single cases. One outbreak involved three separate cases on premises in Bolzano and one of these cases had just returned from a dressage event in Ornago. One outbreak involved three animals also returning from the dressage event in Ornago. Clinical signs included pyrexia.

Netherlands



Four outbreaks of EHV-1 respiratory disease were reported with three outbreaks with single cases and one outbreak with four cases. Clinical signs included pyrexia, lethargy and nasal discharge. Positive diagnoses were confirmed by PCR on nasopharyngeal swabs.

Sweden



Eleven outbreaks of EHV-1 respiratory infection were reported – two with one case, two further single cases with a co-infection of *Streptococcus zooepidemicus*, one outbreak with two cases and five outbreaks on animals tested on their return from competing at events in Spain. Clinical signs included pyrexia, cough and nasal discharge. Positive diagnoses were confirmed by PCR on nasal swabs.

UK



Four outbreaks of EHV-1 respiratory infection were reported with single cases in each on premises in Devon, Gloucestershire, Hertfordshire and Wiltshire. Clinical signs included conjunctivitis, dullness, inappetence, lethargy, ocular discharge, pyrexia and tremors. Positive diagnoses were confirmed by PCR on nasopharyngeal swabs in three cases and PCR on nasopharyngeal swab and blood in one case.

USA



Four outbreaks of EHV-1 respiratory infection were reported with single cases in each and one of these cases had recently been imported from Europe. Outbreaks were confirmed on premises in Florida, Colorado, Rhode Island and Massachusetts. Clinical signs included pyrexia.

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

Belgium



Two outbreaks of EHV-4 respiratory infection were reported with single cases in each. One outbreak had a co-infection with EHV-2 and EHV-5. Clinical signs included pyrexia, and nasal discharge.

France



Twenty-one outbreaks of EHV-4 respiratory infection were reported with single cases in each. Clinical signs included cough, dyspnoea, nasal discharge and pyrexia. Positive diagnoses were confirmed by PCR on nasopharyngeal swabs.

Italy



Two outbreaks of EHV-4 respiratory infection were reported in single cases in each on premises in Siena and Udine.

Netherlands



One case of EHV-4 respiratory infection was reported on a premises in Overijssel. Clinical signs included pyrexia and nasal discharge. Positive diagnosis was confirmed by PCR on a nasopharyngeal swab.

Switzerland



One case of EHV-4 respiratory infection was confirmed on a premises in the Canton of Zurich. Clinical signs included pyrexia. Positive diagnosis was confirmed by PCR on a nasal swab.

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

USA



*EHV-1 & -4 infections were reported, after the quarter end, in a number of states; most frequently associated with respiratory disease in foals.

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

USA



*Cases of EHV-2 (three cases) and EHV-5 (two cases) were diagnosed in Kentucky; in some instances, associated with clinical evidence of respiratory disease, after the quarter end.

Equine Adenovirus

USA



*One case of equine adenovirus Type 1 related respiratory disease was recorded in Kentucky after the quarter end.

Equine Influenza (EI)

France



Two outbreaks of EI were reported with single cases in each on premises in Vaucluse and Dordogne. Clinical signs included cough, nasal discharge, pyrexia and lymphadenopathy. Positive diagnoses were confirmed by PCR on nasopharyngeal swabs.

Germany



Three outbreaks of EI were confirmed with two outbreaks involving one case and one outbreak with two cases on premises in Bavaria and Northrhine-Westfalia. Positive diagnoses were confirmed by PCR on nasopharyngeal swabs.

Tunisia



Two outbreaks of EI were reported and involved 158 cases within a susceptible population of 861 horses. Positive diagnoses were confirmed by rRT-PCR.

UK



Five outbreaks of EI were confirmed with single cases in each on premises in Ayrshire, Devon, Essex, Staffordshire and West Sussex. Clinical signs included cough, lymphadenopathy, nasal discharge and pyrexia. Positive diagnoses were confirmed by PCR on nasopharyngeal swabs. #An outbreak involving one case in an unvaccinated stallion recently imported from Spain was reported after the quarter end. Clinical signs included cough, pyrexia, dullness, bilateral mucopurulent discharge and enlarged submandibular lymph nodes. Positive diagnosis was confirmed by PCR.

USA



Ten outbreaks of EI were confirmed with eight outbreaks with single cases, one outbreak with two cases and one outbreak with four cases on premises in Kansas, Rhode Island, Ohio, Oregon, Washington and Wisconsin. The outbreak with four cases involved four animals tested as a result of returning from a show in New York with fever. For the outbreak involving two cases, some of the animals on this premises had attended a show in Illinois. Clinical signs included cough, nasal discharge, laboured breathing and pyrexia.

Rhodococcus equi

USA



*A total of 17 cases of infection with *Rhodococcus equi* were reported after the quarter end.

Strangles

Belgium



Fourteen outbreaks of strangles were reported with 12 outbreaks with single cases, one outbreak with two cases and one outbreak with four cases. Clinical signs included abscessation, cough, lymphadenopathy, nasal discharge and pyrexia. Positive diagnoses were confirmed by PCR on nasopharyngeal swabs in the majority of outbreaks and PCR on guttural pouch lavage in one outbreak.

Germany



One outbreak of strangles with a single case was reported in a 10-year-old animal on a premises in Lower Saxony. Positive diagnosis was confirmed by PCR from pus in guttural pouch.

Netherlands



Eighteen outbreaks of strangles were reported with single cases in each. Clinical signs included pyrexia, nasal discharge, enlarged retropharyngeal lymph nodes, enlarged mandibular lymph nodes, cough, abscessation, inappetence and dysphagia. Positive diagnoses were confirmed by PCR on nasopharyngeal swabs. #A case of strangles was reported after the quarter end in an unvaccinated animal, which had recently arrived on the premises. Clinical signs included pyrexia, enlarged lymph nodes and ruptured abscesses. Positive diagnosis was confirmed by PCR on a nasopharyngeal swab.

Switzerland



Seven outbreaks of strangles were reported with single cases in four outbreaks and more than one case in three outbreaks. Clinical signs included pyrexia, respiratory signs, emaciation and neurological signs. Positive diagnoses were by PCR in the majority of outbreaks and bacterial culture in one outbreak.

USA



Thirty-five outbreaks of strangles were reported with single cases in 33 outbreaks and two cases in three outbreaks on premises in Florida, Los Angeles, Massachusetts, Michigan, Minnesota, New Hampshire, New York, Washington and Wisconsin. Clinical signs included anorexia, abscessed submandibular lymph nodes, cough, enlarged lymph nodes, lethargy, nasal discharge and pyrexia.

Gastrointestinal Diseases

Country	Clostridial Enterocolitis	Eq. Corona virus	Clostridial Perfringens	Lawsonia	Rotavirus	Salmonella
France	-	-	-	-	8	-
Germany	-	2	-	-	-	-
Switzerland	1	1	-	-	1	-
USA	-	*	*	*	*	*

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Clostridial Enterocolitis

Switzerland



An outbreak of *Clostridia* spp. infection was reported on a premises in the Canton of Zurich. Clinical signs included diarrhoea. Positive diagnoses were confirmed by PCR

Equine Coronavirus (ECoV)

Germany



Two outbreaks of ECoV were reported on premises in Germany. Clinical signs included diarrhoea, mild colic and pyrexia. Positive diagnoses were confirmed by PCR.

Switzerland



An outbreak of ECoV in two animals was reported on premises in the Canton of Aargau. Clinical signs included pyrexia. Positive diagnoses were confirmed by PCR on fecal matter.

USA



*Three cases of ECoV infection were reported after the quarter end.

Clostridial Perfringens

USA



*It was noted that 129 cases of *Clostridium perfringens* and 107 cases of *Clostridium difficile* were confirmed on PCR testing, the vast majority in Kentucky after the quarter end.

Lawsonia intracellularis

USA



*One case of *Lawsonia intracellularis* infection was reported after the quarter end.

Rotavirus

France



Eight outbreaks of rotavirus were reported – three outbreaks with two cases and five outbreaks with single cases. Positive diagnoses were confirmed by PCR on rectal swabs or faecal matter.

Switzerland



One case of rotavirus was reported on a premises in the Canton of Graubünden. Clinical signs included diarrhoea and pyrexia. Positive diagnosis was confirmed by ELISA.

USA



*A total of five cases of Rotavirus Type A and one case of Type B were confirmed in Kentucky after the quarter end.

Salmonella

USA



*Two cases of *Salmonella* species, Group B, one of Group C1, and one of untyped *Salmonella* species were recorded in Kentucky after the quarter end.

Neurological Conditions

Country	EEE	EEV	EHV-1	EHV-4	Rabies	WNV
Belgium	-	-	1	-	-	-
Canada	1	-	2	-	-	-
France	-	-	1	-	-	-
Italy	-	-	10	1	-	-
S. Africa	-	8	-	-	-	-
UK	-	-	2	-	-	-
USA	8	-	7*	-	2	2

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Eastern Equine Encephalitis (EEE)

Canada



One case of EEE was reported in an unvaccinated 26-year-old animal on a premises in Ontario. Clinical signs included muscle fasciculations, recumbency and lethargy.

USA



Eight outbreaks of EEE were reported with single cases in each. Clinical signs included ataxia, circling, depression, dull mentation, head tilt, head pressing, febrile, inability to stand, incoordination, muscle twitching and tremors. Five of the affected animals have either been euthanased or since died.

Equine Encephalosis Virus (EEV)

South Africa



EEV is regarded as endemic in South Africa and cases were reported in eight of the nine provinces of South Africa as follows: Free State (eight cases), Gauteng (33 cases), KwaZulu Natal (three cases), Mpumalanga (three cases), Northern Cape (31 cases), North West Province (six cases), Western Cape (three cases) and Limpopo (two cases).

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

Belgium



One case of EHV-1 neurological disease was reported in an unvaccinated animal on a premises in Flemish Brabant. Clinical signs included paralysis, penile prolapse and flaccid tail. Positive diagnosis was confirmed by PCR on uncoagulated blood.

Canada



Two outbreaks of EHV-1 neurological disease were reported with one case in one outbreak and two cases in the other on properties in Alberta and Ontario. Clinical signs included ataxia, difficulty urinating, nystagmus, stumbling and weakness in hind-limbs.

France



One case of EHV-1 neurological disease was reported on a premises in Orne. Positive diagnosis was confirmed by PCR on a nasopharyngeal swab. An additional three Thoroughbreds on the same premises have tested positive for EHV-1 respiratory disease by PCR on nasopharyngeal swabs.

Italy



Ten outbreaks of EHV-1 neurological disease were reported with single cases in each on premises in Arezzo, Bergamo, Lombardia, Piemonte, Torino and Tuscany.

UK



An outbreak of EHV-1 neurological disease was reported on a premises in Kent, in a non-vaccinated 19-year-old non-Thoroughbred gelding. Clinical signs included urine dribbling, recumbency and inability to rise. The animal was euthanased. A nasopharyngeal swab taken at the time of onset of neurological signs was negative for EHV-1 by PCR, a blood sample taken at the same time had a titre of 1:160 to EHV-1 on a complement fixation (CF) test, consistent with recent response to EHV-1 infection in the absence of vaccination.

USA



Seven outbreaks of EHV-1 neurological disease were reported, five involving single cases, and two outbreaks with two cases. Clinical signs included pyrexia. Three of the animals were euthanased. *One further case of EHV-1 neurological disease was reported after the quarter end.

Equine Herpes Virus-4 (EHV-4) Neurological Disease

Italy



One case of EHV-4 neurological disease was reported on a premises in Como, Lombardia.

Rabies

USA



Two outbreaks of rabies were reported with one case in each on premises in Colorado and Florida. Clinical signs included ataxia, depression, neurological signs, pyrexia and weakness. Both animals were euthanased.

West Nile Virus (WNV)

USA



Two outbreaks of WNV were reported with a single case in each on premises in California and South Carolina. Clinical signs included ataxia, lethargy and proprioceptive deficits in the hind-limbs.

Miscellaneous Conditions

Country	AHS	Ana.	Ehrlic.	EIA	EVA	Glan- ders	Lepto	Piro	PHF	Tyzzler's Disease
Canada	-	1	-	4	-	-	-	-	-	-
France	-	-	-	-	2	-	-	-	-	-
Germany	-	-	-	-	-	-	1	-	-	-
Italy	-	-	-	9	-	-	-	-	-	-
Nepal	-	-	-	-	-	1	-	-	-	-
S. Africa	1	-	-	-	-	-	-	8	-	-
Switzerland	-	1	1	-	-	-	2	2	-	-
USA	-	-	-	7	-	-	-	1	1	*

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African Horse Sickness

South Africa



An outbreak of AHS affecting eight non-Thoroughbreds, seven mares and one filly foal, was reported during April 2021 and was first detected through the passive clinical

surveillance program in place in the controlled area. The outbreak was active in the AHS Protection Zone in South Africa. Clinical signs included respiratory signs, depression and acute death. One case was confirmed using real-time qRT PCR. An update in June 2021 confirmed 36 cases of AHS on four properties all within 20 km of the index property – 19 deaths as a result of AHS have been reported. The bulk of the cases occurred within the first five weeks of the outbreak. It was noted that AHS cases have occurred throughout the endemic area of South Africa as well as in the AHS controlled area during the quarter. All nine Provinces have had cases, with 219 in total. 37 of these cases occurred in the AHS Protection zone in the Western Cape Province – more details can be found at www.myhorse.org.za/ahs2021 for this outbreak.

Anaplasmosis

Canada



One case of anaplasmosis was confirmed in a mare on a premises in Quebec. Clinical signs included lethargy, decreased appetite and fever. A blood test confirmed the presence of the bacterium *Anaplasma phagocytophilum*, responsible for anaplasmosis. This bacterium was also found in an Ixodes type tick found on the mare.

Switzerland



One case of Anaplasmosis was reported in the Canton of Aargau. Clinical signs included pyrexia. Positive diagnosis was confirmed by PCR.

Ehrlichiosis

Switzerland



One case of ehrlichiosis and anaplasmosis was reported in the Canton of Vaud. Clinical signs included pyrexia. Positive diagnosis was confirmed by PCR.

Equine Infectious Anaemia (EIA)

Canada



Four outbreaks of EIA were reported – all single cases on premises in Alberta and Yukon.

Italy



Nine outbreaks of EIA were reported with one outbreak with two cases and eight outbreaks with single cases on premises in Abruzzo and Lazio.

USA



Seven outbreaks of EIA were reported with one outbreak with seven cases, one outbreak with six cases, one outbreak with three cases, one outbreak with two cases and three outbreaks with single cases on premises in Iowa, Tennessee and Texas.

Equine Viral Arteritis (EVA)

France



Two outbreaks of EVA were reported with one case in each on premises in Calvados and Manche. Positive diagnoses were confirmed by PCR on semen.

Glanders

Nepal



One outbreak of glanders with 26 cases including 16 deaths in a population of 87 horses working at brick kilns and 'tanga-pullers' was reported in Nepal. Positive diagnoses were confirmed by PCR.

Leptospirosis

Germany



One case of leptospirosis was reported on a premises in Germany close to the Swiss border – the animal was treated at the University Equine Hospital in Zurich. Positive diagnosis was confirmed by PCR on urine.

Switzerland



Two outbreaks of leptospirosis with one case in each were reported on separate premises in the Canton of Aargau. Clinical signs included apathy, lack of desire to suckle and inability to urinate. Positive diagnoses were confirmed by PCR on urine.

Piroplasmosis

South Africa



Piroplasmosis is regarded as endemic in South Africa and outbreaks were reported in eight of the nine provinces as follows; Free State (three cases), Gauteng (22 cases), KwaZulu Natal (three cases), Mpumalanga (four cases), Northern Cape (four cases), North West Province (one case), Western Cape (three cases) and Limpopo (three cases).

Switzerland



Two outbreaks of piroplasmosis with a single case in each were reported in the Cantons of Vaud and Zurich. Clinical signs included emaciation and pyrexia. Positive diagnoses were confirmed by PCR. One animal had recently been imported from Portugal.

USA



One outbreak involving two Quarter Horse geldings on a premises in Iowa was reported. Both animals were euthanased.

Potomac Horse Fever (PHF)

USA



One case of PHF was reported in an unvaccinated 20-year-old Dutch Warmblood Cross mare on a premises in Washington. Clinical signs included anorexia, diarrhoea and lethargy.

Tyzzler's Disease

USA



*Five cases of *Clostridium piliforme* infection were confirmed, at least two in Kentucky after the quarter end.