

# DISEASE INFORMATION FACT SHEET

## *Bordetella bronchiseptica*



This Disease Information Fact Sheet accompanies the 2013 AAFP Feline Vaccination Advisory Panel Report published in the *Journal of Feline Medicine and Surgery* (2013), Volume 15, pp 785–808.



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### Disease facts

*Bordetella bronchiseptica* is an aerobic, Gram-negative coccobacillus long recognized as a respiratory pathogen of several animal species. It is occasionally associated with opportunistic infection in people, including those in contact with infected cats.<sup>1</sup>

Depending on the strain of *B bronchiseptica*, the immune status of the host, and the presence of other potentiating cofactors, such as infection with other pathogens, clinical signs of disease can occur. Upper respiratory tract disease (URD) with sneezing, oculonasal discharges, submandibular lymphadenopathy and some coughing has been reproduced experimentally in specific pathogen-free cats.<sup>2–5</sup> A number of field cases have also been reported with signs varying from URD to more severe coughing and bronchopneumonia, which in some cases is fatal.<sup>3,6–8</sup> Cats of all ages are susceptible, but disease may be more severe in young kittens.<sup>6,7</sup> Epidemiological evidence suggests that a carrier state exists for *B bronchiseptica* infection.<sup>2,9</sup> There is also some evidence that the stress of parturition may initiate shedding in seropositive queens.<sup>5</sup>

*B bronchiseptica* appears to occur worldwide and serosurveys have shown that exposure to the organism is common. Seroprevalence of between 24% and 79% and isolation rates of up to 47% have been reported, depending on the type and clinical status of the population of cats tested.<sup>2,3,10–15</sup> Higher prevalence tends to be found in multiple-cat households and

The 2013 Report of the Feline Vaccination Advisory Panel of the American Association of Feline Practitioners (AAFP) provides practical recommendations to help clinicians select appropriate vaccination schedules for their feline patients based on risk assessment. The recommendations rely on published data as much as possible, as well as consensus of a multidisciplinary panel of experts in immunology, infectious disease, internal medicine and clinical practice. The Report is endorsed by the International Society of Feline Medicine (ISFM).

rescue shelters, especially where there is a history of respiratory disease.

The organism is shed in oropharyngeal and nasal secretions, in some cases for at least 19 weeks post-infection.<sup>5,14</sup> Transmission is mainly by direct cat-to-cat contact but may also be by contact with infectious discharges. *B bronchiseptica* may be transmitted between dogs and cats.<sup>16</sup> Epidemiological studies have shown that contact with dogs with recent respiratory disease was found to be a risk factor for *B bronchiseptica* infection in cats.<sup>9</sup> *B bronchiseptica* does not survive for long periods outside the host and is readily killed by many common disinfectants. Antibiotic administration does not eliminate the carrier phase in the short term.<sup>5,17</sup>

## Vaccine types

A modified-live intranasal (IN) vaccine for use in cats is available in some countries. Vaccines formulated for parenteral or IN use in dogs should never be administered to cats. In cats, the mechanisms for immunity against *B bronchiseptica* after IN vaccination have not been determined but IgA and other local immune responses are likely to play an important role.

## Onset and duration of immunity

Kittens inoculated once and then challenged with one strain of virulent *B bronchiseptica* had evidence of immunity as early as 72 h.<sup>18</sup> Protection was also noted in kittens challenged at 3 weeks, 6 months and 12 months after vaccination. However, mild clinical signs of disease occur in some vaccinated kittens after challenge. In the United States, the vaccine is labeled for use in kittens older than 4 weeks of age.

## Vaccine safety

The *B bronchiseptica* vaccine may cause sneezing and nasal discharge after administration. These clinical signs are usually self-limiting, but cats showing more severe signs after vaccination should be treated with appropriate antibiotics. This IN vaccine should not be given parenterally.

## Other vaccine considerations

There is some limited evidence that field isolates of *B bronchiseptica* for cats may vary in pathogenic potential.<sup>2</sup> Cross-protection between multiple field strains is unknown but likely to occur.<sup>2</sup> Whether vaccination can limit the chronic *B bronchiseptica* shedding seen in naturally infected cats has not been determined.<sup>5</sup> Company data indicate that vaccinated cats may spread the vaccine strain for 6 weeks to (rarely) a year. Intermittent shedding is also possible. Antibiotics should not be administered concurrently; if antibiotics are used within 1 week after vaccination, the vaccine should be repeated.

Cats in close contact with immunocompromised people should not be vaccinated, as the risk of zoonotic infection from the vaccine is unknown. In addition, other susceptible species may react to this vaccine with mild transient clinical signs.

It can be difficult to determine the need for revaccination for *B bronchiseptica* in individual facilities based on previous culture results as prevalence rates can change and the vaccine strain can be cultured. For example, in one shelter evaluated on two occasions more than

1 year apart, prevalence rates in cats with clinical signs of URD were 5.1% and 47.5%.<sup>13,14</sup> In some situations, results may be difficult to interpret since the vaccine strain may also be detectable for varying periods following vaccination.

## Advisory Panel Recommendations

Vaccination against *B bronchiseptica* is considered non-core. Vaccination may potentially be considered as part of a control regime for cats in multiple-cat environments where infections associated with clinical disease have been confirmed and in facilities or homes that house dogs with confirmed *B bronchiseptica* infections.<sup>9,16</sup> If used, the Advisory Panel recommends following the manufacturer's guidelines for the primary immunization series. *B bronchiseptica* risk should be reassessed for all cats annually and the vaccine administered, if deemed necessary.

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#### DISEASE INFORMATION FACT SHEETS

- ✦ Feline herpesvirus 1
- ✦ Feline calicivirus
- ✦ Feline panleukopenia
- ✦ Rabies
- ✦ Feline leukemia virus
- ✦ Feline immunodeficiency virus
- ✦ Feline infectious peritonitis
- ✦ *Chlamydomphila felis*
- ✦ *Bordetella bronchiseptica*

#### GENERAL INFORMATION FACT SHEET

- ✦ The immune response to vaccination: a brief review

#### SUPPLEMENTARY FILES

Fact Sheets accompanying the 2013 AAFP Feline Vaccination Advisory Panel Report are available, together with the Pet Owner Guide included in Appendix 2, at <http://jfms.com>  
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#### PET OWNER GUIDE (APPENDIX 2, pp 807–808)

- ✦ Vaccinations for Your Cat