

Antimicrobial resistance in animal health: 2024 review

Press kit
November 2025



Introduction

Antimicrobial resistance is a major issue for human, animal and environmental health, because the multiplication of bacterial strains resistant to antibiotics jeopardises the effectiveness of these treatments. Several studies carried out by ANSES have confirmed and clarified the direct link between the level of exposure to certain antibiotics and the rate of bacteria resistant to these medicines.

ANSES is an active participant in the fight against antimicrobial resistance. It coordinates schemes that monitor this resistance in animals, while its French Agency for Veterinary Medicinal Products (ANMV) monitors and analyses trends in sales and use of veterinary medicines.

To mark World Antibiotic Awareness Week, it is publishing the key figures for the past year.

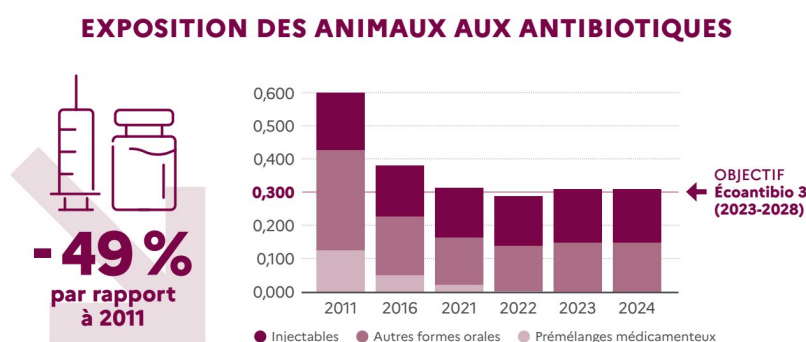
Monitoring of sales and uses of veterinary medicinal products

Key points:

- After a fall of almost 50% in the overall exposure of animals to antibiotics over the last 15 years, the assumption of a levelling-off was confirmed in 2023.
- Vigilance needs to be maintained to avoid practices that could promote bacterial resistance to antibiotics, such as the combined use of amoxicillin and clavulanic acid in dogs and cats.
- Declarations of antimicrobial use on the CalypsoVet platform were higher than in 2023, but remain insufficient: the flow of data through this platform only accounted for 28.4% of the quantities sold.

A plateau has probably been reached

Animal exposure to antibiotics in 2024 was **stable compared with 2023**. This exposure was estimated from the quantity of veterinary medicinal products sold, based on declarations by marketing authorisation (MA) holders. The exposure indicator is calculated by considering the doses and treatment durations, and the body weight of livestock and pets potentially treated. Following a 49% reduction in exposure for all species combined since 2011, **a plateau seems to have been reached in recent years**. The exposure indicator in 2024 was 0.307, slightly above the 0.3 target set by the EcoAntibio 3 plan for the period 2023–2028.



Limited use of critical antibiotics

Levels of exposure to so-called critical antibiotics (fluoroquinolones and third- and fourth-generation cephalosporins), whose continued efficacy is crucial for human medicine, remain **very low**: these two classes of antibiotics accounted for 1.2% of total animal exposure to antibiotics in 2024.

A sharp increase in the use of amoxicillin in combination for dogs and cats

The use of antibiotics in dogs and cats **has begun falling again**. After increasing by 3% between 2022 and 2023, exposure of these species to antibiotics fell by 12.3% between 2023 and 2024.

However, the data show a **steady increase in the use of amoxicillin combined with clavulanic acid**. In 2024, these treatments accounted for 49% of the exposure of cats and dogs to antibiotics, compared with 27% in 2011. The use of this combination promotes the emergence of resistance. Amoxicillin alone is thus recommended as the initial treatment.

Vigilance in the use of antibiotics for domestic carnivores must therefore be sustained.



A clear difference between declarations of use and tonnages sold

Regulation (EU) 2019/6 introduced the requirement for all EU Member States to collect data on **antibiotic use by animal species and category**. In France, to facilitate data reporting, the decision was made to use the CalypsoVet platform to transmit data from veterinarians and pharmacists. This automatically collects the data from the prescription or management software used by veterinary establishments. The platform facilitates administrative procedures and communication between veterinarians.

In 2024, 82.6 tonnes of antimicrobials were declared via this tool. While this figure was higher than in 2023, it **only accounted for 28.4% of the tonnage sold**, according to the system for monitoring sales reported by MA holders. Declarations of use are therefore far from exhaustive, which is contrary to the provisions of the European regulations.


As a result, the French Agency for Veterinary Medicinal Products within ANSES, along with the Directorate General for Food and the French Veterinary Association National Council, with the help of veterinary professional organisations, decided to launch a **remediation plan** to improve data reporting via CalypsoVet. This plan involves identifying the technical difficulties specific to each software application already connected to CalypsoVet and targeted approaches to developers whose software is not yet compatible. Once these obstacles have been overcome, information initiatives will target veterinarians who have not so far submitted any declarations.

Initial lessons from CalypsoVet

Although not yet exhaustive, the data on the use of medicinal products have already provided some insights. They reveal differences in **treatment within the same animal species depending on the animal type** (e.g. dairy cows, beef cows, young animals, etc.). These data can also

distinguish between uses for dogs and cats (which are grouped together in the "domestic carnivores" category in the sales data). This more detailed information will enable **targeted action to be taken to prevent the risk of antimicrobial resistance**.

Interactive dashboards published online

anses Médicaments antimicrobiens chez l'animal en France 
Suivi des ventes de médicaments vétérinaires

Bienvenue sur le rapport interactif du suivi des ventes
Ce rapport présente les tendances sur les volumes de ventes de médicaments vétérinaires antimicrobiens et sur l'exposition des animaux à ces substances en France. Le suivi des ventes d'antibiotiques a été initié en 1999 et a été étendu aux autres antimicrobiens (antiprotozoaires et antifongiques) en 2022. Les volumes de ventes des médicaments sont déclarés par les titulaires d'autorisations de mise sur le marché ; ces derniers estiment aussi la répartition des ventes par espèce animale. Pour plus d'informations, vous pouvez consulter le [rapport annuel](#) publié par l'Anses.
Conseils pour la visualisation : il est possible d'agrandir un graphique en utilisant le mode Focus (bouton en haut à droite) ou de visualiser les données sous forme de table (clic droit sur le graphique).
Sélectionnez une section ci-dessous pour accéder à la page correspondante.

- Antibiotiques - Toutes espèces**
Vue d'ensemble des ventes d'antibiotiques toutes espèces animales confondues
- Antibiotiques - Par espèce**
Analyse détaillée des ventes d'antibiotiques par espèce animale
- Antibiotiques - Intramammaires / Topiques**
Focus sur des traitements locaux antibiotiques
- Antiprotozoaires / Antifongiques**
Indicateurs sur les médicaments contenant des antiprotozoaires ou des antifongiques
- Biomasses animales**
Biomasses des populations animales potentiellement utilisatrices d'antimicrobiens en France
- Suivi des usages**
Lien vers des informations sur le système de collecte des données d'usage des antimicrobiens, CalypsoVet

To facilitate access to the data collected since monitoring of veterinary medicinal product sales began in 1999, **dashboards are now available online**. They can be used to filter information according to different indicators, select a given period, or display results for a particular animal species.

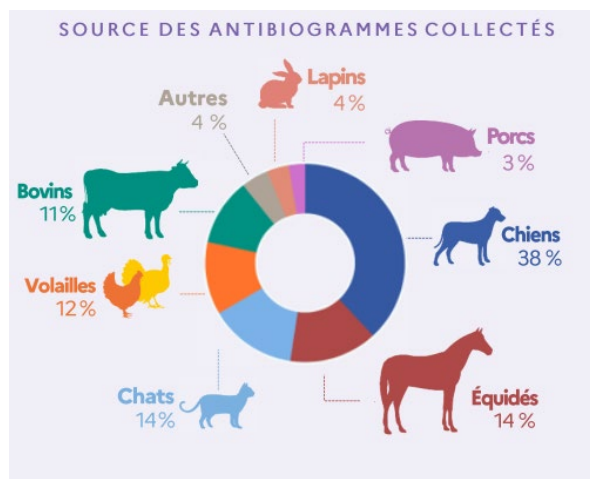
- [Read the report on Antimicrobials in animals: monitoring of sales and uses for 2024](#)

Monitoring of the resistance of pathogenic bacteria in animals

Key points:

- The frequency of multidrug-resistant *Escherichia coli* bacteria has continued to decline in production livestock. It is stable for dogs, cats and horses.
- Resistance to critical antibiotics has stabilised and remains low overall.
- Surveillance has been stepped up even more: 30% more antibiograms were transmitted between 2024 and 2023.

A sharp increase in the number of antibiograms transmitted



Veterinary testing laboratories send the French surveillance network for antimicrobial resistance in pathogenic bacteria of animal origin (Resapath) the results of the antibiotic resistance tests (antibiograms) they carry out at the request of veterinarians, on bacteria isolated from sick animals. In 2024, 121,872 antibiograms were collected, **30% more than in the previous year**. This increases the robustness of assessments of the antimicrobial resistance of pathogenic bacteria in animals in France.

Stability and decline in resistance to critical antibiotics

Certain antibiotics are considered critically important because their efficacy is crucial in treating serious infections in humans. Their use in veterinary medicine is therefore regulated and the development of bacterial resistance to these antibiotics is closely monitored.

Escherichia coli

In most animal species, the level of resistance of *Escherichia coli* to these antibiotics has reached **a low (4–7%) to very low (less than 3%) point**. Vigilance is still required with regard to fluoroquinolone resistance in bacterial strains isolated from pet rabbits and from goats (13–15% resistance).

Klebsiella pneumoniae and *Enterobacter* spp.

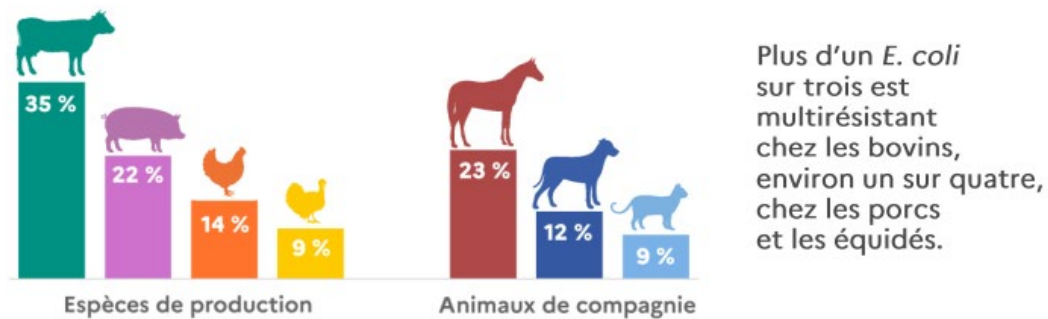
As in human medicine, some bacterial species other than *Escherichia coli* are resistant to critical antibiotics, at rates higher than those observed in *E. coli* (from 7% to 36%). This concerns *Klebsiella pneumoniae* and *Enterobacter* spp. bacteria isolated from dogs and horses. Nevertheless, these bacterial species make only a very small contribution to animal infections.

Overall, trends in resistance to critical antibiotics are stable, with some even declining. For example, resistance to third- and fourth-generation cephalosporins in *Klebsiella pneumoniae* isolated from dogs has fallen sharply: by 14% between 2023 and 2024. Resistance to fluoroquinolones in horses has also declined by 7% for *K. pneumoniae* and 11% for *Enterobacter* spp.

A continuing fall in the frequency of multidrug-resistant bacteria

The level of multidrug-resistant *Escherichia coli*, i.e. resistant to at least three of the five classes of antibiotics tested, **has continued to decline for most animal species, primarily production livestock**. This level was higher for cattle (35%) and pigs (22%). Poultry were the production livestock with the least multidrug resistance. Multidrug resistance was relatively low in dogs and cats: 12% and 9%, respectively.

Panel d'antibiotiques testés : amoxicilline, gentamicine, tétracycline, triméthoprim-sulfaméthoxazole, acide nalidixique



Proportion of multidrug-resistant strains of *Escherichia coli*

Other antibiotics: resistance stable overall, but some increases need to be monitored

On the whole, *Escherichia coli* resistance to non-critical antibiotics is falling or stable. However, a slight increase in resistance to quinolones has been observed over the last two years in strains isolated from poultry. There has also been a slight increase in colistin resistance in cattle over the past four years, and an increase in tetracycline resistance in horses since 2018.

➤ [Read the 2024 Resapath report](#)

Annual review of the scheme for monitoring antimicrobial resistance in the food chain in France




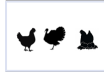
Key points:

- Most *Salmonella* strains were susceptible to all antibiotics tested.
- *Campylobacter* resistance rates varied greatly depending on the antibiotic.
- *Escherichia coli* susceptible to all antibiotics (pan-susceptibility) have fallen slightly, but resistance to critical antibiotics remains low and stable.

Monitoring of bacteria: focus on poultry in 2024

ANSES coordinates the French component of the antimicrobial resistance surveillance scheme set up by the European Union. The species monitored alternate from one year to the next. In 2024, surveillance focused on **broilers, layers and turkeys**. Samples were taken at three levels: from intestinal contents at the slaughterhouse, from meat at distribution and at border control points, and from the farm environment.

The bacteria screened for are zoonotic species or indicators of antimicrobial resistance: *Salmonella* spp., *Campylobacter jejuni*, *Campylobacter coli*, indicator *Escherichia coli* and *Escherichia coli* presumed to produce extended-spectrum β -lactamases, cephalosporinases or carbapenemases (ESBL-/AmpC-/Carba-producing *E. coli*).

		<i>Escherichia coli</i>		<i>Salmonella</i> spp.	<i>Campylobacter</i> spp.
		indicatrices	BLSE/AmpC/Carba		
	ABATTOIR	✓	✓	✓	✓
	FRONTIERES	✓ depuis 2022	✓ depuis 2022		
	DISTRIBUTION		✓		
	ENVIRONNEMENT			(✓)	

Origin of bacteria monitored

Salmonella mostly not resistant to antibiotics

87.5% of the *Salmonella* strains sampled on farms were susceptible to all the antibiotics tested. There were no strains with major resistance to priority antibiotics of critical importance to human health (quinolones, cephalosporins).

Campylobacter: a variable rate of resistance

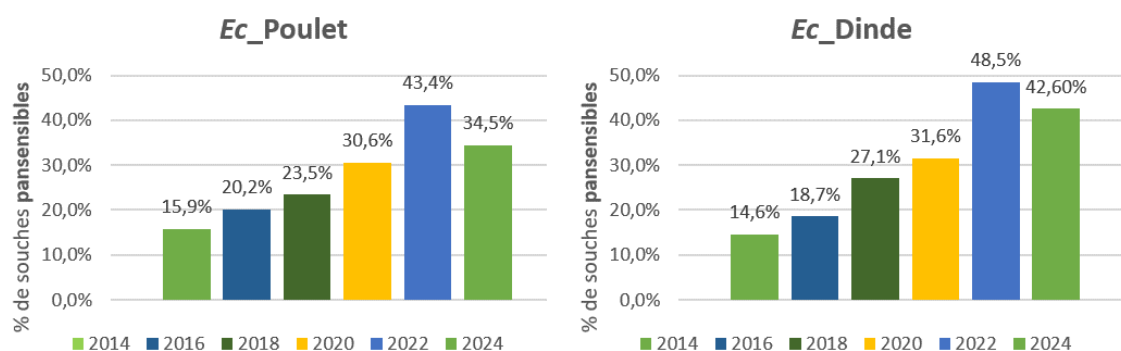
C. jejuni was the *Campylobacter* species found most commonly in chickens, while *C. coli* was more common in turkeys.

Resistance in *Campylobacter* isolated from slaughterhouses was tested against six antibiotics. **80% of *Campylobacter* were resistant to at least one antibiotic**, but the rate of resistance varied greatly depending on the antibiotic:

- *Campylobacter coli* were highly resistant to tetracyclines: 87.6% in turkeys and 94.7% in chickens.
- Resistance to fluoroquinolones was high, ranging from 47.8% to 54.8%. This rate was **lower than in 2022 for chickens, but has remained stable** for turkeys.

***Escherichia coli*: a slight decline in pan-susceptibility to antibiotics**

Compared with 2022, a slight reduction in *Escherichia coli* susceptible to all antibiotics (pan-susceptibility) was observed in poultry. With *E. coli* strains isolated from the slaughterhouse, antimicrobial resistance was slightly higher in chickens than in turkeys.



Trends in Escherichia coli (Ec) susceptible to all antibiotics in chickens and turkeys

Low resistance to critical antibiotics

Resistance to critical antibiotics remained low overall and stable compared with 2022 in both poultry species. It was particularly low with regard to cephalosporins.

Lastly, extended-spectrum β -lactamase-producing *Escherichia coli*, which are a public health priority because they are **resistant to critically important antibiotics, have increased compared with 2022**. This applied to bacteria taken from both meat and slaughterhouses.

No extended-spectrum β -lactamase-producing *E. coli* detected in border controls

Since 2022, surveillance of resistance of extended-spectrum β -lactamase-producing *Escherichia coli* has included sampling of imported meat at border control posts. **No ESBL-producing *Escherichia coli* were isolated from chicken meat and very few from turkey meat.** However, implementation difficulties meant that the number of samples that could be analysed was lower than that stipulated in Commission Implementing Decision (EU) 2020/1729.

- **All the surveillance results for France will appear in the report on the monitoring and control plans published by the Directorate General for Food. European-level monitoring is covered in a report by the European Food Safety Authority (EFSA) and the European Centre for Disease Prevention and Control (ECDC).**

Thanks to lower exposure to antibiotics, resistance has fallen in less than two years

Key point:

The results of two studies conducted by ANSES and funded by the EcoAntibio plan demonstrate the effectiveness of the measures to control the use of antibiotics in order to preserve their efficacy for animals and humans.

The "Impact-AMR" project studied **the link between the reduction in the use of critically important antibiotics and trends in resistance to these antibiotics in *Escherichia coli* isolated from infections**. This project focused on **young cattle, cats and dogs**, in which this association had not yet been quantified.

The scientists noted the impact of the measures taken since the first EcoAntibio plan in 2012. **The reduction in animal exposure to antibiotics has been particularly noticeable since 2014**, with the adoption of the Act on the future of agriculture, food and forestry. This specifically aimed to reduce animal exposure to critically important antibiotics: fluoroquinolones and third- and fourth-generation cephalosporins.

The analyses showed that **the reduction in exposure had a significant, rapid and lasting effect on resistance** to fluoroquinolones in *Escherichia coli* for all the animal species studied. This was also the case, to a lesser extent, with third- and fourth-generation cephalosporins in cattle. The fall in resistance to these antibiotics occurred **one year after the reduction in exposure of cattle, and two years later for dogs and cats**.

The fall in the use of fluoroquinolones and cephalosporins probably led to a shift to other classes of antibiotics. Indeed, exposure to trimethoprim-sulfonamides has been increasing since 2012, and exposure to penicillins and tetracyclines since 2016. **This shift to different classes of antibiotics has not led to an increase in resistance** of *E. coli* to these other medicines.

The results were published on 18 November 2025 in [JAC-Antimicrobial Resistance](#).

Similar results were obtained for colistin **in pigs and cattle** in [a study published in October](#). Although colistin is not covered by the Ministerial Order on critically important antibiotics, it is essential in the fight against multidrug-resistant bacteria in humans. Following the management measures taken in the swine and cattle sectors, **colistin use has fallen sharply** to stabilise at a low level in recent years. **Resistance to colistin has followed the same trend**.