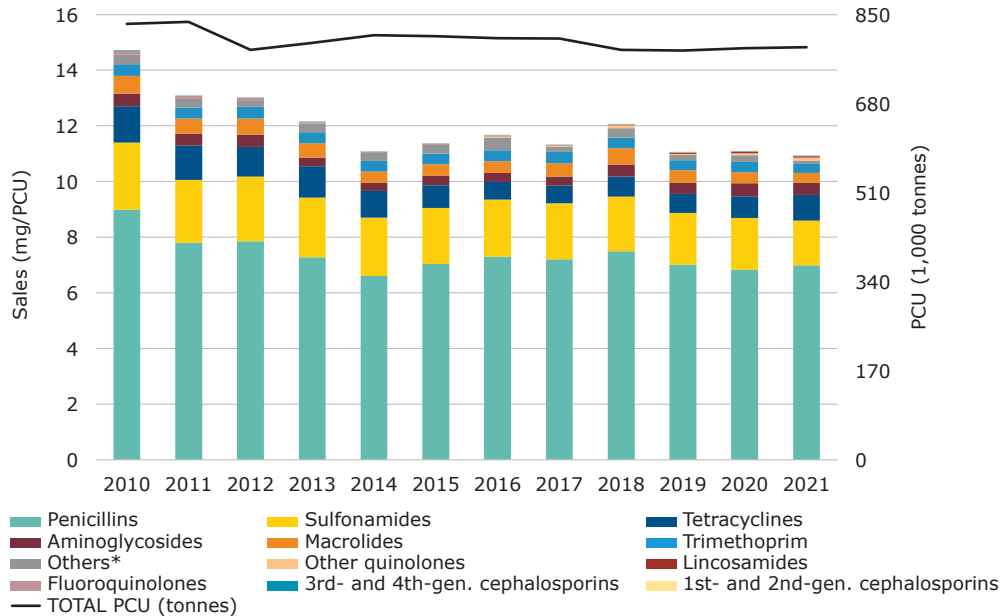


## Sales trends (mg/PCU) of antibiotic VMPs for food-producing animals

### Sales trends by antibiotic class (mg/PCU) from 2010 to 2021<sup>1,2,3</sup>

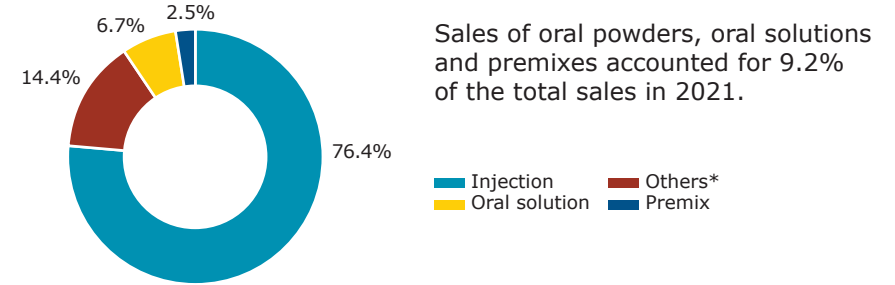


<sup>1</sup> Sales data sorted from highest to lowest in 2021.  
<sup>2</sup> No sales of other quinolones in 2012 (data on sales of antimicrobials for fish were not available) and 2015. No sales of other antibacterials in any of the years.  
<sup>3</sup> For Sweden, there was no reporting of sales for use in farmed fish in 2012 and underreporting in 2017.  
 \* For reasons of commercial confidentiality, sales of amphenicols, pleuromutillins and polymyxins are aggregated as 'Others'.

### Since 2011:

- ↓ 16.5% overall annual sales (from 13.1 mg/PCU to 10.9 mg/PCU in 2021)
- ↓ 84.7% 3rd- and 4th-generation cephalosporin sales (from 0.02 mg/PCU to <0.01 mg/PCU in 2021)
- ↓ 83.0% fluoroquinolone sales (from 0.10 mg/PCU to 0.02 mg/PCU in 2021)
- ↑ 114-fold other quinolone sales (from <0.01 mg/PCU to 0.11 mg/PCU in 2021)
- ↓ 94.6% polymyxin sales
- ↓ The PCU decreased by 5.8% between 2011 and 2021

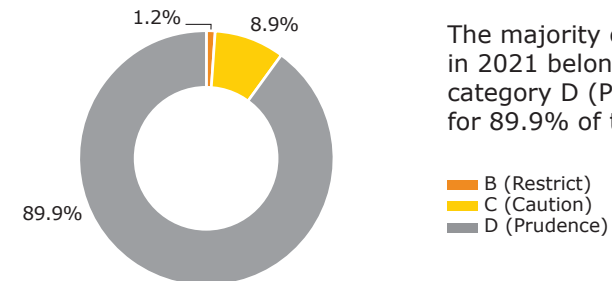
### Proportion of sales (mg/PCU) by product form in 2021<sup>1,2</sup>



Sales of oral powders, oral solutions and premixes accounted for 9.2% of the total sales in 2021.

<sup>1</sup> Sales of oral powders are not included in the figure and represent 0.01% of total sales.  
<sup>2</sup> No sales of bolus products in 2021.  
 \* Other forms include intramammary, intrauterine and oral paste products.

### Proportion of sales (mg/PCU) by AMEG categories in 2021



The majority of antibiotic VMP sales in 2021 belonged to the AMEG category D (Prudence), accounting for 89.9% of the total sales.

### 2021 sales data

In 2021, overall sales were unchanged compared to 2020 (11.1 mg/PCU compared to 10.9 mg/PCU in 2020). The three highest selling antibiotics classes were penicillins, sulfonamides and tetracyclines, which accounted for 64.0%, 14.7% and 8.4% of total sales, respectively.

## Country information

In Sweden, sales (in mg/PCU) have been low and relatively stable throughout the period 2010–2021. In 2011, sales of VMPs on special licence were not fully captured, making that year suboptimal for a comparison of trends. However, the sales in 2021 will still be compared with those in 2011 (ESVAC reference year).

In 2021, the highest selling antibiotic classes were penicillins, sulfonamides and tetracyclines. Beta-lactamase-sensitive penicillins (e.g. benzylpenicillin) accounted for 95% of total sales of penicillins for food-producing animals. Sales of VMPs formulated for medication of groups of animals via feed or water accounted for 9.2% of total sales in 2021, compared with 12.2% in 2011 (13.3% in 2010).

The sales of products on special licence have increased from 3% of the total sales in kg active substance in 2017 to 10% in 2021. The Swedish market for veterinary antibiotics is small, and some types of products are lacking. In recent years, there have also been shortages on the Swedish market of products with general marketing authorisations.

Sales of 3rd- and 4th-generation cephalosporins, fluoroquinolones and polymyxins were very low in comparison with aggregated sales for the 25 countries from 2011 to 2021 (50–100 times lower). The figure given for polymyxins is a slight underestimate as this class was only sold on special licence in 2011. Other quinolones are only used in finfish, and sales vary between years as water temperatures strongly influence morbidity. More information on prescriptions of antimicrobials for fish is provided in the Swedres-Svarm 2021 report<sup>1</sup>.

The notable decreases in sales of 3rd- and 4th-generation cephalosporins and fluoroquinolones can probably be explained by increased adherence to the guidance for prudent use of antibiotics in the treatment of animals and by a regulation limiting veterinarians' rights to prescribe these types of antimicrobials, which came into force on 1 January 2013.

In Sweden, polymyxins (colistin) have only been authorised for use in pigs, with weaning diarrhoea as the sole indication. In October 2020, the only product on the market was deregistered but thereafter there have been some sales of products on special licence. Sales were relatively stable between 2010 and 2015. During 2016, findings of transferable resistance to colistin were communicated to stakeholders and sales started to decline. In 2021, a decrease of 94.6% in comparison to 2011 was observed (95.7% when compared to 2010).

In 2020, the Swedish government updated the strategy on antimicrobial resistance. An inter-sectoral coordinating mechanism, mainly comprising representatives of national-level authorities, was initiated in 2012. In 2021, the group included representatives from 25 authorities and organisations working with the public health, animal, food and environmental sectors<sup>2</sup>. Joint action plans based on the government's objectives are regularly updated and adopted by the group.

The downward trends in sales reflect a long-term strategy in which the core element is a reduction in the need for antimicrobials through, for example, biosecurity, disease-control programmes and optimised management and husbandry. When antimicrobials are needed, guidance for veterinarians on their prudent use is available and should be followed. Authorities, academia, professional advisors, veterinarians and farmers all collaborate with the aim of ensuring a continuous improvement of animal health and the prudent use of antimicrobials.

More information on Sweden's work against antimicrobial resistance within a 'One Health' perspective can be found in a brochure published by the Swedish inter-sectoral coordinating mechanism<sup>3</sup>.

Information on Swedish efforts to ensure prudent use of antimicrobials is available in the report from the European Commission's fact-finding mission in October 2017<sup>4</sup>.

<sup>1</sup> <https://www.sva.se/en/our-topics/antibiotics/svarm-resistance-monitoring/swedres-svarm-reports/>

<sup>2</sup> <https://www.folkhalsomyndigheten.se/the-public-health-agency-of-sweden/communicable-disease-control/antibiotic-s-and-antimicrobial-resistance/intersect-collab-mechanism-against-amr/>

<sup>3</sup> <https://www.sva.se/media/cvrbeqcy/swedish-work-against-amr.pdf>

<sup>4</sup> [https://ec.europa.eu/food/audits-analysis/audit\\_reports/details.cfm?rep\\_id=3957&rep\\_inspection\\_ref=xx](https://ec.europa.eu/food/audits-analysis/audit_reports/details.cfm?rep_id=3957&rep_inspection_ref=xx)