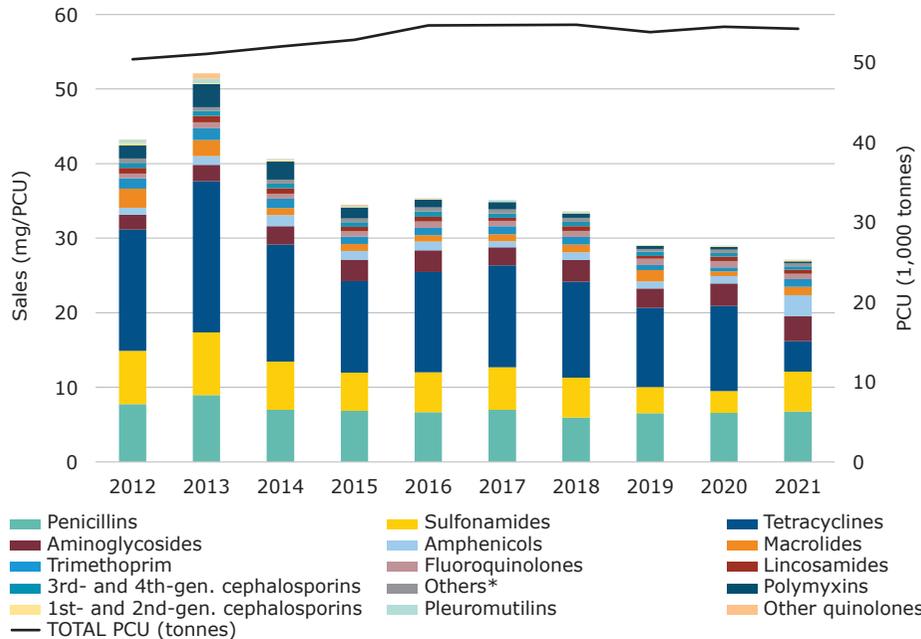


Sales trends by antibiotic class (mg/PCU) from 2012 to 2021^{1,2}



¹ Sales data sorted from highest to lowest in 2021.

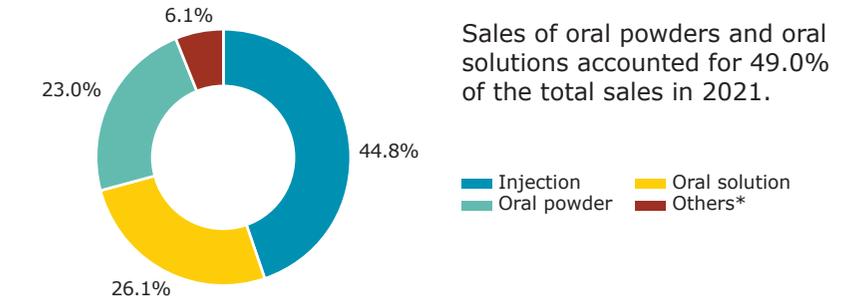
² Since 2017, no sales of other quinolones were reported.

* The class 'Others' includes sales of the following sub-classes: imidazole derivatives (metronidazole), nitrofurantoin derivatives (furazolidone) and other antibacterials (bacitracin, rifaximin and spectinomycin). Of note is that some of the sales could be for non-food-producing animals.

Since 2012:

- ⬇️ 37.2% overall annual sales (from 43.2 mg/PCU to 27.1 mg/PCU in 2021)
- ⬇️ 31.9% 3rd- and 4th-generation cephalosporin sales (from 0.68 mg/PCU to 0.46 mg/PCU in 2021)
- ⬆️ 8.5% fluoroquinolone sales (from 0.66 mg/PCU to 0.72 mg/PCU in 2021)
- ⬇️ 100% other quinolone sales (from 0.02 mg/PCU to 0 mg/PCU since 2017)
- ⬇️ 85.6% polymyxin sales (from 1.7 mg/PCU to 0.25 mg/PCU in 2021)
- ⬆️ The PCU increased by 7.6% between 2011 and 2021

Proportion of sales (mg/PCU) by product form in 2021¹

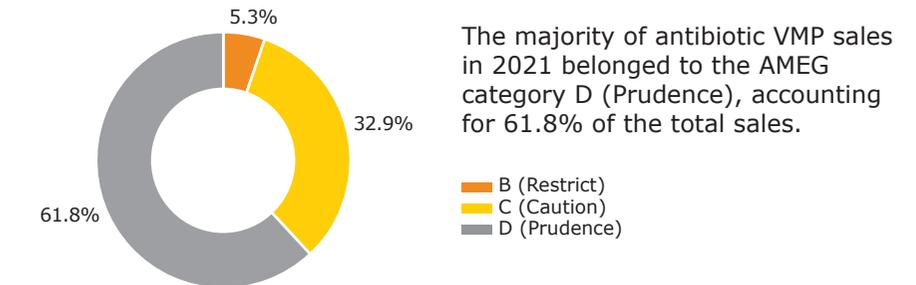


Sales of oral powders and oral solutions accounted for 49.0% of the total sales in 2021.

¹ No sales of premixes were reported in 2021.

* Other forms include intramammary, intrauterine, bolus 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 61.8% of the total sales.

2021 sales data

In 2021, overall sales decreased by 6.5% in comparison to 2020 (from 29.0 mg/PCU to 27.1 mg/PCU). The three highest selling antibiotic classes were penicillins, sulfonamides and tetracyclines, which accounted for 24.8%, 19.8% and 15.1% of total sales, respectively.

Country information

Luxembourg is characterized by a high consumption of antibiotics in human health and a moderate consumption of antibiotics in animal health, despite high consumption of 3rd- and 4th-generation cephalosporins. The levels of antibiotic resistance in Luxembourg, as reported by EARS-Net, are within the European average. Until 2018, there has not been a specific governance for the activities meant to contain antibiotic resistance at a national level, although several actions have been carried out in order to reduce their consumption (annual antibiotic and hygiene prevention campaigns, conferences to raise awareness among health professionals, treatment guidelines for hospitals).

In 2018, the first National Antibiotics Plan was launched. The general objective of the National Antibiotics Plan 2018-2022 (later extended until 2024) in Luxembourg, is to reduce the emergence, development and transmission of resistance to antibiotics through a One Health approach. Several strategic objectives have been developed to meet this general aim of the plan:

- Set-up of a sustainable governance for antibiotic resistance;

- Prevention, training and communication: improve awareness and understanding of antimicrobial resistance in the general population, and train healthcare professionals through targeted information;
- Treatment and diagnosis: promote the proper use of antibiotics in human and animal health;
- Surveillance: set up a national system of monitoring for the consumption of antibiotics, for the presence of antibiotics and antibiotic residues and resistant bacteria at different levels, and for antibiotic resistance; strengthen the surveillance of healthcare-associated infections;
- Research: develop a national strategy for antibiotic resistance research.

The National Antibiotic Plan is currently ongoing, and most of the objectives are in the process of being addressed.