5

ANTIMICROBIAL CONSUMPTION IN HUMANS

5. Antimicrobial consumption in humans

Highlights

Antimicrobial consumption in Denmark was 16.27 DID in 2024, 7.3% lower than consumption in 2015 (17.56 DID) and almost similar to 2023 (16.47 DID). This may indicate stabilization of consumption since the COVID-19 related marked decreases in 2020 and 2021 followed by sharp increases in 2022 and 2023.

In primary health care, total antimicrobial consumption was 14.35 DID in 2024, comparable to the 14.56 DID in 2023 and 8.4% lower than in 2015 (15.66 DID). The four groups of penicillins constituted 64% of the consumption and beta-lactamase sensitive penicillins were the most used group of antimicrobials (accounting for 24% of total consumption in primary health care).

Antimicrobials prescribed for respiratory tract infections in 2024 decreased by 7% compared to 2023. In 2022 and 2023, antimicrobial consumption had been characterized by notable winter peaks compared to the pre-pandemic years of 2018-2019. These were most likely due to high rates of viral infections, in particular early and more severe RSV and influenza seasons, as well as an outbreak of Group A streptococci and a prolonged period of infections with *Mycoplasma pneumoniae* in children.

Antimicrobials prescribed to children decreased in 2024: among the 0-4 year olds, consumption in 2024 was on average 230 treated patients per 1,000 inhabitants, a 23% decrease compared to 298 treated patients per 1,000 inhabitants in 2023. For the 5-9 year olds, 172 patients per 1,000 inhabitants were treated in 2024 compared to 197 patients per 1,000 inhabitants in 2023 (13% decrease).

Elderly inhabitants living at care homes during 2024 received 93% more antimicrobials than elderly inhabitants living in their own homes (1,813 prescriptions per 1,000 inhabitants at long-term care facilities compared to 937 prescriptions per 1,000 inhabitants in their own homes). Urinary tract infections remained the main cause of the observed difference in the treatment frequency. After decreasing antimicrobial consumption for elderly since 2016, the consumption was unchanged for the first time in 2024 compared to the previous year of 2023.

Antimicrobial consumption in hospital care measured in DID (i.e. not accounting for hospital activity) was 1.92 DID in 2024, similar to 2023 (1.91 DID). When measuring in DDD per 100 bed-days (DBD), the consumption in 2024 (146.17 DBD) was 2.6% higher than in 2023 (142.51 DBD) and 33% higher than in 2015 (110.23 DBD).

Product shortages are of increasing concern in antimicrobial supply. In 2023, nitrofurantoin was unavailable in several months due to product shortage and in parts of 2024 metronidazole was unavailable. Simultaneously, the supply through special deliveries increased to cover the need.

AWaRe classification of antimicrobials used in Denmark showed that 84% consisted of access antimicrobials (WHO's goal is 60% access antimicrobials).

5.1 Introduction

In Denmark, antimicrobials are available by prescription from medical doctors, veterinarians and dentists. Sale is restricted to licensed pharmacies who have exclusive rights to sell prescription-only medicines. Thus, no over-the-counter sale takes place. All consumption of medicinal products for humans is recorded through the Register of Medicinal Product Statistics at the Danish Health Data Authority (Figure 2.1). This includes sales data from all public and private healthcare providers. Antimicrobial sales data have been submitted from the primary care sector since 1994 and from the hospital sector since 1997.

Registration of medicine consumption in the primary care sector covers sales from pharmacies to individuals and private clinics. Sales data contain an identifier of the prescriber and the patient in addition to information about the prescribed antimicrobial, including ATC code, formulation, package size and number of packages sold. Since 2004, the Register of Medicinal Product Statistics also receive information on the indication for prescribing. This allow a very detailed and near-complete surveillance of all systemic antimicrobials used in Denmark in primary health care.

For the hospital sector, antimicrobial consumption data from all public somatic hospitals with acute care function (referred to as somatic hospitals) are included in the report. Data from psychiatric hospitals, private hospitals and hospices are excluded, since they only account for a minor share of the consumption and no reliable denominator for measuring antimicrobial consumption in these facilities is available.

In this chapter, the term 'antimicrobials' covers all systemic antibacterial agents for human use listed in the Anatomical Therapeutic Chemical (ATC) Classification under the code J01. In addition, since 2014 metronidazole (ATC code P01AB01) and for hospitals vancomycin (ATC code A07AA09) have been included. Consumption of tuberculostica, antifungal drugs and antivirals are not included in this chapter.

The Danish Healthcare system has undergone changes in recent years, which led to functions being reassigned from hospitals to ambulatory care and further on to smaller health units, rehabilitation centers and general practice. Based on the recommendations from The Danish Resilience Commission, September 2023, future changes will include the establishment of regional and local health councils and the merge of the Capital Region and the Region Zealand as from January 2027. Such changes in organization are expected to impact the overall consumption per healthcare sector but also demonstrate changing trends in commonly used ways of reporting, e.g. number of DDD per bed days or per admission.

Antimicrobial stewardship has been an integrated part of the daily work at Danish Clinical Microbiology Departments for more than 30 years. In primary care, the Danish Research Center for General Medicine has, together with the Association of General Practitioners, undertaken important research on implementation of actions that support a more rational use of antibiotics in General practice. During the last decade, many of the bigger hospitals established antibiotic committees and the Danish Regions developed criteria for reduction of bacterial infections at hospitals including focus on better use of critically important antibiotics via the Danish Learning and Quality Teams. In addition, Infectious Disease specialists have in recent years enrolled in educational programs and established antimicrobial stewardship teams at some of the bigger hospitals.

The new Danish National Action Plan against antimicrobial resistance in humans from June 2025 aims to further strengthen the work.

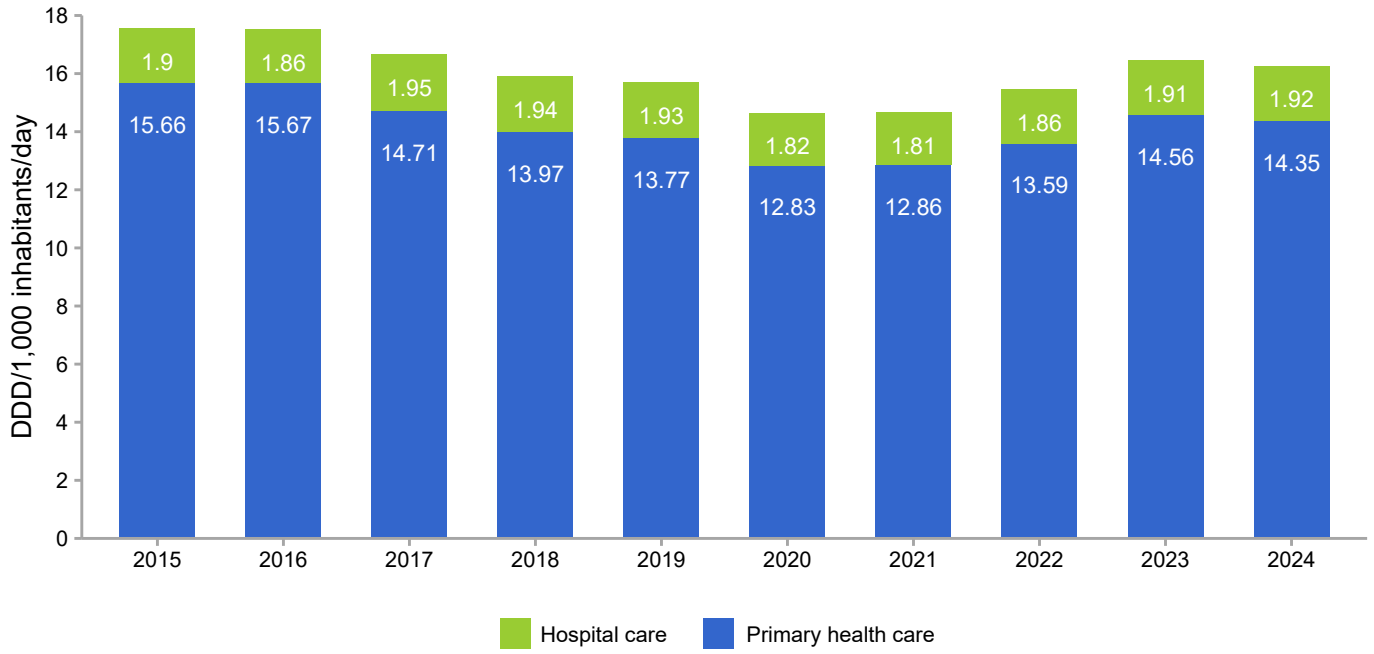
5.2 Total antimicrobial consumption in the Danish healthcare system

During the first five years of surveillance from 1996 to 2000, the consumption of systemic antimicrobials in Denmark showed no significant changes and consumption was estimated to be between 13 to 14 Defined Daily Doses per 1,000 inhabitants per day (DID). These first years of reporting are not fully comparable to later years due to changes in reporting methods and data systems. Between 2001 and 2011, consumption of antimicrobials increased steadily and peaked at a total of 18.95 DID in 2011 (not shown). From 2011 to 2021, consumption decreased markedly, with a further marked drop during the COVID-19 pandemic (Figure 5.1). However, from 2022 to 2023, the consumption increased by 6.6% from 15.45 DID to 16.47 DID, and in 2024 the consumption was 16.27 DID. The primary care sector accounts for the majority of the consumption in Denmark (88%).

The decrease in total antimicrobial consumption since 2013 was driven by reduced prescribing in primary health care. Measured in DID and not adjusted for hospital activity, antimicrobial consumption at hospitals fluctuated over the years, moving between the lowest levels of 1.86 DID in 2016 to highest levels of 1.95 DID in 2017. The notably lower levels in 2020 and 2021 are considered exceptions due to the COVID-19 pandemic.

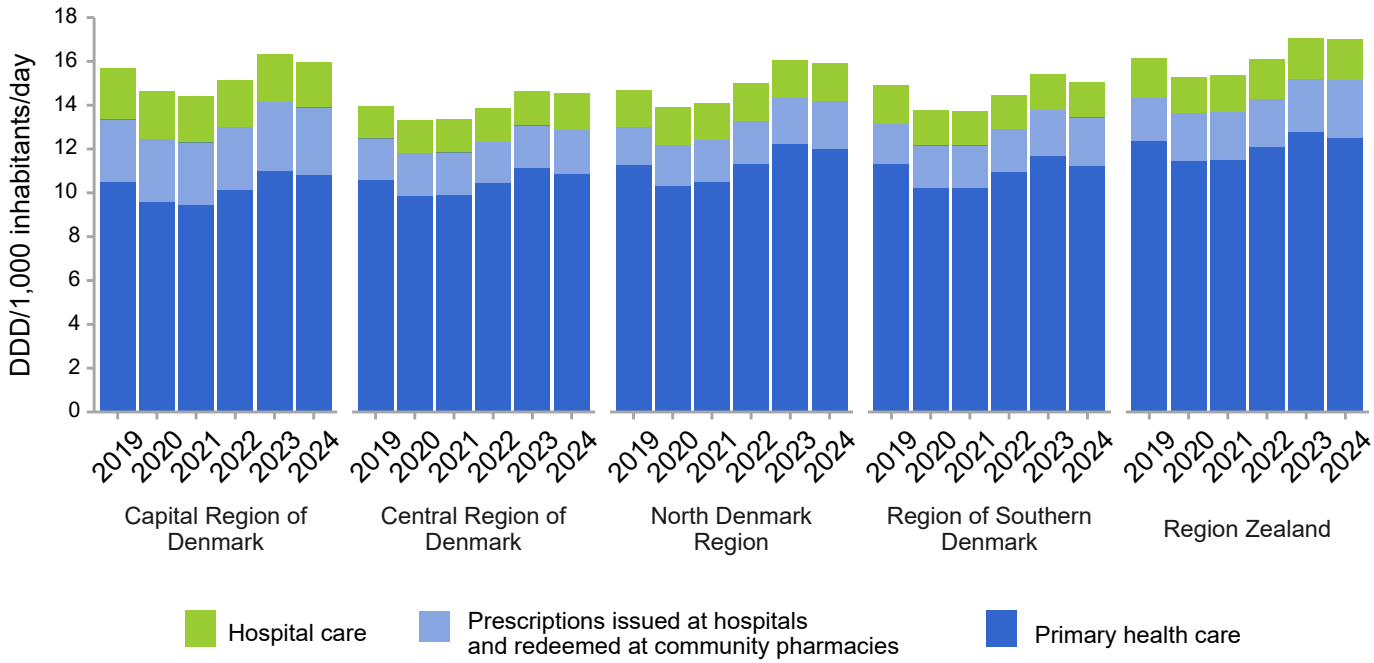
The total consumption of antimicrobials for both primary health care and somatic hospitals in the five Danish health regions is presented in Figure 5.2. The trends in consumption are similar for all five regions. Region Zealand showed the highest total consumption of 17.00 DID in 2024, whereas Central Region of Denmark had the lowest total consumption of 14.54 DID. Figure 5.3 presents the main drug classes used in primary health care and at hospitals; both sectors show a high share of penicillins in their usage patterns. Hospitals prescribe the majority of cephalosporins, aminoglycosides and carbapenems used, as well as other broadspectrum antibiotics (Figure 5.4). Assessed by WHO's AWaRe classification system, "access antimicrobials" constituted at least 80% since 2014 and 84% in 2024.

Figure 5.1 Total consumption of systemic antimicrobial agents in humans, DDD per 1,000 inhabitants per day, Denmark, 2015-2024
DANMAP 2024



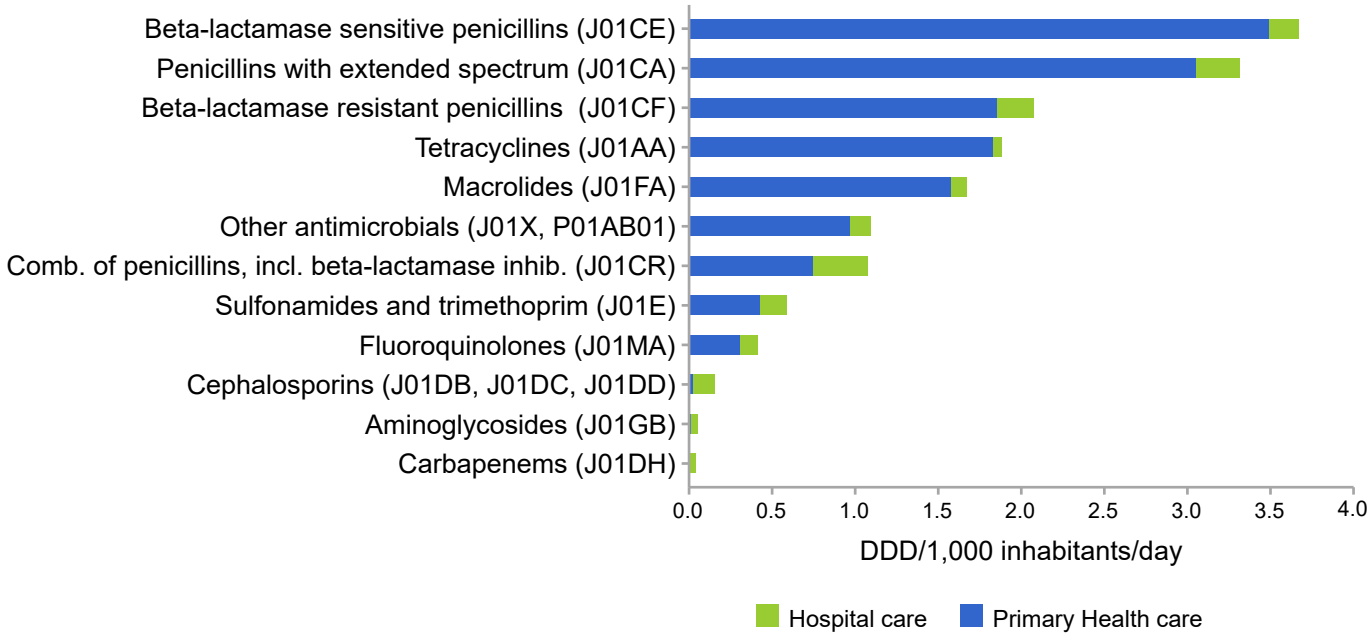
Data: Sales of antimicrobials in Denmark
Data source: Register of Medicinal Product Statistics and the 2025 edition of the Anatomical Therapeutic Chemical (ATC) classification system

Figure 5.2 Consumption of systemic antimicrobial agents in primary health care and somatic hospitals, DDD per 1,000 inhabitants per day, Danish regions, 2019-2024
DANMAP 2024



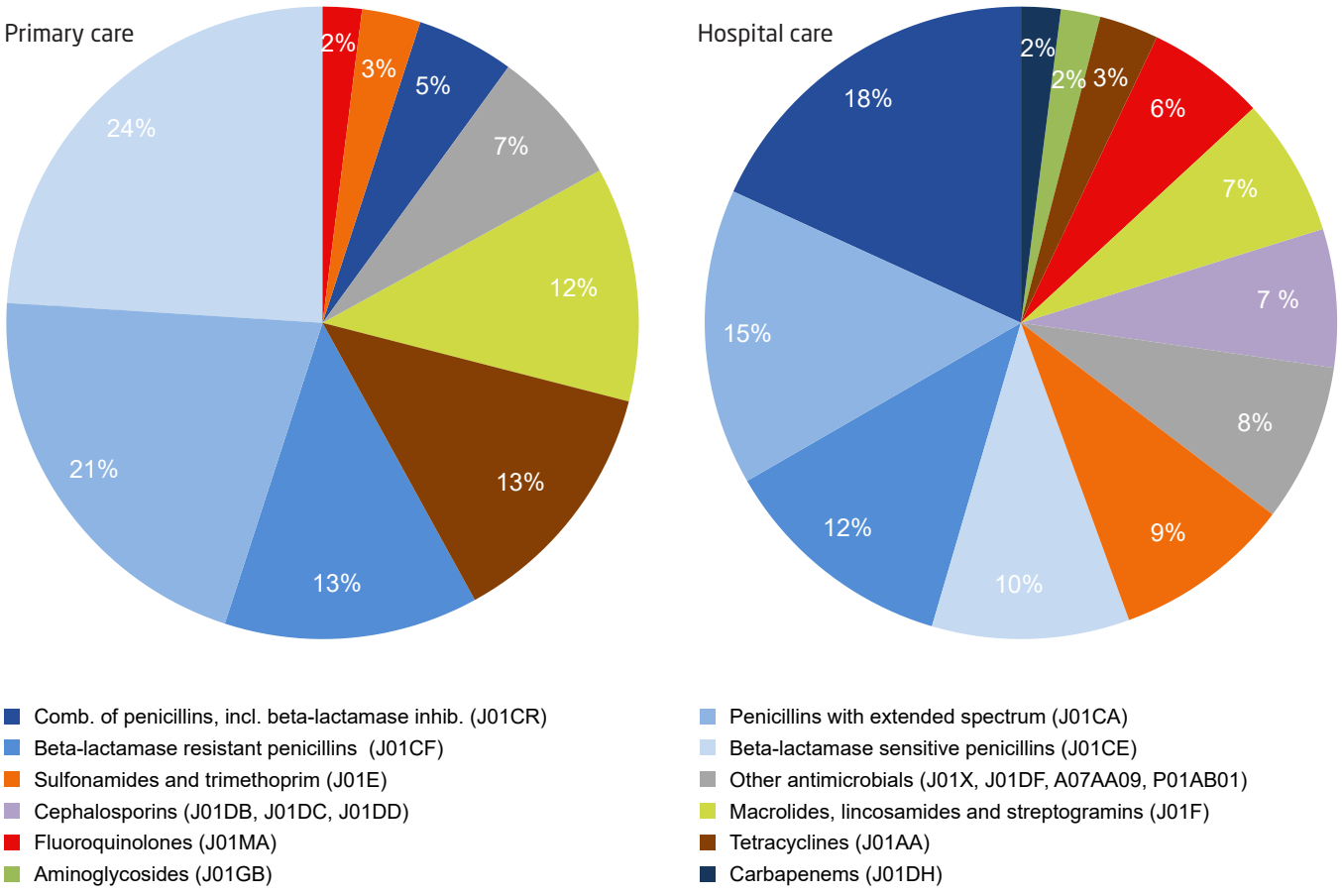
Data: Registered sales of antimicrobials to individuals and antimicrobial consumption at somatic hospitals
Data source: Register of Medicinal Product Statistics and the 2025 edition of the Anatomical Therapeutic Chemical (ATC) classification system

Figure 5.3 Distribution of main antimicrobial classes used for humans in primary and hospital care, DDD per 1,000 inhabitants per day, Denmark, 2024
DANMAP 2024



Data: Registered sales of antimicrobials to individuals and antimicrobial consumption at somatic hospitals
Data source: Register of Medicinal Product Statistics and the 2025 edition of the Anatomical Therapeutic Chemical (ATC) classification system

Figure 5.4 Percentage distribution of antimicrobial agents in primary health care and hospital care measured in, DDD, Denmark, 2024
DANMAP 2024



Data: Registered sales of antimicrobials to individuals and antimicrobial consumption at somatic hospitals
Data source: Register of Medicinal Product Statistics and the 2025 edition of the Anatomical Therapeutic Chemical (ATC) classification system

5.3 Antimicrobial consumption in primary health care

In the following sections, the consumption of antimicrobials in primary health care is described by the units DDD per 1,000 inhabitants per day, number of prescriptions per 1,000 inhabitants and number of treated patients per 1,000 inhabitants. Data are based on sales to individuals and do not include the approximately 4% of antimicrobials, mainly penicillins, sold to clinics and doctors on call.

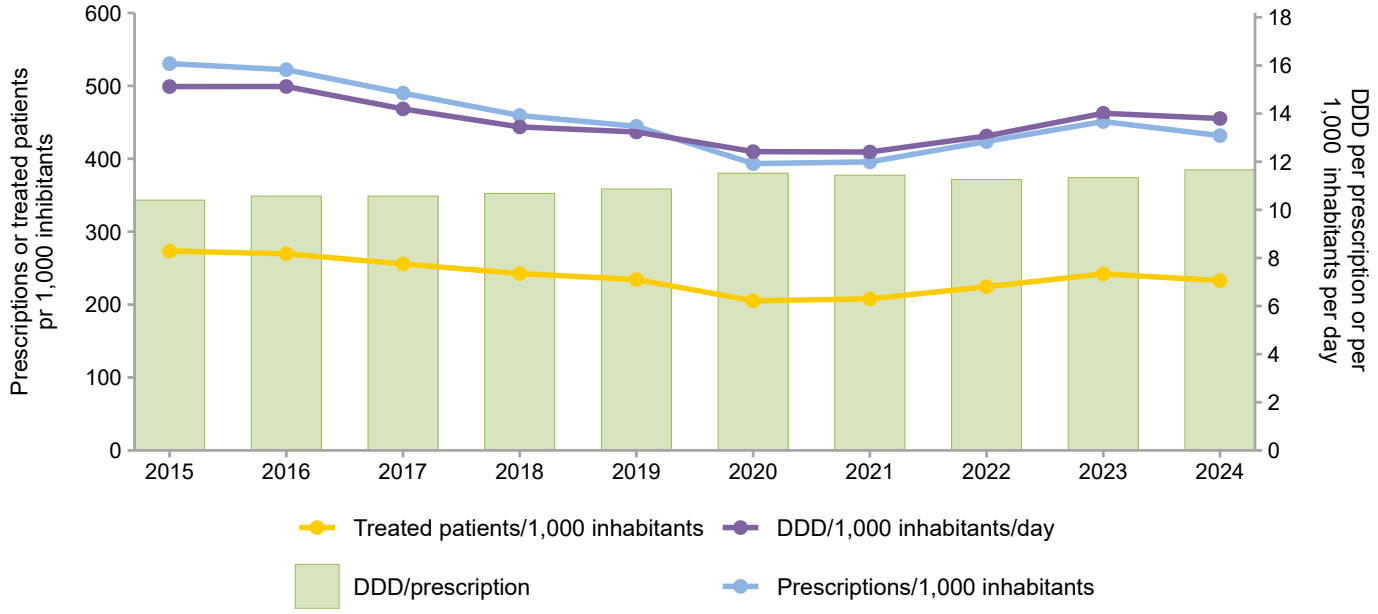
5.3.1 Overall antimicrobial consumption in primary health care

Comparison of trends over time by different indicators showed decreased consumption from 2014-2020, no change from 2020-2021 and increased consumption from 2021-2023 (Figure 5.5). In 2024, an average of 233 patients per 1,000 inhabitants were treated and 432 prescriptions per 1,000 inhabitants were issued (4% more than in 2023). The number of DDD per 1,000 inhabitants was 13.80 (1.5% lower than in 2023).

A decade earlier, in 2015, the number of treated patients per 1,000 inhabitants was 273, the number of prescriptions per 1,000 inhabitants was 531, and the number of DDD per 1,000 inhabitants was 15.12 (Table 5.1, Table 5.2 and Table 5.3).

The decreases in the number of treated patients and prescriptions over the decade are significant, a reduction of 15% and 19%, respectively. However, doses per prescription have increased, primarily due to switch to antibiotics that contribute with more DDDs per treatment, e.g. the switch to pivmecillinam as the drug of choice in the treatment of urinary tract infections and the switch to tetracycline as drug of choice in the treatment of chlamydia.

Figure 5.5 Consumption of systemic antimicrobial agents in primary health care, Denmark, 2015-2024 DANMAP 2024



Data: Registered sales of antimicrobials to individuals
Data source: Register of Medicinal Product Statistics and the 2025 edition of the Anatomical Therapeutic Chemical (ATC) classification system

Table 5.1 Consumption of antimicrobial agents for systemic use in primary health care, DDD per 1,000 inhabitants per day, Denmark, 2005 and 2015-2024

DANMAP 2024

ATC group	Therapeutic group	Year										
		2005	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
J01AA	Tetracyclines	1.26	1.59	1.60	1.41	1.38	1.46	1.68	1.63	1.68	1.72	1.81
J01CA	Penicillins with extended spectrum	2.30	3.16	3.20	3.23	3.21	3.14	3.08	3.05	3.13	3.16	2.93
J01CE	Beta-lactamase sensitive penicillins	5.01	4.14	3.98	3.71	3.44	3.28	2.74	2.78	3.10	3.81	3.37
J01CF	Beta-lactamase resistant penicillins	0.96	1.35	1.44	1.52	1.57	1.59	1.55	1.58	1.68	1.74	1.82
J01CR	Combinations of penicillins, including beta-lactamase inhibitors	0.05	0.91	0.91	0.77	0.64	0.62	0.51	0.54	0.62	0.69	0.73
J01D	Cephalosporins and other betalactam antibiotics	0.03	0.03	0.03	0.03	0.03	0.02	0.02	0.02	0.02	0.02	0.02
J01EA	Trimethoprim and derivates	0.44	0.55	0.56	0.56	0.53	0.45	0.43	0.42	0.39	0.41	0.35
J01EB	Short-acting sulfonamides	0.33	0.17	0.16	0.14	0.13	0.12	0.11	0.09	0.08	0.08	0.06
J01EE	Combination of sulfonamides and trimethoprim, including derivates	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
J01FA	Macrolides	2.34	1.72	1.77	1.57	1.41	1.36	1.11	1.08	1.13	1.27	1.53
J01FF	Lincosamides	0.01	0.05	0.05	0.06	0.05	0.06	0.06	0.07	0.07	0.08	0.09
J01GB	Aminoglycosides											
J01MA	Fluroquinolones	0.32	0.49	0.47	0.44	0.41	0.36	0.32	0.31	0.33	0.32	0.30
J01XC	Steroid antibacterials (combination fusidic acid)	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
J01XE	Nitrofuran derivates (nitrofurantoin)	0.45	0.45	0.43	0.26	0.15	0.27	0.27	0.28	0.27	0.12	0.19
J01XX	Other antibacterials (metheamine >99%)	0.24	0.20	0.21	0.22	0.22	0.23	0.25	0.28	0.29	0.33	0.37
P01AB01	Metronidazole	0.19	0.28	0.27	0.24	0.23	0.23	0.23	0.24	0.24	0.24	0.20
J01 and P01AB01	Antibacterial agents for systemic use (total)	13.96	15.12	15.13	14.19	13.44	13.24	12.42	12.40	13.07	14.01	13.80

Data: Registered sales of antimicrobials to individuals
Data source: Register of Medicinal Product Statistics and the 2025 edition of the Anatomical Therapeutic Chemical (ATC) classification system

Table 5.2 Number of treated patients per 1,000 inhabitants for leading antimicrobial agents in primary health care, Denmark, 2005 and 2015-2024

DANMAP 2024

ATC group	Therapeutic group	Year										
		2005	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
J01AA	Tetracyclines	11.96	11.32	11.04	10.35	9.69	10.10	14.43	12.99	13.64	14.06	13.42
J01CA	Penicillins with extended spectrum	73.00	74.87	74.05	74.04	73.56	71.97	67.14	68.60	71.45	72.42	66.04
J01CE	Beta-lactamase sensitive penicillins	170.17	130.06	125.69	119.32	110.90	104.70	84.93	87.69	100.09	116.67	105.69
J01CF	Beta-lactamase resistant penicillins	27.78	28.85	29.70	29.96	31.10	31.06	30.52	30.89	32.92	33.77	33.42
J01CR	Combinations of penicillins, including betalctamase inhibitors	1.52	22.03	22.17	19.89	17.73	17.33	14.43	15.50	17.90	20.28	21.16
J01E	Sulphonamides and trimethoprim	36.12	22.45	21.17	19.87	18.42	16.63	15.04	13.66	12.67	12.47	10.50
J01FA	Macrolides	70.73	51.75	53.21	46.01	40.11	38.45	25.13	24.97	27.16	30.06	38.55
J01MA	Fluoroquinolones	12.19	15.04	14.37	13.36	12.26	10.74	9.01	8.52	9.10	8.87	8.01
J01X	Other antibacterials (methenamine >99%)	7.41	7.35	7.47	5.01	3.62	5.66	5.80	5.95	5.91	2.65	5.17
P01AB01	Metronidazole	13.22	16.47	16.03	14.84	14.05	13.57	13.36	13.77	13.94	14.11	11.88
J01 and P01AB01	Antibacterial agents for systemic use (total)	311	273	270	256	243	234	205	208	225	242	233

Data: Registered sales of antimicrobials to individuals
Data source: Register of Medicinal Product Statistics and the 2025 edition of the Anatomical Therapeutic Chemical (ATC) classification system

Table 5.3 Number of prescriptions per 1,000 inhabitants for leading antimicrobial agents in primary health care, Denmark, 2005 and 2015-2024

DANMAP 2024

ATC group	Therapeutic group	Year										
		2005	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
J01AA	Tetracyclines	20.00	17.90	17.18	15.89	14.63	15.11	20.19	18.25	18.71	19.11	17.84
J01CA	Penicillins with extended spectrum	106.07	113.53	113.16	114.37	114.31	112.19	105.93	107.97	112.19	114.05	103.92
J01CE	Beta-lactamase sensitive penicillins	224.20	163.09	157.13	148.52	136.81	128.77	104.07	107.28	122.87	145.45	129.58
J01CF	Beta-lactamase resistant penicillins	39.56	40.81	41.87	41.87	43.35	43.16	42.87	43.17	45.66	47.05	46.42
J01CR	Combinations of penicillins, including betalctamase inhibitors	2.31	30.73	31.13	27.09	23.71	23.07	19.14	20.36	23.45	26.32	27.36
J01E	Sulphonamides and trimethoprim	55.30	38.39	36.41	34.29	31.74	28.14	25.59	23.07	21.26	21.30	18.31
J01FA	Macrolides	96.24	68.00	68.85	60.00	52.64	50.71	33.66	33.80	36.94	40.32	49.77
J01MA	Fluoroquinolones	15.74	19.50	18.74	17.37	15.97	13.99	12.07	11.41	11.96	11.57	10.48
J01X	Other antibacterials (methenamine >99%)	16.15	16.28	15.82	10.18	6.76	10.29	10.62	10.70	10.72	5.47	9.88
P01AB01	Metronidazole	15.44	19.15	18.63	17.26	16.31	15.78	15.62	16.00	16.17	16.25	13.55
J01 and P01AB01	Antibacterial agents for systemic use (total)	592.36	530.56	522.19	490.08	459.39	444.53	393.34	395.76	423.70	451.09	431.77

Data: Registered sales of antimicrobials to individuals
Data source: Register of Medicinal Product Statistics and the 2025 edition of the Anatomical Therapeutic Chemical (ATC) classification system

Table 5.4 Consumption of antimicrobial agents for systemic use in primary health care at regional level, Denmark, 2020-2024

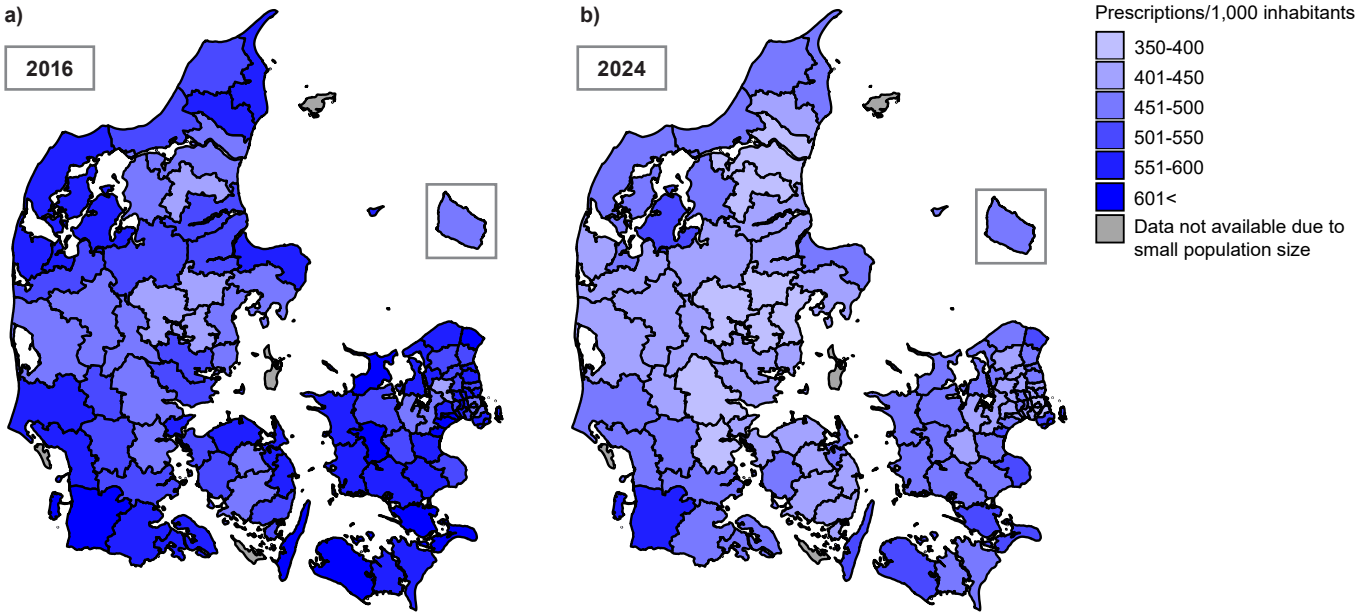
DANMAP 2024

Region	Indicator	Year				
		2020	2021	2022	2023	2024
Capital Region	DDD/1,000 inhabitants/day	12.47	12.32	13.03	14.14	13.90
	Prescriptions/1000 inhabitants	382	378	409	443	423
Region Zealand	DDD/1,000 inhabitants/day	13.65	13.71	14.31	15.21	15.14
	Prescriptions/1,000 inhabitants	436	440	466	489	470
Region of Southern Denmark	DDD/1,000 inhabitants/day	12.17	12.17	12.91	13.78	13.44
	Prescriptions/1,000 inhabitants	401	405	434	460	440
Central Denmark Region	DDD/1,000 inhabitants/day	11.82	11.83	12.32	13.07	12.86
	Prescriptions/1,000 inhabitants	374	380	402	425	408
North Denmark Region	DDD/1,000 inhabitants/day	12.20	12.42	13.27	14.33	14.23
	Prescriptions/1000 inhabitants	390	400	431	458	438
Denmark (total)	DDD/1,000 inhabitants/day	12.42	12.40	13.07	14.01	13.80
	Prescriptions/1,000 inhabitants	393	396	424	451	432

Data: Registered sales of antimicrobials to individuals
Data source: Register of Medicinal Product Statistics and the 2025 edition of the Anatomical Therapeutic Chemical (ATC) classification system

Figure 5.6 Number of prescriptions in primary health care per 1,000 inhabitants in Danish municipalities in a) 2016 and b) 2024

DANMAP 2024



Data: Registered sales of antimicrobials to individuals
Data source: Register of Medicinal Product Statistics and the 2025 edition of the Anatomical Therapeutic Chemical (ATC) classification system

Interregional differences in the levels of prescribing have been described in DANMAP since 2017 (Table 5.4). In general, the Danish population is relatively homogeneous and health care is of standardized quality, which, combined with several initiatives to educate GPs in appropriate prescribing, diminish potential differences in prescribing trends. However, observed variations in prescribing may owe to differences in population density (distance to nearest general practitioner), differences in age and comorbidity of the population (younger populations in bigger cities and in the Capital Region) as well as behavioral differences between urban and rural populations.

Figure 5.6 shows the number of prescriptions per 1,000 inhabitants at municipality level in 2016 and 2024, respectively. In 2024, the consumption ranged from 365 to 573 prescriptions per 1,000 inhabitants. In 2016, the range was 434-727 prescriptions per 1,000 inhabitants. 2016 was the baseline year for the first Danish action plan on reducing antimicrobial use in human health care (see Textbox 5.1 in DANMAP2021). Of note is that prescribers in all municipalities reduced their prescribing activities in the shown period. Demographic differences might impact the range of prescribing. Distribution of elderly inhabitants above 60 years in the municipalities closely follows the distribution of prescriptions per 1,000 inhabitants with higher prescription rates in municipalities with larger populations of elderly inhabitants above 60 years (data not shown).

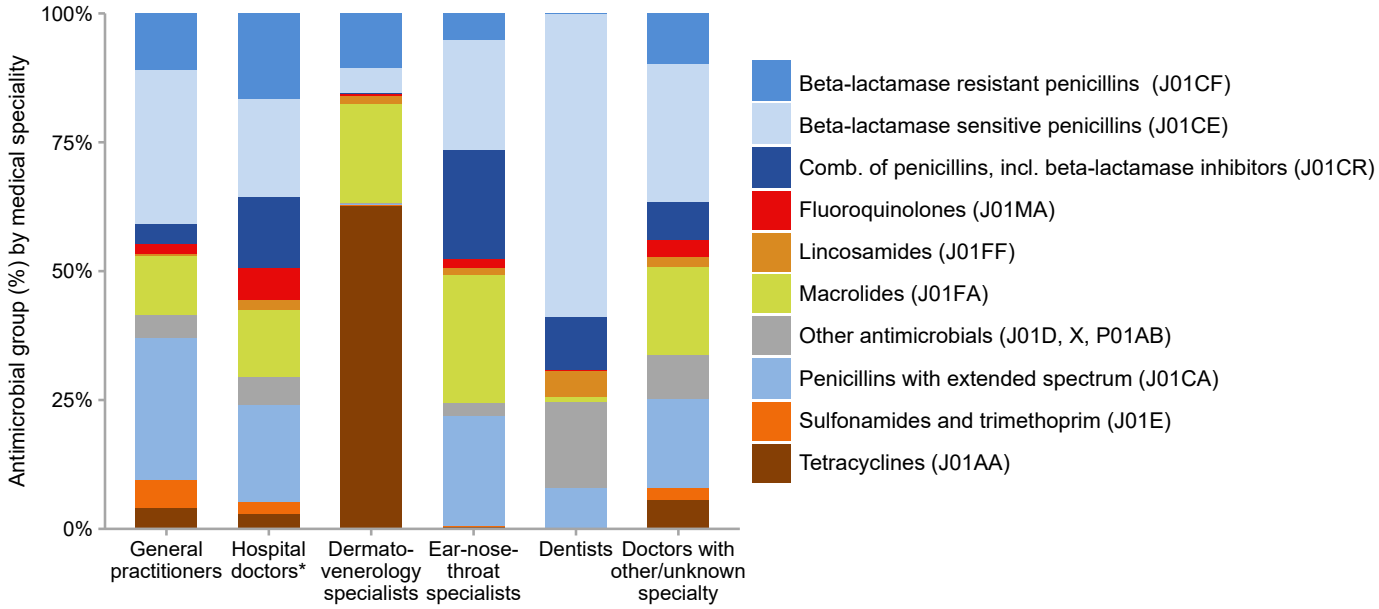
5.3.2 Antimicrobial consumption by prescriber

Prescribing trends in primary health care clearly differ by prescriber's specialty. Table 5.5 shows an overview of number of prescriptions issued by different specialists, including hospital doctors issuing prescriptions for patients at hospitals, which then are then redeemed at a community pharmacy. Figure 5.7 shows the main antimicrobial groups prescribed by medical specialty in primary health care in 2024. In general practice, beta-lactamase sensitive penicillins were the most prescribed (30%) indicating adherence to the guidelines recommending beta-lactamase sensitive penicillins as the drug of choice in many common infections. In 2024, 63% of antimicrobial prescriptions from dermato-venerology specialists were tetracyclines, which are indicated for treatment of severe acne and sexually transmitted chlamydia/mycoplasma infections.

The majority of prescriptions by dentists were narrow-spectrum beta-lactamase sensitive penicillins (59%) reflecting adherence to the recommended first-line treatment for common dental infections in primary health care.

General practitioners have access to their own prescribing data through ordiprax+, an online dashboard with personal log-in visualising prescription data and enabling comparisons with other practices on regional level (DANMAP 2020 Textbox 5.2). Additionally, general practitioners are organized in quality clusters where improvement of antimicrobial prescribing is discussed among other topics.

Figure 5.7 Antimicrobial groups prescribed by main medical specialities in primary health care, Denmark, 2024 DANMAP 2024



*Hospital doctors issuing prescriptions for patients in ambulatory care or upon discharge from hospital
Data: Registered sales of antimicrobials to individuals
Data source: Register of Medicinal Product Statistics and the 2025 edition of the Anatomical Therapeutic Chemical (ATC) classification system

Table 5.5 Number of prescriptions per 1,000 inhabitants by main medical specialties, Denmark, 2020-2024 DANMAP 2024

Prescriber		Year				
		2020	2021	2022	2023	2024
General practitioners	Prescriptions per 1,000 inhabitants	280.4	279.0	300.9	323.1	305.5
	DDD per prescription	11.1	11.0	10.8	10.9	11.2
Hospital doctors*	Prescriptions per 1,000 inhabitants	64.6	63.5	62.0	65.6	64.3
	DDD per prescription	13.0	13.2	13.6	13.7	14.4
Ear-nose-throat specialists	Prescriptions per 1,000 inhabitants	6.1	6.9	8.1	8.5	8.1
	DDD per prescription	8.9	8.3	8.1	8.0	8.1
Dermato-venerology specialists	Prescriptions per 1,000 inhabitants	5.3	5.0	4.6	4.4	4.4
	DDD per prescription	33.8	35.4	35.0	34.6	37.1
Dentists	Prescriptions per 1,000 inhabitants	25.6	28.9	34.4	33.1	32.8
	DDD per prescription	7.9	7.7	7.7	8.2	8.2

*Hospital doctors issuing prescriptions for patients in ambulatory care or upon discharge from hospital
Data: Registered sales of antimicrobials to individuals
Data source: Register of Medicinal Product Statistics and the 2025 edition of the Anatomical Therapeutic Chemical (ATC) classification system

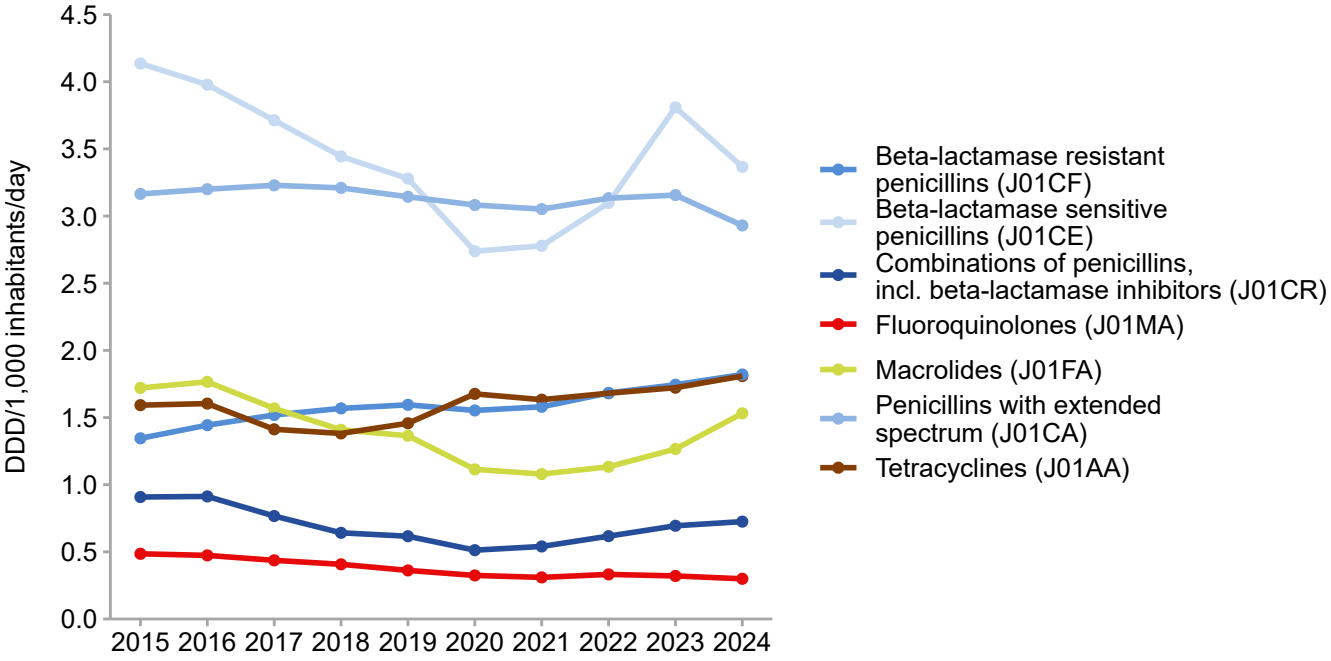
5.3.3 Consumption of antimicrobial groups

In compliance with treatment guidelines, beta-lactamase sensitive penicillins have been the most used antimicrobials in primary health care in Denmark for decades (Figure 5.8). In 2024, beta-lactamase sensitive penicillins accounted for 24% of total consumption in primary health care. The steep increase of these penicillins, observed post COVID-19 and attributed to a renormalized circulation of airway infections, discontinued in 2024, (-11.6% from 2023 to 2024).

Altogether, the four penicillin groups (penicillins with extended spectrum; beta-lactamase sensitive penicillins; beta-lactamase resistant penicillins; combinations of penicillins, including beta-lactamase inhibitors) accounted for 8.84 DID corresponding to 64% of antimicrobials consumed in primary health care in 2024. Other beta-lactams such as cephalosporins, monobactams and carbapenems were either used at extremely low level or restricted to hospital use only.

In contrast, consumption of macrolides increased by 21% from 2023 to 2024. This is attributed to the Group A streptococcal pandemic that circulated at high rates in 2023 to 2024, mainly among children and their parents.

Figure 5.8 Consumption of leading antimicrobial groups for systemic use in primary health care, DDD per 1,000 inhabitants per day, Denmark, 2015-2024
DANMAP 2024



Data: Registered sales of antimicrobials to individuals
Data source: Register of Medicinal Product Statistics and the 2025 edition of the Anatomical Therapeutic Chemical (ATC) classification system

5.3.4 Antimicrobial consumption by patient case mix

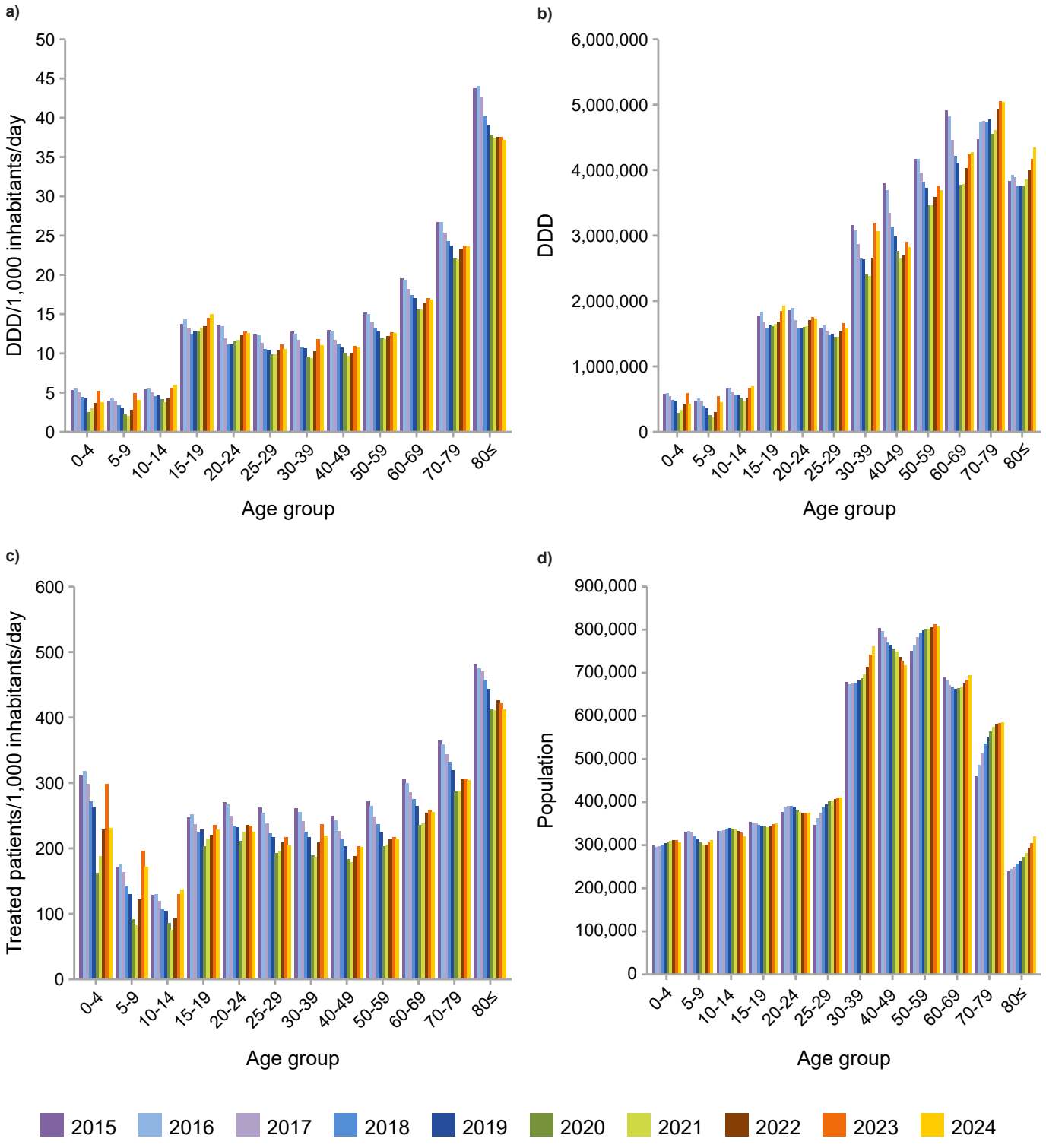
Antimicrobial consumption is highly affected by patient case mix. The need for antimicrobials differs throughout life and for the two genders. Antimicrobial consumption is also affected by sociodemographic factors such as civil status, educational level, employment status and country of birth (DANMAP 2022, Textbox 5.2). Figure 5.9a-c presents consumption of antimicrobials by age group based on different denominators: Figure 5.9a presents consumption in DDD per 1,000 inhabitants per day; Figure 5.9b in crude DDD, i.e. not corrected for population size; Figure 5.9c presents the number of patients treated per 1,000 inhabitants; Figure 5.9d presents population size by age group. Children and adolescents are presented in five-year age groups, while adults are clustered in 10-year age groups.

Estimates of antimicrobial consumption for children based on DDD should be interpreted with caution since the DDD is defined as "maintenance dose per day for its main indication in adults". The maintenance dose per day for children may differ from the one for adults due to different pharmacodynamics and -kinetics. Furthermore, infants and young children in the same age group might be treated with different doses based on body weight. Therefore, other units of measurement might be more suitable to monitor consumption in children, e.g. number of treated patients per 1,000 inhabitants and number of prescriptions per 1,000 inhabitants.

Macrolides play an important role in the treatment of bacterial respiratory tract infections in children and adolescents (Figure 5.10). Macrolides were also used as first-line treatment for chlamydia infections until the change in guidance (described in DANMAP2020), which may be the reason for the relatively high, but in recent years decreasing, consumption of macrolides in the 15-24 year olds. However, penicillins continued to be the most used antimicrobial agents for children and adolescents, constituting between 63% and 86% of all antimicrobials prescribed depending on age group (Figure 5.10).

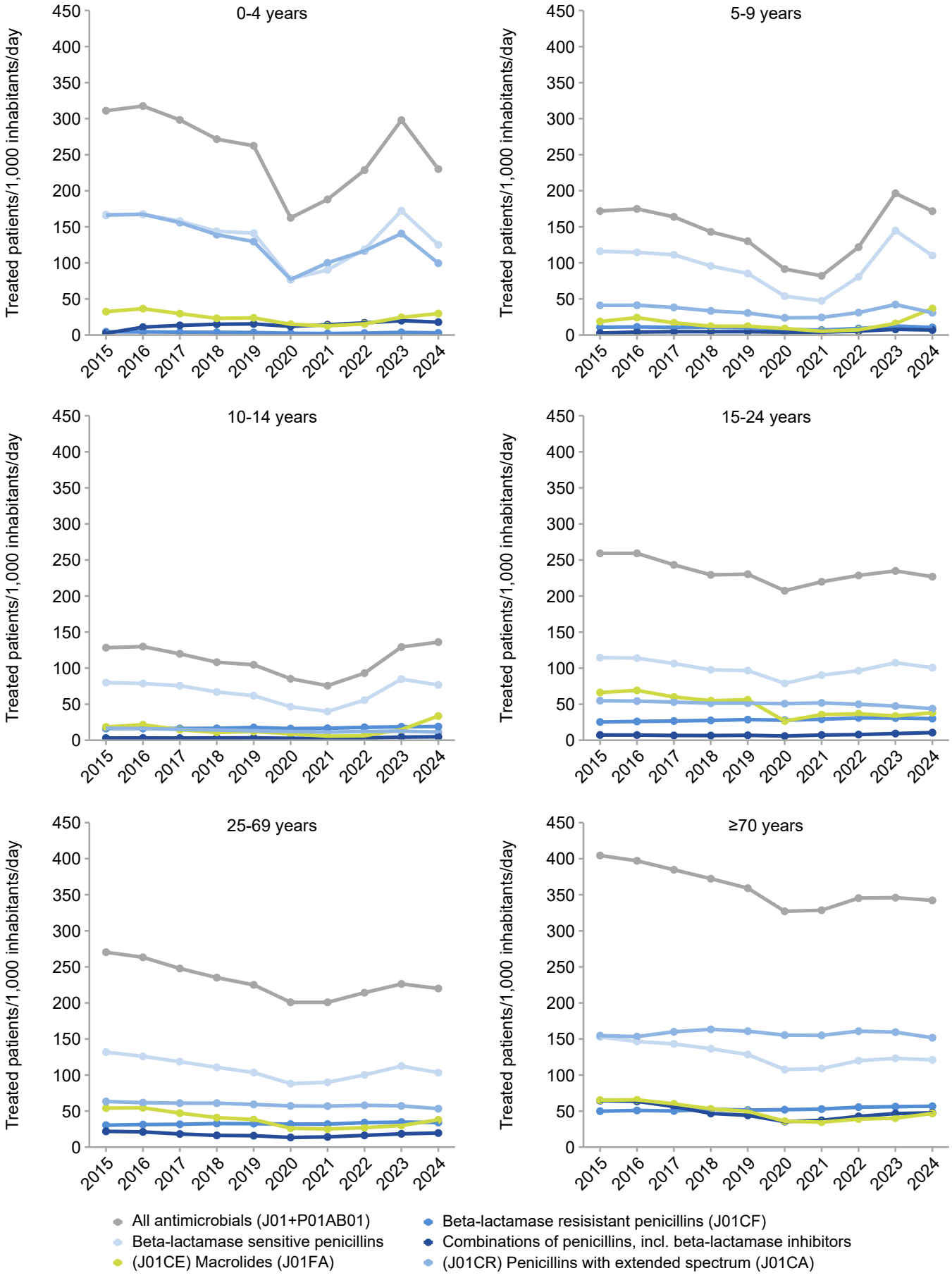
Differences in antimicrobial consumption between genders are well known – a trend driven by higher incidence of urinary tract infections and different healthcare seeking behavior. In 2024, the number of treated females (all age groups) was 271 per 1,000 inhabitants and the number of treated males was 195 per 1,000 inhabitants. Particularly the consumption of pivmecillinam, sulfonamides, trimethoprim and nitrofurantoin, all indicated for treatment of urinary tract infections, was approximately three times higher for females than for males (Figure 5.11). Decreasing trends were primarily observed in the number of prescriptions for elderly women (80+ years), who were the most frequently treated (559 prescriptions per 1,000 females above 80 years).

Figure 5.9 Consumption of systemic antimicrobial agents in primary health care by age group, measured in a) DDD per 1,000 inhabitants per day, b) DDD, c) treated patients per 1,000 inhabitants and d) population size, Denmark, 2015-2024 DANMAP 2024



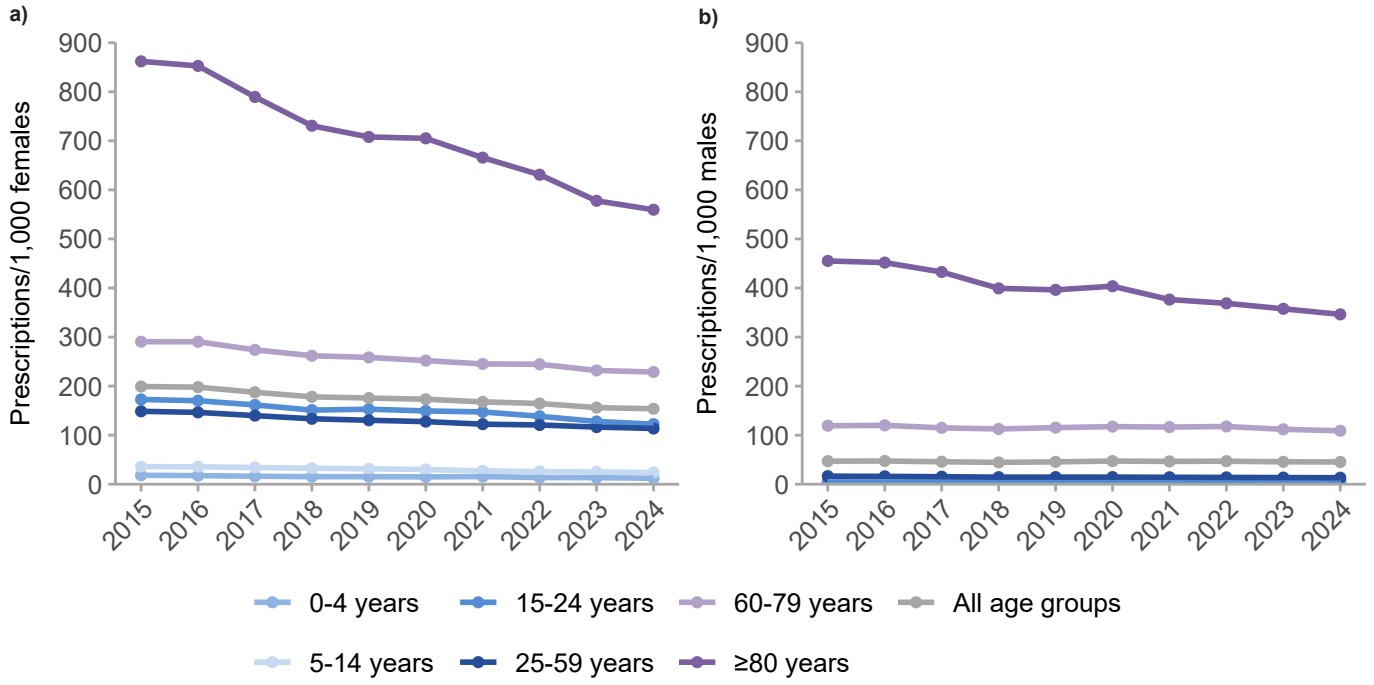
Data: Registered sales of antimicrobials to individuals
Data source: Register of Medicinal Product Statistics, the 2025 edition of the Anatomical Therapeutic Chemical (ATC) classification system and Statistics Denmark
Children and adolescents are presented in five-year age groups, while adults are clustered in 10-year age groups

Figure 5.10 Consumption of main antimicrobial agents by age group, treated patients/1,000 inhabitants, Denmark, 2015-2024 DANMAP 2024



Data: Registered sales of antimicrobials to individuals
Data source: Register of Medicinal Product Statistics and the 2025 edition of the Anatomical Therapeutic Chemical (ATC) classification system

Figure 5.11 Consumption of antimicrobials primarily used for treatment of urinary tract infections* in primary health care for a) females and b) males, prescriptions per 1,000 inhabitants, Denmark, 2015-2024 DANMAP 2024



* Pivmecillinam, sulfonamides, trimethoprim and nitrofurantoin
Data: Registered sales of antimicrobials to individuals
Data source: Register of Medicinal Product Statistics and the 2025 edition of the Anatomical Therapeutic Chemical (ATC) classification system

5.3.5 Antimicrobial consumption for treatment of respiratory tract infections

One of the main indications provided by general practitioners in primary health care for prescribing antimicrobials is upper and/ or lower respiratory tract infections. In 2024, an abrupt drop in the number of prescriptions per 1,000 inhabitants for respiratory infections was observed compared to 2023, from 116 to 108 (-7%), Figure 5.12. The years before, in 2020 antimicrobial consumption had set out slightly lower, then demonstrated a sharp drop from April 2020 to July 2021. This coincided with a marked decreases in the number of laboratory confirmed influenza and RSV infections, most likely due to the societal restrictions implemented in March 2020 due to the COVID-19 pandemic. However, from August 2021 the consumption went back to levels similar to the corresponding pre-pandemic months in 2019, again coinciding with the Respiratory Syncytial Virus (RSV) summer epidemic in 2021. Antimicrobial consumption during the winter 2022-2023 reached a higher level than observed in 2018-2019. This coincided with an early RSV and influenza season as well as an outbreak of Group A streptococci, as also observed in other European countries.

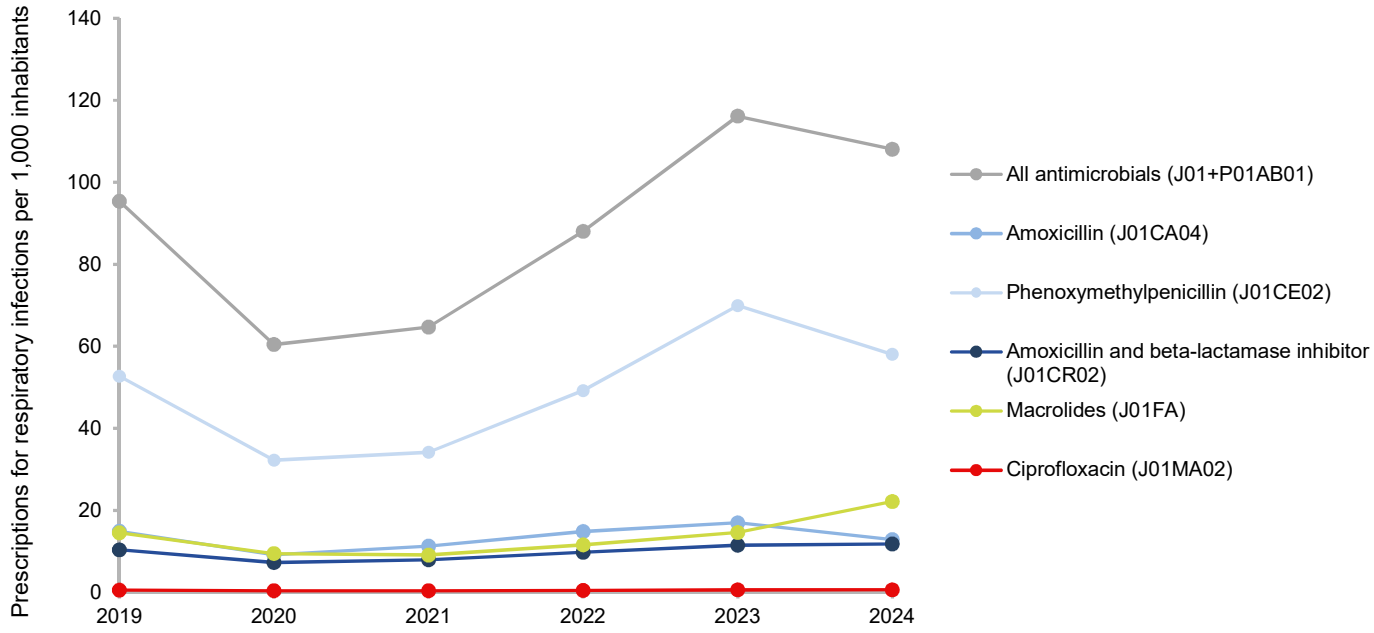
5.3.6 Antimicrobial consumption for elderly inhabitants

One of the more recent additions to the DANMAP program is surveillance of antimicrobial consumption in elderly inhabitants aged 65 years and above. Close monitoring of infections in this population is necessary, as it is one of the most fragile populations in society. Surveillance of antimicrobial consumption contributes to high-quality treatment of infections and thereby prevents emergence of antimicrobial resistant pathogens. Data are based on the Danish Care Home Register and the Danish Civil Registry. By combining these registries, it is possible to divide elderly inhabitants into two populations; elderly living in their own homes and elderly living at long-term care facilities.

Figure 5.13 shows antimicrobial consumption for elderly inhabitants aged 65 years and above in 2016-2024. Elderly inhabitants living at care homes received 93% more antimicrobials than elderly inhabitants living in their own homes in 2024. The consumption for the elderly has been decreasing since 2016, with a steeper decrease in consumption for elderly living at care homes. However, in 2024 the consumption was unchanged for the first time when comparing the consumption in the previous year of 2023. The figure also compares trends in prescription codes for different infectious entities.

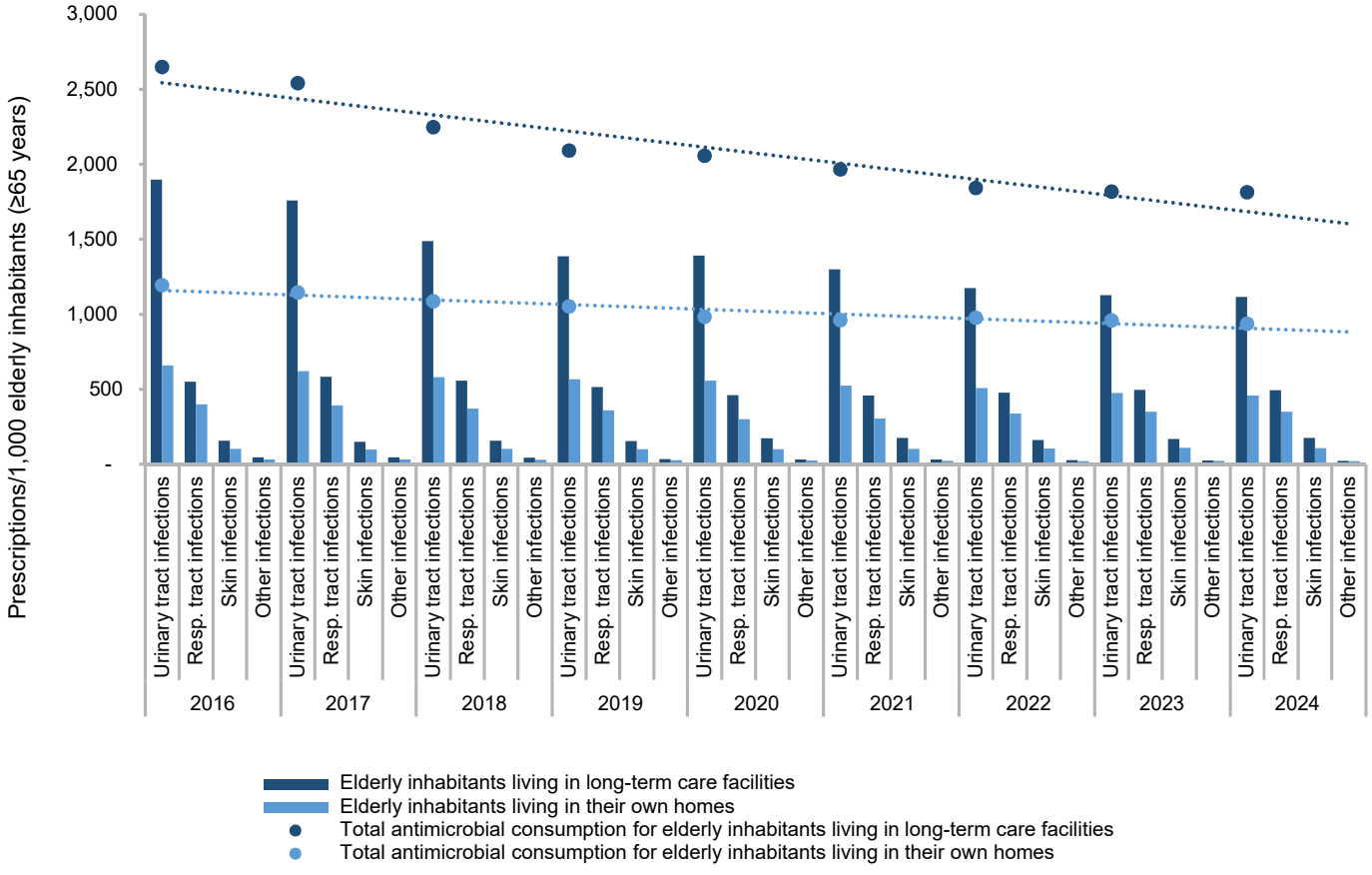
One of the main actions of the new Danish national action plan about antimicrobial resistance in human health, is to improve knowledge and awareness about infection prevention and control at long-term care facilities, but also among the elderly in general.

Figure 5.12 Antimicrobial prescriptions indicated for treatment of respiratory tract infections in primary health care, prescriptions per 1,000 inhabitants, Denmark, 2019-2024
DANMAP 2024



Data: Registered sales of antimicrobials to individuals
Data source: Register of Medicinal Product Statistics and the 2025 edition of the Anatomical Therapeutic Chemical (ATC) classification system

Figure 5.13 Consumption of antimicrobials in primary health care for elderly inhabitants (≥65 years) living in long-term care facilities or in their own homes, Denmark, 2016-2024
DANMAP 2024



Data: Registered sales of antimicrobials to individuals
Data source: Register of Medicinal Product Statistics, and the 2025 edition of the Anatomical Therapeutic Chemical (ATC) classification system, Care Home Register and Danish Civil Registry

5.4 Antimicrobial consumption in hospital care

Surveillance of antimicrobial consumption in hospital care is based on sale of systemic antimicrobials (ATC code J01, P01AB01 and A07AA09) from Danish hospital pharmacies to hospitals, excluding private hospitals and psychiatric departments (approximately 2-3% of the total hospital consumption). Antimicrobial consumption data are presented as DDD per 100 occupied bed-days (DBD) and per 100 admissions (DAD) to account for hospital activity. The consumption is also presented as DDD per 1,000 inhabitants per day to enable comparison with consumption in primary health care and to correct for changes in consumption data based on changes in hospital activity, the background population being a more stable denominator.

Hospital activity has changed over the years with decreasing number of bed-days and admissions, although at differing rates (Figure 5.14). Earlier discharge of patients, increasing ambulatory care functions in the community as well as in care homes and changed workflow due to new electronic systems all affect the activity and need to be considered when interpreting antimicrobial consumption trends in hospitals (see Table 2.1 in Chapter 2 'Introduction').

Information on consumption at patient level is currently not available to DANMAP for the hospital sector. This information is expected to become available to DANMAP through the "Hospital Medicine Register" in coming years.

5.4.1 Antimicrobial consumption at public somatic hospitals accounting for hospital activity

In 2024, the consumption of antimicrobial agents at somatic hospitals was 146.17 DBD. This is comparable (+2.5%) to 2023 (142.51 DBD) and 33% higher than a decade ago (110.23 DBD in 2015) (Table 5.6). The four penicillin groups (penicillins with extended spectrum, beta-lactamase sensitive penicillins, beta-lactamase resistant penicillins and combinations of penicillins, including beta-lactamase inhibitors) accounted for 80.83 DBD, corresponding to 55% of the total consumption of antimicrobials at somatic hospitals in Denmark in 2024. The main group of antimicrobials in 2024; combinations of penicillins, including beta-lactamase inhibitors increased by 56% since 2015.

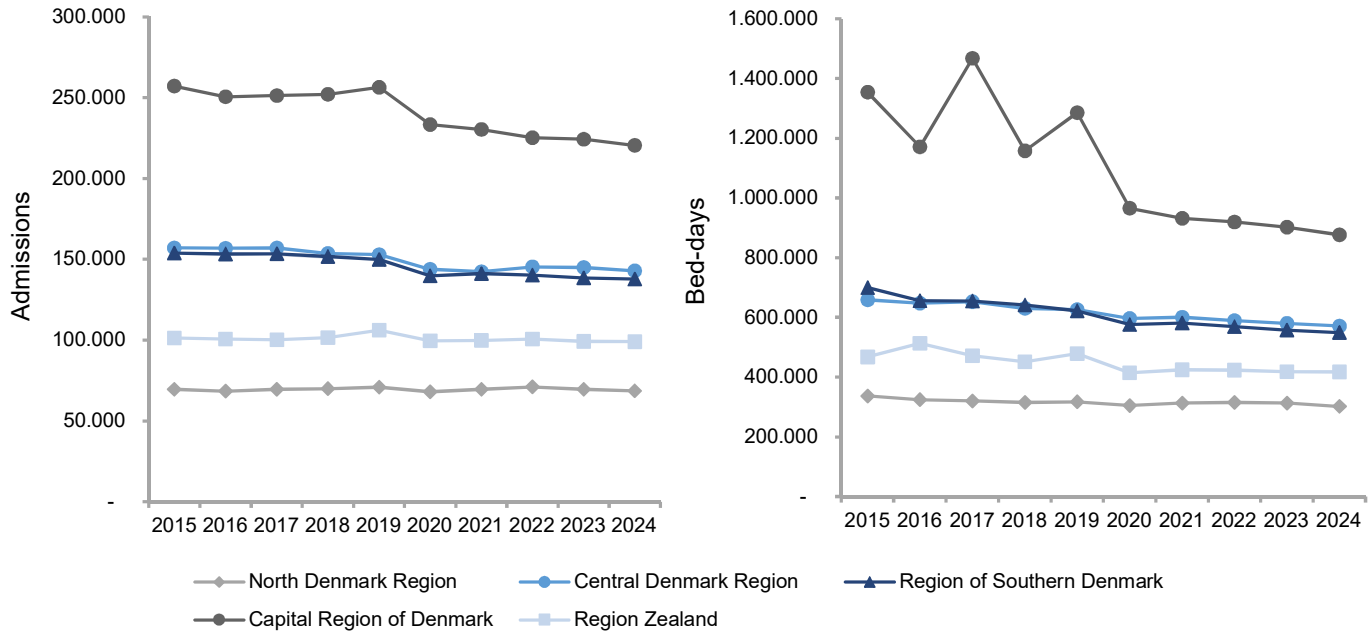
Much has changed within choice and usage of antimicrobials at Danish hospitals, an example being the increase of combination penicillins as an attempt to reduce the usage of cephalosporins, while recent initiatives now include the combination penicillins among the broad-spectrum antimicrobials that should be closely monitored and, whenever possible, replaced by narrow-spectrum penicillins. These initiatives were included in the latter and the new Danish national action plan against antimicrobial resistance (DANMAP2021, Textbox 5.1 and DANMAP2024, Textbox 1.1).

Linezolid consumption has increased to 0.72 DBD in 2024 which is the highest level observed the last decade. Over the past decade, the consumption of linezolid increased by 38% (0.52 DBD in 2015). Consumption of daptomycin peaked in 2018 (0.18 DBD), and has since been fluctuating over the years reaching 0.12 DBD in 2024 (Table 5.6). Although the overall consumption of both antimicrobials is low, these changes are of concern due to the high risk of resistance in enterococci and staphylococci. The consumption is concentrated at the highest specialised tertiary care hospitals in Denmark, which can result in local selection pressure for resistant bacteria.

The consumption of antimicrobials at hospitals when measured in DDD per 100 patients admitted to hospitals is presented in Table 5.7.

Figure 5.14 Activity at somatic hospitals, bed-days and admissions, Denmark, 2015-2024

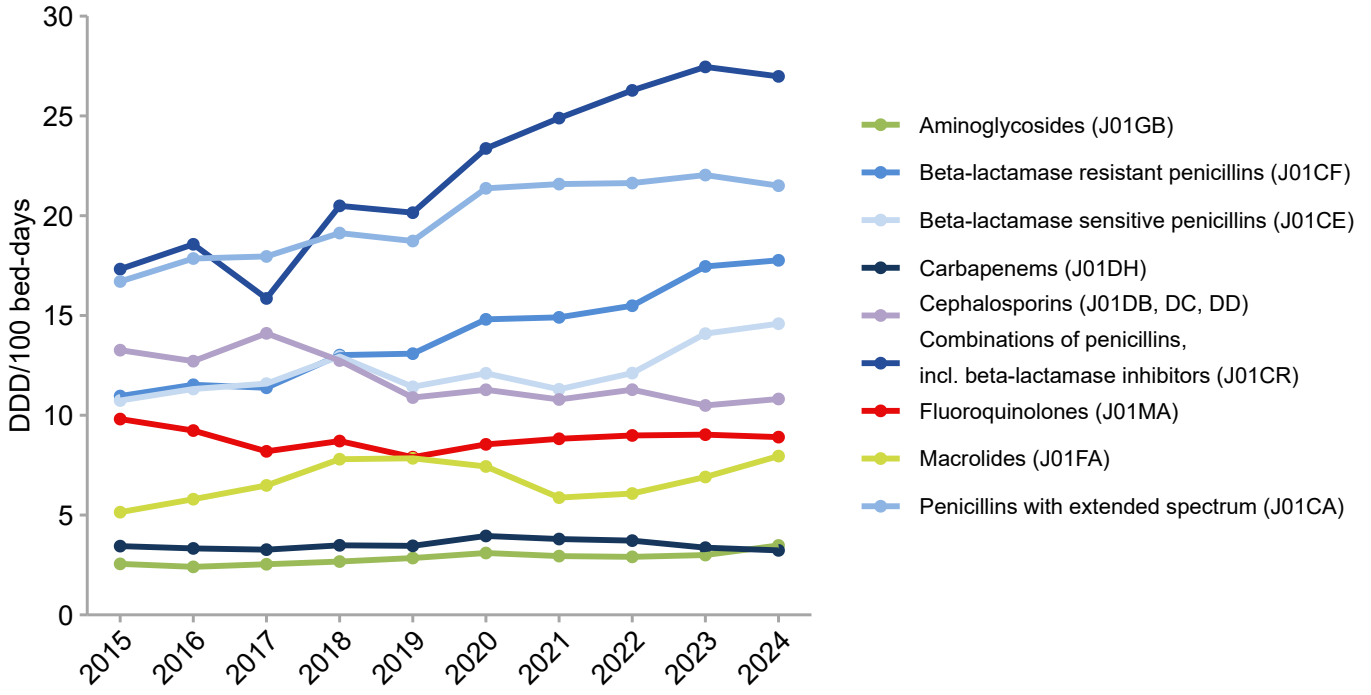
DANMAP 2024



Data source: National Patient Register
Data from the National Patient Register are subject to change due to continous development of the new National Patient Register. This means that data will be continously updated, both prospectively and retrospectively

Figure 5.15 Consumption of leading groups of antimicrobial agents at somatic hospitals, DDD per 100 bed-days, Denmark, 2015-2024

DANMAP 2024



Data: Antimicrobial consumption at somatic hospitals
Data source: Register of Medicinal Product Statistics, the 2025 edition of the Anatomical Therapeutic Chemical (ATC) classification system and The National Patient Register

Table 5.6 Consumption of antimicrobial agents for systemic use in somatic hospitals, DDD per 100 bed-days, Denmark, 2015-2024
DANMAP 2024

ATC group	Therapeutic group	Year									
		2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
J01AA	Tetracyclines	2.14	2.59	2.32	2.95	3.67	3.29	3.42	3.72	4.2	4.46
J01CA	Penicillins with extended spectrum	16.7	17.85	17.96	19.13	18.73	21.37	21.58	21.64	22.04	21.5
J01CE	Beta-lactamase sensitive penicillins	10.74	11.32	11.58	12.94	11.42	12.1	11.3	12.11	14.09	14.59
J01CF	Beta-lactamase resistant penicillins	10.96	11.53	11.38	13.01	13.09	14.81	14.91	15.49	17.46	17.76
J01CR	Comb. of penicillins. incl. beta-lactamase inhibitors	17.32	18.57	15.85	20.49	20.15	23.37	24.89	26.28	27.45	26.98
J01DB	First-generation cephalosporins	0.05	0.05	0.05	0.05	0.03	0.04	0.04	0.03	0.03	0.01
J01DC	Second-generation cephalosporins	11.98	11.39	12.54	11.2	9.47	9.79	9.3	9.64	8.93	9.24
J01DD	Third-generation cephalosporins	1.23	1.27	1.51	1.49	1.39	1.45	1.45	1.61	1.53	1.56
J01DF	Monobactams	0.03	0.01	0.01	0.01	0.01	0.01	0.01	0.02	0.01	0.03
J01DH	Carbapenems	3.44	3.33	3.27	3.48	3.46	3.95	3.8	3.72	3.36	3.23
J01EA	Trimethoprim and derivatives	0.47	0.46	0.47	0.54	0.47	0.55	0.51	0.48	0.45	0.4
J01EB	Short-acting sulfonamides	0.14	0.12	0.12	0.12	0.1	0.08	0.08	0.06	0.05	0.05
J01EE	Comb. of sulfonamides and trimethoprim. incl. derivatives	6.17	6.61	6.36	7.45	7.77	8.85	9.76	10.13	11.18	12
J01FA	Macrolides	5.14	5.79	6.48	7.8	7.84	7.43	5.87	6.08	6.91	7.96
J01FF	Lincosamides	0.67	0.77	0.73	0.95	0.86	0.88	0.83	0.86	1.58	2.66
J01GB	Aminoglycosides	2.55	2.4	2.53	2.67	2.85	3.1	2.94	2.9	3	3.48
J01MA	Fluoroquinolones	9.81	9.23	8.19	8.71	7.9	8.54	8.82	8.99	9.03	8.91
J01XA	Glycopeptides	1.37	1.34	1.49	1.58	1.56	1.82	1.83	1.79	1.66	1.88
J01XB	Polymyxins	0.23	0.24	0.22	0.28	0.26	0.29	0.29	0.3	0.36	0.47
J01XC	Steroid antibacterials (fusidic acid)	0.19	0.14	0.08	0.08	0.07	0.06	0.07	0.05	0.06	0.05
J01XD	Imidazole derivatives	4.98	5.56	5.28	5.39	4.79	5.19	4.81	4.68	4.56	4.42
J01XE	Nitrofuran derivatives (nitrofurantoin)	0.32	0.29	0.29	0.33	0.33	0.42	0.38	0.39	0.46	0.38
J01XX05	Methenamine	0.11	0.1	0.08	0.13	0.09	0.1	0.14	0.13	0.15	0.13
J01XX08	Linezolid	0.52	0.45	0.42	0.65	0.62	0.6	0.61	0.68	0.68	0.72
J01XX09	Daptomycin	0.05	0.06	0.09	0.18	0.08	0.12	0.15	0.14	0.13	0.12
A07AA09	Vancomycin	0.55	0.6	0.59	0.62	0.64	0.81	0.71	0.83	0.87	0.91
P01AB01	Metronidazole	2.37	2.69	2.31	2.42	2.23	2.42	2.34	2.28	2.28	2.27
J01, P01AB01, A07AA09	Antimicrobial agents for systemic use, incl. metronidazole and vancomycin	110.23	114.76	112.2	124.65	119.88	131.44	130.84	135.03	142.51	146.17

Data: Antimicrobial consumption at somatic hospitals
Data source: The Register of Medicinal Product Statistics, the 2025 edition of the Anatomical Therapeutic Chemical (ATC) classification system and National Patient Register

Table 5.7 Consumption of antimicrobial agents for systemic use in somatic hospitals, DDD per 100 admissions, Denmark, 2015-2024
DANMAP 2024

ATC group	Therapeutic group	Year									
		2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
J01AA	Tetracyclines	10.2	11.74	11.33	12.94	16.58	13.74	14.26	15.34	17.2	18.09
J01CA	Penicillins with extended spectrum	79.49	81.01	87.56	83.85	84.67	89.16	90.04	89.29	90.25	87.29
J01CE	Beta-lactamase sensitive penicillins	51.1	51.35	56.48	56.74	51.64	50.49	47.14	49.98	57.7	59.21
J01CF	Beta-lactamase resistant penicillins	52.17	52.3	55.47	57.05	59.15	61.77	62.18	63.91	71.5	72.11
J01CR	Comb. of penicillins. incl. beta-lactamase inhibitors	82.43	84.25	77.3	89.83	91.09	97.5	103.83	108.45	112.44	109.52
J01DB	First-generation cephalosporins	0.25	0.24	0.23	0.21	0.14	0.16	0.15	0.14	0.11	0.05
J01DC	Second-generation cephalosporins	57.02	51.68	61.17	49.1	42.79	40.83	38.8	39.78	36.57	37.5
J01DD	Third-generation cephalosporins	5.84	5.76	7.37	6.54	6.28	6.06	6.06	6.63	6.28	6.35
J01DF	Monobactams	0.15	0.06	0.04	0.03	0.05	0.04	0.03	0.07	0.03	0.13
J01DH	Carbapenems	16.38	15.1	15.92	15.27	15.63	16.49	15.84	15.34	13.78	13.11
J01EA	Trimethoprim and derivatives	2.23	2.09	2.29	2.38	2.1	2.28	2.14	1.99	1.85	1.63
J01EB	Short-acting sulfonamides	0.68	0.56	0.56	0.54	0.46	0.32	0.32	0.25	0.19	0.2
J01EE	Comb. of sulfonamides and trimethoprim. incl. derivatives	29.37	29.99	31.01	32.67	35.13	36.93	40.7	41.79	45.8	48.7
J01FA	Macrolides	24.47	26.29	31.61	34.18	35.46	31.01	24.5	25.09	28.28	32.29
J01FF	Lincosamides	3.21	3.5	3.58	4.16	3.91	3.65	3.47	3.54	6.48	10.81
J01GB	Aminoglycosides	12.15	10.91	12.36	11.7	12.86	12.92	12.28	11.99	12.27	14.12
J01MA	Fluoroquinolones	46.68	41.89	39.94	38.17	35.71	35.63	36.79	37.09	36.98	36.15
J01XA	Glycopeptides	6.5	6.07	7.27	6.91	7.04	7.59	7.65	7.39	6.8	7.63
J01XB	Polymyxins	1.08	1.08	1.07	1.24	1.16	1.21	1.19	1.23	1.46	1.89
J01XC	Steroid antibacterials (fusidic acid)	0.92	0.64	0.37	0.34	0.3	0.27	0.29	0.22	0.23	0.19
J01XD	Imidazole derivatives	23.72	25.25	25.76	23.61	21.66	21.63	20.05	19.31	18.7	17.94
J01XE	Nitrofuran derivatives (nitrofurantoin)	1.51	1.33	1.4	1.47	1.48	1.77	1.57	1.59	1.88	1.53
J01XX05	Methenamine	0.5	0.45	0.4	0.57	0.41	0.43	0.58	0.54	0.63	0.54
J01XX08	Linezolid	2.46	2.04	2.06	2.85	2.8	2.48	2.55	2.81	2.78	2.93
J01XX09	Daptomycin	0.22	0.28	0.45	0.78	0.34	0.49	0.63	0.56	0.54	0.5
A07AA09	Vancomycin	2.64	2.72	2.88	2.7	2.87	3.38	2.95	3.42	3.56	3.68
P01AB01	Metronidazole	11.28	12.2	11.28	10.61	10.1	10.1	9.74	9.4	9.32	9.22
J01, P01AB01, A07AA09	Antimicrobial agents for systemic use, incl. metronidazole and vancomycin	524.65	520.78	547.16	546.44	541.81	548.33	545.73	557.14	583.61	593.31

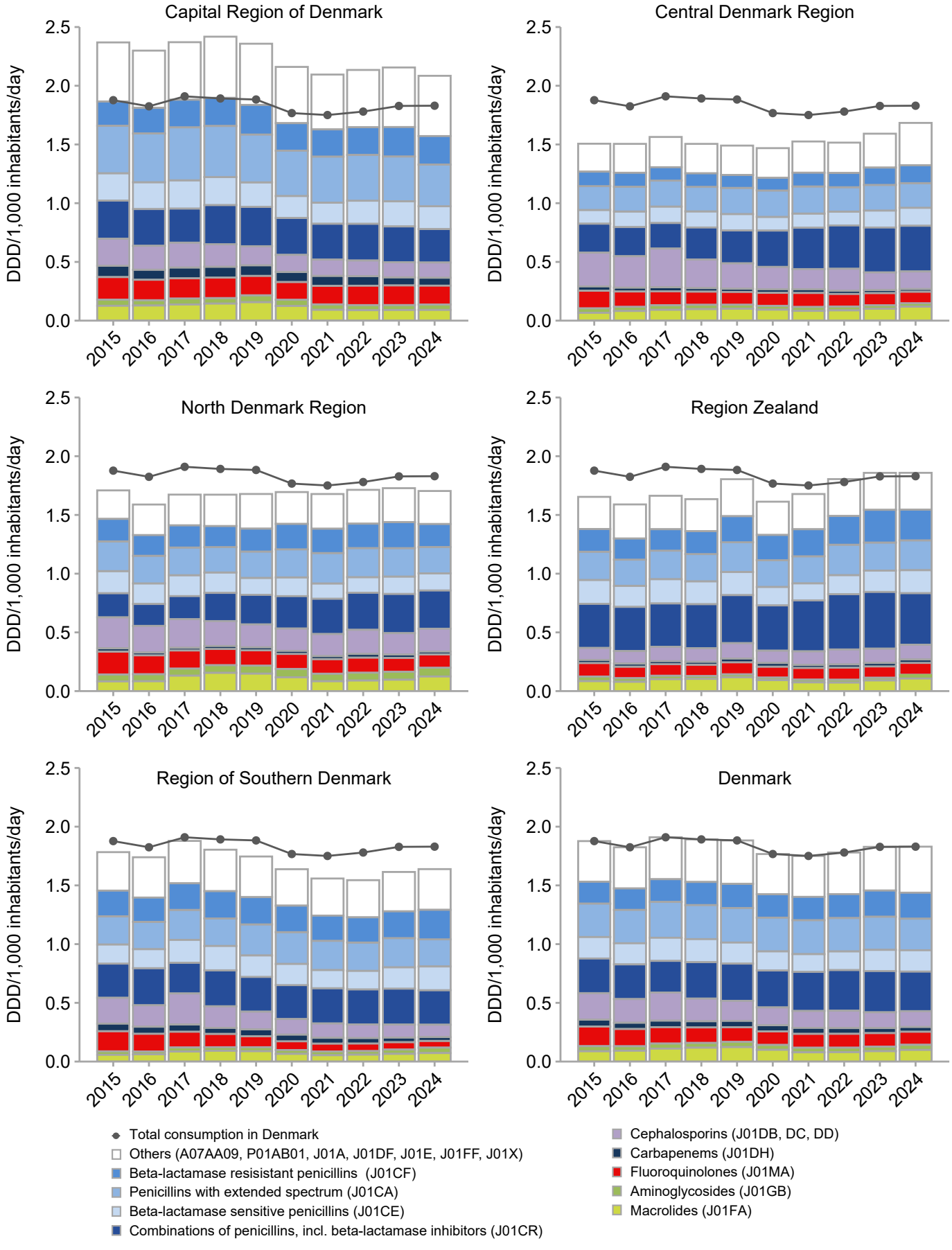
Data: Antimicrobial consumption at somatic hospitals
Data source: The Register of Medicinal Product Statistics, the 2025 edition of the Anatomical Therapeutic Chemical (ATC) classification system and National Patient Register

5.4.2 Antimicrobial consumption at regional level at public somatic hospitals

Trends in hospital consumption at regional level measured in DDD per 100 bed-days are presented in Figure 5.17. The Capital Region of Denmark shows the highest level of consumption when compared to the other regions in 2024. It is also notable that consumption increased for each region over the last decade when measured in DBD (Figure 5.17) but remains almost unchanged over the same period when measured in DID (Figure 5.16). This reflects that hospital activity changed during the years, where more patients are treated in the hospitals, but for shorter time of stay. Thus more antimicrobials were used in relation to hospital patients' bed-days.

Figure 5.16 Consumption of antimicrobial agents for systemic use at hospitals in the five health regions, DDD per 1,000 inhabitants per day, Denmark, 2015-2024

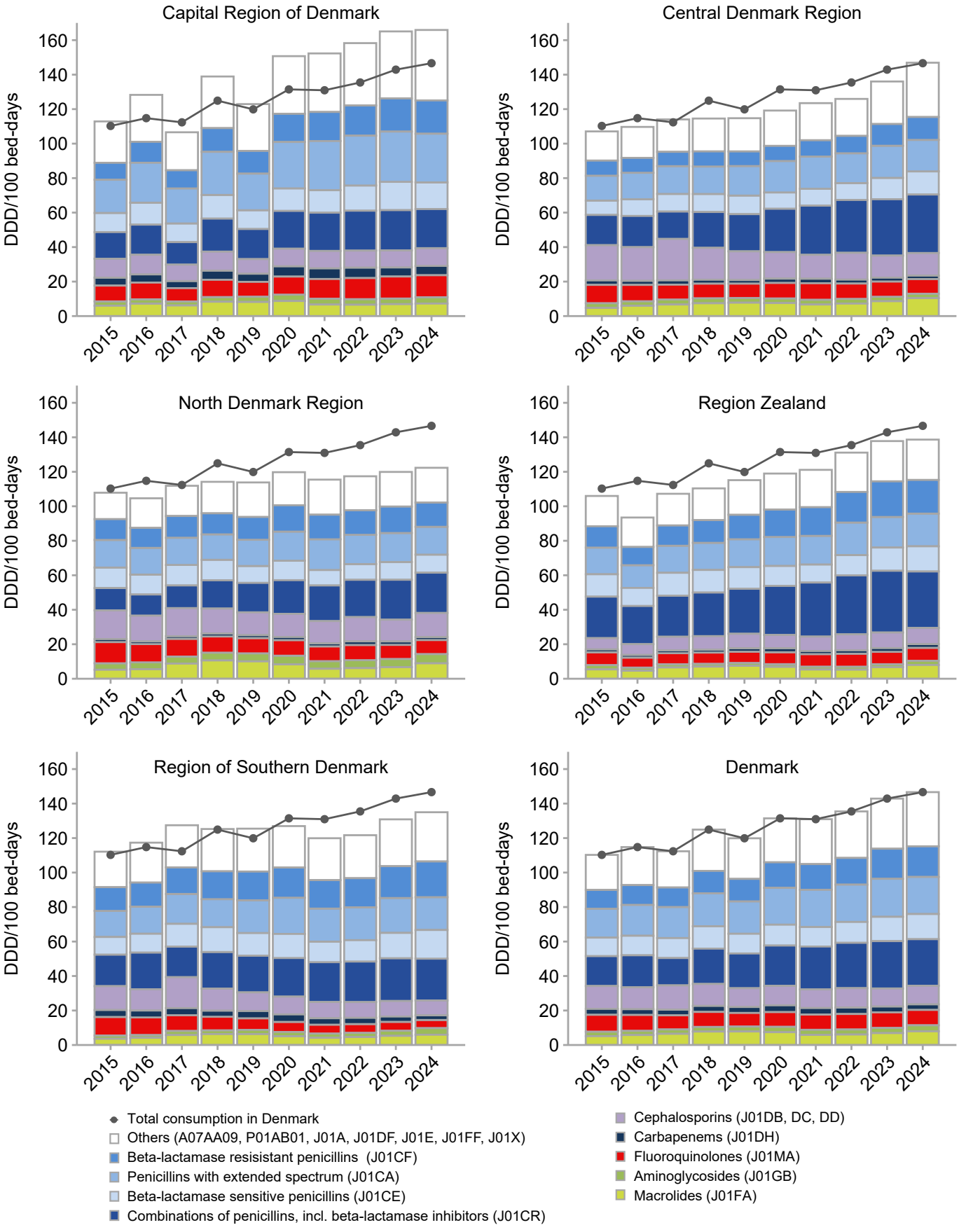
DANMAP 2024



Data: Antimicrobial consumption at somatic hospitals
Data source: Register of Medicinal Product Statistics, and the 2025 edition of the Anatomical Therapeutic Chemical (ATC) classification system

Figure 5.17 Consumption of antimicrobial agents for systemic use at hospitals in the five health regions, DDD per 100 bed-days, Denmark, 2015-2024

DANMAP 2024



Data: Antimicrobial consumption at somatic hospitals
Data source: Register of Medicinal Product Statistics, and the 2025 edition of the Anatomical Therapeutic Chemical (ATC) classification system and National Patient Register

5.4.3 AWaRe classification of antimicrobials at Danish somatic hospitals

The World Health Organization (WHO) has developed the AWaRe classification system as a tool to assist antibiotic stewardship and to reduce antimicrobial resistance. Antibiotics are classified into three groups to emphasise the importance of their appropriate use:

- Access: Antibiotics used to treat common susceptible pathogens with lower resistance potential than antibiotics in the other groups. 60% of total antimicrobial consumption should consist of access agents.
- Watch: Antibiotics that have higher resistance potential, including most of the highest priority agents. These antibiotics should be prioritised as key targets of stewardship programs and monitoring.
- Reserve: Antibiotics reserved for treatment of confirmed or suspected infections due to multi-drug resistant organisms. These antibiotics should be considered as "last resort" options.

Antimicrobial consumption at Danish somatic hospitals has consisted of more than 60% "access antimicrobials" since 2016, and in 2024 the share was 66%. "Reserve antimicrobials" constituted 1% in all years (Figure 5.18).

Several hospitals work with stricter classification of antimicrobials and have set up local criteria for use of certain antimicrobials associated with observed increasing levels of resistance. For instance, amoxicillin and beta-lactamase inhibitor are moved from the access group to watch, and meropenem from watch group to reserve.

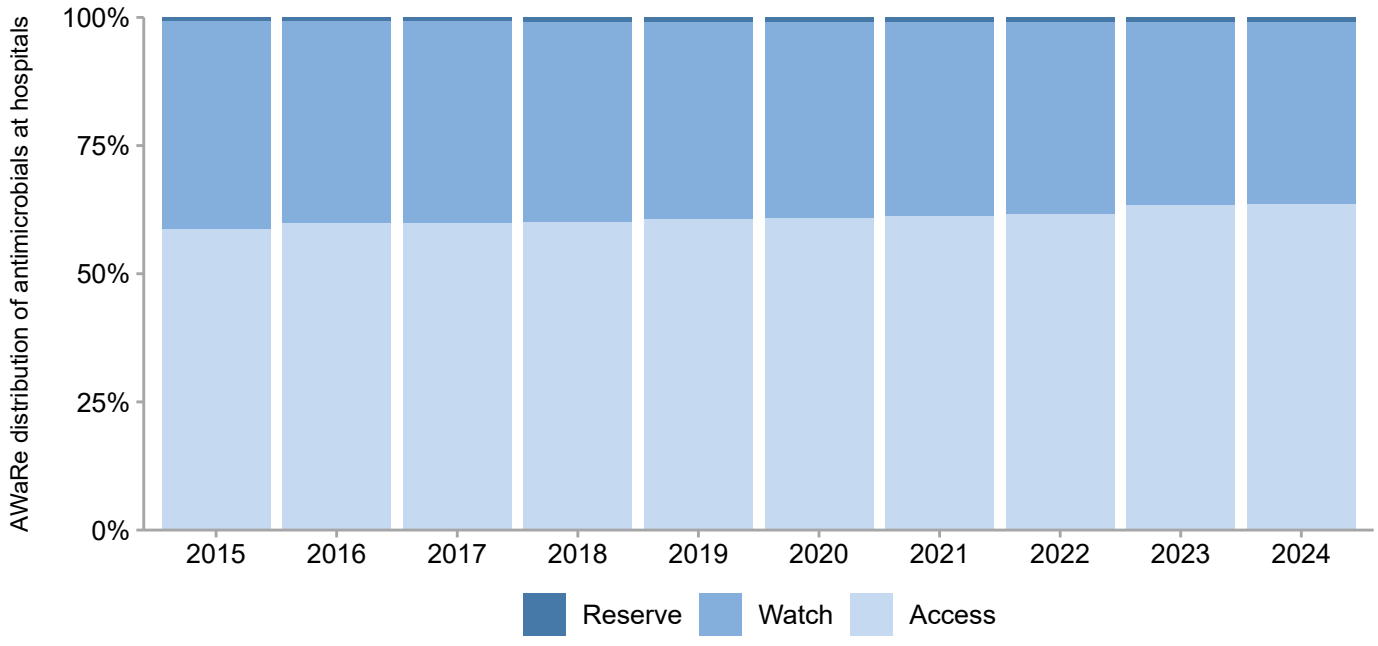
5.4.4 Shortage of antimicrobials

Issues with supply chains of antimicrobials can lead to product shortages. Some shortages do not reach the patient due to the substitution rules in Denmark. Shortages can also be solved by using non-marketed antimicrobials on special delivery, which requires permission from the Danish Medicines Agency.

Consumption of the main antimicrobial groups for treatment of critically ill patients at hospitals from 2015 to 2024 is shown in Figures 5.19. In 2022, penicillin/betalactamase inhibitor combinations decreased sharply in July and August due to product shortages (not shown). However, prescribers had access to penicillin/beta-lactamase inhibitor combinations via special deliveries. Approximately 70,000 DDD penicillin/beta-lactamase inhibitor combinations were purchased through special delivery in 2022, whereas in 2019-2021 the number was approximately 4,000 DDD (not shown).

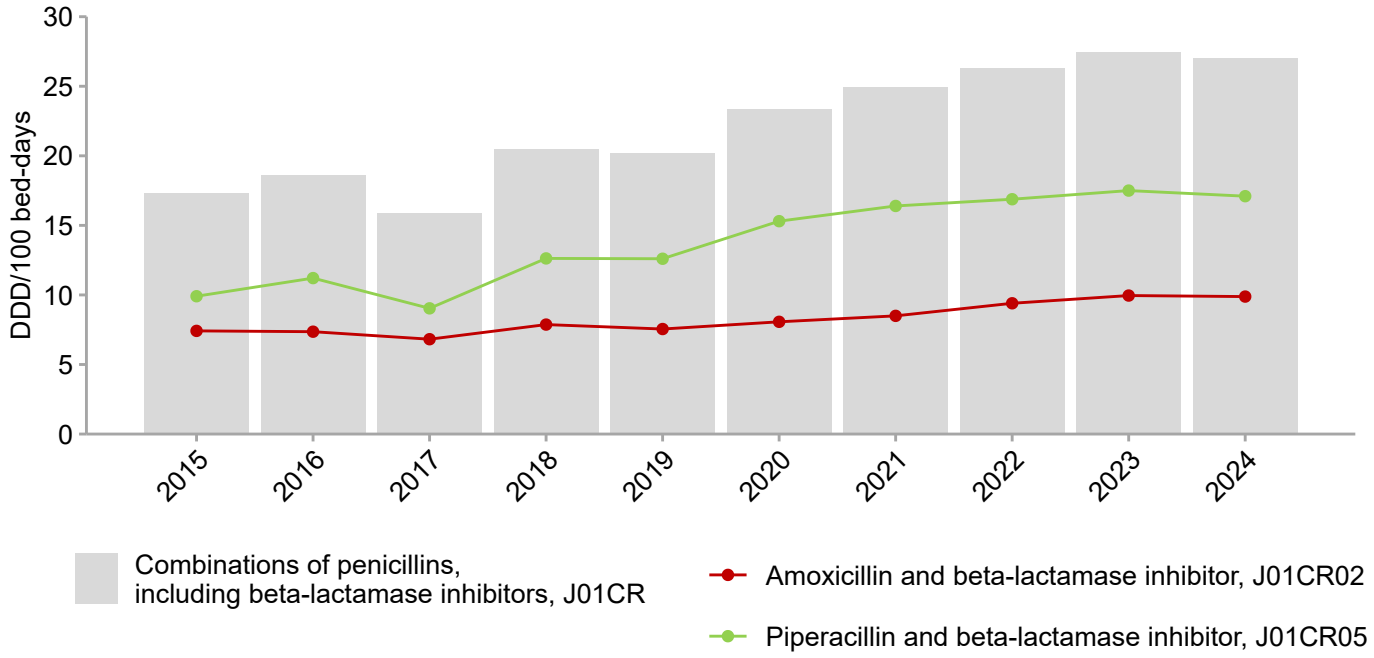
Special deliveries could not solve the shortage of penicillin/beta-lactamase inhibitor combinations in 2017, which led to a significant decrease in consumption that year (Figure 5.19). Simultaneously, an increase in consumption of cephalosporins was observed (Figure 5.15). In 2023, nitrofurantoin was hit by a shortage and even with increased supply via special deliveries, it was not possible to cover the whole need, why other antimicrobials were chosen for treatment. In 2024, metronidazole was one of the most purchased antimicrobials via special deliveries (Table 5.8).

Figure 5.18 Percentage distribution of antimicrobials at somatic hospitals according to WHO AWaRe classification, DDD, Denmark, 2015-2024
DANMAP 2024



Data: Antimicrobial consumption at somatic hospitals
Data source: Register of Medicinal Product Statistics and the 2025 edition of the Anatomical Therapeutic Chemical (ATC) classification system

Figure 5.19 Consumption of combination penicillins at somatic hospitals, DDD per 100 bed-days, Denmark, 2015-2024 DANMAP 2024



Data: Antimicrobial consumption at somatic hospitals
Data source: Register of Medicinal Product Statistics, the 2025 edition of the Anatomical Therapeutic Chemical (ATC) classification system and National Patient Register

Table 5.8 Consumption of selected antimicrobials on special delivery to hospitals, DDD, 2015-2024 DANMAP 2024

Antimicrobial	Year									
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
J01MA12 Levofloxacin	7,240	8,080	8,180	6,710	7,360	20,370	44,200	41,530	45,360	41,875
P01AB01 Metronidazole		175	200		8	80	32	94	10	12,833
J01FA09 Clarithromycin	624	414	1,084							3,022
J01GB01 Tobramycin					6,895	6,840	4,790	3,850	2,620	2,780
J01EE01 Sulfamethoxazole and trimethoprim	6,590	6,703.75	8,188	7,596	7,136	3,094	7,985	2,610	3,760	2,502
J01CF05 Flucloxacillin	2,312	2,275	2,200	1,782	1,790	1,665	1,872	2,540	2,232	2,208
J01MA02 Ciprofloxacin	1,155	1,195	690	766	726	1,028	908	935	890	985
J01FG01 Pristinamycin	60	160	160	200	425	390	466	1,067	533	856
J01AA02 Doxycycline	700	801	252	286	312	227	449	444	341	723
J01AA08 Minocycline					125	500	225	325	275	700

Data: Consumption of antimicrobials on special delivery
Data source: Danish Hospital Pharmacies

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