Australian Atlas of Healthcare Variation 2018: Number of PBS/RPBS prescriptions dispensed for antimicrobials per 100,000 people, 2013-14, 2014-15, 2015-16 and 2016-17

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# Australian Atlas of Healthcare Variation 2018: Number of PBS/RPBS prescriptions dispensed for antimicrobials per 100,000 people, 2013-14, 2014-15, 2015-16 and 2016-17

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| Identifying and definitional attributes |
| Metadata item type: | Indicator |
| Indicator type: | Indicator |
| Short name: | Antimicrobial dispensing, 2013-14, 2014-15, 2015-16 and 2016-17 |
| METEOR identifier: | 709488 |
| Registration status: | [Australian Commission on Safety and Quality in Health Care](https://meteor.aihw.gov.au/RegistrationAuthority/18), Standard 13/12/2018 |
| Description: | Number of PBS/RPBS prescriptions dispensed for antimicrobials per 100,000 people, age-sex standardised.  |
| Indicator set: | [Australian Atlas of Healthcare Variation 2018](https://meteor.aihw.gov.au/content/708955)       [Australian Commission on Safety and Quality in Health Care](https://meteor.aihw.gov.au/RegistrationAuthority/18), Standard 13/12/2018[Australian Atlas of Healthcare Variation: Time Series](https://meteor.aihw.gov.au/content/756164)        [Australian Commission on Safety and Quality in Health Care](https://meteor.aihw.gov.au/RegistrationAuthority/18), Standard 15/09/2022 |

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| Collection and usage attributes |
| Population group age from: | All ages |
| Computation description: | **Inclusion codes, description and additional requirements**

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| Alimentary tract and metabolism |
| **Anatomical Therapeutic Chemical (ATC) Code** | **Description** **(Drug Name)** | **PBS code (Item Code)** | **Comments** |
| A01AB  | AMPHOTERICIN B | 02931G, 03306B | 03306B is a dental code |
| CHLORHEXIDINE | 04161B,04204G | RPBS item.Not included in the specifications used for the Atlas 2015. |
| NYSTATIN | 03033P, 03343Y,10854G | 03033P, 03343Y (Listed 1 Aug 1991 – 31 Dec 2015)10854G (Listed from 1 July 2016 onwards, RPBS) |
| A02BD  | ESOMEPRAZOLE (&) CLARITHROMYCIN (&) AMOXICILLIN | 08738X, 10759G |  10759G (Listed from 1 May 2016 onwards) |
| OMEPRAZOLE (&) CLARITHROMYCIN (&) AMOXICILLIN | 08272J | Delisted after 31 Aug 2014  |
| A07AA | NYSTATIN | 01696G, 01699K, 03342X, 03345C | 03342X, 03345C are dental codes |
| RIFAXIMIN | 10001J | Listed from 1 Dec 2013 onwards |
| VANCOMYCIN | 03113W, 03114X |   |

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| Dermatologicals |
| **Anatomical Therapeutic Chemical (ATC) Code** | **Description** **(Drug Name)** | **PBS code (Item Code)** | **Comments** |
| D01  | AMOROLFINE | 04010C | RPBS |
| CICLOPIROX | 04106D | RPBS. Delisted after 1 Sep 2017. |
| CLOTRIMAZOLE | 04004R | RPBS |
| GRISEOFULVIN | 01460W,02982Y |   |
| KETOCONAZOLE | 01574W, 04007X, 04008Y, 09024Y, 09025B | 04007Y, 04008Y (RPBS) 04008Y (Listed 1 Feb 1998 – 30 Nov 2016) |
| MICONAZOLE | 03400Y, 04341L, 04454K, 09027D, 09028E, 09029F, 09031H | 04341L, 04454K (RPBS. Delisted after 30 Nov 2016)  |
| NYSTATIN | 01698J, 04001N | 04001N (RPBS) |
| TERBINAFINE | 02285G, 02804N, 04011D, 04463X, 04473K, 09160D | 04011D, 04463X, 04473K (RPBS) |
| TOLNAFTATE | 04481W | RPBS  |
| D06AX | MUPIROCIN | 04348W, 04350Y | RPBS only |
| D06BA | SULFADIAZINE SILVER | 09479X |   |
| D11AX | DAPSONE | 01272Y,08801F | Include 01272Y,08801F only |

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| Genitourinary System and Sex Hormones |
| **Anatomical Therapeutic Chemical (ATC) Code** | **Description** **(Drug Name)** | **PBS code (Item Code)** | **Comments** |
| G01AA | NYSTATIN | 04013F | RPBS |
| G01AF | CLOTRIMAZOLE | 04016J, 04017K | RPBS |

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| Antiinfectives for systemic use (antibacterials) |
| **Anatomical Therapeutic Chemical (ATC) Code** | **Description** **(Drug Name)** | **PBS code (Item Code)** | **Comments** |
| J01    | AMOXICILLIN | 01884E, 01886G, 01887H, 01888J, 01889K, 03300Q, 03301R, 03302T, 03310F, 03393N, 05225B, 08581P, 08705E, 09714G |   |
| AMOXICILLIN + CLAVULANIC ACID | 01891M, 01892N, 05006L, 05008N, 05009P, 05011R, 08254K, 08319W |   |
| AMPICILLIN | 02390T, 02977Q, 03313J, 03314K | 03313J, 03314K are dental codes |
| AZITHROMYCIN | 04115N, 05616N, 06221K, 08200N, 08201P, 08336R |   |
| BENZATHINE BENZYLPENICILLIN | 02267H, 05027N | 05027N is a dental code |
| BENZYLPENICILLIN | 01775K, 02647H, 03398W, 03399X, 03486L, 03487M | 03399X is a dental code |
| CEFACLOR | 01169M, 02460L, 02461M, 05045M, 05046N, 05047P |   |
| CEFEPIME | 08315P, 08316Q |   |
| CEFOTAXIME | 01085D, 01086E, 01758M, 01759N, 01768C, 01769D, 05049R, 05048Q,05049R | 01768C, 01769D are dental codes.01086E (Listed 1 Aug 1991 to 31 Dec 2015)05049R (Listed 1 Dec 1994 to 31 Dec 2015) |
| CEFTRIAXONE | 01783W,01784X, 01785Y, 01788D, 09058R | 11169W (Listed from 1 Sep 2017 onwards)  |
| CEFUROXIME | 02002J, 05052X, 05499K, 08292K, 11192C | 11191B, 11192C (Listed from 1 Nov 2017 onwards)   |
| CEPHALEXIN | 02655R, 03058Y, 03094W, 03095X, 03119E, 03317N, 03318P,03319Q, 03320R, 10778G | 10778G (Listed from 1 Jun 2016 onwards) |
| CEPHALOTHIN | 02964B, 03376Q | 03376Q is a dental code |
| CEPHAZOLIN | 01256D, 01257E, 01797N, 01799Q, 05477G, 05478H, 05479J, 09326W |   |
| CIPROFLOXACIN | 01208N, 01209P, 01210Q |   |
| CLARITHROMYCIN | 05624B, 05625C, 06151R, 06152T, 08318T, 09192T | 05625C, 06151R (Listed until 31 Dec 2015) |
| CLINDAMYCIN | 03138E, 05057E | 05057E is a dental code |
| DICLOXACILLIN | 05096F, 05097G, 08121K, 08122L, 10790X | 10790X (Listed from 1 Jun 2016 onwards) |
| DOXYCYCLINE | 01800R, 02702F, 02703G, 02707L, 02708M, 02709N, 02711Q,02714W, 02715X, 03321T, 03322W, 05082L, 09105F, 09106G,09107H, 09108J, 10176N, 10777F,10779H, 10781K | 10176N (Listed from 1 Dec 2014 onwards) 10777F, 10779H, 10781K (Listed from 1 Jun 2016 onwards) |
| ERYTHROMYCIN | 01397M, 01404X, 03325B10780J | 01397M (Listed until 30 Nov 2016)03325B is a dental code.10780J (Listed from 1 Jun 2016 onwards) |
| ERYTHROMYCIN ETHYLSUCCINATE | 02424N, 02428T, 02750R, 03334L, 03336N, 03337P, 10789W | 10789W (Listed from 1 Jun 2016 onwards) |
| ERYTHROMYCIN LACTOBIONATE | 01397M, 05088T | Both delisted after 30 Nov 2016 |
| FLUCLOXACILLIN | 01524F, 01525G, 01526H, 01527J, 05090X, 05091Y, 05094D, 05095E, 05257Q,05258R, 09149M, 09150N, 10605E, 10609J, 10788T | 01524F (Delisted after 31 Dec 2016)05094D (Listed 1 Dec 1994 – 31 Dec 2016)05095E is a dental code.09149M, 09150N (Listed 1 May 2008 – 31 Mar 2016)10605E, 10609J, (Listed from 1 Feb 2016 onwards)10788T (Listed from 1 Jun 2016 onwards) |
| FUSIDATE | 02312Q, 10782L | 10782L (Listed from 1 Jun 2016 onwards) |
| GENTAMICIN | 02824P |   |
| HEXAMINE HIPPURATE | 03124K |   |
| LINCOMYCIN | 02530E, 05144R | 05144R is a dental code |
| METRONIDAZOLE | 01621H, 01630T, 01636D, 01638F, 01642K, 01821W,01832K,02277W, 02298Y, 03339R, 03341W, 05155H, 05157K | 01638F (Listed 1 Aug 1991 – 31 Jul 2014)02277W, 02298Y (Listed 1 Feb 2013 – 31 Dec 2016)   |
| MINOCYCLINE | 01616C |   |
| NITROFURANTOIN | 01692C, 01693D |   |
| NORFLOXACIN | 03010K |   |
| PHENOXYMETHYLPENICILLIN | 01703P, 01705R, 01787C, 01789E, 02965C, 03028J, 03360W, 03361X, 03363B, 03364C, 05012T, 05024K, 05029Q, 08976K, 08977L, 09143F |   |
| PROCAINE PENICILLIN | 01794K, 03371K, 03485K |   |
| ROXITHROMYCIN | 01760P, 05259T, 05260W, 05261X, 08016X, 08129W |   |
| TICARCILLIN + CLAVULANIC ACID | 02179Q, 05230G, 10113G, 10125X | 02179Q, 05230G (Listed 1 Aug 1991 – 31 Jul 2014)10113G, 10125X (Listed from 1 Aug 2014 onwards) |
| TINIDAZOLE | 01465D |   |
| TOBRAMYCIN | 01356J, 05442K, 08872Y,09480Y, 10066T, 10074F |   |
| TRIMETHOPRIM | 02666H, 02922T, 10785P | 10785P (Listed from 1 Jun 2016 onwards) |
| TRIMETHOPRIM + SULFAMETHOXAZOLE | 02951H, 03103H, 03390K, 03391L, 10784N | 10784N (Listed from 1 Jun 2016 onwards) |
| VANCOMYCIN | 02269K, 02270L, 03130R, 03131T, 03323X, 05083M |   |
| J02AC | FLUCONAZOLE | 01471K, 01472L, 01473M, 01474N, 01475P,01757L, 05446P | 11139G (Out of scope, listed from 1 Jul 2017 onwards) |
| ITRACONAZOLE | 08196J, 10732W | 10732W (Listed from 1 Apr 2016 onwards) |
| POSACONAZOLE | 09360P, 10460M | 10460M (Listed from 1 Sep 2015 onwards) |
| VORICONAZOLE | 09363T, 09364W, 09452L, 10168E, 10173K, 10198R | 10168E, 10173K, 10198R (Listed from 1 Dec 2014 onwards) |
| J04AB | RIFABUTIN | 06195C, 09541E |   |
| J04AC | ISONIAZID | 01554T | Not included in the specifications used for the Atlas 2015 |
| J04BA | DAPSONE | 01272Y |   |
| RIFAMPICIN | 01981G, 01982H, 01983J, 01984K, 08025J |   |

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| Respiratory |
| **Anatomical Therapeutic Chemical (ATC) Code**  | **Description** **(Drug Name)** | **PBS code (Item Code)** | **Comments** |
| R01AX06 | MUPIROCIN | 09440W |   |

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| Sensory (Ophthalmologicals & Otologicals) |
| **Anatomical Therapeutic Chemical (ATC) Code**  | **Description** **(Drug Name)** | **PBS code (Item Code)** | **Comments** |
| S01AA | CHLORAMPHENICOL | 01171P, 02360F, 05055C, 05511C, 05512D, 11112W | 01171P, 02360F, 05055C, 05511C, 05512D (Delisted after 31 Dec 2015)11112W (Listed from 1 May 2017 onwards) |
| GENTAMICIN | 01441W, 05566Y |   |
| TOBRAMYCIN | 02328M, 02329N, 05569D, 05570E |   |
| S01AE  | CIPROFLOXACIN | 01217C, 02480M, 05564W |   |
| OFLOXACIN | 05567B, 08383F |   |
| S02AA01 | CHLORAMPHENICOL | 01172Q | Include 01172Q only (Listed 1 Aug 1991 – 31 May 2015) |
| S02AA15 | CIPROFLOXACIN | 02480M |   |
| S02CA  | TRIAMCINOLONE + NEOMYCIN SULFATE + GRAMICIDIN + NYSTATIN | 02971J, 02974M |   |
| DEXAMETHASONE + FRAMYCETIN SULFATE + GRAMICIDIN | 02781J |   |
| S03AA | FRAMYCETIN SULFATE | 01440T, 05557L |   |

  Presented as the following rates: number of prescriptions per 100,000 peoplenumber of patients per 100,000 peoplenumber of definded daily doses (DDD) per 1,000 people per dayRates are directly age-sex standardised, to the 2001 Australian population, using 5-year age groups: 0-4, 5-9, … , 80-84, 85 and over.For more information about age-standardisation in general see [/content/index.phtml/itemId/327276](https://meteor.aihw.gov.au/content/327276) A patient’s age is calculated in years as the difference between the patient’s date of birth and date of supply for the prescription. Date of birth and sex are as reported on a patient’s last prescription for any drug, extracted on 18/04/2018.Prescriptions are allocated to a financial year based on the date the medicine was supplied to the patient. For example for 2016–17, the date of supply is between 1 July 2016 and 30 June 2017.  Analysis by Statistical Area Level 3 (SA3) 2016 is based on the patient's enrolment postcode as last reported by the patient to Medicare, valid at date of supply. Suppress data (number and rate) if at least one of the following conditions are met: the total denominator is less than 1,000the total numerator is less than 20.Age-sex standardised rates are also suppressed where the denominator for at least one of the age-sex groups used to calculate the rate is below 30 and results of sensitivity analysis indicate that the rates are volatile. However, for SA3 data, if the volatility of the rate is not found to have a material impact on its decile, the rate is published with caution. For more information about the sensitivity analysis, see the [Technical supplement of the Third Atlas.](https://www.safetyandquality.gov.au/wp-content/uploads/2018/12/Text-Technical-supplement.pdf) |
| Computation: |       (a), (b)  [Numerator ÷ Denominator] x 100,000       (c) ([Numerator x 1,000] ÷ [Denominator x 365]) |
| Numerator: | For 2013-14, 2014-15, 2015-16 and 2016-17:Number of antimicrobial prescriptions dispensedNumber of patients dispensed at least one antimicrobial prescriptionNumber of DDD of antimicrobial medicines dispensed [mass amount x quantity dispensed ÷ DDD amount] |
| Numerator data elements: | **Data Element / Data Set****Data Element** Pharmaceutical Benefits Scheme (PBS) prescription—mass amount, N(14.5)PBS and RPBS data 2013-14, 2014-15, 2015-16 and 2016-17 extracted on 30/04/2018 **Data Element / Data Set****Data Element** Pharmaceutical Benefits Scheme (PBS) prescription—Anatomical Therapeutic Chemical (ATC) code, ANN(AANN)PBS and RPBS data 2013-14, 2014-15, 2015-16 and 2016-17 extracted on 30/04/2018 **Data Element / Data Set****Data Element** **Data Element / Data Set**Defined daily dose amount, N(3.3)**Data Source**WHO Collaborating Centre for Drug Statistics Methodology **Data Element / Data Set**[Person—date of birth, DDMMYYYY](https://meteor.aihw.gov.au/content/287007)**Data Element / Data Set**[Pharmaceutical Benefits Scheme (PBS) prescription—PBS item prescribed, code NN[NNN]A](https://meteor.aihw.gov.au/content/600778)**Data Element / Data Set**[Pharmaceutical Benefits Scheme (PBS) prescription—patient identifier, identifier N(9)](https://meteor.aihw.gov.au/content/601236)**Data Element / Data Set**[Pharmaceutical Benefits Scheme (PBS) prescription—quantity of PBS item supplied, total number N[NNN]](https://meteor.aihw.gov.au/content/601876)**Guide for use** Data source type: Administrative by-product data **Data Element / Data Set**[Person—sex, code A](https://meteor.aihw.gov.au/content/602450)**Data Element / Data Set**[Pharmaceutical Benefits Scheme (PBS) prescription—date of supply, DDMMYYYY](https://meteor.aihw.gov.au/content/602767) |
| Denominator: | As at 30 June 2013, 2014, 2015 and 2016:(a), (b), (c)  Total population |
| Denominator data elements: | **Data Element / Data Set**[Person—estimated resident population of Australia, total people N[N(7)]](https://meteor.aihw.gov.au/content/388656)**Data Source**[ABS Australian Demographic Statistics](https://meteor.aihw.gov.au/content/657459)**Guide for use** Data source type: Census based plus administrative by-product data  |
| Disaggregation: | Data are disaggregated by individual year.(a) SA3 2016 by:• remoteness (ASGS Remoteness structure 2016) and Socio-Economic Indexes for Areas (SEIFA 2016) Index of Relative Socioeconomic Disadvantage (IRSD 2016)Primary Health Network (PHN) 2017State and territory(b) State and terriroty(c) State and territory  |
| Disaggregation data elements: | **Data Element / Data Set****Data Element** Address—statistical area, level 3 (SA3) code (ASGS 2016) NNNNN **Guide for use**   **Data Element / Data Set**[Address—Australian postcode, code (Postcode datafile) NNNN](https://meteor.aihw.gov.au/content/611398)**Guide for use** GPO postcodes 2001, 2124, 3001, 4001, 5001, 6843 excluded from the SA3 analysis but included in state/territory and national level analysis.Data source type: Administrative by-product dataUsed for disaggregation by Statistical Area Level 3.  |
| Representational attributes |
| Representation class: | Rate |
| Data type: | Integer |
| Unit of measure: | Service event |
| Format: | NN[NNNN]  |
| Data source attributes |
| Data sources: | **Data Source**[ABS Australian Demographic Statistics](https://meteor.aihw.gov.au/content/657459)**Frequency**Quarterly**Data custodian** Australian Bureau of Statistics  |
| Accountability attributes |
| Methodology: | Statistical Area Level 3 (SA3s) are geographic areas defined in the ABS Australian Statistical Geography Standard (ASGS). The aim of SA3s is to create a standard framework for the analysis of ABS data at the regional level through clustering groups of SA2s that have similar regional characteristics. There are 340 spatial SA3s covering the whole of Australia without gaps or overlaps. They are designed to provide a regional breakdown of Australia. SA3s generally have a population of between 30,000 and 130,000 people. There are approximately 78 with fewer than 30,000 people and 46 with more than 130,000 as at 30 June 2016. The Other Territories of Jervis Bay, Cocos (Keeling) Islands, Christmas Island and Norfolk Island are each represented by a SA3 in the 2016 ASGS. For further information see the ABS publication, Population by Age and Sex, Regions of Australia, 2016. ABS. cat. no. 3235.0.The Anatomical Therapeutic Chemical (ATC) code is recommended by the World Health Organization (WHO) as an internationally accepted classification for presenting and comparing drug usage data. Since 1982, the WHO Collaborating Centre for Drug Statistics Methodology (WHOCC), located in Norway, has been the central body responsible for coordinating ATC use. Note that the ATC codes used in this specification are from the Australian Department of Health’s version of the WHO ATC classifications, which have some minor differences from the WHO version, based upon a particular drug’s usage in Australia. The Department of Health’s ATC version is available at <http://www.pbs.gov.au/browse/body-system>Further information on DDD/1,000/day is available at [http://www.who.int/medicines/regulation/medicines-safety/toolkit\_indicators/en/index1.html.](http://www.who.int/medicines/regulation/medicines-safety/toolkit_indicators/en/index1.html)DDD amounts are available at <https://www.whocc.no/atc_ddd_index/>  |
| Reporting requirements: | Australian Commission on Safety and Quality in Health Care*The Third Australian Atlas of Healthcare Variation 2018* |
| Organisation responsible for providing data: | Australian Institute of Health and Welfare |
| Accountability: | Australian Commission on Safety and Quality in Health Care |
| Release date: | 11/12/2018 |
| Source and reference attributes |
| Submitting organisation: | Australian Commission on Safety and Quality in Health Care |
| Relational attributes  |
| Related metadata references: | See also [Number of PBS/RPBS prescriptions dispensed for antimicrobials per 100,000 people, 2017-18](https://meteor.aihw.gov.au/content/723543)       [Australian Commission on Safety and Quality in Health Care](https://meteor.aihw.gov.au/RegistrationAuthority/18), Standard 22/09/2020 |