

Supplementary Table S1. Major classes of antibiotics using the Anatomical Therapeutic Chemical (ATC) classification, WHO AWaRe classification and most common indication for use

| Class | Oral antibiotics | WHO AWaRe classification* | Most common indication for use# |
|---|---|---------------------------|---------------------------------|
| J01A – Tetracyclines | J01AA01 - Demeclocycline | Watch | Other |
| | J01AA02 - Doxycycline | Access | |
| | J01AA07 - Tetracycline | Access | |
| | J01AA08 - Minocycline | Watch | |
| J01C – Beta-lactam antibacterials, penicillins | J01CA01 - Ampicillin | Access | Respiratory tract infections |
| | J01CA04 - Amoxicillin | Access | |
| | J01CE02 - Phenoxymethylenicillin | Access | |
| | J01CF02 - Cloxacillin | Access | |
| | J01CR02 - Amoxicillin and enzyme inhibitor | Access | |
| J01D – Other beta-lactam antibacterials | J01DB01 - Cephalexin | Access | Skin and soft tissue infections |
| | J01DB05 - Cefadroxil | Access | |
| | J01DC02 - Cefuroxime | Watch | |
| | J01DC04 - Cefaclor | Watch | |
| | J01DC10 - Cefprozil | Watch | |
| | J01DD08 - Cefixime | Watch | |
| J01E – Sulfonamides and Trimethoprim | J01EA01 - Trimethoprim | Access | Urinary tract infections |
| | J01EE01 - Sulfamethoxazole and trimethoprim | Access | |
| J01F – Macrolides, Lincosamides and Streptogramins | J01FA01 - Erytromycin | Watch | Respiratory tract infections |
| | J01FA02 - Spiramycin | Watch | |
| | J01FA09 - Clarithromycin | Watch | |
| | J01FA10 - Azithromycin | Watch | |
| | J01FF01 - Clindamycin | Access | Skin and soft tissue infections |
| J01M – Quinolone antibacterials | J01MA01 - Ofloxacin | Watch | Urinary tract infections |
| | J01MA02 - Ciprofloxacin | Watch | |
| | J01MA06 - Norfloxacin | Watch | |
| | J01MA12 - Levofloxacin | Watch | |
| | J01MA14 - Moxifloxacin | Watch | Respiratory tract infections |
| | | | |
| J01X – Other antibacterials | J01XC01 - Fusidic acid | Watch | Other |
| | J01XD01 - Metronidazole | Access | |
| | J01XE01 - Nitrofurantoin | Access | |
| | J01XX01 - Fosfomycin | Watch | |
| | J01XX08 - Linezolid | Reserve | |

* 2021 AWaRe classification: WHO access, watch, reserve, classification of antibiotics for evaluation and monitoring of use. WHO reference number: WHO/HMP/HPS/EML/2021.04

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Supplementary Table S2. Sensitivity analysis 1 – Interrupted time series analysis showing the change in weekly oral antibiotic prescription rate per 1,000 LTCF residents after March 2020 in long-term care facilities in Alberta and Ontario, Canada; modeling a gradual increase of the step function in 2 weeks (week 10 and 11 of 2020)

| | | Alberta | | | | | | | Ontario | | | | | | |
|----------------------------|----------------------------------|------------------------|-------------|-------------------------|--------------|--------------|---------------------|---------|------------------------|-------------|---------------------|--------------|--------------|---------------------|---------|
| Prescription rate category | | Model parameters * | Step change | 95% CI | p-value | Slope change | 95% CI | p-value | Model parameters * | Step change | 95% CI | p-value | Slope change | 95% CI | p-value |
| Overall | | (0,1,2) (1,0,0)[52] | -3.6526 | -6.5143 – -0.7908 | 0.012 | 0.0166 | -0.1117 – 0.1449 | 0.800 | (0,1,1) (0,1,1)[52] | -1.2889 | -3.6701 – 1.0923 | 0.289 | 0.0167 | -0.1004 – 0.1338 | 0.780 |
| Sex | Females | (1,1,1) (0,0,1)[52] | -3.6470 | -6.7484 – -0.5457 | 0.021 | 0.0074 | -0.0986 – 0.1135 | 0.891 | (0,1,1) (0,1,1)[52] | -1.4341 | -4.0618 – 1.1936 | 0.285 | 0.0220 | -0.1089 – 0.1529 | 0.742 |
| | Males | (1,0,1) (1,0,0)[52] | -2.0920 | -5.1167 – 0.9327 | 0.175 | 0.0380 | -0.0712 – 0.1473 | 0.495 | (0,1,1) (0,1,1)[52] | -1.2521 | -3.6842 – 1.1800 | 0.313 | 0.0120 | -0.0799 – 0.1039 | 0.798 |
| Age | 65-69 | ARIMA (0,0,0) | 0.0461 | -2.8305 – 2.9226 | 0.975 | 0.0462 | -0.0601 – 0.1525 | 0.395 | ARIMA (2,0,3) | 1.7147 | -2.5466 – 5.9759 | 0.430 | -0.1415 | -0.3091 – 0.0261 | 0.130 |
| | 70-74 | ARIMA (0,0,5) | -2.0434 | -5.3127 – 1.2260 | 0.221 | 0.0794 | -0.0408 – 0.1996 | 0.196 | (0,1,1) (1,0,0)[52] | -2.1006 | -4.7971 – 0.5959 | 0.127 | -0.0032 | -0.1051 – 0.0988 | 0.951 |
| | 75-79 | ARIMA (0,1,1) | -1.6438 | -4.8179 – 1.5302 | 0.310 | -0.0977 | -0.2104 – 0.0149 | 0.089 | (0,1,2) (1,0,0)[52] | -3.5209 | -6.3478 – 0.6940 | 0.015 | 0.0089 | -0.0969 – 0.1147 | 0.869 |
| | 80-84 | (0,1,1) (1,0,0)[52] | -3.6036 | -7.1481 – 0.0592 | 0.046 | -0.0191 | -0.1516 – 0.1134 | 0.777 | (0,1,1) (0,1,1)[52] | -2.0959 | -4.4720 – 0.2803 | 0.084 | -0.0112 | -0.1032 – 0.0808 | 0.811 |
| | 85-89 | ARIMA (1,0,1) | -3.0476 | -6.4634 – 0.3682 | 0.080 | 0.0474 | -0.0770 – 0.1718 | 0.455 | (0,1,1) (1,0,0)[52] | -1.0162 | -4.8450 – 2.8126 | 0.603 | 0.0084 | -0.2070 – 0.2237 | 0.939 |
| | 90+ | (1,0,1) (1,0,0)[52] | -1.6776 | -5.3246 – 1.9694 | 0.367 | 0.0309 | -0.0986 – 0.1603 | 0.640 | (0,1,1) (0,1,1)[52] | -0.6929 | -3.5748 – 2.1890 | 0.637 | 0.0232 | -0.1129 – 0.1594 | 0.738 |
| ATC Class | J01A – Tetracyclines | ARIMA (1,0,1) | 0.0198 | -0.5600 – 0.5996 | 0.947 | -0.0019 | -0.0231 – 0.0192 | 0.857 | (0,1,2) (1,0,0)[52] | -0.1568 | -0.3380 – 0.0244 | 0.090 | -0.0071 | -0.0143 – 0.0002 | 0.057 |
| | J01C – Beta-lactams | (1,1,2) (0,0,1)[52] | -1.2648 | -2.1564 – 0.3732 | 0.005 | 0.0095 | -0.0194 – 0.0384 | 0.519 | (0,1,1) (0,1,1)[52] | -1.0490 | -1.7486 – 0.3494 | 0.003 | 0.0056 | -0.0216 – 0.0328 | 0.687 |
| | J01D – Other beta-lactams | ARIMA (0,1,1) | -0.8172 | -1.4639 – 0.1706 | 0.013 | 0.0150 | -0.0072 – 0.0372 | 0.185 | (1,1,3) (1,0,0)[52] | -0.7221 | -1.1664 – 0.2777 | 0.001 | 0.0061 | -0.0158 – 0.0280 | 0.588 |

| | | | | | | | | | | | | | | | |
|------------------------|---|------------------------|-------------------------|-------------------------|--------------|---------|-------------------------|--------------|------------------------|---------|-------------------------|--------------|---------|---------------------|--------------|
| | J01E – Sulfonamides and trimethoprim | ARIMA (0,0,0) | 0.2613 – 0.5885 | -0.0659 – 0.5885 | 0.118 | -0.0125 | -0.0246 – -0.0004 | 0.042 | (0,1,1) (0,0,1)[52] | 0.2651 | -0.0274 – 0.5576 | 0.076 | 0.0030 | -0.0068 – 0.0128 | 0.546 |
| | J01F – Macrolides, lincosamides and streptogramins | (1,0,1) (0,0,1)[52] | -0.1959 – 0.1318 | -0.5236 – 0.1318 | 0.241 | 0.0038 | -0.0081 – 0.0157 | 0.532 | (0,1,1) (1,0,0)[52] | 0.3795 | -0.2521 – 1.0111 | 0.239 | -0.0175 | -0.0592 – 0.0242 | 0.410 |
| | J01M – Quinolones | (1,0,1) (0,0,1)[52] | -0.5902 – 0.0547 | -1.2351 – 0.0547 | 0.073 | 0.0038 | -0.0214 – 0.0252 | 0.873 | (0,1,1) (1,1,0)[52] | 0.4008 | -0.7070 – 1.5086 | 0.478 | 0.0059 | -0.0571 – 0.0689 | 0.854 |
| | J01X – Other antibacterials | ARIMA (0,0,2) | 0.2704 – 0.6167 | -0.0759 – 0.6167 | 0.126 | 0.0011 | -0.0158 – 0.0139 | 0.860 | (1,0,1) (1,0,0)[52] | 0.3651 | -0.1190 – 0.8493 | 0.139 | 0.0107 | -0.0053 – 0.0267 | 0.190 |
| Individual antibiotics | Amoxicillin | (1,1,2) (0,0,1)[52] | -0.6254 – -0.1835 | -1.0672 – -0.1835 | 0.006 | 0.0036 | -0.0114 – 0.0185 | 0.639 | (0,1,2) (1,0,1)[52] | -0.7425 | -1.0118 – -0.4732 | <0.001 | 0.0094 | -0.0009 – 0.0197 | 0.075 |
| | Amoxicillin/clavulanic acid | ARIMA (1,0,1) | -0.3719 – 0.2372 | -0.9810 – 0.2372 | 0.231 | 0.0036 | -0.0186 – 0.0258 | 0.752 | (0,1,1) (1,1,0)[52] | 0.0145 | -0.6100 – 0.6391 | 0.964 | -0.0163 | -0.0468 – 0.0143 | 0.298 |
| | Azithromycin | (1,0,1) (0,0,1)[52] | -0.2325 – 0.1003 | -0.5653 – 0.1003 | 0.171 | 0.0066 | -0.0055 – 0.0188 | 0.284 | (0,1,1) (0,1,1)[52] | 0.6010 | 0.1096 – 1.0924 | 0.017 | -0.0160 | -0.0455 – 0.0135 | 0.289 |
| | Cephalexin | ARIMA (0,1,1) | -0.6144 – -0.0973 | -1.1316 – -0.0973 | 0.020 | 0.0106 | -0.0065 – 0.0277 | 0.224 | (2,0,2) (1,0,0)[52] | -0.3916 | -0.7239 – -0.0593 | 0.021 | 0.0119 | 0.0002 – 0.0236 | 0.046 |
| | Clarithromycin | | | | | | | | ARIMA (2,1,3) | -0.0038 | -0.1190 – 0.1114 | 0.948 | -0.0029 | -0.0090 – 0.0032 | 0.345 |
| | Doxycycline | ARIMA (1,1,1) | -0.2101 – 0.4420 | -0.8622 – 0.4420 | 0.528 | -0.0011 | -0.0314 – 0.0293 | 0.945 | (1,1,1) (0,0,1)[52] | -0.1657 | -0.3232 – -0.0082 | 0.039 | -0.0074 | -0.0135 – 0.0014 | 0.016 |
| | Fosfomycin | | | | | | | | (0,1,1) (1,0,0)[52] | 0.0141 | -0.2451 – 0.2733 | 0.915 | -0.0058 | -0.0159 – 0.0043 | 0.263 |
| | Nitrofurantoin | ARIMA (2,0,2) | 0.3356 – 0.6435 | 0.0277 – 0.6435 | 0.033 | -0.0045 | -0.0159 – 0.0068 | 0.432 | (0,1,1) (1,0,0)[52] | -0.0438 | -0.4398 – 0.3522 | 0.828 | 0.0135 | -0.0015 – 0.0285 | 0.078 |
| | Penicillin | | | | | | | | ARIMA (0,1,1) | -0.0348 | -0.0623 – -0.0073 | 0.013 | 0.0009 | -0.0001 – 0.0018 | 0.077 |

Bold: p-value < 0.05

* Model parameters are displayed as 'SARIMA (p,d,q) (P,D,Q)S'. If no seasonality was present, the model is presented as: ARIMA(p,d,q)

No results are shown for clarithromycin, fosfomycin and penicillin in Alberta to preserve subject anonymity, as the number of dispensations was on average less than 5 per week

LTCF: Long-term care facility; SARIMA: seasonal autoregressive integrated moving average; ARIMA: autoregressive integrated moving average; 95% CI: 95% Confidence interval;

ATC: Anatomical Therapeutic Chemical Classification

Supplementary Table S3. Sensitivity analysis 2 – Interrupted time series analysis showing the change in weekly oral antibiotic prescription rate per 1,000 LTCF residents after March 2020 in long-term care facilities in Alberta and Ontario, Canada; modeling a sudden increase of the step function in week 10 of 2020

| | | Alberta | | | | | | | Ontario | | | | | | |
|----------------------------|----------------------------------|------------------------|-------------|-------------------------|--------------|--------------|-------------------------|--------------|------------------------|-------------|-------------------------|--------------|--------------|-------------------------|--------------|
| Prescription rate category | | Model parameters * | Step change | 95% CI | p-value | Slope change | 95% CI | p-value | Model parameters * | Step change | 95% CI | p-value | Slope change | 95% CI | p-value |
| Overall | | (0,1,2) (1,0,0)[52] | -3.0048 | -5.6099 – -0.3998 | 0.024 | 0.0003 | -0.1276 – 0.1281 | 0.997 | (0,1,1) (0,1,1)[52] | -0.3289 | -2.5284 – 1.8706 | 0.769 | -0.0005 | -0.1198 – 0.1189 | 0.994 |
| Sex | Females | (1,1,1) (0,0,1)[52] | -3.0499 | -5.8147 – -0.2851 | 0.031 | -0.0069 | -0.1050 – 0.1281 | 0.890 | (0,1,1) (0,1,1)[52] | -0.2921 | -2.7141 – 2.1300 | 0.813 | 0.0016 | -0.1321 – 0.1353 | 0.981 |
| | Males | (1,0,1) (1,0,0)[52] | -1.6764 | -4.4224 – 1.0696 | 0.231 | 0.0252 | -0.0771 – 0.1276 | 0.629 | (0,1,1) (0,1,1)[52] | -0.7303 | -3.0883 – 1.6278 | 0.544 | 0.0022 | -0.0923 – 0.0967 | 0.964 |
| Age | 65-69 | ARIMA (0,0,0) | -0.0018 | -2.6932 – 2.6896 | 0.999 | 0.0477 | -0.0533 – 0.1487 | 0.354 | (1,0,2) (1,0,0)[52] | -0.4722 | -4.1175 – 3.1732 | 0.800 | -0.0749 | -0.2094 – 0.0596 | 0.275 |
| | 70-74 | ARIMA (0,0,5) | -1.3519 | -4.4327 – 1.7290 | 0.390 | 0.0575 | -0.0575 – 0.1725 | 0.327 | (0,1,1) (1,0,0)[52] | -1.8079 | -4.3234 – 0.7076 | 0.159 | -0.0112 | -0.1101 – 0.0878 | 0.825 |
| | 75-79 | ARIMA (0,1,1) | -1.0712 | -4.0428 – 1.9005 | 0.480 | -0.1117 | -0.2199 – -0.0034 | 0.043 | (0,1,2) (1,0,0)[52] | -3.1005 | -5.7110 – -0.4901 | 0.020 | -0.0036 | -0.1074 – 0.1001 | 0.945 |
| | 80-84 | (0,1,1) (1,0,0)[52] | -3.6762 | -7.0230 – 0.3294 | 0.031 | -0.0230 | -0.1533 – 0.1073 | 0.730 | (0,1,1) (1,1,0)[52] | -1.5831 | -3.9175 – 0.7513 | 0.184 | -0.0225 | -0.1166 – 0.0717 | 0.640 |
| | 85-89 | ARIMA (1,0,1) | -2.8152 | -5.9635 – 0.3332 | 0.080 | 0.0399 | -0.0776 – 0.1574 | 0.506 | (0,1,1) (1,0,0)[52] | -0.0007 | -3.3466 – 3.3453 | 1.000 | -0.0096 | -0.2250 – 0.2057 | 0.930 |
| | 90+ | (1,0,1) (1,0,0)[52] | -1.1406 | -4.1701 – 1.8889 | 0.461 | 0.0139 | -0.0987 – 0.1264 | 0.809 | (0,1,1) (0,1,1)[52] | 0.3001 | -2.3549 – 2.9552 | 0.825 | 0.0069 | -0.1300 – 0.1438 | 0.921 |
| ATC Class | J01A – Tetracyclines | ARIMA (1,0,1) | 0.0394 | -0.4626 – 0.5413 | 0.878 | -0.0025 | -0.0217 – 0.0167 | 0.796 | (1,1,1) (0,0,1)[52] | -0.2060 | -0.3570 – -0.0550 | 0.007 | -0.0070 | -0.0132 – -0.0009 | 0.025 |
| | J01C – Beta-lactams | (1,1,2) (0,0,1)[52] | -0.8744 | -1.7869 – 0.0382 | 0.060 | 0.0008 | -0.0273 – 0.0289 | 0.954 | (0,1,1) (0,1,1)[52] | -0.3872 | -1.2614 – 0.4869 | 0.385 | -0.0073 | -0.0446 – 0.0300 | 0.702 |
| | J01D – Other beta-lactams | ARIMA (0,1,1) | -0.6740 | -1.2579 – 0.0901 | 0.024 | 0.0115 | -0.0096 – 0.0326 | 0.284 | (1,1,3) (1,0,0)[52] | -0.5397 | -0.9390 – -0.1404 | 0.008 | 0.0020 | -0.0191 – 0.0231 | 0.851 |

| | | | | | | | | | | | | | | | |
|-------------------------------|---|------------------------|---------|-------------------------|--------------|---------|-------------------------|--------------|------------------------|---------|-------------------------|--------------|---------|-------------------------|--------------|
| | J01E – Sulfonamides and trimethoprim | ARIMA (0,0,0) | 0.2355 | -0.0708 - 0.5417 | 0.132 | -0.0117 | -0.0232 – -0.0002 | 0.047 | (0,1,1) (0,0,1)[52] | 0.2560 | -0.0200 – 0.5320 | 0.069 | 0.0035 | -0.0061 – 0.0131 | 0.475 |
| | J01F – Macrolides, lincosamides and streptogramins | (1,0,1) (0,0,1)[52] | -0.1464 | -0.4465 – 0.1537 | 0.339 | 0.0023 | -0.0089 – 0.0134 | 0.688 | (0,1,1) (0,1,1)[52] | 0.4773 | 0.0354 – 0.9193 | 0.034 | -0.0116 | -0.0371 – 0.0138 | 0.369 |
| | J01M – Quinolones | (1,0,1) (0,0,1)[52] | -0.4794 | -1.0782 – 0.1195 | 0.117 | -0.0015 | -0.0236 – 0.0206 | 0.894 | (0,1,1) (1,1,0)[52] | 0.4851 | -0.4307 – 1.4009 | 0.299 | 0.0058 | -0.0553 – 0.0669 | 0.852 |
| | J01X – Other antibacterials | ARIMA (0,1,3) | 0.0861 | -0.2955 – 0.4677 | 0.658 | 0.0029 | -0.0096 – 0.0155 | 0.645 | (1,0,1) (1,0,0)[52] | 0.3549 | -0.0761 – 0.7859 | 0.107 | 0.0110 | -0.0037 – 0.0257 | 0.141 |
| Individual antibiotics | Amoxicillin | (1,1,2) (0,0,1)[52] | -0.5675 | -0.9690 – -0.1659 | 0.006 | 0.0017 | -0.0122 – 0.0157 | 0.810 | (0,1,2) (1,0,1)[52] | -0.5368 | -0.8230 – -0.2505 | <0.001 | 0.0045 | -0.0063 – 0.0153 | 0.414 |
| | Amoxicillin/clavulanic acid | ARIMA (1,0,1) | -0.1009 | -0.6766 – 0.4748 | 0.731 | -0.0047 | -0.0262 – 0.0167 | 0.665 | (0,1,1) (1,1,0)[52] | 0.0447 | -0.4800 – 0.5694 | 0.867 | -0.0167 | -0.0465 – 0.0131 | 0.273 |
| | Azithromycin | (1,0,1) (0,0,1)[52] | -0.1556 | -0.4524 – 0.1412 | 0.304 | 0.0044 | -0.0069 – 0.0156 | 0.446 | (0,1,1) (0,1,1)[52] | 0.4225 | 0.0123 – 0.8327 | 0.044 | -0.0116 | -0.0406 – 0.0173 | 0.431 |
| | Cephalexin | ARIMA (0,1,1) | -0.5936 | -1.0804 – -0.1068 | 0.017 | 0.0095 | -0.0070 – 0.0260 | 0.258 | (2,0,2) (1,0,0)[52] | -0.3128 | -0.6073 – -0.0183 | 0.037 | 0.0096 | -0.0012 – 0.0205 | 0.081 |
| | Clarithromycin | | | | | | | | ARIMA (2,1,3) | 0.0058 | -0.0934 – 0.1050 | 0.909 | -0.0031 | -0.0091 – 0.0029 | 0.310 |
| | Doxycycline | ARIMA (1,1,1) | -0.1440 | -0.6991 – 0.4111 | 0.611 | -0.0024 | -0.0325 – 0.0278 | 0.878 | (1,1,1) (0,0,1)[52] | -0.1936 | -0.3200 – -0.0672 | 0.003 | -0.0074 | -0.0130 – -0.0018 | 0.009 |
| | Fosfomycin | | | | | | | | (0,1,1) (1,0,0)[52] | 0.0272 | -0.2010 – 0.2554 | 0.815 | -0.0059 | -0.0156 – 0.0039 | 0.238 |
| | Nitrofurantoin | ARIMA (2,0,2) | 0.2995 | 0.0116 – 0.5874 | 0.041 | -0.0034 | -0.0142 – 0.0074 | 0.538 | (0,1,1) (1,0,0)[52] | 0.0070 | -0.3376 – 0.3516 | 0.968 | 0.0130 | -0.0009 – 0.0268 | 0.067 |
| | Penicillin | | | | | | | | ARIMA (0,1,1) | -0.0344 | -0.0600 – -0.0088 | 0,009 | 0.0008 | -0.0001 – 0.0017 | 0.074 |

Bold: p-value < 0.05

* Model parameters are displayed as 'SARIMA (p,d,q) (P,D,Q)S'. If no seasonality was present, the model is presented as: ARIMA(p,d,q)

No results are shown for clarithromycin, fosfomycin and penicillin in Alberta to preserve subject anonymity, as the number of dispensations was on average less than 5 per week

LTCF: Long-term care facility; SARIMA: seasonal autoregressive integrated moving average; ARIMA: autoregressive integrated moving average; 95% CI: 95% Confidence interval;

ATC: Anatomical Therapeutic Chemical Classification

Supplementary Table S4. Sensitivity analysis 3 – Interrupted time series analysis showing the change in weekly oral antibiotic prescription rate per 1,000 LTCF residents after March 2020 in long-term care facilities in Alberta and Ontario, Canada; modeling a sudden increase of the step function in 3 weeks (week 10-12 of 2020) without a slope function

| | | Alberta | | | | Ontario | | | |
|----------------------------|---|------------------------|-------------|----------------------|--------------|------------------------|-------------|----------------------|--------------|
| Prescription rate category | | Model parameters * | Step change | 95% CI | p-value | Model parameters * | Step change | 95% CI | p-value |
| Overall | | (0,1,2) (1,0,0)[52] | -3.7120 | -6.4272 – -0.9967 | 0.007 | (0,1,1) (0,1,1)[52] | -1.3006 | -3.6284 – 1.0272 | 0.273 |
| Sex | Females | (1,1,1) (0,0,1)[52] | -3.6399 | -6.5166 – -0.7631 | 0.013 | (0,1,1) (0,1,1)[52] | -1.4988 | -4.0949 – 1.0972 | 0.258 |
| | Males | (1,0,1) (1,0,0)[52] | -1.2934 | -3.0050 – 0.4182 | 0.139 | (0,1,1) (0,1,1)[52] | -1.1209 | -3.3345 – 1.0926 | 0.3219 |
| Age | 65-69 | ARIMA (0,0,0) | 1.1191 | -0.3590 – 2.5971 | 0.138 | (1,0,2) (1,0,0)[52] | -1.7428 | -4.2660 – 0.7805 | 0.176 |
| | 70-74 | ARIMA (0,0,5) | -0.2851 | -2.0444 – 1.4742 | 0.751 | (0,1,1) (1,0,0)[52] | -2.1182 | -4.4610 – 0.2246 | 0.076 |
| | 75-79 | ARIMA (0,1,1) | -3.6619 | -6.3022 – -1.0217 | 0.007 | (0,1,2) (1,0,0)[52] | -3.5004 | -6.0083 – -0.9926 | 0.006 |
| | 80-84 | (0,1,1) (1,0,0)[52] | -3.6608 | -6.6927 – -0.6288 | 0.018 | (0,1,1) (0,1,1)[52] | -2.2434 | -4.3442 – -0.1426 | 0.036 |
| | 85-89 | ARIMA (1,0,1) | -1.9387 | -3.7895 – -0.0879 | 0.040 | (0,1,1) (1,0,0)[52] | -1.1780 | -4.9916 – 2.6357 | 0.545 |
| | 90+ | (1,0,1) (1,0,0)[52] | -0.9898 | -2.6769 – 0.6972 | 0.250 | (0,1,1) (0,1,1)[52] | -0.7554 | -3.5464 – 2.0357 | 0.596 |
| ATC Class | J01A – Tetracyclines | ARIMA (1,0,1) | -0.0341 | -0.3700 – 0.3019 | 0.843 | (1,1,1) (1,0,0)[52] | -0.2433 | -0.4197 – -0.0669 | 0.007 |
| | J01C – Beta-lactams | (1,1,2) (0,0,1)[52] | -1.0979 | -1.8323 – -0.3634 | 0.003 | (0,1,1) (0,1,1)[52] | -1.0751 | -1.6816 – -0.4686 | <0.001 |
| | J01D – Other beta-lactams | ARIMA (0,1,1) | -0.6426 | -1.2908 – 0.0056 | 0.052 | (0,1,3) (1,0,0)[52] | -0.7134 | -1.1646 – -0.2623 | 0.002 |
| | J01E – Sulfonamides and trimethoprim | ARIMA (0,0,0) | -0.0382 | -0.2076 – 0.1313 | 0.659 | (0,1,1) (0,0,1)[52] | 0.3204 | 0.0534 – 0.5874 | 0.019 |
| | J01F – Macrolides, lincosamides | (1,0,1) (0,0,1)[52] | -0.1096 | -0.2981 – 0.0788 | 0.254 | (0,1,1) (1,0,0)[52] | 0.3685 | -0.3012 – 1.0381 | 0.281 |

| | | | | | | | | |
|-------------------------------|------------------------------------|------------------------|----------------------|----------------------|------------------------|------------------------|---------------------|----------------------|
| | and streptogramins | | | | | | | |
| J01M – Quinolones | (1,0,1) (0,0,1)[52] | -0.5630 | -0.9244 – -0.2017 | 0.002 | (0,1,1) (1,1,0)[52] | 0.5486 | -0.5575 – 1.6547 | 0.331 |
| J01X – Other antibacterials | ARIMA (0,0,2) | 0.3018 | 0.1226 – 0.4810 | <0.001 | (1,0,1) (1,0,0)[52] | 0.6276 | 0.3899 – 0.8653 | <0.001 |
| Individual antibiotics | Amoxicillin | (1,1,2) (0,0,1)[52] | -0.5526 | -0.8708 – -0.2345 | <0.001 | (2,1,2) (0,0,1)[52] | -0.7520 | -0.9297 – -0.5742 |
| | Amoxicillin/clavulanic acid | ARIMA (1,0,1) | -0.2948 | -0.6322 – 0.0425 | 0.087 | (0,1,1) (1,1,0)[52] | -0.1943 | -0.8039 – 0.4153 |
| | Azithromycin | (1,0,1) (0,0,1)[52] | -0.0753 | -0.2867 – 0.1360 | 0.485 | (0,1,1) (0,1,1)[52] | 0.6036 | 0.0778 – 1.1293 |
| | Cephalexin | ARIMA (0,1,1) | -0.4210 | -0.8828 – 0.0409 | 0.074 | (2,0,2) (1,0,0)[52] | -0.1292 | -0.3646 – 0.1062 |
| | Clarithromycin | | | | | ARIMA (2,1,3) | -0.0209 | -0.1313 – 0.0895 |
| | Doxycycline | ARIMA (1,1,1) | -0.2583 | -0.8930 – 0.3764 | 0.425 | (1,1,1) (0,0,1)[52] | -0.2360 | -0.4041 – -0.0678 |
| | Fosfomycin | | | | | (0,1,1) (1,0,0)[52] | -0.0191 | -0.2625 – 0.2244 |
| | Nitrofurantoin | ARIMA (2,0,2) | 0.2228 | 0.0652 – 0.3805 | 0.006 | (0,1,1) (1,0,0)[52] | -0.1365 | -0.5619 – 0.2889 |
| | Penicillin | | | | | ARIMA (0,1,1) | -0.0162 | -0.0362 – 0.0037 |
| | | | | | | | | 0.111 |

Bold: p-value < 0.05

* Model parameters are displayed as 'SARIMA (p,d,q) (P,D,Q)S'. If no seasonality was present, the model is presented as: ARIMA(p,d,q)

No results are shown for clarithromycin, fosfomycin and penicillin in Alberta to preserve subject anonymity, as the number of dispensations was on average less than 5 per week

LTCF: Long-term care facility; SARIMA: seasonal autoregressive integrated moving average; ARIMA: autoregressive integrated moving average; 95% CI: 95% Confidence interval;

ATC: Anatomical Therapeutic Chemical Classification