

on-site care showed significantly higher antimicrobial prescriptions. Further investigation is needed into the underlying causes of prescribing rate variances and how these care delivery options may affect efforts to reduce inappropriate utilization of antimicrobials.

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1617. Age-specific Distribution of Antimicrobial Use Surveillance using National Database of Health Insurance Claims and Specific Health Checkups of Japan (NDB Japan) 2011–2013

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October 6, 2017: 12:30 PM

Background. Antimicrobial use (AMU) surveillance is one of the key actions in the Japanese national plan on antimicrobial resistance (AMR). National database of health insurance claims and specific health checkups of Japan (NDB), which archives e-claim big data, is one candidate for their data source, since universal healthcare system is established in Japan and e-claim data covers almost all citizens. However, no study has been performed using NDB for assessing AMU. Our objective was to analyze the quantities and patterns of total systemic antibiotic prescriptions using NDB and to evaluate its utility.

Methods. The data were analyzed in accordance with the Anatomical Therapeutic Chemical (ATC) classification using defined daily dose (DDD) as a measurement unit, as recommended by the WHO Collaborating Centre for Drug Statistics Methodology. The population-weighted total consumption was normalized and expressed as defined daily doses (DDDs) per 1000 inhabitants per day (DID). Trend analysis of DID from 2011 to 2013 and subgroup analysis stratified by age group (0–14, 15–64, 65 and above years old), and ATC classification were performed.

Results. The DID value of oral antimicrobial use in 2013 was 13.2, which was a 1.04-fold increase in comparison with that in 2011. The DID value of parenteral antimicrobial use in 2013 was 0.83, which was a 1.13-fold increase in comparison with that in 2011. The DID value of each antibiotics category calculated using the NDB was comparable to that calculated using sales data in our previous study (*J Glob Antimicrob Resist.* 7:19–23, 2016), suggesting that the NDB is useful for analyzing the quantities and patterns of total systemic antibiotic prescription. AMU in those under 15 years old decreased from 2011 to 2013 regardless of dosage form, although those in the other age groups increased. While third-generation cephalosporins were the most frequently used oral antibiotic subgroups in those under 15 years old, macrolides were the most frequently used oral antibiotic subgroups in the other age groups.

Conclusion. This is the first report evaluating age-specific distribution of AMU in Japan from 2011 to 2013 using the NDB. These results demonstrated the utility of AMU surveillance using the NDB as a tool and benchmark to assess the AMR action plan.

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1618. Variation in Antibiotic Prescribing among Emergency Departments, Urgent Care Centers, and Retail Health Clinics in the United States, 2014

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Background. At least 30% of antibiotic courses prescribed in physician offices' and emergency departments (EDs) are unnecessary, but little is known about other ambulatory settings. The study aimed to assess antibiotic prescribing for acute respiratory conditions across U.S. EDs, urgent care centers (UCs), and retail health clinics (RHs).

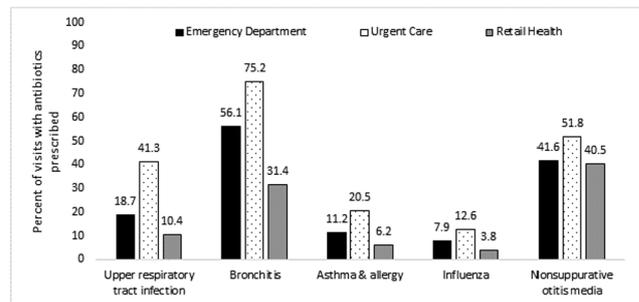
Methods. We included visits to EDs, UCs and RHs based on claims from individuals < 65 years old with medical and pharmacy benefits captured in the 2014 Truven MarketScan Commercial Claims and Encounters Database, a convenience sample of employer-based health insurance. Claims for dispensed systemic antibiotics were linked to the most recent ED, UC and RH visit within 3 days for oral antibiotics and on the same day for parenteral antibiotics. Diagnoses were assigned to each visit based on a previously-described tiered system to assign the most likely indication for antibiotics. Antibiotic-inappropriate respiratory conditions (i.e., viral respiratory infections, asthma, and allergy) were identified, and the percent of visits leading to antibiotics were calculated with 95% confidence intervals (CI) by setting.

Results. In 2014, antibiotics were prescribed in 13.8% (95% CI 13.7–13.8) of 4,954,084 included ED visits, 38.8% (38.8–38.9) of 2,831,950 UC visits, and 36.3% (35.9–36.6) of 59,599 RH visits. Antibiotic-inappropriate respiratory conditions accounted for 5.4% of ED visits, 16.4% of UC visits, and 17.2% of RH visits. UCs had the highest percent of antibiotic prescriptions for all antibiotic-inappropriate respiratory conditions (45.3%, 95% CI 45.2–45.5), followed by EDs (24.5%, 24.3–24.6) and

then RHs (14.4%, 13.8–15.1). This pattern persisted when examined by diagnosis (figure).

Conclusion. Antibiotic prescribing for antibiotic-inappropriate respiratory infections was common in these settings. UCs are a particularly important target for antibiotic stewardship.

Figure. Percent of visits for antibiotic-inappropriate respiratory conditions leading to antibiotic prescriptions according to diagnosis by setting — United States, 2014.



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1619. Pharmacoepidemiology of Antibiotic Prescribing Among 135,000 Adult Outpatient Encounters in Northeast Ohio

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Background. Nearly 154 million ambulatory visits in the United States result in an outpatient antibiotic prescription (OAP) annually, 30% of which are unnecessary. Remaining prescriptions may benefit from improved antibiotic selection. At our institution, a quarterly OAP report associated with 4 common encounter diagnoses was developed. The objectives of this study were to assess OAP rate for each diagnosis, and to assess the rate of guideline-concordant selection when an OAP was issued.

Methods. OAP report from January 2016 – March 2017 was queried to conduct a retrospective pharmacoepidemiology study including data from 106 outpatient sites, 33 care institutes, and 1400 providers in Northeast Ohio. The report aggregated OAPs for all office and telephone encounters with a diagnosis code for otitis media, pharyngitis, sinusitis, or urinary tract infection. For each diagnosis, encounters that resulted in an OAP were then categorized as guideline-concordant or -discordant based on the antibiotic selected and includes consideration of labeled penicillin allergy and consensus guideline recommendations (Figure 1). All data were filterable to the practice site, care institute, or prescriber level.

Results. A total of 135,177 patient encounters were captured during the study period (9766 otitis media, 39570 pharyngitis, 60940 sinusitis, 24901 urinary tract infection). Mean patient age was 50 (±15) years. At least 1 OAP was issued in 8444 (86%) otitis media, 16143 (41%) pharyngitis, 46343 (76%) sinusitis, and 15464 (62%) urinary tract infection encounters. For encounters in which an OAP was issued, the rate of guideline-concordant antibiotic selection by diagnosis was 46% for otitis media, 58% for pharyngitis, 64% for sinusitis, and 50% for urinary tract infection. Antibiotic selection for pharyngitis and sinusitis during Q1 2017 are detailed in Figures 2 and 3, respectively.

Conclusion. Audit of outpatient prescribing data revealed a high rate of OAP issuance for these four common diagnoses. The use of guideline-discordant antibiotics was also prevalent and commonly consisted of macrolides, fluoroquinolones, tetracyclines, and cephalosporins. These data provide an important baseline that underscores the need for outpatient stewardship and facilitates targeted prospective interventions.

Figure 1. Definitions of Adult Guideline-Concordant Therapy

| Otitis Media | Pharyngitis | Sinusitis | Urinary Tract Infection |
|---|---|--|--|
| Guideline-concordant (no PCN allergy) • Amoxicillin | Guideline-concordant (no PCN allergy) • Amoxicillin • Penicillin | Guideline-concordant (no PCN allergy) • Amoxicillin • Amoxicillin-clavulanate | Guideline-concordant (no PCN allergy) • Nitrofurantoin • TMP/SMX* |
| Guideline-concordant (PCN allergy label) • Amoxicillin [†] • 1 st , 2 nd , 3 rd generation cephalosporin • Clindamycin | Guideline-concordant (PCN allergy label) • Amoxicillin [†] • Penicillin [†] • 1 st , 2 nd , 3 rd generation cephalosporin • Clindamycin • Macrolide | Guideline-concordant (PCN allergy label) • Amoxicillin [†] • Amoxicillin-clavulanate [†] • Doxycycline • Fluoroquinolone | Guideline-concordant (PCN allergy label) • Nitrofurantoin • TMP/SMX* |

*Penicillin; [†]Deemed concordant despite labeled allergy under the assumption of an appropriate allergy assessment and challenge; [‡]Trimethoprim/sulfamethoxazole