2053. Information Gaps Among Patients Prescribed Antibiotics on Discharge to Nursing Homes

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Background. Antibiotic use in nursing homes (NHs) is frequently initiated in acute care hospitals. Comprehensive antibiotic administration instructions are critical to inform antimicrobial stewardship efforts in NHs. However; little is known about the quality of discharge communication for residents transitioning from hospitals to NHs with an antibiotic prescription.

Methods. We reviewed hospital discharge summaries from a 10% random sample of hospital-initiated antibiotic prescriptions among residents of 17 for-profit NHs in Oregon, California, and Nevada admitted between January 1 and December 31, 2017. Data elements of interest were documentation of antibiotic choice, indication, instructions, and pending microbiology tests.

Results. Among 217 hospital-initiated antibiotic prescriptions, mean (standard deviation) age was 64 (29) years and 57% were female. The most frequently prescribed hospital-initiated antibiotics were cephalosporins (36%), fluoroquinolones (16%), and penicillins (14%). Hospital discharge summaries were missing from 19% (42/217) of the resident medical records. Core antibiotic prescribing information was missing from 38% (67/175) of the medical records with a discharge summary: 11% (20/175) were missing all core elements, 23% (41/175) were missing the antibiotic indication, 27% (48/175) were missing antibiotic dose, 27% (48/175) were missing antibiotic frequency, and 32% (56/175) were missing antibiotic duration. Parental antibiotics were more frequently missing information compared with oral antibiotic prescriptions (45% vs. 37%, $P = 0.32$).

Conclusion. Information gaps around antibiotic prescriptions are prevalent in transfer documentation for NH residents admitted from acute care hospitals. Interventions are needed to improve the quality of information transferred from acute care hospitals to NHs.

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2054. Hospital-initiated Antibiotics in Nursing Homes

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Background. Nursing homes (NHs) are required by the Centers for Medicare and Medicaid Services to maintain antimicrobial stewardship programs. Hospital-initiated antibiotics may pose a barrier to optimizing antibiotic prescribing in this setting. Our objective was to characterize hospital-initiated antibiotic prescriptions among NH residents.

Methods. We collected electronic health record data on antibiotic prescribing events within 60 days of residents' admission to 17 for-profit NHs in Oregon, California, and Nevada between January 1, and December 31, 2017. We characterized antibiotics prescribed, administration route, and proportion initiated in a hospital setting.

Results. Over the one-year study period, there were 4350 antibiotic prescribing events among 1633 NH residents. Mean (standard deviation) age was 77 (12) years and 58% were female. Approximately 45% (1,973/4,350) of antibiotics prescribed within 60 days of NH admission were hospital-initiated. The most frequently prescribed hospital-initiated antibiotics were cephalosporins (27%; 1st gen: 54%, 2nd gen: 6%, 3rd gen: 34%, 4th gen: 5%, 5th gen: 1%), fluoroquinolones (20%), and penicillins (14%; natural penicillins: 4%, semisynthetic penicillins: 3%, aminopenicillans: 57%, β-lactam/β-lactamase inhibitors: 21%, and antipseudomonal penicillins: 15%). Additionally, 24% of antibiotics were parenteral and the median (interquartile range) duration of therapy was 6 (3–10) days. Over 15% of residents with hospital-initiated antibiotics were readmitted to the hospital within 30 days.

Conclusion. Approximately 45% of antibiotic prescribing in a multistate sample of NHs were hospital-initiated, of which roughly 40% was broad-spectrum. Interventions specifically targeting antibiotic prescribing during and following the transition from hospitals to NHs are needed.

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2055. Action: A Year in the Lives of Consultant Pharmacists Working on Antimicrobial Stewardship in Long-Term Care Facilities

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Background. The CDC recommends consultant pharmacists (CP) support antimicrobial stewardship (AS) activities in long-term care facilities (LTCF) by reviewing antimicrobial appropriateness. We initiated a project training CP from a regional long-term care pharmacy to support AS implementation in LTCF.

Methods. CP were trained to evaluate the appropriateness of all systemic antimicrobial therapy (AT) and provide prescriber feedback during their monthly drug regimen review (DRR). An electronic database was developed to facilitate data reporting. Antimicrobial use (AU) and adverse events (AE) from 32 LTCF were analyzed for 2018 using descriptive statistics.

Results. A total of 5327 courses of AT with a median duration of 7 days (IQR 5–10) were reviewed. The majority of AT was started in the LTCF (55%) but was also initiated in hospitals (24%), clinics (11%) and emergency departments (2%). Of 2926 AT started in LTCF, 36% were based on nurse evaluation (NE) while 33% began after prescriber evaluation (PE). Fluoroquinolones (FQ) and first-generation cephalosporins were the most commonly prescribed agents (Table 1). Treatment or prophylaxis of urinary tract infections accounted for 40% of AU (Figure 1). Diagnostic testing was associated with 37% of AT courses. Urine cultures were the most frequent test performed (81%). Overall, 41% of AT was determined to be inappropriate resulting in > 800 feedback letters sent to prescribers. Unnecessary antibiotic starts (based on revised Mc Geer or Loeb's criteria) were identified as the most common reason (Figure 2). AT appropriateness varied depending on the setting in which it was initiated. A majority (87%) of AT initiated in hospitals was found to be appropriate with 56% and 46% appropriate for ED and clinic starts. Appropriateness of LTCF initiated AT was 49% (59% after PE and 42% after NE). AE were associated with 3% of AT with allergic reactions and *Clostridioides difficile* infections occurring with 0.4% and 0.7% of AT, respectively. AE were most frequently associated with folate antagonists (5%) and FQ (3%).
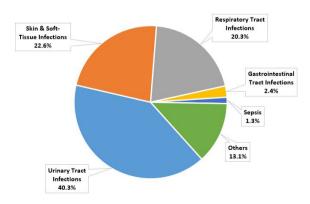
Conclusion. This study demonstrates many AU improvement opportunities exist in LTCF and CP can play an important role in identifying them if trained in AS principles. CP should review all AU for appropriateness and provide data to inform AS efforts in LTCF.

Table 1. Antimicrobial Classes Prescribed in Long-Term Care Facilities During 2018

Antimicrobial Class	Number Prescribed (% of Total)
Cephalosporins, All	1295 (24.3)
First-Generation	742 (13.9)
Second-Generation	96 (1.8)
Third-Generation	431 (8.1)
Fourth-Generation	26 (0.5)
Fluoroquinolones	1151 (21.6)
Others	680 (12.8)
Folate Antagonists[1]	507 (9.5)
Urinary Anti-Infectives[2]	446 (8.4)
Tetracyclines	371 (7.0)
β-Lactam/β-Lactamase Inhibitor Combinations	330 (6.2)
Macrolides	214 (4.0)
Penicillins	172 (3.2)
Azole Antifungals	161 (3.0)

1. Folate antagonists include trimethoprim and trimethoprim-sulfamethoxazole
2. Urinary anti-infectives include nitrofurantoin and fosfomycin

Figure 1. Indications for Antimicrobial Therapy Reviewed in Long-Term Care Facilities During 2018

Skin & Soft-Tissue Infections 22.6%
Respiratory Tract Infections 20.3%
Gastrointestinal Tract Infections 2.4%
Sepsis 1.3%
Others 13.1%
Urinary Tract Infections 40.3%