



Healthcare Resource Analysis of Influenza-Like Illness

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BACKGROUND

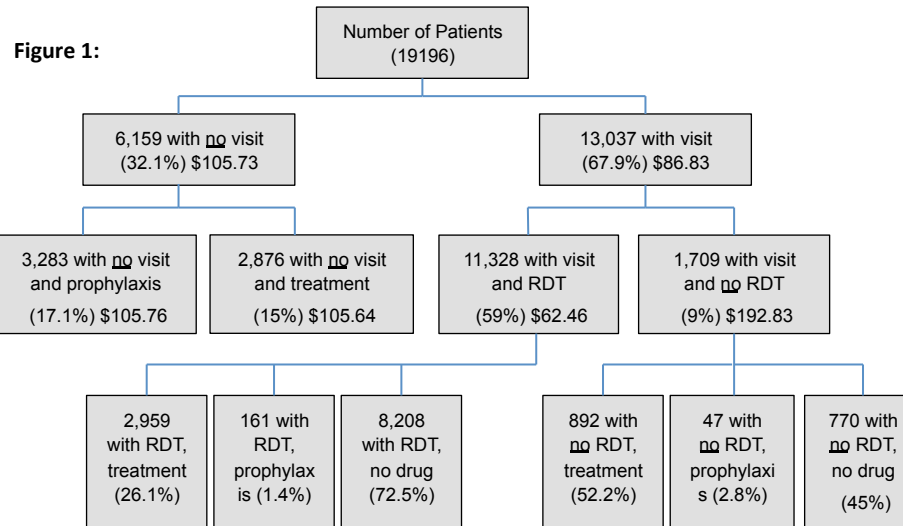
- Each year 6-20% of United States residents are infected by influenza, and more than 200,000 people are hospitalized due to complications related to influenza.
- In 2003, it was estimated that the direct medical costs for the treatment of influenza were \$10.4 billion in the United States.

OBJECTIVES

- Assess current practice patterns associated with the diagnosis and treatment of influenza-like illness (ILI) in outpatient, ambulatory, and emergency department settings.
- Evaluate how the use of rapid diagnostic tests (RDTs) impact healthcare utilization and cost in these clinical settings.

METHODS

- For this retrospective study, subjects with an influenza related health care encounter between September 1, 2011 and March 1, 2013 were identified using claims data from a Midwestern commercial health insurance plan.
- In order to select the claims relevant to this study, the corresponding influenza ICD-9, GPI, and CPT codes were identified and used to detect ILI claims.
- GPI codes were analyzed further to distinguish between treatment and prophylaxis regimens. A prescription written for 7 days or fewer was considered a treatment regimen and a prescription written for 8 or more days was classified as a prophylaxis regimen.
- For the cost analysis of this data, the allowed amount in the billing claims was utilized. Using this data the median cost, mean cost, minimum cost, and maximum cost were determined for each health care scenario.
- The mean and median costs were also compared using ANOVA procedures, t-tests, Wilcoxon two-sample tests, and Kruskal-Wallis tests.



	Number (%)	Mean Cost (Std. Dev.)	Median Cost (Min Cost, Max Cost)
All Influenza Like Illnesses	19196 (100%)	\$160.54 (666.43)	\$105.64 (\$0, \$49932)
Subjects with no visit	6159 (32.1%)	\$106.15 (37.09)	\$105.73 ^a (\$0, \$1857)
And treatment	2,876 (15%)	\$102.49 (36.43)	\$105.64 (\$0, \$1857)
And prophylaxis	3,283 (17.1%)	\$105.40 (12.76)	\$105.76 (\$0, \$316.41)
Subjects with visit	13037 (67.9%)	\$187.23 (807.10)	\$86.83 ^a (\$0, \$49932)
And RDT	11328 (59%)	\$153.06 (456.90)	\$62.46 ^b (\$0, \$27111)
And no RDT	1709 (9%)	\$413.70 (1878.35)	\$192.83 ^b (\$3, \$49932)

a. p value < 0.001 using a Kruskal Wallis test to compare median 30 day influenza related costs between subjects with a visit and subjects with no visit.
b. p value < 0.001 using a Kruskal Wallis test to compare median 30 day influenza related costs between subjects who had a medical visit and a RDT versus those subjects with a visit and no RDT.

RESULTS

- Over 32% of the influenza-like illness episodes identified in this study involved empiric anti-viral therapy as either treatment (15%) or prophylaxis (17.1%) without an accompanying medical visit. See Figure 1.
- Of patients with a medical visit, patients with a rapid diagnostic test for influenza, received anti-viral treatment 27.5% of the time compared to 55% of the time for patients with no rapid diagnostic test. See Figure 1.
- Patients with a medical visit and a rapid diagnostic test had statistically significant ($p < 0.001$) lower median 30-day influenza related health care costs (\$62.46) than patients who had a medical visit and no RDT (\$192.83), as well as, those who received empiric therapy without an accompanying medical visit (\$105.73). See Table 1.
- Patients whose initial ILI claim came from an inpatient or emergency room setting had higher costs than those seen in an ambulatory or outpatient setting, but these outpatient settings also had significantly lower median costs (\$63.98) than patients who had no influenza related visit (\$105.73). See Table 2.

Initial Place of Service	Number (%)	Mean Cost (Std. Dev.)	Median Cost (Min Cost, Max Cost)
Emergency Room	966 (5%)	\$423.04 (881.38)	\$160.97 (\$0, \$10270)
Inpatient	35 (0.2%)	\$9924.07 (8820.29)	\$6740.36 (\$2314, \$49932)
Ambulatory/Outpatient	11918 (62.1%)	\$139.17 (375.63)	\$63.48 (\$0, \$27111)
No visit	6159 (32.1%)	\$106.15 (37.09)	\$105.73 (\$0, \$1857)

a. Place of visit unknown for 118 patients

CONCLUSION

- The results of this analysis for influenza-like illness claims over a two year period suggest that utilization of rapid diagnostic testing for influenza may reduce overall influenza related healthcare costs and utilization of anti-influenza medications.