

**Submission Id: 3607**

**Title**

*Rapid Detection of Influenza Outbreaks in Long Term Care Facilities Reduces Emergency Room Visits and Hospitalization*

**Priority 1 (Research Category)**

Acute respiratory infections

**Presenters**

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**Abstract**

Context: Influenza is a significant respiratory pathogen for residents of long-term care facilities (LTCFs). Rapid influenza detection tests (RIDT) may enable early outbreak detection allowing a timely response. Objective: We assessed whether RIDT for LTCF residents with acute respiratory infection is associated with increased antiviral use and decreased healthcare utilization. Study Design and Analysis: Non-blinded, pragmatic, randomized controlled trial (clinicaltrials.gov: NCT0296487). Setting: Wisconsin LTCFs. Population Studied: Residents of 20 LTCFs matched by bed capacity and geographic location. Intervention: (1) modified case identification criteria and (2) nursing-staff initiated collection of nasal swab specimen for on-site RIDT. Outcome Measures: Primary outcome measures, expressed as events per 1000 resident-weeks, included antiviral treatment courses, antiviral prophylaxis courses, total emergency department (ED) visits, ED visits for respiratory illness, total hospitalization, hospitalization for respiratory illness, hospital length of stay, total deaths, and deaths due to respiratory illness over three influenza seasons. Results: Oseltamivir use for prophylaxis was higher at intervention LTCFs (2.6 vs 1.9 courses per 1000 person-weeks; rate ratio: 1.38; 95%CI: 1.24—1.54;  $p<0.001$ ); rates of oseltamivir use for treatment were not different. Rates of total ED visits (7.6 vs 9.8/1000 person-weeks;  $RR=0.78$ ; 95%CI: 0.64—0.92;  $p=0.004$ ), total hospitalizations (8.6 vs 11.0/1000 person-weeks;  $RR=0.79$ ; 95%CI: 0.67—0.93;  $p=0.004$ ), and hospital length of stay (35.6 days vs 55.5 days/1000 person-weeks;  $RR=0.64$ ; 95%CI: 0.0.59—0.69;  $p<0.001$ ) were lower at intervention as compared to control LTCFs. No significant differences were noted for respiratory-related ED visits or hospitalizations or in rates for all-cause or respiratory-associated mortality. Conclusions: The use of low threshold criteria to trigger nursing staff-initiated testing for influenza with RIDT resulted in increased prophylactic use of oseltamivir. There were significant reductions in the rates of all-cause ED visits (22% decline), hospitalizations (21% decline), and hospital length of stay (36% decline) across three combined influenza seasons. No significant differences were noted in respiratory-associated and all-cause deaths between intervention and control sites. This feasible, and low-cost intervention may provide significant benefit and should be further tested in other settings.