

# Discharging Pneumonia Patients Without Observation After Switching to Oral Antibiotics

Nathan RV, Rhew DC, Murray C, et al. *In-hospital observation after antibiotic switch in pneumonia: a national evaluation.* *Am J Med* 2006;119:512–8.

## Study Overview

**Objective.** To determine the clinical benefit of in-hospital observation of elderly patients with community-acquired pneumonia (CAP) 1 day after switching from intravenous (IV) to oral antibiotics.

**Design.** Retrospective analysis of Medicare hospital claims data.

**Setting and participants.** Elderly patients (aged  $\geq 65$  years) discharged from U.S. hospitals with a principal diagnosis of pneumonia or a principal diagnosis of septicemia or respiratory failure and a secondary diagnosis of pneumonia according to ICD-9-CM codes. Of 39,242 cases, 5248 were eligible for analysis. Of 5248 patients, 2536 (48.2%) were discharged on oral antibiotics without being observed (the “not observed” group), and 2712 patients (51.8%) were observed in the hospital for 24 hours after switching from IV to oral antibiotics (the “observed” group).

**Main outcome measures.** 14-day readmission rates and 30-day mortality rates.

**Main results.** Patients in both groups were similar with regards to age ( $P = 0.59$ ), race ( $P = 0.11$ ), gender ( $P = 0.08$ ), and pneumonia severity at admission ( $P = 0.78$ ). Patients in the observed group had longer lengths of stay than those in the not observed group (mean, 4.5 versus 3.8 days;  $P < 0.001$ ). Patients in both groups had comparable 14-day readmission rates (7.2% in the observed group versus 7.8% in the not observed group; odds ratio, 0.91;  $P = 0.37$ ) as well as similar 30-day mortality rates (4.4% in the observed group versus 5.1% in the not observed group; odds ratio, 0.86;  $P = 0.26$ ).

**Conclusion.** In a large cohort of elderly patients admitted for treatment of CAP, there was no evidence that in-hospital observation after switching from IV to oral antibiotics was clinically advantageous. Earlier discharge may be an efficient way to lower costs without lowering quality of patient care.

## Commentary

The rising cost of U.S. health care is putting a strain on

insurers, government, and individuals [1]. Finding ways of reducing unnecessary costs without compromising patient care remains a highly sought goal. The study by Nathan and colleagues adds to the literature that suggests that there may be a way to reduce hospital costs by discharging patients with pneumonia earlier.

CAP is one of the most common reasons for hospital admission and is associated with substantial costs, particularly among the elderly. Older patients with pneumonia almost always are admitted to hospitals and treated with IV antibiotics. Prior to discharge, they are often switched to oral antibiotics. Whether these patients need in-hospital monitoring after the switch is largely unknown. If patients can be sent home safely without monitoring, this would directly reduce costs of pneumonia care and would decrease the time patients are in the hospital, thereby reducing the risk for nosocomial adverse effects. Nathan et al found that 14-day readmission rates and 30-day mortality rates were comparable among all study patients, regardless of whether they received 24-hour in-hospital observation after switching from IV to oral antibiotics. While these data are certainly suggestive that it is safe to discharge patients without this observation period, the results are not definitive.

The biggest threat to the validity of these findings is the issue of unobserved confounders. Patients were not randomly assigned to observation versus no observation. Instead, clinicians chose to send some people home while observing others in the hospital. Patients chosen for observation may have been sicker. However, the similar demographics between the observed and not observed groups help alleviate some of this concern.

Finally, several features of this study add credibility to the results. This study was a sample of elderly Americans, many of whom had severe pneumonia. If sending elderly patients home without extended observation was safe, it is likely that it would be safe for younger patients as well. In addition, given the large sample size, it is reasonable to assume that if there was a disadvantage of not observing patients in the hospital, it would have been identified by this large study.

## Applications for Clinical Practice

Management of pneumonia in the elderly has large

implications for costs and quality of care. This study suggests that it is safe to discharge patients on oral antibiotics without further observation in the hospital. Although a large randomized trial is needed to definitively rule out adverse effects this strategy, the strengths of this study suggest that sending patients home without observation is

efficient and clinically reasonable.

—Review by Ashish K. Jha, MD, MPH

### Reference

1. Smith C, Cowan C, Sensenig A, Catlin A. Health spending growth slows in 2003. *Health Aff (Millwood)* 2005;24:185-94.

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