

## Nurse Allocation with Stochastic Supply

### Abstract

The nurse allocation problem for a given day and shift is formulated as one which minimizes the cost of allocating nurses among nursing classes and units subject to constraints on the demand for and the supply of nursing services. When the number of nurses reporting for work in the various classes and units form a random vector, the allocation problem becomes a stochastic program with recourse. When the random variables in question are defined on a discrete sample space, the stochastic program may be transformed into a deterministic program which can be solved. A near-optimal cyclic coordinate descent algorithm is presented. Results are given pertaining to some sample problems and the sensitivity of the algorithm's solutions to changes in the probability distribution of the supply random variables is discussed.