How Maryland increased infection prevention and control activity in long-term care facilities, 2003-2008

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Background: In January 2003, the Maryland Department of Health and Mental Hygiene (DHMH) assessed the state of infection prevention and control (IPC) resources and practices in all long-term care facilities (LTC) in the state. Only 8.1% of facilities that responded employed a trained IPC professional (IP) who managed the facility IPC program.
Methods: Between 2003 and 2008, the DHMH partnered with long-term care industry trade associations and spearheaded regulatory, educational, and financial initiatives to improve this situation. In January 2008, all LTC facilities in the state were resurveyed to determine the impact of these initiatives on IPC activities.
Results: The 2008 survey indicated that 44% of LTC facilities used a trained IP who managed the IPC program, a 5-fold increase from 2003. Unpublished DHMH outbreak data indicated that LTC facilities with a trained IP recognized and reported outbreaks to the local health department 2 days sooner than facilities without a trained IP, resulting in fewer cases of disease.
Conclusions: Multiple initiatives with concerned stakeholders and LTC partners over the course of 5 years resulted in increased numbers of LTC facilities with trained IPs who recognized and responded to outbreaks sooner than facilities without trained IPs.
Key Words: Nursing homes; health care associated infections; infection preventionists; state health departments; health departments; outbreaks in nursing homes.

The Maryland State Department of Health and Mental Hygiene (DHMH) conducted a 5-year initiative between 2003 and 2008 to improve the infection prevention and control (IPC) resources and practices of certain health care facilities licensed in the state as comprehensive/extended-care facilities, otherwise known as long-term care (LTC) facilities or nursing homes. These health care facilities are defined as those that offer subacute and long-term care, provide treatment services for patients requiring inpatient care but who do not currently require continuous hospital services, and admit patients who require convalescent, restorative, or rehabilitative services or patients with terminal disease requiring maximal nursing care. The care in these facilities is rendered by or under the supervision of registered nurses.[1]

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As of July 1, 2008, Maryland had an estimated population of 5,633,597, concentrated predominately in the Baltimore–Washington, DC area. Persons over age 65 make up approximately 12% of the state's population, a proportion that has risen only slightly in the past 20 years. Maryland's population is served by 234 facilities licensed as comprehensive/extended-care facilities by the DHMH regulatory office, the Office of Health Care Quality. Together, these facilities have a total of approximately 28,000 beds; the median number of beds per facility is 120 (range, 20-556).

In January 2003, the Maryland DHMH assessed the state of IPC resources and practices in all LTC facilities in the state (n = 247) through a self-administered survey mailed to all 247 LTC facility Directors of Nursing (13 LTC facilities closed between 2003 and 2008). Responses from 39% of these facilities indicated that only 8.1% employed a trained IPC professional (IP) who managed the facility's IPC program. Based on this survey, it was determined that LTC facilities in Maryland could benefit from DHMH-sponsored training and regulatory upgrades.[2]

METHODS

Between 2003 and 2008, DHMH partnered with LTC industry stakeholders and trade associations and spearheaded 3 initiatives to increase both the number of trained IPs and the IPC activities in these facilities.

These initiatives included (1) a regulatory initiative, which included the promulgation of revisions of the Code of Annotated Maryland Regulations 10.07.02.21, that would require a trained IP in each LTC facility and would incorporate elements of the basic IPC guidance from the Centers for Medicare and Medicaid; (2) an educational initiative, which included the establishment of a 3-day basic IPC Institute as a basic IPC course; and (3) a financial initiative, which incorporated IPC staffing and guideline criteria into the DHMH's LTC Medicaid Pay-for-Performance Initiative.

The regulatory initiative began in late 2003 and was completed by early 2005. The DHMH revised the IPC section of the current state LTC regulations to require employment of a trained IP to manage the IPC program and implementation of the Centers for Medicare and Medicaid's Guidance for Infection Control.[3] A staffing requirement for the number of IP position equivalents per number of beds or size of the facility was considered but was not included in the regulatory language.

The educational initiative began in 2004 and is ongoing. The DHMH, with the assistance of state LTC industry trade associations, developed a 2-1/2-day IPC Institute, a basic IPC course that seeks to train long-term care IPs in 3 basic skills: (1) infection surveillance techniques, (2) isolation and multidrug resistant organism precautions, and (3) recognition and management of outbreaks. Additional information, such as hand hygiene, environmental IPC, tuberculosis prevention, microbiology, and immunization of health care workers, is also covered in the curriculum.

This course is offered twice per year to LTC registered nurses, LTC facility surveyors (registered nurses and sanitarians) in the DHMH Office of Health Care Quality, and communicable disease staff in local health departments. IPs and physicians in Maryland who are experienced with IPC in LTC settings serve as faculty for the course. To date, 850 professionals in Maryland, almost all registered nurses, have been trained through this short course. Our goal was to increase the number of trained IPs who manage the IPC programs in LTC facilities, thereby increasing the IPC activities in those facilities.

The financial initiative was begun in 2007 with the development of suitable IPC criteria that could be included in a DHMH-sponsored Pay-for-Performance (P4P) initiative for LTC facilities in Maryland that receive Medicaid reimbursement. This P4P initiative includes, among many other criteria, IPC criteria such as number of indwelling urinary catheters, number of urinary tract infections in residents, rate of employee influenza immunization, and whether the facility employs a trained IP to manage the IPC program. The goals are decreased numbers of indwelling urinary catheters and urinary tract infections, increased rate of employee influenza immunization, and employment of a trained IP to manage the IPC program. Measured improvement over time in these areas will yield a monetary reward for participating LTC facilities.

To determine whether these initiatives increased IPC activities in Maryland's LTC facilities, a resurvey of LTC facilities was conducted in 2008 through a mailed self-administered survey instrument. The survey instrument was the same as that used in 2003, but this survey was addressed to the facility's IP rather than the Director of Nursing. The 2008 survey also received DHMH Institutional Review Board approval. The entire population of 234 LTC facilities was surveyed. (Some LTC facilities had closed since 2003.) Information on the selection of survey sample size, study limitations, and survey instrument validity and reliability were identical to that for the 2003 survey published previously.[2]

In Maryland, rates of health care–associated infections in the LTC setting are not reportable to state or local health departments, and so such rates could not be used to measure the impact of these 3 initiatives on health care–associated infection rates. However, all infectious disease outbreaks are reportable to the state and local health departments.

Therefore, to determine whether the DHMH initiatives had an impact on health care–associated infections, we examined as a proxy measure the unpublished data from the DHMH Infectious Disease and Environmental Health Administration Division of Outbreak Response. A random selection of 20 outbreaks that had been reported to the state from LTC facilities between December 2006 and March 2008 and that had been recognized as outbreaks by the facility within 14 days of onset of the first symptomatic case were each examined to determine (1) the presence of a trained IP who managed the IPC program, (2) the number of days elapsed between the onset of the outbreak and reporting of the outbreak to the local health department, and (3) the number of residents who were symptomatic at the time of the report to the local health department.

RESULTS

The 2003 survey produced a response rate of 39% for 247 LTC facilities. In the 2008 survey, 54% (127/234) of LTC facilities responded, a 37% increase in response. Of the 127 LTC facilities responding to the 2008 survey, 103 (81%) had a trained IP who managed the IPC program. Including this in the total population of LTC facilities, we found that in 2008, 44% (103/234) of the LTC facilities had a trained IP who managed the IPC program. This represents a 5-fold increase from the 8.1% of facilities that had trained IPs in 2003. Note that we assumed that a facility that did not respond to the survey did not employ a trained IP. This increase in