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Infection Prevention and Control Standards in Assisted Living Facilities: Are Residents Needs Being Met?

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Abstract

Background—Assisted Living Facilities (ALFs) provide housing and care to persons unable to live independently, and who often have increasing medical needs. Disease outbreaks illustrate challenges of maintaining adequate resident protections in these facilities.

Objectives—Describe current state laws on assisted living admissions criteria, medical oversight, medication administration, vaccination requirements, and standards for infection control training.

Methods—We abstracted laws and regulations governing assisted living facilities for the 50 states using a structured abstraction tool. Selected characteristics were compared according to the time period in which the regulation took effect. Selected state health departments were queried regarding outbreaks identified in assisted living facilities.

Results—Of the 50 states, 84% specify health-based admissions criteria to assisted living facilities. 60% require licensed healthcare professionals to oversee medical care. 88% specifically allow subcontracting with outside entities to provide routine medical services onsite, and 64% address medication administration by assisted living facility staff. 54% specify requirements for some form of initial infection control training for all staff; 50% require reporting of disease outbreaks to the health department. 30% offered or required vaccines to staff; 15% of states offered or required vaccines to residents. Eleven states identified approximately 1500 outbreaks from 2010–2013, with influenza or norovirus infections predominating.

Conclusions—There is wide variation in how assisted living facilities are regulated in the United States. States may wish to consider regulatory changes that assure safe healthcare delivery, and minimize risks of infections, outbreaks of disease, and other forms of harm among assisted living residents.

Keywords

Assisted Living Facilities; Regulation; Infection Control; Licensure; Education; Patient Admission

Introduction

The capacity of U.S. assisted living facilities (ALFs) stands at nearly one million beds [1]. Utilization of these facilities is expected to grow in response to an aging population and a shift in long-term custodial care from nursing homes to assisted living [2, 3]. While a precise definition of ALFs is lacking [4], these institutions typically provide housing and care to persons unable to live independently and provide support for activities of daily living (e.g., toileting, dressing, cooking). The typical ALF does not provide the level of care that is provided at a nursing home or acute care hospital. Nonetheless, a large volume of healthcare is routinely delivered at ALFs, using a variety of approaches including contracts with home health agencies and facility-based personnel such as medication aides, nurses, and others [2, 5–8]. A growing proportion of ALF residents require assistance with daily management of complex medication regimens or regular monitoring of chronic medical conditions, such as diabetes and dementia [9–11].

The challenge of ensuring that ALF residents' medical needs are met with practices that prevent infection transmission and other adverse events has many dimensions and is illustrated by a number of recent infectious disease outbreaks. For example, between 2008 and 2012, 13 outbreaks of hepatitis B virus infections occurred in ALFs [12]. Almost all of these outbreaks were linked to assisted monitoring of blood glucose among residents with diabetes [13]. Unsafe diabetes care practices that were frequently identified by public health investigators included using the same fingerstick devices for multiple residents (i.e., not using single-use, auto-disabling devices) and sharing blood-contaminated glucose meters between residents [14–19]. Outbreaks of respiratory and gastrointestinal illnesses have also been reported, highlighting the importance of infection prevention measures in ALFs, such as hand hygiene practices among residents and staff, appropriate environmental cleaning procedures, and appropriate use of employee personal protective equipment [20–22]. In addition, surveys of ALFs have identified shortcomings with respect to infection control procedures and policies, such as failing to implement or comply with the Occupational Safety and Health Administration's (OSHA) Bloodborne Pathogen Standard and not requiring staff with direct patient care responsibilities to have infection control training [23, 24]. Resident caregiver annual turnover rates in ALFs can be as high as 38% [25], posing an additional challenge to maintaining infection control training among ALF staff.

Regulatory oversight of ALFs is largely a state responsibility [26, 27]. Several reviews of ALF regulations and policies have been published previously [26, 28–31]. However, none of these focused specifically on infection prevention and control. We reviewed licensing requirements and regulations in the 50 states, with the aim of describing current state laws surrounding ALF admissions criteria and restrictions related to ALF medical conditions of the resident, the types of personnel who can provide assistance with medical care and administer medication in ALFs, standards for infection control training and education for ALF staff, and vaccination requirements for residents and staff.

Methods

We identified ALF regulations and licensing requirements through the Assisted Living Federation of America website, which maintains links to current state regulations [32]. We developed a structured abstraction tool to collect data on ALF admissions criteria, types of personnel who can provide medical care and administer medication, infection control training and education requirements for ALF staff, and vaccination requirements for ALF residents and staff. After piloting and refining the tool, we abstracted ALF regulations and licensing requirements data for all 50 states. Three individuals performed data abstraction during November 2011 – May 2012; a sample of states were abstracted by all abstractors to ensure inter-rater reliability. Data were entered into Excel (© 2010, Microsoft Corp., Redmond, WA, USA) and exported into SAS version 9.3 (© 2002–2010, SAS Institute Inc., Cary, NC, USA) to calculate frequencies of selected characteristics and requirements. We also compared selected characteristics according to the time period in which the regulation took effect (1998–2007 versus 2008–2012), using Fisher’s exact tests.

In order to better illustrate the scope and magnitude of outbreak activity, we queried a convenience sample of state health departments, requesting summary data regarding the numbers and types of outbreaks in ALFs. We requested information spanning the period from January 2010 through June 2013. We requested that states limit their summary data to licensed ALFs only. In several documented instances, we accepted data from states in which the outbreak surveillance system grouped ALFs with other types of long term care facilities.

Results

Overall, state regulations governing ALF operations varied with respect to the types of agencies that license and regulate ALFs, the terminology used to describe these facilities, and whether states have multiple ALF licensing levels. Departments of Health, Public Health, or Community Health conduct facility licensing in 72% of states whereas 28% of states license ALFs through other types of state agencies (Table 1). The terms used to describe ALFs also varied by state; “assisted living facility” was the most commonly used term (88%), but others included “community residential facility” and “residential care facility.” Fifteen states (30%) have multiple licensing levels, which generally correspond to resident characteristics or admission and exclusion policies. For example, licensing categories in Wisconsin are based on the number of residents and their ambulatory status, while New York has multiple licensure levels of adult care homes with additional licensure levels for homes providing dementia services.

Residents are excluded from admission to licensed ALFs based on criteria specified in state regulation, with some states requiring residents to complete a physical assessment prior to admission. The most common ALF admission restrictions specified in state regulations were for persons who require continuous nursing care (68%), are chronically bedridden (50%), have a communicable disease (e.g., tuberculosis) that requires isolation (42%), or have advanced stage pressure sores or ulcers (40%) (Table 2). Additional admission restrictions mentioned in regulations included incontinence, the need for restraints, and having a

tracheostomy. In some state regulations, such as in Texas and Rhode Island, each facility is specifically permitted to establish its own admissions restrictions.

Most state ALF regulations (60%) required a licensed health care professional to oversee medical care and 10% of state regulations (Connecticut, Indiana, Minnesota, Utah, Wyoming) required a licensed health care professional to be on-site 24 hours a day (Table 3). In addition, most regulations (88%) specifically allowed ALFs (or their residents) to sub-contract with home health agencies (HHAs) or private aides to provide routine medical care on-site.

Approximately one-half of state regulations (54%) included requirements for some form of mandatory staff training on infection control (Table 3). Of these states, 19 (70%) required facilities to train staff either upon hire (7 states) or within a specified time period (12 states; average time limit to complete training = 23 days). Few states (14% overall) required annual infection control training for all staff. New Hampshire trains staff members annually on transmission, prevention, and containment of infections. Other state regulations were not as specific about mandatory staff training requirements. Only 6% of state regulations (New Hampshire, New Jersey, Virginia) required a licensed health care professional to oversee infection control activities.

Additional requirements pertaining to infection control and prevention activities were also specified in state regulations (Table 3). For example, half of state regulations specified that ALFs were required to report communicable diseases to the health department; the proportion of state regulations that specified this type of requirement increased significantly between 1998–2007 and 2008–2012 (25% vs. 62%, $p=0.02$). However, fewer than half (36%) of state regulations required that ALFs develop a written infection control plan and only 16% specified that facility inspections should include an assessment of infection control activities, policies or practices. Nearly half (46%) of state regulations mentioned specific aspects of infection control practice (e.g., hand hygiene). A similar proportion (44%) cited either specific federal guidelines/requirements or general adherence to “standards of care,” “scientifically accepted practices”, or “professional standards.” Of note, there was evidence of increasing reference to CDC guidelines and Standard Precautions in state ALF regulations. Although some states, such as Georgia, Indiana, and North Carolina, mentioned the use of fingerstick devices by staff on residents, none addressed critical infection control issues around this activity, such as policies around appropriate use of disposable single-use devices and cleaning and disinfecting of blood glucose meters.

Medication administration was addressed in 64% of state regulations (Table 4); 91% (29/32) of these specified that ALF staff members are permitted to administer oral medications. Injection of intramuscular or subcutaneous medications was specifically addressed in 19 (38%) state regulations, with 5 states restricting this activity to registered nurses. Injection or infusion of parenteral medications was addressed in only 3 state regulations (Indiana, New Mexico, and South Carolina). Of note, one state (Mississippi) required that all medication types (oral, intravenous, parenteral, intramuscular, or subcutaneous) be administered by registered nurses only.

The numbers of state regulations requiring vaccination or requiring that vaccines be offered to ALF staff (9 states, 18%) or residents (15 states, 30%) was low. States that issued ALF regulations during 2008–2012 were more likely to specify staff vaccination requirements than states that issued ALF regulations before 2008 (26% versus 0%, $p=0.04$). Regulations in Alabama required that facilities adhere to published healthcare personnel vaccination guidelines. Regulations in Wisconsin required that facilities adhere to published vaccination guidelines for residents. Neither of these state regulations mentioned specific vaccines. The remaining state regulations that included vaccination requirements were primarily focused on respiratory infections (i.e., influenza and pneumococcal disease).

Eleven state health departments provided summary data regarding the numbers of outbreaks that were identified in ALFs between January 2010 and June 2013 for one or more of the targeted categories (respiratory, gastrointestinal, and other; Table 6). Reporting requirements, definitions and methods used to track outbreaks varied. Most of the 11 states had outbreak tracking systems that could distinguish ALFs, whereas three (Arizona, Ohio, and Michigan) aggregated ALFs with related forms of long term care for one or more outbreak category. For example, in Michigan, while the tally of gastrointestinal outbreaks was specific to ALFs, respiratory outbreaks included events affecting adult foster care and nursing facilities. In total, the states reported 335 respiratory and 1070 gastrointestinal illness outbreaks; the predominant pathogens in these categories, respectively, were influenza and norovirus. Six states reported data summarizing 107 additional outbreaks (e.g., conjunctivitis, scabies). These data must be interpreted cautiously given the variability in ALF licensing categories and outbreak reporting requirements across states; comparisons between states are invalid.

Discussion

ALFs fill an important role in the long term care continuum. They provide housing and care for many persons who require assistance with activities of daily living, including management of their increasingly complex medical needs. Our analysis demonstrates that there is substantial variability in regulation of ALFs from state to state with regard to health-based admissions criteria, provisions for directly providing or otherwise arranging medical care, and related infection prevention and control requirements. Although ALFs operate under a variety of different housing and care models [4, 7, 26–28, 33], few are considered to operate strictly under a traditional medical model. In most states, ALFs are not regulated by the same entities and in the same manner as nursing homes and other healthcare facilities. While the primary mission of ALFs remains the provision of housing and support to maximize the independence and overall well-being of its residents, gaps in the regulation of these facilities are emerging. As ALFs evolve to accommodate residents with more chronic medical needs, ranging from dementia to diabetes and cancer, oversight of ALFs should be updated and improved.

Prevention of healthcare associated infections in residents of ALFs presents challenges based on many factors, including the health of the ALF resident, and the education and training of staff attending to an ALF resident's needs. Our review found that many state ALF regulations do not explicitly restrict admission of persons who are chronically

bedridden or who require continuous nursing care. A closely related issue is that of involuntary discharge requirements that may be triggered when a resident's needs increase to the point that they exceed the capabilities of an ALF [26, 28, 34]. While flexible admission and discharge criteria are arguably one of the strengths of the ALF model, we recommend that states pursue a more prescriptive approach to expressly outline the levels of on-site care that are appropriate for an ALF setting under different sets of conditions and staffing arrangements, with clear references to state nurse practice standards and related delegation authorities (Table 5) [26]. Distinguishing multiple licensing levels is one approach to achieving this goal, but fewer than one-third of states currently follow this model; this proportion is similar to that reported in 2005 [26]. Another approach is to add more specificity to regulatory language pertaining to arrangements with home health agencies and aides, which may be practical given our observation that nearly 90% of state regulations currently address this issue in some form.

State ALF regulations inconsistently included requirements for basic aspects of infection prevention and control, with no clear minimum standards outlined across all states. A set of federal guidelines that address basic infection control procedures is set forth under CDC's Standard Precautions [35], and these evidence-based activities are considered standard in healthcare delivery settings. Yet, less than a quarter of states specifically mention Standard Precautions in their ALF regulations. Of note, the American Assisted Living Nurses Association includes, as part of its Scope of Practice for an assisted living nurse specialty certification, the "assurance of safe practice for all staff through ongoing assessment of the environment, and adherence to infection control practices and immunization guidelines" [8]. Only approximately one-third of state regulations specifically required ALFs to have an infection control plan. We recommend that, going forward, state regulations should (a) specify adherence to Standard Precautions or otherwise outline basic infection control activities to protect ALF residents from preventable illness; (b) require facilities to implement an infection control plan, preferably under the direction of a licensed healthcare professional, with staff training upon hire and at least annually thereafter; and (c) include assessment of infection control practices as part of facility inspections (Table 5). Our review also identified that offering or requiring immunization of ALF staff and residents offers much room for improvement and opportunity to better align with Nursing Home requirements [36, 37].

Outbreaks demonstrate the importance of aligning appropriate healthcare services that follow clear infection control policies with resident needs. Assistance with monitoring of blood glucose levels is one predictable need, since one in six ALF residents have diabetes [11]. A series of recent outbreaks suggest that ALFs struggle with provision of this service in a safe manner [14–19]. In 2010, for example, failures of ALF staff to adhere to safe practices during assisted monitoring of blood glucose (e.g., sharing of reusable fingerstick devices approved for single patient use only) resulted in two notable outbreaks [16, 18]. One occurred in a Virginia ALF that primarily housed residents with neuropsychiatric disorders; 12 diabetic residents became infected [18]. The other outbreak occurred in a North Carolina ALF and resulted in eight cases of acute HBV: all were hospitalized and six cases died of HBV complications [16]. In 2012, inadequate staff knowledge of the importance of utilizing existing sick leave policies when ill coupled with a lack of written infection control policies

contributed to severe respiratory infections and deaths in a Colorado ALF that specialized in the care of elderly persons with dementia and memory loss [20]. In addition to these published outbreak examples, information we collected from state health departments demonstrated that there is a substantial burden of ALF outbreak activity, particularly related to respiratory and gastrointestinal infections. Prevention and control of communicable diseases in residential facilities such as ALFs depends on limiting introduction of infectious agents (e.g., healthcare personnel vaccination and sick leave policies) as well as strategies to limit spread (e.g., basic infection control and reserve capacity to meet temporary increases in demands for services such as toileting and bathing). Clear outbreak reporting requirements, coupled with appropriate levels of public health epidemiologic and laboratory resources, could benefit ALF communities by enabling health departments to more effectively identify and investigate outbreaks, identify causative agents, and assist with implementation of control activities.

Preventing the spread of communicable diseases in ALFs depends in large part on a competent and well-trained workforce. We recommend that state regulations prescribe infection control training for ALF staff that may assist residents with their medical and personal care needs (Table 5). For example, infection control training for ALF staff that routinely assists with blood glucose monitoring would reduce risks of transmission of bloodborne pathogens that has been demonstrated with this task. Certain states have begun providing training and programs to assist with and promote these types of trainings. For example, Virginia, which has a robust ALF outbreak reporting requirement, first developed educational materials for blood glucose monitoring following outbreaks in the mid-2000s and recently created and distributed infection control toolkits through their state HAI program [15, 23]. Additional resources outlining appropriate infection control training for ALF staff include an infection control pocket guide from the non-profit Center for Excellence in Assisted Living that outlines specific infection control knowledge needs for ALF staff [27, 38]. Moving beyond training, states may also wish to consider strengthening ALF regulations around staff sick leave policies for ALF staff directly involved in resident care to reduce risks of spread of respiratory illness between infected staff and residents, as well as strengthening immunization policies for both residents and staff to ensure protection against illness in the ALF residential environment.

While state regulations provide one mechanism for establishing infection control requirements in ALFs, there are other existing federal mechanisms that can also help ensure safe care in these settings. In our analysis, nearly all state regulations allowed provision of care in ALFs by a third party, typically through a contract with a home health agency (HHA). Many HHAs are licensed at the state level and also receive reimbursement from or are certified by CMS. As a result, there may be opportunities to strengthen education and training requirements for HHA staff, including specific infection control issues in ALFs [39]. Additionally, some ALF residents with complex medical needs may be eligible for participation in a “Program of all-Inclusive Care for the Elderly” (PACE) program [11, 33, 40]. These programs provide comprehensive long term services and support to Medicaid and Medicare enrollees who meet state eligibility requirements for care in nursing homes, with a focus on keeping enrollees healthy and living in community settings including ALFs. While PACE programs may not serve all categories of assisted living residents or be available in

all 50 states [40], these programs may provide an additional opportunity, where available, to stipulate infection control requirements that would improve the safety of care received by ALF residents.

This review was subject to several limitations. Although regulations set requirements for ALFs to be licensed, we did not collect any data on policies or practices at individual ALFs. As such, we were unable to describe how frequently facilities either failed to meet or exceeded the requirements prescribed by state regulations. In addition, many states have unlicensed ALFs that are not subject to regulation by the state because of their small size or other facility characteristics. The lack of consistent reporting requirements and surveillance data for outbreaks of infectious disease in ALFs presents an ongoing challenge. Requested outbreak data was available from a limited number of states.

In summary, there is wide variation in how ALFs are regulated in the United States. Regulations that address the importance of infection control and prevention in ALFs can help ensure the safety of residents that live in these settings. Although some states have recently passed laws to assure safe delivery of healthcare in these settings, few state regulations specify requirements for infection control training or oversight. Further, as the number of ALF residents increases nationally, there is a growing need to establish standards and measure compliance related to healthcare delivery and communal living to minimize the risk of infections, outbreaks of disease, and other forms of harm among ALF residents.

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Table 1

Descriptive characteristics of state regulations describing licensure and operation of assisted living facilities, United States, 2012

Characteristics	n=50	%
ALF licensing agency		
Department of Health, Public Health, or Community Health	36	(72%)
Other state agency/department	14	(28%)
Year legislation took effect		
1998–2007	16	(32%)
2008–2012	34	(68%)
Multiple ALF licensing levels		
No	35	(70%)
Yes	15	(30%)
Terminology used to describe the facilities:		
Assisted living facility	44	(88%)
Community residential facility	2	(4%)
Residential care facility	2	(4%)
Other	2	(4%)

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Table 2

Assisted living facility resident admissions restrictions specified in state regulations, United States, 2012

Condition preventing admission	n=50	%
Requirement for continuous nursing care	34	(68%)
Being chronically bedridden	25	(50%)
Having a communicable disease requiring isolation and/or reporting*	21	(42%)
Having advanced stage III or IV pressure sores or ulcers	20	(40%)
Mental impairment or cognitive decline	17	(34%)
Feeding tube dependence	13	(26%)
Intravenous therapy dependence	11	(22%)
Ventilator dependence	10	(20%)
Other	30	(60%)
Any of the above	42	(84%)

* Including but not limited to tuberculosis, smallpox, and Hepatitis A

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Table 3

Assisted living facility healthcare staffing, infection control, and training requirements specified in state regulations, by time period in which the legislation took effect, United States, 2012

Characteristics	1998-2012		1998-2007		2008-2012		p-value
	n=50	%	n=16	%	n=34	%	
Staff Requirements							
Licensed health care professional oversees medical care	30	(60%)	10	(63%)	20	(59%)	0.80
Licensed health care professional is on-site 24 hours a day	5	(10%)	3	(19%)	2	(6%)	0.31
Licensed health care professional oversees infection control	3	(6%)	0	(0%)	3	(9%)	0.54
All staff are required to receive infection control training: *							
On hiring	7	(14%)	2	(13%)	5	(15%)	1.00
Within a specified time period from hiring	12	(24%)	4	(25%)	8	(24%)	1.00
Annually	7	(14%)	1	(6%)	6	(18%)	0.41
Other infection control training requirements	3	(6%)	2	(13%)	1	(3%)	0.24
Any of the above infection control training requirements mentioned	27	(54%)	9	(56%)	18	(53%)	0.83
Sub-contracting home health agencies or aides is permitted if: *							
Patient arranges hiring of aides independently	21	(42%)	6	(38%)	15	(44%)	0.66
ALF coordinates hiring of aides for individual residents	25	(50%)	10	(63%)	15	(44%)	0.23
ALF sub-contracts with agency for all residents	4	(8%)	1	(6%)	3	(9%)	1.00
Other specified criteria	4	(8%)	0	(0%)	4	(12%)	0.29
Any of the above sub-contracting options permitted	44	(88%)	14	(88%)	30	(88%)	1.00
Infection Control and Prevention							
Facility inspection includes infection control assessment	8	(16%)	4	(25%)	4	(12%)	0.25
Specific requirement to report cases of communicable disease	25	(50%)	4	(25%)	21	(62%)	0.02
Specific infection control measures referenced in the regulation:							
Personal protective equipment	11	(22%)	3	(19%)	8	(24%)	1.00
Hand hygiene	18	(36%)	6	(38%)	12	(35%)	0.88
Safe injection practices	5	(10%)	0	(0%)	5	(15%)	0.16
Other infection control practice**	5	(10%)	1	(6%)	4	(12%)	1.00

Characteristics	1998-2012		1998-2007		2008-2012		p-value
	n=50	%	n=16	%	n=34	%	
Any of the above infection control measures referenced	23	(46%)	7	(44%)	16	(47%)	0.83
Infection control guidelines/standards referenced: *							
Centers for Disease Control and Prevention	13	(26%)	1	(6%)	12	(35%)	0.04
Occupational Safety and Health Administration ***	5	(10%)	1	(6%)	4	(12%)	1.00
General infection prevention standard(s) ††	8	(16%)	1	(6%)	7	(21%)	0.41
Any of the above	22	(44%)	3	(19%)	19	(56%)	0.02
Specific reference to Standard or Universal Precautions:							
Standard Precautions	9	(18%)	0	(0%)	9	(26%)	0.04
Universal Precautions	16	(32%)	6	(38%)	10	(29%)	0.57
Either of the above	24	(48%)	6	(38%)	18	(53%)	0.31
Specific requirement for written infection control plan	18	(36%)	5	(31%)	13	(38%)	0.63

* States could select more than one

** Including but not limited to aseptic techniques, compliance with rules regarding special waste, immunization

*** Bloodborne Pathogens Standard, 29 CFR 1910.1030

†† Regulation includes general infection control language using terminology pertaining to “standard of care,” “scientifically accepted,” or “professional standards”

Assisted living facility medication administration and vaccination requirements specified in state regulations, by time period in which the legislation took effect, United States, 2012

Table 4

Characteristics	1998–2012		1998–2007		2008–2012		p-value
	n=50	%	n=16	%	n=34	%	
Medication Administration							
Medication administration addressed by regulation							
Oral medication administration allowed	29	(58%)	9	(56%)	20	(59%)	0.86
Intramuscular (IM) or subcutaneous (subQ)	19	(38%)	6	(38%)	13	(38%)	0.96
Staff allowed to administer IM/subQ injections:							
Registered nurses	5	(26%)	1	(17%)	4	(31%)	1.00
Not specific on who can administer IM/subQ injections***	14	(68%)	5	(83%)	9	(62%)	0.60
Intravenous/parenteral (IV) addressed by regulation	3	(6%)	1	(6%)	2	(6%)	1.00
Staff allowed to administer IV medications:							
Registered nurses	1	(33%)	0	(0%)	1	(50%)	1.00
Not specific on who can administer IV medications	2	(67%)	1	(100%)	1	(50%)	1.00
Vaccinations							
Offered or required for staff: *							
Influenza	4	(8%)	0	(0%)	4	(12%)	0.29
Other vaccinations**	5	(10%)	0	(0%)	5	(15%)	0.16
Any of the above vaccinations offered or required for staff	9	(18%)	0	(0%)	9	(26%)	0.04
Offered or required for residents: *							
Influenza	12	(24%)	2	(13%)	10	(29%)	0.29
Pneumococcal	11	(22%)	2	(13%)	9	(26%)	0.47
Other vaccinations**	2	(4%)	0	(0%)	2	(6%)	1.00
Any of the above vaccinations offered or required for residents	15	(30%)	2	(13%)	13	(38%)	0.10

* States could select more than one

** Including but not limited to MMR, Varicella, and other vaccinations that are in accordance with CDC guidelines

Including self

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Table 5

Policy options to address identified infection control gaps in Assisted Living Facility regulations

Policy options

- 1 States regulations should specify levels of on-site care that are appropriate for an ALF setting under different sets of conditions and staffing arrangements, with clear references to state nurse practice standards and related delegation authorities
- 2 State regulations should
 - a. specify adherence to the CDC Standard Precautions guideline* or otherwise outline basic infection control activities to protect ALF residents from preventable illness
 - b. require facilities to implement an infection control plan, preferably under the direction of a licensed healthcare professional, with staff training upon hire and at least annually thereafter
 - c. include assessment of infection control practices as part of facility inspections
- 3 State regulations should prescribe infection control training for ALF and Home Health Agency staff who may assist with the medical care of a resident. For example, states should develop policies and standards surrounding assisted monitoring of blood glucose.
- 4 States may also wish to consider strengthening ALF regulations regarding staff sick leave and immunization policies** and outbreak reporting

* Siegel JD, Rhinehart E, Jackson M, Chiarello L, and the Healthcare Infection Control Practices Advisory Committee, 2007 Guideline for Isolation Precautions: Preventing Transmission of Infectious Agents in Healthcare Settings

** Centers for Disease Control and Prevention. Immunization of Health-care Personnel: Recommendations of the Advisory Committee on Immunization Practices (ACIP). MMWR 2011;60(No. RR—7): 1–45.

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Table 6
 Summary of Outbreaks in Assisted Living Facilities Identified by Selected State Health Departments, 2010–2013

State	Number	Respiratory Illness outbreaks			Gastrointestinal Illness Outbreaks			Other Outbreaks	
		Example Pathogens [^]	Number	Example Pathogens [^]	Number	Example Pathogens [^]	Number	Example Pathogens [^]	
AZ [‡]	21	Influenza, Influenza-like illness	151	Norovirus	40	Conjunctivitis, Scabies,			
CA ^{*,†}	7	Influenza	75	Norovirus	36	Conjunctivitis, Hand foot and mouth disease, Pediculosis, Scabies,			
CO	25	Influenza, <i>Streptococcus pneumoniae</i>	NA	NA	NA	NA	NA	NA	
ID	7	Human metapneumovirus, Influenza	21	Norovirus	1	Scabies			
MD	49	<i>Haemophilus influenzae</i> , Human metapneumovirus, Influenza, <i>Legionella pneumophila</i> , Parainfluenza	161	Norovirus, Rotavirus, Sapovirus	10	Methicillin-resistant <i>Staphylococcus aureus</i> (MRSA), Scabies			
MI [§]	129	Influenza, Human metapneumovirus, <i>Legionella pneumophila</i> , Parainfluenza, Respiratory syncytial virus (RSV)	102	Norovirus	NA	NA	NA	NA	
OH [‡]	18	Influenza, <i>Legionella pneumophila</i>	85	<i>E.coli</i> O157, Norovirus, Rotavirus, <i>Salmonella</i> Typhimurium,	5	Scabies			
OR	19	Influenza, Respiratory syncytial virus (RSV)	123	Norovirus, Sapovirus	NA	NA	NA	NA	
TN	NA	NA	13	Norovirus	NA	NA	NA	NA	
TX ^{**,†}	4	Influenza	24	Norovirus	NA	NA	NA	NA	
VA	56	<i>Haemophilus influenzae</i> , Human herpesvirus 1, Influenza, Human metapneumovirus, Respiratory syncytial virus (RSV), Rhinovirus	315	<i>Clostridium difficile</i> , Norovirus, Rotavirus	15	Hepatitis B virus, Pediculosis, Scabies, <i>Streptococcus pyogenes</i>			

[^] Listed pathogens are not exhaustive and do not represent the total outbreak experience; many outbreaks were explained as “unknown origin.”

[‡] Includes stand alone ALF and combination assisted living facility/skilled nursing facilities

[†] Includes retirement/ALF, group homes and rehabilitation

[§] Includes retirement/ALF, long term care/skilled nursing facilities, and adult foster care

* January 1, 2010–December 31, 2012

** August 2011 – June 30, 2013