

**REPORT OF THE
VIRGINIA BOARD OF HEALTH PROFESSIONS
DEPARTMENT OF HEALTH PROFESSIONS**

**Expansion of the Use of
Medication Aides into Nursing
Homes [HJR 90 (2010)]**

**TO THE GOVERNOR AND
THE GENERAL ASSEMBLY OF VIRGINIA**



HOUSE DOCUMENT NO. 11

**COMMONWEALTH OF VIRGINIA
RICHMOND 2010**



COMMONWEALTH of VIRGINIA

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MEMORANDUM

TO: The Honorable Robert F. McDonnell, Governor of Virginia
Members of the General Assembly

FROM: Dianne L. Reynolds-Cane, M.D., Director *DLRC*
Department of Health Professions

RE: **Report on the Expansion of the Use of Medication Aides into Nursing Homes pursuant to HJR90 (2010)**

Pursuant to House Joint Resolution 90, the Department of the Health Professions conducted a study of the advisability of expanding medication aides into nursing homes. This study was conducted by the Regulatory Research Committee of the Board of Health Professions on behalf of the Department.

After consideration of the findings and comments, the Board recommended against expanding medication aides into nursing homes. Concerns were expressed about public safety because of the current medication error rates in nursing homes, in which only licensed nurses are permitted to administer medication.

We offer sincere appreciation to the individuals who serve on the Regulatory Research Committee, the staff of the Board of Health Professions, as well as other interested parties for their participation and assistance in collecting data and comment on the feasibility of the use of medication aides in nursing homes.

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EXECUTIVE SUMMARY

Background & Authority

The 2010 General Assembly adopted House Joint Resolution 90 (See Appendix A) directing the Department of the Health Professions to study the advisability of expanding medication aides into nursing homes. This study was conducted by the Regulatory Research Committee of the Board of Health Professions on behalf of the Department.

Major Findings

1. Medication administration is a regulated nursing activity.

Medication administration by unregulated personnel poses a risk of harm to patients. Medication administration is a regulated nursing activity usually performed by RNs and LPNs and denied to CNA and other personnel. In 2004, the Commonwealth discovered that unregulated personnel were administering medications in Assisted Living Facilities (ALFs) and created a new regulated occupational class with lesser qualifications—the Registered Medication Aide (RMA)—to perform this nursing task in ALFs. The current study examines whether a reduction in qualifications for this regulated activity is appropriate in nursing homes.

2. The RMA program in ALFs is new in Virginia, and there are questions about its appropriateness.

The current Virginia RMA program does not include some of the key provisions used to ensure patient safety in other states. These include a requirement for supervision by licensed clinicians and more stringent eligibility requirements. Although we only have one year of data, RMAs currently had a high discipline rate of 12 per 1,000 registrants for FY2010. The program has not been in place long enough to determine if the program as it exists is appropriate for ALFs.

3. Medication administration in Nursing Homes is categorically different than medication administration in ALFs.

Although there is some overlap in their populations, nursing home patients tend to suffer from more physical and cognitive deficiencies that prevent patient participation in administration and patient communication of errors or adverse reactions, etc. A significant number of patients in nursing homes are recovering from surgery or other acute conditions and do not have stable drug regimens. In addition, nursing home patients tend to take more medications and have more complex drug regimens. These factors increase the potential for error in administration and increase the need for professional evaluation and assessment skills.

4. Medication error rates in nursing homes are “unacceptable.”

A 2007 report by the Institute of Medicine described medication error rates in nursing homes as “unacceptable.” The report suggests that 12 to 14 percent of *doses* are administered incorrectly

and that there are over 800,000 preventable Adverse Drug Events in nursing homes in the US annually. The report suggests that wrong-time errors are rampant in nursing homes due to the length of medication passes.

5. Organizational factors are the main causes of medication errors.

Poor communication, fragmented medication use systems, nurse interruptions and staffing shortages are some cited causes of medication errors. There is little evidence on medication error rates by credential, and none of it suggests a difference in medication error rates by credential. One study found a significant correlation between nurse interruptions and error rates. However, if a facility has not made the necessary staffing or organizational investments necessary to lower medication errors, staff qualification requirements may be the last line of defense for patients.

6. Medication aides may help reduce interruptions and wrong-time errors in specific circumstances by increasing overall staffing; however, increased employment of LPNs would also address these concerns.

Medication aides may help to relieve administration errors caused by interruptions and wrong-time errors caused by staff shortages. Improvement would only occur if medication aides are used to increase overall staffing ratios.

7. Medication aides may be used as a substitute for nurses.

Virginia currently has no staffing ratio requirements in nursing homes. Although evidence is sparse, one national cross-sectional study suggests that nursing facilities with lower overall staffing levels are more likely to employ medication aides.

8. In the short-term, Virginia does not suffer from a shortage of LPNs; however, some rural areas may face a shortage.

Virginia is not projected to suffer from a shortage of LPNs and may have a slight surplus over the long-term. Recent economic conditions have caused a pause in a looming RN shortage; however, this is expected to be temporary and an overall shortage of nurses (LPN & RN combined) is projected. As with all health professions, uneven distribution often causes local shortages—particularly in rural areas.

9. Twenty states allow medication aides to administer medications in nursing homes.

Twenty states allow medication aides to administer medications in nursing homes. Many of these states have separate eligibility, training and registrations for medication aides in nursing homes. Most allow medication aides to administer PRN (as needed) medications. Some allow them to administer by tube or rectally/vaginally while other states specifically prohibit this practice. Some states specifically prohibit administration of Schedule II drugs or narcotics.

10. Most states require nurse delegation or supervision of medication aides in nursing homes.

Virginia is in the minority in that it does not require nurse delegation or supervision of RMAs in ALFs. By requiring nurse delegation, states ensure that nurses retain responsibility for medication administration.

11. Certified Nurse Aide (CNA) credentials are a widely-recognized eligibility standard for medication aides in nursing homes.

In most states that allow medication aides in nursing homes, only CNAs are eligible. The National Council of State Boards of Nursing includes a CNA eligibility requirement in its model curriculum for medication aides regardless of setting. Comments from the public and from a stakeholder roundtable suggest that this would be an assumed pre-requisite for medication aide training for nursing home practice in Virginia.

12. States use a variety of other eligibility requirements.

Some states require experience as a CNA—up to two years in some cases. Some states require that CNAs have experience with a specific population. Some states require that each applicant be employed by the facility in which he intends to administer medications or to have a recommendation from a facility.

13. Training requirements vary; the NCSBN has created a model curriculum.

Training requirements vary based on a variety of factors, including the specific eligibility requirements of each state, the nature of the registration (broad or facility-type specific) and the scope of practice of medication aides. Training requirements range from 20 hours to 140 hours of specific medication aide training and usually include a significant clinical portion. The National Council of State Boards of Nursing has developed a model curriculum based on a thorough job analysis of medication aides in all settings. The model curriculum includes 60 hours of didactic training and 40 hours of clinical training.

14. ALFs face the prospect of losing their medication aide workforce; facilities may be reluctant to train new medication aides if they cannot ensure a return on training investments.

Virginia's ALFs have spent the last few years creating medication aide training programs and training close to 4,000 RMAs to meet new requirements. Just over half of RMAs are also CNAs and the proportion of RMAs who are also CNAs appears to be increasing. Unless specific measures discourage it, ALFs may lose a significant proportion of this workforce to nursing facilities should they be allowed to use medication aides. Over the long term, facilities may be reluctant to invest in training and training programs unless they can secure a return on that investment. Public investment in education is the usual solution to this common problem.

Recommendation

At its September 29, 2010 morning meeting, the Regulatory Research Committee recommended against expanding medication aides into Nursing Homes. This recommendation was adopted by the Board of Health Professions (seven in favor, three opposed and one abstention) at its meeting the same day. During discussion, Committee and Board members considered the findings and added the following comments. They were concerned about high medication error rates in nursing homes currently, when only licensed nurses are permitted to administer medication. Those opposed to the recommendation indicated that a pilot program may be beneficial; however, the majority opined that no demonstration project was warranted at this time. Greater experience with RMAs in Virginia and elsewhere may lead to a different conclusion, but concerns about patient safety at this time preclude piloting.

BACKGROUND & AUTHORITY

In March 2010, the General Assembly adopted House Joint Resolution 90 (HJ90—See Appendix A) directing the Department of Health Professions to investigate the advisability of expanding the use of medication aides to nursing homes. In 2007, Virginia enacted laws requiring regulation and registration of medication aides meeting qualification standards, and allowing these medication aides to administer medications in assisted living facilities. Twenty states have previously enacted similar legislation permitting medication aides to practice in nursing homes. Nursing homes that use medication aides report that licensed nurses are able to devote more time to nursing specific patient care and assessment. The growing emphasis on “healthcare teams” in nursing homes has created additional demands on nursing staff. The House Joint Resolution states that the inclusion of medication aides may enhance nursing home “healthcare teams” and may improve the quality of service that residents receive.

This study sought to evaluate the risks and benefits of allowing medication aides to administer medications in nursing home facilities and to identify issues and options the General Assembly, the Secretary and the Governor should consider before expanding the regulation of medication aides into nursing homes in the Commonwealth of Virginia.

The Virginia Board of Health Professions has statutory authority to advise the Governor, the General Assembly, and the Department Director on matters related to the regulation and level of regulation of health care occupations and professions (ref. §54.1-2510 of the *Code of Virginia*). The Board of Health Professions chair assigned the study to the Regulatory Research Committee. At the Board’s May 4, 2010 meeting, the Study Workplan was adopted. It was updated on July 13, 2010 to facilitate discussion and input by stakeholders on this complex topic.

Study Scope & Methodology

The general scope of this study was to:

- Research the prevalence of medication aides in nursing homes in other states;
- Evaluate the risks associated with medication aide presence in nursing homes;
- Examine the potential for such additional level of staff in nursing homes in Virginia to enhance team care and extend licensed nursing care for residents; and
- Consider the regulatory protections and safeguards needed if medication aides were permitted to administer certain medications in nursing homes in the Commonwealth.

To help the Committee address these goals, the following undertakings have been accomplished:

1. Review the general policy literature related to the regulation of medication aides in nursing homes.
2. Review the current relevant federal and states’ laws and regulations.
3. Review available data to address the concern of risk of harm to the public.
4. Review available data which addresses the potential benefits to the public.

CONTEXT

The Increasing Need for Long-Term Care

Senior citizens make up a growing proportion of our population. The US Census Bureau projects that the proportion of Virginia residents aged 65 years or older will increase from 11.2 percent in 2000 to 18.8 percent in 2030.¹ The need for long-term care—including Assisted Living Facilities (ALFs) and nursing homes will increase as the population ages. Furthermore, the Urban Institute estimates that the number of older adults with disabilities will increase from 10 million to 21 million between 2000 and 2040.² The US Department of Health & Human Services also expects the number of Americans *needing* long-term care to grow from 15 million in 2000 to 27 million in 2050. The number of elderly individuals *using* long-term care facilities will grow from 8 million to 19 million.³

An increase in the elderly population and elder disability may have serious implications for nursing home facilities. The National Center for Health Statistics estimated there were 1.5 million nursing home residents in the United States in 2004. Of these, 88.3 percent were aged 65 years and older and 45.2 percent were aged 85 years and older.⁴ Additionally, the baby-boomer generation has fewer adult children to provide or assist with elder care. As the population ages, the Urban Institute estimates the number of older residents in nursing homes will more than double from 1.2 million to 2.7 million between 2000 and 2040.⁵

Assisted Living Facilities & Nursing Homes

There are two main categories of residential long-term care facilities in the United States: Assisted Living Facilities (ALFs) and nursing homes. ALFs are *non-medical* facilities that provide non-medical services to persons unable to live independently. ALFs provide around-the-clock monitoring, coordination of outside medical services and assistance with activities of daily living. In Virginia, ALFs are regulated by the Department of Social Services (DSS) and Assisted Living Administrators are licensed by the Board of Long-Term Care Administrators within the

¹ Virginia Healthcare Workforce Data Center. *Physician Forecasting in Virginia 2008-2030*. Richmond, VA. July 2010.

² Johnson, R.W., Toohey, D., & Weiner, J.M. (2007). Meeting the long-term care needs of the baby boomers: How changing families will affect paid helpers and institutions. Urban Institute. <http://www.urban.org/url.cfm?ID=311451>.

³ Department of Health and Human Services Office of the Assistant Secretary for Planning and Evaluation (ASPE) (2003). Report to Congress: The future supply of long-term care workers in relation to the aging baby boomer generation. [Htypp://aspe.hhs.gov/daltcp/reports/lcwork.htm](http://aspe.hhs.gov/daltcp/reports/lcwork.htm)

⁴ National Center for Health Statistics. *The National Nursing Home Survey: 2004 Overview*. US Dept. of Health & Human Services, Centers for Disease Control & Prevention. Vital and Health Statistics Series 13, Number 167. June 2009.

⁵ Johnson, R.W., Toohey, D., & Weiner, J.M. (2007). Meeting the long-term care needs of the baby boomers: How changing families will affect paid helpers and institutions. Urban Institute. <http://www.urban.org/url.cfm?ID=311451>.

Department of Health Professions (DHP). In Virginia, the Assisted Living Administrator is the only staff member required to have a state license.

Nursing homes are medical facilities that provide 24-hour skilled nursing and medical services as well as personal services such as assistance with activities of daily living. In Virginia, nursing homes are regulated by the Department of Health (VDH). Additionally, most of these facilities are certified as providers by the Centers for Medicare & Medicaid Services (CMS)—a process largely performed by VDH. These facilities employ doctors, nurses, nurse aides, and other health care personnel to care for and provide medical treatment to residents. Nursing homes rely heavily upon nursing staff (RNs and LPNs) and Certified Nurse Aides (CNAs) to provide quality care for residents.

Virginia law currently allows Registered Medication Aides to administer (with limitations) medications that would otherwise be self-administered in ALFs. Nurses currently fill this role in nursing homes.

MEDICATION AIDES IN VIRGINIA

History of Medication Aides in Virginia

In 2004, a series of media articles led Virginia to tighten regulation of Assisted Living Facilities. While most facilities were well run, these articles and a subsequent Virginia Board of Health Professions (BHP) study revealed often gross lapses in quality—including personnel quality—at some facilities. In response, the General Assembly required licensure of assisted living administrators and medication aides for the first time. Virginia's Medication Aide Registry is an ad hoc program designed to prevent deficiencies in medication administration in ALFs. It regulates an existing workforce whose unregulated practice posed a demonstrated risk of harm to ALF residents. Although the medication aide registry law was first passed in 2005, due to legislative changes, it was not fully implemented until August of 2009. Since the registry has been in place for such a short-period of time, the implications of this program—its adequacy in protecting residents and the overall economic effects—are still playing out.

Registered Medication Aides in Assisted Living Facilities (ALFs) in Virginia

In order to administer medications in ALFs, medication aides must be listed on the Medication Aide Registry maintained by the Virginia Board of Nursing.

Registered medication aides (RMAs) who are employed in ALFs in Virginia are regulated by the Virginia Board of Nursing through regulations entitled, "The Final Regulations Governing the Registration of Medication Aides" (§18VAC90-60-10 et seq.). These regulations address the creation of medication aide training programs, registration requirements, standards of practice, and disciplinary action. Although originally effective July 1, 2007, the regulations currently in place became effective July 1, 2009 and required that applicants meet the requirements for

registration beginning August 1, 2009. Table 1 (next page) provides an overview of the training requirements, content areas, costs, and other requirements for registration as a medication aide.

TABLE 1. : CURRENT VIRGINIA REQUIREMENTS FOR REGISTRATION OF MEDICATION AIDES IN ASSISTED LIVING FACILITIES

Title	Training Requirements	Content Areas	Costs	Level of Supervision	Requirements for Registration
Registered Medication Aide	Didactic: 40 hours Supervised Clinical: 20 hours Insulin Administration Module: 8 hours TOTAL: 68 hours	- administration of medication - aseptic conditions - basic pharmacology - facilitating client self-administration or assisting with medication administration - proper procedure - documenting and reporting	App fee: \$50 Annual renewal fee: \$25 PSI Testing Fee: \$70	Assisted Living Administrator* or Licensed Nurses	-DSS-approved staff training program in direct client care OR approved nurse aide program - medication aide training program, nursing education program -State exam
*Per DSS regulations. Assisted Living Administrators must complete a medication aide course, but are not required to become Registered Medication Aides.					

The Drug Control Act of Virginia (§54.1-3408 of the *Code of Virginia*) authorizes unlicensed personnel to administer medication in ALFs and also required the Virginia Board of Nursing to promulgate regulations governing medication aides. RMAs must also comply with Board of Pharmacy Regulations related to the control, dispensing and administration of drugs. These regulations limit some activities, such as the use of “stat” drug boxes, to certain practitioners (e.g., licensed nurses). The Virginia Department of Social Services (VDSS) also maintains extensive regulations regarding medication administration, medication management, documentation, and the use of specific medications which apply to medication aides working in licensed ALFs.

The Virginia Board of Nursing regulates medication aide training programs. Training programs must be in place and approved before enrolling students, and must use the 68-hour Board of Nursing curriculum. Instructors must be licensed RNs, LPNs or pharmacists who are authorized to administer drugs and have three years of experience administering drugs. Those without the requisite experience, however, may act as secondary instructors for practical skill sections of the course. Instructors must hold an active, current, unrestricted license and successfully complete a “train-the trainer” course; however, the Board of Nursing does not regulate trainers or track train-the-trainer courses.

The training program for registration as a medication aide consists of 40 didactic hours, 20 supervised clinical hours and an eight hour insulin module. Prior to enrolling in the course, students must complete either a DSS-approved staff training program in direct care or a nurse aide education course. Content areas include preparing for safe administration of medication, maintaining aseptic conditions, understanding basic pharmacology, facilitating client self-administration or assisting with medication administration, following proper procedure, and following appropriate procedures for documentation and reporting. To complete the course, students must undergo a clinical evaluation and pass a written and practical exam. After

successful completion of these requirements, students are eligible to sit for the State Registry Exam. Alternatively, medication aides certified or registered in another state or the District of Columbia may apply to sit for the state exam. Applicants must score 70 percent correct or greater on this state exam (administered by a private testing company) to be listed on Virginia’s Medication Aide Registry. Registered Medication Aides must complete at least four hours of population-specific medication aide continuing education, over and above any direct client care training required by DSS.

TABLE 3: CURRENT STANDARDS OF PRACTICE FOR REGISTERED MEDICATION AIDES IN VIRGINIA ASSISTED LIVING FACILITIES: 18VAC 90-60-110	
A Registered Medication Aide SHALL:	A Registered Medication Aide SHALL NOT:
<ul style="list-style-type: none"> - document and report all medication errors and adverse reactions immediately to a licensed healthcare professional or prescriber - give all medications in accordance with prescriber’s orders and instructions and document administration in client’s record - document and report any information giving reason to suspect abuse, neglect, or exploitation immediately 	<ul style="list-style-type: none"> - transmit verbal orders to a pharmacy - make an assessment of a client or deviate from medication regime ordered by prescriber - mix, dilute, or reconstitute two or more drug products, with the exception of insulin and glucagon - <i>administer by:</i> <ul style="list-style-type: none"> intramuscular route intravenous route nasogastric route percutaneous endoscopic gastric tube route

Concerns relating to Medication Aides in Virginia ALFs

Since ALFs are non-medical facilities, they are not required to have a medical staff (though many choose to employ licensed nurses or other medical staff). ALF Administrators, who may be the only licensed staff at an ALF, are not required to have any medical training. If an ALF does use medication aides to administer medications to ALF residents, it must either employ an individual licensed to administer medications to supervise the medication aides OR the ALF administrator must supervise RMAs. ALF administrators who supervise RMAs must first successfully complete the registered medication aide training curriculum (§22VAC 40-72-210). However, the ALF Administrator is not required to become a Registered Medication Aide and cannot administer medications himself unless he does. In ALFs that do not employ nurses or other medical staff, medication aides may be the most highly credentialed medication-related staff on the premises.

Related to this is the fact that ALFs are not required to have licensed medical personnel on staff or to have these personnel available around the clock. Thus, nurses and physicians may not be available to respond to emergencies—particularly those related to adverse medication reactions or medication errors by RMAs. If an emergency does occur, calling 911 may be the only recourse and residents may experience a significant delay in receiving medical care. As medical facilities, nursing homes employ licensed nurses and other staff that allay these concerns

Medication Administration by Unlicensed Personnel in Virginia

Unlicensed assistive personnel (UAP) administer medications in other settings including child and adult day care centers licensed by the Virginia Department of Social Services (VDSS), facilities licensed by the Department of Behavioral Health and Developmental Sciences (DBHDS), facilities licensed by the Department of Corrections (DOC), facilities licensed by the Virginia Association of Independent Special Education Facilities (VASIEF), and the Virginia Department of Education. These individuals are not regulated by the Virginia Board of Nursing. However, the Board of Nursing does approve medication administration training programs per regulations. Table 2 provides an overview of the medication administration training program requirements for *most* of these medication aides. Depending on the type of facility and the population served, other agencies may supplement the Board of Nursing curriculum. The Board of Nursing approves distinct training programs, per regulations, for medication aides in licensed child day care facilities and VAISEF-licensed special education facilities. The curriculum in these programs is shorter and specific to the needs of the populations served. Regulations consistent with this shorter training and the specific needs of these populations restrict the types and routes of medications these aides may administer.

Program Requirements	Training Requirements	Curriculum Requirements	Examination Requirements
<ul style="list-style-type: none"> - shall be submitted to Virginia Board of Nursing for approval - taught by RNs, LPNs & Pharmacists 	<ul style="list-style-type: none"> - 32 hour of didactic and skill instruction - 8 hour diabetic module added by DSS 	<ul style="list-style-type: none"> -prepare for safe administration to clients in specific settings - maintain aseptic conditions - facilitate client self-administration or assisting with medication administration - administers medications via: <ul style="list-style-type: none"> Oral Eye Ear Nasal Topical Vaginal Rectal Inhalation - documentation - medication management - facilitating client self-administration or assisting with insulin administration 	<ul style="list-style-type: none"> - must pass a written and practical competency exam at the conclusion of training to receive a certificate of completion.* <p>*This should not be confused with the State Exam required for Registered Medication Aides.</p>

MEDICATION AIDES IN NURSING HOMES OUTSIDE OF VIRGINIA

Training & Eligibility

Many states allow specifically trained unlicensed assistive personnel to administer medications in nursing homes. States use a confusing litany of names to refer to these persons such as certified medication aide (CMA), medication technician (MT), certified medication technician (CMT), medication assistant, medication aide, unlicensed personnel and medication administrative personnel. Adding to the confusion is that some states designate particular names based on credentials, work settings or other qualifiers. Names and qualifiers do not always conform across states. For this report, BHP staff uses the term “medication aide” to refer to *any* unlicensed person that administers medications unless otherwise noted in the text.

Medication aides are present in a wide variety of facilities, including nursing homes. According to legal research performed by law student Jessica Glajch on behalf of the Board, 20 states allow unlicensed personnel to administer medications in nursing homes. The state Board of Nursing regulates the majority of medication aides in nursing homes; however some aides are regulated through the state Department of Health or other agencies. There is considerable variation regarding the amount of training medication aides receive, their scope of practice, and specifics related to supervision. Requirements range from a high school diploma and 20 hours of approved training in South Dakota to Certified Nurse Aides (CNA) with 140 hours of additional medication aide training in Texas. With the exception of South Dakota, each of these states only allows personnel already regulated as direct care workers—primarily CNAs—to become nursing home medication aides. Many also require up to two years of experience as CNAs. The CNA profession is subject to federal regulations (in Title 42, §483.152 of the Public Health Federal Regulations requiring at least 75 hours of training, including 16 hours of clinical training, using a federally-mandated curriculum. Additionally, they must pass a federally-mandated competency exam. In each state requiring it, CNA designation is an eligibility requirement for a distinct medication aide program—medication training and administration authority are not included in CNA credentials. Other notable requirements include a recommendation from a facility or clinical supervisor, employed status at a nursing home and experience with the specific population of facility to be served. An overview of requirements appears in Table 3:

State	Title	Eligible Professions	Experience Requirements	Training Requirements	Costs
Arkansas	Medication Assistive Person/ Medication Assistant - Certified	Certified Nurse Aide	1 year	Didactic: 45 hours Clinical: 40 hours Skills Lab: 15 Total: 100 hours	initial: \$65 exam fee and renewal fee unknown
Indiana	Qualified Medication Aide	Certified Nurse Aide	1,000 hours within the last 24 months	Didactic: 60 hours Clinical: 40 hours Total: 100 hours	initial fee: \$75 yearly fee: \$10

Iowa	Certified Medication Aide	Nurse aide	6 months	"Approved Courses"--varies Didactic: 40 hours Clinical: 10 hours Total: 50 hours	None
Kansas	Certified Medication Aide	Nurse Aide	None required	Didactic:50 hours Clinical: 25 hours Total: 75 hours	initial fee: \$20 renewal: \$10
Kentucky	Medication Aide Credentialed	Nurse Aide	6 months	Total: 80 hours	exam fee: \$40
Maryland	Medication Aide	Geriatric Nursing Assistant	Employed	Total: 60 hours	
Minnesota	Trained Medication Aide	Nursing Assistant			
Missouri	Certified Medication Aide (Level II & III)	Nursing Assistant	6 months	Didactic:60 hours Clinical: 8 hours Total: 68 hours	
Nebraska	Medication Aide 40 Hour	Nursing Assistant		Total: 40 hours	app fee: \$18 examination fee
New Hampshire	Licensed Nursing Assistant - Medication Certified	Nursing Assistant	2 years full-time or equivalent within past 5 years.	Didactic: 30 hours Clinical: 30 hours	app fee: \$10
North Carolina	Medication Aide	Nurse Aide I & Medication aide (non nursing home)		24 hours	exam fee: \$55
North Dakota	Medication Assistant (Level II or III)	Unlicensed assistive person registry		Didactic: 30 hours Clinical: 32 hours Laboratory: 8 hours Total: 70 hours	\$30 fee
Oklahoma	Certified Medication Aide	Home Health Aide, Long-term care aide, Developmentally disabled direct care aide		Didactic: 24 hours Clinical: 16 hours Total: 40 hours	app fee: \$50 renewal: \$10
Ohio	Medication Aides Certified	Nurse Aide		Didactic: 80 hours Clinical: 40 hours Total: 120 hours	app fee: \$50
Oregon	Certified Medication Aide	Nursing Assistant	6 months	Total: 80 hours	app fee: \$73 renewal: \$15
Rhode Island	Medication Aide	Nursing Assistant	"demonstrated competency in medication administration"	Didactic: 45 hours Clinical: skills demonstration Total: 45 hours	app. fee: \$40 written exam:\$20 clinical exam:\$35 total: \$95

South Dakota	Unlicensed Assistive Personnel			Didactic: 16 hours Clinical: 4 hours Total: 20 hours	UNKNOWN
Texas	Medication Aide	Nurse Aide	employed as nurse aide in nursing facility	Didactic: 100 hours Clinical: 10 hours Skills Lab: 30 hours Total: 140 hours	permit app and exam fee: \$25
Utah	Medication Aide Certified	Certified Nurse Aide	2,000 hours within the last two years	Didactic: 60 hours Clinical: 40 hours Total: 100 hours	app fee: \$90
Wisconsin	Medication Aide	listed on the registry as able to work in federally-certified health care settings	2,000 hours within the last three years, 40 hours with the specific population served	Didactic: 60 hours Clinical: 40 hours Total: 100 hours	UNKNOWN

Table 3: Eligibility requirements for unlicensed medication administration in nursing homes. A blank means no requirement is mentioned in published law or regulations.

Scope of Practice

Many states limit the types of medications and routes of administration available to medication aides in nursing homes. Limitations on types of drugs include restrictions or bans on administration of PRN medications, Schedule II medications or narcotics by medication aides. Many states do not allow medication aides to administer medications by injection, intravenously, through tubes or vaginally/rectally. Some states set limits on the types of patients or conditions involved, including requirements that patients have stable conditions with predictable medication regimens. An overview of these limitations appears in Tables 4 & 5:

	PRN medications	Schedule II	Narcotics	Other
Arkansas		NO	NO	
Indiana	Limited	NO	NO	crush, alter medications
Iowa	Yes	Yes	Yes	crush, alter medications
Kansas				
Kentucky				
Maryland	Limited			
Minnesota	Yes	Yes	Yes	
Missouri	Yes	Yes	Yes	
Nebraska	Limited			
New Hampshire	Yes			
North Carolina				
North Dakota				
Oklahoma	Limited			

Ohio	Yes	NO		
Oregon	Yes	NO	NO	
Rhode Island	Yes	NO	Yes	accept verbal/telephone orders
South Dakota	Yes	Limited		
Texas	Limited	Yes		crush, alter medications
Utah	Yes			crush, alter medications
Wisconsin	Yes	Yes		

Table 4: Limitations on types of medications. Blank spaces indicate that the item is not specifically allowed or disallowed in statute or regulations

State	Oral	Ear	Eye	Inhaled	Nasal	Topical	Injection	Intra-venous	Tubular (G-tube, J-tube, Nasogastric)	Vaginal/Rectal
Arkansas	Yes	Yes	Yes	Yes	Yes	Yes	NO	NO	NO	Yes
Indiana	Yes	Yes	Yes	Yes	Yes	Yes	NO		Yes - no nasogastric	Yes
Iowa										
Kansas										
Kentucky										
Maryland	Yes					Yes	NO		NO	Yes
Minnesota	Yes	Yes	Yes	Yes		Yes				Yes
Missouri										
Nebraska	Yes	Yes	Yes	Yes	Yes	Yes				
New Hampshire										
North Carolina										
North Dakota	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes - no nasogastric	Yes
Oklahoma	Yes	Yes	Yes	Yes	Yes	Yes			Yes	Yes
Ohio	Yes	Yes	Yes	Yes	Yes	Yes	NO	NO	NO	Yes
Oregon	Yes	Yes	Yes	Yes	Yes	Yes	NO	NO	Yes	Yes
Rhode Island	Yes	Yes	Yes	Yes	Yes	Yes	NO	NO	NO	Yes
South Dakota	Yes			Yes		Yes	NO	NO	NO	Yes
Texas	Yes	Yes	Yes	Yes	Yes	NO	NO	NO	NO	Yes
Utah	Yes	Yes	Yes	Yes	Yes	Yes	NO	NO	NO	Yes
Wisconsin										

Table 5: Limitations on routes of administration. Blanks indicate that the item is not specifically allowed or disallowed in regulation or statute.

NCSBN Job Analysis

In 2006, the National Council of State Boards of Nursing (NCSBN) performed a job analysis of medication aides in all settings. The results of this analysis were published in March of 2007. The NCSBN sent 7,000 surveys to medication aides in all settings in 13 states that maintained a registry and were able to provide adequate contact information. The NCSBN received 1,433 valid responses. Of these, 56.1 percent were from medication aides employed by long-term care facilities (nursing homes) and 32.5 percent were from ALFs. The surveys asked medication aides to rate the frequency and importance of 104 tasks. Medication aides rated each task on a scale of 0 to 4 for the frequency each task is performed on a typical shift, with 0 being “less than 1 time” and 4 being “4 times or more”. They rate each task on a scale of 1 to 4 for importance with 1 being “Not Important” and 4 being “Extremely Important”. The NCSBN reported the average results. The NCSBN report also provided results on importance broken down by work setting, providing us with some insight into the work performed in specific facilities. BHP staff further examined the results to gain insight into the difference between medication administration in ALFs and in nursing facilities. The full results appear in Appendix B. Tables 6, 7, 8 and 9 provide an overview.

Task #	Label	Frequency	Importance	ALF importance	LTC Importance
T14	Administer oxygen as ordered	2.26	3.61	3.61	3.71
t60	Administer PRN medications	3.07	3.66	3.63	3.72
t61	Administer medications by gastric tube	1.88	3.31	3.08	3.5
t62	Administer medications by nasogastric tube	0.85	3.05	2.95	3.19
t63	Administer medications by jejunostomy	1.28	3.12	2.95	3.29
t64	Administer subcutaneous medication	1.96	3.26	3.35	3.31
t65	Administer an emergency medication	0.68	3.22	3.12	3.31
t66	Administer a medication by rectal route	1.27	3.38	3.34	3.48
t67	Administer a medication by vaginal route	0.9	3.26	3.24	3.35
t68	Administer a medication by intradermal route	0.97	3	2.96	3.14
t69	Administer medication by sublingual route	1.43	3.53	3.51	3.63
t70	Administer medication by transdermal route	2.14	3.61	3.63	3.71
t71	Administer medication by a metered dose inhaler	2.53	3.59	3.6	3.66
t72	Administer medication by nebulizer	2.3	3.55	3.59	3.6
t73	Administer ear medications	1.58	3.54	3.59	3.57
t74	Administer eye medications	2.85	3.64	3.69	3.69
t75	Administer nasal medication	2.26	3.58	3.62	3.62
t76	Administer oral medication	3.6	3.8	3.8	3.82
t77	Administer topical medication	2.63	3.6	3.6	3.62

Table 6: The frequency and importance of various medication types and administration routes.

Table 6 lists the frequency and importance medication aides report for medication administration routes, overall and as reported by medication aides employed in ALFS and Long-Term Care facilities (LTCs). Significantly, medication aides listed administering PRN medications as a frequent activity, while administration by tube or rectally/vaginally were relatively infrequent. Nevertheless, medication aides reported performing many of these tasks one to two times per shift on average. This may indicate that when able to administer medications via these routes, medication aides are asked to do it often, rather than an indication of the prevalence of this practice.

Task #	Label	Frequency	Importance	ALF importance	LTC Importance
t12	Identify signs and/or symptoms of high or low blood sugar	2.22	3.78	3.81	3.84
t13	Report signs and/or symptoms of high or low blood sugar	2.18	3.81	3.82	3.87
t15	Check oxygen saturation percentage using pulse oximetry	2.43	3.51	3.46	3.67
t17	Take client's apical pulse	2.56	3.57	3.57	3.69
t18	Respond to signs and/or symptoms of high or low blood sugar	2.09	3.74	3.78	3.78
t21	Notify appropriate personnel of change in client's condition	2.68	3.77	3.78	3.82
t26	Documents adverse effects/side effects of clients medication	2.24	3.76	3.76	3.8
t49	Identify if a medication or route is appropriate to administer	3.25	3.87	3.86	3.91
t55	Observe client's responses to medication	3.38	3.81	3.78	3.85
t56	Report client's responses to medication	2.88	3.78	3.77	3.84
t57	Observe client for adverse effects/side effects of medications	3.05	3.84	3.82	3.9
t58	Respond to client's adverse reaction to medication according to facility/agency policy	1.91	3.8	3.78	3.85
t59	Withhold medication if necessary	1.75	3.71	3.69	3.78
t82	Administer medications prepared by self, not others	3.63	3.89	3.87	3.92
t84	Mix insulin from two different vials for client	1.29	3.17	3.2	3.26
t97	Check for client allergies	3.17	3.83	3.81	3.87
t101	Recognize life threatening emergencies	1.68	3.89	3.87	3.91

Table 7: Frequency and importance of evaluation-related tasks

Table 7 lists tasks that may be categorized as nursing tasks, particularly assessment or monitoring tasks. The survey results indicate that medication aides perform these tasks frequently as well, particularly identifying if an administration route is appropriate, checking for allergies and observing responses and adverse reactions to medications. Medication aides also

report frequently administering medications “prepared by self”, although this phrase was not further defined in the survey instrument.

Task #	Label	ALF Importance	LTC Importance	Dif
t78	Use the six "rights" when administering medications	3.97	3.98	-0.01
t81	Follow medication directions and warning labels	3.91	3.96	-0.05
t79	Checks medications three times before giving	3.93	3.96	-0.03
t46	Maintain confidentiality	3.91	3.95	-0.04
t80	Observe client swallowing oral medications	3.93	3.95	-0.02
t98	Maintain infection control procedures	3.94	3.95	-0.01
t51	Count controlled substances	3.87	3.94	-0.07
t93	Maintain security of controlled substances according to legal statutes and facility/agency policy	3.91	3.94	-0.03
t43	Report client abuse, neglect, injury	3.86	3.93	-0.07
t99	Follow facility/agency procedures to verify client identity	3.85	3.92	-0.07
t82	Administer medications prepared by self, not others	3.87	3.92	-0.05
t88	Review medication orders for completeness	3.89	3.92	-0.03
t49	Identify if a medication or route is appropriate to administer	3.86	3.91	-0.05
t92	Maintain security of medication storage areas	3.87	3.91	-0.04
t47	Provide for client's privacy	3.87	3.91	-0.04
t101	Recognize life threatening emergencies	3.87	3.91	-0.04
t28	Document client's medication administration according to facility/agency policy	3.88	3.91	-0.03
t57	Observe client for adverse effects/side effects of medications	3.82	3.9	-0.08
t50	Follow agency policy related to HIPAA or FERPA rules	3.8	3.89	-0.09
t42	Report unsafe practice by a health care worker	3.84	3.89	-0.05
t94	Maintain clean technique	3.85	3.89	-0.04
t52	Report medication errors according to facility/agency policy	3.86	3.88	-0.02
t95	Follow safety policies/procedures used to prevent incidents and accidents	3.87	3.88	-0.01
t83	Identify expiration date prior to administration of medication	3.87	3.88	-0.01
t97	Check for client allergies	3.81	3.87	-0.06
t87	Provide adequate liquids when administering medication	3.82	3.87	-0.05
t13	Report signs and/or symptoms of high or low blood sugar	3.82	3.87	-0.05
t36	Use knowledge of medical terminology to interpret symbols, common abbreviations, and terminology used in administration of medications	3.76	3.85	-0.09
t58	Respond to client's adverse reaction to medication according to facility/agency policy	3.78	3.85	-0.07
t55	Observe client's responses to medication	3.78	3.85	-0.07
t29	Document medication errors according to facility/agency policy	3.83	3.85	-0.02
t91	Properly store medications	3.87	3.85	0.02
t86	Prepare medication for administration (crushing, mix with food)	3.73	3.84	-0.11

t56	Report client's responses to medication	3.77	3.84	-0.07
t12	Identify signs and/or symptoms of high or low blood sugar	3.81	3.84	-0.03
t104	Date appropriate medication when first used	3.83	3.84	-0.01
t54	Position a client for medication administration	3.68	3.83	-0.15
t89	Review possible adverse effects/side effects of medications	3.78	3.82	-0.04
t21	Notify appropriate personnel of change in client's condition	3.78	3.82	-0.04
t76	Administer oral medication	3.8	3.82	-0.02
t103	Maintain clean work environment	3.76	3.81	-0.05
t26	Documents adverse effects/side effects of clients medication	3.76	3.8	-0.04

Table 8: Tasks rated as most important by medication aides in long-term care facilities and difference from the rating by ALF administrators.

Table 8 lists the most important tasks in LTC facilities—using 3.8 as an arbitrary cutoff—and compares them to ALFs. The average importance rating of tasks by LTC medication aides ranged from 2.99 to 3.98 on the 1 to 4 scale, suggesting all tasks are important to some degree. The fifth column, labeled “dif” shows the difference in average importance ratings between the facility types by subtracting the LTC rating from the ALF rating. A positive value indicates a task is rated as more important in ALFs while a negative value indicates the opposite. Most of the tasks with a high importance rating in LTCs are also important in ALFs. There are some notable differences, however. Medication aides in ALFs do not see positioning clients for medication administration (e.g., sitting up to take some medications) or preparing medication for administration (e.g., crushing, mixing with food) particularly important to their job. This reflects the more active role medication aides must take when serving LTC patient populations.

Task #	Label	ALF Importance	LTC Importance	Dif	Abs. value
t11	Use restraints according to agency policy	2.68	3.11	-0.43	0.43
t61	Administer medications by gastric tube	3.08	3.5	-0.42	0.42
t63	Administer medications by jejunostomy	2.95	3.29	-0.34	0.34
t62	Administer medications by nasogastric tube	2.95	3.19	-0.24	0.24
t15	Check oxygen saturation percentage using pulse oximetry	3.46	3.67	-0.21	0.21
t65	Administer an emergency medication	3.12	3.31	-0.19	0.19
t68	Administer a medication by intradermal route	2.96	3.14	-0.18	0.18
t4	Perform capillary blood glucose testing	3.65	3.49	0.16	0.16
t54	Position a client for medication administration	3.68	3.83	-0.15	0.15
t66	Administer a medication by rectal route	3.34	3.48	-0.14	0.14
t17	Take client's apical pulse	3.57	3.69	-0.12	0.12
t69	Administer medication by sublingual route	3.51	3.63	-0.12	0.12
t41	Provide culturally sensitive care	3.43	3.55	-0.12	0.12
t86	Prepare medication for administration (crushing, mix with food)	3.73	3.84	-0.11	0.11
t85	Administer medication to coincide with label tests	3.52	3.63	-0.11	0.11
t39	Act/serve as an advocate for the client	3.43	3.54	-0.11	0.11
t67	Administer a medication by vaginal route	3.24	3.35	-0.11	0.11

t14	Administer oxygen as ordered	3.61	3.71	-0.10	0.10
t40	Promote client self-advocacy	3.37	3.47	-0.10	0.10
t50	Follow agency policy related to HIPAA or FERPA rules	3.8	3.89	-0.09	0.09
t36	Use knowledge of medical terminology to interpret symbols, common abbreviations, and terminology used in administration of medications	3.76	3.85	-0.09	0.09
t60	Administer PRN medications	3.63	3.72	-0.09	0.09
t44	Complete incident/accident report according to facility/agency policy	3.75	3.66	0.09	0.09
t2	Assist client with activities of daily living	3.54	3.45	0.09	0.09
t59	Withhold medication if necessary	3.69	3.78	-0.09	0.09
t102	Maintain equipment for client care	3.66	3.75	-0.09	0.09
t19	Reinforce client teaching using and established plan of care	3.22	3.31	-0.09	0.09
t57	Observe client for adverse effects/side effects of medications	3.82	3.9	-0.08	0.08
t30	Use resources to review medication information	3.69	3.77	-0.08	0.08
t70	Administer medication by transdermal route	3.63	3.71	-0.08	0.08
t25	Participate in performance improvement/quality assurance activity	2.92	3	-0.08	0.08
t48	Adhere to basic authorized job duties	3.7	3.78	-0.08	0.08
Table 9: Tasks with the largest difference in importance rating by ALF medication aides and LTC medication aides					

Table 9 examines the difference in medication aide task importance rating between facilities. The average difference in importance ratings was -0.05. Medication aides in LTC gave 83 percent of the tasks a higher importance rating than medication aides in ALFs did. This may reflect an increased complexity and difficulty in these settings, and/or more significant consequences from poor performance. Table 9 lists the tasks with above average absolute differences in average rating (0.08 and higher). Many of these tasks are listed as relatively less important by medication aides in both facilities, including the task with largest difference—use of restraints. The list shows that medication aides in LTC settings view some of the more complex administration routes more importantly. This may be a reflection of the high importance placed on these tasks by the few medication aides who perform them. ALF medication aides rate only three of these tasks more important than LTC medication aides do: blood glucose testing, completing accident reports and assisting clients with activities of daily living. The last two reflect the higher cognitive and activity levels of ALF populations.

The Role of Nurse Delegation in Other States

Delegation of medication administration tasks by registered nurses (RNs) and licensed practical nurses (LPNs) is a fundamental aspect of most state medication aide programs. In most states, nurses delegate medication administration tasks to medication aides. This allows medication aides to assist nurses but leaves responsibility for medication administration with licensed nurses. In Virginia, however, nursing regulations prohibit delegation of medication administration except in special circumstances. Registered Medication Aides are responsible for medications they administer to residents in ALFS—their work is not delegated by licensed nurses.

State regulations on delegation vary, but in general, nurses may only delegate non-complex tasks to medication aides. RNs and LPNs must supervise medication aides and ensure that they adhere to proper regulations and engage in behavior that promotes quality patient care. Supervision by RNs and LPNs allows for a more immediate response to potentially dangerous situations and adverse drug events. Many RNs and LPNs who delegate to medication aides do not find the task to be burdensome; however, it does add to their general workload. Also, many RNs and LPNs have noted that better training and education regarding proper delegation would be helpful for the future⁶. Outside of Virginia, delegating nurses are often required to follow the “five rights” (see chart) of delegation (Virginia uses a unique delegation decision matrix).

Rights of Delegation	Description
Right task	The policies, procedures, and standards of the nursing organization support appropriate delegation of (a) nursing task(s) to a specific nursing assistant for a specific patient.
Right circumstances	The setting of care is appropriate for the nursing act/task to be delegated; there are sufficient staff, resources, and trained personnel such that care can be appropriately monitored.
Right person	Applicable state laws are incorporated into institutional standards and staff competencies such that the delegating nurse can adequately assess a nurse assistant’s capacity (skills and understanding) to perform the task; that is, “the right person is delegating the right task to the right person to be performed on the right patient”
Right direction and communication	A clear, concise description of the task, including its purpose/goal, potential complications, and expectations for communicating change in patient/resident status
Right supervision	Protocols for monitoring, documentation, performance evaluation, and feedback both to the nurse who conducted the delegation (i.e., the delegator) and to the nurse assistant (or licensed practical nurse/licensed vocational nurse) who accepted the delegated task (i.e., the

⁶ Young, H.M. (2005). *Study 1: Medication Management in Assisted Living*. Presented at AHCA, NCAL, MECF 58th Annual Convention & Expo, Medication Management and Medication Errors in Assisted Living

From Mitty et al., (2010), adapted from National Council of State Boards of Nursing

Other Regulations pertaining to Medication Aides

Many states cite close RN supervision as a key factor in medication aide programs. RN supervision is critical to fostering a work environment in which there are few performance issues. Maryland has established extremely clear boundaries regarding the scope of practice of medication aides, including regulations that limit the amount of priority setting and multitasking of medication aides. For example, an individual who is both a medication aide and CNA may only work in one capacity during their shift – if working as a medication aide, they may not perform CNA specific tasks and vice versa. Clear boundaries and limitations, coupled with proper RN delegation and supervision seem to be the key factors in many nursing home medication aide regulations.

RISKS ASSOCIATED WITH MEDICATION AIDE PRESENCE IN NURSING HOMES

There are several risks associated with the presence of medication aides in nursing home facilities. These include the possibility of medication errors, resident abuse, and drug diversion. The vulnerability of the nursing home population is higher than the population in assisted living facilities due to the severity of health deterioration and advanced cognitive impairment. Patients in nursing homes are likely to have more complex conditions than patients in ALFs and are more likely to be terminally ill. Due to lower health status of these residents, the consequences of medication errors may be higher than in other populations.

Medication Errors in Nursing Homes

Approximately 1.5 million preventable adverse drug events occur every year. A portion of these errors result in permanent injury or death.⁷ The Institute of Medicine (IOM) estimates that nearly one-quarter of all medication errors are preventable.⁸ The National Coordinating Council for Medication Error Reporting and Prevention defines medication errors as:

...any preventable event that may cause or lead to inappropriate medication use or patient harm while the medication is in the control of the health care professional, patient, or consumer. Such events may be related to professional practice, health care products, procedures, and systems, including prescribing; order communication; product labeling, packaging, and nomenclature; compounding; dispensing; distribution; administration; education; monitoring; and use.

In its 2007 report *Preventing Medication Errors: Quality Chasm Series*, the Institute of Medicine noted that the “frequency of medication errors and preventable adverse drug events

⁷ Stefanacci, R. G. (2006). Preventing medication errors. *Annals of Long-Term Care: Clinical Care and Aging* 14 (10).

⁸ Gurwitz et al. (2003). Incidence and preventability of adverse drug events among older persons in the ambulatory setting. *The Journal of the American Medical Association*, 289(9). p.1107-1116

(ADE) is a very serious concern” in all health care settings. Adverse drug events are events that result in actual injury. The report cited literature estimating that 380,000 to 450,000 *preventable* ADEs occur annually in hospitals. The IOM estimated there were 800,000 preventable ADEs annually in long-term care. Another study projected 530,000 preventable ADEs occur in ambulatory care among Medicare patients alone. These estimates were based on reported errors. The authors note that the actual rate of preventable ADEs is likely much higher. The report noted that “errors are common during all steps of the medication-use process—procuring the drug, prescribing, dispensing, administering, and monitoring the patient’s response.”⁹

The IOM report cited four research articles examining medication error rates during medication administration in nursing homes. The error rates found by each study appear in Table 10. The results vary, but even the lowest reported error rate—6 percent of *doses*—is staggering. The IOM report notes that the two Barker studies, which found error rates of 12.2 percent and 14.7 percent of doses, use consistent measures and direct observation. Both of these studies excluded wrong time errors; however the IOM noted that wrong time errors are a serious concern in nursing homes:

Year	Author	Administration errors per 100 opportunities/doses
1982	Barker, et al.	12.2
1992	Baldwin	20
1994	Cooper	6
2002	Barker, et al.	14.7

Table 10: Studies of medication error rates in nursing homes in 2007 IOM study.
Source: Institute of Medicine, Preventing Medication Errors: Quality Chasm Series. 2007.

*Because a typical medication pass in long-term care exceeds 2 hours, it is impossible for the nurse to deliver all medications within 1 hour of the scheduled time; thus wrong-time errors are predictably high in this setting.*¹⁰

Excluding wrong-time errors, errors of omission were the most common medication error in nursing homes.¹¹ The IOM suggested monitoring errors are likely the most common type of error, but did not find a study examining the incidence of errors in monitoring. One study (Gurwitz, et al. 2005) did find that 80 percent of errors leading to preventable ADEs occurred in the monitoring phase.¹²

The IOM report cited four studies into the incidence ADEs in nursing homes—two of them looked specifically at preventable ADEs. The results of these studies appear in Table 11 (next page). The two studies performed by Gurwitz, et al., were retrospective studies that looked at reported ADEs. These suggest that almost half of ADEs are preventable. The other two studies were observational studies. They suggest that the actual rate of ADEs is much higher than reported.

⁹ Committee on Identifying and Preventing Medication Errors, Institute of Medicine. *Preventing Medication Errors: Quality Chasm Series*. Ed by Philip Aspeden, Julie Wolcott, J. Lyle Bootman & Linda Cronenwett. 2007, pp. 3-4.

¹⁰ *Ibid*, 112.

¹¹ Committee on Identifying and Preventing Medication Errors, Institute of Medicine. *Preventing Medication Errors: Quality Chasm Series*. Ed by Philip Aspeden, Julie Wolcott, J. Lyle Bootman & Linda Cronenwett. 2007, pp. 111-112.

¹² *Ibid*, pg 378 (Appendix C).

Year	Author	ADEs in study	ADEs per patient-month	ADEs per 100 Admissions	Proportion of ADEs preventable
1993	Gerety, et al.	201	0.44	115	-
1999	Cooper	444	-	134	-
2000	Gurwitz, et al.	546	0.10	-	51 %
2005	Gurwitz, et al.	815	0.02	-	42 %

Table 11: Adverse Drug Event incidence in nursing homes
Source: *Institute of Medicine, Preventing Medication Errors: Quality Chasm Series, 2007.*

Personnel Credentials and Medication Errors

These studies suggest that medication error rates and preventable ADEs in nursing homes are, in the words of the IOM Committee on Identifying and Preventing Medication Errors, “unacceptable.”¹³ They do not examine the impact of personnel credentials on medication errors. BHP identified three studies that looked at this issue, although only one directly examined the impact of personnel credentials on medication error rates. Additionally, a few states have performed pilot programs using medication aides in nursing homes.

Published Studies

Hughes, Carmel; Rollin Wright & Kate Lapane. “Use of Medication Technicians in US Nursing Homes: Part of the Problem or Part of the Solution?” *Journal of the American Medical Directors Association*, June 2006. pp 294-304.

Hughes, et al. examined the characteristics of CMS-certified nursing homes in states that used medication technicians and whether the use of medication technicians led to increased use of labor-intensive drugs, particularly looking at labor-intensive antiosteoporosis medications. Hughes et al found that medication aides did **not** lead to an increased use of these drugs—an important finding in its own right. As part of this study, Hughes et al. compared medication error rates reported in CMS surveys and citations related to medication errors. The results appear in Table 12 (next page). The study examined CMS OSCAR¹⁴ data of 6,344 facilities in states which had at least 5% of its nursing homes reporting the use of medication technicians.

¹³ Ibid, pg 3.

¹⁴ Online Survey, Certification and Reporting (OSCAR) is a data network maintained by the Centers for Medicare and Medicaid Services (CMS) in cooperation with the state long-term care surveying agencies. OSCAR is a compilation of all the data elements collected by surveyors during the inspection survey conducted at nursing facilities for the purpose of certification for participation in the Medicare and Medicaid programs.

	Nursing Homes employing Medication Technicians	Nursing Homes not employing Medication Technicians
Medication error rates of at least 5% documented during the survey process	10.1%	7.3%
Cited for a deficiency relating to residents not being free from significant medication errors	3.6%	2.1%
Cited as not meeting the minimum requirements of pharmaceutical service delivery	7.9%	5.3%
Median number of CNAs per 100 beds	30.2	35.5
Median number of RNs & LPNs per 100 beds	13.5	17.5
Medical Director/physician on staff	6.7%	10.8%
Use contract pharmacists	60.7%	51.6%
Use physician extenders	24.5%	20.4%
Table 12: Select Hughes et al findings		

The data demonstrates that facilities employing medication technicians tend to exceed error rate thresholds and to have citations related to medication administration. It is impossible to determine from these findings if the use of medication technicians is a cause of these tendencies, or if the use of medication technicians is indicative of other characteristics. Hughes, et al. also found that facilities employing medication technicians also tended to employ fewer licensed nurses and CNAs per 100 beds, employed a physician or medical director less often, and employed contract pharmacists and physician extenders more often. Facilities employing medication technicians are also more likely to be larger, to be for-profit and to have special care units (e.g., for Alzheimer's patients). This suggests other potential causes (e.g., staffing levels, staffing quality, organization and patient characteristics) may be responsible for higher citation and error threshold violations. Since the authors were not examining this issue, they did not examine the cause of higher error rates.

Scott-Cawiezell, Jill, Ginette Pepper, Richard Madsen, Greg Petroski, Amy Vogelsmeir & Dave Zellmer. "Nursing Home Error and Level of Staff Credentials". *Clinical Nursing Research*. Vol. 16, No. 1. Feb. 2007, pp 1-7.

Scott-Cawiezell, et al. used trained nurses to observe 8 RNs, 12 LPNs and 19 CMT/As administering 3,194 medication orders in five Missouri nursing homes. These nursing homes had voluntarily agreed to participate in a larger study of technology and medication errors. The Scott-Cawiezell, et al. study was performed during the post-implementation phase of this study. The small sample size precluded any statistically significant findings, but the study did not find a difference in the error rates between the three professions. The authors did find a statistically significant association between interruptions and medication errors other than wrong-time errors. It is significant that these nursing facilities had existing medication aide programs. The authors

noted that a division of labor existed, with RNs performing the most difficult administrations and CMT/As performing the least difficult administrations. The study does not address whether licensed nurses and CMT/As have different error rates when performing basic medication administration.

Vogelsmeier, Amy; Jill Scott-Cawiezell and David Zellmer. "Barriers to Safe Medication Administration in the Nursing Home: Exploring Staff Perceptions and Concerns about the Medication Use Process." *Journal of Gerontological Nursing*. April 2007, pp5-12.

Vogelsmeier, et al. examined staff perceptions of the medication use process in nursing homes by completing interviews and focus groups with 76 staff members of five nursing homes in three Midwestern states. The qualitative study focused on technology in the medication process. The authors found that communication and transcription barriers were a key concern—especially if the medication use process was fragmented (e.g., multiple pharmacies, prescribers). Communication problems occurred in both directions: the flow of medication orders from prescribers to administrators and the flow of monitoring information from administrators to prescribers. The authors noted that the limited assessment skills of CMTs and LPNs in the study also created monitoring problems. The authors also noted that persons who administer medications were mostly concerned with administering them in a timely manner. They tended to assume processes were in place to ensure accurate orders, doses, etc. Medication managers, however, were mostly concerned with order verification by medication administrators.

State Pilot Studies

BHP identified three state pilot programs examining the appropriateness of medication aides in nursing homes: New Mexico 2004, Arizona 2008 & Ohio 2009. The New Mexico and Arizona pilot programs resulted in recommendations to expand the programs state-wide. The Ohio study suffered from low participation and was inconclusive.

In New Mexico, the Board of Nursing certified 82 medication aides statewide. Participating facilities provided training and paid for all administrative costs related to the study. The New Mexico Board conducted onsite assessments and a survey. It did not receive any reports that resident safety had been adversely impacted. It also noted that nurse supervision was essential for success and that medication aides gave nurses more time to complete core nursing tasks.

In Arizona, facilities applied to be part of the pilot program and paid a \$5,000 fee upon selection. Participating facilities had to meet certain criteria, including medication error rates below 5 percent for two years and no survey deficiencies in staffing patterns for two years. Any participating facility had to justify decisions to replace RN or LPN positions with CNA or medication aide positions and seek approval from the Arizona Board of Nursing and Department of Health Services. Six facilities were approved for the pilot, but one dropped out before implementation because its CNAs could not pass the medication aide test in the allotted time. Nevertheless, this facility's results were included in pre-implementation analysis. Post-implementation analysis included two RNs, sixteen LPNs and seven medication technicians. The pilot found that overall medication error rates dropped from 10.4 percent to 6.6 percent, and

found a stable distribution of error rates between credentialing levels. (The sample size was too small for statistical analysis.)

The Ohio pilot project also included strict criteria for participation. Although 17 of 37 facilities that applied for the program were approved, only three actually employed medication aides. One dropped out specifically because the facility did not feel that medication aides were adequately trained to replace the licensed nurses it already employed. The three programs that did participate reported few errors and good results.

Discussion of Empirical Evidence

The empirical evidence indicates that medication error and preventable ADE rates in nursing homes are high and, in the words of the IOM, “unacceptable.”

There is limited empirical evidence that specifically addresses the safety of medication aides in nursing homes. The sole observational study, along with the pilot programs, seems to suggest that the use of medication aides in nursing homes is successful. However, in the observational study, medication aides performed the simplest administrations while nurses performed more complex administrations. This, along with the small sample size, precludes coming to any firm conclusions. The less rigorous pilot projects were marred by selection bias. The Ohio and Arizona studies required that participating facilities already be high performers in regards to error rates and survey citations.

These studies seem to ask a specific question: Can medication aides be employed successfully in facilities that already successfully manage medication errors? The limited evidence suggests that they can. However a more important question may be, if a facility cannot control medication errors with RNs and LPNs, why would they be thought they can do it with medication aides?

The cross-sectional study suggests that facilities that use medication technicians tend to have more medication error citations and to cross the 5% medication error threshold more often. The direction of causation is unknown. Underperforming facilities may be less willing to invest in staff—hiring fewer or less qualified staff members—in general. Facilities with medication technicians tended to have fewer licensed nurses and CNAs per 100 beds and were less likely to have a physician or medical director on staff.

The literature seems to suggest organizational factors are important in reducing medication errors. The length of medication rounds is cited by the IOM as one cause of high wrong-time errors, suggesting low staffing levels may be a concern. A study into staff concerns found communication and transcription to be a major concern and suggests electronic medication administration records (eMAR) may provide benefits. Adequate supervision by licensed nurses is also noted as an essential element to successful use of medication aides. Interruptions appear to play a statistically significant role in RN medication errors.

Facilities are willing to invest in medication aide pilot programs. This suggests that they are willing to make an investment—however small—to gain access to the returns in quality and/or profits that medication aides may provide. Perhaps they would be willing to invest in organizational changes as well—if it meant access to medication aides. The pilot programs provide a model for a regulatory system to allow facilities to apply to use medication aides based on records of low medication errors and citations. This could provide an incentive for facilities to invest in quality improvement and, over the long-term, help to defray the costs of equipment or additional staff.

Drug Diversion

The medical profile of residents in nursing homes requires a more significant presence of controlled substances compared to assisted living facilities. Increased availability may make drug diversion by medication aides in nursing homes more likely to occur. Medication aides may also earn lower wages and have less invested in education and professional development than nurses. This reduces barriers to diversion and barriers to persons seeking to enter the profession for the purpose of drug diversion. This may be offset if medication aides in nursing homes are required to be CNAs and by enabling the revoking of registration from medication aides who divert drugs.

Abuse and Neglect

The poor health conditions of nursing home residents make them an easier target of abuse compared to ALF residents. Nursing home patients depend more on nursing home staff than those in ALFs and may be uncooperative or combative. Medication aides and other direct care workers may have significantly more contact with patients than nurses. Direct care workers require training and knowledge as well as access to supervisors to handle these situations and the stress and frustration of their jobs.

Benefits Associated with Medication Aide Presence in Nursing Homes

Residents in nursing facilities require many medications, and thus, nurses spend a significant amount of time administering medications to residents. Medication passes often last for two hours and are often performed multiple times per day. The time that must be spent performing medication passes interferes with the time nurses need to perform nurse specific tasks such as assessments and other important patient care tasks¹⁵. Nursing shortages may make it difficult to attract nurses to nursing homes—leading to staffing shortages and nurses filling multiple roles. Medication aides may relieve this pressure by allowing more staffing flexibility. In particular, CNAs with medication aide credentials would be able to fulfill more roles. This approach seems to be effective, as the use of medication aides in long-term care settings has been associated with lower levels of perceived stress and higher levels of nurse satisfaction.¹⁶

¹⁵ New Mexico (2004). Trial program for medication aides in licensed nursing facilities.

¹⁶ Walker, M.J., (2008) Effects of the medication nursing assistant role on nurse job satisfaction and job stress in long term care. *Nursing Administration Quarterly*, 32(4) p. 296-300

However, this may not be the case if medication aides are associated with reduced nursing and CNA staff levels, as Hughes, et al. suggests they are (see page 22).

ECONOMIC IMPACT

Employment & Wages

The US Bureau of Labor Statistics (BLS) does not track medication aides as an independent occupation.¹⁷ Medication aides fall into the broader occupational grouping labeled “Nursing Aides, Orderlies and Attendants” (hereafter, NOA) within the “Healthcare Support Occupations” major group. The BLS classifies “Registered Nurses” and “Licensed Practical and Licensed Vocational Nurses” separately within the major group “Healthcare Practitioner and Technical Occupations.” Although the BLS does not independently track medication aides, an examination of these occupation groupings does provide some valuable insight into the workforce issues surrounding medication administration in nursing homes. Among the NAO occupations, Virginia’s RMA wages likely tend toward the lower percentiles while CNAs wages likely tend towards the higher percentiles. CNAs with additional medication aide credentials may be among the top wage earners, particularly in states that allow them to administer medications in nursing homes.

Virginia

The BLS estimates that 33,560 persons were employed in NOA occupations in Virginia in May 2009. They earn an average wage of \$11.28 per hour. In the same period, 19,980 LPNs earned an average of \$18.25 per hour (See Table 13). The middle 50 percent of NAO wage earners made between \$9.60 and \$12.87 per hour, while LPNs in the middle 50 percent range made between \$15.46 and \$20.72. NAO workers could reasonably expect to earn an additional \$5 or more per

Occupation	Employment	Hourly mean wage
Nursing Aides Orderlies and Attendants	33,560	\$11.28
Licensed Practical Nurses	19,980	\$18.25
Registered Nurses	60,230	\$30.42
Home Health Aides	17,140	\$9.43
Medical Assistants	9,930	\$14.34
Healthcare Support Workers All Other	4,910	\$14.41

Table 13: Employment and average wages of medication administrators and similar occupations in Virginia.

Percentile	Nursing Aides Orderlies and Attendants	Licensed Practical Nurses
10th %ile	\$8.22	\$13.38
25th %ile	\$9.60	\$15.46
Median	\$11.14	\$17.89
75th %ile	\$12.87	\$20.72
90th %ile	\$14.78	\$24.09

Table 14: Distribution of NOA workers & LPNs in Virginia.

hour--or over \$10,000 annually for full-time workers--if they made the jump to LPN credentials (See Table 14).

Worker wages vary greatly by geographic distribution, and there is a clear gap between urban and rural workers (see Table 15, next page). Mean hourly wages for NAO employees range from a high of \$13.03 in the metropolitan areas in and around Washington DC (including surrounding

¹⁷ Although this factor is not likely to have much bearing on the occupations discussed here, readers are reminded that the BLS only tracks *employed* workers—not self-employed workers or those in private practice. BLS posts data annually in May. BLS data in this report is from the May 2009 Occupational Employment Statistics.

areas in Virginia and Maryland)¹⁸ and to a low of \$10.00 in the Bristol metropolitan area (including areas in Tennessee).¹⁹ Average wages for these workers are lower in rural areas, ranging from \$9.53 in Southside Virginia to \$10.75 in Northwestern Virginia (see Table 15).

Area name	Nurse Aides, Orderlies & Attendants			Licensed Practical Nurses		
	Employment	Hourly mean wage	Hourly 25 th %-ile wage	Employment	Hourly mean wage	Hourly 25 th %-ile wage
Blacksburg-Christiansburg-Radford, VA	550	\$10.71	\$8.96	450	\$15.80	\$13.18
Charlottesville VA	1240	\$11.72	\$9.77	770	\$18.19	\$15.99
Danville VA	300	\$11.46	\$8.34	170	\$17.98	\$15.09
Harrisonburg VA	900	\$11.85	\$10.69	350	\$18.81	\$16.24
Kingsport-Bristol-Bristol TN-VA	1380	\$10.00	\$8.64	1370	\$14.82	\$12.81
Lynchburg VA	1080	\$10.44	\$8.76	670	\$17.88	\$15.95
Richmond VA	6350	\$11.66	\$10.06	3950	\$19.36	\$16.98
Roanoke VA	2350	\$11.19	\$9.45	1130	\$17.71	\$15.77
Virginia Beach-Norfolk-Newport News VA-NC	6610	\$10.66	\$9.37	4280	\$17.26	\$15.33
Washington-Arlington-Alexandria DC-VA-MD-WV Metropolitan Division	13020	\$13.03	\$10.89	6950	\$21.69	\$18.15
Winchester VA-WV	560	\$11.94	\$10.14	250	\$19.00	\$16.14
Southwestern Virginia nonmetropolitan area	2040	\$9.70	\$8.04	1700	\$14.91	\$13.11
Southside Virginia nonmetropolitan area	1170	\$9.53	\$8.20	930	\$17.37	\$14.98
Northeastern Virginia nonmetropolitan area	940	\$9.71	\$7.49	400	\$18.79	\$16.53
Northwestern Virginia nonmetropolitan area	1700	\$10.35	\$8.78	780	\$17.89	\$15.63

Table 15: LPN & NAO wages by geographic area.

While cost of living likely plays a role, the lower wages of NOA workers in rural areas suggests the supply of these workers better meets demand. By contrast, the wages of LPNs in rural areas tend to be roughly equivalent, or slightly higher, than those in nearby metropolitan areas. Average wages for LPNs in metropolitan areas range from \$14.82 to \$21.69, while average wages in nonmetropolitan areas range from \$14.91 to 18.79. Even in Southwest Virginia—which has significantly lower wages for LPNs—average wages in the non-metropolitan region are slightly higher than those in the Bristol metropolitan area. This suggests a relative deficit of LPNs compared to demand.

Reimbursement levels are often based on local cost-of-living. Health care facilities in non-metropolitan areas depend in part on a discount in wages to make up for lower

¹⁸ Washington-Arlington-Alexandria DC-VA-MD-WV Metropolitan Division

¹⁹ Kingsport-Bristol-Bristol TN-VA

reimbursement levels. The lack of such a discount in LPN wages may place financial strain on rural facilities when compared to urban counterparts. This may be particularly important for nursing homes that depend on the LPNs to provide much of their labor.

Workforce Training

Comments from the public and from participants in the August 17, 2010 Roundtable indicate that many ALFs lose their medication aides after training to other ALFs or nursing homes that pay higher wages. There are few independent RMA training programs. Instead, ALFs have organized training programs for their employees, and bear the expense of training. It is cheaper to pay higher wages to attract already trained employees than it is to train them and pay higher wages to retain those they train. If ALFs (or nursing homes) cannot secure a return on their training investment they will be reluctant invest in training medication aides. Although the population of RMAs has grown rapidly in response to the new legislation, over the long term the RMA workforce may begin to stagnate as a result.²⁰

The expansion of medication aides into nursing home may create a greater market for existing RMAs. While ALFs have spent the last few years preparing for their existing medication administration workforce for the new registration requirements, nursing homes will find a ready population of RMAs already available. As of March 31, 2010, there were 3,877 Registered Medication Aides in Virginia. Of these, a little over half are CNAs. The proportion of RMAs who are also CNAs has been rising.

Nursing Shortage

The Virginia Department of Health Professions Healthcare Workforce Data Center (HWDC) projects that, should current trends persist, Virginia will experience a growing shortage of RNs (in FTE equivalents) after 2015. Paradoxically, the HWDC projects a surplus of LPNs (also in FTE equivalents, See Figure 1). Although the recent

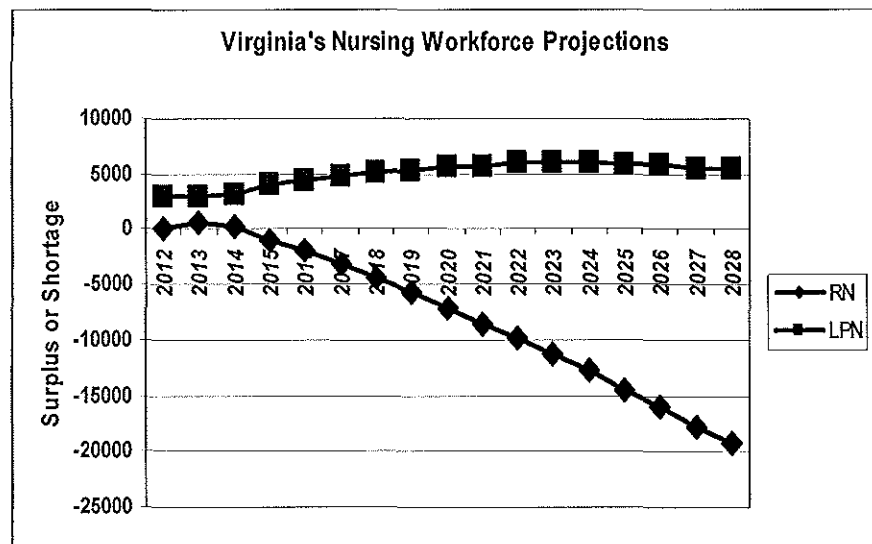


Figure 1: Nursing Shortage Projections

recession has influenced short-term projections—causing many to talk about a “pause” in the RN shortage—the long-term trend is likely to

²⁰ This type of situation is the basis for a public education system or for subsidized loans and grants for education.

continue. In Virginia’s current regulatory environment, LPNs provide medication administration services in Virginia’s nursing homes. These projections suggest that Virginia will have enough workers to provide medication administration services in Virginia nursing homes. These figures, however, should be approached cautiously for the following reasons:

Geographic distribution: Virginia’s health workforce is unevenly distributed and often concentrated in urban areas. Rural areas may suffer from a shortage of LPNs even if the state, as a whole, has a surplus.

Substitution: As opportunities for RNs grow, nursing students and LPNs are increasingly likely to pursue RN credentials. As the RN shortage looms, employers may shift positions or responsibilities from RNs to LPNs, increasing demand for LPNs. It may be more useful to consider nurses together.

Nursing Education

Following a sharp climb between 2003 and 2006, the number of LPN program admissions and graduations has declined in recent years (See Figure 2). In 2008, Virginia LPN (referred to as PNE in Figure X) programs graduated about 1,225 students. Overall, only about 50 percent of those admitted to programs graduate. Although program lengths vary, LPN education generally lasts from 12 to 18 months. Programs

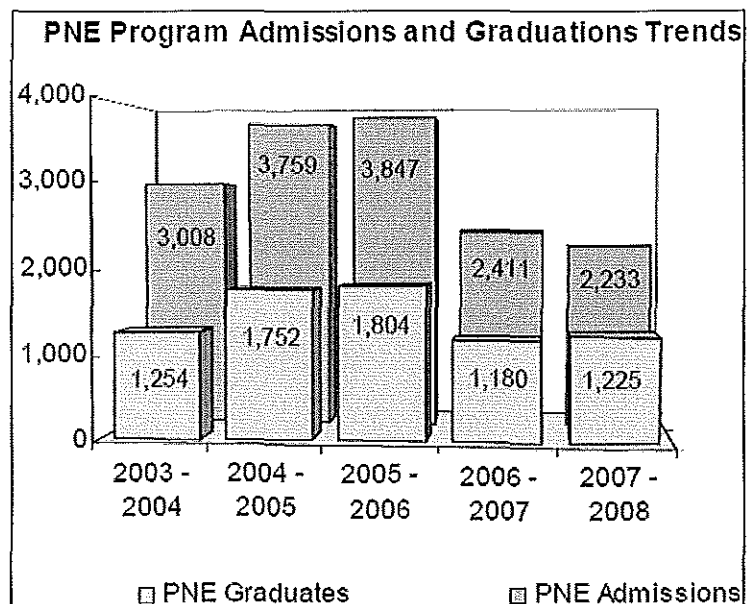


Figure 2: LPN Admissions & Graduations

approved by the Virginia Board of Nursing must include 400 hours of direct patient care supervised by program faculty or preceptors.

The CNA credential may be a stepping stone to practice as an LPN. In 2009 about a quarter of Virginia’s LPN students were CNAs and about of third Virginia’s LPN graduates were CNAs.²¹

In 2008 there were 13,369 Licensed Practical Nurses in Virginia. The HWDC estimates that 8,624 of these were employed in nursing in Virginia. Of these, 80 percent indicated they intended to remain in the nursing workforce for five or more years. Only 2 percent (or 160) indicated they intended to leave the nursing workforce within 12 months. This suggests that—in

²¹ Virginia Healthcare Workforce Data Center. *A Profile of Virginia Nursing Education Programs: Results of the 2009 Survey of Virginia Nursing Education Programs*. Available online at <http://www.dhp.virginia.gov/hwdc/docs/NursePrograms/2009NursingEducationProgramsFindings.pdf>.

the near term at least—graduations will outpace retirements by a large degree. Virginia must compete with other states for LPN graduates; however, a relatively large number of LPN graduates remain in the state. In 2008, 77.1 percent of LPNs employed in Virginia indicated they received their initial licensure in Virginia.

MAJOR FINDINGS

The following listing summarizes the Board’s major research findings and forms the basis for its recommendations provided in the next section.

1. Medication administration is a regulated nursing activity.

Medication administration by unregulated personnel poses a risk of harm to patients. Medication administration is a regulated nursing activity usually performed by RNs and LPNs and denied to CNA and other personnel. In 2004, the Commonwealth discovered that unregulated personnel were administering medications in Assisted Living Facilities (ALFs) and created a new regulated occupational class with lesser qualifications—the Registered Medication Aide (RMA)—to perform this nursing task in ALFs. The current study examines whether a reduction in qualifications for this regulated activity is appropriate in nursing homes.

2. The RMA program in ALFs is new in Virginia, and there are questions about its appropriateness.

The current Virginia RMA program does not include some of the key provisions used to ensure patient safety in other states. These include a requirement for supervision by licensed clinicians and more stringent eligibility requirements. Although we only have one year of data, RMAs currently had a high discipline rate of 12 per 1,000 registrants for FY2010. The program has not been in place long enough to determine if the program as it exists is appropriate for ALFs.

3. Medication administration in Nursing Homes is categorically different than medication administration in ALFs.

Although there is some overlap in their populations, nursing home patients tend to suffer from more physical and cognitive deficiencies that prevent patient participation in administration and patient communication of errors or adverse reactions, etc. A significant number of patients in nursing homes are recovering from surgery or other acute conditions and do not have stable drug regimens. In addition, nursing home patients tend to take more medications and have more complex drug regimens. These factors increase the potential for error in administration and increase the need for professional evaluation and assessment skills.

4. Medication error rates in nursing homes are “unacceptable.”

A 2007 report by the Institute of Medicine described medication error rates in nursing homes as “unacceptable.” The report suggests that 12 to 14 percent of *doses* are administered incorrectly

and that there are over 800,000 preventable Adverse Drug Events in nursing homes in the US annually. The report suggests that wrong-time errors are rampant in nursing homes due to the length of medication passes.

5. Organizational factors are the main causes of medication errors.

Poor communication, fragmented medication use systems, nurse interruptions and staffing shortages are some cited causes of medication errors. There is little evidence on medication error rates by credential, and none of it suggests a difference in medication error rates by credential. One study found a significant correlation between nurse interruptions and error rates. However, if a facility has not made the necessary staffing or organizational investments necessary to lower medication errors, staff qualification requirements may be the last line of defense for patients.

6. Medication aides may help reduce interruptions and wrong-time errors in specific circumstances by increasing overall staffing; however, increased employment of LPNs would also address these concerns.

Medication aides may help to relieve administration errors caused by interruptions and wrong-time errors caused by staff shortages. Improvement would only occur if medication aides are used to increase overall staffing ratios.

7. Medication aides may be used as a substitute for nurses.

Virginia currently has no staffing ratio requirements in nursing homes. Although evidence is sparse, one national cross-sectional study suggests that nursing facilities with lower overall staffing levels are more likely to employ medication aides.

8. In the short-term, Virginia does not suffer from a shortage of LPNs; however, some rural areas may face a shortage.

Virginia is not projected to suffer from a shortage of LPNs and may have a slight surplus over the long-term. Recent economic conditions have caused a pause in a looming RN shortage; however, this is expected to be temporary and an overall shortage of nurses (LPN & RN combined) is projected. As with all health professions, uneven distribution often causes local shortages—particularly in rural areas.

9. Twenty states allow medication aides to administer medications in nursing homes.

Twenty states allow medication aides to administer medications in nursing homes. Many of these states have separate eligibility, training and registrations for medication aides in nursing homes. Most allow medication aides to administer PRN (as needed) medications. Some allow them to administer by tube or rectally/vaginally while other states specifically prohibit this practice. Some states specifically prohibit administration of Schedule II drugs or narcotics.

10. Most states require nurse delegation or supervision of medication aides in nursing homes.

Virginia is in the minority in that it does not require nurse delegation or supervision of RMAs in ALFs. By requiring nurse delegation, states ensure that nurses retain responsibility for medication administration.

11. Certified Nurse Aide (CNA) credentials are a widely-recognized eligibility standard for medication aides in nursing homes.

In most states that allow medication aides in nursing homes, only CNAs are eligible. The National Council of State Boards of Nursing includes a CNA eligibility requirement in its model curriculum for medication aides regardless of setting. Comments from the public and from a stakeholder roundtable suggest that this would be an assumed pre-requisite for medication aide training for nursing home practice in Virginia.

12. States use a variety of other eligibility requirements.

Some states require experience as a CNA—up to two years in some cases. Some states require that CNAs have experience with a specific population. Some states require that each applicant be employed by the facility in which he intends to administer medications or to have a recommendation from a facility.

13. Training requirements vary; the NCSBN has created a model curriculum.

Training requirements vary based on a variety of factors, including the specific eligibility requirements of each state, the nature of the registration (broad or facility-type specific) and the scope of practice of medication aides. Training requirements range from 20 hours to 140 hours of specific medication aide training and usually include a significant clinical portion. The National Council of State Boards of Nursing has developed a model curriculum based on a thorough job analysis of medication aides in all settings. The model curriculum includes 60 hours of didactic training and 40 hours of clinical training.

14. ALFs face the prospect of losing their medication aide workforce; facilities may be reluctant to train new medication aides if they cannot ensure a return on training investments.

Virginia's ALFs have spent the last few years creating medication aide training programs and training close to 4,000 RMAs to meet new requirements. Just over half of RMAs are also CNAs and the proportion of RMAs who are also CNAs appears to be increasing. Unless specific measures discourage it, ALFs may lose a significant proportion of this workforce to nursing facilities should they be allowed to use medication aides. Over the long term, facilities may be

reluctant to invest in training and training programs unless they can secure a return on that investment. Public investment in education is the usual solution to this common problem.

POLICY OPTIONS

Based upon consideration of the research findings, public comment, and discussion the Regulatory Research Committee considered the following policy options at its meeting on September 29, 2010.

1. No change in current statute

Considering the high medication error rates, policy-makers may wish to exercise caution before lowering the minimum qualifications required to administer medications. At the moment there is little evidence about Virginia's RMA program or nursing home medication aides in other states. Although there is no evidence to suggest that medication aides have a negative impact on medication error rates, there is also no evidence that they have a positive impact. Virginia may benefit from additional experience with its current RMA program (including more time to develop the RMA workforce and training system) or into a wider study on medication error rates in Virginia's nursing homes.

High medication error rates indicate that at least some nursing facilities are not able to manage medication administration using LPNs and RNs. Lowered qualifications alone are not likely to help them do so. Policymakers may wish to consider options to improve staffing ratios and other quality measures in nursing homes. A review of these options is beyond the scope of this study; however, some options may include:

- A. Mandated staffing ratios in nursing homes
- B. Support for CNA to LPN bridge programs, particularly those in rural areas
- C. Support for nursing preceptorships in nursing homes, particularly in rural areas
- D. Require individual patient-dose labeling of medications in nursing homes

2. Expand medication aides into nursing homes statewide

Although Virginia does not currently suffer from a nursing shortage, it will in the near future. Medication error rates in nursing homes are high and staffing shortages may be part of the problem. The evidence suggests that medication aides can be employed successfully in most, if not all, nursing facilities. If the Commonwealth does pursue a statewide expansion, BHP staff recommends policymakers consider the following options:

- A. Create a separate registration for medication aides in nursing homes and the "Registered Medication Technician" label to differentiate them from RMAs.
- B. Make CNA registration an eligibility requirement for RMTs.

C. Require at least six months of recent experience in a nursing home setting and/or sponsorship from an employing nursing home.

D. Following the NCSBN model curriculum, require a minimum of 100 hours of specific training in medication administration including 40 hours of supervised clinical training.

E. Require nurse delegation of medication administration by RMTs.

F. The Board of Nursing has the clinical expertise to develop regulations on the scope of practice of medication aides, including types and routes of administration and level of supervision required.

3. Limited expansion of medication aides into nursing homes

A few states undertook pilot programs prior to implementing nursing home medication aide programs statewide. These pilot programs often included eligibility requirements, selection guidelines and administration fees for nursing homes wishing to take part in the pilot programs. Eligibility requirements and selection guidelines varied, but included:

- No recent deficiencies in surveys or inspections for medication errors
- No recent CMS survey citations for staffing deficiencies
- No medication error rates above 5 percent in the last two years
- Agreement to subject staffing mix decisions to approval
- A positive compliance and safety history
- Years of licensure

These pilot programs demonstrated that medication aides could be used effectively in already high-performing facilities. A more cautious approach to expanding medication aides could use these pilot programs as a model for a permanent regulatory program. Rather than allow any facility to use medication aides, facilities could apply for the privilege based on certain eligibility requirements. Such a program could have some advantages, including:

- Prevent facilities that have not brought medication error rates down to threshold levels with LPNs and RNs from lowering staff qualifications
- Allow facilities that have brought medication error rates down to threshold levels to try new, cost effective staffing mixes
- Subject facilities that employ medication aides to additional scrutiny
- Provide an incentive to facilities to invest in technology and organizational capacity intended to bring down medication error rates

However, such a program could have one major disadvantage. It could deny access to medication aides to facilities that need them most: those facilities that struggle to find adequate staff and have elevated medication error rates as a result.

If policymakers wish to pursue this route, BHP staff suggests they consider the following elements:

- A. Use the same CMT requirements outlined in option 2.
- B. Require facilities wishing to employ medication aides to apply for approval from the Board of Nursing.
- C. Require applicant facilities to:
 - 1. Maintain medication error rates below 5 percent for at least two years prior to approval
 - 2. Have no CMS survey citations related to significant medication errors on the last survey
 - 3. Maintain minimum nurse to patient staffing ratios
- D. Require approved facilities to reapply for approval every two years
- E. Require approved facilities to submit results of CMS surveys and VDH inspections to the Board of Nursing
- F. Place approved facilities that violate eligibility requirements into probationary status.
- G. Do not allow facilities on probationary status to employ any new RMTs as medication administrators while on probationary status.
- H. Remove approval from any facilities on probationary status for twenty four consecutive months
- I. Allow nursing facilities in HRSA-designated Medically Underserved Areas that do not otherwise meet eligibility criteria to submit a staffing and organizational plan for approval by the Board of Nursing. The plan will include an explanation of how CMTs will bring the program into compliance with eligibility requirements. Programs approved by this process will:
 - 1. Be placed on probationary status
 - 2. Apply for reapproval annually
 - 3. Be considered in compliance if it meets eligibility standards 1 & 2 above.

RECOMMENDATION

At its September 29, 2010 morning meeting, the Regulatory Research Committee recommended against expanding medication aides into Nursing Homes. This recommendation was adopted by the Board of Health Professions (seven in favor, three opposed and one abstention) at its meeting the same day. During discussion, Committee and Board members considered the findings and added the following comments. They were concerned about high medication error rates in nursing homes currently, when only licensed nurses are permitted to administer medication. Those opposed to the recommendation indicated that a pilot program may be beneficial; however, the majority opined that no demonstration project was warranted at this time. Greater experience with RMAs in Virginia and elsewhere may lead to a different conclusion, but concerns about patient safety at this time preclude piloting.

Appendix A

2010 SESSION ENROLLED HOUSE JOINT RESOLUTION NO. 90

Requesting the Department of Health Professions to study the advisability of permitting the use of medication aides in nursing homes. Report.

Agreed to by the House of Delegates, February 8, 2010

Agreed to by the Senate, March 2, 2010

WHEREAS, in 2005 Virginia enacted laws providing for the qualification, registration, and regulation of medication aides who administer medications that would otherwise be self-administered to residents in an assisted living facility licensed by the Department of Social Services; and

WHEREAS, the Commonwealth authorizes any person who has completed a training program approved by the Board of Nursing and who administers medications in accordance with the prescriber's instructions and in accordance with regulations promulgated by the Board of Pharmacy relating to security and recordkeeping, including licensed and unlicensed staff, to administer medications that would normally be self-administered to persons receiving services in a program licensed by the Department of Behavioral Health and Developmental Services or an adult day care center or children's residential facility licensed by the Department of Social Services; and

WHEREAS, twenty states have enacted laws allowing medication aides to administer medications to residents of nursing homes when medication aides act under the supervision of a licensed professional nurse; and

WHEREAS, nursing homes in states that have authorized the administration of medications by medication aides acting under the supervision of licensed professional nurses report that the addition of trained medication aides allows licensed nurses to devote more time to professional nursing assessment and judgment and the delivery of direct nursing care to residents; and

WHEREAS, greater use of "care teams" for the delivery of care in nursing homes has created new demands upon nursing home staff, resulting in new staffing needs; and

WHEREAS, the inclusion of medication aides authorized to administer medications that would normally be self-administered by residents of a nursing home under the supervision of a licensed professional nurse would enhance nursing home "care teams" and the quality of services delivered to residents of nursing homes; now, therefore, be it

RESOLVED by the House of Delegates, the Senate concurring, That the Department of Health Professions be requested to study the advisability of permitting the use of medication aides in nursing homes.

In conducting its study, the Department of Health Professions shall work together with nursing home, pharmacy, nursing professionals, and other stakeholders to determine (i) the nature and scope of the role of medication aides in nursing homes in other states; (ii) potential benefits that might result from the use of medication aides in nursing homes in Virginia, including but not limited to benefits associated with enhanced team care and extended licensed nursing care for nursing home residents; and (iii) the nature and scope of regulatory protections and safeguards necessary to ensure the safe and effective use of

medication aides in nursing homes, including but not limited to the types of medications that medication aides may administer in nursing homes and type and level of supervision that should be required.

All agencies of the Commonwealth shall provide assistance to the Department of Health Professions for this study, upon request.

The Department of Health Professions shall complete its meetings by November 30, 2010, and shall submit to the Governor and the General Assembly an executive summary and a report of its findings and recommendations for publication as a House or Senate document. The executive summary and report shall be submitted as provided in the procedures of the Division of Legislative Automated Systems for the processing of legislative documents and reports no later than the first day of the 2011 Regular Session of the General Assembly and shall be posted on the General Assembly's website.

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Appendix B

**Wendt, Anne. National Council of State Boards of Nursing Report Research Brief Vol 27,
March 2007. 2006 Job Analysis of Medication Assistants**

Task #	Label	Frequency All	Importance all	ALF Imp	LTC IMP	ALF-LTC	ABS ALF-LTC
t1	Use effective time management skills	3.64	3.62	3.64	3.7	-0.06	0.06
t2	Assist client with activities of daily living	2.97	3.44	3.54	3.45	0.09	0.09
t3	Assist client with self-administration of medication	2.78	3.43	3.45	3.48	-0.03	0.03
t4	Perform capillary blood glucose testing	2.54	3.45	3.65	3.49	0.16	0.16
t5	Provide non-invasive treatments (e.g. basic first aid and continuous passive motion machine)	1.78	3.02	3.06	3.02	0.04	0.04
t6	Measure client vital signs	3.04	3.67	3.69	3.75	-0.06	0.06
t7	Perform CPR	0.26	3.6	3.58	3.63	-0.05	0.05
t8	Initiate emergency care for a client who is choking	0.45	3.72	3.71	3.76	-0.05	0.05
t9	Assist with admission, transfer and/or discharge of client	1.64	2.98	3.02	3.04	-0.02	0.02
t10	Use cost effective measures when providing client care	2.68	3.09	3.1	3.13	-0.03	0.03
t11	Use restraints according to agency policy	1.7	2.97	2.68	3.11	-0.43	0.43
t12	Identify signs and/or symptoms of high or low blood sugar	2.22	3.78	3.81	3.84	-0.03	0.03
t13	Report signs and/or symptoms of high or low blood sugar	2.18	3.81	3.82	3.87	-0.05	0.05
t14	Administer oxygen as ordered	2.26	3.61	3.61	3.71	-0.1	0.1
t15	Check oxygen saturation percentage using pulse oximetry	2.43	3.51	3.46	3.67	-0.21	0.21
t16	Maintain the supply of medication	3.06	3.75	3.79	3.8	-0.01	0.01
t17	Take client's apical pulse	2.56	3.57	3.57	3.69	-0.12	0.12
t18	Respond to signs and/or symptoms of high or low blood sugar	2.09	3.74	3.78	3.78	0	0
t19	Reinforce client teaching using and established plan of care	2.53	3.29	3.22	3.31	-0.09	0.09
t20	Participate in	1071	2.99	3.04	2.99	0.05	0.05

	interdisciplinary client care conferences						
t21	Notify appropriate personnel of change in client's condition	2.68	3.77	3.78	3.82	-0.04	0.04
t22	Communicate effectively with family, parent, or guardian regarding health care status of client	2.29	3.46	3.55	3.49	0.06	0.06
t23	Give or receive report (e.g., communication log, shift report)	2.56	3.66	3.73	3.68	0.05	0.05
t24	Document client information in accordance with agency policy and procedure	3.22	3.7	3.72	3.72	0	0
t25	Participate in performance improvement/quality assurance activity	1.81	2.96	2.92	3	-0.08	0.08
t26	Documents adverse effects/side effects of clients medication	2.24	3.76	3.76	3.8	-0.04	0.04
t27	Send medication orders to pharmacy	2.46	3.57	3.63	3.66	-0.03	0.03
t28	Document client's medication administration according to facility/agency policy	3.44	3.87	3.88	3.91	-0.03	0.03
t29	Document medication errors according to facility/agency policy	1.05	3.81	3.83	3.85	-0.02	0.02
t30	Use resources to review medication information	2.49	3.7	3.69	3.77	-0.08	0.08
t31	Take verbal orders for medication	1.42	3.03	3.16	3.12	0.04	0.04
t32	Take telephone orders for medication	1.13	2.97	3.09	3.07	0.02	0.02
t33	Take (receive) written orders for medication	2.21	3.38	3.45	3.41	0.04	0.04
t34	Transcribe orders	2.01	3.18	3.29	3.27	0.02	0.02
t35	Review medication record for order changes	2.88	3.73	3.77	3.8	-0.03	0.03
t36	Use knowledge of medical terminology to interpret symbols, common abbreviations, and terminology used in administration of medications	3.29	3.76	3.76	3.85	-0.09	0.09
t37	Recognize client's right to refuse medication/treatment	2.49	3.7	3.71	3.72	-0.01	0.01
t38	Report violation of client rights within required time frame	1.1	3.72	3.72	3.77	-0.05	0.05

t39	Act/serve as an advocate for the client	2.16	3.48	3.43	3.54	-0.11	0.11
t40	Promote client self-advocacy	2.09	3.43	3.37	3.47	-0.1	0.1
t41	Provide culturally sensitive care	2.34	3.49	3.43	3.55	-0.12	0.12
t42	Report unsafe practice by a health care worker	0.8	3.84	3.84	3.89	-0.05	0.05
t43	Report client abuse, neglect, injury	0.81	3.88	3.86	3.93	-0.07	0.07
t44	Complete incident/accident report according to facility/agency policy	1.09	3.69	3.75	3.66	0.09	0.09
t45	Identify ethical issues affecting staff or client	1.08	3.42	3.44	3.45	-0.01	0.01
t46	Maintain confidentiality	3.56	3.93	3.91	3.95	-0.04	0.04
t47	Provide for client's privacy	3.63	3.87	3.87	3.91	-0.04	0.04
t48	Adhere to basic authorized job duties	3.6	3.73	3.7	3.78	-0.08	0.08
t49	Identify if a medication or route is appropriate to administer	3.25	3.87	3.86	3.91	-0.05	0.05
t50	Follow agency policy related to HIPAA or FERPA rules	3.56	3.85	3.8	3.89	-0.09	0.09
t51	Count controlled substances	2.73	3.89	3.87	3.94	-0.07	0.07
t52	Report medication errors according to facility/agency policy	1.04	3.85	3.86	3.88	-0.02	0.02
t53	Recognize limitations within scope of practice	2.63	3.68	3.65	3.71	-0.06	0.06
t54	Position a client for medication administration	3.25	3.73	3.68	3.83	-0.15	0.15
t55	Observe client's responses to medication	3.38	3.81	3.78	3.85	-0.07	0.07
t56	Report client's responses to medication	2.88	3.78	3.77	3.84	-0.07	0.07
t57	Observe client for adverse effects/side effects of medications	3.05	3.84	3.82	3.9	-0.08	0.08
t58	Respond to client's adverse reaction to medication according to facility/agency policy	1.91	3.8	3.78	3.85	-0.07	0.07
t59	Withhold medication if necessary	1.75	3.71	3.69	3.78	-0.09	0.09
t60	Administer PRN medications	3.07	3.66	3.63	3.72	-0.09	0.09
t61	Administer medications by gastric tube	1.88	3.31	3.08	3.5	-0.42	0.42
t62	Administer medications by nasogastric tube	0.85	3.05	2.95	3.19	-0.24	0.24
t63	Administer medications by	1.28	3.12	2.95	3.29	-0.34	0.34

	jejunostomy						
t64	Administer subcutaneous medication	1.96	3.26	3.35	3.31	0.04	0.04
t65	Administer an emergency medication	0.68	3.22	3.12	3.31	-0.19	0.19
t66	Administer a medication by rectal route	1.27	3.38	3.34	3.48	-0.14	0.14
t67	Administer a medication by vaginal route	0.9	3.26	3.24	3.35	-0.11	0.11
t68	Administer a medication by intradermal route	0.97	3	2.96	3.14	-0.18	0.18
t69	Administer medication by sublingual route	1.43	3.53	3.51	3.63	-0.12	0.12
t70	Administer medication by transdermal route	2.14	3.61	3.63	3.71	-0.08	0.08
t71	Administer medication by a metered dose inhaler	2.53	3.59	3.6	3.66	-0.06	0.06
t72	Administer medication by nebulizer	2.3	3.55	3.59	3.6	-0.01	0.01
t73	Administer ear medications	1.58	3.54	3.59	3.57	0.02	0.02
t74	Administer eye medications	2.85	3.64	3.69	3.69	0	0
t75	Administer nasal medication	2.26	3.58	3.62	3.62	0	0
t76	Administer oral medication	3.6	3.8	3.8	3.82	-0.02	0.02
t77	Administer topical medication	2.63	3.6	3.6	3.62	-0.02	0.02
t78	Use the six "rights" when administering medications	3.78	3.96	3.97	3.98	-0.01	0.01
t79	Checks medications three times before giving	3.71	3.93	3.93	3.96	-0.03	0.03
t80	Observe client swallowing oral medications	3.72	3.93	3.93	3.95	-0.02	0.02
t81	Follow medication directions and warning labels	3.73	3.93	3.91	3.96	-0.05	0.05
t82	Administer medications prepared by self, not others	3.63	3.89	3.87	3.92	-0.05	0.05
t83	Identify expiration date prior to administration of medication	3.47	3.85	3.87	3.88	-0.01	0.01
t84	Mix insulin from two different vials for client	1.29	3.17	3.2	3.26	-0.06	0.06
t85	Administer medication to coincide with lab tests	2.07	3.53	3.52	3.63	-0.11	0.11
t86	Prepare medication for administration (crushing, mix with food)	3.35	3.77	3.73	3.84	-0.11	0.11
t87	Provide adequate liquids when administering medication	3.68	3.83	3.82	3.87	-0.05	0.05
t88	Review medication orders for completeness	3.65	3.9	3.89	3.92	-0.03	0.03

t89	Review possible adverse effects/side effects of medications	3.08	3.79	3.78	3.82	-0.04	0.04
t90	Dispose of client's unused or expired medications according to facility/agency	2.35	3.69	3.68	3.74	-0.06	0.06
t91	Properly store medications	3.56	3.85	3.87	3.85	0.02	0.02
t92	Maintain security of medication storage areas	3.64	3.89	3.87	3.91	-0.04	0.04
t93	Maintain security of controlled substances according to legal statutes and facility/agency policy	3.62	3.91	3.91	3.94	-0.03	0.03
t94	Maintain clean technique	3.74	3.87	3.85	3.89	-0.04	0.04
t95	Follow safety policies/procedures used to prevent incidents and accidents	3.62	3.87	3.87	3.88	-0.01	0.01
t96	Monitor for and report client care safety hazards	2.92	3.77	3.75	3.79	-0.04	0.04
t97	Check for client allergies	3.17	3.83	3.81	3.87	-0.06	0.06
t98	Maintain infection control procedures	3.87	3.94	3.94	3.95	-0.01	0.01
t99	Follow facility/agency procedures to verify client identity	3.55	3.87	3.85	3.92	-0.07	0.07
t100	Access poison control agency when necessary	0.9	3.69	3.66	3.73	-0.07	0.07
t101	Recognize life threatening emergencies	1.68	3.89	3.87	3.91	-0.04	0.04
t102	Maintain equipment for client care	2.87	3.71	3.66	3.75	-0.09	0.09
t103	Maintain clean work environment	3.62	3.8	3.76	3.81	-0.05	0.05
t104	Date appropriate medication when first used	2.89	3.8	3.83	3.84	-0.01	0.01

