

The Safety and Regulation of Medication Aides

Jill S. Budden, PhD

A review of the literature on medication error rates among medication aides is presented, followed by an exploration of medication-aide regulations regarding oversight, applicant requirements, training, testing, continuing education, work setting and supervision, and role limitations. The results show the wide variability in the roles and regulations of medication aides. The issue of more uniformity in the regulation of medication aides is discussed.

Nursing assistive roles were designed to relieve registered nurses (RNs) of some less complex tasks, so they could concentrate on more complex tasks, leading to increased quality of care (Quallich, 2005). This article investigates the safety and authorized duties of one type of unlicensed assistant, the medication aide, also known by other titles, including medication assistant, trained medication employee, and medication technician. A review of the academic literature on medication-aide safety and an exploratory review of medication-aide regulations are presented.

Review of the Literature

Research suggests that medication aides are capable of safely administering oral, topical, and some parenteral medications; that is, no evidence suggests that medication aides have higher error rates than licensed nurses. For instance, Scott-Cawiezell and colleagues (2007) examined differences in medication error rates and frequency of distractions or interruptions among RNs, licensed practical nurses (LPNs), and certified medication technicians/aides (CMT/As). In five nursing homes, 3,101 doses and 93 omitted doses were observed. Observations included 44 medication administrations for 907 resident encounters over 4,803 minutes. On average, a medication administration involved 73 medications and took an average of 113 minutes. RNs ($n = 8$) had an error rate of 34.6%; LPNs ($n = 12$) had an error rate of 40.1%; and CMT/As ($n = 19$) had an error rate of 34.2%. With wrong-time errors removed, RNs had the largest percentage of errors (7.4%); however, no significant differences existed among the three groups. The researchers concluded that CMT/As had fewer interruptions and distractions and suggested that the study provided initial evidence to suggest that CMT/As were safe for routine medication administration.

In a similar study, no significant differences in error rates were found by level of credential in long-term care facili-

ties (Arizona State Board of Nursing, 2008; Randolph, 2008; Randolph & Scott-Cawiezell, 2010). Before the introduction of medication aides, research nurses observed RNs ($n = 7$) and LPNs ($n = 31$) delivering 3,039 medications. Six months after the introduction of medication aides, the researchers observed RNs ($n = 2$), LPNs ($n = 16$), and medication technicians ($n = 7$) delivering 2,521 medications. Before the introduction of medication aides, error rates were as follows: RN (11.55%) and LPN (10.12%) with a mean error rate of 10.4% and no statistical differences between groups. Six months after the introduction of medication aides, error rates were as follows: RN (2.75%), LPN (7.25%), and medication technicians (6.06%) with a mean error rate of 6.6% and no statistical differences among groups.

Young and colleagues (2008) conducted a study to describe the types and potential clinical significance of medication administration errors in assisted-living settings. In 12 settings, 29 aides were observed during 56 medication passes on day and evening shifts giving medications to 510 residents for a total of 4,866 medication administrations. The average error rate was 28.2%. Without wrong-time errors, the average rate dropped to 8.2%. The average error rates for specific types of errors were as follows:

- Wrong time (70.8%)
- Wrong dose (12.9%)
- Omitted dose (11.1%)
- Extra dose (3.5%)
- Unauthorized drug (1.5%)
- Wrong drug (0.2%)

Only three errors were rated as having potential clinical significance. The researchers concluded that given their level of training and preparation and that the bulk of the medications were low-risk and routine, medication aides generally did well (i.e., risks appeared to be minimal) with medication administration.

Overall, these studies supported the safety of medication aides. However, caution should be taken. RN, LPN, and

TABLE 1

Jurisdictions That Allow Unlicensed Assistive Personnel to Administer Medication

Some of the 34 states with medication aides had more than one type of medication aide. Thus, the term *jurisdiction* is used instead of state to represent the 46 medication-aide jurisdictions identified for this study.

Jurisdiction	Title of Unlicensed Assistive Personnel	Regulatory Oversight
Arizona	Certified medication technician	BON
Arkansas	Medication assistive person	BON
Colorado	Medication aide	BON
Connecticut	Certified unlicensed personnel and medication technician (pilot program)	DOH*
DC	Medication aide (pilot program)	BON
Georgia	Qualified medication aide	BON, LPN; Department of Behavioral Health & Developmental Disabilities (Advisory to BON, LPN); Department of Human Resources, Office of Regulatory Services (rules and regulations over community living arrangements)
Idaho	Certified medication assistant	BON
Indiana	Qualified medication aide	DOH
Iowa	Certified medication aide	Department of Inspections and Appeals
Kansas	Certified medication aide	Department of Health and Environment
Kentucky	Medication aide credentialed	Cabinet for Health Services
Louisiana	Medication attendant certified	Department of Health and Hospitals
Maine(a)	Certified medication assistants—medications	BON
Maine (b)	Certified residential care medication aide	Department of Health and Human Services
Maryland (a)	Medication technician	BON
Maryland (b)	Certified medication aide	BON
Massachusetts	Medication aide	Departments of Public Health, Mental Health, and Mental Retardation
Minnesota	Trained medication aide and unlicensed assistive personnel administering medications	BON
Missouri (a)	Level I medication aide	Department of Health and Senior Services, Division of Regulation and Licensure
Missouri (b)	Certified medication technician	Department of Health and Senior Services, Division of Regulation and Licensure
Montana (a)	Medication aide (licensed)	BON
Montana (b)	Certified medication aide	Department of Public Health and Human Services
Nebraska (a)	Medication aide 40 hour	BON; Department of Health and Human Services—Licensure Unit
Nebraska (b)	Medication aide	BON; Department of Health and Human Services—Licensure Unit
New Hampshire (a)	Licensed nursing assistant, medication certified	BON
New Hampshire (b)	Medication nursing assistants (licensed)	BON
New Jersey	Medication aide	Department of Health and Senior Services
New Mexico	Certified medication aide	BON
North Carolina (long-term care/skilled nursing facility)	Medication aide	BON; Division of Health Service Regulation/Center for Aide Regulation and Education

Jurisdictions That Allow Unlicensed Assistive Personnel to Administer Medication (continued)

Jurisdiction	Title of Unlicensed Assistive Personnel	Regulatory Oversight
North Carolina (adult care homes)	Medication aide	Division of Health Service Regulation/Adult Care Licensure Section
North Dakota (a)	Medication assistant I	BON
North Dakota (b)	Medication assistant II	BON
North Dakota (c)	Medication assistant III	BON
Ohio	Medication aide certified	BON
Oklahoma	Certified medication aide	DOH
Oregon	Certified medication aide	BON
South Carolina	Nonlicensed staff person	Department of Health and Environmental Control (responsible for licensing health-care facilities, there is no regulatory body for non-licensed staff)
South Dakota	Unlicensed assistive personnel	BON
Texas (facilities)	Medication aide	Department of Aging and Disability Services
Texas (correctional institutions)	Medication aide	Department of Aging and Disability Services
Texas: Home Health	Medication aide	Department of Aging and Disability Services
Utah	Medication aide certified	Division of Occupational and Professional Licensing in collaboration with BON
Virginia	Registered medication aide	BON
West Virginia	Unlicensed personnel, approved medication assistive personnel, and medication administrative personnel	Office of Health Facility Licensure & Certification
Wisconsin (nursing home/facilities for the developmentally disabled)	Medication aide	Department of Health and Family Services, Division of Quality Assurance
Wisconsin (hospice)	Medication aide	Department of Health and Family Services, Division of Quality Assurance

Note. BON = board of nursing; DOH = department of health; LPN = licensed practical nurse.

*There are also programs regulated by the Department of Developmental Disabilities, the Department of Children and Families, as well as the Department of Mental Health and Addiction Services. All of these programs have their own regulations and different training requirements, and were not included in the analyses because of difficulty locating information on these programs.

- Determined by training program
- 1 to 2 weeks
- 3 to 15 weeks
- 3 days per week, 5 hours per day
- 1 day per week for 6 to 10 weeks
- 14 days for theory and 30 days for clinical for a total of 44 days
- No fewer than 20 business days and no greater than 90 days

At least 41% ($n = 19$) of jurisdictions had some form of training exception, and at least 28% ($n = 13$) did not. At least 20% ($n = 9$) of the jurisdictions had a training exception if medication-aide education from another state was substantially similar. At least 30% ($n = 14$) had a training exception if medication aides from another state passed the jurisdiction's exam. And

at least 22% ($n = 10$) had a training exception if the applicant had some form of nursing education.

Testing

At least 78% ($n = 36$) of the jurisdictions used a standard written exam after training, and at least 28% ($n = 13$) used a manual/skills demonstration exam. Responsibility for designing and administering the exam varied by jurisdiction. A sample follows:

- BON
- Department of Health
- Training program
- Committee
- Instructors
- D&S Diversified Technologies

TABLE 2

Training Hours

	<i>n</i>	<i>M</i>	<i>SD</i>	Mini- mum	Maxi- mum	Median
Total training hours	34	73.97	40.60	4.00	150.00	72.00
Didactic training hours	30	55.97	36.47	4.00	150.00	54.00
Clinical training hours	30	22.20	14.86	0.00	40.00	20.50

Table does not include the one identified jurisdiction that did not require any training hours.

- Comira Testing
- Pearson VUE
- Psychology Services Incorporated (PSI)
- Professional Healthcare Development (PHD)

An analysis of overall pass rates and passing scores revealed an average of 73% (*SD* = 17%) of applicants across jurisdictions passed the written exam (participants were not asked whether this was a first-time pass rate); 40% was the minimum, and 94% was the maximum. The average raw score needed to pass the written exam across jurisdictions was 77% correct. At least five jurisdictions (11%) required 100% to pass the manual exam; 50% of the jurisdictions did not have a manual exam, and data were not available for 35% of the jurisdictions.

At least 35% (*n* = 16) of jurisdictions allowed individuals to take the exam two times, and at least 24% (*n* = 11) allowed individuals to take it three times. At least 39% (*n* = 18) of the jurisdictions allowed individuals to retake training, then retake the exam if they had exhausted their first allotment of retakes. A sample of the varied timeframes for retaking the exam follows:

- Within 30 days
- Within 60 days of training completion
- Within 45 days of failure notification
- Within 90 days
- Within 3 months of training completion
- Within 6 months of training completion
- Within 1 year of classroom training completion
- Within 1 year of the date of application
- Within 12 months of the first day of training

Continuing Education

Continuing education requirements varied by jurisdiction and were as follows:

- None (20%, *n* = 9)
- 8 hours every 2 years (7%, *n* = 3)
- 7 clock hours every 1 year (7%, *n* = 3)
- 12 hours (4 specific to medication administration) every 1 year (7%, *n* = 3)
- 6 hours every 1 year (4%, *n* = 2)

- 10 hours every 2 years (4%, *n* = 2)
- Competency assessment every 2 years (4%, *n* = 2)
- Clinical update every 2 years (4%, *n* = 2)
- 16 hours (2%, *n* = 1)
- 16 clock hours every 2 years (2%, *n* = 1)
- 12 hours, timeframe missing (2%, *n* = 1)
- 12 hours every 1 year (2%, *n* = 1)
- 15 hours every 2 years (2%, *n* = 1)
- 8 hours every 1 year (2%, *n* = 1)
- 8 of 24 hours medication-related every 2 years (2%, *n* = 1)
- 4 hours of population-specific training in medication administration in the assisted-living facility where employed or a refresher course in medication administration offered by an approved program every 1 year (2%, *n* = 1)
- Retraining every 2 years (2%, *n* = 1)
- Missing (24%, *n* = 11)

Work Setting and Supervision

The settings in which medication aides may work varied by jurisdiction. The minimum percentages of jurisdictions that allowed medication aides to work in various settings are as follows:

- Nursing home/skilled nursing facilities (39%, *n* = 18)
- Assisted-living facilities (37%, *n* = 17)
- Intermediate-care/mental-retardation facilities (20%, *n* = 9)
- Long-term care facilities (17%, *n* = 8)
- Residential care facilities (15%, *n* = 7)
- Adult care homes/adult foster care (11%, *n* = 5)
- Correctional facilities (9%, *n* = 4)

Similarly, professionals who may supervise medication aides varied widely by jurisdiction; a sample of results follows:

- Licensed nurse (28%, *n* = 13)
- RN (15%, *n* = 7)
- Prescribers or RNs (2%, *n* = 1)
- RN or an LPN acting at the direction of an RN (2%, *n* = 1)
- Licensed nurse on duty or on call (4%, *n* = 2)

Role Limitations

The authorized job duties for medication aides also varied by jurisdiction. Given space constraints, not all role limitations by jurisdiction can be presented here; thus, a subset of four jurisdictions was selected: one was randomly selected from each of the National Council of State Boards of Nursing's four geographic regions. State and jurisdiction names are not presented because the focus is not on the jurisdiction but on the variations in role limitations *among* jurisdictions.

In state/jurisdiction 1, medication aides could not administer the following: parenteral or injectable medications; the initial dose or nonroutine medication when the patient's response is not predictable; medication when the patient's condition is unstable or the patient has changing nursing needs; or medication if the supervising nurse is unavailable to monitor the progress of the patient or the effect of the medication on the patient. Also, a

nurse must assess the patient before or following administration and must calculate or convert the dosage.

In state/jurisdiction 2, medication aides could not administer medication by the intramuscular, intravenous, subcutaneous, or intradermal route; administer medication used for intermittent positive-pressure breathing treatments or any form of medication inhalation treatments other than metered-dose inhaler; administer medication via nasogastric (NG) tube; instill irrigation fluids of any type including, but not limited to, colostomy, catheter, and enema; administer a treatment that involves advanced skin conditions, including stages II, III, and IV decubitus ulcers; or assume responsibility for receiving a written, verbal, or telephone order.

In state/jurisdiction 3, medication aides could not receive, have access to, or administer any controlled substance; administer parenteral, enteral, or injectable medications; administer any substances by NG or gastrostomy tubes; calculate drug dosages; destroy medication; receive written or verbal orders for new or changed medications; transcribe orders from the medication record; order initial medications; evaluate medication error reports; perform treatments; conduct patient assessments or evaluations; or engage in patient-teaching activities.

In state/jurisdiction 4, medication aides could not administer intramuscular, intradermal, or intravenous medications.

Discussion

Research suggests that medication aides are capable of safely administering medications. For instance, Scott-Cawiezell et al. (2007) revealed that CMT/As did not significantly differ on medication-administration errors when compared with RNs and LPNs. Similarly, the Arizona State BON (2008) suggested no reduction in the quality of care (i.e., no increase in medication errors) when medication technicians were introduced to a health-care team. And Young et al. (2008) suggested that medication aides generally do well with the task of medication administration in assisted-living settings, given that the bulk of the medications are low-risk and routine. However, caution should be taken when generalizing these study results to states or jurisdictions with different medication-aide regulations.

The current investigation explored medication-aide roles and regulations by state or jurisdiction. Medication-aide regulations were discussed in terms of regulatory oversight, applicant requirements, training, testing, continuing education, work setting and supervision, and role limitations. The results showed the wide variability in the roles and regulations of medication aides.

Despite calls for more uniformity in medication-aide regulations (e.g., Mitty, 2009), getting all jurisdictions to agree to uniform regulations is unlikely. One solution that may help ensure all medication aides have a minimum level of competency, despite differences in training and supervision, is a uniform testing process.

Limitations

Given the methods for obtaining data—reviewing and documenting information from state websites and legislation and using key contacts in each state—and ever-changing state legislation, all results should be interpreted with caution. The purpose of this data was to provide a much-needed snapshot of the regulation of medication aides. If feasible, future studies should use a more systematic, controlled-study methodology.

References

- Arizona State Board of Nursing. (2008). *Report to the Legislature: Arizona medication technician pilot project*. Retrieved from <http://www.azbn.gov/Documents/misc/FINAL%20REPORT%20TO%20THE%20LEGISLATURE.pdf>
- Mitty, E. (2009). Medication management in assisted living: A national survey of policies and practices. *Journal of the American Medical Directors Association, 10*, 107–114. doi:10.1016/j.jamda.2008.08.006
- Quallich, S. A. (2005). The medical assistants: The future nurses? *Urologic Nursing, 25*, 389–391.
- Randolph, P. (2008). Unlicensed personnel as medication technicians in long-term care. *Nurse Leader, 6*, 34–37. doi:10.1016/j.mnl.2008.06.005
- Randolph, P. K., & Scott-Cawiezell, J. (2010). Developing a statewide medication technician pilot program in nursing homes. *Journal of Gerontological Nursing, 36*, 36–44. doi:10.3928/00989134-20100330-06
- Scott-Cawiezell, J., Pepper, G., Madsen, R., Petroski, G., Vogelsmeir, A., & Zellmer, D. (2007). Nursing home error and level of staff credentials. *Clinical Nursing Research, 16*, 72–78. doi:10.1177/1054773806295241
- Young, H. M., Gray, S. L., McCormick, W. C., Sikma, S. K., Reinhard, S., Johnson, T. L., ... Allen, T. (2008). Types, prevalence, and potential clinical significance of medication administration errors in assisted living. *Journal of the American Geriatrics Society, 56*, 1199–1205. doi:10.1111/j.1532-5415.2008.01754.x

Jill S. Budden, PhD, is a research associate for the National Council of State Boards of Nursing (NCSBN). This investigation was funded by the NCSBN.