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## Physician Perspectives on Medical Care Delivery in Assisted Living

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### Abstract

**OBJECTIVES**—To describe the provision of medical care in assisted living (AL) as provided by physicians who are especially active in providing care to older adults and AL residents; to identify characteristics associated with physician confidence in AL staff; and to ask physicians a variety of questions about their experience providing care to AL residents and how it compares with providing care in the nursing home and home care settings.

**DESIGN**—Cross-sectional descriptive study.

**SETTING**—AL communities in 27 states.

**PARTICIPANTS**—One hundred sixty-five physicians and administrators of 125 AL settings in which they had patients.

**MEASUREMENTS**—Interviews and questionnaires containing open- and close-ended questions regarding demographics, care arrangements, attitudes, and behaviors in managing medical problems.

**RESULTS**—Most respondents were certified in internal medicine (46%) or family medicine (47%); 32% were certified in geriatrics and 30% in medical directorship. In this select sample, 48% visited the AL setting once a year or less, and 19% visited once a week or more. Mean physician confidence in AL staff was 3.3 (somewhat confident), with greater confidence

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associated with smaller AL community size, nursing presence, and the physician being the medical director. Qualitative analyses identified differences between settings including lack of vital sign assessment in the home setting, concern about the ability of AL staff to assess and monitor problems, and greater administrative and regulatory requirements in AL than in the other settings.

**CONCLUSION**—Providing medical care for AL residents presents unique challenges and opportunities for physicians. Nursing presence and physician oversight and familiarity and communicating with AL staff who are highly familiar with a given resident and can monitor care may facilitate care.

## Keywords

medical care; assisted living; patient management; physician

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Assisted living (AL) facilities in the United States house approximately 1 million frail, medically complex older persons.<sup>1,2</sup> Multiple diagnoses are common in AL, with 38% to 49% of residents with heart disease, as many as 66% with hypertension, 40% to 67% with cognitive impairment, and 56% with significant behavioral symptoms.<sup>2–6</sup> Given the prevalence of medical conditions, it is not surprising that use of medical care also is high; the 3-month risk of hospitalization is 13% to 23%, 32% of residents spend at least one night in a hospital annually, and an additional 23% visit an emergency department.<sup>7,8</sup> The high prevalence of disease places considerable responsibility on AL staff to notify physicians of changing conditions, and further complicating care is that physicians are rarely on site, leading to reliance on AL staff to report symptoms and monitor residents.<sup>9,10</sup>

Although physician services are an important component of medical care in AL, the structure of physician services and responses by AL staff are poorly understood.<sup>11</sup> Traditionally, AL has been regarded as a community-based, social model of care with minimal physician presence. AL residents have generally been treated by community-based medical providers who require AL staff to contact them when a problem arises.<sup>12</sup> This arrangement has created challenges for AL staff, who report that telephone calls are often not returned, multiple messages are needed to garner physician response, the actions of physicians are frustrating at times, and some physicians do not understand the AL setting.<sup>13</sup> On the physician side, AL residents present complex care challenges, including monitoring chronic disease, diagnosing acute illness, managing multiple medications, and providing end-of-life care.<sup>2,14–16</sup>

To better understand physician perspectives of provision of medical care in AL, 165 physicians who are especially active in the provision of care to older adults and AL residents were surveyed. It was desired to describe their practice characteristics; their confidence in AL staff; and how they compared medical care provision in AL, private residences, and nursing homes (NHs).

## METHODS

### Sample

Between 2008 and 2010, data were collected from 165 physicians who provide care for residents in 125 AL communities in 27 states. The initial stage of recruitment randomly selected and recruited 45 AL settings in three states (Florida, New Mexico, and Wisconsin). AL settings were those that provided room, 24-hour oversight, at least one meal per day, and support with activities of daily living and were licensed by the state under a non-NH category consistent with residential care or AL. Settings primarily serving persons with

mental retardation or developmental disabilities, with fewer than 16 beds that housed fewer than four residents aged 65 and older, and with 16 or more beds that housed fewer than 10 residents aged 65 and older, were excluded. Research staff contacted AL settings in random order to classify them into three strata described previously:<sup>3</sup> <16 beds, new model ( 16 beds and having components of newer models as determined according to a pilot study: being built after January 1, 1987 and having at least two different monthly private pay rates, 20% or more residents requiring assistance with transfer, 25% or more residents who are incontinent daily, and a registered nurse or licensed practical nurse on duty at all times), or traditional ( 16 beds and not meeting the new-model definition). Within each stratum, AL communities were recruited in random order until five communities had been recruited in each state.

Each AL community was asked for contact information of up to six physicians who cared for their residents, and these physicians were invited to participate in the study. Because of challenges recruiting these physicians, a second sample of physicians active in providing care for AL residents was recruited at the 2009 national meetings of the American Geriatrics Society (AGS) and the American Medical Directors Association (AMDA). These physicians were invited to provide contact information of additional physicians working in AL, and those identified in this “snowball” sample were also recruited. Finally, research staff telephoned and interviewed the AL administrator to obtain descriptive information.

Physician data (n = 165) were collected in an interview or questionnaire. From the three-state sample, 11 respondents completed telephone interviews, and 54 responded to mailed questionnaires. All of the remaining physicians (n = 100) completed written questionnaires —78 from the AGS and AMDA sample and 22 from the snowball sample.

Informed consent was obtained before data collection. The institutional review boards of the University of North Carolina at Chapel Hill and the University of Maryland at Baltimore County approved all procedures.

## Measures

Physicians provided information regarding their demographic, professional, and practice characteristics. A combination of closed- and open-ended questions explored attitudes and behaviors in managing medical problems in AL, private residences (with a reliable nonmedical family caregiver), and NHs, beginning with open-ended questions asking how resident management in AL differed from that in the two comparison settings. Physicians in the AGS, AMDA, and snowball samples responded in reference to a specific AL community (randomly instructed to be the setting in which they had the fewest patients, an average number of patients, or the largest number of patients).

Seven questions addressed physician confidence in AL staff’s ability to respond to a request for blood pressure monitoring in a resident whose antihypertensive medication had recently been changed, respond to a request for regular weight monitoring of a resident with congestive heart failure, provide adequate information by telephone on an acute problem if the call occurred at 7 p.m., provide adequate information by telephone about a resident with agitation if the problem occurred during the day shift, provide adequate information by telephone about agitation if the problem occurred during the night shift, implement treatment recommendations for a resident who had recently been transferred from a hospital, and provide quality end-of-life care. All items were scored on a 5-point scale (1 = not at all confident, 5 = extremely confident).

AL administrators were interviewed about ownership status, number of licensed beds, occupancy rate, and medication administration practices related to use of licensed nurses.

## Data Analysis

All quantitative analyses were performed using SPSS for Windows 16.0 (SPSS, Inc., Chicago, IL). Frequencies and percentages were generated for categorical characteristics and means and standard deviations for characteristics with a continuous distribution except where the distribution was highly skewed (in which case, responses were grouped into categories or reported as median and interquartile range).

To identify whether the seven confidence items would perform as a summative scale, item means were calculated including only respondents who answered at least five of the seven items (164 of 165 respondents). The item-to-total correlations and Cronbach alpha of the overall scale and more-parsimonious aggregations with selected variables omitted were examined. The 7-item summary measure was normally distributed and had an alpha of 0.85, which was not substantially improved by deleting items.

To identify to what extent certain aspects of setting or physician characteristics were associated with physician confidence in AL staff, a linear mixed model analysis was conducted with the dependent variable being the 7-item scale of physician confidence and a random effect specified for AL setting. AL setting variables included in the analysis were type (<16 beds, traditional, or new model), ownership status (for profit or not for profit), size, occupancy, and nurse administration of medications. Physician variables were sex, race (nonwhite vs white), age, specialty (family or internal medicine), certification in geriatric medicine, AMDA certification, years in practice, medical directorship, frequency of visits to the AL setting, typical site of outpatient care for AL residents, years of long-term care practice, practice size (number of physicians), and number of different AL settings in which the physician managed patients. Because a ratio of cases to predictors of less than 10 can result in unreliable parameter estimates,<sup>17</sup> predictor variables were initially entered individually. Predictors with  $P < .20$  when entered individually were then entered simultaneously, and a backward elimination procedure was used to trim the model. At each step, the predictor with the highest P-value was dropped and the model rerun until only variables with  $P < .05$  remained.

To analyze the qualitative data, five investigators (two geriatricians (PDS, CK) and three sociologists (RP, BHW, JS)) independently reviewed the responses to identify important themes and then met to refine the themes, using a consensus development process.

## RESULTS

### Sample Characteristics

The 165 physicians practiced in 27 different states, with New Mexico ( $n = 29$ , 18%), Florida ( $n = 24$ , 15%), and Wisconsin ( $n = 15$ , 9%) being most highly represented given the sampling design. Understanding that 47% of the sample was weighted toward physicians particularly interested in long-term care practice (i.e., the AGS and AMDA respondents), the following characteristics describe the subjects: 83% white; 71% male; mean age  $52.0 \pm 9.0$ ; 46% certified in internal medicine, 47% in family medicine, 32% in geriatrics, and 30% by the American Medical Directors Association; mean time in practice  $22.2 \pm 9.6$  years; and 29% in solo practice, 33% in group practices of two to six physicians, and 29% in practices of more than six physicians. Eighty-seven percent of respondents had patients in more than one AL community, and 18% served as an AL medical director. Communication from the AL community was common; the median number of contacts per week regarding patients was 5.0 (interquartile range: 1.5–15). When patients were seen, 41% of this sample most often provided outpatient care in the AL community, whereas 58% provided it in their office. The frequency of on-site physician visits reflected this variation; 48% virtually never

visited, 24% visited between once a year and once a month, 8% visited several times a month, and 19% visited once a week or more.

Twelve of the 125 AL communities had fewer than 16 beds, 69 were new model, and 43 were traditional communities. (One community provided insufficient data to assign a type.) The mean bed size was  $65.2 \pm 44.0$ , and 72% were for profit. Nurses administered medications during days and nights in 45% of settings, during days only in 14% of settings, and at neither time in 41% of settings.

### Physician Confidence in AL Staff

Using the scale of not at all (scored 1) through extremely confident (scored 5), the greatest confidence was expressed in AL staff's ability to implement posthospitalization treatment recommendations (3.7) and to monitor blood pressure (3.6); the lowest confidence was in night shift staff's ability to provide adequate information about agitation (2.7) or the ability of staff in the evening to provide desired information about an acute problem (3.1). For the summary physician confidence scale, the mean was  $3.3 \pm 0.6$  (somewhat confident).

Table 1 displays the associations between the physician confidence summary scale and characteristics of the physician respondents and AL communities. In bivariate and multivariate regression analyses, absence of a nurse administering medication in the day or night was associated with lower confidence, whereas the physician being medical director was associated with greater confidence. Also, in multivariate multiple regression, physician confidence was higher in AL settings with fewer than 16 beds than in new-model settings and lower when rated by a nonwhite physician (only 17% of the sample was nonwhite). Using a previously developed method for calculating explained variance for mixed models,<sup>18</sup> respondent characteristics explained 5% of the total variance and community characteristics explained 12%.

### Comparison of AL, Private Residence, and Nursing Home Settings

Four themes emerged comparing AL, private residence, and NH care: general perception of the setting, the process of making a diagnosis, therapeutic options and treatment provision, and administrative and regulatory matters (Table 2). Family involvement was considered similar in AL and NHs, but there was less trust and confidence in the skills of AL staff than in those of NH staff, especially if there was no nurse on staff; similarly, there was a perception that telephone calls from AL staff were less likely to represent a serious medical problem than a call from NH staff. Common statements related to greater confidence in the NH setting included "would be more comfortable with the assessment done by the NH staff" and "more clinical intervention can be done on site" and "I do not trust [AL staff's] judgment." In private residences, family were recognized as being more familiar with the patient than were AL or NH staff, better able to observe and monitor medical conditions, and able to go immediately to a pharmacy to fill a prescription although also to have fewer medical skills. One respondent stated "some of my family caregivers are more competent than AL personnel." Respondents expressed more confidence in NH staff, partly because the physician would always be able to speak with a "real nurse," but also because more tests and treatments could be ordered. Another concern was that providing AL care was particularly time consuming because of administrative and regulatory requirements and limited access to nurses who can take oral orders. Comparing AL with private residences and NHs, physicians talked about "more phone calls," "lots of faxes," and "more paperwork and hassle." Prescribing a medication, for example, could take as little as one call in the NH (to the nurse, who would take an oral order), whereas if the patient was in a private residence, it might take two calls (to the family and a pharmacy), and in AL it would require faxed orders

to the community, calls to AL staff and to the pharmacy, and possibly an additional call to the family.

## DISCUSSION

This study represents the first in-depth survey of physician practices in AL across numerous states. It included 165 physicians from 27 states with active AL practices, heavily weighted toward physicians who are particularly interested in long-term care. These physicians were found to be slightly more than “somewhat” confident in AL staff, and their confidence was higher with nursing presence, in settings with fewer than 16 beds than in new-model residences, and when they were the medical director. Qualitatively, they discussed AL settings as being more medically supportive than were families in private residences but consistently less supportive than staff in NHs.

Within this select sample, 40% of respondents conducted the majority of patient visits on site, with the remaining 60% generally seeing AL residents in a primary care office and making on-site visits infrequently or not at all. These different patterns of care may capture an evolution in the field of AL. Traditionally, AL has been viewed as a “community based” care setting, and physician visits have generally been conducted in the primary care office. With residents with increasing disability in AL in recent years,<sup>19</sup> some physicians have responded by making on-site visits and assembling panels of patients within AL communities. This trend toward more physicians focusing their practice on long-term care medicine may represent a move in the direction of long-term care specialization,<sup>20</sup> which has been associated in one study with better quality of care.<sup>21</sup>

Respondents found decision-making around acute problems to be especially challenging in AL, because of the complexity of the patients, the relative absence of licensed nursing staff, and the “hassle factor” associated with the number of telephone calls and faxes required to implement orders. Patients in AL were seen as more complex than those living in private residences, with a greater likelihood that a telephone contact would represent a serious problem. Management decisions involved an interplay between the clinical situation and the setting, influenced by patient and family preferences.<sup>22,23</sup> Respondents tended to be skeptical of the ability of AL staff to provide an adequate history and to monitor patients, especially at night, and noted that therapeutic options were more limited in AL than in NHs. As a result, respondents were more likely to transfer patients to an emergency department or to hospitalize than in NHs. This report is consistent with findings from a comparative outcome study in which persons with dementia who resided in AL were hospitalized at higher rates than those residing in NHs.<sup>24</sup>

Admittedly, this sample was nonrepresentative, meaning that these findings—particularly related to physician practice patterns—should not be used to generalize to all physicians providing care in AL. Despite offering respondents \$100 for their participation, response rates from the random sample were so low that all respondents should be considered volunteers with an interest in AL care. At the same time, a wide diversity of physician practice styles was sampled, thereby including a broad cross-section of physicians who have significant AL practices. Results did not differ with regard to how the respondent was identified for the study, suggesting that the findings may be replicated in other samples. Another study that solicits physicians as respondents is currently being conducted and achieving a response rate closer to 100%. The notable differences between that study and the present one is that the information it solicits is resident level, the residents provided consent for the information to be provided, and that consent is being communicated at the time the physician is recruited. Thus, future research efforts are advised to solicit data in the context

of a given patient, recognizing that other questions (such as confidence in AL care) may be asked as well.

Considering the qualitative and quantitative data together, it appears that AL presents unique challenges and opportunities for physicians. The high patient complexity, relatively low availability of nurses and diagnostic and therapeutic procedures, tendency to provide care off site, and lack of “physician friendly” regulatory arrangements create an environment that seems to engender less confidence and potentially result in more transfers than with NHs. The fact that nursing presence was associated with greater physician confidence underscores these findings. Similarly, the fact that physicians who were medical directors (a position not required by law) expressed greater confidence suggests that oversight and knowing the staff facilitates care. At the same time, smaller AL community size was associated with greater confidence, suggesting that whether in the presence or absence of nurses and a medical directorship, communicating with AL staff who are highly familiar with a given patient may improve care.

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## References

1. Golant S. Do impaired older persons with health care needs occupy U.S. assisted living facilities? An analysis of six national studies. *J Gerontol B Psychol Sci Soc Sci.* 2004; 59B:S68–S79. [PubMed: 15014094]
2. McNabney MK, Samus QM, Lyketsos CG, et al. The spectrum of medical illness and medication use among residents of assisted living facilities in Maryland. *J Am Med Dir Assoc.* 2008; 9:558–564. [PubMed: 19083289]
3. Zimmerman S, Gruber-Baldini AL, Sloane PD, et al. Assisted living and nursing homes: Apples and oranges? *Gerontologist.* 2003; 43:107–117. [PubMed: 12711731]
4. Assisted Living Federation of America and American Association of Homes and Services for the Aging. 2006 Overview of Assisted Living: Facts and Trends. Washington, DC: American Seniors Housing Association, ASHA, National Center for Assisted Living (NCAL), the National Investment Center (NIC); 2009.
5. Hyde J, Perez R, Forester B. Dementia and assisted living. *Gerontologist.* 2007; 47:51–67. [PubMed: 18162569]
6. Boustani M, Zimmerman S, Williams CS, et al. Characteristics associated with behavioral symptoms related to dementia in long-term care residents. *Gerontologist.* 2005; 45:56–61. [PubMed: 16230750]
7. Zimmerman S, Sloane PD, Eckert JK, et al. How good is assisted living? Findings and implications from an outcomes study. *J Gerontol B Psychol Sci Soc Sci.* 2005; 60B:S195–S204. [PubMed: 15980295]
8. Hawes, C.; Phillips, CD.; Rose, M. High Service or High Privacy Assisted Living Facilities, Their Residents and Staff. Washington, DC: U.S. Department of Health and Human Services; 2000.
9. Biola H, Sloane PD, Williams CS, et al. Physician communication with family caregivers of long-term care residents at the end of life. *J Am Geriatr Soc.* 2007; 55:846–856. [PubMed: 17537084]
10. Carder PC, Schumacher J, Zimmerman S, et al. Medication management: Integrating the social and medical models. *Assisted Living Consult.* 2007; 3:18–22.
11. Kane RL, Mach JR. Improving health care for assisted living residents. *Gerontologist.* 2007; 47:100–109. [PubMed: 18162572]
12. Schumacher JG. Assisted living communities and medical care providers: Establishing proactive relationships. *Sr Hous Care J.* 2005b; 13:35–48.
13. Schumacher JG, Eckert JK, Zimmerman S, et al. Physician care in assisted living: A qualitative study. *J Am Med Dir Assoc.* 2005a; 6:34–45. [PubMed: 15871869]

14. Lynn, J.; Adamson, DM. *Living Well at the End of Life*. Santa Monica, CA: Rand Health; 2003.
15. Sloane PD, Zimmerman S, Brown LC, et al. Inappropriate medication prescribing in residential care/assisted living facilities. *J Am Geriatr Soc*. 2002; 50:1001–1011. [PubMed: 12110058]
16. Sloane PD, Gruber-Baldini AL, Zimmerman S, et al. Medication undertreatment in assisted living settings. *Arch Intern Med*. 2004; 164:2031–2037. [PubMed: 15477439]
17. Babyak MA. What you see may not be what you get: A brief nontechnical introduction to overfitting in regression-type models. *Psychosom Med*. 2004; 66:411–421. [PubMed: 15184705]
18. Hox, J. *Multilevel Analyses: Techniques and Applications*. Mahwah, NJ: Erlbaum; 2002.
19. Frank J. How long can I stay? The dilemma of aging in place in assisted living. *J Hous Elderly*. 2001; 15:5–30.
20. Katz PR, Karuza J, Intrator O, et al. Nursing home physician specialists: A response to the workforce crisis in long-term care. *Ann Intern Med*. 2009; 150:411–413. [PubMed: 19293074]
21. Karuza J, Katz PR. Physician staffing patterns correlates of nursing home care: An initial inquiry and consideration of policy implications. *J Am Geriatr Soc*. 1994; 42:787–793. [PubMed: 8014358]
22. Jensen PM, Fraser F, Shankardass K, et al. Are long-term care residents referred appropriately to hospital emergency departments? *Can Fam Physician*. 2009; 55:500–505. [PubMed: 19439706]
23. Brooks S, Warshaw G, Hasse L, et al. The physician decision-making process in transferring nursing home residents to hospitals. *Arch Intern*.
24. Sloane PD, Zimmerman S, Gruber-Baldini A, et al. Health and functional outcomes and health care utilization of persons with dementia: A comparison of assisted living and nursing homes. *Gerontologist*. 2005; 45:124–132. [PubMed: 16230759]



**Table 1**

Association Between Physician and Assisted Living (AL) Community Characteristics and Physician Confidence in AL Staff: Results of Multiple Regression

Characteristics	Bivariate Associations		Multiple Regression: Final Model	
	B	P-Value	B	P-Value
Physician respondent				
Female	-0.14	.25		
Nonwhite	-0.26	.06	-0.29	.02
Age (per 10 years)	0.04	.43		
Specialty (reference: other or unspecified specialty)		.96		
Internal Medicine	0.06	.84		
Family Medicine	0.03	.92		
Certificate geriatric medicine	0.05	.70		
American Medical Directors Association certification	-0.10	.39		
Years in practice (per 10 years)	0.05	.44		
Medical director	0.30	.02	0.32	.01
Frequency of visits to AL	-0.11	.38		
Usually see AL patients on site	0.18	.13		
Number of years that have had patients in long-term care (per 10 years)	0.05	.40		
Number of physicians in practice	0.01	.40		
Number of different AL settings in which have patients (per five settings)	0.02	.32		
AL characteristics				
Nurse administers medications (reference: days and nights)		<.003		.001
Neither day nor night	-0.39	.001	-0.43	<.001
Only days	-0.16	.33	-0.18	.25
Setting type (reference: new model)		.14		.04
<16 beds	0.39	.06	.45	.02
Traditional	-0.03	.80	-.08	.48
For profit	0.08	.55		
Number of licensed beds (per 10 beds)	-0.02	.26		
Occupancy rate	0.11	.77		

\* Final model achieved through backward elimination (predictor with highest P-value eliminated at each step until all predictors in model have P < .05).

**Table 2**

Comparison of Medical Care Provision in Three Settings: Private Residence, Assisted Living (AL), and Nursing Home (NH) \*

Activity or Process	Private Residence **	AL	NH
<b>General perceptions of setting</b>			
Patient complexity or acuity	Lower than AL	Intermediate	Higher than AL
Family involvement	Higher than AL or NH	Similar to NH	Similar to AL
Trust and confidence in skills of care provider	Varies; generally high confidence in availability and low confidence in medical care skills	Varies; generally high confidence in nurse but concerns about nonnurse care providers and availability of ongoing oversight	High confidence; respondents appreciated that they could dependably speak with a nurse
Likelihood that telephone call represents serious problem	Low; often a trivial problem	Moderate	Higher
<b>Making a diagnosis</b>			
Communication about patient problems	Greater trust in history from family than from AL staff	Varied confidence in care provider expertise and quality of information	Higher confidence in quality of information, because caller would always be "a real nurse"
Ordering tests (if problem presents in the evening)	Family to take patient to physician's office the next day for laboratory tests and X-ray	Laboratory work done the next day by AL; urine dipstick and X-ray sometimes available at night	Laboratory work done the next day by NH; urine dipstick and X-ray sometimes available at night
Monitoring capability (including vital signs)	Family often unable to assess vital signs but will monitor for change in status more carefully than AL staff	Can assess vital signs, but monitoring may be unreliable or inconsistent, especially at night	More confidence in monitoring, especially of medications, than in AL
<b>Therapeutic options and treatment provision</b>			
Available range of care options	Limited; similar to AL	Limited	Broader: includes intravenous fluids and antibiotics, nursing procedures
Rapidity of starting medications	If a pharmacy is open, family can obtain quickly	Pharmacy must deliver; if at night, cannot obtain a new prescription until morning	Pharmacy must deliver; however, some medications are available for emergency use
<b>Likely management decision</b>			
If patient needs to see physician immediately	Send to emergency department	Send to emergency department	Send to emergency department
If patient needs to see physician the next day	Patient comes to physician office	Patient comes to physician office	Physician, nurse practitioner, or physician assistant goes to NH
<b>Likelihood of transfer to hospital emergency department</b>			
With medical problem	High	High	Low
With acute agitation	Moderate	High	Low
<b>Administrative and regulatory matters</b>			
Prescribing medications	Requires two telephone calls: one to family, one to pharmacy	Staff cannot take oral orders; prescribing requires up to three calls and a fax: telephone call to pharmacy, telephone call and faxed	May only require one telephone call to NH nurse (for oral orders); optional second call to family

Activity or Process	Private Residence **	AL	NH
		order to AL community, and often a call to family	
Paperwork and documentation	Fewest regulatory and paperwork requirements	Highest regulatory and paperwork requirements; high volume of contact over telephone or fax, "many more faxes"	Regulatory requirements are "more doctor friendly" than AL; fewer telephone contacts and faxes than in AL

\* Results of qualitative analyses of responses of 165 physicians active in AL to open-ended questions about management of patients residing in private residences, AL, and NHs.

\*\* Private residence assumes that the patient is living with a reliable, nonmedical caregiver.