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The Adverse Consequences of Unmet Need Among Older Persons Living in the Community: Dual-Eligible Versus Medicare-Only Beneficiaries

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Objective. Our objective is to estimate and compare the prevalence of selected adverse consequences associated with unmet need for assistance among a socioeconomically and medically vulnerable subgroup of the older adult population, those who are dually eligible for Medicare and Medicaid, with those eligible for Medicare only.

Method. Using data from the National Health and Aging Trends Study (NHATS), a representative survey of the older Medicare population, we calculated the prevalence of disability-related need for assistance with self-care, household tasks, and mobility activities and the prevalence of adverse consequences of unmet need by dually eligible and Medicare only status.

Results. Over 2 million community-dwelling older persons experienced an adverse consequence due to unmet need for assistance with self-care (e.g., soiled their clothes), over 2 million experienced adverse consequences due to unmet need for assistance with household tasks (e.g., went without groceries), and over 3 million persons experienced at least one adverse consequence of unmet need for assistance with mobility-related activities (e.g., had to stay in bed) in the month prior to the NHATS interview. Dually eligible persons experienced higher rates of 6 of the 11 adverse consequences studied and were more likely to have at least one adverse consequence in all 3 domains than others.

Discussion. Several care models are emerging with the goal of integrating medical care, behavioral health, and long-term services for the dual eligible population. Indicators of adverse consequences of unmet need could be used to monitor the quality and adequacy of such care systems.

Key Words: Adverse consequences—Disability—Integrated care—Unmet need.

ONE of the most disadvantaged subgroups of older Americans is the population of persons who are covered by both Medicare and Medicaid health insurance, often referred to as the "dual eligible" population. A recent report reveals them to be significantly poorer, less educated, and to have lower levels of social support than their "Medicare only" counterparts (Congressional Budget Office, 2013).

The social and economic disadvantage of dual eligibles relative to Medicare-only beneficiaries is mirrored in disparities in both physical and cognitive health status. Compared to older adults who are eligible for Medicare only, dual eligible persons have a higher prevalence of physical and cognitive impairments, including mental illness, are more likely to have multiple chronic conditions, and are more likely to have qualified for Medicare due to disability or kidney disease before the age of 65 (Congressional Budget Office, 2013; Meyer, 2012). Rates of potentially preventable hospitalization and rehospitalization are high in this population, suggesting problems of access to and quality of care (Jiang, Wier, Potter, & Burgess, 2010; Konetzka, Karon, & Potter, 2012; Walsh et al., 2012; Wysocki, Kane, Dowd, et al., 2014).

Utilization of both institutional and community-based long-term services and supports (LTSS) is also high among dual eligibles. In 2009, more than half of dual eligible persons over the age of 65 used home and community-based services (HCBS), and one-quarter lived in an institution (Congressional Budget Office, 2013). Considerable research indicates that dual eligible beneficiaries are served in poorer quality nursing homes, both for short term and permanent placement (Harrington, Zimmerman, Karon, Robinson, & Beutel, 2000; Rahman et al., 2014; Rahman, Grabowski, Gozalo, Thomas, & Mor, 2014), with higher rates of hospitalization (Carter & Porell, 2003) than is the case for nursing homes in which Medicare-only residents are predominant.

Despite rapidly growing emphasis on the development of HCBS and recent policies to encourage discharge of nursing home residents who can manage in the community with HCBS (Reinhard, 2010; Watts, Reaves, & Musumeci, 2014), little is known about the adequacy of such care to meet the disability-related assistance needs of dual eligible persons given lower levels of family support and financial resources in comparison to persons covered by Medicare

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only (Congressional Budget Office, 2013). However, given the complex care needs of persons eligible for both Medicare and Medicaid, and in light of poor coordination between acute and long-term care systems, adequate assistance may be lacking for a substantial proportion of this population (Gold, Jacobson, & Garfield, 2012; Meyer, 2012).

Prior research has demonstrated that unmet need for assistance among adults with disabilities can result in a range of adverse consequences that can compromise health status (Allen & Mor, 1997; Desai, Lentzner, & Weeks, 2001; LaPlante, Kaye, Kang, & Harrington, 2004). More recent research indicates an increased risk of preventable hospitalizations among dual eligibles receiving Medicaid HCBS than among comparable dual eligible nursing home residents (Wysocki, Kane, Golberstein, et al., 2014), and among dual eligibles following transition from the nursing home to the community, likely due to situations in which available HCBS are inadequate to meet these older persons' assistance needs (Wysocki, Kane, Dowd, et al., 2014). The purpose of this article is to estimate and compare the prevalence of need for assistance and selected adverse consequences associated with unmet need for assistance among older adults who are dually eligible for Medicare and Medicaid with those who are eligible for Medicare only. Implications for current and emerging care models that integrate health care and LTSS are discussed.

Conceptual Framework

The Commission on the Social Determinants of Health (CSDH) clearly delineates the mechanisms by which low socioeconomic position in a given nation, indicated in the United States by one's education, income, occupation, gender, and ethnicity, has implications for their living and working conditions, food adequacy, health behaviors, and psychosocial factors that lead to population differences in both exposure to, and vulnerability to, health compromising conditions. Unhealthy exposures and high vulnerability to illness and injury, in turn, lead to disparities in health, disabilities, and well-being (World Health Organization, 2010).

We extend CSDH's framework to incorporate the impact of the greater severity of illness and impairment experienced by disadvantaged social groups on the level of need for assistance required to perform everyday tasks. More severe impairment necessarily requires a higher level of need for assistance than lower levels of impairment (Figure 1). In the case of dual eligibles, a group that is characterized by a composite of factors indicating socioeconomic and health status disadvantage, with a resulting high burden of disease and impairment, levels of need for assistance are higher than are those experienced by the Medicare only population. Whether or not needs for assistance are adequately met is dependent on the availability of adequate family care and/or access to sufficient LTSS, a moderating effect. The challenge of adequately meeting the assistance needs of dual eligibles is compounded by the low levels of social support available to them, resulting in disparities in unmet need and their adverse consequences relative to the Medicare only population. It is this challenge that emerging models of care that integrate health care and LTSS are attempting to meet.

Method

Data are from the National Health and Aging Trends Study (NHATS), Round 1 (2011) public use file. The NHATS sample was designed to produce a nationally representative cohort of all Medicare enrollees age 65 or older living in the contiguous United States on September 30, 2010, with oversampling of persons in older age groups and of Black non-Hispanic race and ethnicity (Montaquila, Freedman, Edwards, & Kasper, 2012). Interviews were completed between May and November 2011 and yielded a sample of 8,245 persons, a 71% response rate.

The sample for this study includes 7,609 community-dwelling older persons, 412 of whom reside in a supportive residential setting (Kasper & Freedman, 2012). The sample person interview collected information on activities of daily life, economic and health status, and quality of life in the aging population. Our sample excludes 468 nursing home residents and 168 persons who live in a supportive residential setting (e.g., assisted living, continuing care retirement communities) for which facility but not resident interviews were completed.

Variables

Need for assistance.—For each of four self-care activities (eating, showering/taking a bath/washing up, getting to or using the toilet, and dressing), four household activities (laundry, shopping for groceries or personal items, meal

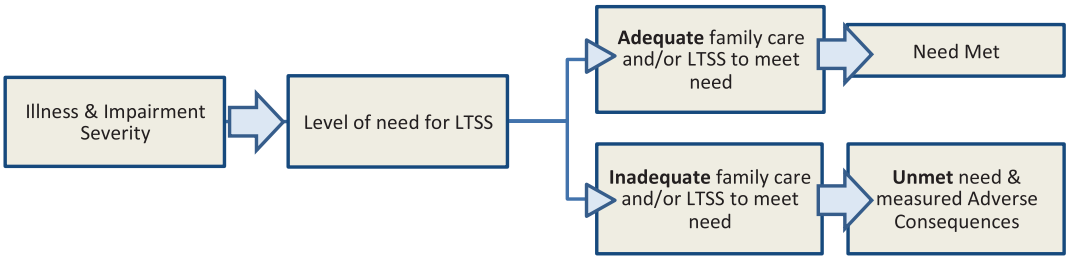

Figure 1. Pathway to unmet need and its adverse consequences.

preparation, and keeping track of medication), and three mobility activities (going outside the home, getting around inside the home, and getting out of bed) respondents were asked a series of questions including if, in the last month, they performed each activity (e.g., bathing) by themselves or with assistance. Respondents who performed an activity without assistance were asked how difficult it was to do the activity alone. Respondents who replied (a) they had assistance with self-care or mobility, or assistance with household activities for health or functioning reasons or (b) they performed the activity themselves with difficulty were considered to have *need for assistance*, and dichotomous indicators were created for each activity (e.g., needs assistance with bathing, yes/no). In addition, summary indicators of needing assistance with any activity were created for each domain (self-care, household activities, mobility).

Adverse consequences of unmet need.—Respondents who needed assistance with a given activity who also reported that they experienced, in the last month, a specific adverse consequence because no one was there to assist with the activity in question, or because it was too difficult to perform the activity alone, were considered to have an adverse consequence of unmet need for assistance. For each adverse consequence, a dichotomous variable was created indicating that a respondent either had or did not have the consequence in question (e.g., go without bathing, yes/no). The denominator for each adverse consequence was the number of respondents who had a *need for assistance* with the activity. The adverse consequences associated with unmet need included in the survey were: going without eating, going without showering/taking a bath/washing up, wetting or soiling clothes, going without getting dressed, going without clean laundry, going without groceries or personal items, going without a hot meal, making a mistake in taking prescribed medication, having to remain inside, not moving around inside the home and having to stay in bed. In addition to the dichotomous indicators of each consequence, summary variables indicating *any consequence*, that is, that a respondent had at least one adverse consequence, were created for each domain of activities. The denominator for these summary variables was the number of respondents who had a *need for assistance* with at least one activity in each domain.

Socio-demographic and health indicators.—Variables selected to describe the socio-demographic characteristics of the full sample as well as subsamples defined by insurance status (Medicare only vs dually eligible for Medicare and Medicaid, derived from self-report) are age (65–84, 85+), gender, race/ethnicity (non-Hispanic Black, Hispanic, non-Hispanic White), education (less than high school, high school graduate, education beyond high school), marital status (married, unmarried), and living arrangement (alone, with others). We also included several dichotomous indicators of health status, including dementia status (probable dementia, possible dementia, no dementia) (see Kasper, Freedman, & Spillman, 2013), number of chronic health conditions (three or more vs less than three), and whether or not the sample person had been hospitalized in the past year.

Analytic Approach

We calculated the prevalence of socio-demographic factors and health indicators, the prevalence of need for assistance with each activity, and the prevalence of adverse consequences among respondents with need for assistance, by insurance status (dually eligible, Medicare only) and overall. Chi-square tests were conducted to determine statistically significant differences between groups. All analyses were weighted to adjust for the sampling plan and nonresponse (Montaquila, Freedman, Spillman, & Kasper, 2012).

Results

Table 1 presents the weighted distribution of socio-demographic factors and health indicators separately for dual eligible and Medicare-only persons and for the full sample. Dual eligible persons are younger and more likely to be female than the Medicare-only population. Furthermore, dual eligible sample members are much more likely to be either Black or Hispanic (40% vs 12%), to have less than a high school education (55% vs 18%) to be unmarried (73% vs 42%) and to live alone (44% vs 28%).

In addition, dual eligible beneficiaries are more likely than Medicare-only to have health conditions indicating need for LTSS, including probable/possible dementia (42% vs 18%), three or more diagnoses (58% vs 45%), and at least one hospitalization in the prior year (27% vs 20%).

Table 2 describes beneficiaries' need for assistance with self-care, household activities and mobility for the dual eligible and Medicare-only populations as well as for the full population of community-dwelling Medicare beneficiaries. Across all activities in all three domains, the prevalence of need for assistance among the dual eligible population is at least double that of the Medicare only population ($p < .001$). For example, 15% of dual eligible persons need assistance eating, versus 6% of persons covered by Medicare only, 30% (vs 15%) need assistance managing their medications, and 40% (vs 17%) need assistance going outside the home.

Selected adverse consequences of unmet need for assistance are presented in Table 3. Adverse consequences with the highest prevalence for all Medicare beneficiaries include wetting or soiling oneself, experienced by nearly half (43%) of all older persons needing assistance toileting, and 20% reported making a mistake with medications due to unmet need for assistance with medication management. The prevalence of adverse consequences associated with unmet need for assistance with mobility tasks was high, with 30% having to stay inside the home, and 26% reporting an inability to go places inside the home. Persons dually

Table 1. NHATS Weighted Population Description, by Insurance Status

	Medicare only (N = 31,087,634), % [95% CI]	Dual Medicare/Medicaid (N = 4,217,997), % [95% CI]	Overall (N = 35,305,631), % [95% CI]
Age			
65–84	87.01 [86.51, 87.49]	83.93 [82.02, 85.67]	86.64 [86.21, 87.06]
85+	12.99 [12.51, 13.49]	16.07 [14.33, 17.98]	13.36 [12.94, 13.79]
Sex			
Female	55.76 [55.12, 56.39]	62.92 [59.64, 66.09]	56.61 [56.27, 56.96]
Male	44.24 [43.61, 44.88]	37.08 [33.91, 40.36]	43.39 [43.04, 43.73]
Race/ethnicity			
Non-Hispanic black	6.44 [6.06, 6.85]	20.39 [17.78, 23.27]	8.11 [7.90, 8.33]
Hispanic	4.95 [4.13, 5.93]	19.83 [15.87, 24.49]	6.73 [5.76, 7.86]
Non-Hispanic white/other	88.60 [87.56, 89.57]	59.78 [54.97, 64.41]	85.16 [84.05, 86.20]
Education			
Less than HS	18.37 [16.81, 20.04]	55.12 [50.50, 59.66]	22.76 [21.16, 24.44]
Graduated HS	27.66 [26.30, 29.06]	24.36 [21.06, 28.00]	27.27 [26.00, 28.57]
Beyond HS	53.97 [51.70, 56.22]	20.52 [17.58, 23.81]	49.97 [47.90, 52.05]
Marital status			
Unmarried	41.53 [40.21, 42.86]	73.39 [69.48, 76.96]	45.34 [44.04, 46.64]
Married	58.47 [57.14, 59.79]	26.61 [23.04, 30.52]	54.66 [53.36, 55.96]
Living arrangement			
Lives alone	28.16 [27.07, 29.28]	44.01 [39.52, 48.61]	30.06 [28.99, 31.15]
Lives with others	71.84 [70.72, 72.93]	55.99 [51.39, 60.48]	69.94 [68.85, 71.01]
Dementia diagnosis			
Probable dementia	8.49 [7.85, 9.17]	21.49 [18.85, 24.38]	10.04 [9.35, 10.78]
Possible dementia	9.67 [8.50, 10.98]	20.10 [16.37, 24.43]	10.92 [9.73, 12.23]
No dementia	81.84 [80.33, 83.27]	58.41 [53.72, 62.96]	79.04 [77.47, 80.54]
Has three or more health conditions			
Three or more health conditions	44.61 [43.16, 46.10]	57.77 [54.10, 61.36]	46.19 [44.78, 47.62]
Less than three health conditions	55.38 [53.90, 56.84]	42.23 [38.64, 45.90]	53.81 [52.38, 55.22]
Hospitalized in the past year			
Hospitalized in the past year	20.19 [18.86, 21.58]	27.10 [23.85, 30.62]	21.01 [19.74, 22.34]
Not hospitalized in the past year	79.73 [78.33, 81.07]	72.87 [69.36, 76.12]	78.91 [77.57, 80.19]

Notes. CI = confidence interval; HS = high school; NHATS = National Health and Aging Trends Study.

Table 2. Prevalence of Need for Assistance[a] for Self-Care, Household Activities, and Mobility Tasks in the Last Month, by Insurance Status

	Medicare only (N = 31,087,634)	Dual Medicare/Medicaid (N = 4,217,997), % [95% CI]	Overall (N = 35,305,631), % [95% CI]	Pearson's chi-square p-value, % [95% CI]
Self-care tasks				
Needs assistance eating	5.67 [5.10, 6.31]	15.21 [12.95, 17.78]	6.81 [6.20, 7.48]	<.0000
Needs assistance showering/taking a bath/washing up	13.24 [12.41, 14.11]	32.89 [29.41, 36.57]	15.58 [14.74, 16.47]	<.0000
Needs assistance getting to or using the toilet	7.47 [6.77, 8.23]	18.34 [15.48, 21.61]	8.77 [8.05, 9.54]	<.0000
Needs assistance getting dressed	15.78 [14.96, 16.65]	31.89 [28.53, 35.45]	17.71 [16.88, 18.56]	<.0000
Needs assistance with one or more ADL tasks	22.28 [21.31, 23.29]	43.57 [40.09, 47.12]	24.83 [23.84, 25.84]	<.0000
Household activities				
Needs assistance doing laundry	14.72 [13.85, 15.63]	36.81 [33.29, 40.49]	17.36 [16.42, 18.34]	<.0000
Needs assistance shopping	20.00 [18.88, 21.18]	44.07 [39.73, 48.50]	22.88 [21.74, 24.06]	<.0000
Needs assistance with meal preparation	17.32 [16.27, 18.42]	38.39 [34.13, 42.84]	19.83 [18.81, 20.90]	<.0000
Needs assistance keeping track of medication	14.55 [13.68, 15.46]	29.77 [26.28, 33.52]	16.37 [15.52, 17.25]	<.0000
Needs assistance with one or more IADL tasks	30.98 [29.52, 32.48]	56.19 [51.41, 60.87]	33.99 [32.54, 35.48]	<.0000
Mobility tasks				
Needs assistance going outside the home	16.74 [15.83, 17.69]	39.72 [35.89, 43.68]	19.48 [18.46, 20.55]	<.0000
Needs assistance getting around inside the home	16.17 [15.33, 17.04]	34.90 [31.47, 38.50]	18.40 [17.58, 19.26]	<.0000
Needs assistance getting out of bed	17.34 [16.35, 18.37]	35.75 [32.08, 39.60]	19.54 [18.57, 20.54]	<.0000
Needs assistance with one or more mobility tasks	27.72 [26.56, 28.90]	53.39 [48.95, 57.77]	30.78 [29.68, 31.91]	<.0000

Notes. ADL = activities of daily living; CI = confidence interval; IADL = instrumental activities of daily living.
[a]Receives assistance with self-care or mobility, or household activities for health or functioning reasons or reports difficulty in performing these activities when done by oneself.

eligible for Medicare and Medicaid were more likely than those eligible for Medicare only to experience 6 of the 11 adverse consequences studied ($p < .05$), and were also more likely to have at least one adverse consequences in all three domains (self-care, household activities, mobility) ($p < .01$). The largest difference in the prevalence of an adverse

Table 3. Prevalence of Negative Consequences of Unmet Need for Assistance With Self-Care, Household Activities, and Mobility Tasks in the Last Month Among Those With Need for Assistance, by Insurance Status

	Medicare only	Dual Medicare/Medicaid	Overall	Pearson's chi-square *p*-value
Self-care tasks				
Needs assistance eating	*N* = 1,764,194	*N* = 641,395	*N* = 2,405,590	
Went without eating[a]	2.63% (1.31, 5.19)	6.63% (2.92, 14.34)	3.69% (2.11, 6.40)	.0579
Needs assistance showering/taking a bath/washing up	*N* = 4,115,007	*N* = 1,387,321	*N* = 5,502,327	
Went without showering/taking a bath/washing up[a]	12.15% (10.02, 14.66)	15.24% (10.90, 20.91)	12.93% (10.93, 15.23)	.2433
Needs assistance getting to or using the toilet	*N* = 2,322,296	*N* = 773,777	*N* = 3,096,072	
Wet or soiled self[a]	41.75% (36.67, 47.01)	48.47% (40.83, 56.18)	43.43% (39.71, 47.23)	.1999
Needs assistance getting dressed	*N* = 4,906,848	*N* = 1,345,062	*N* = 6,251,910	
Went without getting dressed[a]	6.20% (4.81, 7.96)	12.37% (9.59, 15.81)	7.53% (6.21, 9.09)	.0002
Needs assistance with one or more ADL tasks	*N* = 6,926,838	*N* = 1,837,914	*N* = 8,764,752	
Experienced one or more negative consequences[a]	21.11% (18.96, 23.44)	34.62% (29.75, 39.84)	23.94% (21.98, 26.03)	<.0000
Household activities				
Needs assistance doing laundry	*N* = 4,575,185	*N* = 1,552,817	*N* = 6,128,002	
Went without clean laundry[a]	3.88% (2.78, 5.39)	7.85% (4.74, 12.74)	4.89% (3.46, 6.86)	.0030
Needs assistance shopping	*N* = 6,218,749	*N* = 1,858,705	*N* = 8,077,454	
Went without groceries or personal items[a]	5.52% (4.11, 7.37)	8.99% (6.14, 12.98)	6.32% (4.92, 8.08)	.0314
Needs assistance with meal preparation	*N* = 5,383,069	*N* = 1,619,324	*N* = 7,002,392	
Went without a hot meal[a]	9.54% (7.90, 11.48)	9.39% (6.38, 13.61)	9.50% (7.98, 11.28)	.9387
Needs assistance keeping track of medication	*N* = 4,522,835	*N* = 1,255,836	*N* = 5,778,671	
Made a mistake in taking prescribed medicines[a]	20.32% (17.80, 23.11)	18.45% (13.60, 24.54)	19.92% (17.61, 22.43)	.5445
Needs assistance with one or more IADL tasks	*N* = 9,631,550	*N* = 2,370,279	*N* = 12,001,829	
Experienced one or more negative consequences[a]	16.39% (14.68, 18.26)	21.07% (17.99, 24.51)	17.31% (15.61, 19.16)	.0035
Mobility tasks				
Needs assistance going outside the home	*N* = 5,203,854	*N* = 1,675,357	*N* = 6,879,210	
Had to stay inside[a]	27.97% (24.79, 31.40)	34.59% (28.85, 40.82)	29.59% (26.51, 32.86)	.0304
Needs assistance getting around inside the home	*N* = 5,025,376	*N* = 1,472,068	*N* = 6,497,444	
Did not go to places inside the home[a]	24.71% (22.21, 27.40)	30.24% (25.69, 35.21)	25.97% (23.65, 28.43)	.0260
Needs assistance getting out of bed	*N* = 5,389,553	*N* = 1,508,055	*N* = 6,897,607	
Had to stay in bed[a]	8.88% (7.16, 10.97)	20.89% (17.50, 24.74)	11.51% (9.79, 13.47)	<.0000
Needs assistance with one or more mobility tasks	*N* = 8,616,067	*N* = 2,251,806	*N* = 10,867,873	
Experienced one or more negative consequences[a]	26.93% (24.62, 29.36)	39.85% (35.32, 44.56)	29.61% (27.36, 31.95)	<.0000

Note. Values in parenthesis represent 95% confidence interval. *ADL* = activities of daily living; IADL = instrumental activities of daily living.

[a]Because no one was there to help/it was too difficult to do alone.

consequence between the two populations is having to stay in bed, reported by 21% of dual eligible persons in contrast to 9% of persons covered by Medicare only.

Discussion

This study presents national estimates of the prevalence of need for assistance and the adverse consequences associated with unmet need among community-dwelling older adults. Of the 8.7 million community-dwelling Medicare beneficiaries who require assistance with self-care, over 2 million report experiencing an adverse consequence, including going without eating, bathing, and/or dressing. Similarly, more than 2 million of 12 million older persons who need assistance with household tasks for health or functioning reasons reported at least one adverse consequence, including going without groceries or a hot meal, and over 3 million of 10.8 million older persons who need assistance with mobility experienced one or more adverse consequences associated with unmet need, including having to stay in bed or having to stay inside the home. Estimates of need for assistance among older dual eligible persons are approximately double those of persons covered by Medicare only, and the prevalence of adverse consequences associated with unmet need is higher for the majority of consequences studied.

Our study is the first to translate the social and health disadvantages of the dual eligible and Medicare only populations into rates of both need for LTSS and select adverse consequences of unmet need. There is consensus in the policy arena that the lack of coordination between Medicare and Medicaid benefits and services is partially responsible for the high rates of potentially preventable hospitalizations and rehospitalizations this disadvantaged subgroup experiences, and that separate funding streams offer little incentive to deliver services efficiently (Grabowski, 2009; Meyer, 2012). Our findings suggest one causal pathway between poor coordination and high rates of acute care services, with the mediating, or explanatory factor, being either a lack of referral to needed LTSS, or provision of LTSS in amounts that are insufficient to meet a given older person's needs. While some of the adverse consequences associated with unmet need in this study have implications

for individuals' quality of life and well-being (e.g., going without clean laundry), others are sufficiently deleterious to individuals' fragile health status to lead to the most common causes of preventable hospitalizations (Moy, Chang, & Barrett, 2013), for example, wet or soiled self (urinary tract infections; Mody & Juthani-Mehta, 2014), and medication error (chronic heart failure; Corotto, McCarey, Adams, Khazanie, & Whellan, 2013). Indeed, this interpretation is consistent with findings from a recent study indicating that unmet need for assistance with personal care activities predicted hospital readmission in a sample of older adults discharged from the hospital to home (De Palma et al., 2013). Similarly, adverse consequences associated with unmet need for assistance with mobility-related activities such as inability to go outside or move around inside the house may be precursors to functional decline (Katsumata, Arai, & Tamashiro, 2007), a major risk factor for nursing home placement (Gaugler, Duval, Anderson, & Kane, 2007).

The co-existence of both acute and LTSS needs clearly requires ongoing coordination across settings, a realization at both state and local levels that has spurred the development of new models of care for the dual eligible population. Results of a recent state by state survey conducted by the National Council on Disability (NCD) revealed that over half the states have developed, or are developing, comprehensive Medicaid Managed Care Plans for elderly dual eligibles and younger people with disabilities that integrate medical care with LTSS (NCD, 2013). At the Federal level, Medicare Advantage special need plans (SNPs) were authorized under the Medicare Modernization Act of 2003, with higher capitated payments relative to traditional Medicare Advantage managed care plans (Gold et al., 2012; Grabowski, 2009). In addition, in response to the Affordable Care Act's (ACA) mandate to better integrate care for the dual eligible population, CMS has funded 15 states to design health plans characterized by integration of primary, acute, and behavioral health care as well as LTSS (Cassidy, 2011; Meyer, 2012). Integrated care plans are accountable for providing and coordinating services in a flexible manner that is responsive to the preferences of patients and families. CMS also has memoranda of understanding finalized with 10 states and 7 states pending for financial alignment of Medicare and Medicaid payment under either a capitated or managed fee-for-service model in the hope of increasing both the efficiency and quality of care provided to this population (Kaiser Family Foundation, 2014).

There is a general awareness in the research and policy field that current quality metrics are inadequate to measure the complexity of services that may be required to meet the needs of a high need population requiring LTSS (National Committee on Quality Assurance, 2013). Tracking the receipt of such services is a necessary but not sufficient approach to effective quality monitoring. There is a particular paucity of measures to gauge, not only whether LTSS are received, but the adequacy of those services. We agree with the NCD recommendation that states develop quality management systems "to ensure the integrity of service provision to, and to safeguard the health and welfare of, enrollees in managed health and LTSS plans that serve people with disabilities" (NCD, 2013, 20). We argue that measures of unmet need and its adverse consequences should be included in states' repertoire of metrics to monitor and evaluate integrated care plans across service domain. Indeed, California's integrated care plan has included questions to capture unmet need for assistance with self care and household activities to comply with the CMS mandate to develop measures for Quality Assurance purposes (Zainulbhai, Goldberg, Ng, & Montgomery, 2014).

A limitation of this study is that due to survey time constraints our estimates of the consequences of unmet needs for assistance were limited to only one type of adverse consequence per daily activity. Other adverse consequences of unmet need for assistance that have been documented are falls, burns, an inability to follow special diets, weight loss, dehydration, and missing physician appointments (Allen & Mor, 1997; LaPlante et al., 2004), all of which have implications for worsening health status. Furthermore, the approach to measuring unmet need in the NHATS is narrower than in other surveys (Allen & Mor, 1997; Desai et al., 2001; Komisar, Feder, & Kasper, 2005; LaPlante et al., 2004). Specifically, while the denominator for calculating the prevalence of the adverse consequences of inadequate assistance with a specific self-care, household, or mobility task are those NHATS respondents needing assistance with that task, prior surveys have asked about general "perceived" unmet need for assistance. In that approach, respondents who perceive their assistance to have been inadequate in the prior month constitute the denominator for calculating adverse consequences (see Allen & Mor, 1997 for a detailed description of the latter approach to calculating need, unmet need, and adverse consequences). Thus, it is likely that we are underestimating the total breadth and prevalence of adverse consequences associated with unmet need.

In summary, the prevalence of need for assistance with daily life activities is high in the older population, and is especially high amongst the dual eligible population. Findings from this study reveal that millions of older Americans experience the adverse consequences associated with inadequate assistance. Monitoring unmet need and its adverse consequences provide a clear indication that additional services are needed, and call for an in-home assessment to determine which type of HCBS, or combination of service types, will meet a given older person's needs. Mobility equipment, devices to facilitate self-performance of daily activities, and home accommodations, for example, ramps to facilitate leaving and entering the home, have been demonstrated to substitute for human assistance while preserving the autonomy and independence that many older persons desire (Allen, Foster, & Berg, 2001; Allen, Resnik, & Roy, 2006). Adequate provision of HCBS tailored to individual need and circumstances may avert unnecessary hospitalizations and nursing home placement, although

whether integrated care systems are able to adequately respond to identification of unmet need remains to be seen.

Maintaining community residence is an admirable goal for our older population. However, we must be willing to identify and provide HCBS that are sufficient to meet vulnerable populations' impairment-related needs or the envisioned increase in quality of life and decrease in health care costs hoped for with continued community living for disadvantaged elders is not likely to be realized. Future research using multiple waves of the NHATS administered at 1 year intervals, and matched to Medicare claims data, will allow us to move beyond the proximate impact measures of unmet need reported here to test their value in predicting catastrophic outcomes, among them hospitalization, rehospitalization and nursing home placement.

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