Impact of Family Caregiver Training Needs on Medicare Home Health Processes and Outcomes

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Presentation Outline:

- Introduction
- Prior Research
- Current Research
- Conclusions

Introduction

Who is a Family Caregiver?

- Family, friend, neighbor
- Regularly helps an older adult (65+)
- Assists with household chores, self-care tasks, nursing/medical activities
- Usually unpaid for this assistance

Importance of Family Caregivers

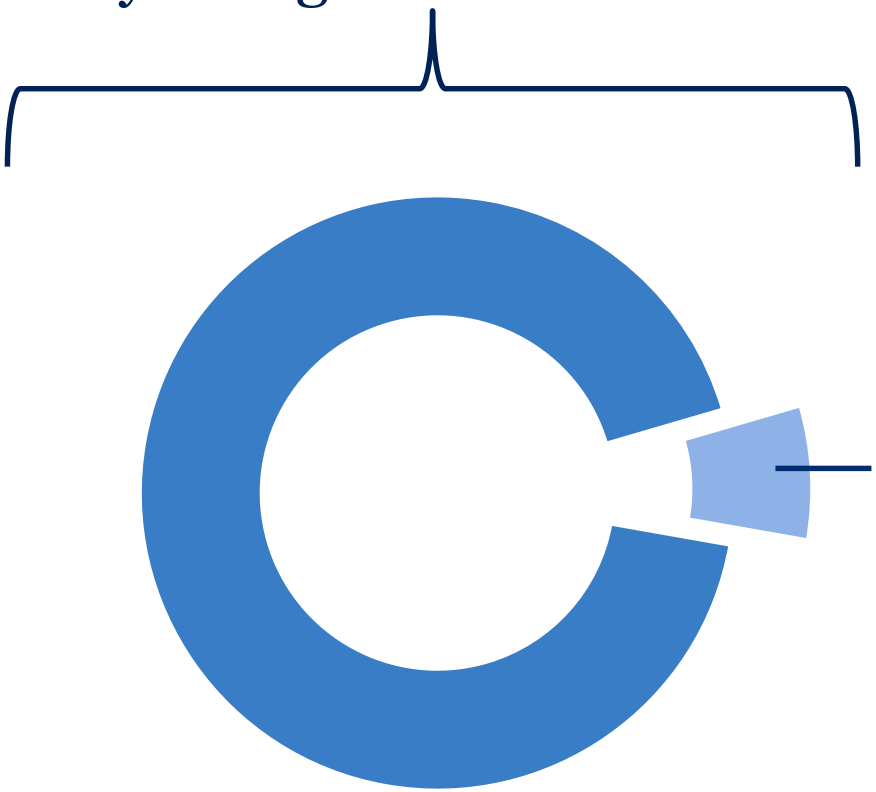
- 18 million family caregivers in the US (National Academies, 2016)
- Provide >80% of ongoing community-based care for older adults (CBO, 2013)
- Family caregiver characteristics affect older adults' health care utilization and outcomes (Gaugler et al, 2009; Favreault et al, 2016; Wolff et al, 2018; Wolff et al, 2019; Burgdorf et al, 2019)

Need for Family Caregiver Training

- Family caregivers have complex responsibilities: 11 million assist with nursing/medical tasks (Wolff et al, 2016)
- Majority of family caregivers report feeling unprepared for their role (National Academies, 2016)
- Emerging research suggests training may reduce burden, increase efficacy (Burns et al, 2003; Teri et al, 2018; van Houtven et al, 2019)

Lack of Training Access

Family Caregivers of Older Adults



7.3% of family caregivers report receiving role-related training (Burgdorf et al, 2019)

Family Caregivers in Home Health

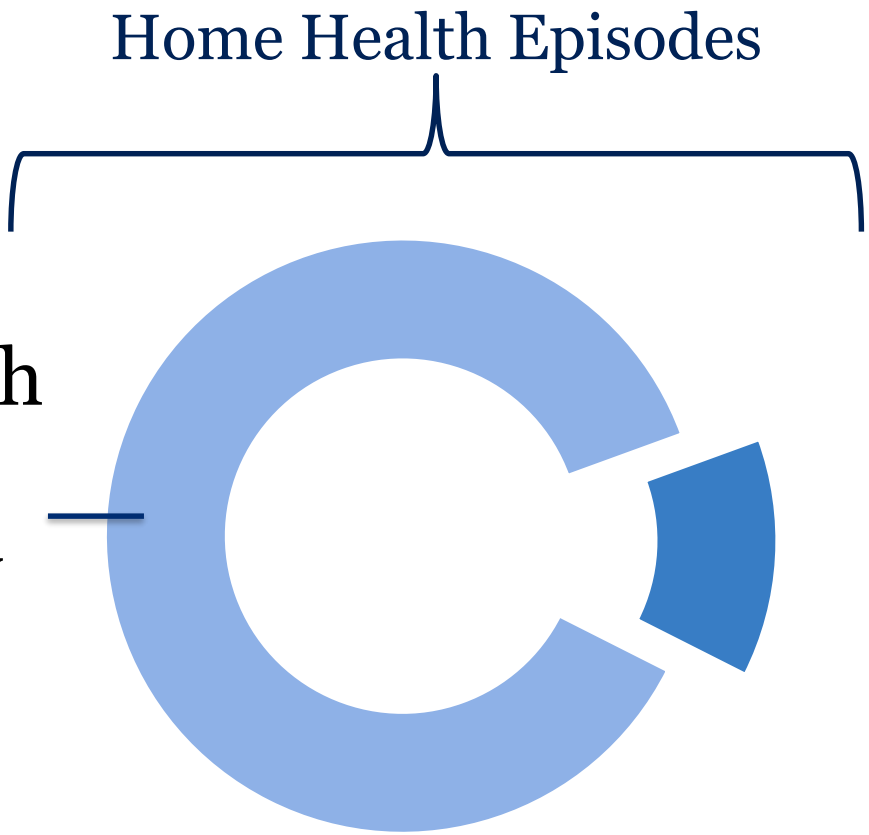
What is home health?

- Medicare benefit
- Offers skilled nursing, therapy, aide, and other services in the patient's home
- 60-day episodes of care*

Family Caregivers in Home Health

- Home health patients are more socially vulnerable and clinically complex than overall Medicare population (Avalere, 2018)
- Home health staff only present intermittently
- Family caregivers play a major role in implementing care plan/meeting patients' care needs (Burgdorf et al, 2019)

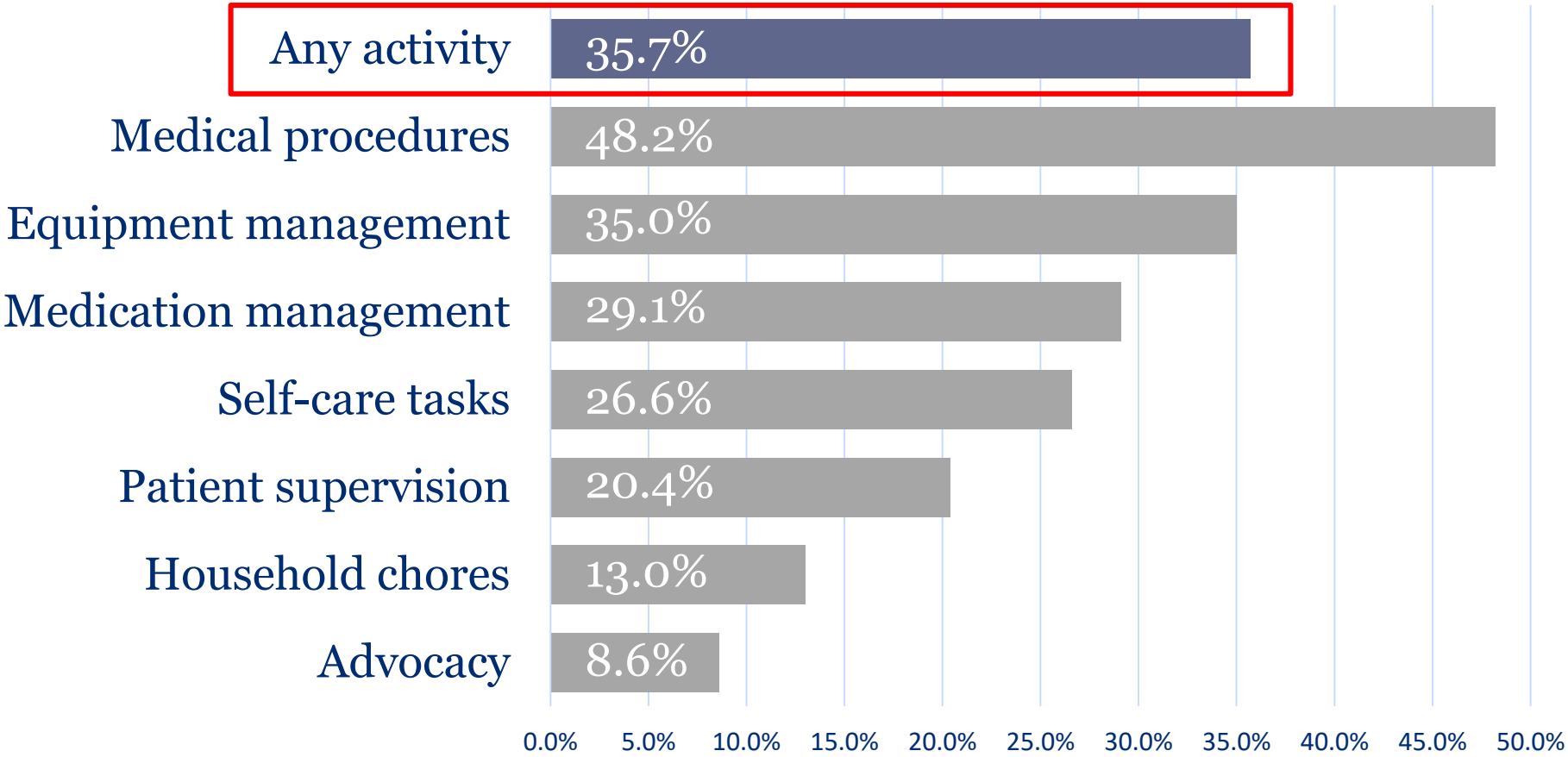
Family Caregivers in Home Health



In **87%** of home health episodes, clinicians report need for family caregiver assistance

(Burgdorf et al, 2019)

Proportion of Family Caregivers with Training Need during Home Health, by Caregiving Activity



Burgdorf et al, 2020

Family Caregiver Training during Home Health

What we know:

- Family caregivers often unprepared for their role; training may help
- Family caregivers are a crucial resource during Medicare home health, but many need training
- Recent CMS policy requires Medicare home health providers to train family caregivers

(Conditions of Participation, 2017)

Family Caregiver Training during Home Health

What we don't know:

- Potential impacts of family caregiver training needs and/or provision of training in home health

Dataset

Four Linked Data Sources

National Health and Aging Trends Study (NHATS)

- Nationally representative survey of older adults
- Older adult/family factors prior to home health

Four Linked Data Sources

National Health and Aging Trends Study (NHATS)

Outcome and Assessment Information Set (OASIS)

- Patient assessment during home health

Four Linked Data Sources

National Health and Aging Trends Study (NHATS)

Outcome and Assessment Information Set (OASIS)

Medicare Claims

Four Linked Data Sources

National Health and Aging Trends Study (NHATS)

Outcome and Assessment Information Set (OASIS)

Medicare Claims

Provider of Services File (POS)

- Home health provider characteristics

Sample Construction

- NHATS participants receiving home health within 1 year of survey

Unweighted Sample Size by Year

	2011	2012	2013	2014	2015
NHATS respondents	8,245	7,075	5,799	4,737	4,152
OASIS claim within 1 year of survey	769	674	614	565	640

Sample Construction

- Community-dwelling only

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Sample Construction

- Index episode only

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Non-duplicates	n/a	383	237	188	289

Sample Construction

- Unweighted n=1,758
- Weighted n=8,477,990

Unweighted Sample Size by Year

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Non-duplicates	n/a	383	237	188	289
Cumulative Total (*without* duplicates)	661	1,044	1,281	1,469	**1,758**

Prior Research

Determine whether and how family caregiver training needs affect home health visit type/intensity

Caregiver Training Needs

- Binary variable
- Drawn from home health clinician reports
- Among patients who both require and receive family caregiver assistance:

  Does the caregiver require additional training in order to provide assistance?

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Variation by Caregiving Activity

- Examine activities in which:
  - ≥50% of older adults require family caregiver assistance (Burgdorf et al, 2019)
  - ≥10% of caregivers have identified need for training (Burgdorf et al, 2020)

Variation by Caregiving Activity

We examine:


Household chores


Self-care tasks


Medication management


Patient supervision

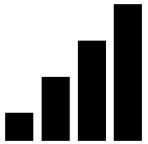
Why Measure Visit Type/Intensity?

- Home health delivered in 60-day episodes; patients receive a mix of visits (nurse, therapist, aide, etc)
- Visits are the major unit of care in home health; driver of variable costs/profits (Goldberg-Dey et al, 2011)
- Prior qualitative work shows home health clinicians consider family caregiver availability when care planning (Irani et al, 2018)

Home Health Visit Type/Intensity

Binary variable
(any visits received):

- Nursing
- Therapy
- Aide
- Training



Count variable
(# of visits received):

- Total
- Nursing
- Therapy
- Aide
- Training

Home Health Visits Received

- Claims include number of each visit type the patient receives

Average Visits Received during Home Health	
Visit type:	Mean ± SE
All	16.9 ± 0.47
Nursing	7.2 ± 0.26
Therapy	8.1 ± 0.32
Personal care aide	1.6 ± 0.17
Training	1.4 ± 0.14

Methods: Propensity Scores

- Propensity score: models subject's probability of receiving treatment, based on observed characteristics
- Propensity score adjustment yields treatment and comparison groups with similar distributions of observed covariates
  - Minimizes endogeneity threat

Methods: Propensity Scores

- Calculate separate propensity score for each activity (treatment=identified training need)
- Composite weights
  - (Propensity score weight ✕ NHATS weight)
  - Truncate outliers to 99th and 1st percentiles
- After weighting, SMDs between treatment and comparison groups <0.10 for all covariates

Methods (I)

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- Adjusted for:
  - Older adult age/sex/race, Medicaid-enrollment, health status, # of caregivers, caregiver assistance received, living alone *prior to* home health
  - Older adult clinical severity, functional impairment, cognitive impairment, post-acute status, ulcer, wound, and therapies *during* home health
  - Home health provider not-for-profit status

Results (I): Odds of Any Visit

Effect of Family Caregiver's Need for Activity-Specific Training on Odds of Receiving Any Visits during Medicare Home Health, by visit type

	Home Health Visit Type							
	Nursing Visits		Therapy Visits		Aide Visits		Training Visits	
	aOR[†] (95% CI)	p-value	aOR (95% CI)	p-value	aOR (95% CI)	p-value	aOR (95% CI)	p-value
Family caregiver needs training with:								
Household chores	3.38 (1.33, 8.59)	0.01	1.01 (0.53, 1.90)	0.98	3.54 (1.82, 6.92)	<0.001	1.18 (0.71, 1.96)	0.52
Self-care	1.33 (0.73, 2.43)	0.35	1.70 (1.01, 2.86)	0.04	2.12 (1.11, 4.05)	0.02	1.49 (1.01, 2.21)	0.04
Medication management	3.03 (1.06, 8.68)	0.04	0.98 (0.54, 1.78)	0.94	1.08 (0.59, 1.98)	0.81	1.42 (0.94, 2.17)	0.10
Patient supervision	1.63 (0.59, 4.54)	0.34	1.52 (0.81, 2.82)	0.19	1.15 (0.56, 2.39)	0.69	1.23 (0.73, 2.05)	0.43

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Caregiver needs household chore training → older adult more likely to receive nursing, aide visits

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Caregiver needs self-care task training → older adult more likely to receive therapy, aide visits

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Medication management	3.03 (1.06, 8.68)	0.04						
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Caregiver needs medication management training → older adult more likely to receive nursing visits

Methods (II)

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Results (II): Additional # of Visits

Effect of Family Caregiver's Need for Activity-Specific Training on Expected Number of Additional Visits during Medicare Home Health, by visit type

	Home Health Visit Type									
	Total Visits		Nursing Visits		Therapy Visits		Aide Visits		Training Visits	
	Add'l visits (95% CI)	p-value	Add'l visits (95% CI)	p-value	Add'l visits (95% CI)	p-value	Add'l visits (95% CI)	p-value	Add'l visits (95% CI)	p-value
Family caregiver needs training with:										
Household chores	3.24 (0.21, 6.28)	0.04	1.11 (-0.22, 2.44)	0.10	0.26 (-1.51, 2.04)	0.77	1.32 (0.36, 2.27)	0.008	-0.08 (-0.68, 0.53)	0.80
Self-care	1.65 (-0.65, 3.96)	0.16	-0.16 (-1.13, 0.82)	0.75	0.97 (-0.32, 2.25)	0.14	0.72 (-0.09, 1.52)	0.08	0.43 (-0.07, 0.93)	0.09
Medication management	0.60 (-1.10, 2.30)	0.48	1.06 (0.11, 2.01)	0.03	-0.39 (-1.53, 0.75)	0.50	-0.23 (-1.04, 0.59)	0.58	0.29 (-0.27, 0.84)	0.30
Patient supervision	0.06 (-2.26, 2.38)	0.96	0.85 (-0.32, 2.03)	0.15	-0.77 (-2.53, 0.99)	0.38	-0.19 (-0.96, 0.58)	0.63	0.09 (-0.46, 0.64)	0.75

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Caregiver needs household chore training →
+3 total visits
+1 aide visits

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Caregiver needs medication management training → +1 nursing visits

Sensitivity Analyses

- Perform analyses with no propensity score adjustment
  - No changes to direction/strength of relationships
  - Some relationships no longer significant

Sensitivity Analyses

- Propensity score adjustment: unbiased estimates assuming no unobserved confounder
- Use Greenland approach (Greenland, 1996) to estimate relationships of interest while accounting for potential unobserved confounder
  - Result: all significant estimates within 95% CI for "true" relationships

Conclusions

- Family caregiver training needs prompt increased care intensity during home health
  - More visits provided which address care needs for which caregiver is unprepared
  - (E.g. more nursing visits if caregiver needs medication management training)

Conclusions

- First research demonstrating link between family caregiver training needs and older adults' health care utilization
- Supports importance of caregiver access to training
- Suggests investing in caregiver training could be cost-effective at systems-level
    - $102 million in Medicare costs for additional nursing visits

Prior Research

Assess whether unmet family caregiver training needs impact acute care utilization during home health

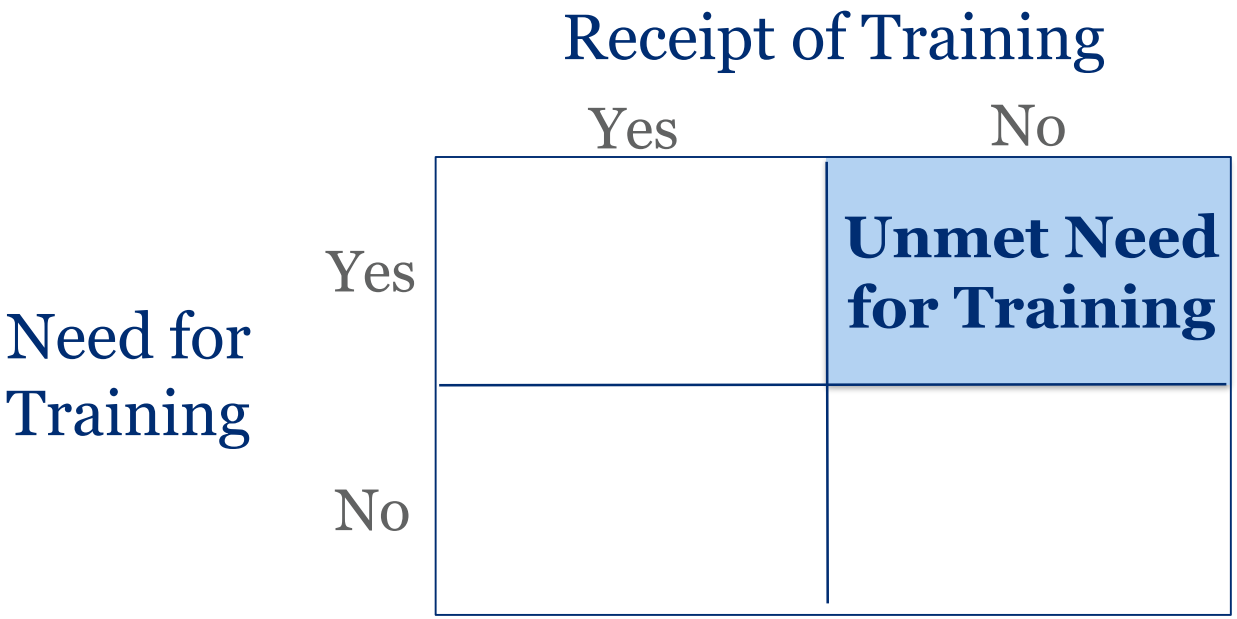
Why Measure Unmet Need for Training during Home Health?

- Over 1/3 of caregivers assisting during home health have training need (Burgdorf et al, 2020)
- Caregivers' need for training not significantly related to receipt of training (Burgdorf et al, 2020)

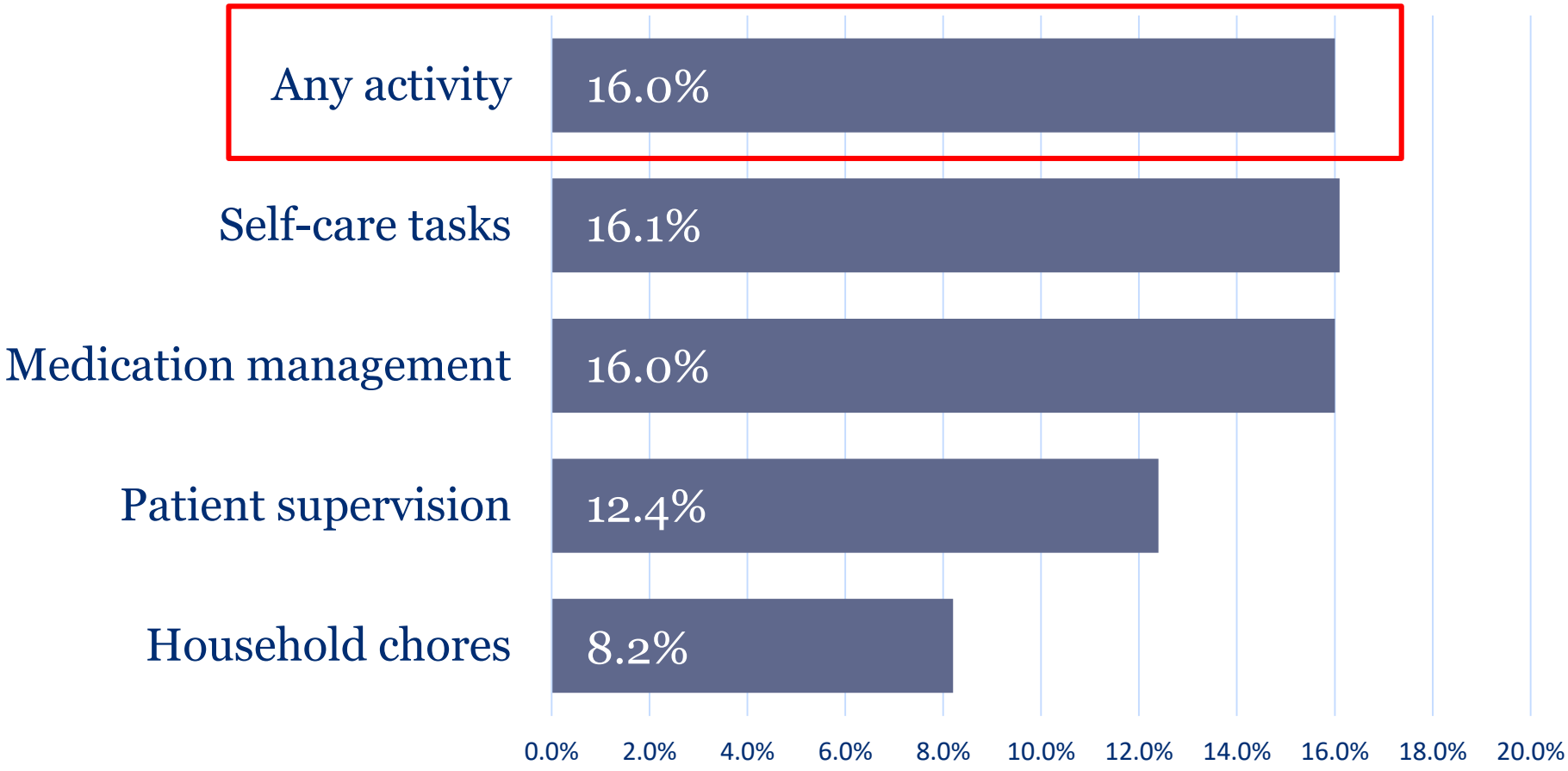
Could this gap impact care outcomes?

Unmet Need for Training

- Binary indicator, by caregiving activity
- Drawn from OASIS, claims

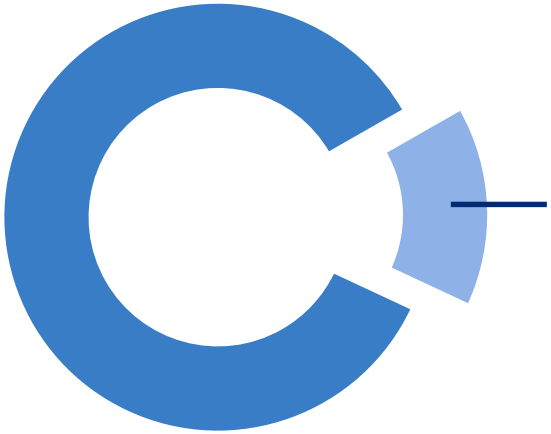


Proportion of Family Caregivers Assisting during Home Health with Unmet Training Need, by Caregiving Activity



Acute Care Utilization

- Binary indicator of ED visit, hospitalization during home health episode
- Drawn from OASIS



15.2% of sample incurred acute care utilization during home health

Methods

- *Question: Do unmet caregiver training needs impact acute care utilization?*

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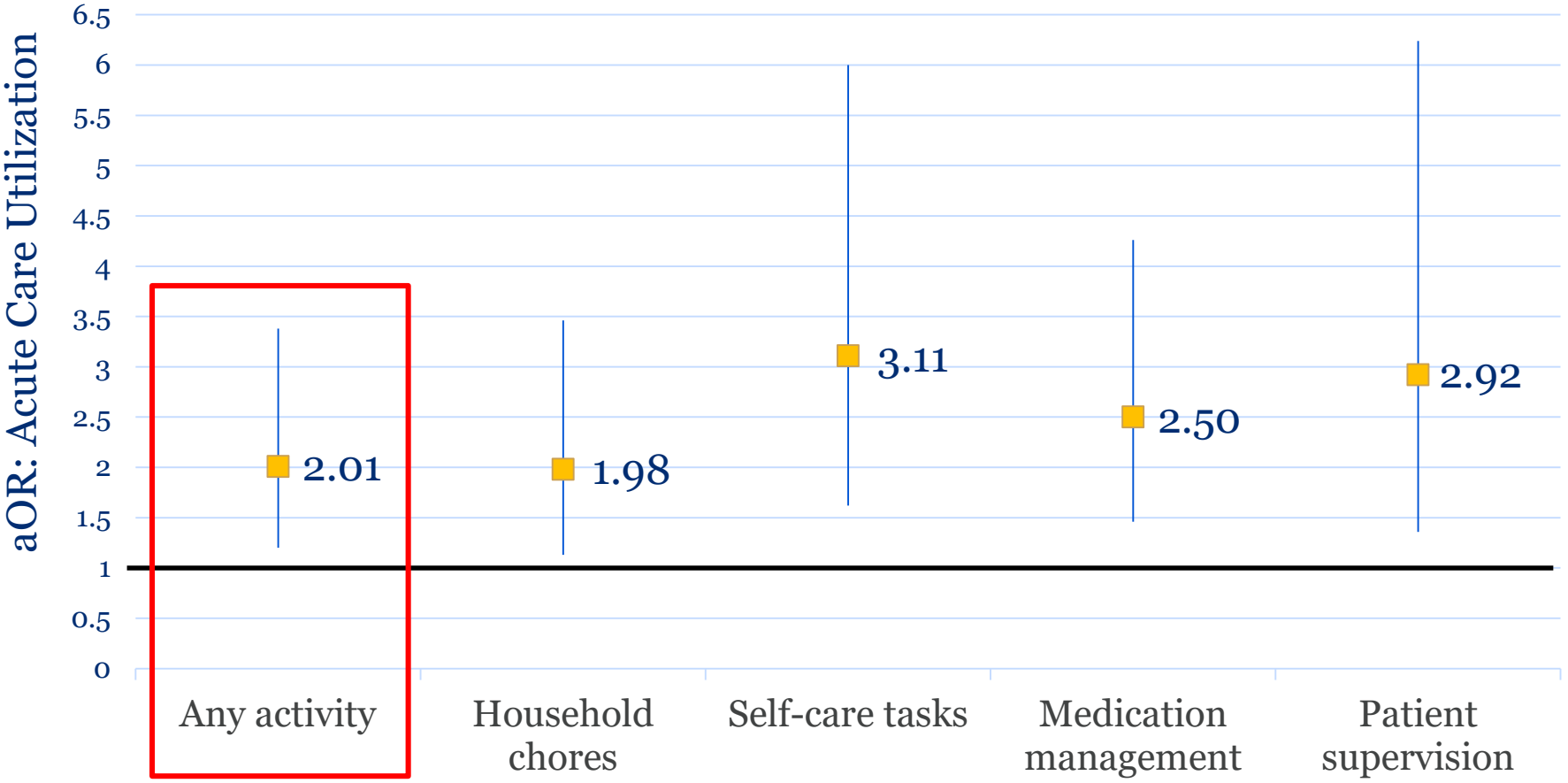
  - Older adult clinical severity, functional impairment, cognitive impairment, post-acute status, ulcer, wound, therapies received, living alone, number of nurse and therapy visits *during* home health
  - Home health provider not-for-profit status, affiliation with acute care hospital, number of FTE employees

Results

Family Caregivers' Unmet Training Needs and Adjusted Odds of Acute Care Utilization during Home Health



Unmet Need for Family Caregiver Training, by Activity

Conclusions

- Significant number of caregivers assisting during home health have unmet need for training

Conclusions

- Significant number of caregivers assisting during home health have unmet need for training
- Unmet caregiver training needs associated with greater likelihood of acute care utilization during home health
    - Varying from a 2- to 3-fold increase in odds, depending on the caregiving activity

Conclusions

- First research demonstrating link between unmet caregiver training needs and older adults' care outcomes
- Serious potential clinical/economic consequences to unmet family caregiver training needs
  - Supports importance of family caregivers' access to training
  - Indicates need to assess family caregivers, target training interventions to those who need them most

Current Research

Current Research: Qualitative

- In prior work, we found that caregiver training needs were *not* significantly related to receipt of training visits

Ongoing qualitative work

Current Research: Qualitative

- "Challenges and Best Practices in Delivering Family Caregiver Training during Medicare Home Health"
- Funded by Alliance for Home Health Quality and Innovation (PI: Burgdorf)
- Gap between identified need for training and provision of training during Medicare home health – why?

Methods

- Semi-structured key informant interviews with home health RNs/PTs
- n=20, 4 home health agencies
- Questions probe:
  - How caregiver need for training is assessed
  - How training/education is provided
  - Facilitators/barriers to caregiver training

Preliminary Results: Assessment

- Assessment largely informal, based on intuition/perceptions of the home setting
  - *"It's like intuition, you can see there's something going on and the caregiver's reticent and they need support"*
  - *"You can guess a level of education, just walking into the house"*

Preliminary Results: Provision of Training

- Patient and caregiver education seen as part of care provision, not a separate task
  - *"Home care is education"*
  - *"I see us [PTs] all as educators"*
  - *"100% of my time I'm educating"*
- Significant variation in materials used, both inter- and intra-agency

Preliminary Results: Facilitators and Barriers to Providing Training

- Caregiver presence and receptivity
  - *"I can't force [the caregiver] to come downstairs"*
  - *"You can teach anyone who's willing"*
- COVID hospital visitation limits have reduced caregivers' knowledge base
  - *"COVID has undermined patient and caregiver education in the hospital horribly"*
  - *"Now it's [training] all on us"*

Current Research: Quantitative

- In prior work, we found that unmet caregiver training needs associated with greater likelihood of acute care utilization during home health

Ongoing quantitative work

Current Research: Quantitative

- "Family Caregivers Assisting after Hospitalization: Who Receives Training?"
- Prior work finds:
  - just 7% of caregivers of older adults receive training (Burgdorf et al, 2019)
  - need for training may be highest during care transitions (Burgdorf et al, 2020)
  - unmet training needs may impact readmission risk (Burgdorf et al, 2020)

Research Question

- Among caregivers assisting during a post-hospital care transition, who is most likely to receive training?

Dataset

- Analysis of 2017 National Study on Caregiving (NSOC)
  - Companion survey to the National Health and Aging Trends Study (NHATS)
  - Interviews family and unpaid caregivers of older adults
  - Nationally representative

Caregiver Reports of Transitional Care Training

- Drawn from NSOC
- Among those who assisted an older adult following an overnight hospitalization: *"Did medical providers at the hospital give you the training you needed to manage [care recipient's] post-hospital care?"*
- Other caregiver characteristics drawn from NSOC, older adult characteristics drawn from NHATS

Methods

- Compare characteristics of caregivers who do *vs* do not receive training related to care transitions
- Odds of receiving training by caregiver/ care recipient characteristic
- All analyses weighted to account for complex survey design

Table 2. Characteristics of Family Caregivers Assisting during a Post-hospital Care Transition, by Receipt of Training Related to Post-Hospital Care[a]

		Receives training (n=490; 59.1%)	Does not receive training (n=306; 41.0%)	p-value	Odds Ratio (95% CI)
		N (%) or mean ± SE			
Caregiver Characteristics					
Sociodemographics					
Female		375 (73.5)	180 (50.4)	<0.001	2.74 (1.87, 4.00)
Non-white		221 (30.1)	158 (41.0)	0.04	0.62 (0.40, 0.97)
Educational attainment	High school or less	187 (38.4)	120 (44.1)	0.24	REF
	Some college	289 (61.6)	170 (55.9)		1.27 (0.85, 1.90)
Experiences of Burden					
Financial difficulty		87 (14.4)	67 (24.1)	0.008	0.53 (0.33, 0.85)
Emotional difficulty		205 (42.6)	139 (39.5)	0.56	1.14 (0.73, 1.78)
Physical difficulty		125 (24.3)	75 (19.4)	0.21	1.33 (0.84, 2.12)

Table 2. Characteristics of Family Caregivers Assisting during a Post-hospital Care Transition, by Receipt of Training Related to Post-Hospital Care[a]

		Receives training (n=490; 59.1%)	Does not receive training (n=306; 41.0%)	p-value	Odds Ratio (95% CI)
		N (%) or mean ± SE			
Caregiver Characteristics					
Sociodemographics					
Female		375 (73.5)	180 (50.4)	<0.001	2.74 (1.87, 4.00)
Non-white		221 (30.1)	158 (41.0)	0.04	0.62 (0.40, 0.97)
Educational attainment	High school or less	187 (38.4)	120 (44.1)	0.24	REF
	Some college	289 (61.6)	170 (55.9)		1.27 (0.85, 1.90)
Experiences of Burden					
Financial difficulty		87 (14.4)	67 (24.1)	0.008	0.53 (0.33, 0.85)
Emotional difficulty		205 (42.6)	139 (39.5)	0.56	1.14 (0.73, 1.78)
Physical difficulty		125 (24.3)	75 (19.4)	0.21	1.33 (0.84, 2.12)

More likely to receive training if female; Less likely to receive training if non-white, experiencing financial difficulty

Table 2. Characteristics of Family Caregivers Assisting during a Post-hospital Care Transition, by Receipt of Training Related to Post-Hospital Care[a]

		Receives training (n=490; 59.1%)	Does not receive training (n=306; 41.0%)	p-value	Odds Ratio (95% CI)
		N (%) or mean ± SE			
Caregiver Characteristics					
Caregiving circumstances					
Sole caregiver		118 (24.9)	78 (30.6)	0.23	0.75 (0.46, 1.21)
Relationship to older adult	Spouse	113 (26.4)	72 (24.8)		REF
	Child	287 (54.4)	153 (45.6)	0.09	1.12 (0.73, 1.71)
	Other	90 (19.2)	81 (29.7)		0.61 (0.31, 1.20)
Paid for caregiving		103 (21.0)	69 (17.2)	0.38	1.28 (0.73, 2.24)
Caregiver for 5+ years		156 (50.0)	85 (57.5)	0.21	0.73 (0.44, 1.20)
Caregiving hours/month		90.8 ± 9.3	71.3 ± 6.7	0.09	1.00 (0.99, 1.00)
Provides assistance with	Mobility	409 (82.8)	267 (90.2)	0.02	0.52 (0.30, 0.91)
	Personal care	358 (73.1)	212 (71.1)	0.53	0.90 (0.63, 1.27)
	Health care tasks[b]	360 (69.2)	202 (64.1)	0.37	1.26 (0.76, 2.09)
Interaction with Health Care System					
Assists with health system navigation[c]		372 (71.3)	167 (51.7)	<0.001	2.31 (1.48, 3.61)
Frequency of speaking to older adult's clinician in past year	Never	165 (35.1)	156 (54.8)		REF
	Rarely	64 (13.9)	35 (12.0)	0.001	1.80 (0.89, 3.67)
	Sometimes	133 (29.2)	66 (21.9)		2.08 (1.26, 3.44)
	Often	127 (21.8)	49 (11.3)		3.01 (1.67, 5.44)

More likely to receive training if interacting frequently with older adult's clinician

Table 2. Characteristics of Family Caregivers Assisting during a Post-hospital Care Transition, by Receipt of Training Related to Post-Hospital Care[a]

	Receives training (n=490; 59.1%)	Does not receive training (n=306; 41.0%)	p-value	Odds Ratio (95% CI)
	N (%) or mean ± SE			
Older Adult Characteristics				
Age	79.4 ± 0.54	78.0 ± 0.56	0.08	1.02 (0.99, 1.05)
Female	316 (62.3)	227 (73.2)	0.02	0.60 (0.40, 0.91)
Non-white	211 (27.5)	156 (38.3)	0.01	0.61 (0.42, 0.89)
Medicaid-enrolled	127 (21.2)	90 (31.9)	0.01	0.57 (0.38, 0.87)
Probable dementia	167 (26.4)	92 (25.0)	0.73	1.07 (0.71, 1.63)
Self-reported health status: Excellent/very good	71 (15.9)	37 (11.9)		REF
Self-reported health status: Good	161 (34.6)	95 (32.4)	0.40	0.80 (0.38, 1.69)
Self-reported health status: Fair/poor	258 (49.5)	174 (55.7)		0.66 (0.34, 1.32)

Less likely to receive training if helping an older adult who is female, non-white, Medicaid-enrolled

Conclusions

- Among caregivers helping with post-hospital care transition, 6 in 10 receive training
- Less likely to receive training if caregiver and/or care recipient is socially vulnerable
- Caregivers more likely to receive training if they interact closely with providers

Conclusions

- Concerning disparities in who receives transitional care training
- Potential value of standardized caregiver assessments in the discharge process
  - *Your thoughts on feasibility?*

Final Conclusions

Family caregivers are an essential part of the care team for older adults, especially those receiving home health

Family caregiver training needs have important implications for older adult health care utilization and outcomes

Like other care team members, family caregivers need support/training to deliver high-quality care

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Questions?

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