Title
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Journal
Journal of the American Geriatrics Society, 64(8)

ISSN
0002-8614

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Publication Date
2016-08-01

DOI
10.1111/jgs.14251

Quality of Care Provided by a Comprehensive Dementia Care Comanagement Program

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Multiple studies have shown that quality of care for dementia in primary care is poor, with physician adherence to dementia quality indicators (QIs) ranging from 18% to 42%. In response, the University of California at Los Angeles (UCLA) Health System created the UCLA Alzheimer's and Dementia Care (ADC) Program, a quality improvement program that uses a comanagement model with nurse practitioner dementia care managers (DCM) working with primary care physicians and community-based organizations to provide comprehensive dementia care. The objective was to measure the quality of dementia care that nurse practitioner DCMs provide using the Assessing Care of Vulnerable Elders (ACOVE-3) and Physician Consortium for Performance Improvement QIs. Participants included 797 community-dwelling adults with dementia referred to the UCLA ADC program over a 2-year period. UCLA is an urban academic medical center with primarily fee-for-service reimbursement. The percentage of recommended care received for 17 dementia QIs was measured. The primary outcome was aggregate quality of care for the UCLA ADC cohort, calculated as the total number of recommended care processes received divided by the total number of eligible quality indicators. Secondary outcomes included aggregate quality of care in three domains of dementia care: assessment and screening (7 QIs), treatment (6 QIs), and counseling (4 QIs). QIs were abstracted from DCM notes over a 3-month period from date of initial assessment. Individuals were eligible for 9,895 QIs, of which 92% were passed. Overall pass rates of DCMs were similar (90–96%). All counseling and assessment QIs had pass rates greater than 80%, with most exceeding 90%. Wider variation in adherence was found among QIs addressing treatments for dementia, which patient-specific criteria triggered, ranging from 27% for discontinuation of medications associated with mental status changes to 86% for discussion about acetylcholinesterase inhibitors. Comprehensive dementia care comanagement with a nurse practitioner can result in high quality of care for dementia, especially for assessment, screening, and counseling. The effect on treatment QIs is more variable but higher than previous reports of physician-provided dementia care. **J Am Geriatr Soc 64:1724–1730, 2016.**

Key words: dementia; care management; quality of care; nurse practitioner; primary care

Dementia is a common and costly disease, with an estimated 5.3 million Americans living with Alzheimer's disease and spending $214 billion on dementia-related care in 2014.[1] People living with dementia have three times as many hospital stays as others their age, many of which are for ambulatory-care sensitive conditions.[1–3] Dementia care requires high-quality, well-integrated medical and social services to achieve better health outcomes and prevent unnecessary acute care visits, but multiple studies have demonstrated poor quality of care for dementia in primary care practice settings, with physician adherence to quality indicators (QIs) ranging from 18% to 42%.[4–10]

Multicomponent practice-change interventions,[5,7–9,11–13] including nurse practitioner comanagement for geriatric conditions,[8,9,12] have improved quality of care for dementia, but even with the most successful interventions, nearly 40% of QIs for dementia remain unmet.[8,9,11,12] Health system partnerships with organizations that provide community resources for dementia (e.g., Alzheimer's Association) have also improved the quality of dementia care,[7,14,15] but these organizations are generally not well

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DOI: 10.1111/jgs.14251

JAGS 64:1724–1730, 2016

0002-8614/16/$15.00

integrated with the healthcare system and are often underused.

To improve dementia-related care and better meet needs of individuals and caregivers, dementia disease management programs have been developed.[11–13,16–18] These programs have demonstrated effectiveness based on quality measure performance[11,18] and outcomes, including reduced behavioral symptoms and caregiver stress and fewer emergency department visits, hospitalizations, and 30-day hospital readmissions[11–13] in special populations (e.g., safety net health system). The University of California at Los Angeles (UCLA) Alzheimer's and Dementia Care (ADC) program, launched in July 2012, has built on previous successes at other institutions and adapted them to a university-based healthcare system in a competitive fee-for-service environment similar to most primary care settings in the United States. The UCLA ADC program uses a comanagement model with a nurse practitioner dementia care manager (DCM) partnering with primary care physicians and community-based organizations to provide comprehensive, coordinated dementia care. Services include an individualized assessment of the needs of the individuals and family; ongoing management of the complications of dementia; linkage to community-based resources, including caregiver support and training and respite care; advance care planning; and around-the-clock access to a dementia healthcare professional.[19,20]

UCLA primary care physicians who partner with DCMs in providing dementia-related care refer most participants to the program. Individuals and their caregivers receive a 90-minute in-person initial assessment and an individualized written care plan covering medical, behavioral, psychosocial, and advance care planning needs. Individuals and caregivers are also provided educational materials customized to their specific needs, including printed materials and online resources, such as training videos addressing common dementia-related behavioral problems. Caregivers and individuals with dementia also have frequent telephone follow-up with their DCM depending on the severity of needs. At a minimum, they are telephoned every 3 months, and those who are in crisis may receive daily calls. All individuals with dementia are asked to return for an in-person follow-up visit or offered a home visit at least annually. Eight community-based organizations specializing in dementia-related services partner with the UCLA ADC Program, and participants are linked to appropriate community resources, including caregiver support groups, individualized counseling, caregiver training programs, adult day care services, and intensive case management. Their DCM follows the individuals with dementia throughout their disease course until they die, leave the area, or disenroll.

The nurse practitioner DCMs have geriatric and dementia-content expertise. They make medical recommendations for primary care physicians, including starting or adjusting medications for dementia and depression, and often prescribe and titrate these medications in collaboration with primary care providers. They recommend specialty referral to neurology or psychiatry when appropriate. When program participants are hospitalized or admitted to a nursing home, DCMs communicate with acute or subacute care physicians, especially to assist with goals-of-care discussions and transitions of care. Last, because DCMs are familiar with the healthcare system and community resources for dementia, they serve as a link between these two sources of care, facilitating communication about the individual's and caregiver's needs and coordinating services.

For the UCLA ADC program to achieve the anticipated outcomes of better health and lower costs, high quality of care must be provided. Chart were reviewed of the first 797 individuals enrolled in the UCLA ADC to assess the quality of dementia care that nurse practitioner DCMs provided.

METHODS

From July 1, 2012, to July 31, 2014, 797 community-dwelling adults with dementia received care in the UCLA ADC program. For each individual, the percentage of recommended care received for 17 dementia QIs from the Assessing Care of Vulnerable Elders (ACOVE-3)[21] and Physician Consortium for Performance Improvement (PCPI)[22] QI sets was measured. Data for scoring QIs were abstracted from DCM notes in the medical record over a 3-month period from date of initial assessment. The UCLA institutional review board approved the study protocol.

Study Population

To participate in the UCLA ADC program, enrollees must have a diagnosis of dementia, be referred by a UCLA provider, and be community dwelling at the time of program enrollment. UCLA is an urban academic medical center with primarily fee-for-service reimbursement that serves west Los Angeles and the surrounding communities.

Data Collection

Data were abstracted from DCM notes during the first 3 months of each individual's enrollment in the program, including an initial evaluation note, any follow-up visits, telephone or electronic mail encounters, goals-of-care notes, and any correspondence with the referring provider documented in the medical record. Six physicians (internal medicine residents or geriatric fellows) and one medical student performed medical record abstractions. Abstractors were provided with a detailed chart abstraction instrument and written abstraction guidelines and were trained by an experienced nurse abstractor (CR) who has conducted similar medical record abstractions using the ACOVE QIs.[4–9] The nurse trainer (CR) and two other study investigators (LJ, EC) also provided consultation for abstractors as needed. For each QI, the abstractor assessed whether the individual was eligible for a particular care process and whether the recommended care was provided within the abstraction window (first 3 months of program enrollment). A 10% random sample of all records was re-abstracted to evaluate the reliability of the abstraction process. Overall, 96% of all QIs had identical eligibility in abstracted and re-abstracted charts. Of eligible QIs, 91% had identical QI scores in the abstracted and re-abstracted records.

Measures and Statistical Analysis

The methods for developing the ACOVE and PCPI dementia QIs have been described in detail elsewhere,[21,22] and the ACOVE QIs have been used in several prior studies to measure quality of care for dementia.[4–9] The 10 PCPI and 15 ACOVE-3 QIs for dementia were combined, resulting in 17 QIs that fell within three domains of dementia care: assessment and screening (7 QIs), treatment (6 QIs), and counseling (4 QIs) (Table 2).

For each QI that a participant triggered, a pass or fail score was assigned based on whether the recommended care was provided. Credit was given if the DCM offered a treatment, and the individual or caregiver refused it. Two QIs (discussion about acetylcholinesterase inhibitors and receipt of stroke prophylaxis) were not applied to individuals with advanced dementia (Mini-Mental State Examination (MMSE) score ≤10) or a documented life expectancy of 6 months or less, including those who had been referred to hospice.[23] The primary outcome was aggregate quality of care for the UCLA ADC cohort, calculated as the total number of recommended care processes received divided by the total number of eligible QIs. Secondary outcomes included aggregate quality of care in each of the three domains of dementia care.

Descriptive statistics were used to report demographic information and selected clinical variables abstracted from the medical record or obtained from UCLA ADC program records. Analyses were performed using Stata IC Version 13 (StataCorp, LP, College Station, Texas).

RESULTS

The mean age of the first 797 community-dwelling adults with dementia enrolled in the UCLA ADC program was 82.0 ± 8.8, 67% of enrollees were female, 27% were racial or ethnic minorities, and 12% were dually insured with Medicare and Medicaid. Eighty-eight percent had Alzheimer's disease, mixed vascular and Alzheimer's disease, or an unspecified type of dementia, and the mean MMSE score was 17.2 ± 6.9. Geriatricians referred 52% of participants and internists or family practice physicians 30% (Table 1).

Participants were eligible for 9,982 dementia QIs, of which 92% were passed. Overall pass rates of the five DCMs were similar (90–96%). All counseling and assessment QIs had pass rates greater than 80%, with most exceeding 90%; the aggregate pass rate for treatment QIs was 69%. Wider variation in adherence was found for QIs addressing treatments for dementia, which individual-specific criteria triggered, ranging from 27% for discontinuation or justification of medications associated with mental status changes to 85% for discussion about acetylcholinesterase inhibitors. Ninety-eight percent of enrollees received counseling regarding advance care planning, and 75% had preferences regarding resuscitation status, level of medical intervention, or feeding tubes documented in the medical record (Table 2).

Fifteen people (2%) died during the 3-month abstraction window, and 28 (4%) had documentation indicating life expectancy less than 6 months or had been referred to hospice.

Table 1. Patient Characteristics, N = 797

Characteristic	Value
Age, mean ± SD (range)	82.0 ± 8.8 (40–101)
Female, n (%)	529 (67)
Racial or ethnic minority, n (%)	217 (27)
Primary language not English, n (%)	128 (16)
Medicare and Medicaid dually insured, n (%)	94 (12)
Alzheimer's disease, mixed vascular and Alzheimer's disease, or unspecified type of dementia, n (%)	703 (88)
Mini-Mental State Examination score, mean ± SD (range 0–30)	17.2 ± 6.9
Number of activities of daily living performed independently, median (IQR) (range 0–5)	4 (2–5)
Number of instrumental activities of daily living performed independently, median (IQR) (range 0–7)	1 (0–2)
Referring physician, n (%)	
Internal medicine, family practice	235 (30)
Geriatrician	414 (52)
Neurologist	128 (16)
Other	15 (2)
Dementia care manager, n (%)[a]	
A	265 (33)
B	31 (4)
C	103 (13)
D	197 (25)
E	201 (25)

[a]Letters represent the five dementia care managers.

SD = standard deviation; IQR = interquartile range.

DISCUSSION

The UCLA ADC program achieved very high quality of care for dementia, especially for assessment, screening, and counseling, but there was more variability in adherence to treatment-associated QIs. Some of these QIs may be more difficult to implement, such as discontinuing medications associated with mental status changes, especially because changes in medications in a comanagement model require agreement from the individual's primary care physician. Poor performance on this QI has also been documented in other studies of physician- and nurse practitioner–provided care.[6,8] It is also likely that the variability in pass rates among treatment indicators reflects a learning curve for nurse practitioners beginning dementia care comanagement during the first 2 years of the UCLA ADC program. It is also possible that some interventions were not well documented in the medical record and thus were not captured in the chart abstraction. Dementia care management software, which the UCLA ADC program has newly implemented, provides prompts identifying individuals eligible for dementia-related treatments and may improve adherence to these QIs.

These findings should be considered in the context of the study's limitations. It was decided to abstract a 3-month window after program enrollment because most QIs should be addressed at the initial visit or soon thereafter given the comprehensive nature of the program. Also, a complete medical record abstraction was not performed; only DCM notes were abstracted because the focus of this evaluation was quality of dementia care that the UCLA ADC program

Table 2. Adherence to Assessing Care of Vulnerable Elders-3 and Physician Consortium for Performance Improvement Quality Indicators (QIs) for Dementia (N = 797)

Dementia QI	Passed/Eligible, n/N (%)
Domain: assessment and screening	5,291/5,574 (95)
Annual assessment of cognition	747/793 (94)
Staging of dementia	733/797 (92)
Annual evaluation of function	770/797 (97)
Laboratory tests performed (thyroid-stimulating hormone, vitamin B12, and human immunodeficiency virus and syphilis tests if risk factors)	666/797 (84)
Depression screening	793/796 (99)
Annual screen for behavioral symptoms	787/797 (99)
Annual medication review	795/797 (99)
Domain: counseling	3,084/3,186 (97)
Caregiver counseled in at least two domains	789/797 (99)
Dementia diagnosis, prognosis, or behavioral symptoms	754/797 (95)
Safety	755/797 (95)
Community resources	784/797 (98)
Counseled regarding driving	740/795 (93)
Counseled about advance care planning or palliative care	784/797 (98)
Identification of a surrogate decision-maker	771/797 (97)
Domain: treatment	842/1,222 (69)
Discussion about acetylcholinesterase inhibitors	325/381 (85)
Received cerebrovascular accident prophylaxis, if indicated	67/93 (72)
Treatment with behavioral interventions first or concurrently with medications	369/539 (68)
Assessed response to new medication for dementia or depression	41/67 (61)
Risks/benefits discussion documented for new antipsychotics	5/10 (50)
Discontinue or justify medications associated with mental status changes	35/132 (27)
Overall QI pass rate	9,217/9,982 (92)

provided. For assessment and counseling domains, the high eligibility for and adherence to QIs suggest that few clinical data were lacking in this limited abstraction, although this approach may have missed treatments that a primary care physician or other dementia specialist initiated, so the QI adherence rate captured in the abstraction is conservative. Last, this is a descriptive study of the quality of care provided in a single dementia care comanagement program using nurse practitioners in an insured population in an academic health system. Thus, these findings may not be applicable to some other dementia care settings.

Prior interventions to improve quality of dementia care have included screening and case finding, medical record prompts, structured visit notes, physician education, nurse care management, and nurse practitioner comanagement in a primary care clinic setting.[5,7–9,11] Although all of these interventions resulted in some improvement in quality, none achieved high adherence across all domains of dementia care (Table 3).

There are several reasons why quality of care for dementia is poor in the current U.S. healthcare delivery system. Although dementia is a common disease in older adults, many primary care physicians have relatively few patients with dementia in their panels and may lack expertise in the management of some aspects of the disease.[24] Moreover, many aspects of providing high-quality dementia care are time intensive. In a traditional 15- to 20-minute office visit, busy physicians often do not have time to counsel caregivers regarding safety risks, provide training in behavioral management, research what community resources are available for support or respite, or coordinate referrals to organizations. Needs of individuals and families are also often outside the scope of traditional medical management of dementia and may include referral for legal advice, discussion about financial resources for care, advice regarding options for more-supportive living environments, expertise in home modification to improve mobility or reduce fall risk, and assistance in applying for long-term care services and supports.

For some individuals and caregivers, meeting dementia care needs also requires extensive outreach, including home visits as individuals become homebound; visits to other care settings, including hospitals and nursing homes; and frequent telephone or e-mail follow-up. Providers must also communicate with home health agencies and community organizations that interface with patients to ensure that services match individual needs and to alert organizations to changes in an individual's medical or social situation. Providing appropriate interventions requires a deep understanding of the individual's and caregiver's needs, including what is financially possible and geographically available.

Nurse practitioner dementia care comanagement overcomes several of these barriers to high-quality dementia care. First, a 90-minute in-person initial assessment dedicated to dementia care provides time to address concerns of the individual with dementia and the caregiver, provide counseling, and initiate referrals. Second, because DCMs focus on the treatment of dementia, they become content experts in managing the medical and social aspects of dementia care, including specific techniques for behavioral management, counseling regarding safety concerns, dementia-related medication management, knowledge of available community resources, care coordination, advance care planning, and identification of caregiver strain and depression.

Although the UCLA ADC model of nurse practitioner comanagement offers promise for improving the quality of dementia care, the current fee-for-service Medicare benefit does not currently support the majority of program services, creating a barrier to wider implementation of a comanagement model for dementia care. If better quality of care for dementia translates into better health outcomes for individuals and caregivers, including fewer neuropsychiatric symptoms and less caregiver strain and depression, and lowers cost of care by avoiding unnecessary emergency department visits and hospitalizations (the Centers for Medicare and Medicaid Services triple aim),[25] then there will be a strong case for the adoption of reimbursement for providing dementia comanagement services.

In summary, a comprehensive dementia care program with dedicated nurse practitioner care managers can result in near-universal adherence to recommended guidelines. Whether this leads to better health or lower costs remains to be determined.

Table 3. Dementia Quality Indicator (QI) Pass Rates: University of California at Los Angeles (UCLA) Alzheimer's and Dementia Care (ADC) Program Compared with Assessing Care of Vulnerable Elders (ACOVE) Studies

ACOVE QI Description	ACOVE Studies with Participants Eligible for QI (Reference)	ACOVE Observational Studies	ACOVE Intervention Studies	UCLA ADC Program
		Passed/Eligible, n/N (%)		
Domain: assessment and screening				
Annual assessment of cognition	5–8	19/45 (42)	75/192 (39)	747/793 (94)
Annual evaluation of function	4, 6, 8,[a]	40/629 (6)	52/80 (65)	770/797 (97)
Human immunodeficiency virus and syphilis tests if risk factors[b]	9	None eligible	1/1 (100)	0/1 (0)
Depression screening	4, 6–9,[a]	8/11 (73)	31/36 (86)	793/796 (99)
Annual screen for behavioral symptoms	6–9,[a]	45/96 (47)	87/198 (44)	787/797 (99)
Annual medication review	7	None eligible	26/40 (65)	794/797 (99)
Subtotal		112/781 (14)	271/546 (50)	3,892/3,980 (98)
Domain: counseling				
Caregiver counseled in at least two domains	4–9,[a]	42/157 (27)	99/269 (37)	789/797 (99)
Counseled regarding driving	4, 6–9,[a]	3/13 (23)	19/94 (20)	740/795 (93)
Subtotal		45/170 (26)	118/363 (33)	1,529/1,592 (96)
Domain: treatment				
Discussion about acetylcholinesterase inhibitors	5–9	5/6 (83)	40/61 (66)	259/302 (86)
Received cerebrovascular accident prophylaxis if indicated	4, 6, 8, 9,[a]	8/9 (89)	17/18 (94)	64/88 (73)
Treatment with behavioral interventions first or concurrently with medications	6–9	11/32 (34)	17/108 (16)	368/537 (69)
Risks and benefits discussion documented for new antipsychotics	7–9	1/5 (20)	7/9 (78)	5/10 (50)
Discontinue or justify medications associated with mental status changes	6, 8	0/5 (0)	8/32 (25)	35/131 (27)
Subtotal		25/57 (44)	89/228 (39)	731/1,068 (68)
Overall		182/1,008 (18)	479/1,138 (42)	6,152/6,641 (93)

All studies measured quality of care for dementia using the same 13 ACOVE QIs. Four QIs not used in all studies were excluded from the table above, including staging of dementia, counseling regarding advance care planning or palliative care, identification of a surrogate decision-maker, and assessing response to new medication for dementia or depression. Adherence to thyroid-stimulating hormone and B12 laboratory testing was not scored using the same method in all studies and thus was not included in the comparison. The observational study group included three observational studies[4,6] [a](unpublished, personal communication with Neil S. Wenger) and two control arms from interventional studies.[5,9] The intervention study group included four intervention studies.[5,7–9] Characteristics of the ACOVE studies are provided in Appendix 1.

ACKNOWLEDGMENTS

We thank Leslie Evertson, GNP, Michelle Panlilio, NP, Kemi Reeves, GNP, Jeanine Moreno, GNP, Mihae Kim, NP, and Tracy Zhao, BA, Division of Geriatrics, David Geffen School of Medicine, University of California at Los Angeles for their assistance with data collection.

The project described is supported by Grant 1C1CMS330982–01–00 from the U.S. Department of Health and Human Services, Centers for Medicare and Medicaid Services. The content of this manuscript is solely the responsibility of the authors and does not necessarily represent the official views of the U.S. Department of Health and Human Services or any of its agencies. The research presented was conducted by the awardee. Findings may or may not be consistent with or confirmed by the independent evaluation contractor. Dr. Jennings and data collection were supported by the UCLA Claude Pepper Older Americans Independence Center funded by the National Institute on Aging (5P30AG028748), the National Institutes of Health National Center for Advancing Translational Science UCLA Clinical and Translational Science Institute Grant UL1TR000124, and the John A. Hartford Foundation.

Conflict of Interest: The editor in chief has reviewed the conflict of interest checklist provided by the authors and has determined that the authors have no financial or any other kind of personal conflicts with this paper. Carol P. Roth owns Johnson & Johnson stock.

Author Contributions: Jennings: concept and design, acquisition of data, analysis and interpretation of data, drafting the article, revising the article critically for important intellectual content, final approval. Tan, McCreath, Roth, Reuben: concept and design, acquisition of data, analysis and interpretation of data, revising the article critically for important intellectual content, final approval. Wenger: concept and design, analysis and interpretation of data, revising the article critically for important intellectual content, final approval. Cook, Serrano: acquisition of data, revising the article critically for important intellectual content, final approval. Han: analysis and interpretation of data, revising the article critically for important intellectual content, final approval.

Sponsor's Role: None.

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APPENDIX 1: STUDY CHARACTERISTICS OF THE UNIVERSITY OF CALIFORNIA AT LOS ANGELES (UCLA) ALZHEIMER'S AND DEMENTIA CARE (ADC) PROGRAM COMPARED WITH ASSESSING CARE OF VULNERABLE ELDERS (ACOVE) STUDIES

Study	Year	Clinical Setting	Intervention	Age, Mean	Female, %	White, non-Hispanic, %	Aggregate Quality Score for Dementia, Pass/Eligible, n/N (%)
UCLA ADC, N = 797	2012–14	Academic health system	UCLA ADC Program	82	67	73	6,152/6,641 (93)
ACOVE Studies, N = 881							
Wenger et al.,[4] N = 24[a]	1998	Managed care organizations	None	81	64	NA	38/171 (22)[a]
Wenger et al.,[5] N = 200	2002	Large urban medical groups	Multicomponent practice-change intervention	81	66	95	26/67 (39)[a]
							46/119 (39)[b]
Reuben et al.,[7] N = 121	2007	Community-based practices	Multicomponent practice-change intervention, adapted for dementia care	NA	NA	NA	173/393 (44)[b]
Ganz et al.,[9] N = 111	2007	Academic geriatrics practice	NP comanagement	85	67	NA	52/151 (34)[a]
							88/160 (55)[b]
Wenger et al.,[6] N = 41	2007	Medicare Advantage Special Needs Plan	Nurse care management	76	67	51	64/346 (19)[a]

(Continued)

APPENDIX 1. (Contd.)

Study	Year	Clinical Setting	Intervention	Age, Mean	Female, %	White, non-Hispanic, %	Aggregate Quality Score for Dementia, Pass/Eligible, n/N (%)
Reuben et al.,[8] N = 115	2010	Community-based practices	Multicomponent practice-change intervention with NP comanagement	83	71	NA	172/466 (37)[b]
Wenger (unpublished), N = 269	2005	Medicare beneficiaries, fee-for-service and Medicare Advantage	None	82	53	92	2/273 (1)[a]

Number of participants with dementia is reported for each study. All ACOVE studies used an abstraction window of 12 months and a complete medical record abstraction.

[a] Observational study or control arm of an interventional study.

[b] Intervention arm of an interventional study.

NA = not available.