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Health Care Contact Days Among Older Adults in Traditional Medicare

A Cross-Sectional Study

Ishani Ganguli, MD, MPH; Emma D. Chant, PhD; E. John Orav, PhD; Ateev Mehrotra, MD, MPH; and Christine S. Ritchie, MD, MSPH

Background: Days spent obtaining health care outside the home can represent not only access to needed care but also substantial time, effort, and cost, especially for older adults and their care partners. Yet, these "health care contact days" have not been characterized.

Objective: To assess composition of, variation and patterns in, and factors associated with contact days among older adults.

Design: Cross-sectional study.

Setting: Nationally representative 2019 Medicare Current Beneficiary Survey data linked to claims.

Participants: Community-dwelling adults aged 65 years and older in traditional Medicare.

Measurements: Ambulatory contact days (days with a primary care or specialty care office visit, test, imaging, procedure, or treatment) and total contact days (ambulatory days plus institutional days in a hospital, emergency department, skilled-nursing facility, or hospice facility); multivariable mixed-effects Poisson regression to identify patient factors associated with contact days.

Results: In weighted results, 6619 older adults (weighted: 29 694 084) had means of 17.3 ambulatory contact days (SD, 22.1) and 20.7 total contact days (SD, 27.5) in the year; 11.1% had 50 or more total contact days. Older adults spent most contact days on ambulatory care, including primary care visits (mean [SD], 3.5 [5.0]), specialty care visits (5.7 [9.6]), tests (5.3 [7.2]), imaging (2.6 [3.9]), procedures (2.5 [6.4]), and treatments (5.7 [13.3]). Half of the test and imaging days were not on the same days as office visits (48.6% and 50.1%, respectively). Factors associated with more ambulatory contact days included younger age, female sex, White race, non-Hispanic ethnicity, higher income, higher educational attainment, urban residence, more chronic conditions, and care-seeking behaviors (for example, "go to the doctor. . .as soon as (I). . .feel bad").

Limitation: Study population limited to those in traditional Medicare.

Conclusion: On average, older adults spent 3 weeks in the year getting care outside the home. These contact days were mostly ambulatory and varied widely not only by number of chronic conditions but also by sociodemographic factors, geography, and care-seeking behaviors. These results show factors beyond clinical need that may drive overuse and underuse of contact days and opportunities to optimize this person-centered measure to reduce patient burdens, for example, via care coordination.

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Days spent obtaining health care outside the home can represent not only access to needed care but also burdens (1–10), especially for older adults and the care partners who often accompany them. These "health care contact days"—spent in institutional settings or receiving ambulatory care such as office visits, laboratory tests, and procedures—can require substantial time, physical and mental effort, transportation expenses, missed work, and other direct and opportunity costs (5, 6, 10). These tradeoffs, along with known practice variation in health care (11, 12), suggest that there may be both need and opportunity to optimize contact days for patients and their families.

"Health care contact days" is an intuitive, claims-based measure that captures the full spectrum of health care outside the home and has the potential to be used broadly, yet is not well understood (12, 13). This concept builds on existing measures of home time (14, 15) and healthy days at home (16), which focus on days spent outside of institutional care (that is, hospitals and nursing homes) (14, 17, 18) and have been limited by insufficient variation because most older adults spend little time in these settings (15, 19, 20); this limitation prompted the Medicare Payment Advisory Commission to propose expansion of those measures to include "any interaction with the health system. . .such

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Editorial comment

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as a physician office visit" (21). In related work, oncology researchers have described the substantial treatment burden and "time-toxicity" experienced by patients with advanced cancers (3, 4, 22). However, to our knowledge, health care contact days have not been characterized beyond these examples.

Understanding how older adults use contact days could provide an empirical foundation for this dimension of person-centered care to inform individual patient care decisions, improve health system operations, guide Medicare policies, and support evaluation of clinical interventions alongside other key dimensions of patient health and well-being. Therefore, we characterized how community-dwelling older adults in traditional Medicare spent health care contact days using administrative claims linked to nationally representative survey data. We examined how the use and composition of contact days varied overall and within key patient subgroups, described patterns of contact days relevant to care coordination, and assessed sociodemographic, clinical, and functional factors and care-seeking behaviors that may explain use and variation in these contact days.

Methods

Study Design and Overview

The Medicare Current Beneficiary Survey (MCBS) is a rotating panel survey covering an annual statistical sample of Medicare beneficiaries in the continental United States. We used MCBS data linked to Medicare claims data (physician, outpatient, inpatient, skilled nursing facility [SNF], and hospice files) for 2019, the most recent year for which data were available before the COVID-19 pandemic. Our cohort included community-dwelling adults in the survey sample who were 65 years and older as of 1 January 2019, continuously enrolled in traditional Medicare for the year or until death, and alive for 1 month or more in 2019. We excluded beneficiaries with end-stage renal disease, as Medicare reimburses services for these patients based on a prospective payment system that obscures dates of service.

Study Measures

Identification of Health Care Contact Days

For each beneficiary, we used relevant claims files and dates to identify days spent in an institutional setting: hospital, emergency department (ED; adaption of the Yale algorithm [23], including observational stays), SNF, or inpatient hospice; see Supplement Table 1 (available at Annals.org) for details. Using the 2021 Restructured BETOS Classification System (RBCS) taxonomy, we identified days in which a beneficiary had 1 or more primary care or specialty care visits (for example, problem-based evaluation and management visits), tests (for example, electrocardiograms, blood tests, pulmonary function tests), imaging studies (for example, computed tomography, radiographs), procedures (for example, breast and gastrointestinal procedures, anesthesia services), or treatments (for example, chemotherapy, occupational therapy). We counted 1 visit conducted by each unique clinician per day and defined primary care visits and specialty care visits using specialty codes. Given our focus on care outside the home, we excluded virtual visits and home-based services.

When identifying specific types of contact days, we applied the following hierarchy: hospital > ED > SNF > inpatient hospice > any ambulatory care; that is, if the patient was admitted to the hospital from the ED on a given day, we only counted it as a hospital day. If the patient was in the ED and in a SNF on a given day, we only counted it as an ED day. In addition, if a patient was in an institutional setting on a given day, we did not count office visits, tests, imaging, procedures, or treatments on that day. For patients who died in the calendar year, we prorated contact days by days alive (that is, multiplied contact days by the reciprocal of the fraction of days alive) in descriptive analyses.

Outcomes

We constructed 3 composite measures of contact days: ambulatory contact days (days with a primary care visit, specialty care visit, test, imaging, procedure, or treatment), institutional contact days (days in a hospital, ED, SNF, or inpatient hospice), and total contact days (days spent receiving ambulatory or institutional care).

Patient Characteristics

We extracted characteristics from survey and administrative claims data. Sociodemographic variables included age, sex, self-reported race and ethnicity, income, education, and rural–urban residence (based on Rural-Urban Commuting Area Codes) (all categorical). Clinical variables included number of chronic conditions (of 35 conditions in the Chronic Conditions Data Warehouse) and self-rated health ("fair" or "poor" vs. "excellent," "very good," "good"). Functional variables (all binary) included functional impairment (defined as reported difficulty with any of 6 activities of daily living: walking, dressing, bathing, eating, toileting, getting out of bed), trouble getting places like the doctor's office, and use of accompaniment to visit one's usual source of care. Care-seeking behaviors included worry about health more than average ("I worry about my health more than other people my age"), going to doctor as soon as one feels bad ("I go to the doctor…as soon as I start to feel bad"), and avoiding going to doctor ("I will do just about anything to avoid going to the doctor"). We captured provider factors: self-reported presence of a usual provider (binary), usual provider specialty (primary care vs. specialty), and usual provider sex (binary). Finally, we assigned beneficiaries to hospital referral regions (HRRs) using residential ZIP codes.

Statistical Analysis

We measured mean and median contact days across all persons in the cohort and then across HRRs among HRRs with 10 or more respondents (to improve stability). We presented distributions of composite contact day measures and their components. We determined the number and percentage of contact days contributed by each specialty type (for specialty care visits) and each ambulatory service subcategory (for tests, imaging, procedures, and treatments) and presented ranked lists.

To assess potential opportunities to consolidate contact days through care coordination, we calculated the proportion of test days and imaging days that did not include an office visit; we also calculated the proportion of visit days in which the patient had 2 or more visits. To further explore contact day patterns, we graphed the distribution of contact days across the calendar year and by days of the week. We then used χ^2 tests to determine whether patients experienced various types of contact days on certain weekdays more than others, based on a null hypothesis that contact days were distributed equally across weekdays.

Composition of Contact Days Within Patient Subgroups

To understand how health care use patterns differ by key patient characteristics, we described the composition of contact days within patient subgroups defined by sociodemographic, clinical, and functional factors; care-seeking behaviors; and provider factors. We also examined the composition of contact days among adults with 50 or more total contact days in the year.

Regression Models

To identify factors associated with receipt of total, ambulatory, and institutional contact days, we built univariable and multivariable mixed-effects Poisson regression models with an offset for days alive, HRR random effects, and adjustment for overdispersion. The models assessed factors that could plausibly contribute to differences in health care utilization, including the above sociodemographic factors, clinical factors, and care-seeking behaviors as well as functional impairment. Finally, we used hierarchical linear regression to estimate between-HRR and between-patient variation in total contact days. We then sequentially added clinical factors, sociodemographic factors, and care-seeking behaviors to quantify the proportion of variation explained by each set of variables (**Supplement Text 1**, available at Annals.org).

Validation and Sensitivity Analyses

To assess risk for misattribution of laboratory test receipt days (for example, if sendout tests are billed on later dates of service than when the test sample was obtained), we measured how often select laboratory tests were not ordered on the same day as venipuncture and/or a visit and found that this was rare. Next, because Medicare's outpatient file captures ambulatory services not billed by physicians (for example, services provided by salaried physicians), yet may theoretically also include services with misclassified service dates, we estimated a lower bound on contact days using physician file-derived events alone. Finally, we repeated contact day measurement after excluding beneficiaries with no medical claims (who either did not receive care or received care reimbursed by a different payer) and separately, after excluding beneficiaries who died. Sensitivity analyses produced estimates of similar magnitude (details in **Supplement Text 2** and **Supplement Table 2**, available at Annals.org).

We performed all analyses using MCBS cross-sectional survey weights that accounted for the stratified sampling design, survey nonresponse, and coverage error to compute nationally representative estimates and used balanced repeated replication weights for variance estimation. For the multivariable analyses that involved survey responses, we included all respondents who completed the survey (that is, were alive through fall 2019; $n = 6412$ [96.9%]) and used the indicator variable method to handle small amounts of covariate missingness. We considered 2-tailed P values statistically significant at $P < 0.05$. We used SASv9.4 (SAS Institute) and Rv4.2.3. The study followed STROBE (Strengthening the Reporting of Observational Studies in Epidemiology) reporting guidelines. The Massachusetts General Brigham Institutional Review Board waived review.

Role of the Funding Source

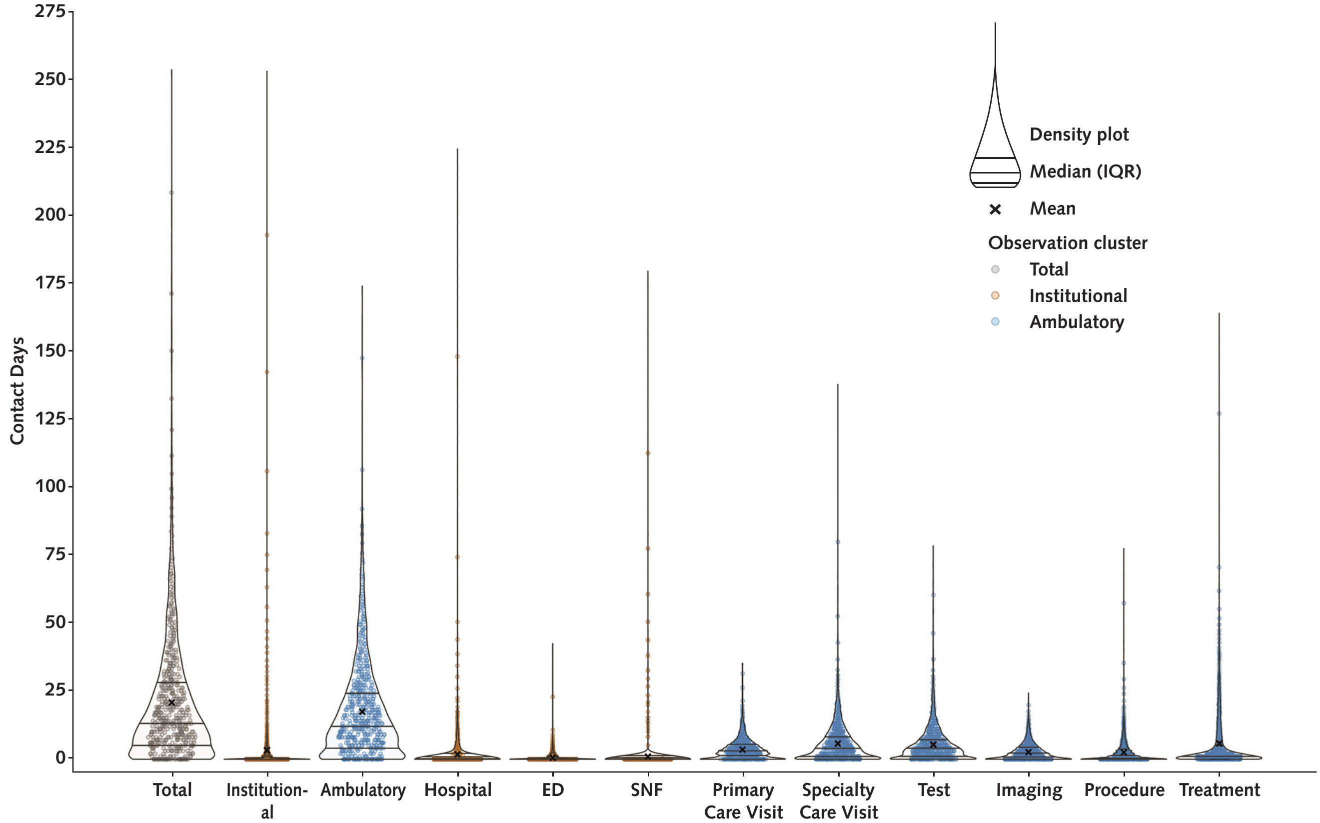
This work was supported by a grant from the National Institute on Aging. The funder had no role in the design or conduct of the study; collection, management, analysis, or interpretation of the data; preparation, review, or approval of the manuscript; or decision to submit the manuscript for publication.

RESULTS

In 2019, 6619 older adults (weighted: 29 694 084; **Supplement Table 3**, available at Annals.org) had means of 17.3 ambulatory contact days (SD, 22.1) and 20.7 total contact days (SD, 27.5) (**Figure 1**). Across 132 HRRs, total contact days also varied widely: the 25th percentile had a mean of 17.1 days (SD, 30.7) and the 75th percentile had a mean of 24.4 days (SD, 24.6). Beneficiaries spent most contact days on ambulatory care including primary care visits (mean, 3.5 days [SD, 5.0]), specialty care visits (mean, 5.7 days [SD, 9.6]), tests (mean, 5.3 days [SD, 7.2]), imaging (mean, 2.6 days, [SD, 3.9]), procedures (mean, 2.5 days [SD, 6.4]), and treatments (mean, 5.7 days [SD, 13.3]). Among specialty care visit days, the most common specialty represented was ophthalmology (12.0%) followed by cardiology (9.0%). The most common service subtypes contributing to ambulatory service contact days were general laboratory tests (72.6% of test days); standard radiographs (52.9% of imaging days); physical, occupational, and speech therapy (43.7% of treatment days); and skin procedures (50.5% of procedure days) (**Supplement Table 4**, available at Annals.org).

Among ambulatory contact days, 48.6% of test days and 50.1% of imaging days were not on the same day as a visit. Among visit days, 3.2% included more than 1 visit.

Figure 1. Distribution of health care contact days.



	Total	Institutional	Ambulatory	Hospital	ED	SNF	Primary Care Visit	Specialty Care Visit	Test	Imaging	Procedure	Treatment
Mean (SD)	20.7 (27.5)	3.3 (13.8)	17.3 (22.1)	1.8 (10.1)	0.5 (2.1)	1.0 (6.4)	3.5 (5.0)	5.7 (9.6)	5.3 (7.2)	2.6 (3.9)	2.5 (6.4)	5.7 (13.3)
Median (IQR)	13 (5–28)	0 (0–1)	12 (4–24)	0 (0–0)	0 (0–0)	0 (0–0)	3 (1–5)	4 (1–8)	4 (1–7)	2 (0–4)	1 (0–3)	2 (0–5)

In this plot, violin width indicates relative density, horizontal lines indicate median and IQR, × indicates mean, and dots indicate clusters of 14 adults, except for the dots representing the highest numbers of contact days, which indicate clusters of 11 adults. Clustered values are weighted means of the values for the persons making up the cluster. ED = emergency department; SNF = skilled nursing facility.

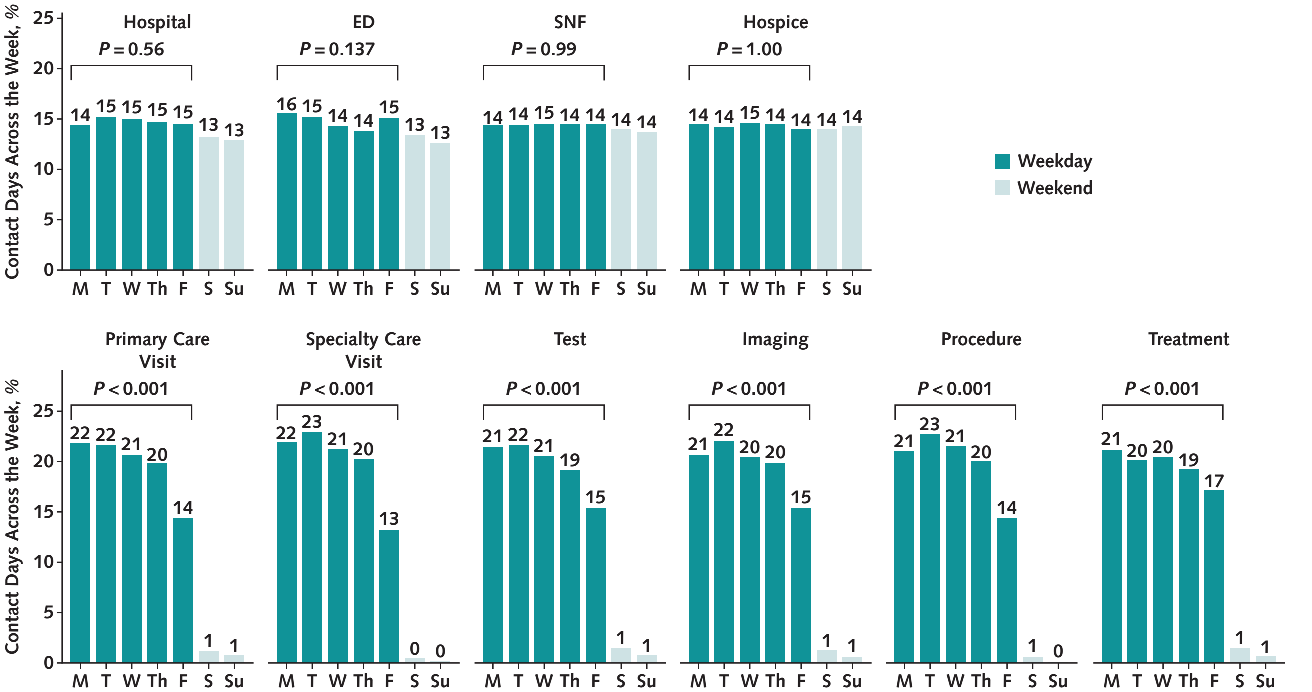
Across the calendar year, ambulatory contact days were much less often on weekends and holidays whereas institutional contact days were more evenly distributed (**Supplement Figure**, available at Annals.org). Across weekdays, older adults were equally likely to receive institutional care (**Figure 2**), whereas the likelihood of having an ambulatory contact day varied significantly by weekday for all ambulatory service types ($P < 0.001$) such that these days were less common on Fridays. Specialist visits had the largest differential by day of week, with 20% to 23% of specialist visit days on Mondays through Thursdays and 13% on Fridays.

Composition of Contact Days Within Patient Subgroups

Mean number and composition of contact days varied by sociodemographic, clinical, functional, care-seeking, and provider subgroups (**Supplement Table 5**, available at Annals.org). Notably, sex differences in contact days were largely explained by female adults receiving more specialty care visits and treatments. Adults with more chronic conditions had many more contact days, largely explained by more days with specialty care visits, tests, and treatments.

Older adults who reported trouble getting places like the doctor's office had means of 31.4 total contact days (SD, 40.8) and 24.1 ambulatory contact days (SD, 21.2). Older adults with a usual provider had more ambulatory days (mean, 18.0 days [SD, 23.4] vs. mean, 11.9 days [SD, 18.6]) and similar institutional days compared with those who did not; they had slightly fewer ambulatory contact days if their usual provider was in primary care (vs. specialty care) or was male (vs. female). Among all older adults, 11.1% (2.01 million weighted) had 50 or

Figure 2. Variation in contact days by day of week and by service type.



P values correspond to χ^2 test of differences in proportion of contact days on weekdays (Monday through Friday). ED = emergency department; SNF = skilled nursing facility.

more total contact days in the year, which were most commonly spent in specialty care visits (mean, 16.1 days [SD, 14.2]) and treatments (mean, 25.2 days [SD, 30.5]).

Factors Associated With Contact Days

In univariable Poisson models, there were statistically significant associations between total, ambulatory, and institutional contact days and all prespecified covariates except education (for total contact days). In multivariable Poisson models, factors associated with more ambulatory contact days included younger age, female sex, White race, non-Hispanic ethnicity, higher income, higher educational attainment, urban residence, and more chronic conditions (Table). Those reporting they "worry about their health more than other people their age" or "go to the doctor. . .as soon as they start to feel bad" had more ambulatory contact days; those who "will do just about anything to avoid going to the doctor" had fewer. Factors associated with more institutional contact days included non-Hispanic ethnicity, poor self-rated health, functional impairment, more chronic conditions, and going to the doctor as soon as they feel bad.

Sources of Variation

In sequential models, 28.9% of the variation in total contact days was explained by clinical factors, an additional 3.5% by sociodemographic factors, and 0.8% by care-seeking behaviors, leaving 66.7% of variation unexplained.

DISCUSSION

In this nationally representative study, community-dwelling older adults spent an average of 3 weeks each year receiving health care—mainly ambulatory care such as office visits, tests, and treatments. A striking 11% of beneficiaries had 50 or more contact days in the year, or roughly 1 contact day per week. The number of contact days varied widely across the population and was associated with clinical as well as sociodemographic factors, geography, and care-seeking behaviors, though most variation remained unexplained. Taken together, our results highlight the substantial imprint of ambulatory health care on older adults' lives. They demonstrate that much of the variation in contact days cannot be explained by clinical need—consistent with broader literature on variation in health care utilization (11, 24)—and imply important roles for clinician and health system practice variation as well as unmeasured patient and area factors (for example, climate and traffic). These results further suggest that there are opportunities to optimize contact days, for example, through care coordination.

Analyses of patient factors associated with contact days revealed several insights. First, number of chronic conditions showed a strong positive association with contact days. Older adults with more than 10 chronic conditions (representing 14% of adults in the study) had on average 39 contact days per year, including 30

Table. Patient Sociodemographic, Clinical, and Functional Characteristics and Care-Seeking Behaviors Associated With Total, Ambulatory, and Institutional Health Care Contact Days

Characteristic	Total Contact Days		Ambulatory Contact Days		Institutional Contact Days	
	Mean (SD)	Adjusted* Percentage Difference (95% CI), %	Mean (SD)	Adjusted* Percentage Difference (95% CI), %	Mean (SD)	Adjusted* Percentage Difference (95% CI), %
Sociodemographic						
Age, y						
65–69	15.4 (18.7)	Ref	13.9 (17.8)	Ref	1.5 (5.3)	Ref
70–74	19.4 (23.9)	−8.9 (−16.7 to −0.3)	17.4 (19.0)	−6.4 (−14.7 to 2.8)	2.0 (11.2)	−22.2 (−41.7 to 3.7)
75–79	23.2 (28.3)	−18.7 (−25.0 to −11.8)	19.1 (19.5)	−17.2 (−23.6 to −10.1)	4.2 (24.2)	−19.4 (−39.1 to 6.8)
80–84	26.6 (30.0)	−21.8 (−28.2 to −14.8)	21.2 (20.3)	−22.4 (−29.1 to −15.1)	5.4 (19.4)	−10.8 (−31.1 to 15.6)
≥85	27.2 (35.5)	−35.5 (−41.9 to −28.4)	19.4 (21.1)	−37.1 (−43.0 to −30.6)	7.8 (30.7)	−22.7 (−42.6 to 4.0)
Sex						
Male	18.8 (23.2)	Ref	15.5 (18.3)	Ref	3.3 (15.5)	Ref
Female	22.3 (31.1)	13.7 (8.2 to 19.5)	18.9 (24.8)	17.9 (12.1 to 24.0)	3.3 (13.8)	−15.7 (−30.3 to 1.9)
Race†						
Asian	16.5 (23.3)	−20.5 (−34.5 to −3.5)	12.6 (12.5)	−27.0 (−36.1 to −16.7)	3.9 (18.1)	19.1 (−46.1 to 163.1)
Black or African American	19.1 (35.4)	−13.8 (−25.6 to −0.1)	14.6 (27.1)	−16.9 (−28.6 to −3.2)	4.5 (19.7)	7.8 (−37.6 to 86.2)
Other	17.9 (25.0)	−9.2 (−21.1 to 4.4)	14.9 (21.2)	−9.4 (−21.8 to 4.9)	3.0 (10.3)	−11.1 (−39.4 to 30.3)
White	21.1 (26.0)	Ref	17.9 (21.8)	Ref	3.2 (12.9)	Ref
Hispanic ethnicity‡						
No	20.9 (28.9)	Ref	17.5 (23.2)	Ref	3.4 (14.0)	Ref
Yes	17.0 (24.4)	−20.3 (−29.4 to −10.0)	14.7 (19.7)	−14.0 (−24.6 to −1.9)	2.3 (9.5)	−54.8 (−70.0 to −32.0)
Income level						
>200% Federal poverty level	19.7 (24.6)	Ref	17.5 (21.6)	Ref	2.2 (9.3)	Ref
100% to 200% Federal poverty level	23.1 (34.7)	−12.6 (−17.9 to −7.0)	17.4 (22.8)	−16.5 (−21.9 to −10.7)	5.7 (26.5)	18.2 (−3.7 to 44.9)
<100% Federal poverty level	22.8 (39.2)	−16.7 (−24.8 to −7.9)	15.7 (21.2)	−22.1 (−29.2 to −14.3)	7.1 (30.1)	24.6 (−5.5 to 64.3)
Education level						
College or above	19.9 (23.2)	Ref	17.7 (20.5)	Ref	2.3 (10.1)	Ref
High school or some college	20.8 (27.6)	−7.4 (−11.8 to −2.7)	17.3 (20.5)	−7.3 (−12.1 to −2.2)	3.6 (16.7)	−3.2 (−22.4 to 20.9)
Did not graduate high school	22.7 (36.7)	−12.0 (−20.2 to −3.0)	16.1 (21.5)	−14.1 (−22.0 to −5.4)	6.6 (25.5)	0.1 (−25.3 to 34.0)
Rural–urban residence§						
Metropolitan	21.0 (29.8)	Ref	17.7 (23.6)	Ref	3.3 (14.3)	Ref
Micropolitan	20.0 (34.3)	−9.9 (−15.0 to −4.4)	16.3 (17.6)	−8.7 (−14.7 to −2.3)	3.7 (29.8)	−16.3 (−33.5 to 5.3)
Small town	19.8 (28.6)	−2.4 (−9.5 to 5.4)	16.1 (21.6)	−4.8 (−12.9 to 4.0)	3.7 (12.1)	11.8 (−15.9 to 48.8)
Rural	17.3 (19.7)	−13.4 (−21.4 to −4.6)	14.8 (13.9)	−10.9 (−19.1 to −1.9)	2.5 (11.9)	−28.1 (−50.1 to 3.4)
Clinical and functional characteristics						
Chronic conditions (continuous)	–	15.3 (14.5 to 16.2)	–	13.9 (13.1 to 14.8)	–	25.5 (22.8 to 28.2)
Chronic conditions (categorical)						
0	1.0 (4.6)	–	0.9 (4.4)	–	0.1 (0.5)	–
1–5	13.0 (15.2)	–	12.4 (14.4)	–	0.6 (2.7)	–
6–10	24.8 (20.1)	–	22.6 (19.8)	–	2.2 (7.2)	–
>10	38.8 (31.4)	–	29.6 (24.8)	–	9.2 (23.7)	–
Self-rated health‖						
Not poor	18.0 (23.4)	Ref	16.3 (21.2)	Ref	1.7 (7.9)	Ref
Poor	28.1 (27.3)	2.5 (−4.1 to 9.6)	22.3 (22.8)	−1.3 (−8.0 to 5.9)	5.8 (14.8)	26.2 (0.6 to 58.4)
Functional impairment¶						
No	17.0 (24.0)	Ref	15.7 (22.1)	Ref	1.3 (5.5)	Ref
Yes	28.2 (30.9)	7.2 (1.2 to 13.4)	22.4 (23.9)	−0.1 (−5.9 to 6.0)	5.8 (18.2)	69.9 (37.6 to 109.9)

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Characteristic	Total Contact Days		Ambulatory Contact Days		Institutional Contact Days	
	Mean (SD)	Adjusted* Percentage Difference (95% CI), %	Mean (SD)	Adjusted* Percentage Difference (95% CI), %	Mean (SD)	Adjusted* Percentage Difference (95% CI), %
Care-seeking behaviors						
Worry about health more than average**						
No	18.4 (23.0)	Ref	16.4 (19.9)	Ref	2.0 (8.1)	Ref
Yes	26.4 (28.1)	9.9 (3.8 to 16.3)	22.0 (25.0)	10.3 (4.0 to 17.1)	4.4 (15.8)	8.6 (−12.0 to 34.1)
Go to doctor as soon as [I] feel bad††						
No	17.6 (24.6)	Ref	15.7 (22.0)	Ref	1.9 (9.7)	Ref
Yes	22.7 (31.5)	10.9 (5.1 to 17.0)	19.8 (25.8)	9.9 (4.1 to 16.0)	3.0 (8.1)	20.8 (1.4 to 44.0)
Avoid going to doctor‡‡						
No	20.7 (28.2)	Ref	18.3 (23.2)	Ref	2.3 (9.0)	Ref
Yes	16.0 (23.7)	−13.1 (−20.3 to −5.2)	13.4 (18.9)	−17.0 (−23.9 to −9.5)	2.7 (16.3)	16.7 (−8.6 to 49.0)

Ref = reference.
* Adjusted values represent the adjusted relative percentage difference from the reference group; they are the results of multivariable mixed-effects Poisson regression analyses adjusted for age, sex, race, ethnicity, income, education, rural-urban residence, chronic condition count (continuous), self-rated health, functional impairment, and care-seeking behaviors with hospital referral region random intercepts. Only patients with responses for the fall survey group were included. Missing values were included in the models using an indicator variable.
† Race: Do not know or declined for 132 respondents.
‡ Hispanic ethnicity: Do not know or declined for 30 respondents.
§ Rural–urban commuting area (RUCA) codes missing for 4 respondents.
|| Self-rated health: Do not know or declined for 26 respondents.
¶ Functional impairment: Do not know or declined for 15 respondents.
** Worry about health more than average: Do not know or declined for 178 respondents.
†† Go to doctor as soon as [I] feel bad: Do not know or declined for 61 respondents.
‡‡ Avoid going to doctor: Do not know or declined for 32 respondents.

ambulatory days, of which specialist visit days and treatment days predominated. These findings complement survey and qualitative evidence of substantial treatment burden experienced by people with multimorbidity (25, 26). The relationship between chronic conditions and contact days may reflect both true clinical need as well as the mechanistic effect of health care exposure on new diagnoses (that is, contact days beget chronic conditions and vice versa), compounded by increasing medical subspecialization and care fragmentation (27). Second, our results show how patients' self-reported care-seeking behaviors manifest in actual behavior: for example, adults who reported avoiding doctors had fewer ambulatory days and a larger share of institutional days when compared with adults who did not report avoidance. Third, adults in older age groups had more total and institutional contact days in unadjusted analyses, but after accounting for chronic conditions and other factors, there was a strong negative association between age and ambulatory contact days: this may reflect unmeasured challenges in accessing this care, decreased perceived benefits of health care in older age, or survivorship effects. Concerningly, adults in systematically marginalized racial and ethnic groups had fewer ambulatory and more institutional contact days than White adults, consistent with evidence of differential health care spending patterns (28) and systematically marginalized persons having less access to primary care (29, 30).

Conceptually, contact days capture how much of a person's year is consumed by receiving health care outside of the home, often at the expense of other pursuits (1). These days can carry clear clinical and social benefits (and importantly, underuse undoubtedly contributes to the variation we find), and also potential direct and indirect burdens of varying degrees for patients and their often-unpaid care partners (10, 31). One study estimated that U.S. adults spent an average of 2 hours per office visit—of which 20 minutes were with the doctor—at a mean opportunity cost of $43 (5).

In light of these tradeoffs, our results highlight opportunities for clinicians, clinical leaders, policymakers, and researchers to consider and optimize contact days in individual care decisions, health system operations, policies, and clinical evaluations, for example, by reducing unnecessary care, coordinating care, and shifting care to home settings. For instance, about half of test days and imaging days were not on the same days as office visits. Although there are many clinical reasons for separating services (for example, a fasting lipid panel drawn in advance to review during a visit, a repeated potassium test to follow-up an abnormal result), this finding also suggests opportunities for clinicians to avoid low-value services when possible (32) and to consolidate care, for example, through point-of-care testing (33) or addressing multiple patient needs in a given encounter (34, 35). Clinicians, patients, and care partners might explicitly discuss contact days, alongside other potential outcomes, when making shared decisions about screening for breast cancer or starting treatment of osteoporosis, for example.

Health systems could optimize contact days by using clinical decision support to discourage low-value services (36), arranging same-day colocated disease or episode-specific services, using multidisciplinary teams and technology to address patients' needs within fewer visits (14, 34), deploying specialist e-consults (37), supporting time for primary care clinicians to coordinate care with specialist colleagues, and expanding telemedicine and home care capacity (38–40). Given that ambulatory services were less often performed on Fridays and rarely on weekends, systems could also expand Friday and weekend options that may appeal to older adults and care partners who work. From a policy perspective, value-based payment models may help to optimize contact days by facilitating care management programs (14) and shifting incentives away from service volume (for example, physicians may be more willing to call patients with test results instead of scheduling office visits for this purpose) (35). Finally, researchers evaluating clinical interventions could examine total contact days and their components as outcomes alongside other meaningful dimensions of high-quality care. For instance, researchers could assess contact days in drug trials because a new drug may influence study participants' contact days through the drug's administration schedule, safety monitoring requirements, clinical efficacy, and side effects.

Study strengths include use of rich, nationally representative survey data with linked claims allowing a first-time, detailed examination of a promising person-centered outcome. We also note several limitations. We cannot adjudicate the value of individual contact days, which necessarily vary in potential benefits and burdens; we also did not weight contact days to preserve simplicity and scalability. Although we focused on care outside the home, we acknowledge that home-based services can also confer time and other burdens, which will be important to study in the future. As in any claims-based research, billing inconsistencies may affect results; however, our estimates align with prior work (12, 14), and validation and sensitivity analyses provide further reassurances and bounds on these estimates. Finally, our results may not generalize to the large and growing share of older adults in Medicare Advantage. To realize the full potential of contact days, future work should explore patient, care partner, and clinician perspectives on contact days using qualitative analysis; clarify the role of clinicians and health systems in driving and optimizing contact days; assess the relationship between need-adjusted contact days and other patient outcomes; and evaluate how clinical and care delivery interventions can reduce unwarranted contact days and their burdens.

Health care contact days represent a person-centered, claims-based measure that aligns with growing prioritization of patient experience and with post–COVID-19 pandemic consumer expectations about minimizing travel time. Our results demonstrate wide variation in health care contact days and suggest the potential for health system leaders, policymakers, and researchers to use this measure and its components alongside complementary measures of care quality to improve care for older adults and their care partners (20).

From Division of General Internal Medicine and Primary Care, Brigham and Women's Hospital, Boston; and Harvard University, Boston, Massachusetts (I.G., E.J.O.); Division of General Internal Medicine and Primary Care, Brigham and Women's Hospital, Boston, Massachusetts (E.D.C.); Harvard University, Boston; and Beth Israel Deaconess Medical Center, Boston, Massachusetts (A.M.); and Mongan Institute Center for Aging and Serious Illness and the Division of Palliative Care and Geriatric Medicine, Massachusetts General Hospital, Boston; and Harvard University, Boston, Massachusetts (C.S.R.).

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Corresponding Author: Ishani Ganguli, MD, MPH, Division of General Internal Medicine and Primary Care, Brigham and Women's Hospital, 1620 Tremont Street, 3rd Floor, Boston, MA 02120; e-mail, iganguli@bwh.harvard.edu.

Author contributions are available at Annals.org.

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Author Contributions: Conception and design: I. Ganguli, A. Mehrotra, C.S. Ritchie.
Analysis and interpretation of the data: I. Ganguli, E.D. Chant, E.J. Orav, C.S. Ritchie.
Drafting of the article: I. Ganguli.
Critical revision of the article for important intellectual content: I. Ganguli, E.D. Chant, E.J. Orav, A. Mehrotra, C.S. Ritchie.
Final approval of the article: I. Ganguli, E.D. Chant, E.J. Orav, A. Mehrotra, C.S. Ritchie.
Statistical expertise: E.J. Orav.
Obtaining of funding: I. Ganguli, A. Mehrotra.
Administrative, technical, or logistic support: I. Ganguli, A. Mehrotra.
Collection and assembly of data: I. Ganguli, E.D. Chant.