

Older Adults' Perspectives on Emergency Department Costs During COVID-19

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The cost of health care is a persistent concern among Americans, especially as out-of-pocket health care expenditures have grown.¹ When this spending is unplanned, such as with an emergent condition, the expenses can result in financial hardship that may deter future health care-seeking behavior.² Nearly half of US adults have reported avoiding health care needs because of costs.³

Older Americans face a greater risk of economic insecurity and increased difficulty absorbing unanticipated health care costs. Although those 65 years or older are mainly Medicare insured, there is evidence of sizable health expenditure risk among this population.^{4,5} Older adults constitute an increasing share of emergency department (ED) visits.⁶ However, the ED can be expensive relative to other settings for low-acuity complaints.⁷ The No Surprises Act, which took effect in January 2022, provides financial protections for patients from out-of-network charges, which have attracted attention due to unexpectedly high bills.⁸ But beyond out-of-network charges, general contact with the medical system has become more expensive for most Americans, in part due to increases in cost-sharing by employees in employer-sponsored health plans.⁹ Thus, the negative financial impact of ED care still exists for individuals.

COVID-19 has negatively affected both Americans' finances¹⁰ and emergency care utilization due to concerns of exposure to the virus.¹¹ Early in the pandemic, older Americans in particular decreased their use of the ED for emergent conditions and experienced an associated increase in deaths in the ED.¹² Although older Americans have more financial vulnerability and are at risk for worse COVID-19 outcomes,⁵ little is known about their personal perceptions of ED costs and how these cost concerns might have compounded pandemic-related delays in care.

The objectives of this study were to examine the real-time perspectives of older US adults on ED costs and care-seeking behavior during the COVID-19 pandemic and to assess whether sociodemographic characteristics predictive of worse COVID-19 outcomes were associated with increased cost concerns.

ABSTRACT

OBJECTIVES: COVID-19 has strained the household finances of many Americans who are already experiencing increasing health care expenses. Concerns about the cost of care may deter patients from seeking even urgent care from the emergency department (ED). This study examines predictors of older Americans' concerns about ED visit costs and how cost concerns may have influenced their ED use in the early stages of the pandemic.

STUDY DESIGN: This was a cross-sectional survey study using a nationally representative sample of US adults aged 50 to 80 years (N = 2074) in June 2020.

METHODS: Multivariate logistic regressions assessed the relationships of sociodemographic, insurance, and health factors with cost concerns for ED care.

RESULTS: Of the respondents, 80% were concerned (45% very, 35% somewhat) about costs of an ED visit and 18% were not confident in their ability to afford an ED visit. Of the entire sample, 7% had avoided ED care because of cost concerns in the past 2 years. Of those who may have needed ED care, 22% had avoided care. Predictors of cost-related ED avoidance included being aged 50 to 54 years [adjusted odds ratio [AOR], 4.57; 95% CI, 1.44-14.54], being uninsured [AOR, 2.93; 95% CI, 1.35-6.52], having poor or fair mental health [AOR, 2.82; 95% CI, 1.62-4.89], and having an annual household income of less than \$30,000 [AOR, 2.30; 95% CI, 1.19-4.46].

CONCLUSIONS: During the early COVID-19 pandemic, most older US adults expressed concerns about the financial impact of ED use. Further research should examine how insurance design could alleviate the perceived financial burden of ED use and prevent cost-related care avoidance, especially for those at higher risk in future pandemic surges.

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METHODS

A cross-sectional online survey of US adults aged 50 to 80 years was administered in June 2020 by Ipsos KnowledgePanel, a nationally representative probability-based panel. Ipsos recruits via address-based sampling and, where necessary, provides internet and a web-enabled device to ensure representation of lower-income households. These questions were a subset of a survey on ED care ([eAppendix](#) [available at [ajmc.com](#)]), which was directed by the University of Michigan and was exempt by the institutional review board.

The study measured cost concerns based on previous literature,¹³ with 3 main outcomes: level of concern, confidence in affordability, and cost-related care avoidance. Respondents were asked the following questions. Regarding level of concern, they were asked, “If you were deciding whether to go to the [ED], how concerned would you be about...out-of-pocket cost of care?” (responses: very, somewhat, not at all concerned; dichotomized as “very concerned” or other). Regarding confidence in affordability, they were asked, “How confident are you about being able to afford your out-of-pocket cost for an [ED] visit if you needed to go?” (responses: very, somewhat, not confident; dichotomized as “not confident” or other). Regarding cost-related avoidance of ED care, they were asked, “In the past 2 years, was there a time when you thought you needed to go to the [ED] but did not because you were worried about the cost?” (responses: yes, no). Respondents were also asked about the perceived out-of-pocket costs of their last ED visit, with the following options for the bill amount: lower than expected, about what I expected, higher than expected, or no bill.

Descriptive statistics were proportions calculated using survey weights. Multivariate logistic regression examined the relationship between ED cost concerns as detailed earlier (very concerned about costs, not confident in affordability, avoided care because of cost) and sociodemographic covariates. Covariates were selected based on health care cost literature¹⁴ and included age (50-54, 55-64, 65-74, 75-80 years), gender (male, female), total household income (< \$30,000; \$30,000-\$59,999; \$60,000-\$99,999; ≥ \$100,000), race/ethnicity (White, non-Hispanic; Black, non-Hispanic; Hispanic; other, non-Hispanic), insurance (employer, nongroup, Medicare, Medicaid, Veterans Affairs/Tricare, uninsured), and health status (self-reported physical and mental health: excellent, very good, or good vs fair or poor). The most frequent level was used as the base level for gender (male), race/ethnicity (White), and income (≥ \$100,000). The highest level was used as the base level for age (75-80 years). Income and age were analyzed as categorical variables. Using the results from the adjusted model, average marginal effects were used to quantify the incremental percentage of risk in ED cost concerns associated with each covariate. Two-sided *P* values less than .05 were considered statistically significant. Analyses were conducted with Stata version 16 (StataCorp LLC) using survey

TAKEAWAY POINTS

In a nationally representative survey during COVID-19, the majority of older US adults were concerned about the costs of an emergency department (ED) visit, and some avoided ED visits because of costs.

- ▶ Predictors of cost concerns included lower income, being uninsured, poor or fair mental/physical health, younger age, and female gender.
- ▶ Certain groups at higher risk for worse COVID-19 outcomes avoid ED care because of costs, potentially widening health disparities. Future insurance design and policies should ensure that cost is not a deterrent to emergency care.

weights provided by Ipsos calculated via an iterative proportional fitting procedure using geodemographic benchmarks from the US Census. Each survey item had less than 1% missing responses.

RESULTS

The study included 2074 older US adults with a survey completion rate of 78% (calculated via American Association for Public Opinion Research cooperation rate 1). The weighted mean (SD) age of the participants was 63 (0.2) years. Fifty-three percent of participants were female, and 20% had a household income of less than \$30,000. Four percent of all respondents were uninsured; as a subset of respondents aged 50 to 64 years, 6% were uninsured ([Table](#)). Among those who had an ED visit (*n* = 544; 27% of all participants), 21% paid a bill higher than what they expected, 47% paid what they expected, 12% paid less, and 19% had no bill.

All Outcomes: Predicted Probabilities of Personal Factors

The [Figure](#) summarizes how the predicted probability of ED cost concerns varied by personal factors as measured by all 3 outcomes (very concerned about cost, not confident in affordability, avoided ED care because of cost). The following variables were associated with increased risk of financial concerns across all 3 outcomes: female gender, younger age categories, lower income, and being uninsured. The largest association with higher cost concerns was seen with being uninsured, which was associated with a 35% increased probability of not being confident in affordability, a 21% increase in being very concerned about cost, and a 10% increase in avoiding ED care because of cost. Additionally, high increases in cost concerns were seen among those with household incomes less than \$30,000, a factor that was associated with a 23% increased probability of not being confident in affordability, a 17% increase in being very concerned about cost, and a 6% increase in avoiding ED care because of cost.

Outcome: No Confidence in Affording ED Visit

Eighteen percent of respondents were “not confident” in their ability to afford ED costs. The remainder were either “somewhat confident” (38%) or “very confident” (45%). The predictors associated with

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TABLE. Participant Characteristics and Main Outcomes of ED Utilization and Cost Concerns^a

	Reported n (%)	Weighted %	95% CI
Participant characteristics (N = 2074)			
Age in years	Mean (SD), 65 (8)	Mean (SE), 63 (0.2)	
50-54	279 (13%)	20%	0.18-0.22
55-64	729 (35%)	41%	0.38-0.43
65-74	808 (39%)	30%	0.28-0.33
75-80	258 (12%)	9%	0.08-0.10
Female	1101 (53%)	53%	0.50-0.55
Race/ethnicity			
White, non-Hispanic	1582 (76%)	71%	0.69-0.73
Black, non-Hispanic	174 (8%)	11%	0.09-0.12
Hispanic	192 (9%)	11%	0.10-0.13
Other, non-Hispanic	126 (6%)	7%	0.06-0.08
Total household income			
< \$30,000	288 (14%)	20%	0.17-0.22
\$30,000-\$59,999	447 (22%)	21%	0.19-0.23
\$60,000-\$99,999	515 (25%)	24%	0.22-0.26
≥ \$100,000	824 (40%)	36%	0.33-0.38
Education			
High school or less	712 (34%)	40%	0.38-0.42
Some college	630 (30%)	27%	0.25-0.29
Bachelor's degree or higher	732 (35%)	33%	0.31-0.36
Insurance			
Employer	957 (48%)	50%	0.48-0.52
Nongroup	96 (5%)	6%	0.05-0.07
Medicaid	107 (5%)	7%	0.06-0.09
Veterans Affairs/Tricare	48 (2%)	3%	0.02-0.04
Medicare	732 (37%)	31%	0.29-0.33
Uninsured	53 (3%)	4%	0.03-0.05
Self-reported health status			
Poor to fair mental health	140 (7%)	8%	0.07-0.09
Poor to fair physical health	336 (16%)	18%	0.16-0.20
ED utilization and cost concerns			
At least 1 ED visit in past 2 years	544 (26%)	27%	0.24-0.29
ED cost concerns			
Cost-related ED avoidance	123 (6%)	7%	0.06-0.08
Very concerned with ED cost	854 (41%)	45%	0.42-0.47
Not confident in ability to afford	292 (14%)	18%	0.16-0.20

ED, emergency department.

^aProportions are calculated based on weighted data.

the highest increased likelihood in reporting not being confident in affordability included uninsured status (adjusted odds ratio [AOR], 8.16; 95% CI, 3.80-17.51), income less than \$30,000 (AOR, 5.98; 95% CI, 3.64-9.82), being aged 50 to 54 years (AOR, 5.72; 95% CI, 2.72-12.05), and poor or fair physical health (AOR, 2.14; 95% CI, 1.48-3.10) (eAppendix Table 1).

Outcome: Very Concerned About ED Visit Cost

Almost half of respondents were “very concerned” (45%) about the anticipated out-of-pocket cost, and an additional 35% were “somewhat concerned.” Predictors of this “very concerned” outcome were similar to those of the outcome of not being confident in their ability to afford ED costs but had less strong associations: uninsured status (AOR, 2.44; 95% CI, 1.22-4.85), income less than \$30,000 (AOR, 2.10; 95% CI, 1.48-2.99), and being aged 50 to 54 years (AOR, 2.51; 95% CI, 1.59-3.96). Additionally, the following factors were associated with higher odds of reporting being “very concerned” about costs: nongroup insurance status, female gender, and Hispanic ethnicity (eAppendix Table 1).

Outcome: Cost-Related Avoidance of ED Care

Of the total sample, 7% of older adults (n = 123) reported they did not seek care for a needed ED visit because of costs in the past 2 years. The highest proportions of care avoidance were observed among those with poor or fair mental health (17%), those with incomes less than \$30,000 (9%), and those aged 50 to 54 years (9%). The highest odds of care avoidance were observed in those aged 50 to 54 years (AOR, 4.57; 95% CI, 1.44-14.54). Factors with similar increased odds of care avoidance included uninsured status (AOR, 2.93; 95% CI, 1.31-6.52), poor or fair mental health (AOR, 2.82; 95% CI, 1.62-4.89), and incomes less than \$30,000 (AOR, 2.30; 95% CI, 1.19-4.46). Additionally, younger age categories and female gender were also associated with increased odds of care avoidance (eAppendix Table 1).

When analyzed as a subset of participants who may have needed ED care, the proportion reporting cost-related care avoidance was higher. In this subset, one-fifth of participants reported ED avoidance due to costs (survey weighted 22%; n = 123/619), where the denominator is the sum of participants reporting ED avoidance when needed (n = 123) and participants reporting using the ED without care avoidance (n = 496). Logistic regression with this subpopulation showed similar predictors compared with the all-participant model, with a stronger association for uninsured status (AOR, 5.27; 95% CI, 1.74-15.98) (eAppendix Table 2).

DISCUSSION

In this cross-sectional national survey conducted during the early COVID-19 pandemic, older adults frequently reported concerns about paying for emergency care. These findings are important because they reveal real-time cost concerns among certain subpopulations at increased risk of COVID-19 morbidity and mortality. We find that in the year leading up to and during the early pandemic, up to one-fifth of respondents may have avoided emergency care because of cost concerns. This suggests that the negative perception of ED visit expenses may exacerbate harmful delays of care already experienced by many older adults due to fears of COVID-19 exposure. Concerningly, some groups at increased risk for poor health and COVID-19 outcomes (eg, those with poor mental health, lower income, or no insurance) had even higher risk of care avoidance.

Prior literature has shown similar findings on financial concerns related to health care use. Data from the 2018 National Health Interview Survey (NHIS) revealed that 14% of respondents had problems paying medical bills.¹⁵ Consistent with our findings, the NHIS study also reported that women and uninsured patients had higher frequency of problems with paying medical bills. Similarly, a Gallup poll of adults reported that 14% of respondents would avoid care for COVID-19 symptoms because of payment concerns, a finding that was more frequently observed in lower-income and non-White households.¹⁶ Research from before COVID-19 found that when cost is a deterrent to ED use, patients decrease ED visits but experience higher-intensity visits when ED use does occur,¹⁷ suggesting delay of necessary care. That the harmful impact of cost-related care avoidance is worse among individuals with lower incomes is particularly concerning amid the pandemic: Financially vulnerable Americans were 6 times more likely to lose income during COVID-19.¹⁸

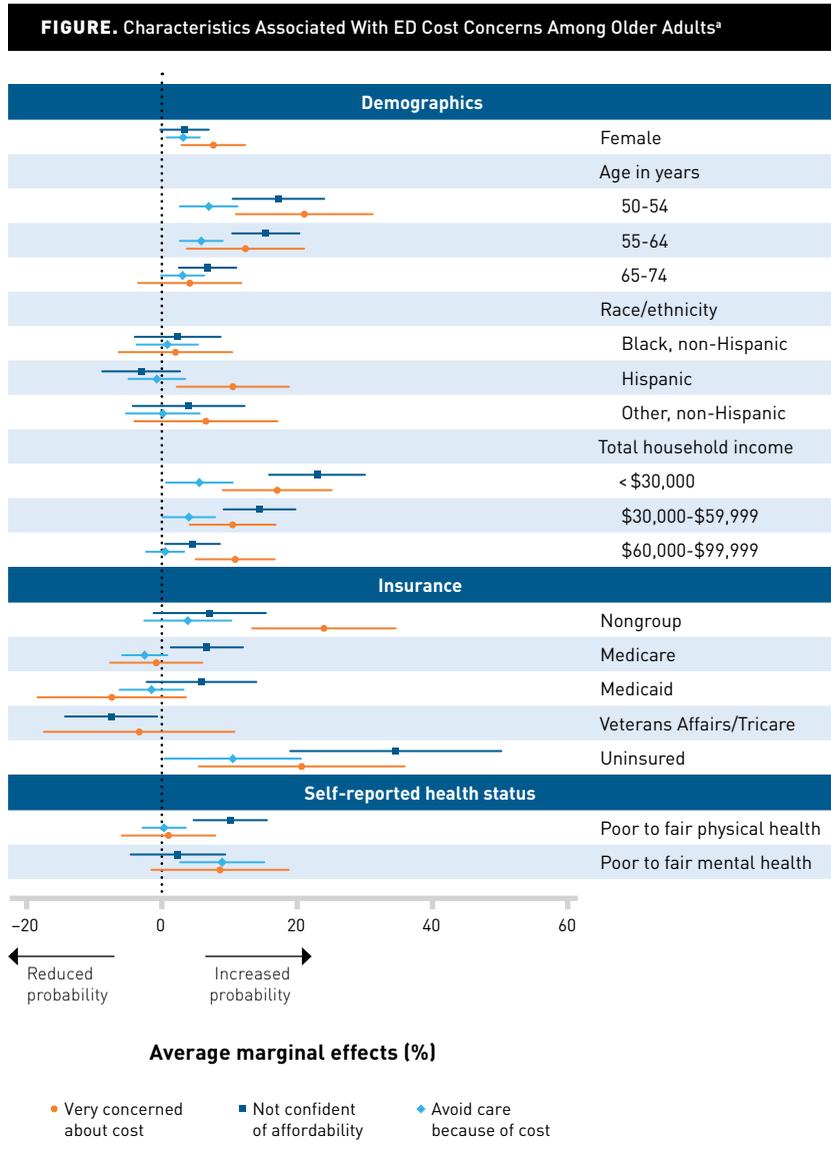
Although the No Surprises Act bans balance bills from out-of-network emergency services, the legislation does not address other health care expenses such as the high costs of in-network deductibles. The average deductible for single coverage was \$1669 in 2021, representing an increase of 68% over the past 10 years.⁹ Deductibles alone can negatively affect finances: A pandemic-era poll reported that 27% of US adults experienced difficulty affording their deductible.³ Additionally, deductibles can deter care-seeking: High-deductible insurance has been associated with a reduction in ED utilization for chest pain among patients from higher-poverty neighborhoods.¹⁹

The uninsured are especially susceptible to negative impact from health care costs. The number of uninsured Americans has increased since 2016, reaching 31 million in 2020.^{20,21} EDs serve a large volume of uninsured patients, who represent 39 of every 100 visits.²² Many of the uninsured have little savings, making it harder to absorb unexpected medical bills from unscheduled emergency care.²¹ Recent research has found that among uninsured ED patients, nearly 18% were at risk for catastrophic health expenditure.²³

It is noteworthy that Medicare and Medicaid have preexisting bans on balance billing, which may explain why patients with this coverage had limited increased cost concerns compared with those

with employer-sponsored insurance in our study. Coupled with increased cost concerns in those aged 50 to 64 years, we find that the financial impact of emergency care remains a salient concern for older Americans who have not yet reached the age of Medicare eligibility and do not meet the income thresholds of Medicaid.

Thus, insurers and policy makers should consider targeted measures to reduce out-of-pocket costs among higher-risk groups,



ED, emergency department.

*Average marginal effects of personal characteristics for ED cost concerns from 3 different model outcomes: very concerned about cost, not confident in affordability, avoided care because of cost (n = 1985, 1985, 1936, respectively, per outcome in above logistic models). Average marginal effects were calculated using a logistic model adjusted for listed factors. Average marginal effects presented are the average predicted probabilities of reporting cost concerns if the study population were in the same level of each factor. The reference group for the regression model's covariates are as follows: male; age category 75-80 years; White race; household income of \$100,000 or more; employer insurance; physical health that is excellent, very good, or good; and mental health that is excellent, very good, or good. Except for male and age category, the other reference groups are the most frequent group. Point estimates of the figure are available in [eAppendix Table 1](#).

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especially during epidemics when individuals might already be forgoing urgent care due to financial strains. Future governmental pandemic relief packages could include specific funds for health savings accounts of individuals with low incomes. Tailored marketing campaigns from insurers could communicate the out-of-pocket costs of emergency care. To increase health care access to more Americans aged 50 to 64 years, an already proposed policy could lower the Medicare eligibility age. In lieu of such a change to Medicare, 12 states that have yet to expand Medicaid through the Affordable Care Act could decrease the number of uninsured through expansion.²¹ Regarding COVID-19 care, the federal government had covered the cost of testing and treatment for the uninsured, but these funds ran out in March 2022.²⁴ Funding this program would encourage uninsured adults to seek care during future pandemic waves. Lastly, insurance redesign through value-based care may ameliorate cost burdens in target populations for high-value medical services.

Limitations

Study limitations include that the No Surprises Act, which could affect costs for the commercially insured, was not yet enacted; perceptions may not correlate into real financial impact; self-reporting may be susceptible to recall bias; response bias may exist based on the health care topic; and adults older than 80 years were not included, for whom there may have been diverging trends.

CONCLUSIONS

This nationally representative survey illustrates that many older adults are concerned about the financial impact of ED care. Higher concerns were expressed by individuals from lower-income households, the uninsured, female respondents, older adults under the age of Medicare eligibility, and those with poor or fair physical or mental health. ■

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REFERENCES

1. NHE fact sheet. CMS. Updated August 12, 2022. Accessed October 28, 2022. <https://www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/NationalHealthExpendData/NHE-Fact-Sheet>
2. O'Neill KM, Jean RA, Gross CP, et al. Financial hardship after traumatic injury: risk factors and drivers of out-of-pocket health expenses. *J Surg Res*. 2020;256:1-12. doi:10.1016/j.jss.2020.05.095
3. Montero A, Kearney A, Hamel L, Brodie M. Americans' challenges with health care costs. Kaiser Family Foundation. July 14, 2022. Accessed October 28, 2022. <https://www.kff.org/health-costs/issue-brief/data-note-americans-challenges-health-care-costs/>
4. Mutchler J, Li Y, Roldán NV. Living below the line: economic insecurity and older Americans, insecurity in the states 2019. University of Massachusetts Boston. November 2019. Accessed May 2, 2021. <https://scholarworks.umb.edu/demographyofaging/40/>
5. De Nardi M, French E, Jones JB, McCauley J. Medical spending of the US elderly. *Fisc Stud*. 2016;37(3-4):717-747. doi:10.1111/j.1475-5890.2016.12106
6. Ashman JJ, Schappert SM, Santo L. Emergency department visits among adults aged 60 and over: United States, 2014-2017. National Center for Health Statistics data brief No. 367. June 2020. Accessed May 2, 2021. <https://www.cdc.gov/nchs/products/databriefs/db367.htm>
7. Mehrotra A, Liu H, Adams JL, et al. Comparing costs and quality of care at retail clinics with that of other medical settings for 3 common illnesses. *Ann Intern Med*. 2009;151(5):321-328. doi:10.7326/0003-4819-151-5-200909010-00006
8. Kliff S. Surprise medical bills, the high cost of emergency department care, and the effects on patients. *JAMA Intern Med*. 2019;179(11):1457-1458. doi:10.1001/jamainternmed.2019.3448
9. 2021 Employer Health Benefits Survey. Kaiser Family Foundation. November 10, 2021. Accessed March 29, 2022. <https://www.kff.org/health-costs/report/2021-employer-health-benefits-survey/>
10. Horowitz JM, Brown A, Minkin R. A year into the pandemic, long-term financial impact weighs heavily on many Americans. Pew Research Center. March 5, 2021. Accessed March 29, 2022. <https://www.pewresearch.org/social-trends/2021/03/05/a-year-into-the-pandemic-long-term-financial-impact-weighs-heavily-on-many-americans/>
11. Venkatesh AK, Janke AT, Shu-Xia L, et al. Emergency department utilization for emergency conditions during COVID-19. *Ann Emerg Med*. 2021;78(1):84-91. doi:10.1016/j.annemergmed.2021.01.011
12. Janke AT, Jain S, Hwang U, et al. Emergency department visits for emergent conditions among older adults during the COVID-19 pandemic. *J Am Geriatr Soc*. 2021;69(7):1713-1721. doi:10.1111/jgs.17227
13. Scherer AM, Solway E, Malani PN, et al. Factors associated with health insurance affordability concerns among U.S. adults age 50-64: a cross-sectional, nationally representative study. *J Gen Intern Med*. 2021;36(2):546-548. doi:10.1007/s11606-020-05732-2
14. Lentz R, Benson AB III, Kircher S. Financial toxicity in cancer care: prevalence, causes, consequences, and reduction strategies. *J Surg Oncol*. 2019;120(1):85-92. doi:10.1002/jso.25374
15. Cha AE, Cohen RA. Problems paying medical bills, 2018. National Center for Health Statistics data brief No. 357. February 11, 2020. Accessed March 29, 2022. <https://www.cdc.gov/nchs/products/databriefs/db357.htm>
16. Witters D. In U.S., 14% with likely COVID-19 to avoid care due to cost. Gallup. April 28, 2020. Accessed April 1, 2022. <https://news.gallup.com/poll/309224/avoid-care-likely-covid-due-cost.aspx>
17. Wallace NT, McConnell KJ, Gallia CA, Smith JA. How effective are copayments in reducing expenditures for low-income adult Medicaid beneficiaries? experience from the Oregon health plan. *Health Serv Res*. 2008;43(2):515-530. doi:10.1111/j.1475-6773.2007.00824.x
18. Bruce C, Gearing ME, DeMatteis J, et al. Financial vulnerability and the impact of COVID-19 on American households. *PLoS One*. 2022;17(1):e0262301. doi:10.1371/journal.pone.0262301
19. Chou SC, Hong AS, Weiner SG, Wharam JF. Impact of high-deductible health plans on emergency department patients with nonspecific chest pain and their subsequent care. *Circulation*. 2021;144(5):336-349. doi:10.1161/CIRCULATIONAHA.120.052501
20. Health insurance coverage. CDC. October 21, 2021. Accessed March 29, 2022. <https://www.cdc.gov/nchs/fastats/health-insurance.htm>
21. Tolbert J, Orgera K, Damico A. Key facts about the uninsured population. Kaiser Family Foundation. November 6, 2020. Accessed March 28, 2022. <https://www.kff.org/uninsured/issue-brief/key-facts-about-the-uninsured-population/>
22. Cairns C, Ashman JJ, Kang K. Emergency department visit rates by selected characteristics: United States, 2019. National Center for Health Statistics data brief No. 434. March 2022. Accessed October 28, 2022. <https://www.cdc.gov/nchs/products/databriefs/db434.htm>
23. Scott KW, Scott JW, Sabbatini AK, et al. Assessing catastrophic health expenditures among uninsured people who seek care in US hospital-based emergency departments. *JAMA Health Forum*. 2021;2(12):e214359. doi:10.1001/jamahealthforum.2021.4359
24. HRSA COVID-19 uninsured program claims submission deadline FAQs. Health Resources & Services Administration. Updated April 2022. Accessed April 4, 2022. <https://www.hrsa.gov/provider-relief/about/covid-uninsured-claim/submission-deadline>

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