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KEY POINTS

Question: How much were patients billed for COVID-19 hospitalizations in 2020?

Findings: Of 1,377 and 2,698 COVID-19 hospitalizations for privately insured and Medicare Advantage patients, 71.2% and 49.1% had cost-sharing for facility services billed by hospitals, services billed by clinicians or ancillary providers, or both. Among these hospitalizations, mean out-of-pocket spending was \$788 and \$277. 4.6% and 1.3% had cost-sharing for facility services; among these hospitalizations, mean out-of-pocket spending was \$3,840 and \$1,536.

Meaning: Insurer cost-sharing waivers for COVID-19 hospitalizations may not cover all hospitalization-related care. Patient out-of-pocket burden could be substantial if insurers allow waivers to expire.

ABSTRACT

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IMPORTANCE: Many insurers waived cost-sharing for COVID-19 hospitalizations during 2020. Nonetheless, patients may have been billed if their plans did not implement waivers or if waivers did not capture all hospitalization-related care, including clinician services. Assessing out-of-pocket spending for COVID-19 hospitalizations in 2020 could demonstrate the financial burden patients may face if insurers allow waivers to expire, as many chose to do during early 2021.

OBJECTIVE: To estimate out-of-pocket spending for COVID-19 hospitalizations in 2020

DESIGN: Cross-sectional analysis

SETTING: IQVIA PharMetrics® Plus for Academics Database, a national claims database

PARTICIPANTS: COVID-19 hospitalizations for privately insured and Medicare Advantage patients during March-September 2020

MAIN OUTCOMES/MEASURES: Mean total out-of-pocket spending, defined as the sum of out-of-pocket spending for facility services billed by hospitals (e.g., accommodation charges) and for professional/ancillary services billed by clinicians and ancillary providers (e.g., clinician inpatient evaluation and management, ambulance transport)

RESULTS: Analyses included 4,075 hospitalizations. Of the 1,377 hospitalizations for privately insured patients and the 2,698 hospitalizations for Medicare Advantage patients, 981 (71.2%) and 1,324 (49.1%) had out-of-pocket spending for facility services, professional/ancillary services, or both. Among these hospitalizations, mean (SD) total out-of-pocket spending was \$788 (1,411) and \$277 (363). In contrast, 63 (4.6%) and 36 (1.3%) hospitalizations had out-of-pocket spending for facility services. Among these hospitalizations, mean total out-of-pocket spending was \$3,840 (3,186) and \$1,536 (1,402). Total out-of-pocket spending exceeded \$4,000 for 2.5% of privately insured hospitalizations, compared with 0.2% of Medicare Advantage hospitalizations.

CONCLUSIONS: Few COVID-19 hospitalizations in this study had out-of-pocket spending for facility services, suggesting most were covered by insurers with cost-sharing waivers. However, many hospitalizations had out-of-pocket spending for professional/ancillary services. Overall, 7 in 10 privately insured hospitalizations and half of Medicare Advantage hospitalizations had any out-of-pocket spending. Findings suggest insurer cost-sharing waivers may not cover all hospitalization-related care. Moreover, high cost-sharing for some hospitalizations suggests out-of-pocket burden could be substantial if waivers expire, particularly for privately insured patients. Rather than rely on voluntary insurer actions to mitigate this burden, federal policymakers should consider mandating insurers to waive cost-sharing for all COVID-19 hospitalization-related care throughout the pandemic.

78 **INTRODUCTION**

79 Between August 2020 and April 2021, there were more than 2.1 million U.S.
80 hospitalizations for coronavirus disease 2019 (COVID-19).¹ To mitigate patient financial burden,
81 many private insurers and Medicaid Advantage insurers voluntarily waived cost-sharing for
82 COVID-19 hospitalizations during part or all of 2020.^{2,3} Literature examining cost-sharing for
83 other respiratory infection hospitalizations suggests these waivers potentially resulted in
84 substantial savings for patients.⁴⁻⁶ For example, among privately insured patients hospitalized for
85 respiratory infections between 2016-2019, average out-of-pocket spending was \$1,653 for
86 patients in traditional plans and \$1,961 for patients in consumer-driven health plans.⁴ Among
87 Medicare Advantage patients hospitalized for influenza in 2018, average out-of-pocket spending
88 was almost \$1,000.⁶

89 While waivers may have mitigated financial burden for many patients hospitalized for
90 COVID-19 during 2020, some patients may still have been billed if their plans did not implement
91 waivers or if waivers did not capture all hospitalization-related care. Hospitalizations can result
92 in two categories of bills.^{7,8} The first includes facility services provided by hospitals, such as
93 accommodation and inpatient pharmacy services. The second includes services from clinicians
94 and ancillary providers (hereafter referred to as “professional/ancillary services”). This category
95 includes clinician services for emergency department and inpatient care, as well as ambulance
96 services for transport to the hospital. While waivers would ideally cover both categories, some
97 may only have covered facility services billed by hospitals, not professional/ancillary services
98 billed separately by providers.

99 Protecting patients from the costs of COVID-19 hospitalizations is an important policy
100 goal, as hospitalization surges may still occur despite vaccination efforts. Despite this, no study

101 to our knowledge has assessed the amount patients were billed for COVID-19 hospitalizations
102 during 2020, either overall or by service category. Addressing this knowledge gap may inform
103 policy in several ways. First, it could motivate efforts to improve the comprehensiveness and
104 implementation of existing insurer cost-sharing waivers for COVID-19 hospitalizations. Second,
105 it could demonstrate the potential financial burden patients may face if insurers allow cost-
106 sharing waivers to expire, as many chose to do during early 2021.^{9,10} Finally, it could illustrate
107 the potential need for federal legislation mandating U.S. insurers to waive cost-sharing for these
108 hospitalizations – legislation that was proposed, but not passed, in the U.S. House of
109 Representatives in 2020.¹¹ In this study, we used national claims data to estimate out-of-pocket
110 spending for COVID-19 hospitalizations during March-September 2020 among patients covered
111 by private and Medicare Advantage plans.

112

113 **METHODS**

114 *Data source.* In May 2021, we conducted a cross-sectional analysis of the IQVIA
115 PharMetrics[®] Plus for Academics database. This database contains fully-adjudicated medical and
116 pharmacy claims from de-identified patients in all 50 states and the District of Columbia. Claims
117 were complete through September 30, 2020 when data were delivered at the end of March 2021,
118 corresponding to a six-month claims run-off period. The database included 1.0 million patients
119 covered by Medicare Advantage plans and 7.7 million patients covered by fully-insured private
120 plans in 2020. The database did not include any patients covered by self-insured private plans.

121 Data include patient year of birth, state and region of residence, payer type, and plan
122 type. Data also include International Classification of Diseases, Tenth Revision, Clinical
123 Modification (ICD-10-CM) diagnosis codes, a hospitalization identifier assigned to all claims

124 that occurred on or between the admission and discharge dates of hospitalizations, amounts
125 billed to patients (deductibles, co-insurance, and co-payments), and a flag for whether the billing
126 provider was a hospital, clinician, or other entity. The database does not include information on
127 race, ethnicity, household income, out-of-network status, or in-hospital death (to protect patient
128 confidentiality). Moreover, the database does not include plan identifiers or information on plan
129 benefit design, including whether insurers had cost-sharing waivers for COVID-19
130 hospitalizations. As discussed below, we conducted analyses to evaluate whether such waivers
131 may have been in place. Because data were de-identified, the Institutional Review Board of the
132 University of Michigan Medical School exempted analyses from human subjects review.

133 *Study sample.* We included hospitalizations that had a primary diagnosis of confirmed
134 COVID-19 infection (ICD-10-CM diagnosis code U071) and that began and ended between
135 March 1-September 29, 2020. We required discharge before September 30, 2020 to ensure the
136 end of hospitalizations was observed (see **Appendix 1** for details). We excluded hospitalizations
137 if they were covered by a secondary insurer (e.g., a different private insurance plan) or if any
138 associated claim had missing data for out-of-pocket spending or billing provider type.

139 *Categorization of claims.* For each hospitalization, we assigned claims with the
140 corresponding hospitalization identifier to 1 of 3 mutually exclusive categories (see **Appendix 2**
141 for details):

142 1) Claims for facility services (institutional claims with a hospital or emergency department
143 place of service and a hospital billing provider type). These services included but were not
144 limited to hospital accommodation, facility charges for emergency department visits, and
145 inpatient laboratory, pharmacy, and radiology services.

146 2) Claims for professional/ancillary services, defined as one of three types of services:

- 147 • Ambulance (claims with an ambulance place of service or procedure code)
- 148 • Clinician (claims with an emergency department or hospital place of service and clinician
- 149 billing provider type)
- 150 • Miscellaneous (claims with billing provider type for miscellaneous providers, such as
- 151 durable medical equipment providers and dialysis centers).

152 For additional context, clinician services were divided into 4 subtypes:

- 153 • Emergency department (claims with an emergency department place of service)
- 154 • Inpatient evaluation and management (claims with a hospital place of service and
- 155 procedure code for evaluation and management, e.g., initial or subsequent hospital care)
- 156 • Inpatient diagnostic testing (claims with hospital place of service and procedure codes for
- 157 laboratory tests, radiology tests, electrocardiograms, echocardiography,
- 158 electroencephalograms, and vascular diagnostic studies)
- 159 • Other inpatient services (claims with hospital place of service and procedure codes for
- 160 services other than evaluation and management and diagnostic testing, such as
- 161 procedures).

162 3) Unclassified claims. This category included the approximately 4.3% of claims that were
163 assigned the confinement identifier for the COVID-19 hospitalization but did not meet criteria
164 for a facility or professional/ancillary service. Three-quarters of these claims had a place of
165 service code for office, home, or hospital outpatient department. While some of these claims
166 could represent care at visits resulting in direct admission to the hospital, they could also include
167 care provided at unrelated visits. In the main analysis, we excluded these claims to maximize the
168 probability of only capturing out-of-pocket spending for services truly associated with
169 hospitalizations. We included these claims in a sensitivity analysis.

170 *Outcomes.* Out-of-pocket spending was defined as the sum of deductibles, co-insurance,
171 and co-payments. For each payer type (private insurance and Medicare Advantage), we
172 determined the proportion of hospitalizations in two categories: those with out-of-pocket
173 spending for facility services (with or without out-of-pocket spending for professional/ancillary
174 services), and those with out-of-pocket spending for facility services, professional/ancillary
175 services, or both. For hospitalizations in both categories, we calculated total out-of-pocket
176 spending, defined as the sum of out-of-pocket spending across facility and professional/ancillary
177 services. Additionally, we calculated the proportion of all hospitalizations with out-of-pocket
178 spending for the 3 main types of professional/ancillary services and for the 4 subtypes of
179 clinician services.

180 *Presence of cost-sharing waivers.* The database did not report whether COVID-19
181 hospitalizations were covered by plans with cost-sharing waivers. However, as noted below, the
182 vast majority of hospitalizations in our sample did not have cost-sharing for facility services.
183 While this might suggest that most hospitalizations were covered by insurers that waived cost-
184 sharing for facility services – that is, that the absence of cost-sharing for facility services implied
185 the presence of a waiver – a potential alternative explanation is that most patients had already
186 met their plan’s annual out-of-pocket maximum at the time of hospitalizations. To evaluate this
187 possibility, we conducted a sensitivity analysis in which we restricted analyses to
188 hospitalizations by patients continuously enrolled since January 2020, calculated out-of-pocket
189 spending across medical and pharmacy claims in 2020 prior to the hospitalization, and calculated
190 the incidence of out-of-pocket spending for facility services among hospitalizations for patients
191 in the lowest quartile of this prior out-of-pocket spending. These patients likely had not met out-
192 of-pocket maximums at the time of hospitalizations. If few of these patients had cost-sharing for

193 facility services, that would support the notion that cost-sharing waivers, rather than meeting out-
194 of-pocket maximums, drove the low observed incidence of cost-sharing for facility services.

195 We also explored whether it was reasonable to assume that hospitalizations with out-of-
196 pocket spending for facility services were not covered by insurers with cost-sharing waivers for
197 these services (i.e., that the presence of cost-sharing for facility services implied the absence of a
198 waiver – the inverse of the assumption above). To evaluate this assumption, we compared the
199 incidence of out-of-pocket spending for facility services between COVID-19 hospitalizations and
200 influenza hospitalizations. The latter require similar care as COVID-19 hospitalizations, but no
201 insurers to our knowledge waived cost-sharing for influenza hospitalizations during the study
202 period. If the presence of out-of-pocket spending for facility services implies the absence of a
203 waiver for these services, a much higher proportion of influenza hospitalizations would have out-
204 of-pocket spending for facility services compared with COVID-19 hospitalizations. In this
205 analysis, influenza hospitalizations were those that met similar inclusion and exclusion criterion
206 but had a primary diagnosis of influenza (ICD-10-CM diagnosis code J09-J11). No influenza
207 hospitalizations included also had a COVID-19 diagnosis code (U017).

208 *Statistical analysis.* We used descriptive statistics to assess patient characteristics, length
209 of stay, and intensive care unit utilization (based on revenue codes corresponding to
210 accommodation charges for intensive care or coronary care units; **Appendix 2**). To contextualize
211 cost-sharing amounts, we calculated mean and median allowed amounts (reimbursement to
212 providers plus patient liability) across facility and professional/ancillary services among
213 privately insured and Medicare Advantage hospitalizations separately. Analyses used SAS 9.4
214 (SAS Institute).

215

216 **RESULTS**

217 *Sample characteristics.* Of 4,371 COVID-19 hospitalizations meeting inclusion criteria,
218 230 were excluded because the insurer was secondary, 63 because data on billing provider type
219 were missing, and 3 because out-of-pocket spending data were missing. Overall, 296 (6.8%)
220 hospitalizations were excluded, leaving 4,075 hospitalizations. These hospitalizations occurred
221 among 3,875 unique patients; 282 patients had 2 hospitalizations, while 9 patients had 3
222 hospitalizations.

223 **Table 1** displays characteristics of the 4,075 hospitalizations. Overall, 1,377 (33.8%) and
224 2,698 (66.2%) hospitalizations were for privately insured and Medicare Advantage patients. Of
225 the former, 552 (40.1%) were for female patients. Mean length of stay was 7.3 (SD 7.6) days;
226 640 (46.5%) hospitalizations involved intensive care unit utilization. Of 2,698 hospitalizations
227 for Medicare Advantage patients, 1,432 (53.1%) were for females. Mean length of stay was 9.2
228 days (SD 8.9); 1,212 (44.9%) hospitalizations involved intensive care unit utilization.

229 Privately insured hospitalizations were most commonly covered by preferred provider
230 organization plans (47.0%). Mean and median allowed amounts for privately insured
231 hospitalizations was \$42,200 (SD 65,328) and \$25,339 (25th-75th percentile: \$16,064-\$39,484).
232 Medicare Advantage hospitalizations were most commonly covered by health maintenance
233 organization plans (80.1%). Mean and median allowed amounts for Medicare Advantage
234 hospitalizations were \$21,501 (SD 21,387) and \$17,480 (25th-75th percentile: \$14,383-\$21,133).

235 *Out-of-pocket spending.* Of the 1,377 and 2,698 hospitalizations for privately insured and
236 Medicare Advantage patients, 63 (4.6%) and 36 (1.3%) had out-of-pocket spending for facility
237 services. Among these 63 and 36 hospitalizations, mean (SD) total out-of-pocket spending was
238 \$3,840 (3,186) and \$1,536 (1,402). In contrast, of the 1,377 and 2,698 hospitalizations for

239 privately insured and Medicare Advantage patients, 981 (71.2%) and 1,324 (49.1%) had out-of-
240 pocket spending for facility services, professional/ancillary services, or both. Among these 981
241 and 1,324 hospitalizations, mean total out-of-pocket spending was \$788 (1,411) and \$277 (363)
242 (**Table 2**). Of all 1,377 privately insured hospitalizations, 99 (7.2%) and 34 (2.5%) had total out-
243 of-pocket exceeding \$2,000 and \$4,000. Of all 2,698 hospitalizations for Medicare Advantage
244 patients, the corresponding numbers were 7 (0.3%) and 5 (0.2%).

245 **Table 3** shows the incidence and magnitude of out-of-pocket spending for each of the 3
246 main types of professional/ancillary services and for the 4 subtypes of clinician services. Of the
247 1,377 hospitalizations for privately insured patients, 137 (9.9%) and 918 (66.7%) had out-of-
248 pocket spending for ambulance services and clinician services. When analyzing clinician
249 services by subtype, 516 (37.5%) and 641 (46.6%) hospitalizations had out-of-pocket spending
250 for inpatient evaluation and management services and diagnostic testing services. Among the
251 516 hospitalizations with out-of-pocket spending for inpatient evaluation and management
252 services, mean (SD) out-of-pocket spending for these services was \$622 (765). Compared with
253 hospitalizations for privately insured patients, hospitalizations for Medicare Advantage patients
254 had a higher incidence of out-of-pocket spending for ambulance services (36.5%) but a lower
255 incidence for clinician services (22.1%).

256 *Analyses assessing presence of cost-sharing waivers.* Among hospitalizations for
257 privately insured and Medicare Advantage patients in the lowest quartile of out-of-pocket
258 spending prior to hospitalization, the proportion with out-of-pocket spending for facility services
259 was still modest, at 8.3% and 1.8% (**Appendix 3**). A total of 61 and 178 influenza
260 hospitalizations for privately insured and Medicare Advantage patients met inclusion and
261 exclusion criterion. Of these hospitalizations, 51 (83.6%) and 159 (89.3%) had out-of-pocket

262 spending for facility services, compared with 4.6% and 1.3% among COVID-19 hospitalizations
263 covered by private insurance and Medicare Advantage plans (**Table 2**).

264 *Sensitivity analysis including unclassified claims.* When including the 4.3% of claims that
265 did not meet criteria for a facility or professional/ancillary service, the proportion of
266 hospitalizations for privately insured and Medicare Advantage patients with out-of-pocket
267 spending for any associated claim was 73.6% and 53.8%. These proportions were similar to the
268 proportion of hospitalizations with out-of-pocket spending for facility services,
269 professional/ancillary services, or both (71.2% and 49.1%).

270

271 **DISCUSSION**

272 In this national study of COVID-19 hospitalizations between March-September 2020, the
273 incidence of out-of-pocket spending differed substantially for facility and professional/ancillary
274 services. When considering facility services only, few COVID-19 hospitalizations had out-of-
275 pocket spending. However, when also considering professional/ancillary services, 7 in 10
276 privately insured hospitalizations and half of Medicare Advantage hospitalizations had any out-
277 of-pocket spending. If the absence of out-of-pocket spending for facility services is an indicator
278 of the presence of an insurer cost-sharing waiver for these services – an assumption supported by
279 our analyses – then most study hospitalizations were covered by insurers that at least waived
280 cost-sharing for facility services. If true, then the high incidence of out-of-pocket spending for
281 professional/ancillary services suggests that many insurer cost-sharing waivers may fail to
282 capture all hospitalization-related care.

283 Whether this failure is intentional is unclear. Unlike COVID-19 testing and vaccination,
284 there is no federal mandate for insurers to waive cost-sharing for COVID-19 hospitalizations.¹²

285 Consequently, insurer waivers could be heterogeneous, with some applying only to facility
286 services and others applying to hospitalization care more broadly. Even if insurers intend for
287 waivers to capture all hospitalization-related care, implementation problems may occur. For
288 example, if insurers do not link clinician inpatient evaluation and management bills to the
289 COVID-19 hospitalization, patients may be billed erroneously.

290 Insurers and clinicians might consider three steps to mitigate patient financial liability for
291 professional/ancillary services related to COVID-19 hospitalizations. First, insurers with no cost-
292 sharing waiver or with waivers of limited scope could consider implementing a comprehensive
293 waiver, for example one that covers all services on or between the admission and discharge dates
294 of hospitalizations. Second, insurers that already have comprehensive waivers could work to
295 ensure appropriate implementation. Finally, clinicians could encourage patients to contest any
296 bills for professional/ancillary services that should be covered under an insurer's cost-sharing
297 waiver.

298 In this study, 4.6% and 1.5% of hospitalizations for privately insured and Medicare
299 Advantage patients had out-of-pocket spending for facility services. Among these
300 hospitalizations, mean total out-of-pocket spending was \$3,840 and \$1,536, respectively. If the
301 presence of out-of-pocket spending for facility services implies the absence of an insurer cost-
302 sharing waiver for these services – as suggested by the fact that the vast majority of influenza
303 hospitalizations had cost-sharing for facility services – our findings suggest that out-of-pocket
304 burden for COVID-19 hospitalizations could be large without insurer cost-sharing waivers. This
305 would have important policy implications. In early 2021, several large insurers, including
306 Anthem and United Healthcare, allowed their cost-sharing waivers for COVID-19

307 hospitalizations to expire.^{9,10} Analyses suggest patients covered by these insurers could now face
308 substantial financial burden for COVID-19 hospitalizations, particularly the privately insured.

309 A strength of this study its use of national, fully-adjudicated claims data. Such data are
310 typically considered complete after a six-month time lag, meaning claims through the latter part
311 of 2020 only became available shortly before the time of writing in May 2021. An additional
312 strength is the inclusion of both privately insured and Medicare Advantage plans. These plans
313 are important sources of coverage for older adults and the elderly,^{13,14} two age groups accounting
314 for high shares of COVID-19 hospitalizations.¹⁵

315 This study also has limitations. First, despite strong indirect evidence, we cannot prove
316 that COVID-19 hospitalizations in this study were mostly covered by plans with cost-sharing
317 waivers. Second, if patients did not pay the amounts they were billed, the incidence of actual out-
318 of-pocket spending would differ from the incidence estimated by this study. However, the
319 amount billed to patients still illustrates the financial burden patients may face without cost-
320 sharing waivers. Third, COVID-19 hospitalizations without the diagnosis code for confirmed
321 COVID-19 (U017) were not included. However, hospitals rapidly started using this code during
322 the first half of 2020.¹⁶ Finally, our database is not necessarily representative of all private and
323 Medicare Advantage plans. However, most privately insured hospitalizations in our study were
324 covered by preferred private organization plans, while most Medicare Advantage
325 hospitalizations were covered by health maintenance organizations, consistent with the national
326 distribution of plan type among privately insured and Medicare Advantage enrollees.^{13,17}

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330 **CONCLUSION**

331 Findings suggest that insurer cost-sharing waivers for COVID-19 hospitalizations may
332 not always capture all hospitalization-related care. Moreover, patient financial burden for
333 COVID-19 hospitalizations could be substantial without insurer waivers. The growing trend
334 towards abandonment of these waivers suggests that relying on voluntary insurer actions is not
335 an ideal policy strategy to protect patients from the costs of COVID-19 hospitalizations.^{9,10} To
336 achieve this goal, federal policymakers might consider legislation mandating insurers to waive
337 cost-sharing for COVID-19 hospitalizations throughout the public health emergency.¹¹ Such a
338 mandate would ideally include all hospitalization-related care, similar to existing federal
339 mandates which require insurers to fully cover all direct and related costs of COVID-19 tests and
340 vaccines.¹² Future research should continue to examine patient financial burden of COVID-19
341 hospitalizations as coverage policies change.

342

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346

347 *Study concept and design:* Chua, Conti, Becker

348 *Acquisition of data:* Chua

349 *Analysis and interpretation of data:* Chua, Conti, Becker

350 *Drafting of the manuscript:* Chua

351 *Critical revision of the manuscript:* Chua, Conti, Becker

352 *Statistical analysis:* Chua

353 *Study supervision:* Becker

354

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362

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364

365

366 **REFERENCES**

- 367 1. Centers for Disease Control and Prevention. COVID Data Tracker. 2021;
368 <https://covid.cdc.gov/covid-data-tracker/#new-hospital-admissions>. Accessed May 25,
369 2021.
- 370 2. America's Health Insurance Plans. Health insurance providers respond to coronavirus
371 (COVID-19). 2020; [https://www.ahip.org/health-insurance-providers-respond-to-](https://www.ahip.org/health-insurance-providers-respond-to-coronavirus-covid-19)
372 [coronavirus-covid-19](https://www.ahip.org/health-insurance-providers-respond-to-coronavirus-covid-19). Accessed May 25, 2021.
- 373 3. McDermott D, Cox C. Cost-Sharing Waivers and Premium Relief by Private Plans in
374 Response to COVID-19 (Nov. 2020 Update). 2020; [https://www.kff.org/health-](https://www.kff.org/health-costs/issue-brief/cost-sharing-waivers-and-premium-relief-by-private-plans-in-response-to-covid-19/)
375 [costs/issue-brief/cost-sharing-waivers-and-premium-relief-by-private-plans-in-response-](https://www.kff.org/health-costs/issue-brief/cost-sharing-waivers-and-premium-relief-by-private-plans-in-response-to-covid-19/)
376 [to-covid-19/](https://www.kff.org/health-costs/issue-brief/cost-sharing-waivers-and-premium-relief-by-private-plans-in-response-to-covid-19/). Accessed April 30, 2021.
- 377 4. Eisenberg MD, Barry CL, Schilling CL, Kennedy-Hendricks A. Financial Risk for
378 COVID-19-like Respiratory Hospitalizations in Consumer-Directed Health Plans. *Am J*
379 *Prev Med*. 2020;59(3):445-448.
- 380 5. Rae M, Claxton G, Kurani N, McDermott D, Cox C. Potential costs of coronavirus
381 treatment for people with employer coverage. 2020;
382 [https://www.healthsystemtracker.org/brief/potential-costs-of-coronavirus-treatment-for-](https://www.healthsystemtracker.org/brief/potential-costs-of-coronavirus-treatment-for-people-with-employer-coverage/)
383 [people-with-employer-coverage/](https://www.healthsystemtracker.org/brief/potential-costs-of-coronavirus-treatment-for-people-with-employer-coverage/). Accessed March 17, 2020.
- 384 6. Chua KP, Conti RM. Out-of-Pocket Spending for Influenza Hospitalizations in Medicare
385 Advantage. *Am J Prev Med*. 2021;60(4):537-541.
- 386 7. Cooper Z, Nguyen H, Shekita N, Morton FS. Out-Of-Network Billing And Negotiated
387 Payments For Hospital-Based Physicians. *Health Aff (Millwood)*. 2020;39(1):24-32.
- 388 8. Cooper Z, Scott Morton F. Out-of-Network Emergency-Physician Bills - An Unwelcome
389 Surprise. *N Engl J Med*. 2016;375(20):1915-1918.
- 390 9. Blue Cross Blue Shield of North Carolina. Updates on COVID-19 Provider and Member
391 Support Measures. 2021; [https://www.bluecrossnc.com/provider-news/updates-covid-19-](https://www.bluecrossnc.com/provider-news/updates-covid-19-provider-and-member-support-measures-4)
392 [provider-and-member-support-measures-4](https://www.bluecrossnc.com/provider-news/updates-covid-19-provider-and-member-support-measures-4). Accessed April 19, 2021.
- 393 10. Appleby J. Time to Say Goodbye to Some Insurers' Waivers for Covid Treatment Fees.
394 *Kasier Health News*. April 29, 2021.
- 395 11. The Heroes Act, H.R. 6800 (2020).
- 396 12. Coronavirus Aid, Relief, and Economic Security Act, Pub. L. No. 116-136 (2020).
- 397 13. Kaiser Family Foundation. A dozen facts about Medicare Advantage in 2019. 2019;
398 [https://www.kff.org/medicare/issue-brief/a-dozen-facts-about-medicare-advantage-in-](https://www.kff.org/medicare/issue-brief/a-dozen-facts-about-medicare-advantage-in-2019)
399 [2019](https://www.kff.org/medicare/issue-brief/a-dozen-facts-about-medicare-advantage-in-2019). Accessed July 8, 2020.
- 400 14. Kaiser Family Foundation. Health Insurance Coverage of Non-Elderly 0-64. [Internet].
401 2019; [https://www.kff.org/other/state-indicator/nonelderly-0-](https://www.kff.org/other/state-indicator/nonelderly-0-64/?dataView=1¤tTimeframe=0&sortModel=%7B%22colId%22:%22Location%22,%22sort%22:%22asc%22%7D)
402 [64/?dataView=1¤tTimeframe=0&sortModel=%7B%22colId%22:%22Location%22,%22sort%22:%22asc%22%7D](https://www.kff.org/other/state-indicator/nonelderly-0-64/?dataView=1¤tTimeframe=0&sortModel=%7B%22colId%22:%22Location%22,%22sort%22:%22asc%22%7D). Accessed May 1, 2021.
- 403
404 15. Centers for Disease Control and Prevention. COVID-NET Laboratory-confirmed
405 COVID-19 hospitalizations. 2021; [https://covid.cdc.gov/covid-data-tracker/#covidnet-](https://covid.cdc.gov/covid-data-tracker/#covidnet-hospitalization-network)
406 [hospitalization-network](https://covid.cdc.gov/covid-data-tracker/#covidnet-hospitalization-network). Accessed May 1, 2021.
- 407 16. Kadri SS, Gundrum J, Warner S, et al. Uptake and Accuracy of the Diagnosis Code for
408 COVID-19 Among US Hospitalizations. *JAMA*. 2020;324(24):2553-2554.
- 409 17. Kaiser Family Foundation. *Employer health benefits: 2020 annual survey*. Kaiser Family
410 Foundation; 2020.

Table 1. Characteristics of COVID-19 hospitalizations between March-September 2020, IQVIA PharmMetrics Plus for Academics

	Private insurance	Medicare Advantage
Number of COVID-19 hospitalizations	1,377	2,698
Month of admission		
March	106 (7.7%)	236 (8.7%)
April	307 (22.3%)	917 (34.0%)
May	120 (8.7%)	331 (12.3%)
June	147 (10.7%)	200 (7.4%)
July	352 (25.6%)	413 (15.3%)
August	204 (14.8%)	392 (14.5%)
September	141 (10.2%)	209 (7.7%)
Mean length of stay (SD)	7.3 (7.6)	9.2 (8.9)
Any intensive care unit use^a	640 (46.5%)	1,212 (44.9%)
Age in years		
0-17	12 (0.9%)	0 (0.0%)
18-25	19 (1.4%)	1 (0.0%)
26-34	75 (5.4%)	7 (0.3%)
35-44	201 (14.6%)	14 (0.5%)
45-54	389 (28.2%)	101 (3.7%)
55-64	550 (39.9%)	285 (10.6%)
65-74	107 (7.8%)	877 (32.5%)
75-85	21 (1.5%)	925 (34.3%)
> 85	3 (0.2%)	488 (18.1%)
Sex		
Male	825 (59.9%)	1,266 (46.9%)
Female	552 (40.1%)	1,432 (53.1%)
Region		
Northeast	200 (14.5%)	917 (34.0%)
Midwest	315 (22.9%)	1,062 (39.4%)
South	623 (45.2%)	433 (16.0%)
West	232 (16.8%)	274 (10.2%)
Plan type		
Health maintenance organization	504 (36.6%)	2,161 (80.1%)
Preferred provider organization	647 (47.0%)	512 (19.0%)
Consumer-directed health plan	226 (16.4%)	0 (0.0%)
Unknown	0 (0.0%)	25 (0.9%)

^aDefined as the occurrence of ≥ 1 claim with a revenue code for intensive care unit or coronary care unit (0200-0209, 0210-0219)

Table 2. Incidence and magnitude of out-of-pocket spending among COVID-19 and influenza hospitalizations, IQVIA PharMetrics for Academics Database

Hospitalization type	No. of hospitalizations (% of total)	Mean (SD) total OOP spending	Mean (SD) OOP spending: facility services ^a	Mean (SD) OOP spending: professional/ancillary services ^a
Private insurance, COVID-19 (n = 1,377)				
Had OOP spending for facility services	63 (4.6%)	\$3,840 (3,186)	\$3,348 (2,950)	\$492 (849)
Had OOP spending for facility services, professional/ancillary services, or both	981 (71.2%)	\$788 (1,411)	\$215 (1,107)	\$573 (869)
Medicare Advantage, COVID-19 (n = 2,698)				
Had OOP spending for facility services	36 (1.3%)	\$1,536 (1,402)	\$1,440 (1,405)	\$97 (147)
Had OOP spending for facility services, professional/ancillary services, or both	1,324 (49.1%)	\$277 (363)	\$39 (327)	\$238 (191)
Private insurance, influenza (n = 61)				
Had OOP spending for facility services	51 (83.6%)	\$3,510 (2,524)	\$2,998 (2,293)	\$512 (582)
Had OOP spending for facility services, professional/ancillary services, or both	55 (90.2%)	\$3,327 (2,528)	\$2,780 (2,342)	\$546 (620)
Medicare Advantage, influenza (n = 178)				
Had OOP spending for facility services	159 (89.3%)	\$1,226 (708)	\$1,117 (665)	\$109 (144)
Had OOP spending for facility services, professional/ancillary services, or both	173 (97.2%)	\$1,150 (728)	\$1,027 (707)	\$123 (156)

OOP – out-of-pocket

^aSee Appendix 2 for codes used to identify facility and professional/ancillary services. Facility services were those billed by hospitals for services such as accommodation. Professional/ancillary services were those billed by clinicians and ancillary providers, such as ambulance providers.

Table 3. Incidence and magnitude of out-of-pocket spending for professional/ancillary services among COVID-19 hospitalizations, IQVIA PharMetrics for Academics Database

Service type	Privately insured (n = 1,377 hospitalizations)				Medicare Advantage (n = 2,698 hospitalizations)			
	No. patients with ≥1 claim (% patients in sample)	Mean (SD) OOP spending per patient in sample	No. patients with OOP spending (% patients in sample)	Mean (SD) OOP spending among patients with OOP spending	No. patients with ≥1 claim (% patients in sample)	Mean (SD) OOP spending per patient in sample	No. patients with OOP spending (% patients in sample)	Mean (SD) OOP spending among patients with OOP spending
<u>Main types of professional/ancillary services^a</u>								
Ambulance	305 (22.1%)	\$59 (248)	137 (9.9%)	\$596 (550)	1,425 (52.8%)	\$87 (139)	985 (36.5%)	\$239 (130)
Clinician	1,334 (96.9%)	\$317 (682)	918 (66.7%)	\$476 (789)	2,608 (96.7%)	\$29 (117)	595 (22.1%)	\$130 (221)
Miscellaneous ^b	272 (19.8%)	\$32 (177)	167 (12.1%)	\$263 (445)	401 (14.9%)	\$1 (10)	99 (3.7%)	\$26 (44)
<u>Subtypes of clinician services</u>								
Emergency department	746 (54.2%)	\$31 (103)	399 (29.0%)	\$106 (169)	1,493 (55.3%)	\$0 (1)	255 (9.5%)	\$2 (2)
Inpatient evaluation and management	1,234 (89.6%)	\$233 (557)	516 (37.5%)	\$622 (765)	2,495 (92.5%)	\$24 (103)	394 (14.6%)	\$162 (225)
Inpatient diagnostic	668 (48.5%)	\$36 (85)	641 (46.6%)	\$78 (111)	1,438 (53.3%)	\$3 (14)	427 (15.8%)	\$18 (32)
Other inpatient ^c	109 (7.9%)	\$17 (179)	63 (4.6%)	\$375 (757)	314 (11.6%)	\$2 (19)	83 (3.1%)	\$67 (87)

OOP – out-of-pocket

^aProfessional/ancillary services include those submitted by clinicians and those from ancillary service providers, such as ambulance providers. See Appendix 2 for details

^bServices from miscellaneous providers, such as a durable medical equipment provider or dialysis center

^cIncludes services submitted by clinicians with a hospital place of service but no procedure code for evaluation and management or diagnostic services (e.g., procedures, anesthesia)