Impact of Pharmaceutical Marketing
on Healthcare in the District of Columbia

Expenditure Patterns
in the First Year of the Covid-19 Pandemic

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Department of Health
Health Regulation and Licensing Administration

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Executive Summary

This report compares marketing expenditures by manufacturers of prescription drugs and medical devices in the District of Columbia in 2020 to the preceding six years, 2014-2019. It presents time profiles of expenditures by recipient type, nature of payment, medical specialty, manufacturer, and prescription drug or medical device.

The data are based on reports submitted by the manufacturers to the Open Payments program, which is administered by the federal Centers for Medicare and Medicaid Services. The data are publicly available. At the time of preparation of this report, the data for the full year 2020 were available.

Notable Findings

- Relative to the 2014-2019 average, the number of payments in 2020 declined by 54%.
- Relative to the 2014-2019 average, the value of payments in 2020 declined by 28%.
- The number of payments to physicians declined by 54% and the number of payments to teaching hospitals declined by 60%.
- The value of payments to physicians declined by 33% and the number of payments to teaching hospitals declined by 12%.
- The value of payments for purposes related to in-person meetings -- travel and lodging, food and beverage, and space rental -- declined by 90%, 68%, and 31%, respectively.
- The value of payments for consulting fees, gifts, and grants declined by 10%, 10%, and 1%, respectively.
- There was substantial variation in the decline of the value of payments by medical specialty, by manufacturer, and by prescription drug or medical device.
- Payments to providers in general practice and payments for marketing the da Vinci surgical system doubled.

I. Introduction

The year 2020 was the first full year in which the worldwide Covid-19 pandemic affected the United States, including the District of Columbia. The pandemic shifted the priorities of the entire health care sector. Patients and providers of medical care postponed non-emergent procedures, and pharmaceutical manufacturers allocated funds towards the research, development, and marketing of products and services related to this new infectious disease. Stay-at-home orders and social-distancing practices constrained how marketers could attempt to reach providers and patients. Providers converted to virtual formats or canceled altogether gatherings that would have been held in person.

This report offers an anatomy of the way manufacturers adjusted their marketing activities and expenditures in response to the emerging pandemic and the responses of public agencies to contain it.

Specifically, this report highlights how the number and total value of payments for select purposes, such as the provision of food and beverage or travel and lodging changed over the course of the first year of the Covid-19 pandemic.

On February 25, 2020, the Centers for Disease Control and Prevention (CDC) announced that the Covid-19 epidemic was approaching pandemic status. On March 13, President Donald Trump declared a national emergency and the District of Columbia banned gathering of 50 persons or more (DC Policy Center, 2022). On March 30, the governors of Virginia and Maryland and the mayor of the District of Columbia issued stay-at-home orders. On May 28, the number of Covid-19 deaths in the United States reached 100,000 (American Journal of Managed Care, 2021). On December 11, the Food and Drug Administration (FDA) issues an Emergency Use Authorization (EUA) for the vaccine from Pfizer / BioNTech; on December 18, it issues an EUA for the vaccine from Moderna.

The month-to-month time profile of expenditures as well as the disaggregation of expenditures by recipient type, nature of payment, medical specialty, manufacturer, and prescription drug or medical device reveal how the disease burden and the response by health care providers imposed constraints and altered the incentives for select marketing expenditures.
They also show which and how fast some the various expenditure types reverted to their pre-pandemic averages and thus how fast manufacturers and recipients were able to adapt to the new circumstances of operating in pandemic conditions.

II. Data Sources and Methods

To examine marketing expenditures, this report uses data sets compiled by the Open Payments program. The Open Payments program mandates that manufacturers report all "payments or other transfers of value made that are not in connection with a research agreement or research protocol" (Appendix A). It requires companies across the country to report gifts to physicians and teaching hospitals. The Physician Payments Sunshine Act of 2010 established the national Open Payments program, and it requires all pharmaceutical and medical-device manufacturers to report payments to physicians and teaching hospitals to the Centers for Medicare and Medicaid Services (CMS).

These data are available by year and jurisdiction. Payments to physicians and teaching hospitals are searchable online through Open Payments, allowing researchers to track patterns in gifts. Individual patients can see whether their physicians have accepted gifts from pharmaceutical companies.

This report is based on Open Payments marketing data of payments made to physicians and teaching hospitals in the District of Columbia between January 1, 2014, and December 31, 2020, the most recent year available. Data from 2013 were only available for the second half of the year and therefore omitted from this analysis.

Open Payments data, including physician names, are publicly available and were retrieved from this website: https://openpaymentsdata.cms.gov/. The website allows users to download subsets of the data. For the purpose of this report, the data were limited to payments to recipients in the District of Columbia.

All calculations, tables, and figures in this report were performed using version 17.0 of the Stata statistical software package.

III. Total Payments

Between 2014 and 2019, the average number of payments by manufacturers of prescription drugs and medical devices to health care providers in the District of Columbia was 40,207 per year or 3,351 per month (Figure 1 top panel). The number of payments dropped precipitously in the second quarter of 2020 to fewer than 1,000 payments per month and then recovered to approximately 1,500 payments per month in the second half of 2020. The number of payments for the full 2020 year was 18,535, or 46% of the pre-pandemic average.

Of note is the pronounced seasonality of the payments. In 2014-2019, the number of payments typically peaked in March or April and then again in October. This pattern was disrupted in 2020, as the Covid-19 virus started spreading in the United States in March of that year. Despite the sudden and severe disruptions to the marketing plans of pharmaceutical manufacturers in that year, the number of payments still reached its peak in October, in line with prior years.

The seasonality of the total value of payments was as pronounced but less regular than the seasonality of the total number of payments (Figure 1 bottom panel). In the second half of the year, the value of all payments typically peaked in December.

In the first year of the pandemic, the value of total payments declined less than the number of payments. The average in 2014-2019 was $18,194,476 per year, or $1,516,206 per month. By contrast, the value of payments in 2020 was $13,120,035 and thus 72% of the pre-pandemic average. As was the case for the number of payments, the value of payments was in line with pre-pandemic trends in January and February but then declined rapidly, reaching in May of 2020.

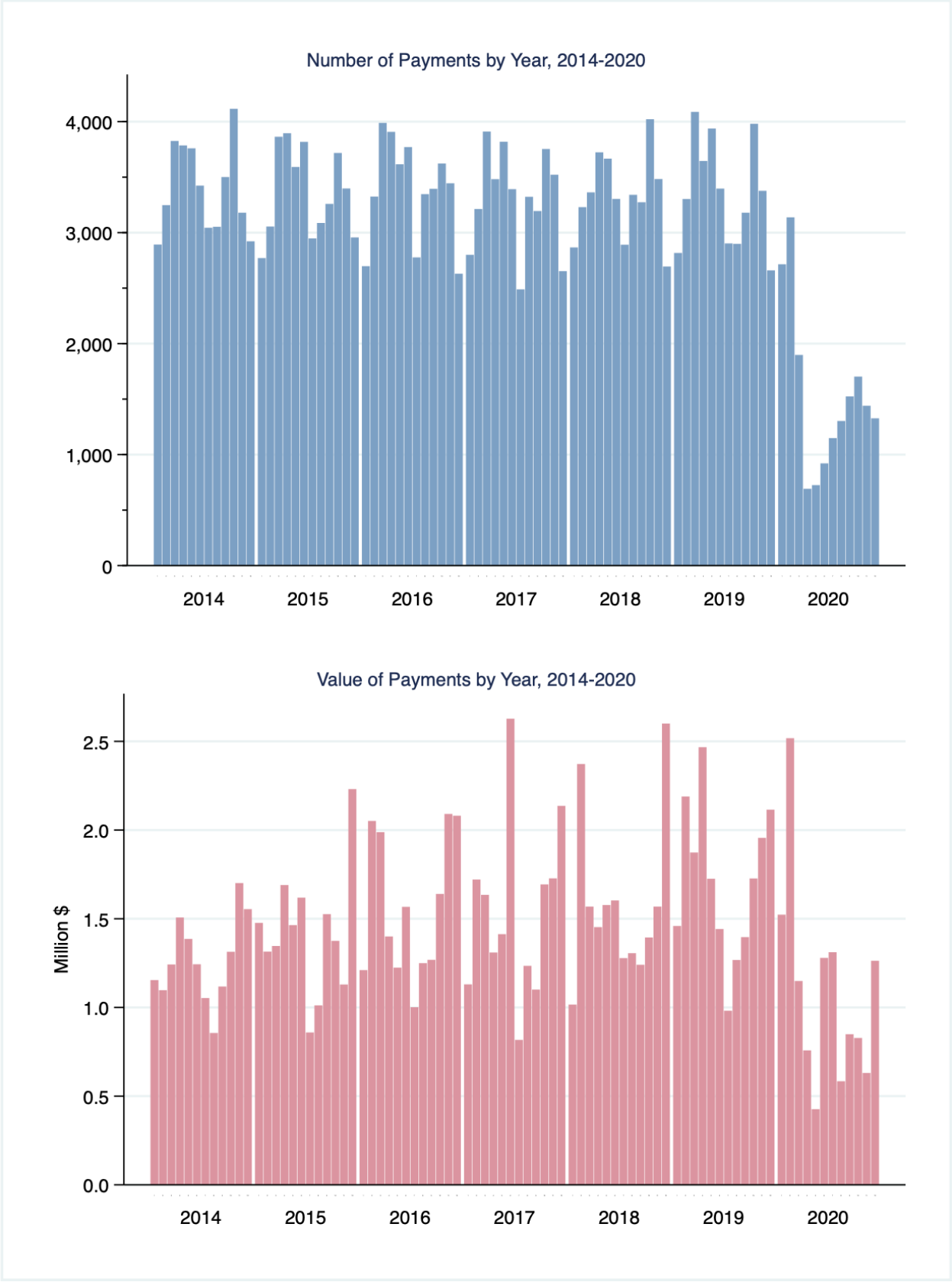


Figure 1. Number and Value of Payments by Year in the District of Columbia, 2014-2020

IV. Payments by Recipient Type

In the years 2014-2019, 238,357 or 98.80% of payments reported to the Open Payments program went to physicians, the remaining 2,886 or 1.20% went to teaching hospitals.

Payments to Physicians

In the pre-pandemic period 2014-2019, the number of payments to physicians broadly remained between 3,000 and 4,000 per month with little variation across years (Figure 2 top panel).
There was a marked seasonality of the number of payments over the course of the year. The number of payments peaked in March and October and was lowest in January, July, and December.
The red line shows the number of payments to physicians in 2020. Payments were tracking the pre-pandemic trend in January and February but then started to decline sharply in March to reach a low in April. In the subsequent months, the numbers began to recover slowly.

To filter out the influence of seasonal variation in the number of payments, the bottom panel of Figure 2 shows for each month the number of payments in 2020 relative to the 2014-2019 average.
As suggested by the top panel, payments were tracking the pre-pandemic volume at nearly 100% in January and February of 2020, then dropped to 50% in March and to less than 20% in April. In the subsequent months, the volume increased to stabilize between 40% and 50% of pre-pandemic levels in the second half of 2020.

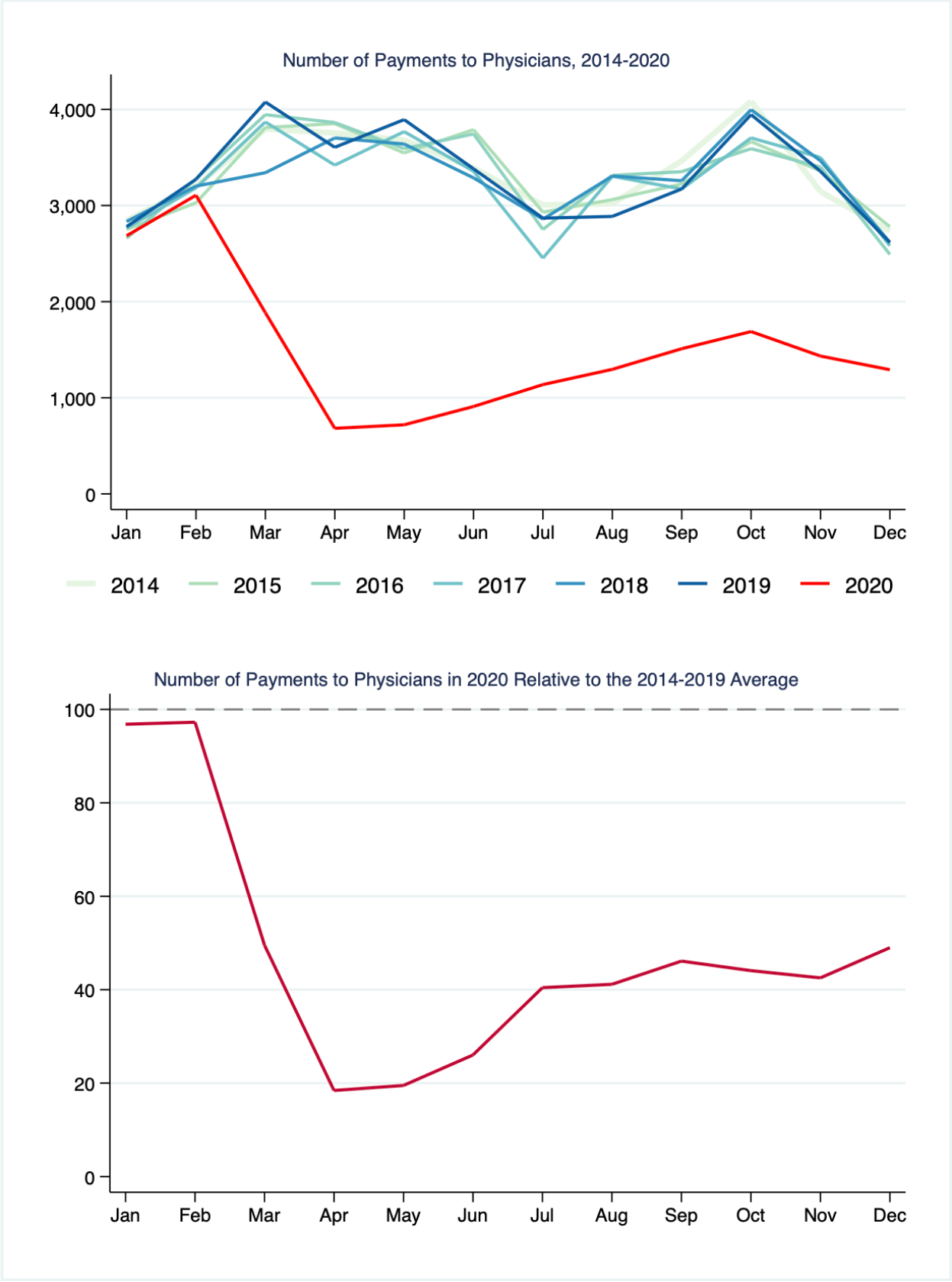


Figure 2. Payments to Physicians by Month, 2014-2020

Payments to Teaching Hospitals

Manufacturers of prescription drugs and medical devices reported payments to nine teaching hospitals over the observation period (Table 1).

Table 1. Payments to Teaching Hospitals, 2014-2020

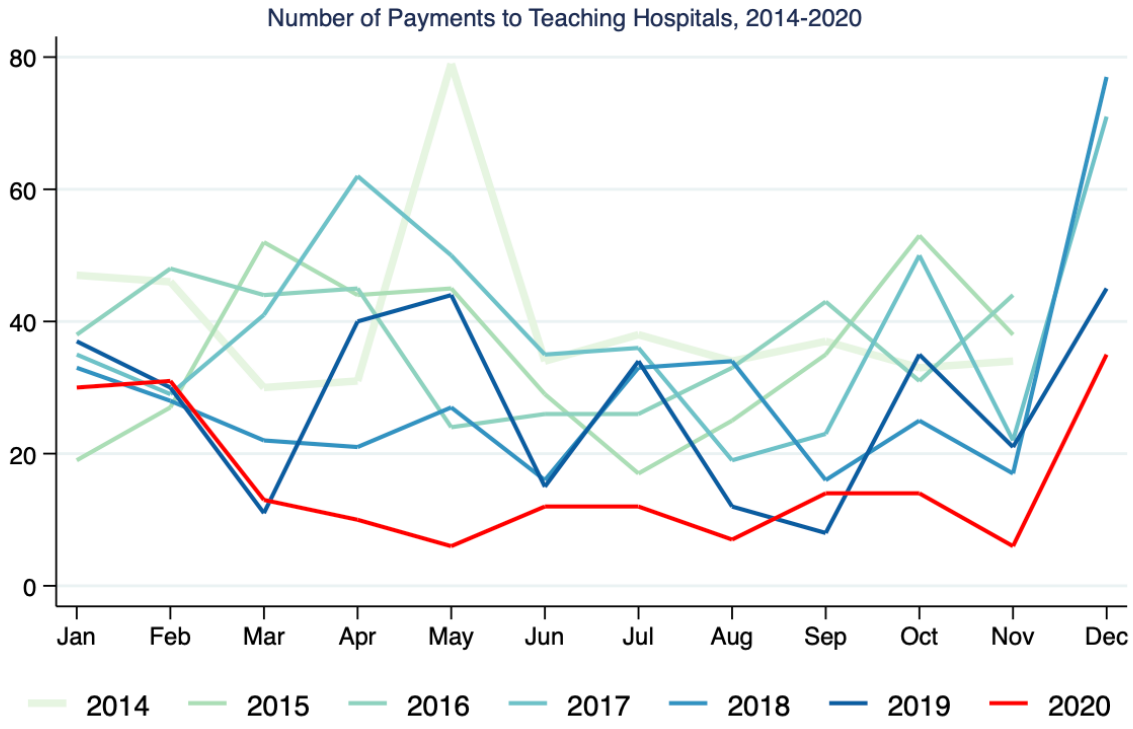
Hospital	2014	2015	2016	2017	2018	2019	2020	Total	Relative*
Children's National Hospital	27	30	38	41	33	33	19	221	56.4
George Washington Univ Hospital	119	107	116	56	54	31	24	507	29.8
Georgetown University Hospital	138	85	183	197	55	41	29	728	24.9
Howard University Hospital	44	40	42	49	31	35	2	243	5.0
National Rehabilitation Hospital	7	3	3	0	3	4	1	21	30.0
Providence Hospital	10	47	32	10	7	8	10	124	52.6
Sibley Memorial Hospital	15	9	0	2	9	8	14	57	195.3
St. Elizabeth's Hospital	0	0	0	0	0	1	1	2	600.0
Washington Hospital Center	271	240	126	118	157	171	90	1,173	49.9
Total	631	561	540	473	349	332	190	3,076	39.5

* 2020 volume relative to the 2014-2019 average (percent)

Washington Hospital Center, Georgetown University Hospital, and George Washington University Hospital received the most payments both in the pre-pandemic period (2014-2019) and in 2020. St. Elizabeth's Hospital, the National Rehabilitation Hospital, and Sibley Memorial Hospital received the fewest payments. These hospitals each recorded no payment in at least one year before the pandemic.

The number of payments to all teaching hospitals in 2020 were just under 40% of the 2014-2019 average. There was substantial variation in the declines in payments experienced by the nine teaching hospitals. Among the six hospitals that received at least one payment in each pre-pandemic year, Howard University Hospital experiences the largest drop in payments, a decline of 95%. In contrast, Children's National Hospital saw its payments decline by less than 44%. These percentage overstate the impact of the pandemic on payment volume somewhat, as the number of payments had been declining in each year before 2020 so that in 2019 manufacturers made only half as many payments as in 2014.

On a seasonality-adjusted basis, payments to teaching hospitals declined sharply in the first half of 2020, rose above 40% in June and September, then fell below 40% in October through December.



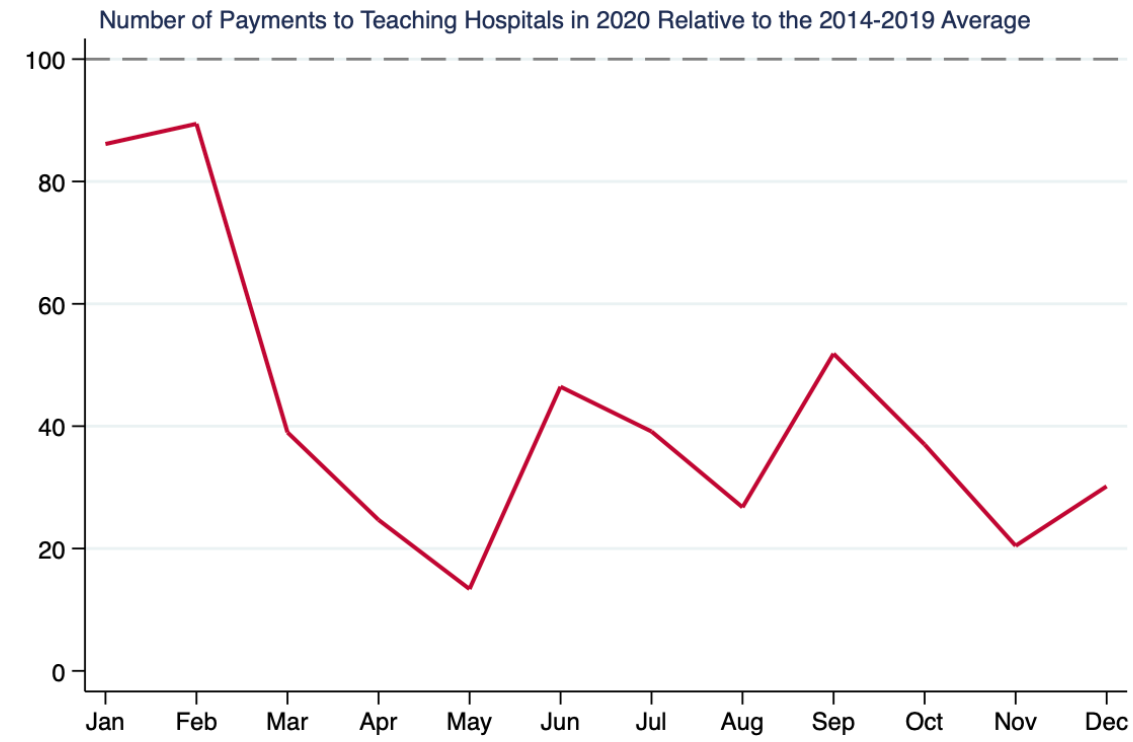


Figure 3. Payments to Teaching Hospitals by Month, 2014-2020

V. Payments by Nature of Payment

The pattern of payments over the course of the first year of the pandemic varied substantially across the different purposes for which the payments were made (Figure 4).
These time profiles reveal how quickly manufacturers adjusted their marketing activities as the pandemic reached the District of Columbia and as public agencies and private organizations implemented measures in response to the increasing rates of community transmission of the Covid-19 virus. These time profiles also show if and how fast manufacturers raised the number of payments for different purposes later in the year and thus how fast the recipients of different expenditure types were able to adjust.

Payments for three expense categories that reflect in-person events – food and beverage, space rental, travel and lodging – declined sharply as soon as the Covid-19 virus was presumed to have reached most parts of the country in March of 2020.
Payments for space rental started to decline already in February and continued declining until they reached a minimum in May. In the subsequent months, payments for space rental increased slowly and finished the year at 40% of the pre-pandemic average. Payments for food and beverage and for travel and lodging started declining in March and reached a minimum in April and May, respectively. While payments for food and beverage recovered somewhat and ended the year at about 50% of the pre-pandemic average, payments for travel and lodging remained depressed well below 20% throughout the remainder of the year.

By contrast, payments for educational programming rose in the first four months of 2020 and nearly reached the pre-pandemic average in April of that year. As payments in the aforementioned categories had declined sharply by that time, it is possible that manufacturers sought to boost educational programming, perhaps delivered in an online format, as a substitute for the three categories that reflect in-person events.

In contrast, payments for faculty and speaking engagements dropped from above-average levels in January and February to a low about 30% in April but regained their pre-pandemic level in September. This pattern may reflect the switch from in-person to online-only formats for these services. Similarly, consulting fees remained stable and in fact were even above pre-pandemic levels in select months. Like educational programming, this payment category spiked in April, perhaps to compensate for the reduction in the in-person expenditure types. Consulting services appear to have been largely immune to the pandemic-related disruptions.

Payments for gifts and grants, which disproportionately went to teaching hospitals rather than individual physicians, were below the 2014-2019 average even in the first two months of 2020 but also spiked briefly in April.

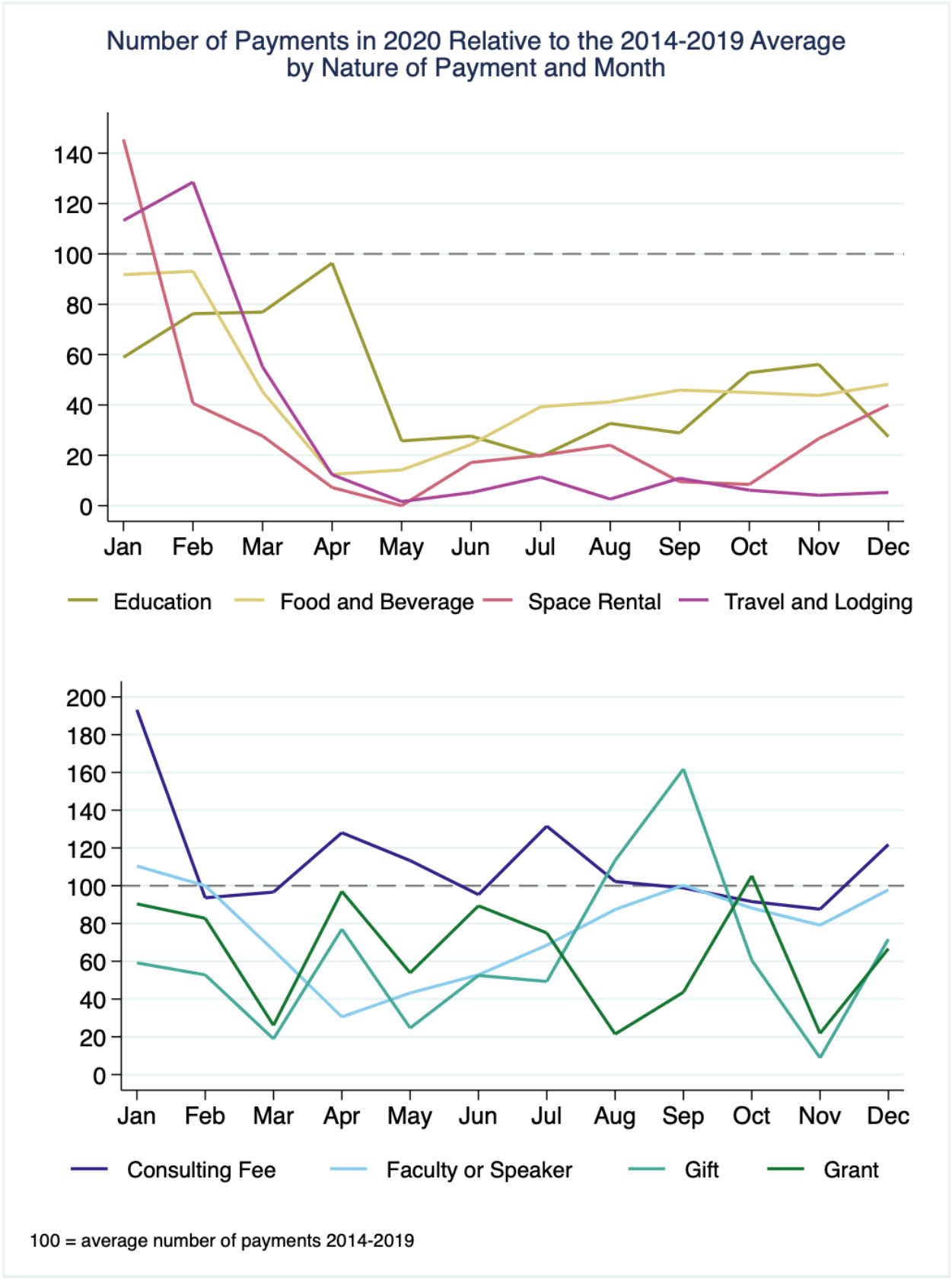


Figure 4. Payments in 2020 Relative to the 2014-2019 Average by Nature of Payment

The different time profiles of the expenditure categories are reflected in the distribution of the number of payments by nature and year (Figure 5 top panel). The significant shift in the composition of the expenditure categories is most salient for April and May, when the number of payments in the "food and beverage" category was cut in half and payments in the "travel and lodging" category nearly ceased entirely, while the number of payments for consulting services, educational programs, and speaking engagements spiked.

The bottom panel of Figure 5 shows that even in the years before the pandemic, the "food and beverage" category comprised only a small share of the total value of payments and was smaller than the "travel and lodging" category. In the months March through December in the three years immediately preceding the pandemic year of 2020, the shares of the value of all payments going to the "travel and lodging", "food and beverage", and "space rental" categories were 10%, 6%, and 4%, respectively. The small shares of these "in-person event" categories explain why their decline in number did not translate into as large a decline in the total value of payments. The robustness of the number of payments for consulting services, along with their large share of the total value of payments, also helped cushion the decline in the total value of payments in 2020.

In the months March through December of 2020, payments for travel and lodging and for food and beverage declined to 10% and 32% of the pre-pandemic three-year 2017-2019 average (Figure 6). By contrast, there was practically no change in the value of grants. At 90%, gifts and consulting fees also remained nearly at the pre-pandemic levels.

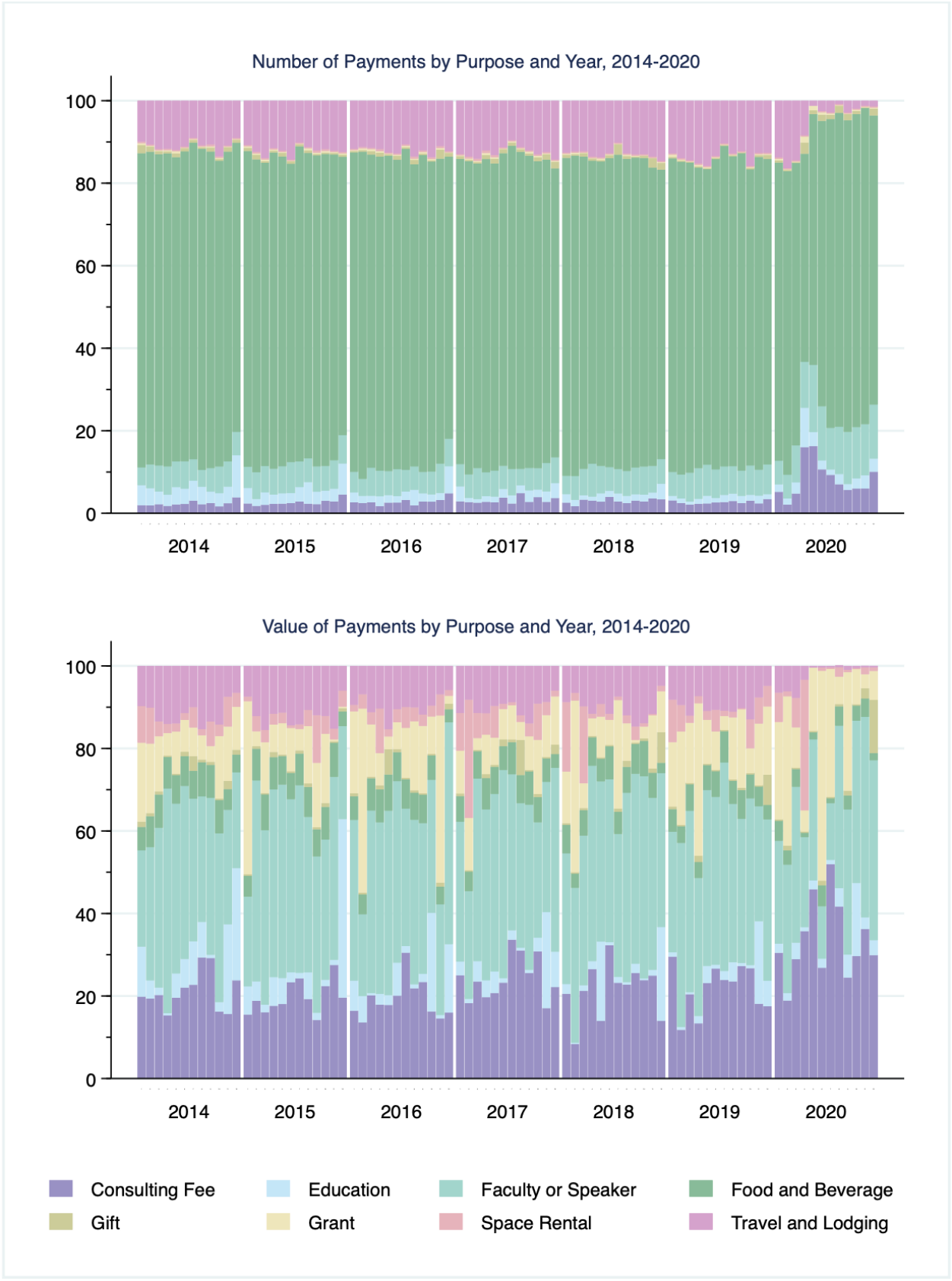


Figure 5. Distribution of Number and Value of Payments by Nature and Year, 2014-2020

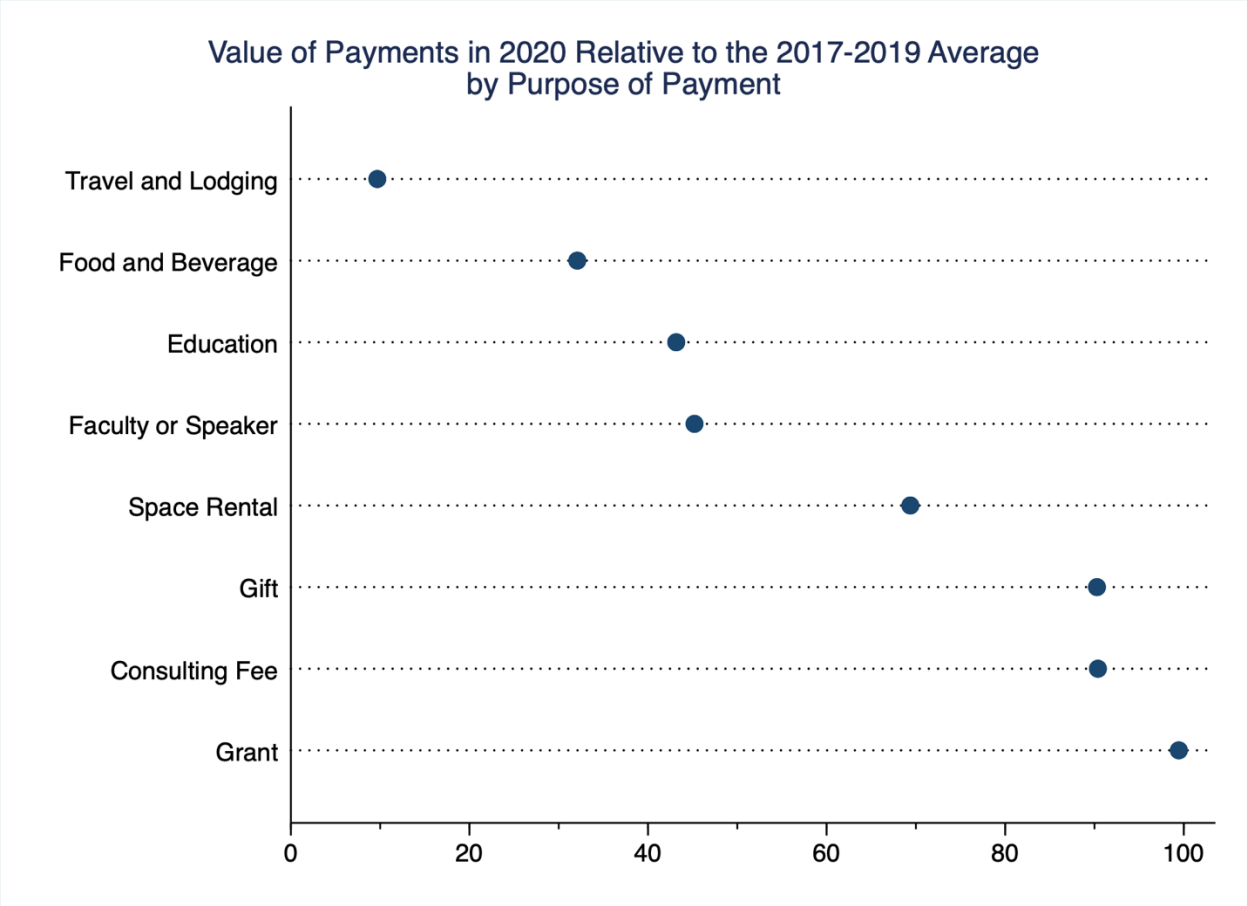


Figure 6. Value of Payments in 2020 Relative to the 2017-2019 Average by Nature of Payment

VI. Payments by Medical Specialty

There was substantial variation in the decline in the sum of payments received by the top twenty medical specialties (Figure 7 top panel). Physicians and practitioners in the fields of preventive medicine, podiatry, and physical medicine (rehabilitation) received no more than 10% in 2020 compared to the average of the three years immediately preceding the first year of the pandemic. The specialties of obstetrics and gynecology, neurological surgery, and (general) surgery experienced a decline of 32-33%. The three medical specialties with the smallest declines were psychiatry and neurology (68%), dermatology (91%), and general practice (221%, drawn at 110% to retain detail for the other medical specialties).

One possible reason for the variation in the decline of payments is that the medical specialties differed in their pre-pandemic reliance on the various expenditure categories. Figure 7 bottom panel shows the distribution of the nature of payment in the months March through December of 2017-2019. As shown in Figure 6, the categories shaded in blue (grants, consulting fees, gifts, and space rentals) all registered a decline of at most 31% (space rental). As noted, payments for grants were fully in line with pre-pandemic levels. The categories in yellow and red were most affected by the pandemic, with the total value of payments for travel and lodging declining by 90%. The figure shows that by and large specialties with smaller declines had been receiving a larger share of their payments for grants, consulting fees, and gifts. Specifically, the three specialties with the smallest declines had been receiving a meaningful percentage of total value as grants.

There was no obvious association between the share of payments received for food and beverage and for travel and lodging in 2017-2019 and the decline in all payments going to the specialty.

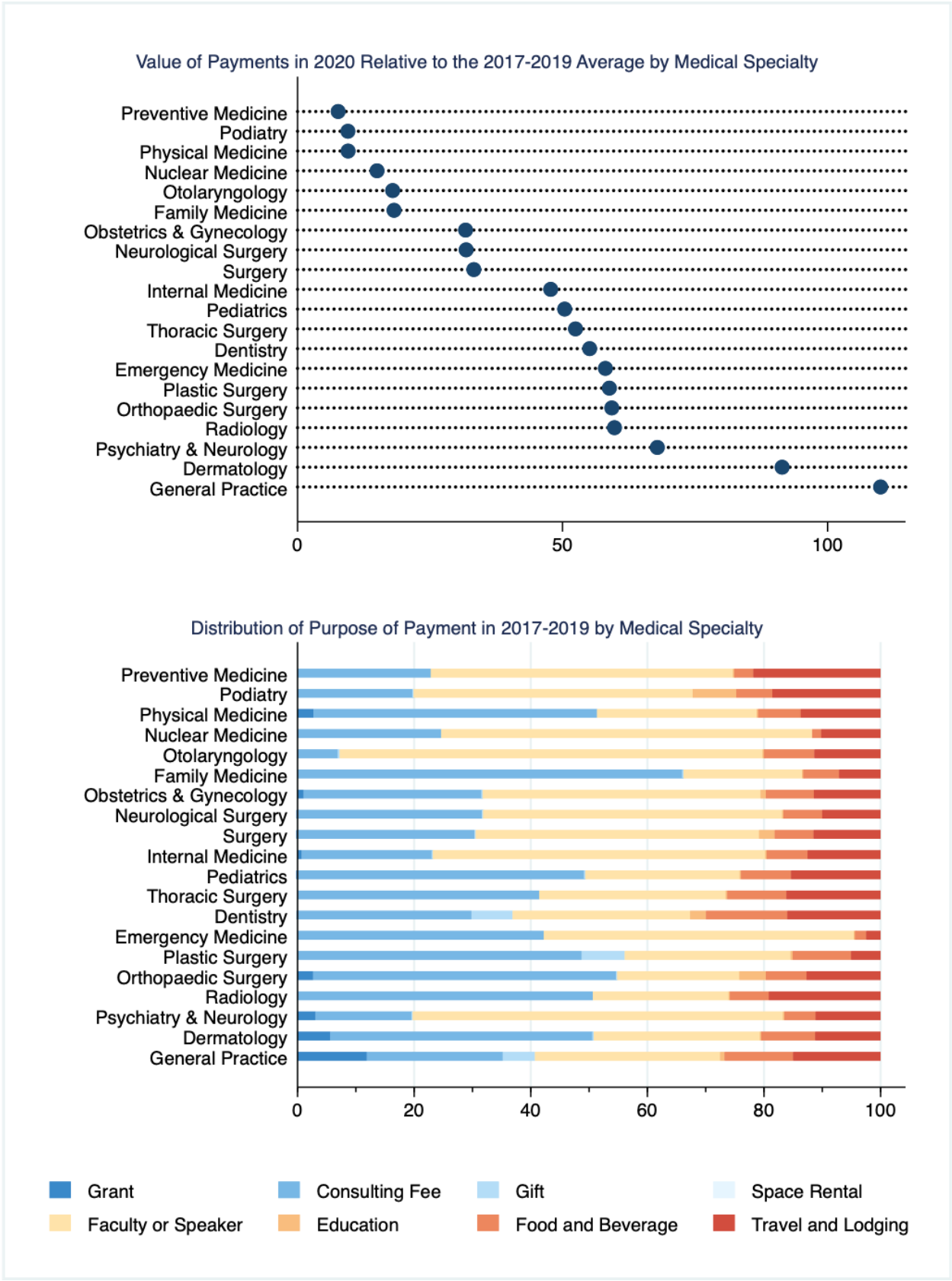


Figure 7. Payments in 2020 Relative to the 2014-2019 Average by Physician Specialty

VII. Payments by Manufacturer

Of the 20 manufacturers that paid the most in the three years preceding the first year of the pandemic, all but one, Biogen, reduced their spending in 2020 (Figure 8 top panel). Merck and Boston Scientific reduced their spending by 82 and 80 percent, respectively. By comparison, Pfizer, which is one of the manufacturers of Covid-19 vaccines approved by the Food and Drug Administration, reduced its spending by only 6%. Fourteen out of the top twenty manufacturers reduced their spending by 50% or more.

In the entire seven-year observation period, three companies named “Johnson & Johnson” reported a total of 583 payments, of which payments from Johnson & Johnson Vision Care accounted for 446.

Moderna did not report any payments in the entire observation period.

Although the reasons for spending reductions of various sizes are manifold, it is noteworthy that the six companies with the smallest spending reductions also reported smaller shares for payments in the travel and lodging category than companies with moderate spending reductions (Figure 8 bottom panel). Medical device makers Boston Scientific, Cook Medical, KCI, and Medtronic reported the largest shares of payments constituted by grants. The two companies with the smallest spending reductions also showed the largest shares constituted by grants among pharmaceutical manufacturers. The company reporting the third-smallest decline, GlaxoSmithKline, made more than 90% of its payments as compensation for faculty of speaking engagements.

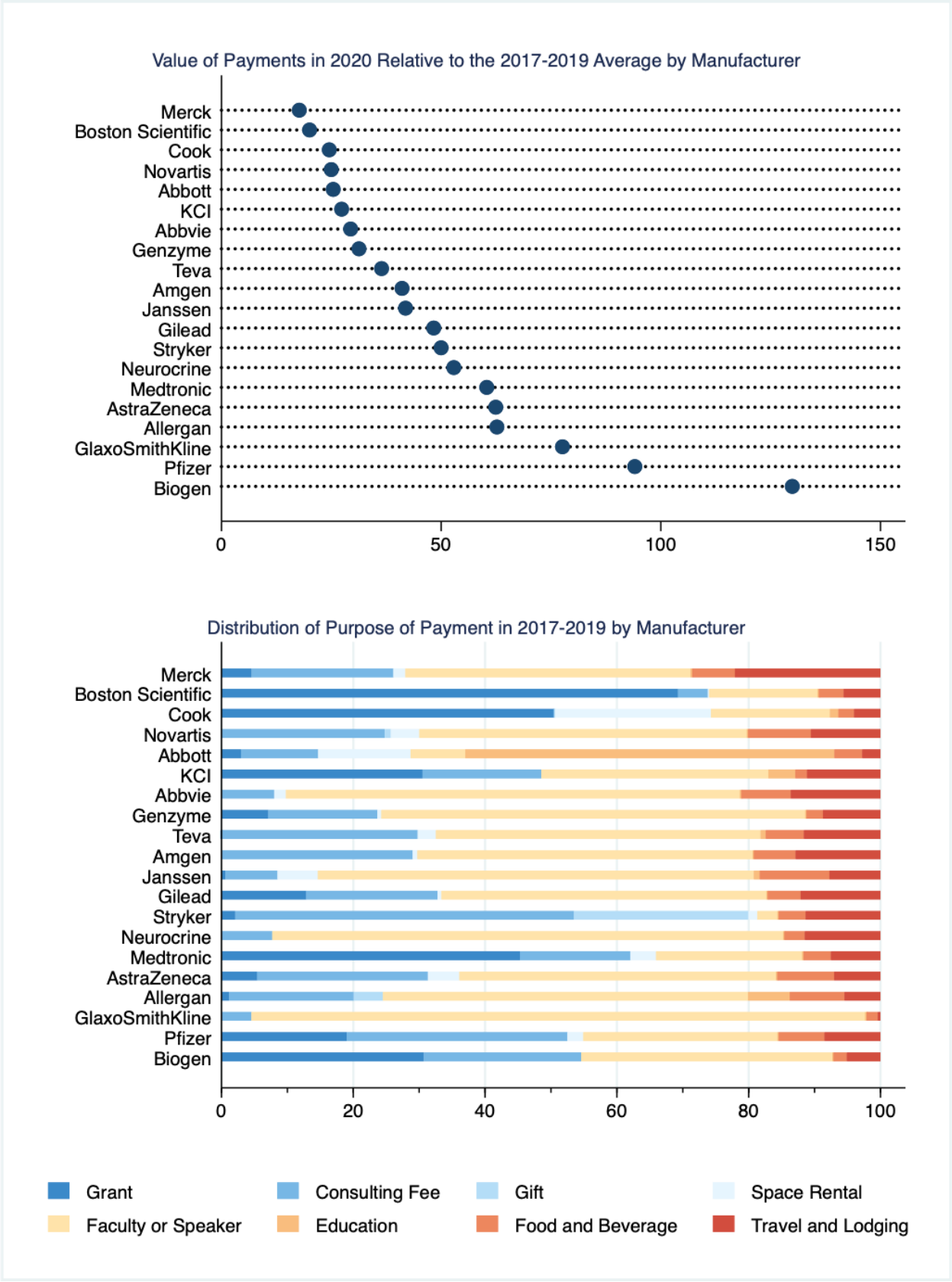


Figure 8. Payments in 2020 Relative to the 2014-2019 Average by Manufacturer

VIII. Payments by Prescription Drug or Medical Device

In 2020 manufacturers cut their marketing expenditures for all but three of the twenty prescription drugs and medical devices that recorded the largest payment totals. Of note, the three products whose marketing payment totals were not cut in 2020 were all medical devices used in surgical procedures. The total for the da Vinci Surgical System nearly doubled (197%, shown as 110% to preserve detail).

The marketing totals for the remaining products were all reduced by 46% or more. The marketing totals of four products were reduced by more than 80%.

A review of the distributions of the nature of payment for the twenty prescription drugs and medical devices with the largest marketing totals in the three years preceding the pandemic year does not permit definitive conclusions. More than a third of the marketing budget for Prevena was spent in the form of grants. Nearly 80% of the marketing budget for the da Vinci Surgical System was composed of payments for educational programming. The lack of an association between pre-pandemic spending patterns and subsequent declines in total spending suggests that other determinants explain the variation in spending declines. For instance, as the disease spread and lockdowns were imposed in response, patients began to delay or forego altogether certain diagnostic and therapeutic procedures. Manufacturers may have anticipated these changes and adjusted their marketing efforts accordingly.

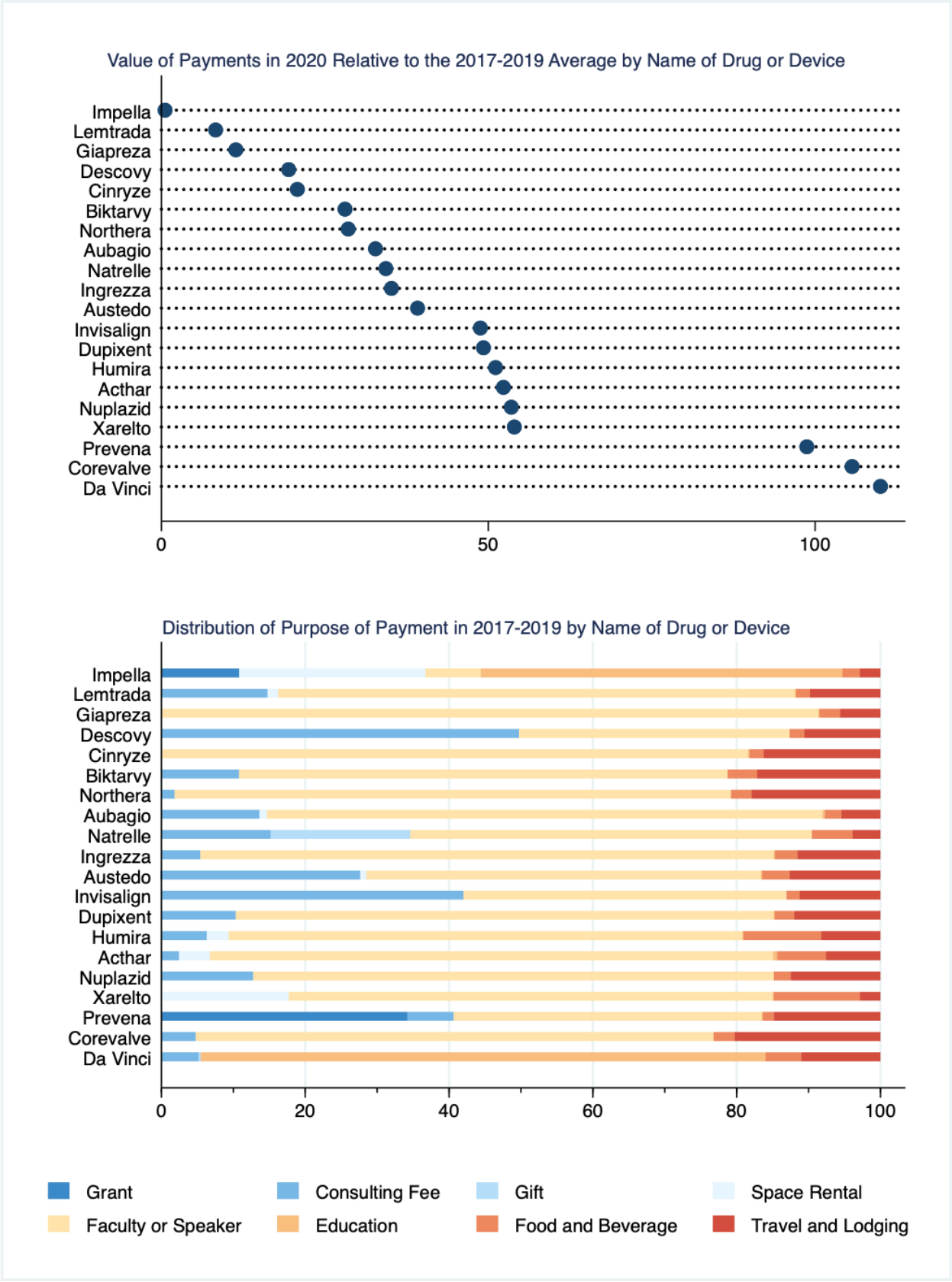


Figure 9. Payments in 2020 Relative to the 2014-2019 Average by Drug or Device

IX. Discussion

Within the first three months of 2020, the Covid-19 imposed unprecedented and unforeseen constraints on health care delivery in the United States. Providers had to contend with uneven supplies of personal protective equipment and the systemic risk of medical staff falling ill from the disease. They also had to contend with reluctant and hesitant patients who were foregoing or delaying even health care services considered necessary and safe.

The sudden and substantial changes brought about by the pandemic and the responses of providers and patients are reflected in the dramatic time profiles of marketing expenditures by manufacturers of prescription drugs and medical devices. Physicians and non-physician practitioners experienced a decline in the number of payments by more than 50% and a decline in the value of payments by more than 30%. The decline in the number of payments received by teaching hospitals was even larger, at 60%, but the value of these payments declined by only 12%. The disaggregation by the nature of payment shows that, predictably, expenditures tied to in-person events declined most, while grants, gifts, and consulting fees barely declined, if at all.

The differential reliance of the various medical specialties on these expenditure types also exposed them to differential declines in the number and value of payments. Thus, perhaps not surprisingly, payments to practitioners in the fields of preventive medicine, podiatry, and physical medicine and rehabilitation declined by 90% or more compared to their pre-pandemic averages. Patients likely delayed these services (preventive medicine), perceived a less urgent need for care when physical movement was strongly discouraged (podiatry), and were wary of services that require close physical contact or proximity (physical medicine).

As the pandemic wore on and as the Centers for Medicare & Medicaid Services (CMS) raised its reimbursement of telehealth services, many manufacturers and recipients may have switched to a virtual format of delivering marketing materials and educational programming. This pattern is in line with a nationwide trend towards greater use of telehealth services (Figure 10).

Among the top four pharmaceutical manufacturers that reduced the overall value of payments to providers in the District of Columbia the least, three were involved with developing a Covid-19 vaccine: Pfizer (6% reduction), GlaxoSmithKline (22% reduction), and AstraZeneca (38% reduction).

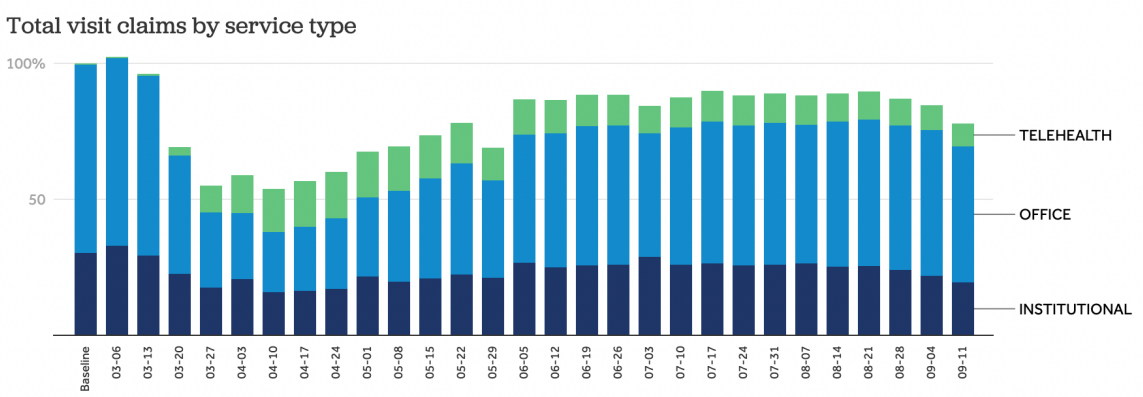


Figure 10. Total Visit Claims by Service Type (Source: Cox et al. 2021)

The three products whose marketing budgets did not appear to fall in 2020 relative to the 2017-2019 average were all medical devices used in the performance of surgery: Prevena (1% reduction), Corevalve (6% increase), da Vinci Surgical System (97% increase). Close to 80% of the payments meant to promote the da Vinci Surgical System were directed at educational programming, while more than 30% of the payments to promote Prevena were made in the form of grants. It is possible that the manufacturers of these medical devices were anticipating a rebound of the demand for surgeries once the vaccines had been developed and deployed and patients were more comfortable undergoing surgery, especially elective procedures. By enabling robot-assisted surgery, the da Vinci system arguably reduces the need for physical contact between medical staff and the patient, a salient concern for both sides.

The experience with new, highly contagious Covid-19 variants in 2021 is a reminder that the pandemic has not yet run its course and that providers and patients are continuing to adjust their plans and behaviors. Once the Open Payments data for 2021 become available, it will be possible to understand with greater precision how the pandemic affected marketing expenditures as a whole and for select purposes, provider types, and products.

Given the unprecedented variation in expenditures for in-person events, it also will be possible to understand more clearly the role that these expenditures play in shaping practice patterns.

X. References

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DC Policy Center (2022). "A timeline of the D.C. region's COVID-19 pandemic" https://www.dcpolicycenter.org/publications/covid-19-timeline/ Accessed on January 31, 2022.

Appendix A. Open Payments Program Requirements

The Patient Protection and Affordable Care Act of 2010 established the Open Payments system through the Centers for Medicare and Medicaid Services. The regulation was promulgated on February 8, 2013, requiring data collection beginning on August 1, 2013. 42 CFR Parts 402 and 403 requires[1] "applicable manufacturers of drugs, devices, biologicals, or medical supplies covered by Medicare Medicaid or the Children's Health Insurance Program (CHIP) to report annually to the Secretary [of the Department of Health and Human Services] certain payments or transfers of value provided to physicians or teaching hospitals..."

(a) General rule:

(1) Direct and indirect payments or other transfers of value provided by a manufacturer to a covered recipient during the preceding calendar year, and direct and indirect payments or other transfers of value provided to a third party at the request of or designated by the applicable manufacturer on behalf of a covered recipient during the preceding calendar year, must be reported by the applicable manufacturer to CMS on an annual basis.

(b) Covered Products:

(1) Any drug, device, biological, or medical supply that is eligible for payment by Medicare, Medicaid, or CHIP either individually or as a part of a bundled payment (such as the inpatient prospective payment system), and requires a prescription to be dispensed (for drugs and biologicals) or requires premarket approval by, or premarket notification to, the U.S. Food and Drug Administration (for devices, including medical supplies that are devices).

(c) Recipients for whom gifts must be reported:

(1) Physicians, which include those with credentials of Doctor of Medicine, Doctor of Osteopathy, Doctor of Dentistry, Doctor of Dental Surgery, Doctor of Podiatry, Doctor of Optometry, or Doctor of Chiropractic Medicine.

(2) Teaching Hospitals that received payment for Medicare direct graduate medical education (GME), inpatient hospital prospective payment system (IPPS) indirect medical education (IME), or psychiatric hospitals IME programs during the last calendar year.

(c) Limitations. Certain limitations on reporting apply in the following circumstances:

(1) $10, indexed to inflation, provided total payments to a recipient less than $100 a year.

(2) Applicable manufacturers that had less than 10 percent gross revenue during the fiscal year preceding the reporting year from covered products are only required to report payments or other transfers of value related to covered products, not all products.

(3) Drug samples intended exclusively for distribution to patients are excluded from the reporting requirements (see rule for more)

[1]Federal Register. 42 CFR Parts 402 and 403. Accessed December 15, 2021. https://www.gpo.gov/fdsys/pkg/FR-2013-02-08/pdf/2013-02572.pdf .

Appendix B. Previous Impact Reports

Large Payments to Health Care Providers in the District of Columbia, 2014-2018 (2020)

The Marketing and Prescribing of Hepatitis C Drugs in the District of Columbia (2019)

The Marketing and Prescribing of Anticoagulants in the District of Columbia (2018)

The High Cost of Highly Promoted Drugs in the District of Columbia (2017)

Diabetes in the District of Columbia (2016)

Reporting Changes and the Effect of Gifts on Prescribing Behavior (2015)

Focus on Gifts to Organizations and Influential Physicians (2014)

Focus on Use of Antipsychotics in Seniors (2013)

Report on the Use of Antipsychotics in Children (2012)