Supplementary Online Content

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eTable 1. Definitions and Examples of Natures of Payment
eTable 2. State Scope-of-Practice Laws
eTable 3. Top Five Manufacturers in Total Value of Payments, Total Number of Payments, and Number of Unique Clinicians Paid in 2021
eTable 4. Industry Payments in 2021 by Clinician Gender

This supplementary material has been provided by the authors to give readers additional information about their work.
**eTable 1: Definitions and Examples of Natures of Payment**

| Nature of Payment       | Definition                                                                 | Example                                                                                                                                                                                                 |
|-------------------------|---------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Acquisitions            | Buyout payments made to covered recipients who have ownership interest in  | A drug manufacturer buys a share of ownership in a company that is at least partially owned by a physician or a physician’s immediate family member.                                                     |
|                         | a company that has been acquired.                                         |                                                                                                                                                                                                         |
| Charitable             | A payment or transfer of value made to an organization with tax-exempt     | A medical device manufacturer donates funds to a teaching hospital to help pay for a health education program.                                                                                  |
| Charitable contribution | status under the Internal Revenue Code of 1986. Charitable contributions   |                                                                                                                                                                                                         |
|                         | do not include payments or transfers of value that would be more           |                                                                                                                                                                                                         |
|                         | specifically described by one of the other payment categories.             |                                                                                                                                                                                                         |
| Non-CME speaker fees   | Includes payments that a company makes to physicians for speaking,         |                                                                                                                                                                                                         |
|                         | training, and education engagements that are not for continuing education.  |                                                                                                                                                                                                         |
| CME speaker fees        | Compensation for serving as faculty or as a speaker for medical education  | Drug company Y gives money to a teaching hospital to help pay for the hospital’s annual course for its physicians. The course is an update on the latest treatments for diseases. |
|                         | program.                                                                  |                                                                                                                                                                                                         |
| Consulting fee          | A payment that a company makes to a physician for advice and expertise     | Company A has developed a drug to treat patients with a particular disease and wants advice from physicians on how to design a large study to test the drug on patients. Dr. J has a large number of patients with this disease and has experience researching medicines that could treat this condition. Company A asks Dr. J if she would spend about 10 hours per month to work with other physicians to create a new research study. Dr. J agrees and is paid for her time. |
|                         | about a medical product or treatment. Consulting fees are typically        |                                                                                                                                                                                                         |
|                         | arranged with a written agreement between a company and physician based   |                                                                                                                                                                                                         |
|                         | on the company’s particular business needs. These payments often vary      |                                                                                                                                                                                                         |
|                         | depending on the consulting physician’s expertise.                         |                                                                                                                                                                                                         |
| Ownership or investment | Ownership or investment interest currently held by physicians and teaching | Dr. M hears about a new antibiotic that Pharmaceutical Company F is developing. Dr. M thinks the drug might become successful and asks if he can invest in Company F. Company F agrees, and Dr. M ends up owning a percentage of Company F. |
|                         | hospitals, as well as ownership or investment interest that could          |                                                                                                                                                                                                         |
|                         | potentially be held by physicians and teaching hospitals.                 |                                                                                                                                                                                                         |
| Debt forgiveness        | Forgiving the debt of a covered recipient, a physician owner, or the      | A physician owes Company A an amount of money for medical supplies. Company A forgives the debt so that the physician can keep the supplies without providing payment.                                      |
|                         | immediate family of the physician.                                        |                                                                                                                                                                                                         |
| Category          | Description                                                                                                                                                                                                 | Example                                                                                       |
|------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------|
| Education        | Payments or transfers of value for classes, activities, programs, or events that involve learning or teaching a profession skill. This payment can include things like textbooks and medical journal articles. | Companies that produce or sell drugs or devices for a particular medical condition may offer textbooks to physicians, free of charge, related to the latest treatments for that condition. |
| Entertainment    | Attendance at recreational, cultural, sporting or other events that would generally have a cost.                                                                                                             | A physician receives tickets to a local football game from a device manufacturer that owns season tickets. |
| Food and beverage| Food and beverage.                                                                                                                                                                                          | A drug manufacturer salesperson asks to speak with a physician about a new drug. The salesperson and physician meet for lunch, and the salesperson pays for the meal. |
| Gift             | A general category which includes anything a company provides to a physician or teaching hospital that does not fit into another category.                                                                 | Promotional items such as clocks or flash drives that have the company’s name printed on them. |
| Grant            | A payment to a physician or teaching hospital to support a specific cause or activity.                                                                                                                      | Company G is a medical device manufacturer. Company G gives a grant to a teaching hospital to pay for special training for physicians who want to learn more about how to perform surgeries to give patients Company G’s device. |
| Honoraria        | Similar to consulting fees, but generally reserved for a brief, one-time activity. Another distinction is that honoraria are generally provided for services without a set price.                                    | A medical device manufacturer representative goes to a medical meeting. The representative pays each physician a one-time honorarium. |
| Supply or device loan | The loan of supplies or a device for 91 days or longer.                                                                                                                                                    | A device manufacturer lends one of its devices to a teaching hospital for 120 days.            |
| Research         | Payments for different types of research activities, including the time a physician spends enrolling patients in studies for new drugs or devices. Research payments can include direct compensation to physicians, funding for research study coordination and implementation, or payments to study participants to cover expenses associated with the study. | A physician wants to study treatments for a specific ailment. Pharmaceutical Company H is interested in the results and offers to provide funds for the incentives the physician uses to recruit participants. |
| Royalty or license | Payments based on sales of products that use a physician’s intellectual property.                                                                                                                           | A device manufacturer may promise a certain amount of payment in royalties – 1% of all device sales, for example – to a physician who worked with the device manufacturer to invent a new product. |
| Space rental or facility fees | Payments for fees associated with renting a space or facility (such as a teaching hospital). | A drug manufacturer wants to offer training to physicians on how to administer a drug. The drug manufacturer pays a teaching hospital to reserve space within the hospital to conduct the training. |
|-------------------------------|-------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------|
| Travel and lodging            | Any compensation for costs associated with travel, such as hotel fees, airfare, mileage, and cab fare. | A medical device company offers yearly training events for physicians on how to use their device on patients. The medical device company pays for the physicians’ airfare and hotel rooms when the physicians travel to the medical device company’s headquarters for the training. |

Source: https://www.cms.gov/OpenPayments/Natures-of-Payment. Accessed 9/24/22.
**eTable 2: State Scope-of-Practice Laws**

| State         | NP | PA |
|---------------|----|----|
| Alabama       | 2  | 3  |
| Alaska        | 1  | 1  |
| Arizona       | 1  | 2  |
| Arkansas      | 2  | 2  |
| California    | 3  | 3  |
| Colorado      | 1  | 3  |
| Connecticut   | 1  | 2  |
| Delaware      | 1  | 2  |
| Florida       | 3  | 2  |
| Georgia       | 3  | 2  |
| Hawaii        | 1  | 3  |
| Idaho         | 1  | 2  |
| Illinois      | 2  | 1  |
| Indiana       | 2  | 2  |
| Iowa          | 1  | 3  |
| Kansas        | 2  | 3  |
| Kentucky      | 1  | 3  |
| Louisiana     | 2  | 3  |
| Maine         | 1  | 2  |
| Maryland      | 1  | 2  |
| Massachusetts | 1  | 2  |
| Michigan      | 3  | 1  |
| Minnesota     | 1  | 2  |
| Mississippi   | 2  | 2  |
| Missouri      | 3  | 3  |
| Montana       | 1  | 3  |
| Nebraska      | 1  | 3  |
| Nevada        | 1  | 3  |
| New Hampshire | 1  | 2  |
| New Jersey    | 1  | 3  |
| New Mexico    | 1  | 1  |
| New York      | 2  | 2  |
| North Carolina| 3  | 2  |
| North Dakota  | 1  | 2  |
| Ohio          | 2  | 3  |
| Oklahoma      | 3  | 2  |
| Oregon        | 1  | 2  |
| Pennsylvania  | 2  | 3  |
| Rhode Island  | 1  | 2  |
| South Carolina| 3  | 3  |
| South Dakota  | 2  | 2  |
| Tennessee     | 3  | 3  |
| Texas         | 3  | 2  |
| Utah          | 1  | 2  |
| Vermont       | 1  | 3  |
| Virginia      | 3  | 2  |
| Washington    | 1  | 2  |
| West Virginia | 2  | 1  |
| Wisconsin     | 2  | 2  |
| Wyoming       | 1  | 2  |
Notes: Scope-of-practice equal to (Level) 1 is least restrictive and equal to (Level) 3 is most restrictive.
Abbreviations: NP, Nurse practitioner; PA, Physician Assistant; NA, Not Applicable.
eTable 3: Top Five Manufacturers in Total Value of Payments, Total Number of Payments, and Number of Unique Clinicians Paid in 2021

| Manufacturer | Total Value of Payments | Manufacturer | Total Number of Payments | Manufacturer | Number of Unique Clinicians Paid |
|--------------|-------------------------|--------------|--------------------------|--------------|----------------------------------|
|              | NP                     | PA           | Physician                |              |                                  |
| AbbVie       | $10,095,949 (13)       | AbbVie       | $4,707,625 (12)          | Medtronic    | $130,564,570 (7)                |
| Allergan     | $4,833,698 (6)         | Allergan     | $2,914,283 (7)          | Hill-Rom     | $110,558,487 (6)                |
| AstraZeneca Pharmaceuticals | $3,939,842 (5) | Janssen Pharmaceuticals | $1,884,813 (5) | Stryker Corporation | $102,758,825 (6) |
| Novo Nordisk | $3,711,045 (5)         | Galderma Laboratories | $1,350,625 (3) | AbbVie       | $70,461,970 (4)                |
| Janssen Pharmaceuticals | $3,569,239 (5) | Novo Nordisk | $1,327,948 (3) | DePuy Synthes | $56,806,167 (3)                |

| Manufacturer | Total Number of Payments | Manufacturer | Number of Unique Clinicians Paid |
|--------------|--------------------------|--------------|----------------------------------|
|              | NP                       | PA           | Physician                        |
| AbbVie       | 338,580 (14)             | 171,194 (14) | AbbVie 802,529 (11)                     |
| Novo Nordisk | 130,071 (6)              | 66,711 (6)   | AstraZeneca Pharmaceuticals 378,845 (5) |
| AstraZeneca Pharmaceuticals | 128,455 (5) | Novo Nordisk | 55,663 (5) | Janssen Pharmaceuticals 359,870 (5) |
| Janssen Pharmaceuticals | 114,434 (5) | AstraZeneca Pharmaceuticals | 52,878 (4) | Novo Nordisk 285,047 (4) |
| Eli Lilly and Company | 86,106 (4) | Eli Lilly and Company | 45,537 (4) | Amgen 236,520 (3) |

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| Eli Lilly and Company | 22,844 (15) | Amgen | 10,950 (16) | Merck Sharp & Dohme | 54,918 (13) |

**Notes:** Values in parenthesis are column percentages.

**Abbreviations:** NP, Nurse practitioner; PA, Physician assistant.
eTable 4: Industry Payments in 2021 by Clinician Gender

| Outcomes                              | Physician |             |             | APC |             |             |
|----------------------------------------|-----------|-------------|-------------|-----|-------------|-------------|
|                                        | Male      | Female      | Unknown     | Male| Female      | Unknown     |
| Number of Unique Clinicians Paid       | 280,747   | 130,347     | 1399        | 41,170| 189,283     | 334         |
| Number of Unique Clinicians Practicing | 704,266   | 416,691     | NA          | 116,592| 501,553     | NA          |
| Proportion of Unique Clinicians Paid   | 39.9%     | 31.3%       | NA          | 35.3%| 37.7%       | NA          |
|                                        |           |             |             |     |             |             |
| Total Value of Payments                | $1,631,589,127 | $197,409,873 | $5,546,747 | $23,094,088 | $97,597,040 | $61,187     |
| Total Number of Payments               | 5,589,385 | 1,832,745   | 11,148      | 644,524 | 2,959,413   | 2,180       |
| Average Value of Payments              | $292      | $108        | $498        | $36 | $33         | $28         |
|                                        |           |             |             |     |             |             |
| Total Value of Payments per Clinician  |           |             |             |     |             |             |
| 25%ile                                 | $53       | $35         | $20         | $29 | $34         | $20         |
| Median                                 | $201      | $125        | $52         | $99 | $120        | $45         |
| 75%ile                                 | $898      | $433        | $172        | $323| $361        | $130        |
| Mean (SD)                              | $5,813 (243,443) | $1,525 (12,261) | $3,965 (62,767) | $541 (3725) | $508 (3383) | $183 (653) |
|                                        |           |             |             |     |             |             |
| Total Number of Payments per Clinician |           |             |             |     |             |             |
| Q1                                     | 2         | 1           | 1           | 1   | 1           | 1           |
| Median                                 | 5         | 3           | 2           | 3   | 4           | 2           |
| Q3                                     | 19        | 13          | 5           | 12  | 14          | 5           |
| Mean (SD)                              | 20 (40)   | 14 (30)     | 8 (19)      | 15 (32) | 15 (30)     | 7 (14)      |

**Abbreviations:** APC, Advanced practice clinician; SD, Standard deviation; NA, Not Applicable.