Cost of Dispensing Study

January 2020

Commissioned by:
National Association of Chain Drug Stores (NACDS)
National Association of Specialty Pharmacy (NASP)
National Community Pharmacists Association (NCPA)

Prepared by:
Abt Associates

In Partnership with:
The MPI Group, Inc.

Cost of Dispensing Study, January 2020

Prepared for:

National Association of Chain Drug Stores (NACDS)
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National Community Pharmacists Association (NCPA)

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Executive Summary

Aim

Abt Associates, an independent research organization, working with the MPI Group, and commissioned by the National Association of Chain Drug Stores (NACDS), National Community Pharmacists Association (NCPA), and National Association of Specialty Pharmacy (NASP), has developed a nationally representative estimate of the cost of dispensing (COD) per prescription for all drugs dispensed, for drugs covered by Medicaid fee-for-service (FFS), and for specialty prescriptions. This is the first national survey of costs of dispensing to collect information on the unique tasks required to dispense specialty drugs, the labor time involved in those tasks, and other component costs of dispensing.

Survey Development and Methods

This 2019 Cost of Dispensing (COD) Study was modeled on previous COD studies conducted in 2006 and 2014. Abt Associates made revisions and additions to the previous study designs and instruments, most notably new questions relating to dispensing of specialty drugs. To develop the new survey items, Abt Associates examined the literature on specialty drugs, reviewed existing state COD survey instruments, engaged a panel of experts on specialty pharmacy, and conducted cognitive testing of the draft survey instrument.

Pharmacies eligible to participate in the survey were identified using the National Council for Prescription Drug Programs (NCPDP) Pharmacy Provider database. Nearly 66,000 retail pharmacies were invited to complete the survey via emails from key pharmacy organizations: NACDS, NCPA, and NASP.

The response rate was 24.1% (n=15,893 pharmacies), after excluding responses that had insufficient information to calculate the cost of dispensing or that not meet study eligibility criteria. **Exhibit A1** in the appendix presents the response rate by state/region. After extreme outlier respondents were excluded, 15,868 pharmacies representing 1.365 billion prescriptions filled were included in the analyses. The analyses were weighted for survey nonresponse and for the number of drugs dispensed by each pharmacy. The resulting cost of dispensing estimates, reflecting calendar year 2018, can be considered representative of all eligible retail pharmacies nationally.

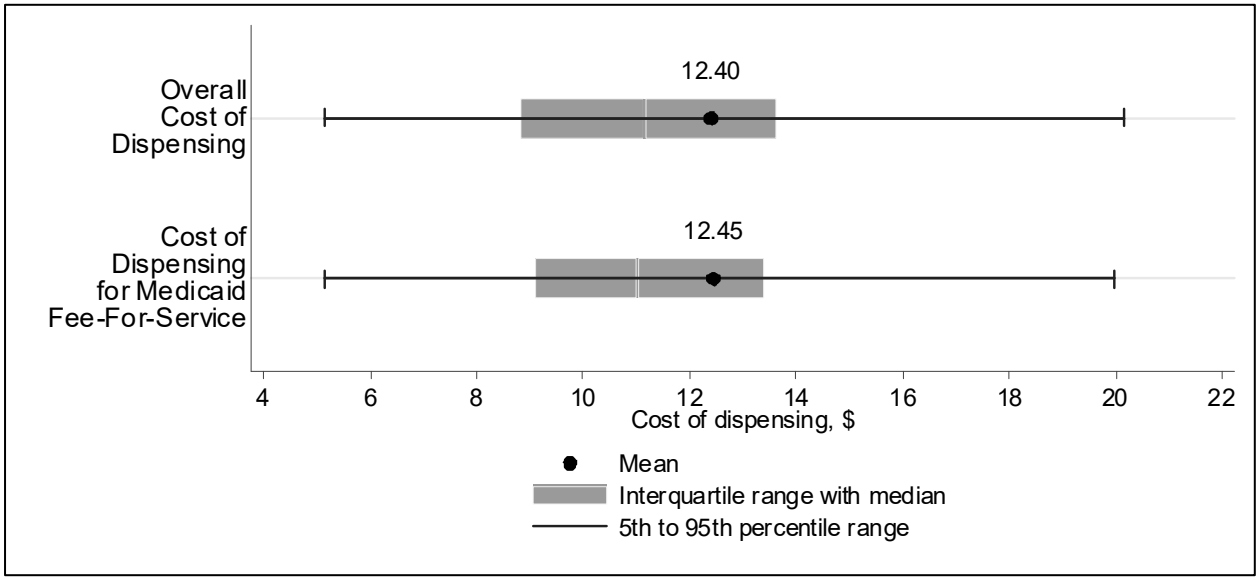
Summary of Findings

The national estimates of cost of dispensing in 2018 were as follows:

- The **mean overall cost of dispensing per prescription was $12.40.**
    - Payroll costs were the biggest drivers of the overall cost, accounting for roughly 58% of the overall cost of dispensing ($7.22 out of the $12.40).
- The **mean cost of dispensing for drugs covered by Medicaid FFS was $12.45.**
    - The mean cost of dispensing for drugs covered by Medicaid FFS was comparable to the average cost of dispensing overall.
- The **mean specialty drug cost of dispensing was $73.58 (interquartile range $40.12 to $86.48) for specialty pharmacies,** defined as pharmacies with at least 10% of their prescription volume from specialty drugs. For the purposes of this study, specialty accreditation status, pharmacy format (walk-in or central fill), and other characteristics were not used to define a respondent as a specialty pharmacy.

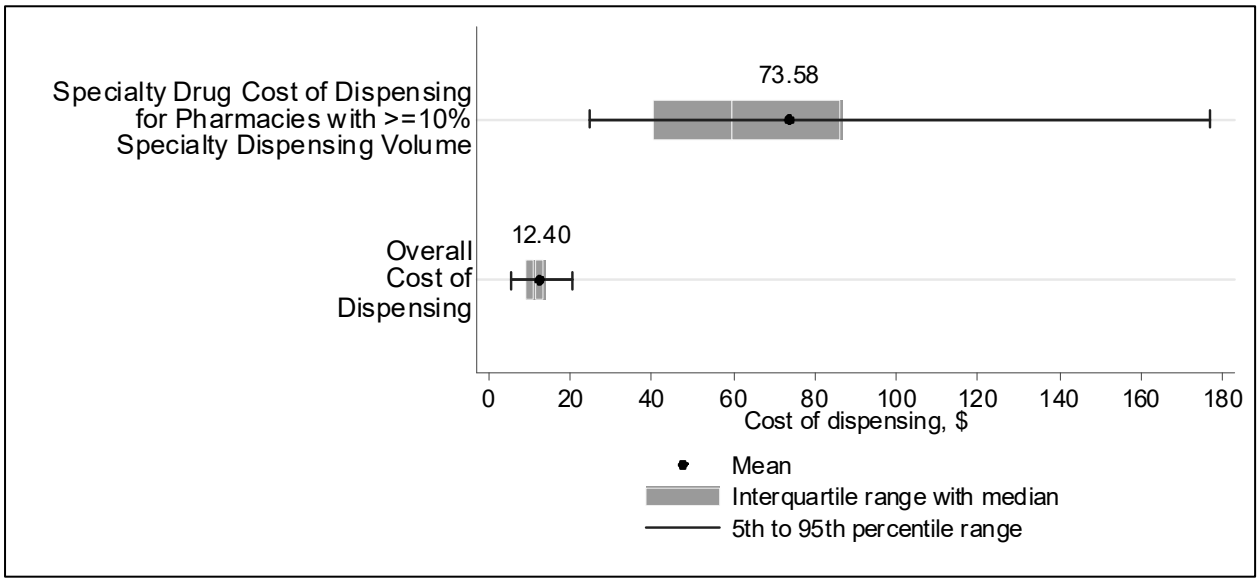
Exhibits E1 and E2 present the distribution of the overall costs of dispensing. The range was much narrower for the overall cost of dispensing and the cost of dispensing for drugs covered by Medicaid fee-for-service (**Exhibit E1**) than it was for specialty drugs (**Exhibit E2**).

Exhibit E1: Overall cost of dispensing and cost of dispensing for Medicaid fee-for-service



Source: 2019 Pharmacy Cost of Dispensing Study
Notes: N=15,868 for the overall cost of dispensing; N=15,584 for the cost of dispensing for Medicaid fee-for-service. Estimates were weighted for survey nonresponse and drug dispensing volume.

Exhibit E2: Cost of dispensing for specialty drugs among specialty pharmacies, defined as having at least 10% of their prescription volume from specialty drugs



Source: 2019 Pharmacy Cost of Dispensing Study
Notes: N=66 for the specialty cost of dispensing for pharmacies with greater than or equal to 10% specialty dispensing volume. This chart also includes the distribution for the overall cost of dispensing, including both specialty and non-specialty prescriptions, for reference (N=15,868). Estimates were weighted for survey nonresponse and drug dispensing volume.

We also used multivariate regression analysis to assess how costs of dispensing differed when stratified by pharmacy characteristics. Pharmacy dispensing volume was negatively associated with costs of dispensing (p=0.001). However, costs of dispensing were very similar for pharmacies having greater than 40,000 drugs dispensed per year. Overall costs of dispensing were over $50 greater for pharmacies with

high specialty dispensing volume than for pharmacies with low specialty dispensing volume (95% confidence interval (CI): $32.78 to $68.21), where high specialty dispensing volume was defined as pharmacy share of overall dispensing of at least 10% from specialty drugs.

State/regional estimates of the cost of dispensing, ranged from $8.85 for a group of largely rural states in the Midwest (NE, KS, IA, SD, ND) to $15.20 for the combined rural region of West Virginia and Kentucky, with the exception of Oregon, which had an abnormally high cost of dispensing. As with the national estimates, the state-specific mean cost of dispensing for drugs covered by Medicaid FFS tracked the overall mean cost of dispensing relatively closely.

Discussion

This study is the first national study to estimate costs of dispensing for specialty drugs. However, we note several limitations of the estimates of specialty cost of dispensing reported in this study. This study used a 10% threshold for specialty dispensing volume to identify pharmacies with relatively high specialty dispensing volume for cost analysis purposes, but this threshold does not necessarily correspond to specialty pharmacy status or the operating models used by specialty pharmacies, such as a pharmacy's employees, processes, and technology. For example, dispensing certain specialty drugs may require investments in specific equipment, business relationships, and staff training; while some pharmacies with greater than 10% specialty dispensing volume may operate in a retail-based format that focuses on lower-complexity, more prevalent diseases, others may focus exclusively on a particularly complex disease state. This study did not collect information from pharmacies on specialty accreditation, and was not able to differentiate between specialty pharmacy operating models, which may explain the wide variation in the specialty drug costs of dispensing estimated in this study. Additionally, the survey asked pharmacies to report the number of specialty drugs they dispensed based on a list of specialty drug NDCs. This included NDCs that were on the specialty drug lists of at least two large national pharmacy benefit managers, as an official government or industry-approved definition of specialty drugs or specialty pharmacies does not exist.

The level of variability in specialty drug costs of dispensing reported in this study indicates that more information may need to be collected in order to accurately reimburse for dispensing specialty drugs. For example, specialty drugs may vary in dispensing costs by the indication for the specialty drug, required tasks to dispense the product, and level of care necessary for the patient. To better understand the cost of dispensing for specialty drugs, future cost of dispensing studies should attempt to identify specialty pharmacies by accreditation status, operating model, type of drugs dispensed, and disease states being managed. Future cost of dispensing studies should also prioritize collecting responses from as many pharmacies as possible, especially from non-chain pharmacies. The industry would also benefit from improved consensus across payers, providers and pharmacy benefit managers regarding which drugs are considered specialty drugs.

1. Cost of Dispensing Methodology

1.1. Overview

Abt Associates (Abt) and its partner The MPI Group were engaged by the National Association of Chain Drug Stores (NACDS), the National Association of Specialty Pharmacy (NASP), and the National Community Pharmacists Association (NCPA) to perform an independent study to identify and quantify the costs incurred by pharmacies across the United States in dispensing prescription drugs. This study aimed to develop a reliable nationally representative estimate of the cost of dispensing overall (for all drugs dispensed), for drugs covered by Medicaid fee-for-service (FFS), and for specialty drugs. This is the first national survey of costs of dispensing to collect information on the unique tasks required to dispense specialty drugs, the labor time involved in those tasks, and other component costs of dispensing specialty drugs.

1.2. Survey Development

The 2019 Cost of Dispensing (COD) Study survey instrument was modeled on the instrument used in previous COD studies conducted in 2006 and 2014.[1,2] To inform revisions to the previous COD survey, Abt examined the literature on specialty drugs, reviewed survey instruments used in state COD surveys, and engaged a panel of experts on specialty pharmacy. Each of these activities is described below.

1.2.1. Examined Gray Literature on Specialty Drug Dispensing Tasks

Abt conducted a web search to identify relevant literature to understand what is involved in dispensing specialty drugs, the specific tasks, and other components related to specialty drugs (e.g., specialty pharmacy standards and accreditation).

1.2.2. Reviewed Other COD Survey Instruments

Abt reviewed the past COD survey instrument[1], as well as survey instruments used for state COD studies to identify potential items related to specialty drugs.[3] No COD studies identified have asked explicitly about specialty drugs.

1.2.3. Expert Panel on Specialty Pharmacy

Abt engaged an expert panel to help ensure development of survey items related to specialty drug dispensing that were valid and reliable. The individuals for the expert panel were nominated by NACDS, NCPA, and NASP. The panel included nine experts from eight pharmacies, which represented diversity in the type (specialty, traditional, independent, and chain), size, and geography, and was convened for a two

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[1] Coalition for Community Pharmacy Action (CCPA). National Cost of Dispensing (COD) Study: Final Report. September, 2015.

[2] Grant Thornton LLP. Cost of Dispensing Study: An independent comparative analysis of U.S. prescription dispensing costs. January 2007.

[3] Mercer. Professional Dispensing Fee and Actual Acquisition Cost Analysis for Medi-Cal: Pharmacy Survey Report. For the State of California. January 4, 2017.

Mercer. Professional Dispensing Fee Analysis for Medicaid Members: Pharmacy Survey Report. For the Ohio Department of Medicaid. November 28, 2016.

Mercer. Cost of Dispensing Prescription Drugs to Medicaid Members Pharmacy Survey Report. For the State of Wisconsin. January 30, 2017.

Myers and Stauffer. Survey of the Average Cost of Dispensing a Medicaid Prescription in the State of Michigan. Report for the Michigan Department of Health and Human Services. February 21, 2017.

Myers and Stauffer. Survey of the Average Cost of Dispensing a Medicaid Prescription in the State of Iowa. Report for the Iowa Department of Human Services. June 2016.

Myers and Stauffer. Survey of the Average Cost of Dispensing a Medicaid Prescription in the State of Massachusetts. Report for the Massachusetts Executive Office of Health and Human Services. February 7, 2017.

hour virtual discussion via WebEx. During the call, Abt Associates posed the following questions to the experts to help understand the specialty drug dispensing process and inform revisions to the survey:

- What do you think are the **biggest drivers in the cost** of dispensing of specialty drugs for retail pharmacies in terms of 1) costs and 2) time?
- What are the discrete **additional tasks/services** involved in dispensing specialty drugs?
- Who at a pharmacy would **complete the survey**? Would/could more than one person complete the survey (e.g., square footage, # of prescriptions, time involved in dispensing)?
- Do all pharmacies have ready-access to **prescription volume** data and can they pull it easily? Is it the same for independents and chains? How readily can a pharmacy report by **classes/categories** that are specialty drugs?
- From what data, or how, would a pharmacy provide data on the **time involved** in dispensing specialty drugs? On what is it based (e.g. estimate, management data, past experience)?
- How **wide a range** do you think the time involved in dispensing is from the "easier" specialty drugs to the "most involved" in terms of the tasks involved in dispensing?
- Are there differences in the cost of dispensing for **different payers**? Why? If so what are meaningful groupings of insurance types (e.g. are Medicaid FFS and Medicaid managed care treated similarly)?

Based on recommendations from the expert panel and findings from the literature, Abt revised the previous COD survey (from 2014) and developed new items and response categories to capture components relevant to specialty drugs and dispensing tasks. A sample of panel recommendations and feedback on measuring cost of dispensing specialty drugs, and the actions we took in response, is listed below:

- Different pharmacies and payers use different definitions of specialty drugs. To establish a common definition of specialty drugs across respondents based on expert panel recommendations, we proposed providing respondents with a list of specialty drug National Drug Codes (NDCs) that were compiled based on being listed on the specialty drug lists of at least two national, large pharmacy benefit managers. We verified with the expert panel that most pharmacies would be able to readily pull the prescription volume of these prescription drugs, regardless of the number of NDCs, recognizing that some small, independent pharmacies may not readily be able to do so or be able to prioritize the time to do so.
- Several specialty drug dispensing tasks, while similar to those for traditional drugs, require more time for specialty drugs. For example, specialty drugs often require more time for benefits investigation (e.g., prior authorization), education (e.g., dosing, side effect management, and appropriate drug administration and storage), and often have requirements from the manufacturer (e.g., documentation, lab tests). Given this insight from the literature and experts, we developed an item to capture time estimates by specific tasks involved in dispensing a specialty drug for descriptive purposes.
- In survey items asking respondents to report time involved in dispensing tasks, the expert panel noted that it was important to be clear that we were interested in "active" working time, not "passive" waiting time (e.g., for prior authorization approval). These questions had a callout box that explained that the time questions were about active work time; this was also underlined in the questions.

- The expert panel raised several points specific to specialty drugs that may be important to reflect in the survey items and instructions. Per the panel's recommendation we added 'closed door pharmacy' as an additional pharmacy type to capture. The expert panel also recommended that we add in cost components unique to specialty drugs, which we did (e.g., accreditation costs were added into an item asking about "Prescription department licenses, permits, accreditation and fees"). Finally, the expert panel concurred that it is challenging to disentangle which pharmacy costs are unique to specialty drugs versus the traditional drugs dispensed. To address this, we added a question at the end of the cost item for responding pharmacies to indicate any other, additional costs related to specialty drugs that were not provided in the primary cost question (e.g., salary, direct costs).

1.2.4. Cognitive Testing

The draft survey instrument was cognitively tested to assess the clarity of survey questions and whether the questions would reliably generate the desired information. Abt Associates identified cognitive testing participants from the expert panel and recommendations from NACDS. In total, we interviewed 11 individuals (six pharmacists, three pharmacy executives, and two finance analysts) from four pharmacies, including an independent pharmacy. We also obtained written comments from one additional specialty pharmacy.

We refined the survey items and confirmed the preferred approach to specific questions. The final survey instrument is provided in the Appendix.

1.3. Survey Sample

We used the National Council for Prescription Drug Programs (NCPDP) Pharmacy Provider database as the basis for a sampling frame. The NCPDP Pharmacy Provider database includes all pharmacies in the United States, along with pharmacy characteristics, such as chain status, specialty status, geographic location, and other variables. Eligible respondents from the sampling frame included 65,854 pharmacies in the 50 United States and District of Columbia that were open during the entire year of 2018 (**Exhibit 1**). We excluded pharmacies operated by the Indian Health Service, Department of Veterans Affairs, and Military. We also excluded pharmacies with a primary pharmacy type of nuclear pharmacy, oxygen equipment, nursing facility supplies, customized equipment, or dialysis equipment. Additional exclusion criteria are described in Exhibit 1.

Exhibit 1: Eligibility criteria to be included in the survey sample

Groups	N Pharmacies
Pharmacies in the NCPDP file	82,002
Exclusions to the survey sample	16,148
Identified in any NCPDP pharmacy type (primary, secondary or tertiary): ▪ Department of Veterans Affairs ▪ Indian Health Service ▪ Military/US Coast Guard ▪ Non pharmacy dispensing site	8,911
Identified in primary NCPDP pharmacy type: ▪ Customized equipment ▪ Dialysis equipment ▪ Institutional pharmacy ▪ Managed care organization pharmacy ▪ Nuclear pharmacy ▪ Nursing facility supplies ▪ Oxygen equipment	1,530
Identified as Government Pharmacies or Alternate Dispensing Site Pharmacies in the NCPDP data (dispenser class codes of 06 and 07)	1,442
Pharmacies in the US Territories (Puerto Rico, Virgin Islands, Guam, Northern Mariana Islands)	1,156
Pharmacies open only for a partial year during 2018	3,109
Eligible for the survey	65,854
Eligible pharmacies had the following NCPDP primary pharmacy types: ▪ Clinic pharmacy ▪ Community/retail pharmacy ▪ Compounding pharmacy ▪ Durable medical equipment ▪ Home infusion therapy provider ▪ Long term care pharmacy ▪ Mail order pharmacy ▪ Parenteral and enteral nutrition ▪ Specialty pharmacy	

1.4. Survey Administration

The 2019 COD Survey aimed to collect information on the actual costs that community retail pharmacies incurred in calendar year 2018 related to dispensing prescription drugs. The survey collected data on costs that could be dependent on the type of payer, including Medicaid, and encompassed both independent and chain retail pharmacies across the United States.

We administered the survey from January 31, 2019 to June 5, 2019, using a secure online survey website where an individual pharmacy could complete the questionnaire online, or download and then fax or mail a completed questionnaire. A spreadsheet version of the questionnaire was also created that retail pharmacy chains could use to report for multiple locations. Chains downloaded the spreadsheet from the online website and then uploaded the completed spreadsheet at the same website.

All 64,854 eligible pharmacies from the sampling frame were invited to complete the survey. NACDS, NCPA, and NASP, which represent many retail pharmacies operating in the United States, emailed their members, as well as nonmember pharmacy chains, to invite them to complete the COD Survey. The invitation directed respondents to the online survey website, which included the downloadable Word and spreadsheet version. In addition to the initial outreach email, two follow up reminder emails were sent out which included an attached FAQ document (**Appendix 5.8**). All email communications contained a link to a pre-recorded webinar with instructions for completing the survey, as well as a link to download a spreadsheet with supporting materials including instructions, a payroll worksheet, and a list of specialty drugs by NDC.[4]

In total, we received survey responses from 16,102 unique pharmacies (**Exhibit 2**). Of the 16,102 pharmacies responding to the survey, 209 were excluded from the analysis, because insufficient information was provided to calculate the cost of dispensing or because they were from types of pharmacies that did not meet inclusion criteria (e.g., Indian Health Services or only open for a partial year). After exclusions, 15,893 pharmacies provided enough information in the survey to calculate the cost of dispensing, for an effective response rate of 24.1%.

Exhibit 2: Number of survey respondents

Groups	N Pharmacies
Responded to the survey	16,102
Individual pharmacy online surveys	223
Individual pharmacy fax or mail surveys	22
Chain pharmacies submitted spreadsheets (n=27 chains)	15,857
Excluded from analysis	209
Submitted insufficient or invalid data to compute cost of dispensing	30
Ineligible pharmacy type	65
Pharmacy was located outside of the 50 United States and Washington D.C.	29
Pharmacy was not open for entire year	85
Survey responses from eligible pharmacies with valid cost of dispensing data	15,893 (24.1% of the 65,854 pharmacies eligible for the study)

[4] List of specialty drugs by NDC is available upon request.

1.5. Data Review and Cleaning

1.5.1. Data Cleaning

We reviewed the data for completeness and reasonableness. We made corrections where the nature of the error was apparent. For example, zeros were inserted where it was clearly apparent that certain data elements had been left blank, and obvious arithmetic errors were corrected. We followed up with respondents who did not respond to key items. For pharmacies submitting survey responses using the spreadsheet tool, we also followed up with pharmacies about data that appeared unusual in comparison with the other store data submitted in the spreadsheet. In most cases, with cooperation from the pharmacies, we resolved these anomalies by accepting data as correct, receiving revised data, or revising data based on input.

1.5.2. Identification of Outliers and Final Analytic Sample

Statistical outliers—pharmacies reporting very high or very low costs of dispensing—have been identified in nearly all cost of dispensing studies. Some outliers may represent correct submissions from pharmacies with high or low cost structures or unique business models; other outliers may represent inaccurate submissions having errors that we were unable to detect during the data cleaning process. In either case, including statistical outliers in an analysis risks skewing the mean cost of dispensing away from the true central tendency of the population. Studies have taken different approaches for addressing outlier observations. Myers and Stauffer have appeared not to exclude outliers from their cost of dispensing estimates.[5] In contrast, Mercer reports have excluded responses with costs of dispensing greater or less than three standard deviations from the mean and also Winsorized costs of dispensing by setting costs of dispensing that were below the fifth percentile to the fifth percentile and those that were higher than ninety-fifth percentile to the ninety-fifth percentile.[6]

To strike a balance between concerns about incorrectly excluding pharmacies that are reporting correct costs of dispensing, and which should be included in the analysis, and concerns about incorrectly including pharmacies reporting inaccurate data, we identified and excluded outliers as pharmacies with cost of dispensing outside of four standard deviations from the mean.[7] Additionally, because pharmacies with high specialty volume are known to have different business models and cost structures than traditional retail pharmacies without high specialty volume,[8] we identified outliers separately for each of

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[5] Myers and Stauffer. Survey of the Average Cost of Dispensing a Medicaid Prescription in the State of Michigan. Report for the Michigan Department of Health and Human Services. February 21, 2017.

Myers and Stauffer. Survey of the Average Cost of Dispensing a Medicaid Prescription in the State of Iowa. Report for the Iowa Department of Human Services. June 2016.

Myers and Stauffer. Survey of the Average Cost of Dispensing a Medicaid Prescription in the State of Massachusetts. Report for the Massachusetts Executive Office of Health and Human Services. February 7, 2017.

[6] Mercer. Professional Dispensing Fee and Actual Acquisition Cost Analysis for Medi-Cal: Pharmacy Survey Report. For the State of California. January 4, 2017.

Mercer. Professional Dispensing Fee Analysis for Medicaid Members: Pharmacy Survey Report. For the Ohio Department of Medicaid. November 28, 2016.

Mercer. Cost of Dispensing Prescription Drugs to Medicaid Members Pharmacy Survey Report. For the State of Wisconsin. January 30, 2017.

[7] Coalition for Community Pharmacy Action (CCPA). National Cost of Dispensing (COD) Study: Final Report. September, 2015.

[8] Myers and Stauffer. Survey of the Average Cost of Dispensing a Medicaid Prescription in the State of Michigan. Report for the Michigan Department of Health and Human Services. February 21, 2017.

these two groups by separately computing within-group means and standard deviations. For the purpose of identifying outliers, pharmacies with 10% or more of their total drug volume coming from specialty drugs were designated as high specialty volume pharmacies. Notably, the number of pharmacies with high specialty volume needed to be large enough to support analyses with sufficient statistical precision, while keeping the threshold of specialty volume high enough that the pharmacies with low and high specialty volume would remain sufficiently distinct. The threshold of 10% was also consistent with a prior report published by Myers and Stauffer.[8] However, notably, we are not aware of an official government or industry-approved definition of specialty drugs or specialty pharmacies.

We computed overall cost of dispensing for 15,893 pharmacies and identified outliers as follows:

- Of the 15,826 pharmacies with less than 10% specialty drug dispensing volume, 24 outliers were identified as having costs of dispensing greater than or less than four standard deviations from the mean.

- Of the 67 pharmacies with greater than or equal to 10% specialty drug dispensing volume, 1 outlier was identified as having costs of dispensing greater than or less than four standard deviations from the mean.

After excluding these 25 pharmacies with outlier overall cost of dispensing, 15,868 pharmacies were included in the analysis, representing 1.365 billion prescriptions filled.

1.5.3. Confidentiality

Potential respondents to the COD Study were informed that all data would be kept confidential and that data would be reported and shared only in the aggregate form to protect confidentiality. Where this report includes state-level results, for small states having less than two chains or 65 pharmacies, results were combined across states for reporting purposes. Individual survey responses were not shared outside of Abt Associates and the MPI Group. The names of pharmacies that responded (but not individual survey responses) were shared with NACDS.

1.6. Calculating Cost of Dispensing

The 2019 COD study was designed to report national and state-level estimates of pharmacy costs of dispensing. We calculated the following measures of costs of dispensing overall:

- Overall cost of dispensing per prescription
- Cost of dispensing per prescription covered by Medicaid FFS
- Cost of dispensing per specialty prescription (national only)

The period covered in this study was calendar year 2018. If a pharmacy's accounting period did not correspond exactly with the calendar year, respondents were instructed to use the accounting period that most closely aligned with the 2018 calendar year to answer the survey.

1.6.1. Overall Cost of Dispensing

Overall cost of dispensing a prescription for each pharmacy is calculated as total cost of prescription department divided by total number of prescriptions. Total cost of prescription department comprises the following elements:

- **Prescription department payroll costs**. This includes all compensation for employees working in the prescription department (wages, benefits, payroll taxes). The payroll costs for employees who divide their time between the prescription department and other departments within the store are allocated based on the time spent in the prescription department.

- **Other (non-payroll) prescription department costs**. These costs include costs other than payroll costs that are incurred only by the prescription department. The survey provided ten types of costs that this category could include:
  - Prescription containers, labels, and other pharmacy supplies
  - Professional liability insurance for pharmacists
  - Prescription department licenses, permits, accreditation and fees
  - Dues, subscriptions, and continuing education for the prescription department
  - Delivery expenses (only prescription related)
  - Mailing expenses (only prescription related)
  - Computer systems, including web services (related only to the prescription department)
  - Pharmacy specific equipment (e.g. automated dispensing systems, refrigerators)
  - Transaction fees
  - Other prescription-department-specific costs
- **Facility costs**. Facility costs include costs that are shared with other departments within the store and are allocated to the prescription department according to the prescription department square footage as a percentage of the total store square footage. The survey provided eight types of costs that this category could include:
  - Rent
  - Utilities (gas, electric, water, and sewer)
  - Real estate taxes
  - Facility insurance
  - Maintenance and cleaning
  - Depreciation
  - Mortgage interest
  - Other facility costs
- **Other store costs.** Other store costs include other costs that are not solely associated with the prescription department and are not included in facilities costs. These costs are allocated to the prescription department according to prescription sales as a percentage of total store sales. The survey provided 13 types of costs that this category could include:
  - Marketing and advertising
  - Professional services (e.g. accounting, legal, consulting)
  - Telephone and data communications
  - Computer systems and support
  - Other depreciation and amortization
  - Office supplies
  - Other insurance
  - Taxes other than real estate, payroll, or sales taxes
  - Franchise fees, if applicable
  - Bad debts
  - Charitable contributions
  - Other interest
  - Other costs not included elsewhere
- **Corporate costs.** This cost element applies only to stores that are a part of a group of stores or a larger business enterprise for which centralized services are performed at district, regional, or central corporate locations. These costs are also allocated to the prescription department according to prescription sales as a percentage of total store sales.

1.6.2. Medicaid Fee-for-Service Cost of Dispensing

This study also calculated costs of dispensing for prescriptions covered by Medicaid FFS. We did not calculate costs of dispensing for prescriptions covered by Medicaid Managed Care, because pharmacies often cannot easily differentiate Medicaid Managed Care from other commercial insurance payers. The Medicaid FFS cost of dispensing differs from the overall cost of dispensing in payroll costs (the time required to dispense prescriptions), interest costs related to carrying accounts receivable for Medicaid prescriptions, and the exclusion of (1) marketing and advertising expenses, (2) bad debts, and (3) charitable contributions, all of which are included in other store costs for the overall cost of dispensing. All other elements of the overall cost of dispensing are calculated in the same way as for the Medicaid cost of dispensing. Specifically, the cost of dispensing prescriptions covered by Medicaid FFS was calculated as the sum of:

- **Medicaid payroll costs per prescription** (where overall payroll costs are allocated for Medicaid prescriptions according to the share of time required to dispense all Medicaid prescriptions relative to all prescriptions),
- **Other prescription department costs** allocated to prescriptions covered by Medicaid FFS
- **Facility costs** allocated to the prescription department (allocated according to prescription department square footage as a percentage of total store)
- **Other store costs** allocated to prescription department (allocated according to prescription sales as a percentage of total store sales), excluding (1) marketing and advertising expenses, (2) bad debts, and (3) charitable contributions
- **Medicaid interest costs per prescription.** Carrying receivables for unpaid insurance claims creates actual or implicit interest and other costs. Different state Medicaid agencies may have different payment cycles, and may take less time, about the same time, or more time to pay claims relative to other third-party payers. Survey respondents reported the average days that receivables were outstanding for Medicaid FFS payers and other third-party payers. We then calculated Medicaid interests costs based on an average interest rate charged to retailers during calendar year 2018. While interest rates charged to retailers may vary based on size, credit history, debt ratios and other factors, we estimated the short term interest rate using the average overnight LIBOR rate during 2018 (1.835%)[9] plus 200 basis points (2%), which was 3.835% during the 2018 calendar year.[10]
- **Corporate costs** allocated to prescription department.

1.6.3. Specialty Cost of Dispensing

Finally, this study calculated costs of dispensing for specialty drugs. While overall costs of dispensing were calculated according to the time to dispense all drugs, specialty drug costs of dispensing were calculated according to the time required to dispense specialty prescriptions. All other elements of the overall cost of dispensing were calculated in the same way as for the specialty cost of dispensing.

Additionally, while a single survey item of the total active time involved in dispensing a specialty drug was used to calculate the cost of dispensing, we also asked for estimates of the time involved for specific dispensing tasks and who would typically complete the task.

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[9] LIBOR stands for "London Interbank Offered Rate". We used the average overnight LIBOR rate posted on https://www.global-rates.com/interest-rates/libor/american-dollar/2018.aspx, most recently confirmed on September 3, 2019.

[10] Coalition for Community Pharmacy Action (CCPA). National Cost of Dispensing (COD) Study: Final Report. September, 2015.

1.6.4. Computation of National and State Costs of Dispensing

Where possible, we report state-level cost of dispensing estimates. To report state-level cost of dispensing we required at least 25% of pharmacies in each state to have responded to the survey, at least two chains per state and at least 65 total survey responses. For small states having too few pharmacies to support within-state estimates, we grouped them with near-by states, so that estimates reflect regional costs of dispensing.

1.7. Analysis

1.7.1. Weights

We weighted analyses of costs of dispensing and costs of dispensing components for survey nonresponse and for the prescription volume by each pharmacy. Weighting for survey nonresponse adjusts estimates for potential nonresponse bias, while weighting by the number of drugs dispensed by each pharmacy allows us to report estimates in terms of average prescription costs of dispensing. The final survey weight was calculated as the product of the nonresponse and prescription volume weights. The method used to calculate each weight is described in greater detail below:

Survey nonresponse weight. To the extent that pharmacies responding to the survey may be different from those who did not, there is a risk that estimates could be subject to nonresponse bias. Nonresponse weights based on the probability that a pharmacy responded to the survey were computed to adjust for differential nonresponse to the survey as a function of observable characteristics. We used a logistic regression model to estimate the probability that pharmacies responded to the survey, using the following variables: state, pharmacy ownership status (chain or independent, as indicated in the NCPDP data), indicated as specialty pharmacy in the NCPDP data, median annual household income (Census), percentage of population in ZIP code with private health insurance (Census), and Urban-Suburban-Rural classification (Census).[11] The estimated probabilities were used to divide cases into five quintiles.[11] The final nonresponse weight was computed as the inverse of the response rate in each quintile, separately for responding and non-responding pharmacies. This approach helps to protect against model misspecification, relative to using the inverse of the response propensities. After weighting for nonresponse, the characteristics of responding pharmacies were much more similar to those of all pharmacies eligible for the study, than the characteristics of respondents without nonresponse weights (**Exhibit A2**). However, weighting and survey design features that depart from simple random sampling can also result in an increase in the variance of survey estimates (the design effect), which can diminish the effective statistical power of analyses.

Prescription volume. We measured the volume of drugs dispensed using pharmacy respondent reports of the total number of prescriptions filled during the 2018 calendar year. Weighting by prescription volume allows us to estimate the mean prescription cost of dispensing across pharmacies. Excluding the weight of the volume of drugs dispensed would result in an estimate of the average *pharmacy* cost of dispensing versus cost of dispensing per prescription.

1.7.2. Descriptive Statistics

We calculated the mean, standard deviation, and distribution for each cost of dispensing measure and sub-component, weighted for survey nonresponse and the prescription volume. To describe the range of values in the distribution for each measure, we reported the 5th, 25th, 50th (median), 75th, and 95th percentiles. We also reported descriptive statistics for the percentage of specialty drugs dispensed as a share of prescription volume.

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[11] Valliant, R. and J. A. Dever (2018) Survey Weights: A Step-by-Step Guide to Calculation. College Station, TX: Stata Press.

1.7.3. Costs of dispensing for subgroups of pharmacies

We also compared overall costs of dispensing by five key pharmacy characteristics:

- **Prescription volume**, reflecting categories of the total number of prescriptions dispensed during the 2018 calendar year (<40,000 prescriptions/year; 40,000-79,999 prescriptions/year; 80,000-119,999 prescriptions/year; and 120,000 or more prescriptions/year).
- **Specialty pharmacy dispensing volume,** identifying pharmacies with 10% or more specialty share of drug dispensing volume.
- **Urban or rural,** as defined by location within a Metropolitan Statistical Area or not.
- **Census region**, as defined by location within Northeast, Midwest, South, or West Census regions.

For the first three stratified analyses, using binary measures of pharmacy characteristics, we calculated the mean and standard deviation of each subgroup, the difference between groups, and whether the difference was statistically significant at the 0.05 level. For the analysis of cost of dispensing stratified by prescription volume categories and census region, we calculated the mean and standard deviation of each subgroup and used an F-test to identify whether the variation across the categories was statistically significant.

2. Findings

2.1. National Estimates of Cost of Dispensing

2.1.1. Overall Cost of Dispensing

The mean overall cost of dispensing, for all drugs dispensed, was $12.40, with an interquartile range of $8.81 to $13.64 (**Exhibit 3**). The mean ($12.40) was larger than the median ($11.15), reflecting a few pharmacies with high costs of dispensing at the extreme of the distribution. Payroll costs were the biggest drivers of the overall cost, accounting for 58% of the overall mean cost of dispensing ($7.22 of $12.40).

Exhibit 3: Descriptive statistics, overall costs of dispensing

Cost of Dispensing Measure	N pharmacies	Mean	Standard deviation	5th percentile	25th percentile	Median	75th percentile	95th percentile
Overall cost of dispensing per prescription ($)	15,868	12.40	10.15	5.13	8.81	11.15	13.64	20.16
Pharmacy payroll costs per prescription ($)	15,868	7.22	4.25	1.75	5.51	6.65	8.28	12.62
Pharmacy other costs per prescription ($)	15,868	1.06	2.72	0.08	0.15	0.51	1.12	3.33
Facility costs per prescription ($)	15,868	0.51	1.00	0.06	0.16	0.33	0.57	1.48
Other costs per prescription ($)	15,868	2.64	2.96	0.04	0.98	2.35	3.84	5.93
Corporate costs per prescription ($)	15,868	0.98	3.59	0.00	0.00	0.00	0.96	3.13

Source: 2019 Pharmacy Cost of Dispensing Study
Notes: Estimates were weighted for survey nonresponse and prescription volume.

2.1.2. Cost of Dispensing for Drugs Covered by Medicaid Fee-For-Service

The mean overall cost of dispensing for drugs covered by Medicaid FFS was $12.45, with an interquartile range of $9.09 to $13.38 (**Exhibit 4**).

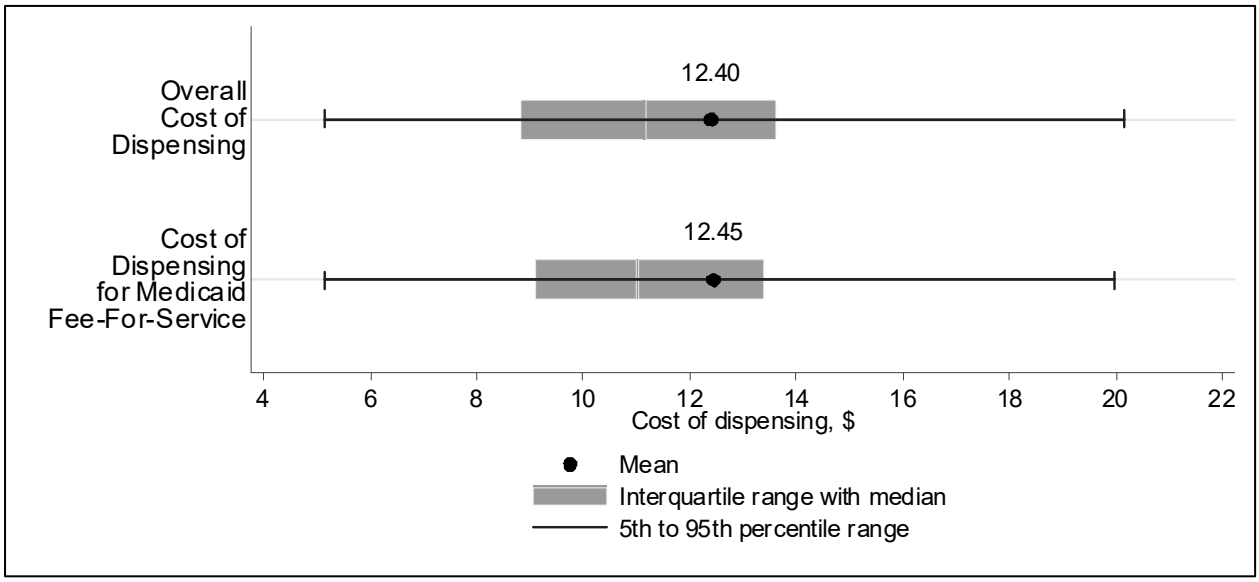
Exhibit 4: Descriptive statistics, costs of dispensing for drugs covered by Medicaid FFS

Cost of Dispensing Component	N pharmacies	Mean	Standard deviation	5th percentile	25th percentile	Median	75th percentile	95th percentile
Cost of Dispensing for Medicaid fee-for-service ($)	15,584	12.45	10.55	5.14	9.09	11.02	13.38	19.97
Pharmacy payroll costs per Medicaid prescription ($)	15,584	7.42	4.29	3.28	5.57	6.70	8.35	12.80
Pharmacy other costs per Medicaid prescription ($)	15,584	1.05	2.75	0.08	0.15	0.46	1.12	3.38
Pharmacy facility costs per Medicaid prescription ($)	15,584	0.51	1.01	0.07	0.16	0.32	0.56	1.48
Other costs allocated per Medicaid prescription ($)	15,584	2.35	2.79	0.01	0.69	2.07	3.46	5.56
Interest cost per Medicaid prescription ($)	15,584	0.15	0.76	0.00	0.01	0.03	0.11	0.34
Corporate costs per Medicaid prescription ($)	15,584	0.98	3.62	0.00	0.00	0.00	0.97	3.13
Medicaid non-allowed costs per prescription* ($)	15,584	0.52	1.15	0.00	0.14	0.30	0.55	1.30

Source: 2019 Pharmacy Cost of Dispensing Study
Notes: Estimates were weighted for survey nonresponse and drug dispensing volume. *The "Medicaid non-allowed costs per prescription" included marketing and advertising expenses, bad debts, and charitable contributions; these costs were not included in the calculation of the Medicaid cost of dispensing components.

Notably, the mean cost of dispensing for drugs covered by Medicaid FFS was comparable to the average cost of dispensing overall ($12.40), as were the interquartile ranges and range of 5th to 95th percentiles (**Exhibit 5**).

Exhibit 5: Overall cost of dispensing and cost of dispensing for Medicaid fee-for-service



Source: 2019 Pharmacy Cost of Dispensing Study
Notes: N=15,868 for the overall cost of dispensing; N=15,584 for the cost of dispensing for Medicaid fee-for-service. Estimates were weighted for survey nonresponse and drug dispensing volume.

2.1.3. Specialty Drug Cost of Dispensing

We asked pharmacies to report the number of specialty drugs they dispensed based on a list of specialty drug NDCs listed on the specialty drug lists of at least two large national pharmacy benefit managers.[12] Most pharmacies dispensed relatively few specialty drugs as a share of overall prescription volume (**Exhibit 6**). The median proportion of specialty drugs dispensed of total prescription volume was only 0.4%, and roughly 84% of pharmacies reported a share of specialty drugs dispensed of less than one percent of overall prescription volume. In contrast, some specialty pharmacies reported all prescriptions dispensed as specialty drugs. After weighting by drug dispensing volume, the median proportion of specialty drugs dispensed of total prescription volume was even lower, only 0.3%.

[12] We used this approach, because a common list of specialty drugs was required to support valid cost of dispensing estimates, and because providing a list of NDCs was determined to be feasible during cognitive testing. However, we are not aware of an official government or industry-approved definition of specialty drug or specialty pharmacy.

Exhibit 6: Descriptive statistics, specialty drugs dispensed as a share of total drugs dispensed

Measure	N	Mean	Standard deviation	5th percentile	25th percentile	Median	75th percentile	95th percentile
Specialty drugs dispensed as a share of total drugs dispensed (average pharmacy)*	5,959	4.6%	15.4%	0.0%	0.2%	0.4%	0.6%	38.5%
Specialty drugs dispensed as a share of total drugs dispensed (average prescription)**	5,959	2.2%	9.7%	0.1%	0.2%	0.3%	0.6%	8.0%

Source: 2019 Survey of Pharmacy Costs of Dispensing

Notes: Pharmacies reported the number of specialty drugs they dispensed based on a list of specialty drug National Drug Codes listed on the specialty drug lists of at least two large national pharmacy benefit managers. *Estimates were weighted for survey nonresponse, but not drug dispensing volume (pharmacy-level estimates). **Estimates were weighted for survey nonresponse and drug dispensing volume (prescription-level estimates).

Specialty Drug Cost of Dispensing for Specialty Pharmacies

We calculated the mean cost of dispensing specialty drugs for pharmacies with high specialty dispensing volume, defined as pharmacies with at least 10% of their total prescription volume from specialty drugs. Sixty-six pharmacies in our final analytic sample met this definition. Among those 66 pharmacies, the average specialty drug cost of dispensing was $73.58, with an interquartile range $40.12 to $86.48 (**Exhibit 7**). Appendix 5.3 additionally shows overall costs of dispensing for the 15,802 pharmacies in the study with less than 10% of their total prescription volume from specialty drugs.

Exhibit 7: Descriptive statistics, specialty costs of dispensing for pharmacies with at least 10% of their total prescription volume from specialty drugs

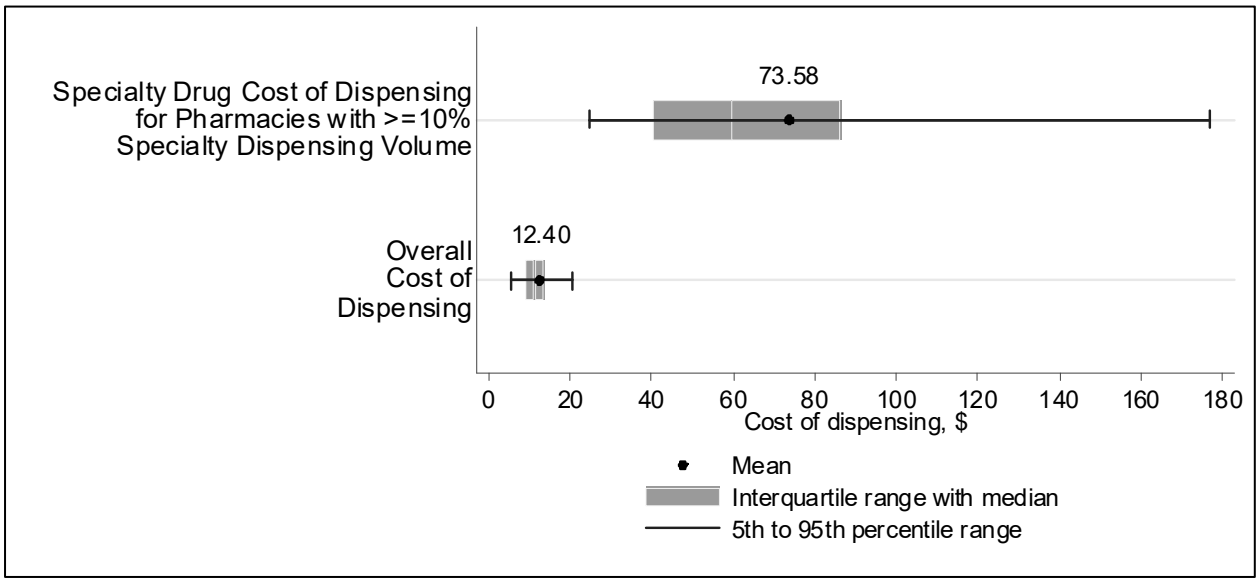
Cost of Dispensing Measure	N pharmacies	Mean	Standard deviation	5th percentile	25th percentile	Median	75th percentile	95th percentile
Specialty drug cost of dispensing per prescription ($)	66	73.58	48.01	24.57	40.12	59.75	86.48	176.93
Pharmacy payroll costs per specialty prescription ($)	66	29.30	28.36	12.33	13.32	15.89	46.14	56.47
Pharmacy other costs per specialty prescription ($)	66	12.80	14.33	0.84	1.03	3.96	28.61	40.13
Pharmacy facility costs per specialty prescription ($)	66	3.36	5.53	0.23	0.67	1.56	3.63	13.39
Other costs allocated per specialty prescription ($)	66	7.64	15.66	0.63	1.23	2.94	4.39	32.79
Corporate costs per specialty prescription ($)	66	20.48	14.94	0.00	0.00	18.97	38.50	39.14

Source: 2019 Pharmacy Cost of Dispensing Study

Notes: Estimates were weighted for survey nonresponse and drug dispensing volume.

The range was much narrower for the overall cost of dispensing and the cost of dispensing for drugs covered by Medicaid FFS than it was for specialty drugs (**Exhibit 8**).

Exhibit 8: Cost of dispensing for specialty drugs among specialty pharmacies defined as having at least 10% of their prescription volume from specialty drugs



Source: 2019 Pharmacy Cost of Dispensing Study

Notes: N=66 for the specialty cost of dispensing for pharmacies with greater than or equal to 10% specialty dispensing volume. This chart also includes the distribution for the overall cost of dispensing, including both specialty and non-specialty prescriptions, for reference (N=15,868). Estimates were weighted for survey nonresponse and drug dispensing volume.

Specialty Drug Cost of Dispensing for All Pharmacies

We also calculated the cost of dispensing specialty drugs for all pharmacies responding to the survey in the final analytic sample that reported the information needed to calculate a specialty drug cost of dispensing (**Appendix 5.44**). Among these pharmacies, the average specialty drug cost of dispensing was $24.63, with a standard deviation of $31.74 and a range from the 25th to 75th percentiles of $12.24 to $22.41, and with a value at the 95th percentile of $74.76. There are several reasons why the specialty drug cost of dispensing may differ between all pharmacies (mean of $24.63) and pharmacies with specialty drug dispensing volume above 10% (mean of $73.58). This is explored in greater detail in the **Discussion section**.

Time for Specific Tasks Involved in Dispensing Specialty Drugs

While a single survey item of the total active time involved in dispensing a specialty drug was used to calculate the cost of dispensing, the study team also asked for estimates of the time involved for specific dispensing tasks and who would typically complete the task. Respondents were also asked to estimate the share of specialty drugs that would require a specific task; respondents representing 435 pharmacies answered the question. As shown in **Exhibit 9**, the tasks that required the most time were obtaining information and submitting a prior authorization (20.1 minutes); securing patient financial assistance (16.8 minutes); and obtaining plan information, benefits investigation or coverage determination (13.3 minutes). For each of these tasks, over 80% of pharmacies indicated that pharmacy technicians would complete these tasks. The tasks that require pharmacists' time in most cases are patient counseling on the medication; training and education on the medication, storage, handling, and administration; and patient monitoring, and clinical and care coordination activities.

Exhibit 9: Time to dispense specialty drugs by task and primary role completing each task

Tasks	Share of specialty drugs requiring each of the following tasks, mean %	Minutes each specialty drug filled, mean*	Primary individual completing task, %				
			RPh	Clerk	Tech	NP	Other
Obtaining plan information, benefits investigation, or coverage determination	71.7	13.3	11.4	1.2	83.1	0.0	4.3
Patient counseling on the medication	59.9	9.6	99.8	0.0	0.2	0.0	0.0
Patient monitoring, clinical and care coordination activities	59.2	7.3	56.2	0.0	42.8	0.0	1.0
Obtaining information for and submitting prior authorization	54.9	20.1	12.2	0.5	82.3	1.0	4.1
Training and education on the medication, proper storage, handling, and administration	52.6	9.2	98.1	0.0	0.0	0.0	1.9
Other tasks	46.2	5.7	9.1	3.1	87.4	0.0	0.4
Securing patient financial assistance	45.0	16.8	10.2	1.7	82.3	0.0	5.7
Satisfying reporting requirements of the manufacturer	33.5	5.3	20.9	0.0	26.7	0.0	52.4
Facilitating mailing or delivery	13.0	5.6	2.1	10.6	83.5	0.0	3.8

Source: 2019 Pharmacy Cost of Dispensing Study

Notes: N=435. Estimates were not weighted. The average time to fill a specialty drug among the 435 pharmacies represented in this data was 51 minutes. *Minutes for each specialty prescription drug filled was reported only for the tasks conducted by each pharmacy. Abbreviations: RPh, registered pharmacist; Clerk, pharmacy clerk; Tech, pharmacy technician; NP, nurse practitioner.

2.2. Association of Pharmacy Characteristics with Cost of Dispensing

We used multivariate linear regression analysis to assess how costs of dispensing differed when stratified by pharmacy characteristics (**Exhibit 10**). Multivariate regression analysis allowed us to concurrently control for multiple variables in estimating the regression-adjusted cost of dispensing for a given group of pharmacies.

After adjusting for five key pharmacy characteristics, we found that costs of dispensing varied significantly by pharmacy prescription volume, and the percentage of specialty prescriptions dispensed as a share of overall prescription volume, but not by urban/rural status or by region. Pharmacy dispensing volume was negatively associated with costs of dispensing (p=0.001). However, costs of dispensing were very similar for pharmacies having a volume greater than 40,000 drugs dispensed. Overall costs of dispensing were over $50 greater for pharmacies with high specialty dispensing volume than for pharmacies without a high specialty dispensing volume (95% CI: $33.73 to $69.42).

Exhibit 10: Pharmacy characteristics associated with the overall cost of dispensing per prescription

Explanatory measures	Percent of pharmacies in each group*	Overall cost of dispensing per prescription, $ (95% CI)**	Difference, $ (95% CI)**	F-value (Wald test)**,†	p-value **,†
Prescription volume				5.4	0.001
<40,000	17.9	17.31 (15.02 to 19.59)			
40,000-79,999	28.7	12.43 (11.48 to 13.38)			
80,000-119,999	42.6	11.90 (11.20 to 12.59)			
120,000+	10.8	12.31 (10.49 to 14.14)			
Percentage specialty prescription volume			51.58 (33.73 to 69.42)		<0.001
<10%	96.0	11.44 (10.80 to 12.08)			
10% or more	4.0	63.02 (45.16 to 80.88)			
Urban or Rural			-0.69 (-1.80 to 0.43)		0.228
Rural (not in an MSA)	21.9	12.94 (11.98 to 13.91)			
Urban (in an MSA)	78.1	12.26 (11.43 to 13.08)			
Region				1.96	0.118
Northeast	16.4	12.83 (11.46 to 14.20)			
Midwest	22.9	11.38 (9.51 to 13.25)			
South	41.5	12.51 (11.98 to 13.03)			
West	19.2	13.63 (12.45 to 14.80)			

Source: 2019 Pharmacy Cost of Dispensing Study
Notes: N=15,868 pharmacies. Standard errors were clustered by state and chain (i.e., the state where each pharmacy was located and the name of the chain owning each pharmacy; independent pharmacies were placed in their own clustering strata). The F-value for the combined regression was 10.57 (p<0.001); the r-squared for the regression was 0.51. Abbreviations: 95% CI = 95% Confidence Interval; MSA = Metropolitan Statistical Area. *Estimates of the percentage of pharmacies in each group were weighted using nonresponse weights only, to reflect the proportion of pharmacy stores represented in the analysis. **All other estimates were weighted for survey nonresponse and drug dispensing volume, to reflect prescription-level estimates. †Differences were calculated for binary measures only, and F-tests were calculated for categorical measures only.

2.3. State Estimates of Cost of Dispensing

We also estimated cost of dispensing by state. For small states having less than two chains or 65 pharmacies, results were combined across states for reporting purposes.

Except in Oregon, which had an unusually high estimated cost of dispensing, overall costs of dispensing by state/region ranged from $8.85 for a group of largely rural states in the Midwest (NE, KS, IA, SD, ND) to $15.20 for the combined rural region of West Virginia and Kentucky (**Exhibit 11**). As in the national estimates, the cost of dispensing for drugs covered by Medicaid FFS tracked overall costs of dispensing relatively closely (**Exhibit 12**).

Exhibit 11: Descriptive statistics, overall cost of dispensing, by State

State/Region	N Pharmacies	Mean ($)	Standard deviation	5th percentile	25th percentile	Median	75th percentile	95th percentile
National	15,868	12.40	10.15	5.13	8.81	11.15	13.64	20.16
AL	198	10.38	2.62	6.91	8.46	9.72	12.64	15.71
AZ	324	12.09	3.83	6.97	9.65	11.23	13.65	18.74
CA	2,111	14.81	9.64	7.39	10.66	13.15	16.26	27.24
CO	152	13.58	3.88	7.57	10.88	12.99	15.69	18.92
CT	280	11.73	2.99	6.90	9.76	11.51	14.15	16.16
DC	68	12.33	5.29	7.03	9.63	11.14	13.24	20.88
DE	76	11.87	3.84	8.57	9.79	11.06	13.20	17.57
FL	882	11.82	6.49	6.55	9.03	10.72	12.62	18.55
GA	368	11.48	4.99	6.58	8.58	10.39	12.50	20.43
HI	82	14.41	5.41	5.88	9.56	14.60	18.06	24.40
IL	580	13.19	9.42	6.92	9.75	11.91	14.18	17.41
IN	379	11.43	3.82	6.61	8.88	10.73	12.61	19.93
KY**	94	13.38	4.15	7.17	10.46	12.59	17.78	19.24
LA	153	11.84	3.45	6.85	9.52	11.52	13.68	18.32
MA	516	11.86	2.81	7.43	10.72	11.41	12.74	17.16
MD	443	12.91	4.09	7.83	9.89	11.82	14.79	20.57
ME	99	12.48	3.54	6.52	11.33	11.69	14.22	18.02
MI	694	9.21	7.49	5.12	6.61	8.77	10.53	14.07
MN	267	13.79	4.05	8.18	9.52	15.53	16.93	18.41
MO	144	14.13	5.59	6.42	9.62	12.92	18.82	23.27
NC	394	9.77	2.42	6.88	8.16	9.20	10.84	13.78
NH**	153	13.57	3.62	7.61	10.75	13.77	16.27	17.70
NJ	562	11.90	3.69	6.99	9.39	11.38	13.85	18.82
NV	140	13.78	4.18	7.71	10.55	13.46	18.14	19.32
NY	1,083	14.99	15.68	7.59	10.91	11.90	13.43	24.85
OH	651	11.11	5.80	6.46	8.64	10.17	11.61	18.03
OK	91	12.61	6.35	6.82	8.27	11.36	15.15	21.58
OR†	200	27.20	47.97	7.10	9.39	12.27	14.16	173.20
PA	1,174	12.78	9.64	6.28	8.87	10.76	13.41	18.68
RI	79	14.05	4.21	7.19	11.25	13.01	16.29	21.36
SC	220	12.55	6.52	7.73	9.86	11.41	13.86	18.32
TN	178	11.85	3.96	6.96	8.82	10.60	14.58	17.76
TX	1,306	13.73	9.89	6.53	10.50	12.04	13.62	20.73
VA	539	11.79	3.62	7.27	9.57	11.27	12.97	19.58
WA	443	12.20	2.94	8.69	10.41	12.64	13.74	14.79
WI	107	12.54	4.30	6.83	10.15	12.34	13.67	21.50
AK, ID,MT,WY*	144	12.33	3.78	5.17	9.73	12.33	13.88	17.56
AR, MS*	98	12.60	5.30	7.87	9.02	11.53	13.38	17.68
IA, KS, ND, NE, SD *	189	8.85	13.39	3.28	3.28	6.53	6.53	21.79
KY, WV*	155	15.20	24.40	6.62	9.61	11.96	14.68	19.24
NH, VT*	210	13.08	2.61	9.34	12.60	12.60	13.54	16.27
NM, UT*	89	10.98	3.53	7.20	8.40	10.62	12.02	18.06

Source: 2019 Pharmacy Cost of Dispensing Study

Notes: Estimates were weighted for survey nonresponse and drug dispensing volume. *For small states having less than two chains or 65 pharmacies, data was combined across states for reporting purposes. **KY and NH were both pooled with other small states in their respective regions (WV and VT) and also reported independently, because they had a sufficient number of survey responses, but WV and VT did not have sufficient responses for independent reporting. †One non-chain, specialty pharmacy respondent in Oregon reported a relatively high cost of dispensing that was not considered an outlier. While Oregon has 200 respondents, the other 199 respondents are mainly chain retail pharmacies with relatively low nonresponse weights. Excluding this outlier specialty pharmacy resulted in an overall cost of dispensing of $11.58 instead of $27.20.

Exhibit 12: Descriptive statistics, costs of dispensing for drugs covered by Medicaid FFS, by State

State/Region	N Pharmacies	Mean ($)	Standard deviation	5th percentile	25th percentile	Median	75th percentile	95th percentile
National	15,584	12.45	10.55	5.14	9.09	11.02	13.38	19.97
AL	198	10.62	2.65	6.87	8.51	10.03	12.73	15.12
AZ	129	13.60	3.60	9.61	10.80	13.24	15.94	19.60
CA	2,109	15.04	10.87	7.69	10.40	13.03	16.44	36.73
CO	152	13.38	3.73	7.53	10.58	13.09	15.71	18.69
CT	280	11.52	3.04	6.85	9.43	11.36	13.72	15.74
DC	68	11.88	5.73	6.61	9.14	10.65	12.76	20.23
DE	74	11.69	3.60	8.36	9.52	10.75	12.88	17.19
FL	874	11.55	6.16	6.45	8.76	10.41	12.46	18.44
GA	368	11.23	4.95	6.50	8.31	10.19	12.21	20.54
HI	74	14.40	5.09	6.81	10.27	14.63	17.93	23.65
IL	578	13.10	9.51	6.79	9.53	12.06	13.54	18.92
IN	379	11.20	3.72	6.48	8.69	10.51	12.41	19.36
KY**	91	11.84	3.43	6.65	9.60	12.02	13.09	17.98
LA	151	11.78	3.25	8.01	9.39	11.40	13.49	18.01
MA	516	11.48	2.70	7.27	10.51	11.06	12.20	16.65
MD	443	12.67	4.07	7.66	9.64	11.43	14.45	20.20
ME	99	13.25	3.67	6.38	11.29	13.90	15.47	17.92
MI	692	9.02	6.14	5.18	6.57	8.67	10.36	14.03
MN	267	13.78	4.02	8.09	9.71	16.22	16.73	18.42
MO	144	13.95	5.54	6.44	9.44	12.69	18.44	23.13
NC	393	9.72	2.43	6.73	8.33	9.12	10.69	13.56
NH**	153	13.40	3.57	7.56	10.64	13.69	16.04	17.27
NJ	558	11.61	3.56	6.94	9.16	11.06	13.46	18.50
NV	140	13.18	3.83	7.66	10.35	13.13	16.87	17.73
NY	1,082	15.03	16.22	7.19	10.91	12.43	13.54	26.49
OH	650	11.13	5.84	6.41	8.37	10.28	11.63	18.38
OK	90	13.29	6.40	6.72	8.89	12.53	15.20	22.58
OR†	200	28.38	51.98	6.98	9.32	12.22	13.96	186.65
PA	1,168	12.48	9.08	6.33	8.66	10.71	13.09	18.59
RI	79	13.69	4.11	7.13	10.83	12.55	16.03	20.90
SC	220	12.38	6.77	7.61	9.70	11.23	13.52	17.58
TN	177	11.93	4.28	6.86	8.81	11.25	14.49	17.84
TX	1,289	13.32	9.50	6.55	10.17	11.60	13.38	20.31
VA	533	11.58	3.52	7.22	9.41	11.00	12.88	19.22
WA	441	11.43	3.82	7.88	9.75	10.71	12.58	15.28
WI	107	12.50	4.21	7.07	10.09	12.13	13.38	21.83
AK, ID, MT,WY*	144	12.16	3.64	5.28	9.81	12.15	14.03	16.97
AR,MS*	96	12.11	4.77	7.91	9.35	11.25	13.23	17.10
IA,KS, ND, NE, SD*	174	10.20	13.19	3.31	3.31	10.32	10.32	21.96
KY, WV*	152	14.95	29.58	6.39	8.62	10.68	12.15	17.98
NH, VT*	210	12.87	2.77	9.21	12.18	12.18	13.35	17.13
NM,UT*	86	11.39	3.23	7.14	10.50	10.70	11.88	19.19

Source: 2019 Pharmacy Cost of Dispensing Study

Notes: Estimates were weighted for survey nonresponse and drug dispensing volume. *For small states having less than two chains or 65 pharmacies, data was combined across states for reporting purposes. **KY and NH were both pooled with other small states in their respective regions (WV and VT) and also reported independently, because they had a sufficient number of survey responses, but WV and VT did not have sufficient responses for independent reporting. †One non-chain, specialty pharmacy respondent in Oregon reported a relatively high cost of dispensing that was not considered an outlier. While Oregon has 200 respondents, the other 199 respondents are mainly chain retail pharmacies with relatively low nonresponse weights. Excluding this outlier specialty pharmacy resulted in an overall cost of dispensing of $11.45 instead of $28.38.

3. Discussion

This study estimated prescription drug costs of dispensing across 15,868 retail pharmacies in the US, representing 1.365 billion prescriptions filled, using data on prescription drug dispensing volume and dispensing costs incurred during calendar year 2018. The mean overall cost of dispensing per prescription was $12.40, with a median of $11.15. Payroll costs were the biggest drivers of the overall cost, accounting for roughly 58% of the overall cost of dispensing ($7.22 out of the $12.40). The mean cost of dispensing for drugs covered by Medicaid FFS was $12.45.

This study is the first national study to estimate costs of dispensing for specialty drugs. The mean specialty drug cost of dispensing was $73.58 (interquartile range $40.12 to $86.48) for specialty pharmacies defined as at least 10% of their prescription volume from specialty drugs. However, we note several limitations of the estimates of specialty cost of dispensing reported in this study. This study used a 10% threshold for specialty dispensing volume to identify pharmacies with relatively high specialty dispensing volume for cost analysis purposes, but this threshold does not necessarily correspond to specialty pharmacy status or the operating models used by specialty pharmacies, such as a pharmacy's employees, processes, and technology. For example, dispensing certain specialty drugs may require investments in specific equipment, business relationships, and staff training; while some pharmacies identified as specialty per this study may operate in a retail-based format that focuses on lower-complexity, more prevalent diseases, others may focus exclusively on a particularly complex disease state. This study did not collect information from pharmacies on specialty accreditation, and was not able to differentiate between specialty pharmacy operating models, which may explain the wide variation in the specialty drug costs of dispensing estimated in this study. Additionally, while the survey asked pharmacies to report the number of specialty drugs they dispensed based on a list of specialty drug NDCs listed on the specialty drug lists of at least two large national pharmacy benefit managers, we are not aware of an official government or industry-approved definition of specialty drugs or specialty pharmacies.

This level of variability in specialty drug costs of dispensing reported in this study indicates that more information may need to be collected in order to reimburse accurately for dispensing specialty drugs. For example, specialty drugs may vary in dispensing costs by the indication for the specialty drug, required tasks to dispense the product, and level of care necessary for the patient. To better understand the cost of dispensing for specialty drugs, future cost of dispensing studies should attempt to identify specialty pharmacies by accreditation status, operating model, type of drugs dispensed, and disease states being managed. Future cost of dispensing studies should also prioritize collecting responses from as many pharmacies as possible, especially from non-chain pharmacies. The industry would also benefit from improved consensus across payers, providers, and pharmacy benefit managers regarding which drugs are considered specialty drugs.

The cost of dispensing specialty drugs was lower across all pharmacies (mean cost of dispensing: $24.63) than at pharmacies with high specialty drug dispensing volume (mean cost of dispensing: $73.58). Possible reasons that the cost of dispensing may be higher for pharmacies with high specialty drug dispensing volume include: (1) retail pharmacies with relatively low specialty drug dispensing volume may dispense certain specialty drugs that have fewer prior authorization and clinical care requirements and thus are less expensive to dispense (e.g., require less labor time from pharmacists) than pharmacies specializing in dispensing more complex specialty drugs; and (2) some pharmacies regardless of volume may have different cost structures and infrastructure than other pharmacies, due to the nature of the unique tasks and requirements in dispensing certain specialty drugs.

The mean cost of dispensing varied fairly substantially across states, from $8.85 across a group of states in the Midwest that were combined due to small sample sizes (IA, KS, NE, ND, SD) to $15.20 in KY and WV (also combined due to small sample sizes). Additionally, the mean cost of dispensing was estimated

as $27.20 in Oregon, although this estimate was skewed upwards by one non-chain pharmacy with high specialty prescription volume.

The costs of dispensing estimated in this study are higher than the costs of dispensing from a prior study reporting data on drugs dispensed in 2014.[13] While the mean cost of dispensing in 2018 estimated by this study was $12.40, the prior study reported a mean cost of dispensing in 2014 of $10.55 (with a median of $10.08). Additionally, the 2014 study reported mean Medicaid costs of dispensing of $10.30 ($0.25 lower than the mean), while this study reported mean Medicaid costs of dispensing of $12.45 ($0.05 higher than the mean). There are several reasons why the estimates from these studies may differ. First, costs of dispensing may have increased between 2014 and 2018. Adjusting for inflation (6.07%), the 2014 cost of dispensing would be $11.19 in 2018 dollars, which accounts for some but not all of the difference.[14] It is possible that pharmacy labor costs, which account for the majority of the cost of dispensing, may have increased by more than 6% between 2014 and 2018. Second, 24,427 pharmacies responded to the 2014 study, while only 15,868 responded in this study. Although both studies adjusted for nonresponse, the mean cost of dispensing estimated in this study may have been more subject to nonresponse bias than in the 2014 study. Third, while both studies used similar financial formulas to estimate costs of dispensing, the 2014 and 2018 studies have some methodological differences. The 2014 study did not apply nonresponse weights, but did adjust for nonresponse. The 2014 study adjusted for survey nonresponse at the state level, where estimated costs of dispensing were "revised upward or downward for each state to more accurately match the actual average prescription volumes per pharmacy in each state. To adjust, pharmacies by state were removed at the extremes of the distribution" (CCPA 2015, p. 8). [13] In contrast, this study used survey nonresponse weights reflecting the inverse of the probability of each pharmacy responding to the survey to adjust estimates. This approach is consistent with the approach typically used for surveys in the peer-reviewed literature.[15] Additionally, the 2014 study used a more stringent approach to data cleaning and excluding outliers than this study did.

[13] Coalition for Community Pharmacy Action (CCPA). National Cost of Dispensing (COD) Study: Final Report. September, 2015.

[14] CPI Inflation Calculator, 2014 to 2018. Available at: https://www.in2013dollars.com/2014-dollars-in-2018. Last accessed: December 9, 2019.

[15] Little RJ, Vartivarian S. On weighting the rates in non-response weights. Statistics in medicine. 2003 May 15;22(9):1589-99. Lynn P. Weighting for non-response. Survey and statistical computing. 1996 Sep 11:205-14.

4. Study Team and Sponsors for Cost of Dispensing Study

The 2019 Cost of Dispensing Study was sponsored by the National Association of Chain Drug Stores (NACDS), National Association of Specialty Pharmacy (NASP), and National Community Pharmacists Association (NCPA), and carried about by Abt Associates and partner The MPI Group.

NACDS

NACDS represents traditional drug stores, supermarkets and mass merchants with pharmacies. Over 80 chain companies are NACDS members, including both regional chains with four or more stores, and national companies. Chains operate over 40,000 pharmacies, and NACDS' over 80 chain member companies include regional chains, with a minimum of four stores, and national companies. Chains employ nearly 3 million individuals, including 157,000 pharmacists. They fill over 3 billion prescriptions yearly, and help patients use medicines correctly and safely, while offering innovative services that improve patient health and health care affordability. NACDS members also include more than 900 supplier partners and over 70 international members representing 21 countries. For more information, visit www.NACDS.org.

NASP

NASP is the only national association representing all stakeholders in the specialty pharmacy industry. The mission of NASP is to elevate the practice of specialty pharmacy by developing and promoting continuing professional education and certification of specialty pharmacists while advocating for public policies that ensure patients have appropriate access to specialty medications in tandem with critical services. NASP members include the nation's leading independent specialty pharmacies, pharmaceutical and biotechnology manufacturers, group purchasing organizations, patient advocacy groups, integrated delivery systems and health plans, technology and data management vendors, wholesalers/distributors and practicing pharmacists. With over 100 corporate members and 1,500 individual members, NASP is the unified voice of specialty pharmacy in the United States.

NCPA

NCPA is the voice for independent pharmacy, representing 22,000 pharmacies and employing more than 250,000 individuals nationwide. Independent pharmacy is an $80 billion marketplace. Community pharmacists are local health care problem-solvers who can customize solutions to local health challenges for groups and employers.

Abt Associates

Abt Associates is an engine for social impact, dedicated to moving people from vulnerability to security. Harnessing the power of data and our experts' grounded insights, we provide research, consulting, and technical services globally in the areas of health, environmental and social policy, technology, and international development. Abt Associates is a collaborative, global community, with over 50 years of experience proving insight to federal and state agencies and private organizations and driven by our mission and commitment to excellence as we strive to meet and exceed the highest professional standards.

The MPI Group

The MPI Group serves corporate leaders with research, advice, and performance-targeted solutions that provide a competitive advantage in today's fierce global marketplace. The MPI Group combines these disciplines with hands-on project leadership to create a difference—in performance, in profits, and in the people who make them possible. The MPI Group is composed of the Management Performance Institute, the Marketing Performance Institute, and the Manufacturing Performance Institute, and is known globally for research and thought leadership that define what it means to be a top performer—for both individual leaders and organizations as a whole.

5. Appendices

5.1. Response Rate by State-Region

Exhibit A1 presents the response rate by state/region.

Exhibit A1: Response rate nationally and by state/region

State or Region	Number of Pharmacies (NCPDP Data)	Number of Pharmacies Responding	Response Rate
National	65,854	15,893	24.13
AL	1,431	199	13.91
AZ	1,173	324	27.62
CA	6,341	2,115	33.35
CO	861	153	17.77
CT	704	280	39.77
DC	142	69	48.59
DE	208	76	36.54
FL	4,998	883	17.67
GA	2,126	368	17.31
HI	234	82	35.04
IL	2,297	580	25.25
IN	1,161	379	32.64
LA	1,180	153	12.97
MA	1,052	516	49.05
MD	1,177	444	37.72
ME	230	99	43.04
MI	2,500	696	27.84
MN	1,069	268	25.07
MO	1,353	144	10.64
NC	2,021	395	19.54
NJ	1,973	564	28.59
NV	484	140	28.93
NY	4,733	1,084	22.90
OH	2,338	651	27.84
OK	861	92	10.69
OR	666	200	30.03
PA	3,044	1,174	38.57
RI	156	79	50.64
SC	1,077	220	20.43
TN	1,653	180	10.89
TX	5,309	1,309	24.66
VA	1,587	539	33.96
WA	1,237	443	35.81
WI	1,109	107	9.65
AK, MT, ID, WY	776	145	18.69
AR,MS	1,560	98	6.28
IA, KS, ND, NE, SD	2,219	190	8.56
KY, WV	1,540	156	10.13
NH, VT	382	210	54.97
NM, UT	892	89	9.98

Source: 2019 Pharmacy Cost of Dispensing Study

5.2. Pharmacy Demographics

Exhibit A2 presents pharmacy characteristics for all pharmacies in the sample, respondents without weights, and respondents weighted for nonresponse. After weighting for nonresponse, by design the characteristics of responding pharmacies were much more similar to those of all pharmacies eligible for the study than were the characteristics of respondents without nonresponse weights.

Exhibit A2: Pharmacy characteristics for all pharmacies in sample, respondents without weights, and respondents weighted for nonresponse

Pharmacy characteristics	Respondents and nonrespondents, n (%)	Respondents (unweighted), n (%)	Respondents (weighted for nonresponse), n (%)
	N=65,854	N=15,893	N=15,893
Chain status			
No	26,016 (39.5)	262 (1.6)	36.6
Yes, regional chain	4,750 (7.2)	1,263 (7.9)	4.2
Yes, national chain	35,088 (53.3)	14,368 (90.4)	59.1
NCPDP specialty pharmacy (any of three types)			
Yes	2,655 (4.0)	106 (0.7)	6.4
No	63,199 (96.0)	15,787 (99.3)	93.6
Geographic location			
Urban	52,985 (80.5)	13,883 (87.4)	75.8
Rural	12,869 (19.5)	2,010 (12.6)	24.2
Census region			
Northeast	12,274 (18.6)	4,006 (25.2)	16.2
Midwest	14,046 (21.3)	3,015 (19.0)	23.1
South	26,870 (40.8)	5,181 (32.6)	41.5
West	12,664 (19.2)	3,691 (23.2)	19.2
NCPDP Primary Pharmacy Type			
Community/retail pharmacy	60,731 (92.2)	15,782 (99.3)	92.7
Long term care pharmacy	2,297 (3.5)	35 (0.2)	4.4
Mail order pharmacy	228 (0.3)	3 (0.0)	0.2
Home infusion therapy provider	702 (1.1)	1 (0.0)	0.0
Durable medical equipment	156 (0.2)	13 (0.1)	0.0
Clinic pharmacy	605 (0.9)	1 (0.0)	0.1
Specialty pharmacy	508 (0.8)	53 (0.3)	2.0
Compounding pharmacy	620 (0.9)	5 (0.0)	0.6
Parenteral and enteral nutrition	7 (0.0)	0 (0.0)	0.0

Source: 2019 Pharmacy Cost of Dispensing Study

Notes: All pharmacy characteristics were derived using data that was available for all pharmacies nationally through NCPDP.

5.3. Costs of Dispensing, Excluding Pharmacies with High Specialty Dispensing Volume

This appendix includes descriptive statistics for costs of dispensing, **excluding** pharmacies with high specialty dispensing volume, defined as pharmacies with a share of their overall dispensing of at least 10% from specialty drugs (n=66). **Exhibit A4** shows overall costs of dispensing excluding specialty pharmacies, overall and broken out by cost component. **Exhibit A5** shows overall costs of dispensing excluding specialty pharmacies, stratified by state.

Exhibit A4: Descriptive statistics, overall costs of dispensing, excluding pharmacies with high specialty dispensing volume (share of overall dispensing at least 10% from specialty drugs)

Cost of Dispensing Measure	N pharmacies	Mean	Standard deviation	5th percentile	25th percentile	Median	75th percentile	95th percentile
Specialty drug cost of dispensing per prescription ($)	15,802	11.43	4.25	5.12	8.78	11.07	13.44	18.91
Pharmacy payroll costs per specialty prescription ($)	15,802	6.98	2.96	1.75	5.50	6.60	8.22	12.31
Pharmacy other costs per specialty prescription ($)	15,802	0.83	1.01	0.08	0.15	0.46	1.12	3.24
Pharmacy facility costs per specialty prescription ($)	15,802	0.46	0.54	0.06	0.16	0.32	0.56	1.31
Other costs allocated per specialty prescription ($)	15,802	2.54	1.96	0.04	0.98	2.32	3.84	5.85
Corporate costs per specialty prescription ($)	15,802	0.61	1.27	0.00	0.00	0.00	0.96	3.13

Source: 2019 Pharmacy Cost of Dispensing Study

Notes: Estimates were weighted for survey non-response and drug dispensing volume. Estimates excluded 66 pharmacies that had at least 10% of their total prescription volume from specialty drugs.

Exhibit A5: Descriptive statistics, overall cost of dispensing, by State, excluding pharmacies with high specialty dispensing volume (share of overall dispensing at least 10% from specialty drugs)

State/Region	N Pharmacies	Mean ($)	Standard deviation	5th percentile	25th percentile	Median	75th percentile	95th percentile
National	15,802	11.43	4.25	5.12	8.78	11.07	13.44	18.91
AL	198	10.38	2.62	6.91	8.46	9.72	12.64	15.71
AZ	324	12.09	3.83	6.97	9.65	11.23	13.65	18.74
CA	2,095	13.24	4.01	7.33	10.50	12.93	15.48	20.92
CO	152	13.58	3.88	7.57	10.88	12.99	15.69	18.92
CT	280	11.73	2.99	6.90	9.76	11.51	14.15	16.16
DC	67	11.94	4.08	7.03	9.63	11.14	13.24	20.31
DE	76	11.87	3.84	8.57	9.79	11.06	13.20	17.57
FL	868	11.14	3.20	6.55	9.00	10.67	12.62	17.26
GA	364	11.20	3.92	6.58	8.58	10.39	12.36	20.43
HI	82	14.41	5.41	5.88	9.56	14.60	18.06	24.40
IL	579	11.95	3.38	6.91	9.72	11.82	13.71	15.80
IN	379	11.43	3.82	6.61	8.88	10.73	12.61	19.93
KY**	94	13.38	4.15	7.17	10.46	12.59	17.78	19.24
LA	152	11.77	3.21	6.85	9.52	11.52	13.68	18.32
MA	516	11.86	2.81	7.43	10.72	11.41	12.74	17.16
MD	443	12.91	4.09	7.83	9.89	11.82	14.79	20.57
ME	99	12.48	3.54	6.52	11.33	11.69	14.22	18.02
MI	691	8.99	2.99	5.12	6.59	8.77	10.53	14.03
MN	267	13.79	4.05	8.18	9.52	15.53	16.93	18.41
MO	144	14.13	5.59	6.42	9.62	12.92	18.82	23.27
NC	394	9.77	2.42	6.88	8.16	9.20	10.84	13.78
NH**	153	13.57	3.62	7.61	10.75	13.77	16.27	17.70
NJ	562	11.90	3.69	6.99	9.39	11.38	13.85	18.82
NV	139	13.72	4.02	7.71	10.55	13.46	18.14	19.32
NY	1,074	12.39	3.40	7.69	10.91	11.62	13.31	18.68
OH	649	10.31	2.95	6.44	8.59	10.07	11.61	14.56
OK	91	12.61	6.35	6.82	8.27	11.36	15.15	21.58
OR	199	11.58	3.08	7.10	9.23	11.54	13.44	16.38
PA	1,173	11.35	3.65	6.28	8.81	10.76	13.10	18.68
RI	79	14.05	4.21	7.19	11.25	13.01	16.29	21.36
SC	219	11.99	3.10	7.73	9.86	11.41	13.64	18.32
TN	178	11.85	3.96	6.96	8.82	10.60	14.58	17.76
TX	1,301	12.14	3.39	6.52	10.44	11.95	13.37	17.90
VA	539	11.79	3.62	7.27	9.57	11.27	12.97	19.58
WA	441	12.11	2.19	8.69	10.39	12.64	13.74	14.68
WI	107	12.54	4.30	6.83	10.15	12.34	13.67	21.50
AK, ID, MT,WY*	144	12.33	3.78	5.17	9.73	12.33	13.88	17.56
AR,MS*	97	12.16	4.29	7.87	9.02	11.53	13.38	17.68
IA,KS, ND, NE, SD *	187	7.11	5.34	3.28	3.28	6.53	6.53	19.79
KY, WV*	154	12.30	4.03	6.62	9.37	11.67	14.62	19.24
NH, VT*	210	13.08	2.61	9.34	12.60	12.60	13.54	16.27
NM,UT*	89	10.98	3.53	7.20	8.40	10.62	12.02	18.06

Source: 2019 Pharmacy Cost of Dispensing Study

Notes: Estimates were weighted for survey nonresponse and drug dispensing volume. Estimates excluded 66 pharmacies that had at least 10% of their total prescription volume from specialty drugs. *For small states having less than two chains or 65 pharmacies, data was combined across states for reporting purposes. **KY and NH were both pooled with other small states in their respective regions (WV and VT) and also reported independently, because they had a large enough volume of survey responses, but WV and VT did not have sufficient responses for independent reporting.

5.4. Specialty Costs of Dispensing for All Pharmacies in the Sample

We calculated the cost of dispensing specialty drugs for all pharmacies responding to the survey in the final analytic sample that reported the information needed to calculate a specialty drug cost of dispensing (**Exhibit A3**).

Exhibit A3: Descriptive statistics, specialty costs of dispensing for all pharmacies responding to the survey in the final analytic sample

Cost of dispensing and cost component	N Pharmacies	Mean	SD	5th pctl	25th pctl	Median	75th pctl	95th pctl
Cost of Dispensing for Specialty drugs ($)	5,959	24.63	31.74	8.81	12.24	14.73	22.41	74.76
Pharmacy payroll costs per specialty prescription ($)	5,959	17.95	28.88	5.34	6.98	9.86	14.70	56.90
Pharmacy other costs per specialty prescription ($)	5,959	1.86	4.11	0.38	0.75	1.10	1.44	4.17
Pharmacy facility costs per specialty prescription ($)	5,959	0.70	1.46	0.09	0.24	0.43	0.72	1.69
Other costs allocated per specialty prescription ($)	5,959	1.95	3.88	0.04	0.64	1.38	2.65	3.89
Corporate costs per specialty prescription ($)	5,959	2.17	5.45	0.00	0.00	1.33	1.99	3.13

Source: 2019 Pharmacy Cost of Dispensing Study

Notes: Estimates were weighted for survey nonresponse and drug dispensing volume. Abbreviations: pctl = percentile.

5.5. Formulas for computing costs of dispensing

This appendix presents formulas for computing costs of dispensing for the following types of prescriptions:

1. Overall cost of dispensing per prescription
2. Cost of dispensing per prescription covered by Medicaid fee-for-service
3. Cost of dispensing per specialty prescription

5.5.1. Overall cost of dispensing per prescription

Overall costs of dispensing a prescription for each pharmacy are calculated as:

$$\textbf{Overall cost of dispensing per prescription} = \left(\frac{\text{Total cost of prescription department}}{\text{Total number of prescriptions}}\right), \textit{where}$$

$$\begin{aligned}\textbf{Total cost of prescription dept.} = {} & \text{Prescription department costs [including payroll and other]} + \\ & \text{Facility cost allocated to prescription dept.†} + \\ & \text{Other store costs allocated to prescription dept.‡} + \\ & \text{Corporate costs allocated to prescription dept}\end{aligned}$$

†Allocated according to prescription department square footage as % of total store
‡Allocated according to prescription sales as % of total store sales

5.5.2. Cost of dispensing per prescription covered by Medicaid fee-for-service

Costs of dispensing per Medicaid prescription are calculated as the sum of:

- Medicaid payroll costs per prescription (where overall payroll costs are allocated for Medicaid prescriptions according to the share of time required to dispense all Medicaid prescriptions relative to all prescriptions),
- Medicaid interest costs per prescription
- Other non-payroll costs per prescription (allocated similarly for Medicaid prescriptions as for all prescriptions)

The formula for calculating Medicaid cost of dispensing per prescription is:

$$\textbf{Medicaid cost of dispensing per prescription} = \begin{pmatrix}\text{Medicaid payroll cost per prescription} + \\ \text{Medicaid interest cost per prescription} + \\ \text{Other costs per prescription}\end{pmatrix}, \textit{where}$$

$$\textbf{Medicaid payroll cost per prescription} = \frac{\text{Prescription dept. payroll} * \left(\frac{\text{\# of Medicaid prescriptions} * \text{Minutes per Medicaid prescription}}{\text{\# of total prescriptions} * \text{Minutes per prescription (overall)}}\right)}{\text{\# of Medicaid prescriptions}}$$

$$\textbf{Minutes per prescription (Medicaid FFS)} = \frac{\begin{pmatrix}\text{work time involved in filling a specialty prescriptions for Medicaid FFS} * \\ \text{\# of specialty prescriptions filled for Medicaid FFS}\end{pmatrix} + \begin{pmatrix}\text{work time involved in filling a traditional prescriptions for Medicaid FFS} * \\ \text{\#of non specialty prescriptions filled for Medicaid FFS}\end{pmatrix}}{\text{\# of total Medicaid FFS prescriptions}}$$

Medicaid component of interest cost per prescription=

$$\frac{\text{Total Medicaid FFS prescription sales} * \frac{\text{Interest rate}}{\text{Days in year}} * \text{Payment days for Medicaid}}{\text{\# of Medicaid prescriptions}}$$

$$\textbf{Other costs per prescription} = \frac{\begin{array}{c}(\text{Prescription department (non payroll)} + \text{Facilities} \\ + \text{Other store costs less interest} + \text{Corporate costs}) \\ - \text{Medicaid nonallowed costs}\end{array}}{\text{\# of total prescriptions}}$$

Medicaid non-allowed costs = (Marketing and advertising + Bad debts + Charitable contributions)

5.5.3. Cost of Dispensing per Specialty Prescription

The formula for calculating specialty cost of dispensing per prescription is:

$$\textbf{Specialty cost of dispensing per prescription} = \begin{pmatrix}\text{Specialty payroll cost per prescription} + \\ \text{Interest cost per prescription} + \\ \text{Other non payroll costs per prescription}\end{pmatrix}, \textit{where}$$

Specialty Payroll Cost per prescription=

$$\frac{\text{Prescription dept. payroll} * \left(\frac{\text{\# of specialty prescriptions} * \text{Minutes per specialty prescription}}{\text{\# of total prescriptions} * \text{Minutes per prescription (overall)}}\right)}{\text{\# of specialty prescriptions}}$$

Minutes per specialty prescription

$$= \frac{\begin{array}{c}\left(\begin{array}{c}\text{work time involved in filling a specialty prescription for Medicaid FFS} * \\ \text{\# of specialty prescriptions filled for Medicaid FFS}\end{array}\right) + \\ \left(\begin{array}{c}\text{work time involved in filling a specialty prescription for other payers} * \\ \text{\# of specialty prescriptions filled for other payers}\end{array}\right)\end{array}}{\text{\# of total specialty prescriptions}}$$

Interest cost per prescription (across all prescriptions)=

$$\frac{\text{Total prescription sales} * \frac{\text{Interest rate}}{\text{Days in year}} * \text{Average number of days to payment, all payers}}{\text{\# of total prescriptions}}$$

Note: Cognitive interviewees indicated that Average number of days to payment would be similar for traditional specialty medications

$$\textbf{Other non-payroll costs per prescription} = \frac{\begin{array}{c}(\text{Prescription department (non payroll)} + \text{Facilities} + \\ \text{Other store costs} + \text{Corporate costs})\end{array}}{\text{\# of total prescriptions}}$$

5.6. Survey Instrument

Cost of Dispensing Study

Sponsored by the National Association of Chain Drug Stores (NACDS), National Association of Specialty Pharmacy (NASP), and National Community Pharmacists Association (NCPA).

Please provide a response to each question based on a **prescription department** (the area where prescriptions are filled) and the store/facility in which it is located. Please refer to the accompanying instructions document when answering the questionnaire.

Please complete the questionnaire by **Tuesday, March 26, 2019** using one of the following formats:

- **Online:** Please click this link to access the online survey and submit your responses. Instructions and other supporting materials are also available for filling out the survey at that website.

- **Spreadsheet:** If you are answering for multiple pharmacies, a spreadsheet questionnaire is available for download here. Please only use the spreadsheet survey if you are responding for multiple pharmacies. Completed spreadsheet surveys should be uploaded to the secure portal available here.

- **Mail:** Mail responses to: Cost of Dispensing Study
  P.O. Box 201610
  Shaker Heights, OH 44120

- **Fax:** Fax responses to 216-991-8205

Please do not send your answers to the NACDS, NASP, or NCPA.

If you have any questions about completing the survey, email CODsupport@mpi-group.net.

Supporting materials for the study can be downloaded here and include:

- COD Instructions
- Payroll Worksheet
- List of specialty drugs by National Drug Codes (NDC)

Please also include contact information requested at the end of the survey in the event we need to follow up with you. The study team will keep your responses **strictly confidential**, but if you wish to remain anonymous, you may leave contact information blank. If you do not provide contact information we may not be able to clarify any questions that we have about your responses, and your responses could be rejected.

NACDS has contracted with an independent survey organization, Abt Associates and its subcontractor, The MPI Group, to conduct this survey and provide NACDS, NASP, and NCPA with an analysis of survey findings. No survey data from individual pharmacies or pharmacy

chains will be shared with NACDS, NASP, and NCPA or any other third parties. Data will only be reported in aggregate.

PART I. Pharmacy Characteristics

1. **What is the NCPDP number for this pharmacy? [_____]**

2. **Which of the following best describes this pharmacy?** (please check all that apply)
   - ☐ Traditional retail pharmacy
   - ☐ Specialty pharmacy
   - ☐ Hospital outpatient pharmacy
   - ☐ Long-term care pharmacy
   - ☐ Mail order pharmacy
   - ☐ Supermarket/grocery store pharmacy
   - ☐ Mass merchandiser pharmacy
   - ☐ 340B pharmacy
   - ☐ Closed door pharmacy
   - ☐ Other: (please specify)

3. **How many pharmacies (including this one) were in your organization as of December 31, 2018?** (please check one)
   - ○ 1 pharmacy
   - ○ 2 to 3 pharmacies
   - ○ 4 to 25 pharmacies
   - ○ 26 to 100 pharmacies
   - ○ More than 100 pharmacies

4. **Is one or more of the pharmacists who fill prescriptions at this location also an owner of the pharmacy, store, or chain?** (please check one)__Yes __No

5. **In which ZIP code is this pharmacy located? _____**

6. **Was this pharmacy open for the full calendar year 2018?** (please select one)
   __Yes __No

7. **What is the square footage for the following areas of the store/location?** (report square footage within the physical location: i.e. do not include parking lots) (If you are unable to provide an exact number, a best estimate is fine)

a. Prescription-department space (Include storage, waiting/counseling area, prescription counter, etc.)	Sq. ft.
a1. Prescription-department space specific to SPECIALTY drugs (Please respond to this question thinking about space used specifically for specialty drugs, such as drugs for HIV, hepatitis C, multiple sclerosis, oncology, transplant, rheumatoid arthritis, IBD, psoriasis, growth deficiency, cystic fibrosis, and others.)	Sq. ft.
b. All other space (include non-prescription-department storage)	Sq. ft.
c. Store/location total space (should equal sum of 7a and 7b)	Sq. ft.

PART II. Prescription Volume

8. What was the *number of prescriptions* filled by this pharmacy in total and for the following *payer types* for the 2018 calendar year?

- There should be no overlap among the categories, and the sum of all categories should equal the answer for "total prescriptions".
- For dual-coverage prescriptions, base your count on the primary payer.
- If all your prescriptions are included in 8a, 8b, and 8c, please enter zero (0) in 8d.

a. Medicaid fee-for-service (FFS) covered prescriptions (prescriptions covered by state Medicaid FFS only)	
b. Other third party-covered prescriptions (prescriptions covered by other third-parties including Medicare Part D, Medicaid managed care, private insurers)	
c. Prescriptions paid for by customer with cash, check, credit card, or store account	
d. Other	
e. TOTAL PRESCRIPTIONS (should be sum of all of the above)	

9. Of the total prescriptions reported in 8e, what percentage were new vs refill prescriptions?

a. New prescriptions	%
b. Refill prescriptions	%
Total equals	100%

10. What was the *number of specialty prescriptions* (based on the attached list of NDCs) filled by this pharmacy for the 2018 calendar year?

_____(number)

Please use the attached list of specialty prescription drugs by NDC to report the number of specialty prescriptions. IF you are unable to run this in your data system, please answer this question as best you can and indicate below how you identified specialty prescriptions:

11. Of the total specialty prescriptions reported in 10, what was the number that were Medicaid Fee-for-Service (FFS)?

_____(number)

PART III. Dispensing Time

This section should be answered by a working retail pharmacist.

If submitting for multiple pharmacies, have at least one working, retail pharmacist for each state in which you have pharmacies answer the questions below. Then apply those times to all pharmacies in the respective states.

To complete this section, please estimate the time involved in dispensing prescriptions. Please include only active work time involved in dispensing prescriptions in these estimates. (For example, do NOT include time accrued while waiting on a prior authorization.)

12. **On average, what is the total work time by all staff involved in dispensing a typical *traditional prescription drug* (non-specialty)?** Please respond for all payer types.

    _____ **(total staff minutes)**

13. **On average, what is the total work time by all staff involved in dispensing a typical *traditional prescription drug (non-specialty) filled for Medicaid fee-for-service (FFS)?***

    _____ **(total staff minutes)**

For the remainder of this section, please respond only with respect to SPECIALTY PRESCRIPTIONS (e.g., drugs for HIV, hepatitis C, multiple sclerosis, oncology, transplant, rheumatoid arthritis, IBD, psoriasis, growth deficiency, cystic fibrosis),.

If your pharmacy does not dispense specialty medications, please check this box and skip to Question 17: ☐

14. Thinking about all SPECIALTY DRUGS (e.g., drugs for HIV, hepatitis C, multiple sclerosis, oncology, transplant, rheumatoid arthritis, IBD, psoriasis, growth deficiency, cystic fibrosis), what proportion required each of the following tasks, approximately how much active work time was spent on average (in minutes), and who were the primary staff involved?

- In reporting the time required for each task, please only include instances when each task was conducted. For example, please only report the work time required to secure patient financial assistance when that task is required in order to dispense prescriptions.

Tasks	Share of specialty products requiring each of the following tasks	Average time for each specialty prescription filled (in minutes)	Primary staff doing this task (please select one)
a) Obtaining plan information, benefits investigation, or coverage determination	%	minutes	○ RPh ○ Clerk ○ Tech ○ NP ○ Other ○ N/A
b) Obtaining information and submitting prior authorization	%	minutes	○ RPh ○ Clerk ○ Tech ○ NP ○ Other ○ N/A
c) Securing patient financial assistance	%	minutes	○ RPh ○ Clerk ○ Tech ○ NP ○ Other ○ N/A
d) Satisfying reporting requirements of the manufacturer	%	minutes	○ RPh ○ Clerk ○ Tech ○ NP ○ Other ○ N/A
e) Patient counseling on the medication	%	minutes	○ RPh ○ Clerk ○ Tech ○ NP ○ Other ○ N/A
f) Training and education on the medication, proper storage, handling, and administration	%	minutes	○ RPh ○ Clerk ○ Tech ○ NP ○ Other ○ N/A
g) Patient monitoring, clinical and care coordination activities	%	minutes	○ RPh ○ Clerk ○ Tech ○ NP ○ Other ○ N/A
h) Facilitating mailing or delivery	%	minutes	○ RPh ○ Clerk ○ Tech ○ NP ○ Other ○ N/A
i) Other dispensing activities (please specify _____)	%	minutes	○ RPh ○ Clerk ○ Tech ○ NP ○ Other ○ N/A

15. **Thinking about the range of SPECIALTY DRUGS, on average, what is the total work time by all staff involved in dispensing a specialty prescription?** Please respond for all payer types.

_____ (total staff minutes)

16. **Thinking about the range of SPECIALTY DRUGS and filling them for Medicaid fee-for-service (FFS), on average, what is the total work time by all staff involved in dispensing a specialty prescription for Medicaid FFS?**

_____ (total staff minutes)

17. **Which best describes the primary person who answered questions 12 - 16? (please check one)**

- O Full-time retail pharmacist
- O Part-time retail pharmacist
- O Specialty pharmacist (retail)
- O Specialty pharmacist (closed-door)
- O Pharmacy technician
- O Pharmacy owner
- O Store manager
- O Pharmacy chain executive
- O Pharmacy operations
- O Pharmacy manager
- O Data manager
- O Accountant
- O Contracts department
- O Other, please specify:_____

PART IV. Sales

In this section, we ask for information about total sales. This information is asked in this survey because it is used in calculating costs of dispensing.[16] As with all information shared through this survey, this data will be kept strictly confidential by the study team, and will only be reported in aggregate.

When completing the questions below, please consider the following instructions:

- Please enter the dollar figure for each sales category that applies to this store for the calendar year 2018.
- Please round dollar figures to the nearest dollar (i.e., do not include cents).
- When calculating total revenue from sales, please exclude sales tax
- Please define specialty prescriptions according to the attached listing of NDC codes.
- Please include supplies provided for patient use administration, such as syringes, gloves, gauze, tubing, etc. included in the total revenue reported.

18. **What were the total sales for this location for the following categories in 2018?**

[16] The information on sales provided in this section will only be used to allocate non-pharmacy store costs to the pharmacy department in the cost of dispensing calculation.

a. Specialty prescription sales (Please consider specialty prescriptions as defined by the attached list of NDC codes.)	$
b. All other prescription sales, excluding specialty prescription sales (not including over-the-counter sales)	$
c. Retail sales (non-prescription retail sales, including over-the-counter sales)	$
d. Other sales (e.g. services)	$
e. Total sales (sum of the above)	$

19. What were sales of Medicaid fee-for-service (FFS) prescriptions (included in 18a and b) for this location in 2018? ……..…… $_____

20. How long did it typically take to receive payment after the prescription was dispensed for the following types of prescriptions?

- Please provide the average time period from date of dispensing until payment is received for each prescription category. Do not provide ranges; if ranges exist, take a midpoint.
- If rebilling occurs for prescription category, adjust the time period to reflect the average impact of rebills.

By payer type:	
a. Medicaid FFS-covered prescriptions	Days
b. Other third-party prescriptions	Days

21. What is the title or role of the primary person who answered questions 18-20? (please check one)

- ○ Pharmacist
- ○ Pharmacy manager
- ○ Pharmacy owner
- ○ Store manager
- ○ Specialty pharmacist
- ○ Pharmacy operations
- ○ Pharmacy technician
- ○ Pharmacy chain executive
- ○ Accountant
- ○ Contracts
- ○ Data manager or analyst
- ○ Other, please specify:_____

PART V. Costs and Expenses for this Location

22. What were the following costs and expenses for this location for 2018?

- Please review the list of costs below carefully prior to starting in order to avoid double-counting. Please do not double count any costs.
- Round dollar figures to the nearest dollar (i.e., do not include cents).
- Please note: costs that typically are considered a component of "inventory carrying costs" are accounted for throughout sections of question 22 and in the study formula to determine the cost of dispensing. For example, insurance and interest are identified elsewhere. Any application of carrying costs to other areas of this question, such as 22.b.9. (Other prescription-department-specific costs), will result in double counting.
- Please see click here to download instructions on how to best complete this section.

Costs and expenses	U.S. Dollars
a. Prescription department payroll costs (including compensation, benefits, and payroll taxes) Please include the full costs of payroll for people working in the prescription department. For people who spend part of their time in the prescription department and the rest of their time working elsewhere in the store, allocate their payroll costs to the prescription department based on the approximate percentage of their time spent working there.	$
b. Other prescription department costs (not including compensation, benefits, and payroll taxes) (should be the sum of b1 through b10)	$
1. Prescription containers, labels, and other pharmacy supplies	$
2. Professional liability insurance for pharmacists	$
3. Prescription department licenses, permits, accreditation and fees	$
4. Dues, subscriptions, and continuing education for the prescription department	$
5. Delivery expenses (only prescription related)	$
6. Mailing expenses (only prescription related)	
7. Computer systems, including web services (related only to the prescription department	$
8. Pharmacy specific equipment (e.g. automated dispensing systems, refrigerators)	$
9. Transaction fees	$
10. Other prescription-department-specific costs	$
c. Total facility costs (should equal sum of c1 through c8)	$
1. Rent	$
2. Utilities (gas, electric, water, and sewer)	$
3. Real estate taxes	$
4. Facility insurance	$
5. Maintenance and cleaning	$
6. Depreciation	$
7. Mortgage interest	$
8. Other facility costs	$
d. Other store/location costs	$

• Report only specific costs of the store/location; do not include any corporate costs allocated to the store. • Do not report any costs reported above (should equal sum of d1 through d13)	
1. Marketing and advertising	**$**
2. Professional services (e.g. accounting, legal, consulting)	**$**
3. Telephone and data communications	**$**
4. Computer systems and support	**$**
5. Other depreciation and amortization	**$**
6. Office supplies	**$**
7. Other insurance	**$**
8. Taxes other than real estate, payroll, or sales taxes	**$**
9. Franchise fees, if applicable	**$**
10. Bad debts	**$**
11. Charitable contributions	**$**
12. Other interest	**$**
13. Other costs not included elsewhere	**$**
e. Corporate costs allocated back to the prescription department at this store/location (refer to instructions)	**$**

If your pharmacy ONLY dispenses specialty medications or does not dispense ANY specialty medications, thank you very much for completing this survey! Please skip the final question and check this box: ☐

23. Please list any non-payroll costs and expenses included in question 22b, 22c, 22d, and 22e that are unique to the dispensing of specialty drugs. All costs and expenses included here should also have been included in question 22 above. There is no need to complete this question if your pharmacy only dispenses specialty medications or does not dispense any specialty medications.

Costs and expenses unique to the dispensing of specialty drugs	U.S. Dollars
1.	$
2.	$
3.	$
4.	$
5.	$
6.	$
7.	$
8.	$
9.	$
10.	$
11.	$
12.	$
13.	$
14.	$
15.	$
16.	$
17.	$
18.	$
19.	$
20.	$

Thank you very much for completing this survey!

5.6.1. Spreadsheet Version (Sample Items)

Appendix 5.6.1 shows how the paper survey instrument shown in Appendix 5.6 was translated into a spreadsheet for the respondents providing data for multiple pharmacies. The first 10 variables are shown in this example.

1. What is the NCPDP number for this pharmacy?	**2. Which of the following best describes this pharmacy?** (select all that apply)	**3. How many pharmacies (including this one) were in your organization as of December 31, 2018?** (select one answer and apply to all of your pharmacies)	**4. Is one or more of the pharmacists who fill prescriptions at this location also an owner of the pharmacy, store, or chain?** (select one)
	1 = Traditional retail pharmacy 2 = Specialty pharmacy 3= Hospital outpatient pharmacy 4 = Long-term care pharmacy 5 = Mail order pharmacy 6= Supermarket/grocery store pharmacy 7 = Mass merchandiser pharmacy 8 = 340B pharmacy 9 = Closed door pharmacy 10 = Other: (please specify)	1 = 1 pharmacy 2 = 2 to 3 pharmacies 3 = 4 to 25 pharmacies 4 = 26 to 100 pharmacies 5 = More than 100 pharmacies	1 = Yes 2 = No
var00001	**var00002**	**var00003**	**var00004**

5. In which ZIP code is the pharmacy located? (five-digit code)	**6. Was this pharmacy open for the full calendar year 2018?**	**7. What is the square footage for the following areas of the store/location?** (report square footage within the physical location: i.e. do not include parking lots) (If you are unable to provide an exact number, a best estimate is fine)			
five-digit zip code	1 = Yes 2 = No	**7a. Prescription-department space** (Include storage, waiting/counseling area, prescription counter, etc.)	**7a1. Prescription-department space specific to SPECIALTY drugs** (Please respond to this question thinking about space used specifically for specialty drugs, such as drugs for HIV, hepatitis C, multiple sclerosis, oncology, transplant, rheumatoid arthritis, IBD, psoriasis, growth deficiency, cystic fibrosis, and others.)	**7b. All other space** (include non-prescription-department storage)	**7c. Store/location total space** (should equal sum of 7a and 7b)
		square feet	square feet	square feet	square feet
var00005	**var00006**	**var00007**	**var00008**	**var00009**	**var00010**

5.7. Survey Instructions

2019 Cost of Dispensing Study

Instructions

The table below offers specific instructions for each question in the 2019 Cost of Dispensing Study.

Time period: Many of the questions in the survey ask for data for calendar year 2018. If your accounting period does not correspond exactly to the calendar year (e.g., your books close a few days prior to yearend) use the accounting period that most closely aligns with the 2018 calendar year to answer the survey.

Support: If you have any questions about completing the survey, email for support to: CODsupport@mpi-group.net.

Question	Instructions
PART I. Pharmacy Characteristics	
1.	Please indicate the NCPDP number for this pharmacy. We are requesting this information to better understand which pharmacies did and did not respond to the survey, so we can understand how responding pharmacies compare to all US pharmacies.
2.	Which of the following best describes this pharmacy? Please select all that apply. Please use your best understanding to select the pharmacy classifications that best describe this pharmacy.
3.	How many pharmacies (including this one) were in your organization as of December 31, 2018? Please select one answer.
4.	Is one or more of the pharmacists who fill prescriptions at this location also an owner of the pharmacy, store, or chain? Please select one answer.
5.	Please enter a ZIP code – use five-digit codes. Zip codes will be used to group pharmacies within geographic regions (states, urban vs. rural regions).
6.	Was this pharmacy open for the full calendar year 2018? Please select one answer.
7.	What is the square footage for the following areas of the store/location? Enter actual square footages for prescription department, non-prescription department, and total store, if possible. Do not include space outside of the physical building (e.g., parking lot). For 7a1b, please respond thinking about Prescription-department space specific to SPECIALTY drugs, such as drugs for HIV, hepatitis C, multiple sclerosis, oncology, transplant, rheumatoid arthritis, IBD, psoriasis, growth deficiency, cystic fibrosis, and others. If the space at this location is used only for prescriptions, enter zero (0) in 7c (All other space).

Question	Instructions
PART II. Prescription Volume	
8.	What was the number of prescriptions filled by this pharmacy in total and for the following payer types for the 2018 calendar year? Enter the number of prescriptions for each category for the calendar year 2018. Please identify prescriptions covered by each payer type as best as possible. There should be no overlap among the categories, and the sum of all categories should equal the answer for "total prescriptions." For dual-coverage prescriptions, please base your count on the primary payer. If all your prescriptions are included in 8a, 8b, and 8c, enter zero (0) in 8d.
9.	Of the total prescriptions reported in 8e, what percentage were new vs. refilled prescriptions? Enter the proportion of prescriptions for each category. The sum of these two categories should be equal to 100%, and should reflect the status of all prescriptions reported in question 8e.
10.	What was the number of specialty prescriptions (based on the list of NDCs in the attached "List of Specialty Drugs") filled by this pharmacy for the 2018 calendar year? Please use the attached list of specialty prescription drugs by NDC to report the number of specialty prescriptions. IF you are unable to run this in your data system, please answer this question as best you can and indicate below how you identified specialty prescriptions.
11.	Of the total specialty prescriptions reported in 10, how many were Medicaid Fee-for-Service (FFS)?
PART III. Dispensing Time	
12-16.	This section should be answered by a working retail pharmacist. If submitting for multiple pharmacies, please have ask at least one working, retail pharmacist for each state in which you have pharmacies answer the questions below. Then apply those times to all your pharmacies in the respective states. To complete this section, please estimate the time involved in dispensing prescriptions. Please include only active work time by all staff involved in dispensing prescriptions in these estimates (for example, if it takes two staff five minutes each to fill a prescription, that would count for 10 minutes in total). Please include only ACTIVE work time (for example, do NOT include time accrued while waiting on a prior authorization). Please base your answer on time studies, if available; otherwise, make your best estimate of the average work time required to dispense each type of prescription. To determine average work time, consider all the activities required to process a prescription. These activities include, but are not limited to, obtaining plan, physician and patient information; obtaining prior authorization; evaluating DURs; printing labels; verifying correct medication; adjudication and re-adjudication; patient counseling; patient payments; and prescription paperwork and filing.
Question	**Instructions**

12.	On average, what is the total work time in minutes involved in dispensing a typical traditional prescription drug (non-specialty)? Please respond for all payer types.
13.	On average, what is the total work time in minutes involved in dispensing a typical traditional prescription drug (non-specialty) filled for Medicaid fee-for-service (FFS)?
If your pharmacy does not dispense specialty medications, please skip to Question 17.	
14.	Thinking about all SPECIALTY PRESCRIPTIONS (e.g., drugs for HIV, hepatitis C, multiple sclerosis, oncology, transplant, rheumatoid arthritis, IBD, psoriasis, growth deficiency, cystic fibrosis), what proportion required each of the following tasks, approximately how much active work time was spent on average (in minutes), and who were the primary staff involved? Only one primary staff type can be selected; please identify the primary staff type according to the staff doing the largest share of the work time for each task. In reporting the time required for each task, please only include instances when each task was conducted. For example, please only report the work time required to secure patient financial assistance when that task was required in order to dispense prescriptions.
15.	Thinking about the range of SPECIALTY DRUGS, on average, what is the total work time by staff involved in dispensing a specialty prescription? Please respond for all payer types.
16.	Thinking about the range of SPECIALTY DRUGS and filling them for Medicaid fee-for-service (FFS), on average, what is the total work time by staff involved in dispensing a specialty prescription for Medicaid FFS?
17.	Which best describes the primary person who answered questions 12-16? Please select one.
PART IV. Sales	
18-20.	In this section, we ask about total sales. This information is included in this survey because it is used in calculating costs of dispensing. As with all information shared through this survey, this data will be kept strictly confidential, and will only be reported in aggregate. When completing the questions in this section, please consider the following instructions: · Please enter the dollar figure for each sales category that applies to this store for the calendar year 2018. · Please round dollar figures to the nearest dollar (i.e., do not include cents). · When calculating total revenue from sales, please exclude sales tax. · Please define specialty prescriptions according to the attached listing of NDC codes. · Please include supplies provided for patient use administration, such as syringes, gloves, gauze, tubing, etc. included in the total revenue reported. The information on sales provided in this section will only be used to allocate non-pharmacy store costs to the pharmacy department in the cost of dispensing calculation.
Question	**Instructions**

18.	What were the total sales for this location for the following categories in 2018? Enter the dollar figure for each sales category that applies to this store for the calendar year 2018. Round dollar figures to the nearest dollar (i.e., do not include cents). Exclude sales tax. The information on sales provided in this section will only be used to allocate non-pharmacy store costs to the pharmacy department in the cost of dispensing calculation.
19.	What were sales of Medicaid fee-for-service (FFS) prescriptions (included in 18a and 18b) for this location in 2018? Enter the dollar figure for Medicaid FFS prescriptions for the calendar year 2018. Round dollar figures to the nearest dollar (i.e., do not include cents). Exclude sales tax.
20.	How long did it typically take to receive payment after the prescription was dispensed for the following types of prescriptions? Provide the average time period from date of service until payment is received for each prescription category. Do not provide ranges; if ranges exist, take a midpoint. If rebilling occurs for a prescription category, adjust the time period to reflect the average impact of rebills. For example, if you know the percentage of rebills for a particular category, use that percentage to calculate additional total payment days that should then be distributed to a typical payment period: Multiply the percentage of rebilled prescriptions by the typical additional days to collect due to rebilling, and then add that new figure to the payment period for the prescription category. For example, assume that in your state Medicaid pays claims in 30 days when there is no rebilling. However, 20% of your claims require rebilling, which typically adds another 60 days to the payment time. To reflect these rebills, add 12 days (20% X 60 additional days) to the typical 30 days, and enter the result in 20a: 42 days (30 days + 12 days).
20. (alt)	Alternative method: If you track accounts receivable separately for the three types of payers listed in 20, you can compute the average days to receive payment as follows: 1. Determine the total sales for the calendar year 2018 for the payer type. 2. Divide by the number of days in the period (365 calendar days) to compute average sales per day. 3. Compute the average outstanding receivables balance for the payer type during the calendar year.
Question	**Instructions**

	4. Divide the average outstanding receivables balance by the average sales per day to get the average days to receive payment. 5. Make sure that the result looks reasonable to you based on your experience.
21.	What is the title or role of the primary person who answered questions 18-20? (please check one)
PART V. Costs and Expenses for this Location	
22.	Review the list of costs in 22 carefully prior to starting in order to avoid any double-counting of store/location costs. Answer all major categories (22a, 22b, 22c and 22d—and 22e, if applicable). Do no double count any costs. Round dollar figures to the nearest dollar (i.e., do not include cents). IMPORTANT NOTE: Costs that typically are considered a component of "inventory carrying costs" are accounted for throughout sections of question 22 and in the study formula to determine the cost of dispensing. For example, insurance and interest are identified elsewhere. Any application of carrying costs to other areas of this question, such as 22b9 (Other prescription-department-specific costs), will result in double counting.
22a	The attached "Payroll Worksheet" may be useful when completing 22a. Please include the full costs of payroll for people working in the prescription department. For people who spend part of their time in the prescription department and the rest of their time working elsewhere in the store, please allocate their payroll costs to the prescription department based on the approximate percentage of their time spent working there.
22b and 22c	Answer subcategories (the shaded lines such as 22b3) as thoroughly as possible. The total of the subcategories in each group must equal the major category. For example. The prescription department costs listed in subcategories 22b1 through 22b10 must equal the major category 22b and 22c1 through 22c8 must equal the major category 22c.
22d	Answer subcategories (shaded lines such as 22d3) as thoroughly as possible. The total of the subcategories in each group must equal the major category. Please do not include corporate costs for multi-pharmacy organizations in 22d; these costs will be entered in 22e.
Question	**Instructions**

22e	If this store is part of a group of stores or larger business enterprise, some activities may be performed at district, regional, or central corporate locations; the appropriate portion of these costs applicable to each store/location should be calculated as follows, with the total entered in 22e: **Step 1. Identify central or corporate costs 100% in support of the prescription department.** If possible, identify corporate costs that are 100% in support of the store's prescription departments (such as corporate pharmaceutical procurement, third party payment processing, or compliance with state regulations). Also identify corporate costs that support only non-prescription products – do not include them in the allocation of central costs. **Step 2. Central or corporate costs related to both prescription departments and other store/location operations.** For corporate costs that support both the prescription departments and other store operations (such as general administration, accounting, human resources, information systems, etc.), multiply the total of these costs times the chain's prescription sales as a percentage of the group's total sales. **Step 3. Central costs applicable to all stores' prescription departments.** Add together the amounts computed in Step 1 and Step 2. **Step 4. Central costs applicable to a single store's prescription department.** Multiply the total from Step 3 times this store/location's prescription sales as a percentage of the group's total prescription sales. Enter the result in 22e. See the following sample calculation: The Anytown Drug Store is part of a group of 25 stores, MultiStore Inc. For calendar year 2018, Anytown's financial statements showed $6 million in total sales, of which $4 million (or 67%) were sales of prescriptions. During the same period, total sales for MultiStore Inc. were $100 million, of which $64 million –or 64%– were sales of prescriptions. Anytown Drug Store's prescription sales were 6.25% of the group's prescription sales ($4 million ÷ $64 million).
Question	**Instructions**

22e	MultiStore Inc. performs a number of functions at its headquarters, including purchasing, finance, legal and regulatory, human resources, information systems, and general administration. For the calendar year 2018, these central costs totaled $2 million. MultiStore's accounting system allows it to classify its central costs into three categories: 1. Departments that are 100% dedicated to supporting prescriptions ($300,000) 2. Departments that are 100% dedicated to non-prescription products ($200,000) – because these costs are unrelated to prescriptions, none of them are allocated. 3. Departments that support both prescription and non-prescription operations ($1,500,000). MultiStore Inc. will compute the corporate costs allocated to Anytown's prescription department as follows, using the steps defined in this instruction sheet for 22e: **Step 1:** 100% of $300,000 = $300,000 **Step 2:** 64% of $1,500,000 = $960,000 **Step 3:** Total corporate allocation to all MultiStore prescription departments = $1,260,000 (Step 1 + Step 2) **Step 4:** Anytown Drug Store's portion of this allocation is based on its share of MultiStore's total prescription sales, which is 6.25%. Anytown's portion of the prescription department allocation is $78,750 (6.25% X $1,260,000). This number should be entered for 22e for Anytown Drug Store. Note: If MultiStore Inc. has no functions dedicated 100% to prescription or to non-prescription support, then it would allocate its central costs in a two-step process, as follows: 1. Allocate total central costs to all stores' prescription departments: $2 million X 64% = $1,280,000. 2. Allocate the total computed in Step 1 to Anytown Drug Store's prescription department ($1,280,000 X 6.25% = $80,000). This number would be entered for 22e for Anytown Drug Store.
Question	**Instructions**

	If your pharmacy ONLY dispenses specialty medications or does not dispense any specialty medications, please skip the final question.
23.	Please list any non-payroll costs and expenses included in question 22b, 22c, 22d, and 22e that are unique to the dispensing of specialty drugs. All costs and expenses included here should also have been included in question 22 above. There is no need to complete this question if your pharmacy only dispenses specialty medications or does not dispense any specialty medications

5.8. FAQ for Cost of Dispensing Study 2019

2019 Cost of Dispensing Study

Frequently Asked Questions

1. Why is this study being conducted?

Responses to the 2019 Cost of Dispensing Survey will be used to estimate costs of dispensing nationally and in each state. These estimates will be used to inform policy questions related to reimbursing costs of dispensing across the US. Please find linked here a brief webinar providing additional information on this study.

2. Why should my pharmacy respond to this survey?

This is your opportunity to provide information on costs of dispensing and underlying factors, for consideration by Medicaid agencies and other payers. The more pharmacies that respond to this survey, the more accurate and representative the information will be for informing state Medicaid agencies about costs of dispensing.

3. How long will it take to complete this survey?

This survey will take some time to complete and may require input from several people. The survey is likely to take a few hours to complete and possibly more, depending on the information system and number of pharmacies. You may complete the survey by paper, online, or through a spreadsheet for multiple pharmacies at once. If you are part of a chain of pharmacies, please complete this survey for each of your pharmacies, which may be easiest through the spreadsheet version of the survey.

4. What information will be collected in this survey?

The survey asks about pharmacy-specific information related to the costs of dispensing specialty and traditional prescription drugs. You can download a PDF version of the survey instrument here.

5. What information will be shared with NACDS, NCPA, NASP and other organizations?

Individual survey responses will be held in strict confidence by Abt Associates and The MPI Group. Only the names of pharmacies/organizations that respond will be shared with NACDS, NCPA, and NASP, not the specific information provided. Individual survey responses will not be shared outside of Abt Associates and The MPI Group, the organizations collecting and analyzing the 2019 Cost of Dispensing Survey.

Information from the survey will only be reported in aggregate. We will report data at the state-level. For small states having less than three chains, data will be combined across states for reporting purposes.

6. How can my pharmacy respond to this survey?

You may complete the survey by paper, online, or through a spreadsheet for multiple pharmacies at once. To complete the survey online for a single pharmacy, please access the survey here.

If you are answering for multiple pharmacies, you can complete the study questionnaire in spreadsheet format. To download the spreadsheet version of the survey, click here.

Please send completed surveys to one of the following locations:

Email: CODsupport@mpi-group.net

Fax: 216-991-8205

Mailing address: P.O. Box 201610, Shaker Heights, OH 44120

7. Has this survey been conducted before?

Similar surveys were conducted in 2006 and 2014.

8. How were prior surveys used to inform policy?

Findings from prior surveys have been used by Medicaid agencies and other organizations to determine cost of dispensing rates.

9. How will Abt Associates and MPI Group maintain the security of responses to the survey?

Abt Associates is a contract research firm with over 50 years of experience proving insight to federal and state agencies and private organizations. Abt Associates has extensive experience working with sensitive data for research purposes, such as medical claims. Abt's Analytic

Computing Environment, where survey responses will be stored, has been certified by the federal government at a FISMA Moderate security level.

The MPI Group, which has participated in the collection of similar surveys in 2006 and 2014, will also use a secure platform to store the data. The MPI Group serves leaders with solutions that provide a competitive advantage. MPI brings extensive business and management expertise to a variety of engagements, setting professional standards for project management, research development and fielding, data analysis, and knowledge creation.

10. This survey is about costs of dispensing. Why does it contain questions about store sales and store costs?

These questions are only asked, because they are used to calculate the cost of dispensing. Data on store sales and costs will not be reported in any public reports, and will only be used for the purpose of calculating costs of dispensing.

11. Who should I reach out to for additional questions?

We can be reached at CODsupport@mpi-group.net at 216-991-8390.