U.S. DEPARTMENT OF AGRICULTURE

WIC Vendor Management Study: 2015 Electronic Benefits Transfer (EBT) Pilot

FINAL REPORT

This research was supported by the U.S. Department of Agriculture, Food and Nutrition Service. The findings and conclusions in this report are those of the author(s) and should not be construed to represent any official USDA or U.S. Government determination or policy.

WIC Vendor Management Study: 2015 Electronic Benefits Transfer (EBT) Pilot

FINAL REPORT

August 2022

Project Officer: Dr. Chan Chanhatasilpa, Office of Policy Support, USDA Food and Nutrition Service

Contract #: AG-3198-P-17-0038

Prepared by: Altarum and RTI International

Authors:
Stacy Gleason
Margaret Wilkin
Leslie Erickson
Celia Eicheldinger
Jeremy Porter

Acknowledgments

Many individuals made important contributions to this report. The authors thank members of the Altarum and RTI Study Team, especially Linnea Sallack, Wanda Stephenson, Melissa Helton, Christopher Griggs, Katherine Mason and Michael Penne. We also thank Chan Chanhatasilpa, Patricia Bailey, Lisa Southworth, Amy Herring, Erin McBride, Danielle Berman and Ruth Morgan of the U.S. Department of Agriculture Food and Nutrition Service for providing oversight, guidance, and critical Program information. We would also like to thank the representatives from numerous WIC State agencies who contributed to the advisory panel discussions, helped to guide study protocols, provided EBT cards and other data to support the study, and participated in interviews following compliance buy data collection. Without their contributions, the study would not have been possible, and without their insight, the study findings would not have been robust.

Table of Contents

Chapter 1: Introduction

In 2014, the U.S. Department of Agriculture (USDA) Food and Nutrition Service (FNS) contracted with Altarum and its subcontractor, RTI International, to conduct the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) Vendor Management Study (WVMS) Pilot among States with Electronic Benefits Transfer (EBT). This study is part of a larger FNS effort to ensure WIC Program integrity and to comply with the Payment Integrity Information Act (PIIA) of 2019.[1] The aim of this study was to test a method to identify vendor management related payment error and to measure improper payments in an EBT environment to inform future WVMS.[2] PIIA requires agencies to review all programs, and activities at the agency for susceptibility to significant improper payments at least once every three years.

To determine whether a program is susceptible to significant improper payments and should be designated as high-risk, the Office of Management and Budget (OMB) requires agencies to conduct a systematic risk assessment that considers a variety of risk factors, such as recent major changes in program funding, authorities, practices or procedures and the volume of payments made annually.[3] Significant improper payments are defined as gross annual improper payments (i.e., the total amount of overpayments and underpayments) that either exceeded (1) $10 million of all program payments during the fiscal year reported and 1.5 percent of program outlays or (2) $100 million regardless of the improper payment percentage of program outlays. WIC was designated as high-risk in FY 2004 as defined under #1 above and is therefore subject to additional PIIA reporting requirements.

BACKGROUND ON WIC AND RETAIL FOOD DELIVERY SYSTEMS

WIC is administered at the Federal level by FNS through the provision of Federal grants to 89 WIC State agencies, which comprise 50 geographic States, 33 Indian Tribal Organizations, the District of Columbia and five territories (Commonwealth of the Northern Mariana Islands, American Samoa, Guam, Puerto Rico, and the U.S. Virgin Islands). WIC provides supplemental nutrition assistance, nutrition education, breastfeeding promotion and support, and referrals to health and social services at no cost to low-income and nutritionally at-risk pregnant, breastfeeding, and non-breastfeeding postpartum women as well as infants and children up to age 5 years.

The specific types and quantities of food that a participant may purchase are defined in Federal regulations by the following participant categories: pregnant women, breastfeeding women, postpartum non-breastfeeding women, infants, and children. Participants in the categories for women and children also receive a cash value voucher (CVV, used in State agencies that have not yet transitioned to EBT) or cash value benefit (CVB, used in State agencies that have achieved Statewide EBT) in the amount of $9 to $16.50 (as of FY 2014) that can be redeemed for fruits and vegetables.

---

[1] PIIA replaced the Improper Payments Elimination and Recovery Act of 2010 (IPERA).

[2] Estimates of improper payments in WIC focus on two components: certification error and vendor error. FNS generates an annual update for the improper payment measurements of both components using statistical techniques based on the findings of two bookend studies, one of which is WIC Vendor Management Study.

[3] Office of Management and Budget, Transmittal of Appendix C to OMB Circular A-123, Requirements for Payment Integrity Improvement (June 26, 2018) available at: https://www.whitehouse.gov/wp-content/uploads/2018/06/M-18-20.pdf

Based on regulatory requirements, each State agency develops a list of WIC approved products that specifies the brands, package sizes, and other details of products that may be purchased by participants in that State.

In Fiscal Year (FY) 2014, the total Federal expenditure for food benefits in WIC was $6.12 billion; however, the net cost to the Program was $4.32 billion as the receipt of more than $1.8 billion (largely from infant formula manufacturer rebates) offset some Program food costs.[4] In FY 2014, there were 47,577 WIC vendors[5] (retail food stores authorized to accept WIC) authorized by 87 State agencies that provide supplemental foods through retail food delivery systems.[6] Almost all WIC food benefits were obtained through retail vendors.[7]

WIC State agencies are responsible for operating and monitoring a food delivery system to provide supplemental foods to participants. This includes issuing food benefits to eligible participants, developing and managing food delivery systems for participants to transact those benefits, ensuring that food benefits are transacted for foods approved by the State agency, meeting cost containment requirements, and ensuring that vendors comply with Program rules and guidelines when transacting and redeeming WIC benefits. Key aspects of WIC Program operations and management are described in the following sections.

Food benefit issuance

In State agencies that use a retail food delivery system, participants receive their benefits via food instruments (FIs) at a WIC clinic. WIC participants may use their FIs, which can be an EBT card; a paper voucher, check, or coupon; or another document used by a participant to purchase specific foods at WIC authorized vendors, farmers, and farmers' markets. At the time of this study, State agencies that were not using EBT were in the process of planning, piloting or implementing EBT systems since all State agencies are statutorily required to deliver food benefits electronically by 2020 or obtain an exemption from FNS.[8]

Vendor authorization

To become a WIC authorized vendor, an individual store must meet federally mandated selection criteria (e.g., demonstrate minimum stock, business integrity, competitive pricing) as well as any additional selection criteria established by the State agency. For example, some State agencies only authorize vendors that offer a full line of grocery items or are authorized retailers in the Supplemental Nutrition Assistance Program (SNAP). When a vendor applies to the State agency for WIC authorization, it is required to submit store ownership information, descriptive data such as the type and size of the store, and data on price and availability of WIC foods. State agencies compare the information

---

[4] Oliveira, V., and E. Frazao. *The WIC Program: Background, Trends, and Economic Issues, 2009 Edition,* Economic Research Report No. 73, U.S. Department of Agriculture, Economic Research Service, April 2009.
[5] TIP Report 2014; excludes direct distribution centers and home food delivery contractors.
[6] In FY 2014, three WIC State agencies did not operate any retail food delivery but instead operated only direct distribution systems; those were Mississippi; San Felipe, NM; and Santo Domingo, NM.
[7] A small portion of WIC participants receive benefits through non-retail systems, which include direct distribution (i.e., participants pick up supplemental foods at a clinic or other location) or home delivery (i.e., supplemental foods are shipped to participants' homes).
[8] Public Law 111-296. December 13, 2010.

submitted by the store with their vendor selection criteria to determine whether the store qualifies for authorization. Before approving the application of a new store, the State agency sends a representative from the State or a delegate to visit the store and verify that the information contained in the application is correct, check the store's WIC food inventory levels, and review Program rules and regulations with store management. Additionally, Federal regulations require that all WIC authorized stores participate in annual training on WIC Program rules and handling of WIC transactions. If a store meets the State agency's criteria and participates in any required training, the store owner may enter into a vendor agreement with the WIC State agency. By signing the vendor agreement, the store agrees to comply with Federal and State agency regulations and requirements and becomes an authorized WIC vendor.

Vendor management practices

State agencies are responsible for the ongoing management and monitoring of their authorized vendors in accordance with Program requirements, and for the enforcement of the requirements outlined in their vendor agreement. State agencies must develop and implement vendor monitoring and compliance policies and procedures to detect vendor noncompliance with Program requirements. State agencies must combine preventive efforts, such as vendor training programs and use of high-risk vendor identification systems, with activities aimed at identifying noncompliance, such as conducting onsite monitoring visits, inventory audits, and compliance buys. EBT systems, which capture point-of-sale (POS) information about WIC transactions, provide data that can enhance vendor management and compliance efforts.

TRANSITION TO EBT

As of April 2015, when this study initially collected data, 14 WIC State agencies were using EBT to issue WIC food benefits. The remainder of State agencies were in the design or planning stage of EBT in order to make progress toward meeting the Federal requirement for use of EBT in all State agencies by 2020.[9,10]

EBT allows WIC food transactions to occur electronically. A WIC EBT transaction is more complex than a credit or debit transaction due to the specific food prescription that is the hallmark of the WIC food benefit. Two methods of WIC EBT are currently in use:

- **Offline EBT** uses a plastic card with an embedded computer chip (a smart card) that contains the WIC participant's current food benefits, which can be accessed through a card reader at the POS to validate and transact the sale after the participant enters their PIN.
- **Online EBT** cards have a magnetic strip that assists in carrying out real-time communication through a card reader in the checkout lane to an EBT processor hired by the State agency to process WIC EBT transactions. Upon swiping the card, a message is sent to the online EBT processor, which validates the card and personal identification number (PIN) and sends the

---

As of October 2021, 78 WIC State agencies had fully implemented EBT statewide. This is based on information available on the FNS website: https://fns-prod.azureedge.net/sites/default/files/resource-files/October2021WICEBTActivityMapv2.pdf. [10] Public Law 111-296. December 13, 2010.
[10] Public Law 111-296. December 13, 2010.

remaining food prescription balance back to the vendor.

Despite the differences between the technology used for offline and online EBT systems, the details of the WIC transaction at the register are largely the same. At the checkout, the scanned Universal Product Codes (UPCs) and price look-up codes (PLUs)[11] are assessed against an Authorized Product List (APL) created and updated by the WIC State agency and regularly downloaded by the vendor to determine whether a food item is approved by the State agency for purchase with WIC benefits. Transactions are also assessed against the foods available in the participant's prescription. If the scanned food items satisfy both the APL and the food prescription requirements, the purchases are approved, and the food prescription is updated on the smart card or with the EBT processor to reflect the use of the benefits.

Additionally, when shopping with an EBT card, WIC participants may choose to buy fewer WIC items during any singular shopping trip compared to when they are shopping with paper FIs. Paper FIs include specific types and quantities of food items that must be purchased during a single transaction, otherwise the participant will forfeit the unused portion of the benefit listed on the FI (i.e., a participant cannot return to the store at a later date to purchase these items). A participant with an EBT card, on the other hand, can purchase a portion of the prescribed foods and return to the store at another time to purchase remaining WIC foods from the monthly benefit. Moreover, WIC participants may purchase both WIC and non-WIC foods during the same transaction using the WIC EBT card plus other forms of tender for non-WIC items (this is referred to as a "mixed basket transaction"). Vendors rely heavily on POS devices/systems to accurately identify the foods that can be purchased with WIC benefits, particularly when transacting EBT.

PURPOSE OF THE STUDY

This study was conducted as part of a larger FNS effort to ensure WIC Program integrity. Although the 2013 WVMS provided information used by FNS to meet IPERA (now PIIA) requirements, the WVMS-EBT Study was intended to develop and test a methodology for determining vendor-related payment error under WIC EBT to inform future program integrity study designs. This study aimed to closely examine compliance issues and rates of violations associated with improper payments among vendors in State agencies that have implemented WIC EBT statewide. This effort is significant for future Program integrity evaluations, given the nationwide transition to EBT.

The purpose of this study is twofold. First, this study aimed to determine the extent to which WIC EBT vendors adhere to Program requirements during WIC EBT transactions. The requirements examined include the extent to which WIC EBT vendors complete the WIC transaction in accordance with required procedures, allow only WIC approved foods to be purchased with WIC benefits, and charge the WIC Program appropriately (i.e., do not overcharge). WIC regulations define overcharge as, "intentionally or unintentionally charging the State agency more for authorized supplemental foods than is permitted under the vendor agreement. It is not a vendor overcharge when a vendor submits a food instrument for redemption and the State agency makes a price adjustment to the food instrument."[12]

With respect to PIIA, additional analyses were required given the definition of improper payment as:

---

[11] This code is used to identify fresh fruit and vegetables, including related items such as nuts and herbs that are sold in bulk.
[12] From Definitions available under 7 C.F.R. §246.2.

"any payment that should not have been made or that was made in an incorrect amount (including overpayments and underpayments) under statutory, contractual, administrative or other legally applicable requirements; and includes any payment to an ineligible recipient, any payment for an ineligible good or service, any duplicate payment, any payment for a good or service not received (except for such payments where authorized by law), and any payment that does not account for credit for applicable discounts."[13]

Second, this study tested a method to identify errors and measure improper payments in an EBT environment. It aimed to develop a framework for future studies to meet PIIA requirements—one that reflects the WIC EBT shopping experience and enhances FNS ability to identify payment errors and measure improper payments in EBT. The type and specificity of price and redemption data available through EBT have important implications for how payment error is measured. The design of the current study included several important departures and enhancements relative to the design of previous studies as a result of the differences between paper FI and EBT card transactions, price and redemption data, and the shopping experience. For this reason, this report does not compare results between this and previous studies, except in a few cases in which it was prudent to report results from the 2013 study to illustrate the explicit methodological and contextual factors that explain the apparent differences between the study results.

ORGANIZATION OF THE REPORT

Chapter II outlines the methods used to sample vendors, collect compliance buy data, and analyze data from available sources. Chapter III includes two sections, both of which provide detailed descriptions of the study population, including vendor characteristics and vendor management practices that are employed by the State agencies included in the study. Chapter IV presents detailed findings on specific administrative errors committed by WIC vendors and observed in this study. Chapter V provides a detailed description of vendor response to compliance buyer (CB)-initiated substitutions. Chapter VI describes findings related to improper payments and insights gleaned from State agency interviews relative to overcharges and data required to measure these errors. Chapter VII concludes the report with a discussion of study findings, policy implications, and recommendations for future vendor management studies.

[13] Improper Payments Elimination and Recovery Act of 2010, Pub. L. No. 111-204, § 2, 124 Stat. 2227 (2010).

Chapter II: Study Methodology

This chapter describes the methods and procedures used to identify a nationally representative sample of WIC authorized vendors, collect and weight the data, and conduct data analysis.

DATA SOURCES

Although compliance buys served as the primary source of information, the study team drew on five different data sources in order to meet the objectives of the study:

- **WIC State Plan documents.** Information relevant to study WIC State agencies' vendor management practices, including vendor authorization and monitoring procedures, vendor training and administrative review procedures, was abstracted from FY 2013 State Plans during the 2013 WVMS and verified by or obtained directly from the State agency via a brief online questionnaire and email communications. This State agency-level information was used to examine differences in vendor compliance outcomes by common State agency administrative practices and identify whether and which vendor management practices are associated with reduced incidence of vendor violations.
- **The Integrity Profile (TIP) Reports from 2013 and 2014.** TIP Report 2013, which includes information on vendors that were authorized by the WIC Program in FY 2013, was used to develop sampling weights as it was the most up-to-date file available when this activity was undertaken. Before starting the analysis, however, TIP Report 2014 was available; as a result, it was used as the source of vendor-specific information relevant to the analyses (see figure II-1). TIP Report 2014 redemption data were also used for weighting purposes.

Figure II-1 Analytic variables pulled from TIP Report 2014

- Type of WIC vendor
- Volume of WIC sales
- Number of routine monitoring visits
- Type of training received
- High-risk designation
- Geographic location

- **Compliance buys.** Two compliance buys were attempted for each vendor sampled into the study; both reflected a typical WIC EBT transaction (as defined by the study team) but during one transaction, only WIC authorized items were included (this is referred to as a "safe buy") and during the other, a mix of WIC authorized items and unauthorized items were included (this is referred to as a "substitution buy"). The compliance buy was based on the common practice of purchasing a subset of prescribed WIC items, not the entire prescription, during a single transaction. The compliance buy data provided the primary source of data for the frequency of vendor violations (e.g., allowing a substitution, failing to provide a receipt when required). Additionally, compliance buy data was compared with WIC State agency EBT data to identify incidences of overcharges. Compliance buyers (CBs) collected information about the vendors visited (e.g., number of registers), the foods purchased (e.g., brand, quantity, shelf price, receipt price), and the checkout process (e.g., asked to separate WIC foods).

- **WIC State agency EBT files.** EBT reconciliation files were acquired from each WIC State agency selected for the study. The reconciliation files contained details about each food item purchased with EBT cards issued for the study, including the price the vendor requested from the State agency and the price the State agency paid the vendor.
- **Interviews with a subset of WIC State agencies to validate findings.** Following an initial analysis of the transaction data to identify and estimate payment error, additional transaction data were obtained from WIC State agencies to verify the initial data. WIC State agencies were also interviewed to help clarify the reconciliation data and EBT redemption and reconciliation processes.

More detail about the compliance buys, including the type of data collected and how they were conducted, is provided in the Compliance Buy Data Collection section that follows. Likewise, a detailed description of how the first four sources were merged to create an analytic data file is provided in the Analytic Data File section. Appendix A includes a list of analytic variables that were included from each source. A description of information gleaned from follow-up interviews with WIC State agencies is described in the chapter VI.

SAMPLING PLAN

This study employed a probability sample of WIC vendors in nine States that had implemented EBT by the end of 2014 using methodology from past WVMS conducted in 1998, 2005 and 2013. The sampling methodology uses a two-stage cluster design with primary sampling units (PSU) defined by geographic clusters of counties. The following sections describe the steps involved in developing and implementing the sampling plan.

Target population and developing the sampling frame

Nine State agencies that were using EBT for food benefit issuance statewide at the end of 2014 were selected for the study.[14] The target population for the study sample from these nine states includes all WIC authorized vendors that had WIC sales or were newly authorized in FY 2013.[15] This includes chain grocery, independent grocery, convenience, general, "WIC-only" (serving WIC participants only), and above-50-percent stores (A50, or those vendors with more than 50 percent of SNAP-eligible food sales from WIC). Vendors classified as military commissaries or pharmacies were excluded from the study as they are different from other store types and represent a small fraction of all WIC vendors. Non-retail systems (i.e., direct distribution and home delivery) were also not included in this study.

TIP Report 2013 was used to construct a sampling frame consistent with the previously described target population and to identify eligible vendors in the nine EBT States. In total, 8,083 WIC vendors were included in the final sampling frame. This study sample represents approximately 95 percent of all vendors that were authorized and accounts for approximately 99 percent of all WIC food sales

---

[14] The nine State agencies in this study are Florida, Kentucky, Michigan, New Mexico, Nevada, Texas, Virginia, West Virginia, and Wyoming.

[15] TIP from FY 2013, which was used to develop the sampling frame for the study, includes all vendors authorized at any point during FY 2013, even vendors that lost authorization at some point in the year.

transacted in the nine States in FY 2013.

Constructing PSUs

Once the sampling frame of EBT vendors was constructed, all the EBT vendors on the frame were mapped to the existing PSUs from the 2013 WVMS by the county in which the EBT vendors were located. The PSUs from the 2013 WVMS were defined as either individual counties or groups of geographically contiguous counties within a single State agency's jurisdiction. Each county within the nine EBT States was included in only one PSU. Counties with fewer than 80 WIC vendors were identified and combined with geographically adjacent counties to form PSUs that met or exceeded the minimum requirement of 80 vendors using ArcGIS® 9.3 software by Esri. The county location of each vendor was determined by geocoding the vendor's mailing address and ZIP code, which were readily available through TIP. In total, there were 82 PSUs in the nine EBT States included in the study.

SAMPLE SELECTION

A sample of 592 WIC EBT vendors was selected for the study using a two-stage sample design. This sample size was designed to meet precision requirements for the national EBT estimates of improper payments (95 percent confidence interval [CI] and 5 percentage points). However, given the nature of the data collected, the findings do not include national estimates of improper payments. Details related to sampling are provided in Appendix A.

Table II-1 State Assignments and PSU Allocation for Vendor-to-Participant Ratio Stratification

	Vendor-to-Participant Ratio Categories		
	Low	**Medium**	**High**
Range of vendor: participant ratios	1:247–451	1:147–246	1:100–146
State and number of allocated PSUs	New Mexico: 1 Nevada: 1 Texas: 10	Kentucky: 3 Virginia: 4 Florida: 9	Wyoming: 1 West Virginia: 1 Michigan: 7
Total allocated PSUs	12	16	9

COMPLIANCE BUY DATA COLLECTION

The primary method of data collection for this study was through 1,076 compliance buys from WIC vendors over a 1-month period. Details on the compliance buys are described below.

Procedures

To meet the objectives of the study, two types of compliance buys were conducted at each sampled vendor with compliance buyers (CBs) using procedures that were designed to mimic real life WIC shopping experiences. A total of 39 CBs and three field supervisors were hired and trained to conduct buys at sampled vendors in 37 PSUs. Given the covert nature of this data collection effort, all CBs were women of childbearing age and belonged to a racial or ethnic group that was predominant in the area to which they were assigned. All field staff members attended a 3.5-day training program and completed practice buys at vendors before finishing the training.

The following is a description of the two types of compliance buys that were attempted at each vendor to test the actions of the vendor when presented with different scenarios:

- During a **safe buy**, the CB attempted to purchase four foods from a prescription for a woman or child (e.g., milk, cereal, peanut butter, and beans) as well as infant formula or infant jarred foods, depending on randomization. The CB also attempted to purchase up to $4 worth of fresh fruits and vegetables. The training for the CBs included instruction on the importance of attempting to purchase only WIC authorized foods.
- During a **substitution buy,** the CB attempted to purchase two foods from a prescription for a woman or child (e.g., milk, cereal, peanut butter, beans) as well as infant jarred foods or infant formula, depending on randomization, up to $4 worth of fresh fruits and vegetables, and substituted two items that were not WIC authorized. The CB was instructed to place the items on the belt in no particular order and observe as the cashier rang them up. If the unauthorized items were appropriately identified, then the CB would have been prompted to pay the remaining balance after the transaction was complete. During this buy, the CB was instructed to tell the cashier that she did not have any way to pay the balance. The CB was then supposed to follow the lead of the cashier in how to handle the situation, most commonly removing or voiding the unauthorized items and finalizing the purchase. As in previous studies, the vendor was randomized to receive either a minor or a major substitution buy. If randomized to minor substitution, the CB attempted to purchase two items that were similar to WIC authorized foods (e.g., juice less than 100 percent juice, infant jarred desserts, white bread, frozen vegetables in sauce, whole milk instead of skim, unapproved cereal); if randomized to major substitution, the CB attempted to purchase two items that were clearly not WIC authorized (e.g., soda, fruit roll-ups, potato chips).

CBs were instructed to complete first the safe buy and then the substitution buy at each vendor. Before data collection, two shopping lists of WIC authorized foods were developed for use during the these compliance buys (shopping lists 1 and 2) and vendors were randomized to receive either shopping list 1 for the safe buy and shopping list 2 for the substitution buy or vice versa. During the substitution buy, CBs chose a WIC authorized item from the shopping list to substitute (e.g., attempting to purchase white bread instead of the whole wheat bread, or whole milk in place of the non-fat or low-fat milk). Since the lists included different food items, randomization ensured that CBs could vary the types of items that they attempted to substitute. Figure II-2 provides the types and quantities of WIC authorized foods that were included on each shopping list.

Figure II-2 Shopping lists of WIC authorized foods used during compliance buys*

Shopping List 1	**Shopping List 2**
1 gal nonfat or 1 percent milk	1 gal nonfat or 1 percent milk
1 plastic container juice (48 oz)	1 jar peanut butter (18 oz)
1 dozen eggs	1 package of cheese (16 oz)
1 whole wheat bread (16 oz)	1 box cereal (up to 36 oz)
1 can contract brand infant formula	4 infant jars/containers food
Up to $4 in fruits and vegetables	Up to $4 in fruits and vegetables

*For substitution buys, CBs were instructed to replace a WIC authorized item from the list with an unauthorized item.

Instrumentation

CBs were trained to use a data collection instrument, which was programmed into a smartphone application and comprised two main components:

- CBs collected data about each food item purchased (and attempted) in a shopping list, which was preloaded based on the assigned food package. Some food item data were entered while in the store to the extent possible, including the item type, quantity, package size, UPC (by using a scanning feature that was built into the application), and shelf price as well as whether the item was out of stock. The remaining food item data, such as receipt price and whether the item was purchased, were entered after the buy was completed once the CB was in her car or had left the premises. CBs also added items to the shopping list when purchasing fruits and vegetables or attempting to purchase ineligible items as substitutions.
- The compliance buy questionnaire captured contextual information about the vendor, checkout process and total purchase price. The CBs also took photos of receipts. CBs entered these data after leaving the store premises.

The study team utilized the 2013 WVMS data collection instruments, which had also been programmed into smartphones, and revised them to focus on information specific to EBT vendor violations. The team also made improvements based on feedback from the 2013 study, such as implementing built-in confirmation screens and streamlining the instrument. Appendix B provides detail on the specific questions and data fields included in the compliance buy data collection instrument.

Response rates

Overall, CBs completed at least one buy in a total of 584 vendors during the course of the study, resulting in an overall 99.2 percent response rate.[16] The team achieved a 98 percent response rate for the substitution buy, completing buys at 575 out of 587 eligible vendors. The response rate for the safe buy (85.1 percent) was lower relative to the substitution buy and previous studies but more than sufficient to meet the required levels of precision.[17] Among the 587 vendors eligible for both buys, CBs completed both buys at 492 of these vendors for a response rate of 83.8 percent. Table II-2 reports the response rates (percent completed buys) for each specific buy type as well as those completing both buys.

---

[16] Definition for response rate for compliance buys has been used for prior WVMSs.

[17] For the 2013 WVMS study, the precision requirements for national and subgroup proportion estimates were +/- 3 percentage points and +/- 5 percentage points, respectively, at the 95% confidence level. Since EBT vendors are a subgroup of all vendors, the required precision for the WVMS-EBT Study was +/- 5 percentage points.

Table II-2 Vendor eligibility and response rate by type of buy

Buys	Vendors Eligible for Buy	Vendors With Completed Buy	Response Rate, %	Weighted Number of Vendors
At least one buy	589	584	99.2	8,262
Buy 1 (safe)	589	501	85.1	8,262
Buy 2 (substitution)	587	575	98.0	8,262
Both buys	587	492	83.8	8,262

The lower response rate for safe buys than for substitution buys was largely a consequence of a smartphone instrument error causing data loss that was identified by the study team during the quality control process. The team stopped CB activity until the instrument was repaired and then repeated buys in some of the vendors where data were lost, if possible, using back-up EBT cards or unused benefit balance on the originally issued cards. Due to the 1-month data collection time frame and the limited availability of EBT cards, it was not possible to repeat all of the buys. Thus, some vendors were coded as non-respondents for one or both buys (but primarily for the safe buy). Additionally, CBs occasionally ran into issues in the field that were beyond the study team's control, such as a WIC EBT system or store POS being down at the time of the attempted compliance buy, a vendor that had gone out of business or was no longer WIC authorized. In those instances, a reserve vendor was activated to take the place of the vendor where the buy could not be completed. Table II-3 provides additional information about the reasons for nonresponse across buy type.

Table II-3 Number of nonresponding vendors (buys not completed) by buy type

Reason for nonresponse	Buy 1 (Safe)	Buy 2 (Substitution)
Total number of nonresponding vendors	88	12
Unable to rework after data loss occurred	80	12
Unable to complete for other reasons (see narrative)	8	0

ANALYTIC DATA FILE

Upon completion of data collection, extensive quality control checks and data cleaning were performed on the compliance buy data, and information from the other three data sources (State Plans and questionnaire, TIP Report 2014, and State agency EBT reconciliation files for the compliance buy purchases) were merged on to the file. In line with the method described in the study plan for testing, WIC State agencies provided EBT transaction reconciliation data at the item-level for all of the benefits redeemed through compliance buys during the study, including the quantity of food items, the price requested by the vendor, and the price paid by the State for each food item purchased. However, these data were rolled up to the transaction-level to simplify both the data merge and identification of potential improper payments since compliance buy data records were also at the transaction-level. Total requested and total paid amounts were calculated before merging reconciliation data with compliance buy data. The two files were merged by using a combination of identifying information that was readily available on both files, such as the date of transaction, vendor ID, and EBT card number. This merge process did not always yield a match between the respective files. In these cases, members of the study team closely examined unmatched cases and used additional information available on the files (e.g., the items purchased and redeemed) to hand-match all of the remaining cases. The final two steps of the file construction process—developing final sampling weights and developing key analytic variables—are detailed in the sections below.

Administrative errors

For the purposes of this study, administrative errors are defined as a failure to conform to specific State agency vendor requirements. While these errors may not be associated with improper payments, they have been associated with payment error in previous studies. Three dichotomous administrative error variables were developed based on methodology from previous studies. Each variable indicates whether the particular administrative error occurred. In most cases, these variables are based on the CBs' response to a single question on the compliance buy data collection instrument. In one case, however, additional information gathered on each food item purchased (e.g., cashier wouldn't allow purchase of an approved item) was also used to develop the dichotomous variable. Because WIC State agencies differ on whether vendors are required to provide a receipt, this policy was considered when developing the associated administrative error variable. Figure II-3 provides a list of the administrative error variables that were developed; additional detail on their development is provided at the beginning of chapter IV.

Figure II-3. Administrative error variables developed for the study

- Cashier entered EBT card personal identification number (PIN) for participant
- Cashier would not allow purchase of approved WIC item

Substitutions

A substitution occurs when an item that is not WIC authorized or is not included in the participant's benefit balance is substituted for a WIC authorized item in the transaction and is purchased with WIC benefits. During the data collection training, CBs were instructed carefully on how to complete and document a substitution buy. Specifically, each CB was instructed to do the following:

1. Select a food item from her pre-programmed shopping list of WIC authorized foods for which she would attempt a substitution. The CB was instructed to code the selected item as "Not purchased" and then select "Item replaced by substitution" as the reason for not purchasing the item.
2. Add a custom item to her shopping list and record relevant information about the unauthorized item that she was attempting to purchase. If she was allowed to purchase the unauthorized item with her WIC benefits, she was instructed to code the item as "Purchased."

Allowance of a substitution was coded as a dichotomous variable, indicating whether the CB was permitted to purchase an unauthorized item in place of a WIC authorized item. A substitution was considered allowed only if the CB was able to purchase an unauthorized item and the WIC benefit balance was subsequently reduced. Several steps were involved in determining whether a substitution occurred. First, all substitution items were supposed to be coded as custom items; all substitution buys where custom items were coded as "purchased" were examined closely. The custom item was presumed to be the item that the CB attempted to substitute, so the UPC for this item was compared against the State agency-provided APL to confirm that it was unauthorized. Second, when CBs attempted to substitute an unallowable brand or extra quantity of an allowed item, these were not always entered as custom items. CBs did not record a custom item in the data collection instrument for 108 of the 575 substitution buys. In these cases, the CB notes and data for these transactions were reviewed closely to determine which item was likely substituted and whether it was purchased with the WIC benefit. Finally, if it was unclear from the CB's documentation or notes whether the unauthorized item was purchased, the receipt was reviewed to make this determination.

Improper Payments

Only data from the safe compliance buy was used when identifying improper payments. To be included in the improper payment analysis, a vendor had to have a "best purchase price" (see figure II-4), which is the price collected during the compliance buy that best approximates what a non-WIC customer would have paid for the same item, and a redeemed dollar amount (both requested and settled) for the compliance buy. Of the 589 eligible sampled vendors, 501 completed a safe buy; of those, 491 had a best purchase price and requested and settled prices. Numerous variables from the compliance buy, State agency reconciliation data, and TIP are required to examine transactions and calculate improper payments; these variables are defined and described below. Definitions and descriptions provided in this section reflect how each analytic variable was defined originally for the study. Revisions made during the study to some of these variable definitions are discussed in chapter VI. Recommended revisions to some improper payment variables are also discussed in chapter VII.

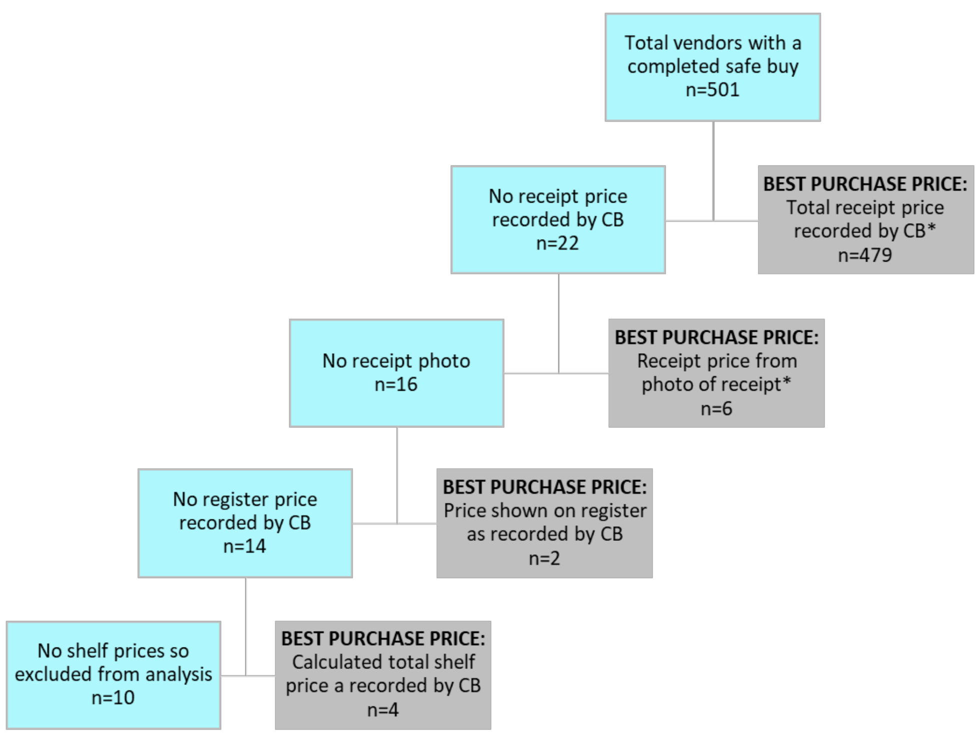
ANALYTIC VARIABLES OBTAINED OR DERIVED FROM COMPLIANCE BUY DATA

- **Total receipt price.** The total receipt price was captured by the CB from the receipt, if one was provided, and recorded in the questionnaire portion of the compliance buy data collection instrument. Some receipts displayed both a "regular" total (the total that would be displayed on the receipt for a non-WIC transaction) and a WIC total; CBs were instructed to record the WIC total. CBs were also instructed to take a photograph of the receipt with the phone used for data collection; therefore, if the receipt price was not recorded or the receipt total did not match either the requested or settled price (defined below), the photo was reviewed to verify receipt price.
- **Total register price.** During safe buys, CBs recorded the total amount observed on the register. The total register price was not captured during substitution buys as this total could have included items that were identified as unapproved and later voided.
- **Calculated total shelf price.** When displayed in the store, CBs recorded the shelf prices in the shopping list food item detail portion of the data collection instrument, and these prices were summed to create a total purchase price. Sometimes these prices did not account for sales or loyalty card values; therefore, receipt or register price were preferred over this option.[18]
- **Best purchase price.** The best purchase price, typically determined by the receipt price, or the amount that non-WIC customer would pay was captured or calculated from price data recorded by CBs during safe buys (n=501). A flow chart demonstrating best purchase price source is presented in figure II-4. As depicted, best purchase price could not be determined for 10

[18] Some vendors opt to submit a register price net of any item discount, which is allowable in the FNS EBT Operating Rules.

transactions. For the majority of the remaining 491 transactions, receipt prices recorded by the CB (97.6 percent) or shown in a photo of the receipt (1.2 percent) were used to determine best purchase price. When available, receipts were the preferred source of price information because it is assumed that prices indicated by the POS system (and printed on the receipt) reflect the price that any paying customer would be charged, inclusive of sales and applicable discounts. When receipt price was missing, total register price was used as the best purchase price (0.4 percent). When both receipt price and total register price were missing or it was difficult to determine from the receipt the price that a non-WIC customer would have paid, total shelf price was used as the best purchase price (0.8 percent). In online EBT systems, the maximum price a State agency is willing to pay a vendor for approved food items based on their current cost containment policies is available in real time and was sometimes included on the receipt either for each food item (typically indicated by an asterisk next to the item price on the receipt) or in total (typically referred to as the "WIC total" on the receipt) as shown in figure II-5. In these cases, the receipt price (WIC or regular price) that matched the requested price was used as the best purchase price. In some States, the requested price matched the "WIC price" that was printed on the receipt while in others the requested price matched the regular price.

Figure II-4. Determination of "Best Purchase Price"



*Where a regular price total and a WIC total are both present on a receipt, the price that matches the requested price from the reconciliation data file is considered the best purchase price.

Figure II-5. Sample receipt with a WIC total and regular price total

ANALYTIC VARIABLES OBTAINED OR DERIVED FROM THE STATE AGENCY RECONCILIATION DATA [19]

- **Requested price.** Requested price is the amount a vendor requested from the State as payment for a particular item purchased with WIC benefits.
- **Total requested price.** Total requested price was calculated by the study team by summing the amount a vendor requested from the State as payment for each item purchased with WIC benefits during a transaction.
- **Settled price.** Settled price is the amount the State paid a vendor for an item purchased with WIC benefits. This price accounts for any reductions made by the State for items exceeding the not to exceed (NTE) or maximum allowable reimbursement level (MARL) values.
- **Total settled price.** Total settled price was calculated by the study team by summing the amount the State paid a vendor for each item purchased with WIC benefits during a transaction. This price accounts for reductions made by the State for items exceeding the calculated NTE value.

ANALYTIC VARIABLES DERIVED FOR THE ANALYSIS OF IMPROPER PAYMENTS

This section describes analytic variables as they were defined originally for this study. Recommendations for revising and defining these terms are discussed in Chapter VII. Although previous studies included undercharges and underpayments in the calculation of improper payment amounts, these will not be included in these calculations going forward. While an overcharge is defined in the regulatory language, an undercharge is not defined in the regulations, nor is it considered a Program violation. Vendor undercharges (and therefore underpayments) are not improper payments; they are consistent with statutory and regulatory objectives and result in desired Program savings.

- **Overcharge (yes/no).** The study methodology considered a transaction to be an overcharge if the requested price was greater than best purchase price. However, not all overcharges lead to

---

[19] The State Agency reconciliation data were item-level prices and summed to obtain the total requested and total settled prices. Depending on the EBT system in place, the total requested price may reflect discounts from coupons or loyalty cards; however, in some systems discounts are applied at the transaction-level and not reflected in the item-level reconciliation file used for this study. More discussion is provided in Chapter VI.

overpayments. A transaction was considered to be an overpayment when the settled price was greater than the best purchase price. Using settled price instead of requested price to determine overpayments was made because the requested price often does not reflect post-processing reductions, based on NTEs and MARLs that dictate what the vendor is paid by the State. These post-processing reductions are intended to reduce overpayments and to reflect State agency vendor cost containment efforts.

- **Overcharge amount.** For each transaction identified as an overcharge, the overcharge amount was calculated by subtracting best purchase price from total settled price (i.e., did the vendor get paid a higher price than it should have after cost containment measures were applied?). Settled price was used to ensure that the final dollar amount of overcharge accounted for reductions made by the State for items exceeding the calculated NTE or MARL.
- **Improper payment (yes/no).** Transactions identified as either having a non-zero overcharge amount were considered improper payments.

STATE AGENCY INTERVIEWS

As previously described, following an initial analysis of improper payments, additional transaction data were obtained from WIC State agencies to verify improper payment-related study findings. These data were reviewed and included screenshots provided to FNS by WIC State agencies for a subset of transactions identified as improper payments. WIC State agencies were also interviewed to clarify improper payment-related data and processes. A semi-structured interview guide was developed and approved by FNS to gather information about State agency reconciliation data and procedures, operational aspects of defining and identifying overcharges, and opportunities for improving data requests in future vendor management studies.

In total, six WIC State agencies that had an improper payment identified during the WVMS-EBT were invited and agreed to participate in an interview in December 2017. Interview participants were provided with a copy of the guide prior to the interview. Interviews lasted approximately 30-45 minutes and were documented by taking detailed notes. State agency responses were compiled by interview question in Microsoft Word to facilitate qualitative analysis and the identification of exemplary quotes. Following the interview, the study team compiled a list of data elements identified as being essential for future studies and asked State agencies if they would be willing to provide sample data files (templates with no data). Four of the six State agencies that participated in an interview provided the requested sample data files.

DATA ANALYSIS

Data cleaning and quality control

All transactions identified initially as overcharges underwent careful review and all available transaction data were considered. Specifically, data were checked for transposition errors (which could happen during bank processing or when data were recorded by the CB). When a transposition error was found and could explain the difference between the two values, it was corrected, and the buy was no longer considered an overcharge. Additionally, all price data recorded by the CB was reviewed to determine whether there was a more accurate price to use as the best purchase price. If none of the other price variables recorded by the CB matched the total requested or paid price, the reviewer manually scanned all compliance buy data for the transaction, including notes made by the CB, and further examined available receipt photos to compare prices for each item and to determine whether there was another explanation for the difference between best purchase price and requested price. After conducting this thorough process of data review and correction, a majority of the transactions for which an improper payment was initially calculated were determined to be correct payments. A detailed discussion of additional information collected and analyzed to understand and clarify the remaining improper payment transactions is included in chapter VI.

Descriptive, bivariate and multivariate

All data analysis was conducted using SAS version 9.4 (SAS Institute, Cary, NC) and SUDAAN 10.3 (RTI International). Univariate statistics were used to describe the study population—a nationally representative sample of WIC vendors—including the State agency policies and practices to which they must adhere. Univariate statistics were also used to estimate national rates of administrative errors and improper payments. In most cases, overall rates of administrative errors were reflective of a vendor committing a particular administrative error at least once across two buys.

Bivariate analyses were conducted to determine the vendor characteristics that are associated with the occurrence of violations. The association between vendor violations and various aspects of the compliance buy (e.g., buy type, transaction characteristics, vendor characteristics), as well as State agency-level policies and practices that are intended to reduce the likelihood of vendor violations and improper payments, were also examined by using bivariate analyses. Because the occurrence of a violation is dichotomous, bivariate statistics to test for association included the Pearson's chi-squared test statistic for dichotomous independent variables and the Cochran–Mantel–Haenszel chi-squared test statistic for categorical variables. Significance tests yielding a *p*-value less than 0.05 were considered statistically significant for this study. Findings yielding a relative standard error greater than 30 percent or that are based on less than 20 cases[20] are considered unreliable and are indicated as such throughout the report and in the appendices.

[20] For proportions, there needed to be at least 20 more cases in the denominator compared to the numerator.

Chapter III: Study Population

A total sample of 584 authorized WIC vendors were included in the study and received at least one compliance buy. In this chapter, vendor characteristics, including the WIC State agency vendor management policies to which vendors must adhere, are described. The results presented herein are weighted estimates of this nationally representative sample of vendors authorized in EBT States. Additional tables related to this chapter can be found in Appendix C.

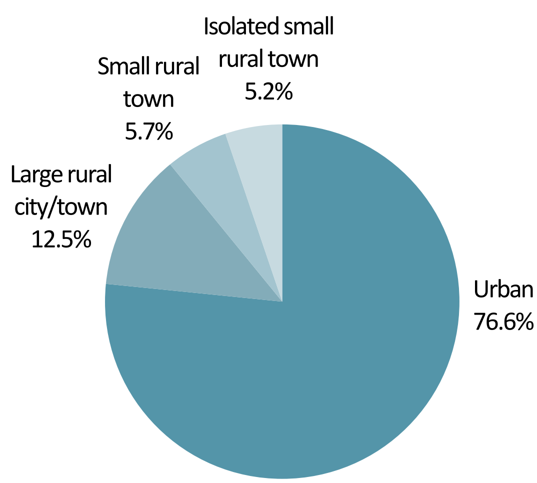
VENDOR CHARACTERISTICS

In TIP data, vendors are categorized as follows: 1) regular vendors if their WIC business comprises less than 50 percent of annual SNAP-eligible food sales; 2) A50 vendors if their WIC business comprises 50 percent or more of annual SNAP-eligible food sales; or 3) WIC-only vendors if they carry only WIC eligible food items and serve primarily WIC participants. In 2014, the vast majority of vendors authorized by the EBT States in this study were regular vendors (98.5 percent).

This study examined the number of registers and the volume of WIC sales, which serve as proxies for size, and vendor geographic location in relation to urban and rural settings. With regard to size, more than 55 percent of vendors authorized in EBT States had eight or more registers (large), 32.5 percent had three to seven registers (medium), and 11.9 percent had one to two registers (small). Each of the following four WIC sales categories represents one quarter of EBT vendors: $0 to $3,499, $3,500 to $8,999, $9,000 to $19,999, and $20,000 or more.

Approximately three out of four vendors authorized in EBT States in 2014 were located in urban areas (76.6 percent). A smaller percentage were located in large rural cities or towns, small rural towns, and isolated rural towns—12.5 percent, 5.7 percent and 5.2 percent, respectively (see figure III-1).[21]

Figure III-1 Percentage of vendors by geographic location



Note: Results are based on a weighted estimate of vendors that has at least one completed buy.

[21] Rural-Urban Commuting Area Codes, based on the size of the city or town and the commuting pattern in the area, were used to determine vendor geographic location (http://depts.washington.edu/uwruca/index.php).

Because the focus of this study is on EBT, it was unnecessary to document whether vendors had scanning equipment, as was done in previous studies, because all EBT vendors are required to scan WIC items. When items are scanned during a WIC transaction, UPCs and PLUs are assessed against the APL. CBs captured information about the type of system used to scan WIC items and complete the transaction, i.e., a stand-beside device versus a fully integrated POS device. Among vendors in EBT States in 2014, it is estimated that 13.9 percent had stand-beside devices used for WIC transactions.

State agency vendor management policies and practices to which vendors must adhere are described in the next section. However, several related indicators, such as high-risk status and receipt of monitoring visits and training, were available at the vendor level through TIP and examined here as vendor characteristics. WIC State agencies are required to identify high-risk vendors at least once per year, and high-risk status must be used to determine which vendors receive compliance investigations over the course of the year. A high-risk vendor is defined by FNS as a vendor with a high probability of committing a violation based on specific, statistically-based criteria determined by FNS and WIC State agencies. Approximately one in five vendors authorized by agencies with EBT were identified by their State agencies as high-risk (18.9 percent) in FY 2014.

Routine monitoring of vendors involves overt, onsite visits during which the vendor is aware that a WIC representative is present. WIC State agencies are required by FNS to conduct routine monitoring visits on at least 5 percent of their authorized vendors annually. The purpose of such visits is to identify the types of errors and violations that take place among authorized vendors and to take corrective actions, including training, if necessary. As such, vendor monitoring is a key component to ensuring Program integrity and cost containment for the WIC Program. During FY 2014, nearly 61 percent of EBT vendors received one visit, 16.0 percent received two visits, and 2.5 percent received three or more. Only 20.9 percent of vendors authorized by EBT States did not receive a routine monitoring visit during FY 2014.

In order to ensure that vendors correctly transact WIC benefits and treat WIC participants properly, each State agency is responsible for training its authorized vendors on current and new WIC policies and procedures annually. Approximately 49 percent of vendors in EBT States received standard, annual training in the prior year (2013 in most cases), whereas 50.6 percent received interactive training (e.g., during in-store training meetings, offsite meetings or routine monitoring visits). A small percentage of vendors in the sample did not receive any training in the prior year (0.2 percent).

VENDOR MANAGEMENT PRACTICES

Vendor management practices employed by WIC State agencies have the potential to influence Program compliance of vendors in their jurisdictions. An aspect of vendor management that has been examined in previous WVMSs is the number of vendors authorized by State agencies to serve their WIC population. Vendors authorized by State agencies with a low vendor-to-participant ratio typically have higher WIC sales and more experience with WIC transactions than vendors authorized by State agencies with a high vendor-to-participant ratio. It is estimated that only 23.4 percent of vendors authorized by EBT States as of 2014 had a high vendor-to-participant ratio (1:100 to 146), whereas 44.3 percent had a moderate vendor-to-participant ratio (1:147 to 246), and nearly one-third had a low vendor-to-participant ratio (1:247 or greater). As described in chapter II, vendor-to-participant ratios were calculated at the State-level and then grouped into three categories based on tertiles of the ordered distribution of ratios. These results reflect the percentage of vendors nationally that are authorized by States in each of the three categories. State agency policies related to compliance buys, the frequency of monitoring visits, and the conduct of inventory audits[22] are also important to consider because of their relevance to vendor compliance.[23] Nearly 25 percent of vendors were authorized by EBT State agencies that conduct monitoring visits with all authorized vendors at least annually, and 85.3 percent of vendors were authorized by EBT State agencies that conduct inventory audits.

In addition to conducting and overseeing vendor authorization, monitoring and investigative activities to ensure vendor compliance, WIC State agencies implement policies to govern the way WIC benefits are transacted at the POS. Since these policies also have the potential to influence vendor compliance, they were important to consider during this study. For example, approximately 30 percent of EBT vendors included in the study are authorized by State agencies that require PLUs to be entered for fresh fruit and vegetables as opposed to a generic produce code. This policy may help ensure that the produce item is truly approved by the Program since it can be verified against the APL. Otherwise, it may be left up to the cashier to determine whether the item is approved for purchase with the CVB.

State policies also vary with regard to the frequency of APL updates and how frequently vendors are required to download APLs. For example, at the time of the study, 62 percent of vendors in EBT States were authorized by agencies that update their APLs daily, whereas 38 percent were authorized by agencies that update their APLs less often than daily or only as needed. Furthermore, two-thirds of vendors authorized by EBT States were required to download the APL daily and one-third were required to download the APL less often than daily or as needed only. More frequent APL updates and downloads may help ensure that approved WIC products are accepted by WIC vendors at the POS.

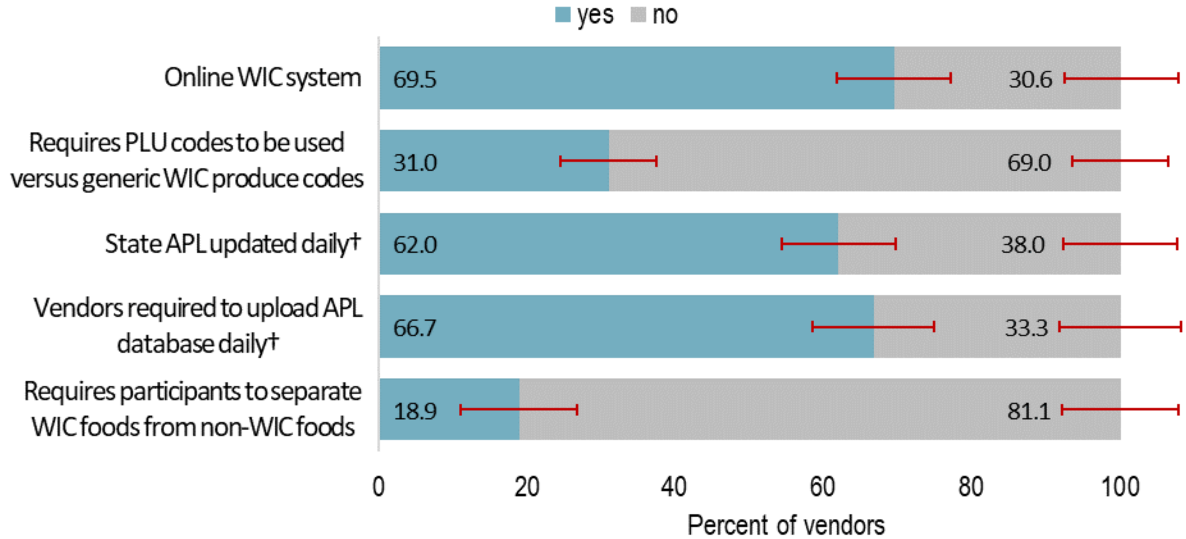
Finally, although the technology differs, WIC transaction procedures are largely the same for online and offline EBT systems. Nearly 70 percent of EBT vendors at the time of the study were authorized by State agencies with an online system, whereas approximately 30 percent of EBT vendors were authorized by State agencies with an offline system (see figure III-2).

---

[22] An inventory audit is an examination of invoices or other proofs of purchase to determine whether a vendor had sufficient quantities of a food on hand in order to provide participants the quantities specified on benefit redemptions during a given period of time. Source: Vendor Management in the Food and Nutrition Service's Special Supplemental Nutrition Program for Women, Infants, and Children (WIC). Audit Report 27601-0038-Ch. March 2013

[23] Practices related to compliance buys were not used in this or the 2013 WVMS as analytic variables. They may be useful to examine in future studies.

Figure III-2 Percentage of WIC Vendors by State Agency Policies (n=8,262)



Note: Sample size reflects a weighted estimate of all authorized vendors in the study States that had at least one completed buy. Red bars indicate the weighted standard error of the percentage.

†No indicates less often than daily or as needed only.

Chapter IV: Administrative Errors

This study sought to examine two specific WIC Program violations, which are referred to as administrative errors throughout the report, and described below:

- **Cashier entered EBT PIN for participant.** Cashiers should never ask a WIC participant for her PIN. CBs documented when this occurred and noted whether the cashier entered the PIN on the CB's behalf. For this study, an error was recorded only if the CB indicated that the cashier asked for her PIN and entered it for her.
- **Not allowing participants to purchase WIC foods.** WIC vendors are expected to permit the purchase of WIC approved foods in accordance with the participants' prescribed benefits and the State's APL. In EBT States, vendors and cashiers rely on POS systems to determine if (1) a food item is WIC approved, and (2) the participant has sufficient benefits remaining on her EBT card to purchase the item. The exception to this rule is when a State agency allows partial mapping to generic PLU code for fruits and vegetables. In this case, the cashier must determine whether variable weight fruits and vegetables presented by a WIC participant are WIC approved; the POS system is still relied upon in these scenarios to determine whether sufficient benefits are available for the purchase. To the extent that systems are not kept up to date (e.g., a vendor does not download the APL as frequently as required) or cashiers in States that use a generic PLU code are unfamiliar with approved fruits and vegetables, approved foods may be identified as unapproved at the time of purchase. CBs documented when this occurred. To ensure that the error was not actually on the CB's part (e.g., she presented for purchase an unapproved item that she erroneously believed was an approved item), the following additional steps were taken:

  1. The UPC for the food item, if captured by the CB, was compared to the State's APL to verify that the item was truly an approved WIC item. If the UPC was not found on the APL, the data were corrected, and the transaction was not coded as an error.
  2. When a least-cost brand policy was in place for a particular food category, it was not possible for the study team to verify whether the items were approved by the State for a particular vendor at the time of purchase since the least cost brand changes frequently. In these cases, it was assumed that the item selected by the CB was approved and the vendor made an error.
  3. When the item in question was a type of fruit or vegetable approved by the State (fresh, frozen or canned), even if the UPC or PLU was not on the APL, it was assumed to be an approved item, and thus the vendor was assumed to be in error since States have limited restrictions within this category.
  4. For items such as cereal and bread that come in a wide variety of package sizes, only some of which are approved by the State agency, it was assumed that the CB attempted to purchase the incorrect package size if the UPC was unavailable for verification against the APL. Because the CB was assumed to be in error, the outcome of the transaction was revised to indicate that no administrative error occurred; in accordance with the State's APL,

the vendor allowed all approved WIC foods to be purchased.

5. Finally, when warranted based on a review of CB notes, the receipts and other documents were examined to determine whether insufficient benefits could possibly explain why an item was not accepted by the vendor.

The remainder of this chapter presents findings on each of these administrative errors. Results are weighted to be generalizable for the entire population of WIC vendors authorized by State agencies with EBT. When sample size allowed, prevalence of administrative errors was also examined by vendor characteristics, transaction characteristics and State agency vendor management policies and practices. Only significant associations with these characteristics and policies are described in the sections below. However, all tables related to this chapter, including the prevalence of errors by each of the characteristics and policies examined, can be found in Appendix C.

OVERALL FINDINGS

The overall findings for administrative errors were based on vendors that were visited two times. Committing the error was defined as evidence that the specific error occurred at least once during the two visits.

Findings by Type of Administrative ErrorCashier entered EBT PIN for participant

Among vendors with at least one buy completed, 6.3 percent reportedly asked the CB for her EBT PIN. However, the CB's PIN was entered by the cashier, in violation of Program rules, in only 0.2 percent of vendors. Other than these few cases, CBs may have been recording that they had been prompted by the cashier to enter their PIN, which is not an administrative error.

One of the transactions during which the PIN was entered by the cashier was a safe buy and one was a minor substitution. Both transactions were conducted using a stand-beside device, and all items were scanned. The vendors committing these errors were both designated as low risk and were in States with an online EBT system and where monitoring occurs less often than annually. One of the vendors was categorized as small based on the number of registers and the volume of WIC sales (zero to two registers and monthly WIC sales between $0 and $3,499), whereas the other vendor was categorized as large (three to seven registers and monthly WIC sales of $20,000 or more). Due to the limited number of occurrences of this error, it is difficult to draw conclusions about associations with transaction characteristics, vendor characteristics, and vendor management practices.

Cashier would not allow participant to purchase approved item

With the implementation of EBT, reliance on POS devices to identify food items as WIC approved has increased. Decreased dependence on cashiers to determine whether items are approved is viewed by many in the WIC community as one of many advantages of an EBT system. To work correctly and ensure accuracy in identifying approved items, APLs need to be kept up to date by State agencies and be regularly downloaded by vendors in accordance with Program rules. Moreover, vendors have been discouraged from "overriding" the determination made by the POS system. This is particularly salient in States that have least-cost brand policies in place in which a UPC may be included on the State's APL but not approved for purchase at a particular vendor because it is not the least-cost brand available.

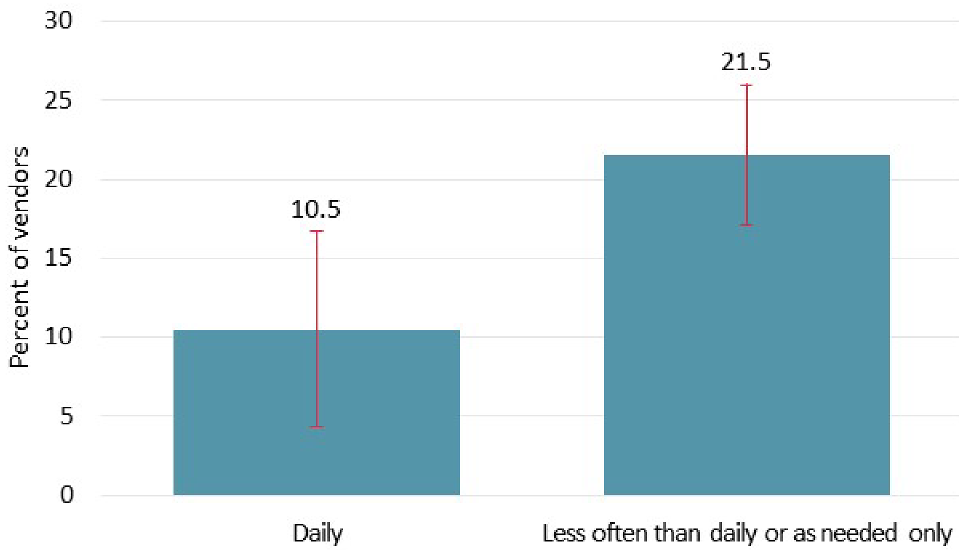
As previously noted, not allowing the purchase of a WIC approved item was the second most common administrative error, with 14 percent of vendors committing this error at least once across both buys. When the CB was not allowed to purchase a WIC approved item, the item was most commonly a fruit or vegetable and, in particular, a pre-bagged item, such as bagged apples or oranges. In fact, of vendors committing this error, more than 70 percent identified an approved fruit or vegetable as unapproved.[24] Unlike variable weight fruits and vegetables, which are identified by PLU codes, pre-bagged items have a unique UPC.

Several characteristics and policies were associated significantly with approved items being identified as unapproved, including the vendor type, use of a stand-beside device, type of EBT system (online versus offline), frequency with which the State updates its APL, and State's vendor-to-participant ratio.

- 14.4 percent of regular vendors identified an approved WIC item as unapproved at least once, whereas no WIC-only stores made this error ($p < 0.05$). The latter is not surprising since WIC-only vendors carry only WIC approved items.
- Vendors using a stand-beside device during the transaction were more likely to commit this error than vendors using a fully integrated POS device (15.7 percent versus 3.1 percent, respectively; $p < 0.05$).
- Vendors in offline EBT States were significantly more likely than vendors in online EBT States to commit this error (21.1 percent versus 11.1 percent, respectively; $p < 0.05$).
- Approximately 11 percent of vendors authorized by States that update their APL daily committed this error compared to more than 21 percent of vendors that were authorized by States that update their APL less often than daily or only as needed (see figure IV-1; $p < 0.05$).
- Vendors in States with a low vendor-to-participant ratio (fewer vendors per participant) were most likely to commit this error (21.6 percent). Only 9.5 percent of vendors in States with a medium ratio and 12.8 percent of vendors with a high ratio identified an approved WIC item as unapproved ($p < 0.05$).

[24] Importantly, CBs were advised during training to purchase pre-bagged items when possible as it would help to ensure that they did not exceed the CVB limit. This may explain why pre-bagged items were one of the most common types of fruit or vegetable to be identified as unapproved; it does not help to explain, however, why fruits and vegetables, including pre-bagged items, are frequently identified as unapproved. Possible explanations for this finding are discussed in chapter VII.

Figure IV-1 Percentage of vendors identifying an approved item as unapproved at least once, by frequency with which vendors are required to download APL databases



Note: Sample size reflects a weighted estimate of all authorized vendors in the study States that had two completed buys and committed the violation at least once. Red bars indicate the weighted standard error of the percentage.

Chapter V: Substitutions

This chapter presents the results of CBs' attempts to substitute unauthorized food items for those included on their assigned WIC shopping lists. Substitution of WIC authorized foods with unauthorized foods is a violation of Federal regulations and State agency requirements. However, unlike overcharges or administrative errors, which are solely dependent on the vendor's actions, substitutions require the WIC participant to take action by either bringing the unauthorized food to the cash register for purchase or accepting a substitution initiated by the cashier.

EBT reduces the possibility that the WIC Program will be charged for unapproved food items because vendors in EBT States use a UPC database and APL to identify items that are WIC authorized by the State agency. For WIC purchases, codes are also checked against the WIC participant's benefit balance, the vendor will receive payment for only those that are available in the participant's benefit, and the WIC approved items are deducted from the participant's benefit balance. Most EBT vendors cannot accidentally allow a substitution because the POS scanning system identifies each item as WIC approved or unapproved by checking against the APL.

This study sought to identify other ways in which EBT vendors could permit WIC participants to purchase an unapproved item with their WIC benefits. For example, CBs documented whether the vendor scanned all items and whether the vendor either manually entered or scanned a UPC from a source other than the item itself (e.g., a barcode book or board kept at the register) during the transaction, as these practices could lead to unintentional errors or be used by vendors to defraud or abuse the Program.

Because the frequency with which participants attempt to substitute items is largely unknown, the study does not attempt to estimate the prevalence of allowed buyer-initiated substitutions nationally. Rather, the study estimates the rate at which vendors allow substitutions when presented with the opportunity.

This chapter presents the findings on the two types of substitutions attempted during the study:

- A **minor substitution** occurs when a vendor allows the buyer to substitute an item that is in the same category as the WIC authorized food (e.g., cereal, juice, milk) but is not WIC authorized.
- A **major substitution** occurs when a vendor allows a CB to purchase an item that is not in the same category as the WIC authorized food (e.g., soda instead of juice, fruit snacks instead of fruit).

To ensure that vendors were given the benefit of the doubt with regard to substitutions and not coerced into acting in a manner that they might not have otherwise, CBs were instructed to present the substitution item at the time of purchase along with their other WIC approved foods and attempt to pay for it with their WIC benefits. If the cashier told them that they could not get the item with WIC, the buyer was to accept this response and proceed with the purchase without the unauthorized item. If the cashier asked the buyer whether the food was approved, the buyer was to respond that she did not know and let the cashier make the decision to allow or not allow the purchase. Under no circumstances was the buyer to try to persuade the cashier to allow the substitution.

OVERALL FINDINGS

Findings from this study indicate that successful buyer-initiated substitutions are extremely rare in WIC EBT. Across a total of 575 transactions during which a substitution was attempted, no minor or major substitutions were allowed.

The absence of allowed substitutions in this study stands in contrast to the findings of the 2013 WVMS, where 7.3 percent of EBT vendors allowed a minor substitution and 2.3 percent allowed a major substitution during the base study. Rates were higher for the CVV portion of the 2013 WVMS (purchase of fruits and vegetables with cash value portion of benefit): 19.0 percent of vendors allowed a minor substitution, and 7.3 percent allowed a major substitution. Because there were changes in study methodology between 2013 and 2015, the rates of substitutions are not truly comparable. However, a large share of the minor substitutions observed in the CVV portion of the 2013 WVMS resulted from vendors permitting the purchase of white potatoes with WIC benefits. At the time of the study, white potatoes were not allowed, but this policy changed in 2015 (prior to the data collection for this study). This policy change puts into perspective the seemingly drastic decline in minor substitutions. Moreover, in general, State agencies are placing fewer restrictions on the types of fresh fruits and vegetables that can be purchased with WIC benefits. For example, as of 2015, most State agencies allow organic fresh produce (81 percent), compared to only 40 percent in 2010.[25] This represents a shift in State-level policy since the new food packages were implemented and potentially since the 2013 WVMS was conducted.

In this study, a substitution was considered allowed if the CB was able to purchase an ineligible item (left the vendor with the item) and the WIC benefit balance was subsequently reduced (the Program was not charged). This differs from how substitutions were coded in previous studies because the level of detail to make this assessment is available only in EBT systems. Interestingly, 2.4 percent of vendors allowed the CB to "purchase" or leave the store with the ineligible item during a minor substitution, as indicated by the CB on the compliance buy questionnaire, and 1.1 percent of vendors allowed the same during a major substitution. However, after a careful review of each of these cases, it was verified that the Program was not charged for these items. Based on detailed notes provided by the CBs in at least some of these cases, the unapproved items were either given to the CB for free by the vendor or in one case paid for by a customer who was in line behind the CB. These findings suggest that previous studies may have overestimated substitution error.

Another key enhancement to measuring substitutions in the current study was the collection of UPCs from products that the CB attempted to purchase during compliance buys. The UPC of items that the CBs attempted to substitute, when available, was compared to the State's APL, resulting in identification of items that were approved. When CBs tried mistakenly to substitute an approved item, this method proved useful in catching such errors in data collection.

---

[25] Thorn, B., Huret, N., Bellows, D., Ayo, E., Myers, R., & Wilcox-Cook, E. (2015). *WIC food packages policy options study II.* Project Officer: Grant Lovellette. Alexandria, VA: U.S. Department of Agriculture, Food and Nutrition Service, Office of Policy Support.

Chapter VI: Improper Payments

This chapter provides a brief review of initial study findings and important insights gleaned from interviews with State agencies regarding the approach to identifying and calculating overcharges in the EBT environment. Additional insight on the data required to calculate vendor related improper payments, including the use of shelf prices, timing of data collection, level at which data are collected, and essential data elements are also presented. The implications of these findings and recommendations for estimating vendor-related improper payments in the EBT environment are discussed in chapter VII.

OVERCHARGE

Initial study findings

For purposes of this study, overcharges were considered improper payments and examined exclusively for the safe buy.[26] Only three of the 491 sampled vendors had compliance buys that resulted in an identified overcharge. While 28 out of 491 vendors were initially presumed to have overcharged WIC during the safe buy conducted for this study; most (n=24) were due to a vendor offering the CB the loyalty card price at the POS but appearing to request the full price from WIC based on the initial EBT transaction files received from States. These transactions were flagged based on comparison of the requested price to the best purchase price at the item level.[27] However, when the study team examined the settled price at the transaction level rather than the item level, the study team was able to identify the loyalty card discount in the file and reconcile the difference.

Given the novel approach of this study, it was important to conduct a careful review of all the cases initially flagged as overcharges. That review led the study team to determine that 25 of the cases did not qualify as overcharges for the following reasons:

- Based on the study design, the State agency reconciliation files initially collected only included item-level prices that were then summed to generate a transaction-level total. However, this approach meant that the data did not contain information on coupons and discounts that are applied at the transaction-level, including loyalty card discounts. The study team discovered this during the secondary review of the identified overcharges. For the 24 overcharge cases that were related to loyalty card pricing, State agencies were able to provide evidence of transaction-level discounts that were equal to the amount of the estimated overcharge. Example 1 in table VI-2 presents the details of a transaction that was initially identified as a $0.80 overcharge due to a loyalty card discount that appeared to have not been applied. Screenshots provided by the State agency after data analysis was complete showed that a $0.80 discount was actually applied at the transaction-level, thus it was determined that no overcharge occurred.

[26] Recommendations for revising and defining the terms overcharge are discussed in chapter VII.

[27] Total requested price was calculated by the study team by summing each item-level requested price from the State reconciliation data for a transaction.

- One vendor charged WIC the equivalent of best purchase price plus 10 percent for each food item. Example 2 in table VI-1 presents the details of this transaction, which was initially identified as a $1.07 overcharge. After some investigation, however, it was determined that the 10 percent charge is customary for this vendor type (charges customers cost plus a 10 percent margin). Because the vendor would have charged a non-WIC customer similarly for the same items, this transaction was not considered an overcharge.

In the end, only three vendors with transactions identified initially as overcharges were found to have truly overcharged WIC during the safe buy for the study (see examples 3, 4, and 5 in table VI-1). The additional information and screenshots obtained from State agencies after analyses were complete did not help to explain these three cases of overcharge. Table VI-2 summarizes the reasons for which transactions were initially identified as overcharges as well as the final disposition of these transactions based on an in-depth review of each case.

Although this study sought to calculate the rate of vendor related improper payments and the national estimate of improper payments among vendors authorized in EBT States, the findings led to the determination that the method was not suitable for calculating the rate of improper payments or generating national estimates.

Table VI-1 Example transactions that were initially identified as overcharges

Example	Item Purchased	Best Purchase Price	Requested Price	Settled Price	Amount Initially Identified as Overcharge	Final Overcharge Amount*
#1	**TOTAL**	**$27.06**	**$27.86**	**$27.86**	**+$0.80**	**$0.00**
Overcharge due to loyalty card price **(Outcome: not an OVERCHARGE)**	Milk	$1.99	$2.79	$2.79	+$0.80	
	Juice	$2.79	$2.79	$2.79		
	Infant cereal	$1.79	$1.79	$1.79		
	Infant formula	$15.99	$15.99	$15.99		
	Infant fruit/veg	$2.52	$2.52	$2.52		
	Fruits/vegetables	$1.98	$1.98	$1.98		
#2	**TOTAL**	**$10.65**	**$11.72**	**$11.72**	**+$1.07**	**$0.00**
Overcharge due to 10% surcharge **(Outcome: not an OVERCHARGE)**	Infant fruit/veg	$2.56	$2.80	$2.80	+$0.24	
	Milk	$2.57	$2.86	$2.86	+$0.29	
	Cheese	$3.76	$4.13	$4.13	+$0.37	
	Peanut butter	$1.76	$1.93	$1.93	+$0.17	
#3	**TOTAL**	**$22.73**	**$24.73**	**$24.73**	**+$2.00**	**+$2.00**
Overcharge for which cause is unknown **(Outcome: OVERCHARGE)**	Fruits/vegetables	$2.00	$4.00	$4.00	+$2.00	
	Infant fruit/veg	$4.76	$4.76	$4.76		
	Cereal	$5.99	$5.99	$5.99		
	Peanut butter	$3.99	$3.99	$3.99		
	Cheese	$5.99	$5.99	$5.99		
#4	**TOTAL**	**$193.37**	**$195.97**	**$195.97**	**+$2.60**	**+$2.60**
Overcharge for which cause is unknown **(Outcome: OVERCHARGE)**	Infant fruit/veg	$17.36	$19.96	$19.96	+$2.60	
	Infant formula	$114.24	$114.24	$114.24		
	Milk ($2.89 ea)	$2.89	$2.89	$2.89		
	Milk ($3.93 ea)	$7.86	$7.86	$7.86		
	Cereal	$7.78	$7.78	$7.78		
	Canned Beans	$4.40	$4.40	$4.40		
	Bread	$2.75	$2.75	$2.75		
	Cheese	$4.99	$4.99	$4.99		
	Peanut butter	$3.19	$3.19	$3.19		
	Eggs	$2.19	$2.19	$2.19		
	Juice	$8.85	$8.85	$8.85		
	Infant cereal	$6.87	$6.87	$6.87		
	Fruits/vegetables	$10.00	$10.00	$10.00		
#5	**TOTAL**	**$18.02**	**$17.81**	**$17.81**	**+$2.47**	**+$2.47**
Overcharge for which cause is unknown **(Outcome: OVERCHARGE)**	Infant fruit/veg	$2.68	-	-		
	Beans	$1.17	$3.64	$3.64	+$2.47	
	Fruits/vegetables	$3.96	$3.96	$3.96		
	Cereal	$4.47	$4.47	$4.47		
	Milk	$3.27	$3.27	$3.27		
	Peanut butter	$2.47	$4.94	$4.94		

*After accounting for transaction-level discount.

Table VI-2 Final disposition of transactions that were initially identified as overcharges

Reason for initially classifying as overcharge	Number of vendors	Defined as an overcharge after review	Reason for defining/not defining as an overcharge
Settled price was greater than the best purchase price with no apparent explanation	3	Yes	Vendor requested double the dollar amount for fresh produce than was shown on the receipt. Vendor requested $2.60 more for baby food than shown on the receipt. Vendor requested $2.47 more for beans than shown on the receipt.
Settled price was 10 percent greater than best purchase price for the transaction overall and for each item purchased	1	No	This vendor charges all customers 10% more than the item price. Because a non-WIC customer would have been charged similarly, this transaction did not result in an overcharge.
Settled price was higher than best purchase price due to loyalty card discount not being applied to the vendor's requested price	24	No	State agency reconciliation files only included item-level data. Loyalty card discounts are applied at the transaction-level; therefore, the final settled price was unavailable for comparison during the initial study analysis. It was later determined that these transactions did not result in overcharges.

Insight from follow-up with State agencies

Federal WIC regulations define an overcharge as "intentionally or unintentionally charging the State agency more for supplemental foods than is permitted under the vendor agreement." When State agencies were asked to describe how they operationalize this definition or identify overcharges, responses varied and were somewhat nuanced. Two of the State agencies explained that vendors are expected to submit to the State a price that is equal to the shelf price, while one State agency expects vendors to submit a price that is equal to or less than the shelf price. Each of these three State agencies clarified that the shelf price is the price physically marked on the shelf; two further clarified that the price scanned at the POS should equal the shelf price.

> *We define overcharge as when the vendor charges a price that is higher than that displayed on the shelf.*
>
> *—State agency representative*

It is unclear whether the remaining three State agencies operationalized overcharges in the same way because their responses were somewhat confounded by a discussion of cost containment requirements.

Specifically, these three agencies did not specifically address overcharges with reference to the best purchase price (whether shelf or receipt). Rather, they described overcharges as when vendors charge WIC more than what the State agency has determined to be a competitive price or calculated as the MARLs. Two of the three State agencies used a recoupment process and explained that the final price a vendor should be paid can only be determined once MARLs are calculated and recoupments are made. "Recoupment" refers to a process that is utilized by a small number of State agencies whereby initial payments to vendors are based on a NTE price calculated from previous redemptions, but at the end of the month, peer group-specific MARLs are calculated retrospectively. In State agencies using a recoupment process, they determine whether any vendors have been paid by WIC more than the MARL for items redeemed in the prior month, and if so, request a recoupment from the vendor.

DATA CONSIDERATIONS

Shelf price collection

While States are required by regulation to collect shelf prices during compliance investigations[28] to ensure that WIC is charged the correct amount (the same amount as non-WIC customers), they are not required to do so for routine monitoring. During this study, shelf price was used to make a determination of the best purchase price in some cases and may be an important data point to include in future WVMS. States agencies were asked about the relevance of collecting shelf price in EBT and when conducting compliance buys. Most interviewed State agencies explained that shelf prices (the actual price marked on the store shelf) are collected prior to authorization to assess whether a vendor is cost competitive with its peers and during routine monitoring visits to verify that shelf prices match prices in the POS system. All of the interviewed State agencies had received exemptions from the routine collection of shelf prices from FNS. Instead, these State agencies routinely collect and rely on POS or request prices to assess an authorized vendor's cost competitiveness and to calculate MARLs. Two State agencies indicated that shelf price issues (e.g., shelf prices that do not match POS prices) usually occur in smaller stores but are rare even among this store type.

> *We collect prices via the point of sale transactions, but also through monitoring visits, compliance buys, authorization and re-authorization.*
>
> *—State agency representative*

Timing of data collection

All of the interviewed State agencies indicated that transaction data are sent to the EBT host on the same day the transaction occurs. Settled prices are available almost immediately in most of the interviewed States (4 out of 6). In the other two interviewed States, the initial settlement was based on

[28] 7 CFR 246.12 (revised as of January 1, 2014)

a broader NTE amount (e.g., an NTE that is set at the State-level). These settled prices are available almost immediately, similar to the other States. However, once a month, these two State agencies review all transactions from the previous month and calculate retrospectively peer group specific MARLs for each UPC, as described above. One of these States completes this process within the first two days of the following month, while the other State completes the process on or after the 15th of the following month. In both States, once the MARLs are calculated and assigned, the State agency resettles the claim file and/or requests a recoupment from vendors, if necessary.

For most States, complete transaction data reside with both the EBT processor and within the State's MIS, and thus is readily available and can be extracted with relative ease. However, the availability of final redemption claim files will differ between States that calculate MARLs based on previous redemptions and apply them at redemption versus States that calculate and apply MARLs retrospectively.

Essential data elements

For this study, only an item-level redemption file was requested from WIC State agencies. However, the follow-on analyses and discussions indicate that variables at both the transaction- and item-level are essential for identifying final redemption request and payment amounts in an EBT system. All interviewed State agencies indicated that they are able to provide both item-level and transaction-level files. Moreover, State agencies suggested that both files are important to collect for any study of vendor payments, particularly for measuring improper payments, because discounts (e.g., from coupons and loyalty cards) are applied at the transaction-level, not at the item-level. Additionally, transaction-level data also include an indicator which can help to distinguish between debits (items redeemed against the WIC benefit) and credits (items reversed or voided after purchase or voided by the State agency). Without a transaction-level file, the number of overcharges is likely to be overestimated.

An item-level file is also important because it includes specific information about each item purchased, including UPC number, category, subcategory, category/subcategory description, quantity requested, quantity approved, requested price, and settled price (amount paid to vendor). The two files can be merged by using either a transaction identifier or a combination of vendor ID, WIC card number, and transaction timestamp, which results in a unique identifier for each transaction. Variable names will vary across States depending on the EBT system in place; however, based on samples from States, the names tend to be highly descriptive and are easy to compare (e.g., "amount_requested," "claim_amount," and "RequestedPurchaseAmount"). Furthermore, all interviewed States indicated they would be able to provide a data dictionary with detailed descriptions for each data element. Table VI-7 lists the essential data elements for future studies.

Table VI-3 Data elements essential to identifying improper payments in EBT in future studies

File Type	Data Element	Elements Requested in Current Study*
Transaction- and item-level files	Vendor ID	Yes
	Vendor Name	Yes
	Transaction identifier (if available)	No
	Date of Transaction	Yes
	Time of Transaction	No
	EBT Card Number	Yes

File Type	Data Element	Elements Requested in Current Study*
Transaction-level file only	Discount amount	No
	Total Settled amount (after discount)	No
	Transaction type (debit or credit)	No
Item-level file only	UPC	Yes
	Category	Yes
	Subcategory	Yes
	Category/Subcategory Description	Yes
	Quantity Requested	Yes
	Quantity Approved	Yes
	Requested Price	Yes
	Settled Price	Yes
	MARL or NTE	No

*Requested at the item-level only.

Chapter VII: Conclusions and Recommendations

The WIC Vendor Management Study (EBT Pilot) identified only three overcharges among 584 EBT vendors, a frequency too low to support the estimation of an improper payment rate. The study further examined administrative and substitution errors that do not contribute to the estimation of improper payments but inform Program monitoring. Previous studies of payment, administrative, and substitution errors among WIC vendors not using EBT found higher rates of all three error types, suggesting there are fewer errors with EBT.

The infrequent occurrence of payment errors highlights the importance that future studies to estimate improper payments in the WIC EBT environment enroll a considerably larger sample of vendors in the assessment. The study findings also highlight the complexity of the food package and WIC EBT transactions and underscore the need to develop and further test a methodology that can adequately account for this complexity. EBT systems are capable of providing highly detailed data both at the POS and during the reconciliation process, but the available data varies across States.

This chapter provides a summary and discussion of these key study findings, limitations, and recommendations.

CONCLUSIONS AND DISCUSSION

New potential administrative errors have emerged with WIC EBT

Some administrative errors that were examined in previous WVMSs are no longer relevant in EBT, such as improper countersignature procedures and improper handling of partial buys.[29] However, new types of errors have emerged in EBT. For example, despite increased reliance on scanning devices at the POS, findings from this study indicate that 14 percent of EBT vendors incorrectly identified WIC approved items as unapproved at least once across both study buys. Most frequently, the items identified as unapproved during a transaction were fruits and vegetables (73 percent), which may highlight a vulnerability in the transaction process. Although peanut butter, eggs, bread, milk, and infant fruits and vegetables were each identified as unapproved during one or more study transaction, no clear pattern of issues occurred.

Multiple issues may be at play relative to identifying fruits and vegetables as approved. Although most fruits and vegetables are marked with a UPC or PLU that can be scanned and State APL files must include a list of International Federation of Produce Standards (IFPS) standard PLU codes, there are differences in State procedures when ringing up fresh produce during a WIC transaction, and those differences may

[29] When transacting WIC paper FIs, vendors may ask participants to sign the FI only after the purchase price is entered on the face of the check. In previous WVMSs, CBs documented when vendors did not follow proper countersignature procedures. For vendors authorized by State agencies that prohibit partial buys, an improper response to a partial buy meant that the vendor allowed the partial buy when it should not have. For vendors authorized by State agencies that allow partial buys, an improper response to a partial buy meant that the vendor refused to allow the partial buy.

be associated with errors. For example, in one study State, cashiers are instructed to enter a generic "WIC" PLU when scanning fresh fruits and vegetables during a WIC transaction. During instrument testing, study staff discovered that when cashiers were unfamiliar with this procedure and scanned the item's PLU instead of entering the generic WIC PLU, the items were identified as unapproved even though they were WIC approved according to the State's APL. Conversely, for States that require vendors to scan the UPC or PLU from the fruit or vegetable instead of a generic WIC code, it may be challenging to keep their APLs up to date with the vast array of fruits and vegetables that may be approved at any point in time, especially given the seasonal variation of this food category.

Given the lack of substitutions that were identified in this study, it seems that EBT may effectively reduce this type of error. However, based on errors identified through this study in accurately identifying approved foods, increased reliance on the POS device may result in approved WIC items being identified as unapproved. As a result, participants shopping with WIC EBT may be faced with the unnecessary inconvenience of paying cash for or leaving behind WIC approved items that were erroneously identified as unapproved.

No minor or major substitutions were allowed

Findings from this study indicate that successful buyer-initiated substitutions are rare in WIC EBT. In fact, across the 575 transactions during which a substitution was attempted, none were allowed, which is an unprecedented finding from the WVMS. Some of the methodological enhancements implemented in the WIC Program inherent with the transition to WIC EBT may have reduced the likelihood or ease with which vendors allow substitutions. For example, WIC has a systemic requirement that approved foods be listed on the State's APL, which with EBT can be verified almost immediately, otherwise they cannot be purchased with WIC benefits. With this requirement in place, substitutions can only be made purposefully by scanning a different UPC. This study shows that this is an unlikely scenario.

This study does, however, have a number of limitations. As part of this study, each vendor in the study was presented with one opportunity to allow a substitution, and the estimates presented in this report are based on their responses. Because the frequency with which substitutions are attempted by participants is unknown, this study can present only the frequency with which vendors allowed a substitution when presented with the opportunity, not the frequency with which substitutions occur in the real world. Since compliance buys were conducted covertly, the study cannot account for how vendors may behave when transacting purchases for unfamiliar CBs compared to familiar or frequent WIC shoppers, or those who are family members or friends of vendor staff. This could ultimately result in underestimating substitutions. Thus, the compliance buy methodology used in this study may not be an effective method to detect the actual frequency of substitutions.

Comprehensive EBT transaction and reconciliation data are needed to identify overcharges in WIC EBT

Although rare, overcharges can occur in EBT transactions. Overcharges can occur if a vendor either intentionally or unintentionally charges WIC for more than was actually purchased by the CB . Where vendors scanned a UPC from a book or a board or manually entered a UPC instead of scanning the item during compliance buys, additional information from the CB was examined, including shelf price and CB notes, and it was determined that these did not result in any overcharges during this study. There may be additional ways in which an overcharge can occur in WIC EBT that were not examined or identified through this study.

To effectively determine whether an overcharge occurs and estimate the amount of overpayment, both item-level and transaction-level EBT data are needed. Some types of coupons and discounts, including those related to loyalty card prices, may be applied at the transaction-level and were missing from the study files. Additionally, the analysis must account for State practices with respect to cost containment practices that may be applied after the transaction. Although not required for improper payment calculations, the additions of transaction time and transaction ID to EBT data files are also recommended as they would help to simplify and improve data merges.

RECOMMENDATIONS FOR FUTURE STUDIES

After discussion with FNS, the following considerations were identified as important for the definition and calculation of improper payments:

1. Vendors are expected to charge the State agency in accordance with their vendor agreement, which may indicate that they should charge WIC equal to *or less than* what a non-WIC customer would pay.
2. It cannot be assumed that receipt prices generated by the POS system reflect the price that a non-WIC customer would be charged.
3. When calculating improper payments using a compliance buy approach, all prices that are part of the transaction record, including shelf price, receipt price, requested price and settled price, should be compared when determining the price WIC should be charged for each food item.

This section presents recommendations and key considerations developed based on information gathered during the study, subsequent interviews with State agencies, and updated information provided by FNS on the identification and measurement of improper payments. Overall, the methods used to select and conduct undercover compliance buys in a representative sample of vendors in EBT states allowed for the collection of robust data and a thorough examination of vendors' compliance with current Program rules. However, due to the challenges encountered during the study, the approach was not sufficient to provide national estimates of improper payments. The recommendations below are intended to inform the development of a statistically valid and reliable approach to producing these estimates in an EBT environment.

General study design

When requesting EBT data from SAs, the request should include specific and detailed data requirements to ensure consistent and complete data are obtained. In an EBT system, there are important data elements available only at the transaction-level; therefore, based on systems currently in place, both a transaction-level and item-level file are needed to detect and calculate discrepancies. The transaction-level file accounts for coupons and discounts, while the item-level file provides additional information to identify discrepancies between total shelf price, total receipt or POS price, and total requested price to pinpoint where the error occurred. For transactions during which there are no discrepancies between the best purchase price and requested and/or settled price, only the transaction-level file would need to be reviewed. Both file types should exclude all voided items or include a field that indicates whether the transaction or item record represents a debit or credit against the EBT benefit. To facilitate the preparation of consistent and complete files, semi-tailored data requests could be prepared for States based on the EBT system in place. Since multiple States likely use the same system, it would be unnecessary to develop unique data requests for each State.

The timing of transaction data requests needs to be considered. In most States, MARLs are calculated based on previous redemptions and applied at the POS. As a result, complete WIC EBT transaction data is readily available almost immediately following the transaction (within 24 hours) and can be extracted with relative ease. However, because some States calculate and apply MARLs retrospectively based on transactions that occurred during a given processing month, it may be necessary to request State agency redemption files, which would include MARLs, at least two months after the last compliance buy is completed. It is important to work States with a retrospective MARL calculation and recoupment process in place to ensure that all needed EBT records relevant to the transactions in question are obtained.

If a compliance buy methodology is used, the study sample size may need to be quite large. Because of the small number of vendors committing errors that lead to overcharges and improper payments, it was not possible in this study to explore the potential vendor- and State agency-level characteristics that might be associated with these violations (point estimates were deemed unreliable). If bivariate and multivariate associations with errors and improper payments are of interest, the study sample size will need to be increased considerably. FNS may want to consider alternative approaches to compliance buys in a representative sample of vendors.

Include State agency interviews as a data collection activity. Substantial insight was gleaned from State agency interviews about their data and transactions identified as overcharges. Future studies may be enhanced by incorporating State agency interviews in the planning phase, or as follow-up, to ensure that State specific practices are understood and incorporated in the data collection procedures and analytic strategy.

Vendor Administrative Errors

Consider methods to ensure data collectors have the most current State APL. The use of State APLs to verify aspects of the compliance buy transaction represents a significant enhancement over previous studies; however, there were some associated limitations. The study gathered only one or two APLs at most from each State during the data collection period. However, some State agencies update and push their APL to authorized vendors daily. Thus, it is possible that the APL used by the study team to verify some compliance buy data was not the version that a vendor would have had in place at the time of the compliance buy. As an additional or alternative means of reviewing items that were identified by a vendor as unapproved, CBs could be trained to download and use the WIC Shopper application (app) in States that make it available.

Improve documentation of inadequate stock. Because inadequate stock may be an issue in WIC EBT vendors, and particularly among smaller WIC EBT vendors, this administrative error may warrant additional attention in future studies. Conducting a thorough examination of each vendor's compliance with the State agency's minimum stocking requirements through this study's approach would be labor intensive and an ineffective use of resources because CBs would need to (1) be trained on State-specific minimum stocking requirements, and (2) make additional trips the vendor since this type of survey could not be conducted covertly. Alternatively, CBs could be trained to ask store personnel for help finding an eligible item as it could be available elsewhere in the store (e.g., in a storage area) and unavailable on the shelf. WIC participants are encouraged to do this under similar circumstances; thus this additional step should not be viewed by the vendor as suspicious behavior. However, CBs could be trained to skip this procedure if they believe it will jeopardize the undercover nature of the buy. By adding this step to the process, the study would be able to determine whether stores are out of compliance with minimum stocking requirements.

Vendor Violations and Improper Payments

Overcharge is a vendor violation, but not all overcharges result in overpayments. Vendor *overcharges* occur when requested price is greater than the price a non-WIC customer would pay. *Overpayments* result only when the settled price is greater than the price a non-WIC customer would pay since this is the amount of a payment made to an authorized vendor in error. The settled price reflects reductions made by the State for the purpose of cost containment, and consequently, reduce the potential overpayment amount or prevent an overpayment altogether (see table VII-1). Though these definitions were used in previous vendor management studies, the distinction between overpayments and overcharges becomes more salient in an EBT environment. To improve the quality of information gathered through compliance buys to determine "the price a non-WIC customer would pay" the instrument might include additional data collection (e.g., the purchase of WIC-eligible items with non-WIC tender), or additional quality checks, such as requiring CBs to confirm the entry when the shelf price differs from the receipt price.

Table VII-1. Distinguishing between vendor overcharge and overpayments

Error	Calculation	Vendor Violation	Improper Payment
Vendor overcharge	Vendor requested price > best purchase price	Yes	No
Overpayment	State agency settled price > best purchase price	Yes	Yes

Note: Best purchase price is the term used for study purposes to describe the price a non-WIC customer would pay.

Consider alternative methods to determine best purchase price. Best purchase price is a term used in previous WVMS to refer to the price a non-WIC customer would pay (as measured through the study). This price is essential for calculating and determining whether an overcharge and/or overpayment has occurred during a study compliance buy. Prior studies have utilized receipt price, price observed on the register, and shelf price as the best purchase price with priority given to the receipt price. Receipt price has been the preferred measure of best purchase price since it is viewed generally by State agencies as more reliable than shelf price and it is easy to collect. However, it can no longer be assumed that receipt price is the price a non-WIC customer would pay because some POS systems account for the NTE immediately (e.g., the item price is reduced at the POS and this reduced price is reflected on the receipt). Shelf price is another potential source of best purchase price but is also not ideal. To the extent that shelf prices do not accurately reflect sales and loyalty card discounts and/or differ from the price in the POS system, they may also not reflect what a non-WIC customer would pay. Additionally, in the current and previous studies, shelf prices were entered manually by the CB, and thus more prone to error. For these reasons, a revised approach may be needed for determining best purchase price in an

EBT system. One option would be to conduct an additional buy at each vendor and pay cash (includes debit and credit cards) for the same items that will be included in a subsequent WIC buy. These options for determining best purchase price and key considerations for each are presented in table VII-3.

Table VII-2. Summary of best purchase price options

Price	Advantages	Disadvantages
POS or receipt price	○ Generally viewed by State agencies with EBT as superior to shelf prices ○ Reliable and easy to collect	○ In some cases, may not reflect the price a non-WIC customer would pay (e.g., might reflect the NTE)
Shelf price	○ Generally referenced in vendor agreements when describing how vendors should charge WIC (e.g., price equal to or less than the shelf price)	○ In some cases, may not reflect the price a non-WIC customer would pay (e.g., might reflect the NTE) ○ Based on current study methods, relies on manual data entry which may be more prone to errors
Cash price	○ Accurately reflects the price a non-WIC customer would pay	○ Would require additional buy to be completed in each vendor and additional foods to be purchased and donated

If future studies rely on shelf prices when determining the best purchase price, additional consideration should be given to the quality and completeness of these data. In past rounds of the study, CBs have collected shelf price by alternative means if needed (scrap paper, a return visit to the store using cash or calling the store to inquire about prices). Smaller stores may be less likely to post shelf prices, and CBs may be more concerned about arousing suspicion from store employees if seen recording them. If shelf price data are less complete than other sources of price data (e.g., receipt price), alternative methods or sampling strategies may be needed to ensure sufficient sample size of transactions with complete data to support robust improper payment analyses.

National Estimates

Sample size adjustments and different analytic techniques may be needed due to the reduced prevalence of vendor violations and improper payments. As the prevalence of overcharges decreases, so will the total national estimate of overcharges (in dollars), unless the amount of each error increases. Estimating the total national dollar amount of the overcharges relies on the actual dollar amount of each overcharge, vendor's sampling weight, and vendor's annual redemption. Each of these values varies greatly across sampled vendors. For this reason, the variance around the national dollar estimates are typically much larger than the variance around the prevalence estimates. If the sampled vendors had similar annual redemption amounts, the variance would be smaller and the confidence intervals much narrower. However, this is not possible since vendors are sampled to ensure resemblance to WIC vendors nationally and annual redemption amounts vary greatly across this population. If narrower confidence intervals are desired in future studies, a larger sample will be required.

CLOSING

The 2015 WIC Vendor Management Study (EBT Pilot) sought to test an approach for measuring EBT vendor error rates and develop a framework for future studies that reliably identifies errors and

Program violations and measures improper payments. In the end, the study identified very few payment errors (overcharges) across vendors, suggesting improper payments may be rare among WIC EBT vendors. This study also identified administrative errors that are relevant in EBT but no substitution errors. While the study was not able to provide national estimates of improper payments, it offers insights that can inform future efforts to identify and measure Program violations and vendor related payment error in WIC EBT.