



United States  
Department of  
Agriculture

Food and  
Nutrition  
Service

Office of  
Analysis and  
Evaluation

## Evaluation of the Off-Line Electronic Benefit Transfer Demonstration

---

# **Feasibility Study of a Combined EBT System for the Food Stamp Program and the Special Supplemental Food Program for Women, Infants, and Children (WIC)**

**Feasibility Study of a  
Combined EBT System  
for the Food Stamp Program  
and the Special Supplemental  
Food Program for Women,  
Infants, and Children (WIC)**

**Final Report**

Prepared for:

U.S. Department of Agriculture  
Food and Nutrition Service  
Office of Analysis and Evaluation  
3101 Park Center Drive  
Alexandria, VA 22302

Prepared by:

Phoenix Planning & Evaluation, Ltd.  
6290 Montrose Road  
Rockville, MD 20852

Contract No. 53-3198-0-013

## ACKNOWLEDGEMENTS

Phoenix Planning & Evaluation, Ltd. (formerly Phoenix Technology, Ltd.) wishes to express our appreciation to the many individuals who assisted in the preparation of this report. Several individuals at the Food and Nutrition Service provided significant time and input in helping define the scope of the report, arranging meetings with several WIC administrators and clinics, and in providing reviews and comments on the various drafts of this report or sections hereof. Special thanks are extended to Margaret Andrews, Ellen Buchanan, Larry Carnes, Jeff Cohen, Patty Cunningham, Art Foley, Julie Kresge, Joe Leo, Ted Macaluso, Debbie McIntosh, Tim O'Connor, Carol Olander, Karl Reis, Ron Vogel, and Fran Zorn. In addition, we would like to recognize Terry Williams, Director of the WIC program in Wyoming, and Dave Mikelson, Director of the Food Stamp Program for the Midwest Region for their input during this study.

Particular thanks are due to Sean Kennedy, President of the *Electronic Funds Transfer Association (EFTA)*, who assisted us in arranging meetings and introductions with several service providers and industry experts. These service providers and industry experts were critical in our review of technical models with respect to feasibility and cost implications.

Finally, we wish to thank all of the vendors and retailers with whom we met for their input, review of questionnaires, and discussions throughout this project.

FNS Contract Number: 53-3198-0-013

FNS Project Officer: Margaret Andrews

**TABLE OF CONTENTS**

**I EXECUTIVE SUMMARY . . . . . I-1**

    OVERVIEW OF FOOD STAMP AND WIC EBT REQUIREMENTS . . . . . I-2

    WIC/FSP EBT ALTERNATIVES . . . . . I-4

        Baseline Model . . . . . I-4

        Enhanced Model . . . . . I-4

    EBT TECHNOLOGICAL SOLUTIONS . . . . . I-5

        On-line Technology . . . . . I-5

        Off-line Technology . . . . . I-5

        A Hybrid Solution . . . . . I-6

    RETAILER POS SOLUTIONS FOR THE ENHANCED  
    FUNCTIONALITY . . . . . I-6

        Stand alone . . . . . I-7

        Stand beside . . . . . I-7

        Fully integrated . . . . . I-7

    ISSUES FOR CONSIDERATION . . . . . I-7

**II BACKGROUND . . . . . II-1**

    OBJECTIVES OF THE STUDY . . . . . II-1

        Describe, Compare and Contrast the Existing or Future Functional  
        Requirements of the Food Stamp and WIC programs . . . . . II-1

        Assess the Technical Feasibility of a Combined FSP/WIC EBT  
        System in an On-line, Off-line, or Hybrid System . . . . . II-4

        Estimate the Development and Operational Costs . . . . . II-6

        Describe the Advantages and Disadvantages of Each Model . . . . . II-6

    SIGNIFICANCE OF THIS STUDY . . . . . II-7

    STUDY METHODOLOGY . . . . . II-8

**TABLE OF CONTENTS**

OVERVIEW OF FOOD STAMP AND WIC PROGRAMS .....	II-10
Program Purposes .....	II-10
Program Administration .....	II-11
Program Statistics .....	II-12
CURRENT PROGRAM FUNCTIONALITY .....	II-13
Women, Infants and Children (WIC) Program .....	II-14
Food Stamp Program .....	II-19
ON-LINE AND OFF-LINE EBT .....	II-21
Food Stamp On-line Systems .....	II-22
The Dayton, Ohio Off-line System .....	II-23
The Wyoming WIC Off-line System .....	II-25
Hybrid Solutions .....	II-27
COMBINED EBT PROGRAMS .....	II-28
COMPARISON OF FUNCTIONAL REQUIREMENTS .....	II-29
Authorizing Household Benefits .....	II-29
Delivering Benefits to Households .....	II-31
Redemption of Benefits .....	II-32
Reconciliation and Settlement .....	II-34
Manage Retailer / Vendor Participation .....	II-36
Other .....	II-37
<b>III EBT MODELS .....</b>	<b>III-1</b>
DIFFERENTIATING FINANCIAL AND MANAGEMENT	
TRANSACTIONS .....	III-1
Applicability to WIC and Food Stamp Program EBT .....	III-1
WIC/FSP EBT ALTERNATIVES .....	III-3
Baseline Model .....	III-6
The Enhanced WIC EBT Concept .....	III-15

**TABLE OF CONTENTS**

**IN-STORE CONFIGURATIONS** ..... III-25  
    Stand Alone Configuration ..... III-25  
    Stand Beside Configuration ..... III-27  
    Fully Integrated Configuration ..... III-30

**COST CONSIDERATIONS** ..... III-32  
    Incremental Costs for the Baseline Model ..... III-32  
    Incremental Costs for the Enhanced Model ..... III-38  
    Cost Considerations Summary ..... III-46

**IV SUMMARY** ..... IV-1

**ISSUES FOR CONSIDERATION** ..... IV-1

**RECOMMENDATIONS** ..... IV-3

**APPENDIX A - GOVERNMENT AND INDUSTRY CONTACTS** ..... A-1

**APPENDIX B - REFERENCES** ..... B-1

**TABLE OF EXHIBITS**

<u>Exhibit</u>		<u>Page</u>
II-1	Sample WIC Voucher .....	II-15
II-2	Comparison of Functional Requirements .....	II-39
III-1	WIC/FSP System Alternatives and Technological Solutions .....	III-4
III-2	Advantages and Disadvantages of the Baseline Concept .....	III-14
III-3	WIC EBT In-store Transaction Flow .....	III-18
III-4	Advantages and Disadvantages of the Enhanced WIC Model .....	III-23
III-5	Stand Alone Configuration .....	III-26
III-6	Stand Beside Configuration .....	III-29
III-7	Fully Integrated Configuration .....	III-31
III-8	Incremental Cost Components - Baseline Model .....	III-36
III-9	Incremental Cost Components - Enhanced Model .....	III-43

## I EXECUTIVE SUMMARY

The purpose of this study is to examine the feasibility of sharing a common *Electronic Benefit Transfer (EBT)* system between the Food Stamp Program (FSP) and the Special Supplemental Food Program for Women, Infants, and Children (WIC). Sharing of systems can be effectively accomplished only if the shared system meets both the common and the unique needs of both programs. Similar to the arguments favoring piggy-backing on commercial point of sale (POS) systems, the potential benefits of sharing a single system are numerous and include:

- Elimination of the need to issue multiple cards to households that participate in both programs;
- Utilization of a single POS terminal at retailer<sup>1</sup> check out lanes;
- Sharing of communications networks and central processing capabilities;
- Merging of financial transactions to reduce transaction related costs;
- Sharing a common set of system rules and standards for operations; and
- Simplification of retailer, vendor, participant and recipient training.

Although the interest in developing and implementing EBT systems around the country is accelerating, only one small pilot program in Wyoming has tested delivery of WIC benefits using EBT. EBT systems may utilize on-line (magnetic stripe card access) or off-line (using smart card access) technology. The EBT systems that have been designed to accommodate multiple programs combine FSP with cash programs such as Aid to Families with Dependent Children (AFDC), and General Assistance (GA) using on-line technology. A demonstration project in Dayton, Ohio delivering Food Stamp benefits using off-line technology is currently

---

<sup>1</sup> Readers should note that the words *retailer*, *vendor* and *store* are used interchangeably throughout this report to refer to the population of retailer grocers that participate either in the Food Stamp Program, WIC or both.

being evaluated. Several of the on-line EBT systems have resulted in a clear preference for the electronic delivery mechanism over the paper alternative; the off-line programs have not yet published reports to indicate a preference for electronic delivery of benefits.

The primary difference between on and off-line approaches for EBT is the location of the cardholder authorization database. In the off-line model, this database is stored in the card. In the on-line model, it is stored centrally. Each purchase is validated against the values in this database including identification of the cardholder and the amount of the purchase versus the funds available in the account. In the on-line environment, this verification is performed via an on-line communication to the central computer. In an off-line environment, the verification is performed within the store location. More detailed information on each approach is provided within the body of this report.

The success of the EBT pilot programs, in combination with recent legislation, indicate a growing need for the development of a standard delivery vehicle onto which multiple benefit programs can be added. Most states that are investigating EBT are examining the challenges posed by the requirements of the WIC program, though few have proposed substantive solutions. States considering EBT programs should review the needs of the WIC program and the FSP as well as cash assistance programs in the systems design. It is likely to be more cost effective to incorporate these needs in the design and development stages than to retrofit the needs to an existing system. This study represents an analysis of the requirements of both WIC and FSP, and presents a discussion of the opportunities, advantages, and disadvantages for combining WIC and Food Stamps onto a single EBT system.

## **OVERVIEW OF FOOD STAMP AND WIC EBT REQUIREMENTS**

The nature of Food Stamp and WIC requirements stem from the historical purpose of each program. The purpose of the FSP is to increase the food purchasing power of low income families for the specific purpose of purchasing a nutritionally adequate low cost diet. The purpose of the WIC program is to improve the health of pregnant and nursing women, infants, and children under the age of five by providing specific nutritious supplemental foods, nutrition education, and health care referral services. As a result, WIC benefit usage is far more restrictive than FSP benefit usage.

WIC participants are generally issued paper food instruments (referred to as the food prescription) that can be redeemed for specified food items such as milk, eggs, cereal and formula. The retailer accepts these food instruments and converts them to value by entering

the value of the goods provided on the instrument and submitting it to the State for reimbursement. FSP recipients are issued paper food coupons. Like currency, each coupon, which come in denominations of \$1, \$5, and \$10, carries a discrete dollar value. These coupons are redeemed by food retailers on a dollar for dollar basis. Thus, food coupons are similar to cash given for a specific purpose for use at any store, while WIC food instruments are more analogous to a blank check with a specific purpose and limited value.

Redeeming WIC benefits through EBT is a complex process since transactions need to be authorized against specific food items within the food instrument rather than against a discrete dollar value. Each WIC transaction therefore typically requires multiple authorizations across different food items rather than a single authorization. WIC transactions also require that the food items be converted to value in order to reimburse the vendor. For example, within the WIC EBT transaction, the system must have the capability to verify that the card holder is entitled to purchase the specific item (e.g., eggs) and then convert *one dozen eggs* to *\$1.00*. Finally, WIC administrators would like an EBT system to be able to maintain the current food prescription inventory for each participant to eliminate the current "one time shopping" restriction on participants associated with the paper food instruments.

In comparison, redeeming Food Stamp benefits through EBT is a relatively straight-forward process. Recipient benefits are established in an account that is authorized to a specified dollar limit. The value in this account is reduced commensurate with the value of the participant's entire FSP transaction. One transaction is made to the account that represents the total of all FSP-eligible items in the transaction; similar to typical commercial debit card processing.

The functionality described in these processes implies that WIC EBT requirements *exceed* the requirements of the FSP. There are also examples of system constraints in the EBT on-line FSP regulations that exceed the needs of WIC. These constraints largely stem from the requirement to minimize discrimination of FSP recipients at the point of sale and include specific requirements for lane equipage at food merchant locations and portability of benefits. The on-line FSP EBT regulations also include a cost neutrality provision that specifies the operational costs of an EBT system including the amortized cost of capital expenditures and other start-up costs cannot exceed the costs of the current system. This requirement is in addition to a current provision that retailers be able to participate in an FSP EBT system at no added cost to them. These latter requirements, while significant, do not alter the functional requirements that the EBT system must perform.

## **WIC/FSP EBT SYSTEM ALTERNATIVES**

The challenge in defining either an independent WIC or combined WIC/Food Stamp EBT system is the conceptualization of the front-end food prescription inventory system. The "back-end" financial transaction settlement process is not significantly different from those processes used either in commercial debit and credit card structures or in existing Food Stamp EBT demonstrations. The electronic authorization of transactions (approval of a specific transaction based upon a pre-determined dollar limit) can occur either within the front-end food prescription inventory process or via an on-line or off-line authorization as part of the financial transaction. Food Stamp demonstration systems and commercial debit/credit systems incorporate the authorization function as part of the financial transaction.

This report presents two EBT system alternatives for jointly delivering FSP and WIC benefits electronically. These alternatives are differentiated based on the extent of WIC program functionality incorporated into the EBT system.

### **Baseline Model**

The Baseline model describes how WIC could be integrated with existing FSP EBT systems at minimal cost. Because the Baseline model primarily addresses the back-end financial transaction and maintains the use of paper for the front-end food prescription inventory, the Baseline concept only provides the automation of the WIC financial transaction and eliminating the need for the retailer to complete, process, and submit paper vouchers or checks for reimbursement of WIC purchases.

### **Enhanced Model**

The Enhanced WIC model describes how an electronic food prescription could be implemented. This enhanced model eliminates the need for paper food prescriptions, and is designed to enhance the nutritional counseling aspects of the program, as well as facilitate the determination of food item eligibility through a UPC comparison with the WIC food product code on the food prescription.

## **EBT TECHNOLOGICAL SOLUTIONS**

The functional requirements of the Baseline and Enhanced WIC models can be met through systems designed to use on-line technology, off-line technology, or a hybrid solution. Some advantages and disadvantages of these solutions are further discussed below.

### **On-line Technology**

On-line systems are accessed through the use of magnetic stripe cards. Bank ATMs utilize on-line technology for authorization of cash withdrawals (by checking available balances of accounts and providing authorization to the terminal to dispense the requested funds, or a denial of the request). Commercial applications at the point of sale for debit and credit card transactions also utilize magnetic stripe on-line technology. In this study several processing alternatives were examined using on-line technology including:

- 1) the authorization and posting of only the financial portion of the transaction (Baseline models),
- 2) the establishment of an interactive communications link between the vendor and the processor,
- 3) the download of a PC file to a specified vendor at the beginning of each voucher period, and
- 4) the temporary download of an individual's food prescription to the point of sale for item authorization.

The first alternative is the Baseline on-line option, the three other alternatives are discussed within the Enhanced WIC models. Of these three, only the latter model was judged to have the potential to meet the program and performance requirements of the WIC program while at the same time meeting the processing response time required by the retailers. Further examination of the Enhanced WIC on-line model may be warranted to evaluate the performance in a processing environment. It should be noted that the delivery of WIC benefits using on-line technology has not yet been tested.

### **Off-line Technology**

There are several different technologies available for off-line systems. There were five types of off-line access cards presented in "The Feasibility of an Off-Line Electronic Benefit

Transfer System for the Food Stamp Program". These include: standard magnetic stripe cards, smart cards, optical memory (laser) cards, token cards, and non-standard magnetic stripe cards. Recommendations of this technology for programs with prescription benefits (such as WIC and Medicaid) centered around the use of optical memory cards or smart cards. The off-line demonstrations of EBT systems currently in use are based upon smart card technology.

Based upon the experience of the Wyoming off-line EBT demonstration for WIC benefits, off-line models present a potential means for meeting the needs of the FSP and WIC program in a combined system. Smart card technology, however, has not yet been adopted by the commercial sector and it has been argued that the full cost-effectiveness of EBT can only be achieved through integration with commercial card processing. The comparative costs of an off-line versus on-line solution are being examined in the evaluation of the FSP Off-line EBT Demonstration currently being conducted in Dayton, Ohio and through further development of the Wyoming WIC EBT demonstration.

### **A Hybrid Solution**

While hybrid smart card solutions (utilizing both magnetic stripe and integrated chip technologies) should not be quickly dismissed, they provide minimal advantage to a combined FSP and WIC EBT system over an independent WIC smart card system. In a hybrid model, FSP items are processed using magnetic stripe, on-line technology, while the WIC transactions would utilize the smart card technology for the food prescription maintenance, and on-line processing of the financial portion of the transaction. Not only would certain lanes need to be equipped with terminals capable of reading both smart cards and magnetic stripe cards, but multiple cards would need to be issued to households receiving FSP and WIC benefits, and the WIC program would incur the cost of on-line transaction processing fees.

### **RETAILER POS SOLUTIONS FOR THE ENHANCED FUNCTIONALITY**

In addition to discussing the relative merits of on- and off-line systems, this report discusses potential solutions for the front-end prescription functionality required by an EBT system designed under the Enhanced WIC model. The possibilities for meeting the requirements of a front-end prescription capability are presented in terms of the degree of integration with existing vendor POS systems. The retail configurations are as follows:

- **Stand alone** - This alternative, most applicable to the small retailer, does not require integration with existing POS equipment. Processing is performed on a PC at the retailer.
- **Stand beside** - The stand beside solution requires that an interface be built to the retailer's POS system to accept UPC and price information. All processing is performed within a self contained WIC module.
- **Fully integrated** - This alternative requires that the retailer's POS system be modified to perform WIC specific functions. This system is most applicable to the larger supermarkets and chain stores which have integrated scanning and inventory systems.

The selection of the most appropriate alternative is dependent upon the capabilities of the vendor community in which the EBT system is implemented. For example, large supermarket chains with sophisticated processing capabilities may elect to modify their existing systems to meet the needs of the program. Smaller vendors with existing scanner and inventory systems may elect to implement the stand beside solution. Those vendors without existing equipment may require implementation of the stand alone solution.

## **ISSUES FOR CONSIDERATION**

This report presents models supporting the conclusion that FSP and WIC program benefits can be combined in an EBT system. A fundamental issue that must be considered in determining which model is appropriate is the degree of functional integration. The Baseline model presents FSP and WIC program integration at the back-end (financial)

process only; the Enhanced model incorporates the front-end (prescription) functionality.

A full cost analysis of the alternatives is not presented in this report; however, the cost components are discussed as they relate to the incremental costs of adding WIC to an existing FSP EBT system. The main trade-off between the on-line and the off-line systems occurs between the cost of terminals and cards in an off-line system versus the higher cost of telecommunications in an on-line system. In both the on-line and off-line Enhanced Models, the in-store configurations will be decided by the participating retailers.

Several topics must be addressed in determining which model is the "best" one, based upon the selection criteria. Further study of the technological feasibility of the on-line version of the models is warranted, based upon the data transfer and data format requirements.

programs with current systems; the costs of terminal deployment (to meet regulations, or to upgrade capabilities) and telecommunications; processing time in check-out line at the retailer; the degree of system automation; and EBT card costs. An effort has been made within this report to provide several options for combining WIC and FSP benefits onto a single EBT system. As noted above, further research on the models would be required in order to provide a definitive recommendation.

## II BACKGROUND

Federal and State agencies are exploring the potential to provide better service to recipients and reduce operating costs through implementation of Electronic Benefit Transfer (EBT) Systems. In order to reduce unit operating costs and achieve economies of scale, multi-program EBT system demonstrations utilizing a single card interface are being assessed.

The purpose of this study is to examine the feasibility of sharing a common EBT system between the Food Stamp and the WIC Programs. Despite the potential benefits, a shared food stamp/WIC EBT system must meet both the common and the *unique* needs of each program if it is to be effective. This study presents an analysis of the requirements of both the FSP and WIC program and presents a discussion of the opportunities, advantages and disadvantages for combining WIC and Food Stamps on a single EBT system.

Although the pace of implementation of EBT systems around the country is accelerating, WIC implementations have been limited. Most EBT systems are designed to accommodate the FSP and certain cash programs such as Aid to Families with Dependent Children (AFDC), Child Support Enforcement (CSE), and General Assistance (GA). With the exception of the State of Wyoming, no state has tested an EBT solution for the WIC program due largely to the more complex WIC program requirements. Several states, however, are initiating plans to determine the feasibility of combining the delivery of WIC benefits with other programs through the use of EBT.

### OBJECTIVES OF THE STUDY

There are four main objectives to this study. Each is discussed below.

#### **Describe, Compare and Contrast the Existing or Future Functional Requirements of the Food Stamp and WIC Programs**

In order to determine the feasibility of integrating the two programs into one system it is critical to describe the similarities and differences in functional requirements between the Food Stamp and WIC programs. The functional requirements of each program in an EBT environment are described in the "Comparison of Functional Requirements" section of this report classified in the following categories:

- Authorizing Access to Benefits;
- Delivering Benefits to the Recipient/Participant;

- Redeeming Benefits;
- Reconciling Benefits; and
- Managing Retailer/Vendor Participation.

*Authorizing access to benefits* includes each of the steps necessary to ensure that benefits are available to the authorized recipient or participant on a regular, timely basis. This includes the issuance and replacement of EBT cards, through the posting of those benefits to the card or to the account file at the processor. The needs of the particular program will dictate the form in which authorization takes place.

For example, in the FSP, to enhance service to the recipient and to minimize administrative costs, benefits could be posted to an account that is remotely accessed by the recipient. In the WIC Program, participants may be required to have additional or new benefits added to the card or account at some central location to promote regular health examinations or nutrition counseling.

The process of *delivering benefits to the recipient/participant* includes both the delivery of the benefit instrument to the recipient or participant as well as the conversion of that instrument into usable value. The benefit instruments are the food stamp coupon and the WIC food instrument. The conversion of these instruments into usable value occurs at the store when the recipient or participant exchanges the instrument for food purchases.

*Redeeming benefits* for food coupons and WIC food instruments is very different. First, the redemption of food coupons results in a debit to a Federal Treasury account. Redemption of WIC food instruments results in a debit to a State Treasury account with grant funds provided by the U.S. Department of Agriculture's (USDA's) Food and Nutrition Service (FNS). Second, food coupons carry an exact value that is determined by the denomination of the coupon (\$1, \$5, or \$10). WIC food instruments specify the types and quantities of food items that can be purchased, and generally include a maximum dollar amount. The vendor is responsible for entering the price information for these items on the food instrument prior to redemption, and due to price differences between vendors and at different points in time, two food instruments for the same prescription may be redeemed for different values. Third, food coupon redemption is managed by the Federal government. WIC redemption is managed by the state and therefore, the procedures followed for redemption may differ from state to state. In addition, benefit expiration standards may vary between the programs, as well as between the program agencies.

Another important feature of the WIC program is the acceptance of manufacturers' rebates by the State for certain WIC items, in particular, infant formula. Both the State and formula

manufacturers are interested in collecting accurate and timely information to verify the exact quantity of the manufacturer's product sold through WIC.

Due to the fundamental differences in benefit instruments and the redemption processes, each program manages the process of *reconciling benefits* very differently. Food coupon transactions are first balanced at the financial institution, re-balanced at the Federal Reserve and verified by FNS based upon a comparison of debits to the Treasury account and credits to financial institutions. WIC food instruments progress through a number of complex steps depending upon the redemption method employed by the State. In one case, WIC checks are deposited with the vendor's financial institution and the vendor receives credit for the claimed amount. The WIC check is then sent to the State where it is "audited" to determine if the claimed value is within parameters established for the prescription on the WIC food instrument. If the claimed value is not within these parameters, the State attempts to reclaim funds from the vendor. In another case, the food instrument (WIC voucher) is sent directly to the State for audit. If the claimed value is within the parameters, the vendor is either mailed a check or otherwise credited for the transaction. Vouchers submitted that violate established tolerances are rejected and returned to vendors.

Retailers in the FSP generally receive credit for food coupon transactions upon deposit with their financial institution. Vendors in the WIC program may not receive credit for 30 days or more depending upon State regulations for redemption and audit processing (where vouchers are used instead of WIC checks).

There are several activities associated with *managing retailer/vendor participation*. They include:

- Authorization and Establishment of Retailers or Vendors;
- Retailer/Vendor Training; and
- Monitoring Retailer or Vendor Compliance.

One major difference in retailer and vendor management between the FSP and the WIC program is the fact that retailers are managed by the Federal government in the FSP and by the State in the WIC program. A second major difference is the opportunity for vendor abuse in the WIC program through inflated claims on food instruments. Food instrument amounts can be inflated both on an item basis (charging more than the price) and by claiming to have sold more items (listed on the food instrument) than the participant

received. If a participant does not purchase the full prescription, either because the vendor ran out of supply of a particular item or because the participant did not want the particular item, the vendor should only claim for the items actually selected. The amount claimed, however, is determined solely by the vendor.

**Assess the Technical Feasibility of a Combined FSP/WIC EBT System in an On-line, Off-line, or Hybrid System**

This objective is met through the development and analysis of conceptual models. The challenge to assessing the technical feasibility of both on and off-line systems is to balance cost considerations with the ability of the system to meet all requirements and to identify areas of compromise.

EBT can be considered to be a product within the overall POS product family. Typical POS products (debit cards, credit cards, check authorization or guarantee, etc.) result in the transfer of value from the cardholder to the merchant. In a Baseline model, WIC EBT could be construed to perform the same function. However, EBT presents an opportunity to enhance program efficiency and effectiveness through the capture and transfer of information beyond simple value. For example, some configurations of EBT systems may facilitate the electronic capture of food item data at the point of sale. This data, including the specific brand, size, and store price of the item could be used to enhance the WIC program through improved nutrition education programs to participants, simplified accurate manufacturer rebate program reporting, improved efficiency and effectiveness of vendor monitoring and control of various food expenses. Thus, the range of models includes the simple value transfer model as well as more complex enhanced functionality models. The design of model configurations has not been limited to those that fit within the current commercial or EBT on-line models. While these models will form a basis for conceptualization, other alternatives will be considered.

The discussion of capturing WIC purchase information, by UPC and price, and transferring this information to the State has elicited interest in the applicability of Electronic Data Interchange (EDI) to accomplish this data transfer. EDI has been used for many years by corporations as a way to transfer information between two (or more) sites in standard formats. The standard formats are developed by industry groups working with the American National Standards Institute (ANSI). Data sets of information are transmitted between the two companies typically through the use of a Value Added Network (VAN) which provides an electronic mailbox capability where information can be directed to a mailbox at the VAN. In many instances the VAN provides additional services, such as reformatting of the data

to the receiver's specifications - thus the "value added". Information can be picked up by the receiver by accessing their mailbox at the VAN. Based upon the development of a standard format for WIC information (to include information such as date, time, location, participant ID, food category, quantity, and price), WIC retailers could transmit data at the close of business to the VAN, where the State offices could pull the file and use the data to provide information such as the quantity of a specific infant formula to receive rebates from formula manufacturers'.

Recently, companies have included data with payment information using Automated Clearing House (ACH) formats that allow the inclusion of addenda records. These addenda records typically include the ANSI formatted data surrounded by standard ACH information. The addenda information accompanies the payment through the ACH network, and the receiving financial institution posts the debit or credit to the account, and passes the data to the receiver. The number of banks capable of capturing this data and transmitting it to the receivers is limited, however this number continues to increase with industry demand.

Several current pilot programs were reviewed to determine functional requirements and the possible combination of FSP and WIC. Wyoming, utilizing an off-line system, provides the only existing EBT model for the WIC program. This system, as well as various on-line pilots (many with multiple programs) and the Dayton off-line EBT pilot, were analyzed in the development of on-line, off-line and hybrid models.

Also included in the model development was the commercial batch processing currently utilized by some debit and credit card programs. In these programs, the transaction is typically authorized on-line with settlement functions performed in batch mode. This process cost-effectively combines immediate authorization and data capture with batch transmission and processing techniques.

The FSP and WIC program introduce unique requirements which can be accommodated through a model combining features of both program models. This model would incorporate features not necessarily required for either stand alone model, and would therefore encounter higher development and operational costs. Two key questions of overall feasibility are whether the costs of a combined model exceed the costs of two stand alone models, and whether two stand alone models would be acceptable to the retailers.

### **Estimate the Development and Operational Costs**

This study presents a set of conceptual models for developing a combined WIC and FSP EBT system. The models, Baseline and Enhanced, provide for two levels of program functionality which have corresponding differences in development and operating costs. Moreover, within each model is the potential for several technology based alternatives and multiple system configurations to accommodate differing vendor/retailer capabilities. Because of the various potential retail configurations, it is only possible to estimate developmental and operational cost *implications*. These cost implications provide indicators of the costs that could be incurred within each model alternative rather than precise cost estimates.

The basis for identifying and estimating cost implications is an incremental analysis that is possible because the functional requirements of the FSP can be met through any of the potential WIC EBT models which require substantially greater functionality. For example, the *Baseline Model* presents a method for incorporating WIC into an existing FSP EBT system. The *incremental cost* elements for this model include the additional functions performed by the system to meet the additional needs of the WIC program. The Enhanced Model does not change the functions of the EBT system performed for the FSP, but adds increasing capabilities to meet the functional requirements of the WIC program. The features that are added to the Enhanced Model form the basis of new *incremental* cost elements.

### **Describe the Advantages and Disadvantages of Each Model**

Meeting the intent of this objective requires assimilating the information compiled in addressing each of the prior objectives and drawing conclusions on the relative advantages and disadvantages of each model.

The advantages and disadvantages of each model to all participant groups must be explored. Participant groups within the FSP/WIC EBT system include: recipients of Food Stamp benefits, participants in the WIC program, retailers authorized to accept food stamps, vendors authorized to accept WIC benefits, State and county agencies or clinics, and FNS. The projection of the effects on each of these groups is assessed from extrapolation of prior EBT evaluation results and from discussions with appropriate groups such as WIC program personnel, FSP personnel, and State WIC and Human Service agencies. The analysis addresses issues ranging from requiring recipients to carry multiple cards to the more complex issues of separating fund and information flows at the point of sale to the likely

impact on costs for each group. This analysis will also consider the issues revolving around integration with other Federal and State benefit programs.

### **SIGNIFICANCE OF THIS STUDY**

Since the early 1980's there has been an increasing interest in, and demand for, electronic alternatives to the manual, paper-intensive processes inherent in most businesses. The Federal Government has been a leader in reducing costs and promoting efficient operations through the development of several automated programs. Examples include direct deposit of social security benefits to recipients' designated bank accounts, and electronic payments to vendors for services provided. As a leader in the conversion of paper payments to electronic delivery, the government is constantly exploring ways to utilize current and evolving technology to achieve efficiencies.

In March of 1982, an EBT feasibility study for the FSP was conducted. As a result, a pilot program began in Reading, Pennsylvania in October 1984 and was completed in December 1985. Since that time, the expanded EBT system has been operated by the State. The results of the study were an overwhelming preference for the EBT system over the paper coupon system, although the pilot also indicated that overall costs of the EBT system on a per case basis exceeded the costs of the paper system that it replaced. As the volume of recipients on the EBT program has increased, the cost per case have declined, however as of 1990 the EBT per case costs still exceeded those of the paper-based system.

During the past ten years, several states have been in the process of developing, implementing, and evaluating pilot programs converting various assistance payments (such as Food Stamps, Supplemental Security Income (SSI), AFDC, WIC, and GA) to electronic delivery. Several of the on-line programs have resulted in a clear preference for the electronic delivery mechanism over the paper alternative; results of the off-line demonstrations are not yet final. Due to the fact that many of the benefit recipients do not have bank accounts, electronic delivery of benefits via the use of plastic cards is more practical than a direct deposit program. In addition, only cash benefit programs would be appropriate for direct deposit programs, while a plastic card-based program could encompass non-cash benefits.

Since 1990 the government's interest in electronic delivery of benefits has increased due to several factors. Among these are: the Cash Management Improvement Act (October 1990), the Farm Bill (November 1990), a Presidential EBT Memo concerning the 1992 fiscal year budget (January 1991), the EBT Interagency Steering Committee Charter (May 1991), the

Financial Infrastructure and EBT Cost Standards Decision Papers (August 1991), the AFDC EBT Action Transmittal Paper (September 1991) and the Food Stamp EBT Regulations (issued and effective April 1, 1992). All of these factors have been initiated to maximize efficiency in government.

The FSP is moving from a demonstration to an operational environment. The success of the EBT pilot programs, in combination with recent legislation, indicate a growing need for the development of a standard delivery vehicle onto which multiple benefits can be added. It is possible that the needs of WIC may be best met by including these needs in the *development* of an integrated EBT delivery system rather than assessing these needs and changing an implemented EBT system to accommodate the requirements. It is important that the needs of WIC EBT programs be incorporated into any FSP EBT plans when an Advanced Planning Document (APD) is submitted. Another convincing argument for the development of a single (or simplified) delivery mechanism for multiple programs is the significant overlap of recipients. For example, 46% of WIC recipients also receive food stamp benefits, 40% of Food Stamp recipients receive AFDC, 20% receive SSI and all AFDC and SSI recipients qualify for food stamp benefits.

Expected advantages achieved by EBT implementation include greater convenience and accessibility to benefits for recipients and participants. In addition, the elimination of paper checks, coupons, vouchers, and other benefit instruments which are labor intensive and costly to process will assist in offsetting the costs of operating an EBT program. Other cost reductions are those associated with the generation, mailing (and related possible mail loss), inventory storage, compliance auditing and manual reconciliation of paper coupons or food instruments.

## **STUDY METHODOLOGY**

In order to determine the feasibility of combining WIC and FSP benefits in a single EBT delivery vehicle, it is necessary to understand the current system functions of both programs in addition to any requirements or desired functionality in an EBT environment. Once current and projected requirements are understood, models can be developed to accommodate the programs in an EBT environment.

Throughout the feasibility study, information has been drawn from five source areas:

- Literature review;

- Interviews with administrators;
- Interviews with food industry retailers;
- Interviews with providers of EBT services and equipment; and
- Focus groups sponsored by the Electronic Funds Transfer Association (EFTA).

Literature included, but was not limited to, Study of WIC Participant and Program Characteristics, 1988; WIC Vendor Management Systems and Practices; Vendor Activity Monitoring Profile, Fiscal Year 1990 (Executive Summary); Overview of Entitlement Programs (1991 Green Book); The Electronic Benefit Transfer Revolution (1990); "Food Stamp Program: Standards for Approval and Operation of Food Stamp Electronic Benefit Transfer Systems" (Federal Register, April 1, 1992); and various sources outlining current and proposed EBT pilot programs nationwide.

Interviews were conducted with several administrators across the country. Additional information and feedback was obtained when the models were presented to administrators at the WIC National Window Technology Conference held in June of '92 in San Antonio, Texas.

In order to obtain the retailer/vendor perspective of the current FSP and WIC program, interviews were conducted with a variety of food retailers. Current processing was discussed, and input was obtained from them on their responses to the various models.

To accomplish a technical review of the models, meetings were held with various EBT equipment suppliers and processors to review the types of models developed and solicit their reactions and input on any limitations that were overlooked or any technical restrictions which could impede the development or delivery of the program under either of the models.

The models were also presented to a focus group arranged by EFTA to gain insight and feedback into the functionality of the on-line, off-line and hybrid technological solutions, and to obtain realistic feedback on the models. It was noted by several of the focus group participants that over the past 20-year history of electronic cash registers (ECRs) many capabilities have been implemented. Many of the older machines are not "debit capable" (as would be required for the FSP/WIC EBT models that require cashier interface), and in fact cannot be retro-fitted to accommodate this feature. While the POS devices have been



provide nutrition benefits to qualified pregnant, post-partum and breast feeding mothers, their infants, and children up to the age of five. WIC provides three basic functions to participants: nutrition education and counseling, supplemental food instruments for specific food, and health care referrals. Qualification for the program includes specific income guidelines (generally monthly income not greater than 185% of the Federal poverty guidelines, although this may vary at the state or local level) and determination by a competent health professional that the applicant is nutritionally "at risk". Due to the limited funding of the program, not all individuals meeting the eligibility requirements are able to participate.

### **Program Administration**

The FNS of the U.S. Department of Agriculture (USDA) administers both the Food Stamp and WIC programs. FSP recipients are certified for a specific dollar amount of benefits at State Welfare Offices, predominantly through the use of on-line multi-use systems (such as FAMIS) which enable the federal government to ensure that a participant in one program is notified of their ability to participate in other federal assistance programs. Once Food Stamp eligibility is established, food coupons are distributed to recipients in one of three ways: through Authorization to Participate (ATPs) which are mailed to recipients and redeemed for food stamp coupon booklets at the state welfare office, through enrollment on an issuance file at the state welfare office (again, the recipient collects food stamp coupons at the welfare office), or by mailing coupons from the state directly to the eligible individual or household. The method used for distribution varies between state agencies, and can vary at the local level. Benefits are administered at the state level, with federal funding provided as coupons are redeemed.

Certification for WIC program participants is accomplished through local health agencies and clinics which meet with qualified women to assess the nutritional needs of pregnant, breast feeding women and their young children. Due to the nutritional counseling aspect of the program, participants are required to make routine visits to the local agency or clinic, and benefits (in the form of food instruments representing food prescriptions) are provided during the visit. Food instruments are valid for a one month period of time, and two to three months of food instruments are provided during each visit.

In order to facilitate the purchase of food items and to prevent spoilage, the monthly food prescription is separated onto multiple food instruments, generally approximating weekly purchases. One important aspect of the WIC program is the need to monitor the nutritional progress of the participants. In the current environment, each food prescription instrument

contains numerous items, including quantity for each item. The food instrument must be surrendered to the vendor when a purchase is made, even if all items on the food instrument have not been purchased. With incomplete food prescription purchases, the nutritional benefits of the program cannot be fully achieved, nor can the proper redemption value be tracked. Similar to food stamps, federal grant funds are provided as the state needs funds to pay for food instruments.

WIC funds are distributed as cash grants to state, territorial and Indian Tribal agencies. While the growth in the number of individuals assisted through this program has been significant, (from 88,000 participants in fiscal year 1974 to over 5.3 million participants in 1992), not all women, infants and children who qualify are able to participate due to limited funds. The efficiency of the program, as well as its benefit distribution and counseling efforts maximize the number of qualified people able to participate. The WIC program is designed so that funds received are directed toward food purchases (through food instruments, home delivery, or direct distribution), and nutrition education and general program management. In 1992, approximately 75% of the funds were directed toward food purchases.

One significant difference between WIC and the FSP is that WIC is a grant program where a certain dollar amount is provided for funding each year. This aspect of the program does not cause any restriction in the conversion to electronic delivery, however it is anticipated that an EBT system will enhance the program efficiency (through automation) and reduce the level of potential vendor error or abuse, resulting in the ability to provide benefits to qualified individuals who have not been able to participate due to limited grant funds.

### **Program Statistics**

Some of the benefits to implementing an EBT system in an on-line, off-line, or hybrid environment include the greater convenience and accessibility of benefits, elimination of paper checks, vouchers, coupons and other paper benefit instruments which are labor intensive and costly to process, the reduction of costs associated with the generation, inventory storage, mailing, mail losses, compliance auditing, and manual reconciliation of paper coupons or food instruments, and the reduced risk of benefits being used incorrectly.

### **Recipient populations**

In 1990 the number of individuals receiving WIC benefits was 4.9 million. Forty-six percent (46%) of these participants, or approximately 2,250,000 also received food stamp benefits.<sup>2</sup> During 1990, FSP handled benefits for 25 million participants, indicating that 9% of FSP recipients also participated in the WIC program. By developing an EBT system which accommodates the needs of both programs, economies of scale can be realized through the use of a single card and standard training of recipients/participants and retailers/vendors. Even with two EBT systems to handle the programs, EBT will provide additional value over the paper-based systems.

### **Retailer/Vendor populations**

There were 213,000 retailers that handled FSP transactions in 1990. During that same time, there were 47,000 retailers handling WIC transactions. There is significant overlap in these retailers since all FSP retailers could be WIC vendors (however the reverse is not necessarily true, since WIC vendors include stores that sell infant formula, and these may include some non-grocery retail stores). In addition, when vendors are authorized for WIC transactions, their prior FSP experience is reviewed to ensure their integrity.

## **CURRENT PROGRAM FUNCTIONALITY**

In order to determine the feasibility of integrating the FSP and WIC program onto an EBT platform, it is necessary to understand the current functionality of the individual systems, addressing areas of overlap and areas of program-specific needs.

The review of each system is approached through the following five functional areas:

- Authorizing Benefits;
- Delivering Benefits;
- Redeeming Benefits;
- Reconciling Transactions; and

---

<sup>2</sup> Rick L. Williams, et. al., Study of WIC Participant and Program Characteristics, 1988, U.S. Department of Agriculture, Food and Nutrition Service.

---

- **Managing Retailer/Vendor Participation.**

Once an understanding of the paper-based systems has been gained, the conversion to an EBT system can be evaluated by reviewing the current EBT pilots, and the Rule covering on-line EBT systems for the FSP, effective April 1, 1992. These EBT requirements are compared with the WIC regulations in a later section of this report.

## **Women, Infants and Children (WIC) Program**

### **Authorizing Benefits**

Benefits are authorized by State and local public health agencies to pregnant, post-partum, and breast feeding women, infants, and children up to their fifth birthday. Participants are issued food instruments at monthly or bi-monthly visits to the local clinic or agency, which also provides nutritional counseling to ensure proper understanding of the needs of each participant. Certification is based upon a family income under 185% of the poverty level, detrimental or abnormal nutritional conditions, a predisposition to inadequate nutritional patterns, and classification in a risk-priority system. The priority system exists to ensure that the most needy individuals are able to participate in the WIC program. Certification periods vary in length, but tend to cover a six (6) month period, with at least two nutrition contacts during the period. The program is customized to meet the needs of each participant through the use of "prescriptions" which are redeemable at authorized vendors for specific food items. Participants are evaluated at the clinic or local health agency and assigned to the appropriate WIC food package category for proper identification of nutritional needs. Separate food instruments are provided for each of the six food package categories established by the WIC Program.

Generally, benefits are provided for more than one month at a time, however the food instruments which are provided to the participant have specific effective date ranges. Exhibit II-1 provides an example of the information included in a WIC food instrument. Unlike food coupons, WIC paper food instruments do not represent a specific dollar amount, but rather a market basket of goods. As shown in this example, a maximum value may be shown on the face of the food instrument at the discretion of the State. This purchase price is higher than the price of the food contained on the food instrument, but low enough to provide protection to the program against potential vendor abuse. The WIC prescribed goods include: milk, eggs, cheese, juice, infant formula, beans, peanut butter, and iron-fortified cereal.

Exhibit II-1

Sample WIC Voucher

<b>09664104</b>		<b>DEPARTMENT OF HEALTH</b>			SPECIAL SUPPLEMENTAL FOOD PROGRAM FOR WOMEN, INFANTS & CHILDREN (WIC)	
SEQUENCE NO	WIC ID NO	NAME OF PARTICIPANT		PACKAGE	AGENCY/SITE	
09664104	897-57489393	SMITH	JUDITH	427-2	-----	
4 GALLON MILK 2 DOZEN EGGS 12 6OZ JUICE 8 OZ DOMESTIC CHEESE				FIRST DAY TO USE	LAST DAY TO USE	
				09/02/92	09/15/92	
				MAXIMUM VALUE \$35.76		
SIGNATURE OF PARTICIPANT OR AUTHORIZED PROXY REQUIRED HERE <i>Judy Smith</i>				PAYMENT WILL BE DENIED 8756-4 WITHOUT VENDOR STAMP HERE		AMOUNT OF ACTUAL SALE
						<b>1297</b>
				<b>FIRST NATIONAL BANK</b>		
<sup>■</sup> 09664104   <sup>■</sup>   :071700524   : 00 009 999   <sup>■</sup>				<sup>■</sup> 0000001297   <sup>■</sup>		

The goals of the nutrition education program are to teach proper nutrition and good health habits in addition to instructing participants in how to utilize their supplemental and other foods. The WIC Program is designed to provide benefits during critical times of development in order to prevent the occurrence of health problems in the future.

### **Delivering Benefits**

There are three different methods for WIC participants to receive benefits: home delivery, direct distribution of food, and retail purchase. Benefits are received predominantly through the use of food instruments in retail purchase, however a small percentage of participants receive their benefits through home delivery. Where home delivery is available, the deliverer of benefits (food items) is generally determined through a competitive bid situation. The prescribed benefits are delivered to the participant, and the State pays for the items plus a delivery charge as agreed to by contract. Direct distribution, available in Mississippi and some Indian Tribal Agencies, requires the participant to pick up their food items at a distribution warehouse. An EBT system would be designed to handle any of the delivery methods currently available, although the specific processing may vary between on-line and off-line.

The majority of the benefits (88% in 1987) are delivered via retail purchase using food instruments which are provided at the time of the local agency/clinic visit. A participant-specific list of food items is provided on the food instrument, indicating quantity. The food instruments provide a list of WIC approved food items at an authorized vendor (when the benefit delivery is retail purchase), sometimes specified on the food instrument as a single store or group of stores, at the discretion of the State. Although uncommon, vendors can include non-grocery retail stores that sell infant formula, provided the WIC food instruments are used only for that purchase. The number of authorized vendors decreased over 10% from 1986-1990, while the number of participants increased.

One food instrument may contain multiple items, but since the food instrument can only be used once, items on the food instrument not purchased at that visit are forfeited by the participant. This is an issue that can be addressed by EBT by allowing more than one visit to purchase items which would be included in one paper food instrument. Food instruments are accepted as payment for food matching the items listed on the prescription.

### **Redeeming Benefits**

Participants shop at authorized vendors for foods listed on their food instrument (type and quantity). In general, the products which qualify are listed on the front or back of the food

instrument. It is the responsibility of the vendor to collect the food instrument from the participant, separate the WIC items from the rest of the purchase, verify the eligibility of items (by reviewing the food instrument), accumulate the price for the WIC-eligible items, and note the price on the face of the food instrument. Food instruments are countersigned by the participant. Typically, the food instrument is counter-signed by the participant after the amount has been added by the vendor. Vendor error (intentional or not) can occur in three ways: first, by charging for items listed on the food instrument, but not purchased by the recipient, second, by charging a higher price than standard for the actual items purchased, and third, for allowing purchases of items not on the food instrument. It is difficult to determine where these types of program abuse exist if the total amount charged by the vendor is within an acceptable maximum dollar amount shown on the food instrument. The discrepancy may not be easily detected, since the food instrument must be relinquished when a purchase is made and the actual items purchased are not denoted on the food instrument. The disadvantage of not purchasing the entire prescription on the food instrument is that the nutritional needs of the participant will not be fully met, and cannot be effectively monitored. Due to the grant funding of the WIC program, errors or abuse in the system can impact the number of eligible participants served by the limited funds available.

Substitutions in quantity or food type from that stated on the food instrument cannot be made. Only items on the WIC food instruments can be purchased. In some states, vendor stores are specified on the coupon. For example, Wyoming WIC checks currently include the retailer's name in a "Pay to the order of" field on the front of the check.

There are two different types of food instruments: vouchers and checks. WIC checks are processed at banks through the standard check clearing process; vouchers are processed initially by the state. Where WIC checks are used, the vendor processes the WIC checks and includes them with its (daily) deposit to the bank for crediting to the vendor's account. Alternatively, in states where WIC vouchers are used, the vendor sends the WIC food instruments (vouchers) directly to the state, for audit and reimbursement.

### **Reconciling Transactions**

WIC food instruments are completed by the authorized vendor by inserting the amount of the WIC purchase on the face of the food instrument. In many cases the food instrument includes a "not to exceed" value printed near the amount field. WIC checks are included with the deposit to the vendor's local bank; WIC vouchers are sent directly to the state for audit and reimbursement.

The bank processes WIC checks through the check clearing system. WIC vouchers are audited by the State, and a check is mailed to the vendor representing the audited reimbursement amount. The latter process can cause a delay of up to 60-days in crediting the vendor. In states where the audit occurs after processing by the local bank, the state may make adjusting entries to the deposit amount. Audits are performed to monitor for reasonable dollar amounts on redeemed items, reasonable volume of redeemed stock items, and vendor activity.

The state audits the food instruments to compare the redeemed value to established (acceptable) ranges. Food instruments falling outside of allowed ranges are researched. Adjustments may be made to retailers. The audit process occurs either before or after credit is provided by the processing bank, depending upon the state.

### **Managing Vendor Participation**

Federal regulations set certain requirements on state management of WIC vendor activity. Monitoring systems are established at the state level with on-site visits required to at least 10% of vendor sites. Vendors are continuously monitored to detect fraud which causes a diversion of funds which would otherwise be directed to additional qualified participants.

Vendors are authorized to participate in the WIC program by state or local agencies for periods of one to two years in most states. In order to be authorized, a vendor must sell WIC-approved items, although they are not required to sell all WIC approved items. In addition, the vendor selection process includes past FSP performance, past WIC program performance (for re-authorization), acceptable prices, sufficient stock of WIC items, and geographic accessibility for participants. In a few circumstances, non-grocery retail stores that sell infant formula may be authorized WIC vendors, however WIC food instruments may be used only to purchase infant formula in those stores.

FNS produces the Vendor Activity Monitoring Program (VAMP), an automated program where state agencies report on vendor activity. States collect information on vendors that were investigated, the results of the investigations, and the action taken on each of the vendors. State agencies categorize vendors as high risk if they are suspected of fraud or abuse. For fiscal year 1990, 26% of the 2,483 investigated vendors (representing 5.3% of the 46,864 authorized vendors) overcharged the program.

Generally assessed by the state agency, corrective action for violation of the program rules and regulations ranges from warning letters to long term disqualification. Examples of violations include: redeeming food instruments for cash or credit, charging for items that the

participant did not receive, accepting WIC food instruments for non-food items, charging above the shelf price for items, providing non WIC-approved items, and stocking insufficient quantities of goods.

## **Food Stamp Program**

### **Authorizing Benefits**

Food Stamp eligibility is determined by state welfare offices predominantly through the use of on-line multi-use systems (such as FAMIS) which enable the federal government to ensure that a participant in one program is notified of their ability to participate in other federal assistance programs. Once the food stamp eligibility of a person has been determined, the person is sent an Authorization to Participate (ATP). In general, the ATP is mailed to the eligible person who in turn exchanges it for food stamp coupons at an authorized redemption center (including banks and check cashing centers in some areas). Alternatively, food coupons may be mailed directly to recipients, and in some areas an eligible recipient without an ATP can go directly to a redemption center linked to a central database. Determination of FSP eligibility and the amount of benefit entitlement is performed with coupons provided based upon that determination.

Benefits are provided as paper coupons in denominations of \$1, \$5, and \$10. The total monthly value per family/eligible recipient depends upon the on-line system calculation. In 1990, the average monthly benefit amount was \$150 per household, or \$59/person; in 1991, the average monthly benefit was \$63.90/person.

### **Delivering Benefits**

Food Stamp benefits are delivered to participants predominantly through ATPs which are mailed to the participant. It is the responsibility of the participant to take the ATP to a redemption center to convert the ATP to food coupons. Recipients use the coupons toward payment of approved food items at retailers which have been authorized by the FNS regional office. Most food products are eligible, with the exception of prepared meals.

Authorized retailers accept food coupons as payment for eligible FSP items. Retailers are responsible for separating FSP items, calculating the price, and receiving coupons and/or cash for the purchase amount. Change is provided in \$1 food coupons, and/or coin for amounts under \$1. The retailers prepare the food coupon deposit for their local bank by counting the coupons and completing a Redemption Certificate (RC) which details the dollar

value and provides a breakdown, by denomination, of the value of the food coupons in the deposit.

### **Redeeming Benefits**

After the recipient has provided the food coupons to the retailer toward payment of approved items, the coupons are deposited in the retailer's local bank. The financial institution accepts deposits from the retailer (consisting of cash, checks, and food coupons), processes the food coupons - verifying the amount on the RC with the actual coupons received from the retailer - and provides credit to the retailer's account based upon the verified amount.

### **Reconciling Transactions**

Various reconciliation functions are performed throughout the redemption process. The retailer must reconcile its bank deposit to account for all transactions during the day. The food stamp redemptions are totalled separately, and an RC is prepared for the deposit. Coupons are delivered with the RC to the local bank for processing and account posting.

Once the deposit has been made, the financial institution verifies the RC totals with the actual coupons received from each retailer. Credit is posted to each retailer's account and one Food Coupon Deposit Document (FCDD) is created for deposit to the Federal Reserve representing all food coupons received and prepared for deposit. The value of the FCDD should equal the total value of the RCs which in turn should equal the value of the food coupons. Coupons are bundled, sorting them by denomination, and strapping them in groups of 100. Incomplete straps (less than 100 coupons by denomination) are also deposited to the Federal Reserve.

The Federal Reserve accepts deposits from financial institutions and credits the financial institution for the amount of the FCDD. After the deposit is made, deposit verification is performed comparing the number and value of coupons received to the FCDD, and comparing the individual RCs with the FCDD. Based upon this verification, adjustments are made to the financial institution's account, as necessary.

Upon completion of the verification, the Federal Reserve creates a Debit Voucher (DV) to debit the FNS food stamp account for the total of food coupons redeemed by the financial institutions. The DV is equal to the sum of the FCDDs received and any necessary adjustments.

**Managing Retailer Participation**

Redemption data is audited by the FNS, corresponding to the debit to its account at the Federal Reserve. Federal Reserve and financial institution deposits are reconciled, and retailers are monitored for compliance with the FSP. The FNS is responsible for authorizing and de-authorizing retailer participation in the program.

**ON-LINE AND OFF-LINE EBT**

An EBT environment offers potential benefits to recipients, retail vendors, service providers, banks, States, and FNS. Currently, EBT is available on-line and off-line. On-line EBT generally relies on magnetic stripe card reader equipped Point of Sale (POS) technology or Automated Teller Machines (ATMs) to access a central database to authorize and disburse benefits. POS machines and ATMs typically connect through dial-up or leased lines to a network for authorization. ATMs connect through a network to the financial institution housing the account to provide services including deposits, balance inquiries, account transfers and cash withdrawals. All on-line services use telecommunications lines to connect to a central database. There are several off-line technologies available in the marketplace. These include: optical memory (laser) cards which can store large amounts of data, but are not reusable, token cards which contain a value amount which is reduced with each use, non-standard magnetic stripe cards which are similar in use to token cards, standard magnetic stripe cards, and "smart" cards. The current off-line EBT systems use smart card technology: a card, the size of a credit card, with a secure microprocessor memory circuit (chip) that holds benefit account information.

These smart cards contain a database of information on the chip which enable them to be used without the need to connect to a central database through a communications link. These cards could most efficiently handle the database needs of a WIC EBT system. One

account balance at the processor. In the event that the EBT card is lost or stolen, benefits can be replaced by verifying account information on this duplicate database.

In both on-line and off-line systems the transaction processing to initiate credit to the retailers occurs after a time defined by the processor to meet payment systems cutoff schedules. Several pilot demonstrations which combine various assistance programs in on-line and off-line systems are currently operational across the country. Several of these programs are outlined below, and were utilized in the development of FSP/WIC EBT models.

### **Food Stamp On-line Systems**

At the present time there are on-line food stamp pilot programs in Reading, Pennsylvania; Ramsey County, Minnesota; New Mexico, and Maryland. Recipients obtain benefits through POS terminals at authorized retail locations, and when cash benefit programs (such as AFDC) are included in the pilot, cash can be obtained through these POS terminals (as "cash back" for an amount in excess of the food purchase) and at specific ATMs (generally associated with a particular network or financial institution). Many of the on-line systems began as single application programs, expanding to include other applications using the same methodology.

On-line systems function by accessing a central database for authorization at the time of purchase or request for funds. When a food stamp recipient uses his or her EBT card to purchase food items, the retailer or the recipient swipes the card through a POS terminal. The recipient inputs his or her Personal Identification Number (PIN) to validate the card ownership, and a connection is made through a communication link to the central database (at the state level). Once the connection has been established, the dollar amount of the transfer is checked to validate that the recipient has sufficient funds to cover the purchase. At that time, if there are sufficient funds, the central system provides authorization, debits the recipient's food stamp balance on the database for the dollar amount, and at the end of the day creates a single credit to the previously designated account of the retailer for the total amount of credits processed through the on-line food stamp program that day. On-line programs tend to have batch settlement processes for the transfer of funds from the funding area to the retailer.

When a benefit recipient accesses his or her benefits using an ATM, the same basic on-line functions are performed. Only cash-based benefits can be accessed through an ATM. Access is provided through existing ATM networks, with no additional hardware interface.

The recipient inserts his or her card into the ATM, and enters a PIN. The information is transferred to the central database through the network for authorization of the requested amount. Once authorization is obtained, a message is sent back to the ATM to release the funds to the recipient. When the amount of benefits remaining in the recipient's account is less than the minimum that can be dispensed from the ATM, the recipient may obtain the benefits from a POS device at a retail location.

### **The Dayton, Ohio Off-line System**

A demonstration to test the applicability of smart card technology in the food stamp benefit delivery environment is being conducted in a six zip code area in Dayton, (Montgomery County) Ohio. Food Stamp clients in the demonstration area are provided with an EBT smart card. Benefit amounts are carried on the card. When a recipient makes a food purchase, the amount of the purchase is deducted from the balance on the card. The EBT demonstration system, known as the PayEase System, was developed by the National Processing Company (NPC).

The PayEase system operates over an off-line communications line. Since the benefits are carried on the card, the food retail store does not have to have on-line access to NPC's EBT host computer ("host") for authorization when a recipient makes a food purchase. The purchase is authorized if there is a sufficient balance on the card and the card is not on a negative file. The retailer accumulates transactions and transmits them in a batch file to the host.

The PayEase system has an automated interface to Ohio's automated eligibility system known as CRIS-E. Authorization files are transmitted to the host and are subsequently downloaded to designated food stores. On the designated day at the beginning of the month or any day of the month thereafter, new allotments are added to the card when the recipient inserts the card into an EBT terminal card reader at the food store and enters their PIN.

The primary functions of the off-line EBT system are described below.

**Card Issuance.** When recipients in the demonstration area are certified as eligible for food stamp benefits, training on the use of the EBT smart card is provided. The recipient is taught how to pay for eligible food items using the card in the food retail environment. The recipient is asked to provide a series of voice passwords, such as mother's maiden name, name of the eldest child, and eye color which can be used for security and identification purposes if needed. Finally, the client is asked to designate three stores in which they shop

frequently. New allotments are added to the card at any one of the designated food stores. The client is told on which day of the month the new benefits will be available.

Upon completing training, the recipient is given the Benefit Issuance Card (BIC). The card number is printed on the face of the card, and is carried on the chip. The card is tested to ensure that it is working properly. The recipient is then asked to select a four digit PIN. In order to encode the PIN on the recipient's card, the card is inserted into a card reader. The card reader reads the card number and the recipient then enters their selected PIN number on the key pad. The PIN is keyed twice to ensure accuracy. At this time a PIN offset number is written to the card. The card is then personalized with the recipient's name, photograph, and date of issuance. In the event that the recipient is not able to shop, they give their EBT card and PIN to their designated proxy to enable that person to complete the food purchase on behalf of the recipient.

**Authorizing Benefits.** Each month before the issuance date, the Ohio CRIS-E system generates a recipient food stamp authorization file. The file is transmitted to NPC's EBT host. The host processes the authorization files and downloads the issuance records to all three of the recipient's designated food store issuance sites. The benefits are loaded to the recipients card when the card is inserted into a card reader in one of the three designated food stores and the recipient enters their PIN. When an issuance record is written to a card, a special code is also written to the card so that a duplicate issuance will not be written to the card if the recipient shops at one of the other two designated food stores.

**Redeeming Food Benefits.** Once benefits have been added to the card at one of the three designated food stores or at the Montgomery County Department of Human Services, recipients can shop at any one of over 90 food stores in the demonstration area. When the recipient completes his or her shopping, he or she proceeds to the check out lane. In the check out lane the recipient inserts the card into the card reader and enters their PIN. If a new allotment is available it is written to the card and the allotment amount is shown on the receipt. The card balance is displayed on the card reader. The transaction amount is entered by the cashier on the cashier terminal. The recipient is asked to verify that the amount is correct. If the recipient verifies that the amount is correct, the value of the purchase is deducted from the balance on the card and a receipt is printed. The receipt shows the beginning balance, amount of the purchase, and the ending balance. A copy of the receipt is given to the recipient and a copy is kept at the store.

**Retailer Settlement.** The EBT purchase transactions are stored on a micro-computer (PC) in the back office at each store. One or more times a day, the retailer calls NPC's EBT host via a CompuServe line and transmits all new transactions since the last file was sent. The

host receives the transactions and updates the appropriate recipient account files. NPC prepares a file of credits for processing through the Automated Clearing House (ACH) network, providing credit to the retailer's account at their previously designated financial institution. The ACH file is processed by First National Bank of Dayton and sent through the ACH network for next day credit to the retailers' accounts.

**Final Settlement.** NPC uses the U.S. Department of Health and Human Services (DHHS) SmartLink system to request reimbursement for the retailer's credits. At DHHS, the request is verified against a standing Letter of Credit for the Off-Line EBT demonstration. If all is in order, DHHS transmits an SF1166 standard payment voucher by fax machine to the U.S. Department of the Treasury to notify it that the payment is being made. DHHS sends the credit to NPC through Federal Reserve ACH processing. Treasury sends a message to the Federal Reserve to debit the FSP Account.

**Reconciliation.** NPC transmits retailer transaction data to FNS's Minneapolis Computer Support Center (MCSC). MCSC inputs the transaction data into the FNS retailer redemption database and provides a summary report to the FNS Chicago Regional Office. DHHS also transmits a confirmation of payment to the FNS Chicago Regional Office. The staff at the regional office reconciles the payments made by DHHS SmartLink to the Summary Report generated by MCSC.

### **The Wyoming WIC Off-line System**

A demonstration system for WIC benefits was recently completed in the State of Wyoming. It is a limited system consisting of several hundred participants and four vendors in Natrona County. The system is based on smart card technology and micro-computer (PC) based POS equipment. The off-line system was developed by Applied Systems Institute, Inc. (ASI).

**Card Issuance.** Existing software at the WIC clinic is used to assign food prescriptions to each participant. The benefit package for the family is consolidated on a single card, in contrast to the paper-based WIC system in Wyoming where separate prescriptions were provided for each individual participant (i.e., mother and one infant would have two individual prescriptions). The smart card holds data identifying the cardholder and defining the quantity of each type of food prescribed for the participants during a specified time period. A micro-computer at the WIC clinic in Casper, Wyoming has a smart card reader/writer and is used to issue cards and WIC prescriptions. Prior to the first transaction at the vendor, participants are encouraged to test their understanding of the off-line system

through the use of a "sample store" at the WIC clinic. This provides hands-on training for the off-line system.

**Authorizing Benefits.** Consistent with the current paper based system, WIC benefits are provided for one or more months during the clinic visit. In contrast to the Ohio Off-line Food Stamp Pilot, subsequent months of benefits are not downloaded to any retail stores. One important aspect of the WIC program is the nutritional counseling and guidance provided at the clinic. The prescription on the card may however be replenished without a visit to the clinic in cases of imminent childbirth, severe weather conditions or similar circumstances which prohibit the participant from personally visiting the clinic. Under these circumstances, the staff at the WIC clinic use a "replenish" function on the Wyoming WIC PC-based system to calculate a special code for the smart card. This code is provided to the woman so that on her next trip to a vendor she can enter the code on the balance inquiry device prior to shopping. This code is decrypted by the terminal and compared with the information on the participant's smart card. If the terminal finds a match, the card benefits are replenished for one additional month.

**Redeeming Benefits.** Each vendor participating in the pilot program has a balance inquiry device, two POS terminals, and a micro-computer with a printer. The only exception is Edgerton which had only one POS terminal during the pilot demonstration. The balance inquiry device is identical to the POS terminal, and can function as back-up if the other POS device malfunctions. When a participant enters the store to shop, she uses the balance inquiry machine to obtain a list of the unfilled prescription, showing quantities of each food type available for purchase. The participant prints the prescription remaining on the card, and shops for the particular items that she wishes to obtain on that trip.

Upon completion of her shopping, the participant takes her purchases to the lanes designated for WIC. The cashier enters the smart card into the POS terminal, and the woman keys in the PIN she selected when the card was originally issued. Using a laser gun bar-code reader connected to the POS device, the UPC is read from each item, and based upon a match on the card, the item is deducted from the prescription list on the card. Upon completion of the transaction, the cashier enters the total amount of the WIC sale on the POS terminal. If this amount does not exceed the remaining maximum allowable value for the month (retained on the card), the sale is approved by the POS terminal, and a transaction number is provided for the cashier to annotate the sale according to store policy. The POS terminal prints a receipt of items purchased.

**Vendor Settlement.** A micro-computer at the State office polls each store's micro-computer between 12:00 noon and 1:00pm. An edit report is produced which is manually checked at

the State office to identify any items which might need to be modified. Transactions requiring corrections can be identified and adjusted by the store manager during the close-out process. Managers are authorized to make downward adjustments only. Any adjustments made by a store manager must be approved by the state WIC office prior to payment for the adjusted transaction.

Transaction data from the stores are transmitted to the State office where a database of WIC transactions is maintained on a micro-computer system. This database enables the creation of reports, data collation by authorized vendor, reconciliation of vendor issuance and WIC family records, and the creation of vendor payment information. The vendor information is provided on diskette to the American National Bank of Cheyenne on a floppy diskette. Information received by the bank before 5:00pm is sent through the ACH network resulting in funds being credited or debited to the vendor's specified bank account on the bank's next business day. The bank provides confirmation of the vendor payment and/or debit transfer to the State office on hard copy lists and/or floppy diskette. The small scale of the Wyoming WIC program enables use of micro-computer systems, and floppy diskette delivery of data to the bank. In a larger system, a micro-computer may not suffice due to volume, and additional data delivery vehicles (such as data transmission) would be required.

### **Hybrid Solutions**

The concept of hybrid technology is introduced to investigate the potential of utilizing on-line technology for processing FSP transactions and the financial portion of the WIC transaction while utilizing off-line technology for processing the food prescription inventory information. This combining of technology is hypothetically appropriate within states that have invested in or are planning to invest in on-line technology for food stamp and other benefit processing and are seeking to add-on a WIC EBT solution that provides an electronic food prescription capability.

The hybrid solution presents a methodology for limited integration of WIC program and FSP EBT by sharing the back-end financial settlement functions. However, while the solution calls for off-line authorization of WIC transactions, it does not eliminate the transaction-based telecommunications link and therefore incurs not only the additional cost of smart cards but does not eliminate the costly telecommunications processing associated with on-line systems. Furthermore, incorporation of off-line settlement into the WIC transaction is a very limited incremental development expense once the off-line terminals and functions are present.

This hybrid solution assumes that FSP recipients will receive only magnetic stripe cards and that WIC participants will receive cards with chips. While it is technically possible to incorporate both technologies on a single card, it may not be administratively useful to do so. A card that includes a magnetic stripe and a chip would accommodate both programs, however data cannot be shared between a magnetic stripe and a chip. If a recipient on the FSP becomes eligible for WIC, the WIC program would need to issue a new card with a chip and a magnetic stripe to the participant. They would then need to transfer the information from the stripe on the old card to the new card as well as enter all the WIC information on the chip. Conversely, if a WIC participant becomes eligible for food stamps, then the FSP would have to ask the recipient for the card and write the new information on the stripe. While both scenarios are feasible, the utility of a single card may be somewhat muted by the use of multiple technologies and may complicate processing at the point of sale since the same card would need to be used two different ways at the check-out lane.

### **COMBINED EBT PROGRAMS**

With the passing of the Farm Bill in 1990, on-line EBT became an operational alternative to paper delivery systems for the FSP. WIC has no law or regulation concerning EBT and states and the federal government are considering both on-line and off-line technologies. The Farm Bill is the frame of reference currently available concerning the EBT alternative. Several States are currently pursuing an EBT alternative claiming overall cost-neutrality or cost-effectiveness. Many on-line EBT pilot programs currently underway combine Food Stamp and other Federal and State assistance programs (such as AFDC, CSE, and GA). To accommodate these programs, recipients can receive cash back at the point of sale or at specified ATMs. Benefits of EBT are projected to be:

- Timely reimbursement to retailers and financial institutions;
- Reduced trafficking of coupons;
- Reduced administrative expenses for Federal, State, and local agencies as well as retailers; and
- Convenience for the recipients.

## **COMPARISON OF FUNCTIONAL REQUIREMENTS**

Within the five functional areas previously addressed (Authorizing Household Benefits, Delivering Benefits to Households, Redemption of Benefits, Reconciliation and Reporting, and Managing Retailers), the requirements of the Food Stamp and WIC Programs were compared to determine areas of overlap. Exhibit II-2, presented at the end of this section, provides a comparison of functional requirements. Since WIC does not have any EBT regulations, and only limited operating experience with EBT, many of the functional requirements are those outlined in the Food Stamp EBT (on-line) Final Rule. Not all of the FSP EBT functional requirements outlined in the Final Rule are included within this chart. The designation of "Stated as functional requirement" within the WIC Program section under "Basis for Requirement" denotes the interests of WIC Program management to provide a similar requirement within a WIC EBT system. A brief description of each of the requirements is provided below.

### **Authorizing Household Benefits**

#### **Benefit Carryover**

Food Stamp benefits may be carried over to the next month. In the current paper FSP system, food coupons are valid without expiration. EBT regulations specify that FSP benefits must be able to be carried to the next month, without expiration. WIC benefits are provided for a specific time period, and expire at the end of that time. WIC food instruments currently carry expiration dates which assist in monitoring the nutritional progress of the WIC participants by necessitating clinic visits at the expiration of the food instruments.

#### **PIN selection**

When issuing benefit cards (magnetic stripe or smart cards) for the FSP, the recipient or participant selects their own PIN with a minimum of four digits. FSP requires that the recipient select their own PIN to enhance the chances that the recipient will be able to remember the number. The WIC program does not have a requirement on PIN length or whether the PIN is selected by the participant or assigned by the WIC office.

#### **Card Replacement**

From time to time, recipients or participants may lose their benefit cards. The Food Stamp regulations specify that lost cards may be replaced for free or for a fee, as determined by

each State, but the fee should not exceed the cost of the card. In cases where fees are assessed, the fee may not be deducted from the food stamp household's benefit account, and the State agency must ensure that any fees collected are applied to the EBT cost center and reported as program income. In addition, the loss of the EBT card means that the household will not have access to any of their benefits until the card has been replaced. For this reason, FSP has established a two-business day replacement time frame for lost cards. WIC does not have a regulation on this issue.

### **Ease of Use**

The FSP requires that the system be easy to use for recipients, retailers, and state and local agencies. This provides an ease-of-use requirement for those individuals who need to access the system for benefits, information required to conduct their business, or administrative needs. It is expected that this will be accomplished through a minimal number of required keystrokes and informative screen prompts. In addition, the requirements of the Americans With Disabilities Act of 1990 will be considered to the extent that excessive costs are not incurred to modify the equipment or surrounding areas. While WIC does not have a specific regulation, ease of use for all participants, vendors, and administrative personnel is a concern of program management.

### **Issuance File**

Under FSP regulations, monthly issuance authorization files are received by the processor from the state welfare system to refresh household benefits. WIC food prescriptions are created by the local clinic or health agency based upon personal visits by the participant. These benefits are provided for two to three months at a time, however each prescription is valid for one month.

### **Expedited Funds**

In cases of extreme need, individuals may be certified for benefits without delay, and those benefits must be provided in an expedited manner.

## **Delivering Benefits to Households**

### **Benefit Availability**

This requirement pertains to how quickly benefits are made available to recipients and participants following certification, and on an on-going basis when benefits should be made available. The FSP EBT regulations state that benefits must be made available to recipients on the date and at the time of issuance, meeting the processing standards of the current paper-based system. WIC does not have a comparable regulation, however, at a minimum, current processing standards should be retained.

### **Issuance Problem Resolution**

FSP requires problem resolution for card issuance in a timely manner. There is no WIC requirement.

### **Benefit Conversion**

The FSP rules cover converting benefits from paper to EBT and vice versa as recipients move between benefit areas. At the present time, coupon recipients who move into EBT areas may be allowed to use their remaining coupons until conversion to EBT, at the discretion of the state. It is expected that this provision may change once EBT becomes more wide-spread. For recipients that move from EBT areas to coupon areas, there is a three business-day conversion time for areas that use centralized coupon distribution; one business-day for local inventory distribution. In addition, when recipients move from EBT areas to coupon areas, benefits must be converted to paper based upon the denominations available. This may result in benefits on the card which could not be converted to paper. The recipient is instructed to spend these EBT benefits within one week or lose them. WIC provisions vary by state, with some states specifying the vendor at which a participant must shop. In general, WIC participants who move out of one area are issued a "verification of certification" card which entitles them to be listed for benefits priority in the new area.

### **Backup Procedures**

FSP has established requirements for the provision of back-up procedures in the event of EBT system failure or downtime. Contingency plans should be developed as part of the State's security program, and should permit the timely resumption of benefit issuance with the least interruption possible of access to recipients benefits. While WIC does not have a

regulation on this issue, some type of backup procedures should be in place in case the EBT system is unavailable for any period of time.

### **Media**

FSP regulations state that once benefits are provided using EBT, the recipient cannot obtain paper coupons for the purpose of shopping outside the EBT area. Benefits may be converted when a recipient moves out of or into an EBT area, as explained above under "Benefit Conversion". WIC does not have a requirement concerning the splitting of benefits between paper and EBT for a participant, although WIC regulations state that benefit delivery systems must be procedurally uniform within the jurisdiction of the State agency.

### **Replacement Cards**

FSP requires the replacement of EBT cards within two business days following the report of a lost or stolen card. A longer replacement time may be allowed by the state agency receiving a waiver from FNS. An immediate hold should be put on funds in the account following the report of the lost or stolen card.

### **Redemption of Benefits**

#### **Lane Equipage**

FSP EBT regulations specify requirements for lane equipage to handle POS terminals. Specifically, all lanes of the retailer must be equipped if food stamp sales exceed 15% of total food sales at the retailer. If food stamp sales are under 15%, one terminal should be equipped for each \$11,000 (at supermarkets, \$8,000 at other retail stores) of monthly food stamp sales, with a maximum of the total number of lanes in the store. State agencies cannot require food retailers to purchase equipment or incur other costs as a condition of participation in the EBT system utilized solely for the FSP. In addition, FSP requires that no lane be designated as "food stamp only". WIC regulations do not have any particular deployment requirements. The only requirement that WIC has is that participants should be treated in the same manner as any other customer in the store.

#### **Transaction Fees**

FSP EBT regulations state that transaction fees should not be incurred by the recipient or participant when using EBT. This is consistent with the current paper system, where the

users do not incur a fee for using food coupons. The regulations do not stipulate transaction fees for retailers. WIC regulations specify that participants shall receive benefits without charge.

#### **Minimum value/Maximum transactions**

The FSP EBT regulations specify that there should be no minimum dollar amount for a transaction, nor should there be any limitations to the number of transactions within a given time period. WIC encourages complete purchase of the entire prescription, and as such would prefer no limitation to the number of transactions made during the effective date range of the prescription. In addition, a minimum dollar amount would not be specified for WIC since the prices of items on the prescription may vary from store to store, and the minimum transaction is a food item, rather than a dollar amount.

#### **Balance Inquiry**

Both FSP and WIC would like to provide recipients and vendors with the ability to obtain balance information without making a purchase. For FSP, there is a requirement to provide balance information, and for WIC it is necessary to be able to print a copy of the food prescription balance outstanding prior to shopping. In the Wyoming smart card pilot program, recipients can print a copy of their outstanding food prescription from a balance inquiry terminal prior to shopping. WIC participants need to know the remaining food prescription in order to purchase the appropriate items.

#### **PIN Encryption**

FSP EBT regulations require the encryption of the PIN from the point of entry so that an unsecured transmission cannot occur between any point in the system. The Data Encryption Standard (DES) algorithm should be used for encryption purposes. Additional security measures may be employed. WIC does not have any regulation concerning PIN encryption.

#### **System Response Time**

FSP on-line EBT requirements differ between leased line systems and dial-up systems. For leased line systems, the requirement is to process 98% of transactions within 10 seconds or less, and 100% within 15 seconds. For dial-up systems, the times change slightly to require processing of 98% of the transactions within 15 seconds or less, and 100% within 20 seconds. WIC regulations do not address system response times, however prompt response time offers benefits to the vendors and the participants. WIC EBT transactions should not take any

longer to process than WIC paper food instruments; EBT off-line systems should not take longer to process transactions than the on-line systems.

### **System Availability**

Under FSP regulations, the entire EBT system should be available 98.0% of scheduled time, 24 hours per day, 7 days per week. Scheduled downtime is allowed, but the scheduled time should occur during non-peak processing time. While WIC regulations do not specify any particular availability, it is clear that any EBT system should be available a high percentage of the time to assure participant convenience.

### **Retailer/Vendor Reimbursement**

The FSP EBT regulations state that credits should be provided to financial institutions within two business days of the daily cut-off time of the retailer. The financial institutions would in turn pass the credit to each retailer's account. WIC does not have any specific requirements, however prompt crediting of vendor's accounts is a benefit to program management.

### **Transaction File**

Under FSP EBT regulations, the concentrator bank is responsible for preparing the daily ACH tape (or transmission) which contains information on benefits redeemed and credits to the retailers. WIC does not have a requirement on who is responsible for creating the credit to the vendors' accounts.

### **Reconciliation and Settlement**

### **Management Reports**

FSP requires that management and reconciliation reports be made available from the system to enable the state to track EBT activity and properly monitor the system. WIC does not have any regulatory requirements, however financial reports showing price paid per item, and per total transaction, as well as reporting capabilities on an individual participant level (including benefits issued and redeemed) would be helpful to track nutritional aspects and to monitor vendors.

**EBT Transaction Activity**

FSP regulations require the ability to create and maintain an EBT transaction file, log and a log history.

**Retailer Tracking**

Reports should be available in accordance with FSP EBT requirements to track the total credits accumulated by each retailer, and to provide balance information to retailers or processors.

**Account Adjustments**

The EBT system for FSP must be developed to allow approved adjustments to recipient accounts by the State agency. WIC has stated that a functional capability of the EBT system is the ability for local agencies and clinics to make approved adjustments to food prescriptions.

**Reconciliation at Household Account Level**

FSP regulations require records of all benefits posted to household accounts and daily reconciliation of account activity.

**Activity and Complete System Reconciliation**

FSP regulations require the ability to reconcile account balances to account activity at the household level on a daily basis. In addition, each retailer's account should be able to be reconciled on a daily basis in total by store, as well as down to the POS terminal level.

**Audit Trail of Activity**

As is true in any program, the development of audit trails is critical to the EBT system. FSP EBT regulations require that an audit trail of all activity be implemented to enable system monitoring on an on-going basis. WIC regulations cover program audits at the federal and state levels.

## **Manage Retailer / Vendor Participation**

### **Open Opportunity to Participate**

According to the FSP EBT regulations, all authorized retailers must be afforded the opportunity to participate in an EBT system, however an authorized food retailer shall not be required to participate. This requirement includes stores serving minority language populations. WIC authorizes vendors as needed to ensure adequate participant access and convenience.

### **Training**

Consistent with the current FSP environment, FSP EBT requirements include State-sponsored training of newly authorized retailers. All on-going training of clerks is provided by the retailer. WIC regulations include a general vendor training requirement, with training provided by the State or local agency.

### **Timing of System Access Following Authorization**

FSP requires that access to the EBT system by an authorized retailer be provided within two weeks following authorization of the retailer by FNS.

### **Ability to Add Retailers / Vendors; Ability to Delete Retailers / Vendors**

Any EBT system must be flexible enough to allow the addition and deletion of authorized retailers and vendors. It is critical to maintain a dynamic list of authorized retailers and vendors since the list changes continuously due to additions, and investigation results. FSP requires this provision; WIC does not have a regulation.

### **Authorized User Access**

FSP regulations require that access by authorized retailers and third-party processors be ensured.

### **Compliance**

Program compliance monitoring is very important to FSP and WIC. It is critical to both programs that retailers and vendors be in compliance at all times. FSP regulations require that compliance exception reports be provided to FNS compliance officers and that access

to investigations by FNS compliance and OIG is permitted. WIC monitors vendor compliance from the state level.

### **Equipment Functionality**

In addition to the back-up procedures which are required, FSP requires that equipment and supplies be repaired or replaced within 24 hours.

### **Other**

#### **Industry Standards**

The FSP EBT regulations specify that the system developed meets American National Standards Institute (ANSI) or International Organization for Standardization (ISO) industry standards, as the standards evolve over time. ISO standards for smart cards are currently being developed. Although WIC does not have a requirement, any system that is developed should meet industry standards as they evolve.

#### **System Accuracy**

The EBT system should have no more than two (2) transactions out of 10,000 processed inaccurately according to FSP regulations. A high degree of accuracy is expected of a WIC system that provides benefits to participants, however no specific guidelines are set through regulations.

#### **Cost Neutrality**

FSP EBT regulations specify that the operational costs of an EBT system, plus the amortized cost of capital expenditures and other reasonable start-up costs, should not exceed the costs of the previous issuance system. Stating that "Congress has not authorized spending more Federal funds on EBT systems than is presently spent on the coupon system", FSP requires that the system be cost neutral regardless of the enhanced level of service and accountability for food stamp benefits that an EBT system would provide. In contrast, the WIC program does not have any requirement for cost neutrality.

### **Data Verification with Ranges**

As a component to system security, FSP requires that ranges be checked for acceptable data fields, number and valid account numbers, purchase and refund upper limitations to prevent and control damage to the system accounts. In addition to these checks, WIC favors checks on maximum dollar amounts per item, per prescription, and per account, although the manner of the controls is not specified. WIC is mainly concerned that the price charged for WIC items is not different from the price that other shoppers are charged by the vendor, and that benefits are used within the specified time periods to assure adequate nutrition.

### **Contingency Plans**

As would be the case in any system, FSP and WIC want contingency plans developed that would be followed in the event of system failure. This is a requirement in the FSP EBT regulations, however WIC does not have a stated requirement.

### **Performance Standards**

Both FSP and WIC need ways to monitor system performance standards. The FSP regulation specifies that the State agency is responsible for ensuring that the EBT system comply with POS technical standards established by ANSI or ISO where applicable. The State agency is also responsible for ensuring that the system meet performance and processing standards with respect to system availability and reliability, processing speeds, security, and ease-of-use. WIC does not have any regulations covering system performance.

### **Rebate Programs**

The FSP does not utilize a rebate program, and therefore does not have any provision in the EBT regulation concerning this issue. The WIC program currently has rebate programs in effect where manufacturers of infant formula (and other manufacturing firms in some states) offer rebates to the administering state agencies for sales of their products to participants.

Exhibit II-2 Comparison of Functional Requirements

Function	Requirement	Food Stamp Program		WIC Program	
		Program Specifics	Basis for requirement?	Program Specifics	Basis for requirement?
Authorizing Household Benefits	Benefit carryover:	Carryover to next month	Regulation.	Monthly benefits expire at set time.	Regulation.
	PIN selection:	Four digits, minimum selected by recipient.	Regulation.	Four digits, minimum selected by recipient.	Assumed to conform to FSP and/or commercial standards.
	Card replacement:	Replacement fee may be assessed, not to exceed cost of the card.	Regulation.	Replacement fee may be assessed, not to exceed cost of the card.	Assumed to conform to FSP and/or commercial standards.
	Ease of use:	For all Recipients and Retailers.	Regulation.	For all Participants and Vendors.	Stated as functional requirement.
	Issuance file:	Receive monthly issuance files from state welfare system to refresh household files.	Regulation.	Receive food prescription file from local health clinic for participants.	Regulation.
	Expedited benefits:	Process benefit issuance in expedited manner.	Regulation.	Process expedited certification of eligibility for some participants. Benefits must be issued upon certification.	Regulation.
Deliver Benefits to Households	Benefit availability:	On date and at time of issuance.	Regulation.	On date and at time of issuance.	Stated as functional requirement.
	Issuance problem resolution:	Timely response to issuance problems.	Regulation.	Timely response to issuance problems.	Stated as functional requirement.

Function	Requirement	Food Stamp Program		WIC Program	
		Program Specifics	Basis for requirement?	Program Specifics	Basis for requirement?
	Benefit conversion:	From EBT to coupons allowed when household moves out of EBT area. Benefits are rounded down to match paper coupon amounts; any remaining benefits on EBT card must be spent within one week, or forfeited.	Regulation.	May specify food vendor where participant receives benefits. Participants moving out of area are issued a "verification of certification" to provide benefit priority in new area.	Regulation.
	Backup procedures:	Provide backup procedures during downtime.	Regulation.	Provide backup procedures during downtime.	Assumed to conform to FSP and/or commercial standards.
	Media:	Cannot split benefits between paper and EBT.	Regulation.	Benefit delivery systems must be procedurally uniform within the jurisdiction of the State agency.	Regulation.
	Replacement cards:	Within two days of reported loss.	Regulation.	Within two days of reported loss.	Regulations specify no inconvenience to participant.
Redemption of Benefits	Lane equipage:	Equip all lanes if food stamp sales exceed 15% of total food sales. If under, one terminal for every \$11,000 monthly food stamp sales (maximum = number of lanes in-store).	Regulation.	No deployment requirement other than allow access at authorized vendors in manner that ensures WIC client is treated as other customers.	Regulation.
	Transaction fees:	No transaction fees to participants.	Regulation.	Participants receive benefits free of charge.	Regulation.

Function	Requirement	Food Stamp Program		WIC Program	
		Program Specifics	Basis for requirement?	Program Specifics	Basis for requirement?
Redemption of Benefits (continued)	Minimum value / Maximum transactions:	No minimum purchase amount, or maximum number of transactions.	Regulation.	Encourage fulfillment of food prescription. Need to allow subsequent purchase of unavailable items.	Stated as a functional requirement.
	Balance Inquiry:	Balance determination available without purchase.	Regulation.	Ability to print prescription balance prior to shopping.	Stated as a functional requirement.
		Balance displayed only at a "balance only" terminal. ("Balance only" terminals are not required by the EBT system).	Regulation.	Balance of remaining prescription items, not dollars.	Stated as a functional requirement.
	PIN Encryption:	Encryption of PIN from PIN pad using Data Encryption Standard (DES) algorithm.	Regulation.	Encryption of PIN from PIN pad using Data Encryption Standard (DES) algorithm.	Assumed to conform to FSP and/or commercial standards.
	System response time:	Leased lines systems: process 98% of transactions within 10 seconds or less; 100% within 15 seconds. Dial-up systems: process 95% of transactions within 15 seconds or less; 100% within 20 seconds.	Regulation.	Leased lines systems: process 98% of transactions within 10 seconds or less; 100% within 15 seconds. Dial-up systems: process 95% of transactions within 15 seconds or less; 100% within 20 seconds.	Assumed to conform to FSP and/or commercial standards.

Function	Requirement	Food Stamp Program		WIC Program	
		Program Specifics	Basis for requirement?	Program Specifics	Basis for requirement?
Redemption of Benefits (continued)	System availability:	Entire system available 98.0% of scheduled time, 24 hours/day, 7 days/week. (Allows scheduled downtime, at non-peak hours).	Regulation.	Entire system available 98.0% of scheduled time, 24 hours/day, 7 days/week. (Allows scheduled downtime, at non-peak hours).	Assumed to conform to FSP and/or commercial standards.
	Retailer/vendor reimbursement:	Credits provided to financial institutions within two business days of the daily cut-off time for the retailer.	Regulation.	Prompt credits provided to vendors for food costs.	Regulation.
	Transaction file:	Creation and transmission of ACH formatted file.	Regulation.	Creation and transmission of ACH formatted file.	Assumed to conform to FSP and/or commercial standards.
Reconciliation and Settlement	Management reports:	Ability to create management reports (hard copy or alternative agreed to between State Agency and FNS).	Regulation.	Same, with financial reports showing price paid per item and per total transaction, and management reports showing items purchased by individuals for clinic use in nutrition education.	Stated as functional requirement.
	EBT transaction activity:	Create and maintain an EBT transaction file, log and log history.	Regulation.	Create and maintain an EBT transaction file, log and log history.	Assumed to conform to FSP and/or commercial standards.

Function	Requirement	Food Stamp Program		WIC Program	
		Program Specifics	Basis for requirement?	Program Specifics	Basis for requirement?
Reconciliation and Settlement (continued)	Retailer tracking:	Total all credits accumulated by each retailer.	Regulation.	Total all credits accumulated by each retailer.	Assumed to conform to FSP and/or commercial standards.
		Provide balance information to retailers or 3rd party processors from individual POS terminals, as needed.	Regulation.	Provide balance information to retailers or 3rd party processors from individual POS terminals, as needed.	Assumed to conform to FSP and/or commercial standards.
	Account adjustments:	Allow approved adjustments to recipient account by State agency.	Regulation.	Allow approved adjustments to prescription at local agency/clinic.	Stated as functional requirement.
	Reconciliation at household account level:	Reconciliation of individual household account balances against account activities on a daily basis.	Regulation.	Reconciliation of individual household account balances against account activities on a daily basis.	Stated as functional requirement.
	Activity reconciliation:	Reconciliation of each retailers food stamp transactions per POS terminal and in total to deposits on a daily basis.	Regulation.	Reconciliation of each vendors food instrument transactions per POS terminal and in total to deposits on a daily basis.	Stated as functional requirement. Regulations specify actual price recorded at time of purchase.
		Verification of retailers' credits against deposit information entered into the ACH network.	Regulation.	Verification of retailers' credits against deposit information entered into the ACH network.	Stated as functional requirement.

Function	Requirement	Food Stamp Program		WIC Program	
		Program Specifics	Basis for requirement?	Program Specifics	Basis for requirement?
Reconciliation and Settlement (continued)	Complete system reconciliation:	Reconciliation of total funds entered into, exiting from, and remaining in the system each day.	Regulation.	Reconciliation of total funds entered into, exiting from, and remaining in the system each day.	Regulation.
	Audit trails:	Audit trails of activity.	Regulation.	Audit trails of activity.	Regulation.
Manage Retailer / Vendor Participation	Open opportunity to participate:	All authorized food retailers be afforded the opportunity to participate in any EBT program. (Must include stores serving minority language populations.)	Regulation.	All authorized food retailers be afforded the opportunity to participate in any EBT program.	Regulation specifies authorization to ensure adequate convenience and access for participants.
	Training:	Initial training of newly authorized retailers provided, on-going training provided by retailer (same as current).	Regulation.	Initial training of newly authorized retailers provided by State or local clinic, on-going training provided by retailer.	Regulation.
	Timing of system access following authorization:	Within 2 weeks of FNS authorization.	Regulation.	Within 2 weeks of authorization.	None specified.
	Add Retailers / Vendors:	Ability to add newly authorized retailers.	Regulation.	Ability to add newly authorized retailers by State office.	Regulation.

Function	Requirement	Food Stamp Program		WIC Program	
		Program Specifics	Basis for requirement?	Program Specifics	Basis for requirement?
Manage Retailer / Vendor Participation (continued)	Delete Retailers / Vendors:	Ability to delete disqualified or withdrawn retailers by FNS Regional Office.	Regulation.	Ability to delete authorized retailers by State office.	Regulation.
	Authorized user access:	Ensure access by authorized retailers and 3rd party processors only. Maintain authorization database.	Regulation.	Ensure access by authorized retailers and 3rd party processors only. Maintain authorization database.	Assumed to conform to FSP and/or commercial standards.
		Ability to certify 3rd-party processors.	Regulation.	Ability to certify 3rd-party processors.	Assumed to conform to FSP and/or commercial standards.
	Compliance:	Provide compliance exception reports to FNS compliance officer in charge.	Regulation.	Provide compliance exception reports to State vendor compliance officer in charge.	Stated as functional requirement.
		Permit access to investigations by FNS compliance and OIG (for compliance buys)	Regulation.	Permit access to investigations (for compliance buys)	Regulation.
	Equipment functionality:	Ensure equipment and supplies are repaired or replaced within 24 hours.	Regulation.	Ensure equipment and supplies are repaired or replaced within 24 hours.	Assumed to conform to FSP and/or commercial standards.

WIC/FSP EBT Feasibility Study

Function	Requirement	Food Stamp Program		WIC Program	
		Program Specifics	Basis for requirement?	Program Specifics	Basis for requirement?
Other	Industry standards:	Meet industry standards, as they evolve.	Regulation.	Meet industry standards, as they evolve.	Assumed to conform to FSP and/or commercial standards.
	System accuracy:	Main system accuracy: No more than 2/10,000 transactions processed inaccurately.	Regulation.	Main system accuracy: No more than 2/10,000 transactions processed inaccurately.	Assumed to conform to FSP and/or commercial standards.
	Cost neutrality:	Operational costs of EBT system, plus start-up costs, not to exceed operational costs of previous issuance system.	Regulation.	No cost neutral requirement.	None.
	Data verification, with ranges:	Range checks for acceptable dates, account numbers, refund upper limits, etc.	Regulation.	Range checks for acceptable dates, account numbers, refund upper limits, etc. Also check for maximum dollar per item, per prescription, and per account.	Stated as functional requirement.
	Contingency plans:	Contingency plans and backup procedures.	Regulation.	Contingency plans and backup procedures.	Assumed to conform to FSP and/or commercial standards.
	Performance standards:	Monitor system performance standards.	Regulation.	Monitor system performance standards.	Assumed to conform to FSP and/or commercial standards.
	Rebates:	None.		Report on the value and quantity of infant formula redeemed by brand and by vendor for rebate accounting purposes.	Stated as functional requirement.

### **III EBT MODELS**

#### **DIFFERENTIATING FINANCIAL AND MANAGEMENT TRANSACTIONS**

Point of Sale (POS) systems are generally designed to achieve two objectives. The first, and primary function, is to perform a financial function of transferring value from a card holder's account to the merchant. For example, when a debit card is used to pay for a purchase at a retail location accepting that particular debit card, a transaction is initiated which transfers funds from the appropriate customer's account at the bank that issued the debit card to the retailer's financial institution. The accounts which are used for the debit and credit have been previously designated; for the debit cardholder at the time of issuance of the debit card, and for the retailer at the time of agreeing to accept the debit cards. In a similar manner, withdrawing funds from an Automated Teller Machine (ATM) results in a transfer of funds from the customer's account at the financial institution that issued the ATM card to the financial institution that "owns" the cash in the ATM. When a customer uses their ATM card at their bank, the transfer of funds stays within the bank as a "book transfer" on the bank's books. If the customer uses their ATM card at another bank (which is part of a network to which the customer's bank belongs), the transfer of funds is between their bank and the ATM's bank.

The second function, which is often customized to meet the needs of individual retailers is to acquire information at the point of sale to feed marketing, inventory and other management processes. This acquisition of information is usually performed by integrating the POS device with an electronic cash register (ECR). For example, when a Sears credit cardholder makes a purchase, the store inventory system is automatically updated by "debiting" the specific item from a central database and updating a marketing database indicating the type of purchase, value of the purchase and how frequently the cardholder shops at each particular store. An additional benefit of integrating POS and ECR devices is to eliminate the need to separately key-in the purchase amount to effect the authorization and sale.

#### **Applicability to WIC and Food Stamp Program EBT**

Before discussing the applicability of integrated POS and ECR devices to either the WIC program or FSP, it is necessary to reiterate a fundamental difference in the nature of the benefit instruments. Food coupons, and thus FSP EBT authorization limits, represent discrete value and can be used in a manner similar to cash. In contrast, WIC food

instruments represent coupons exchangeable for specific grocery items. The value represented by the food instrument can vary based on retailer, location and date of purchase. Therefore, it is impossible to establish an exact price for a particular WIC food instrument prior to redemption.

Drawing an analogy to commercial processes, a food stamp EBT account is very similar to a bank account accessed with an ATM card. The cardholder is permitted to spend up to the remaining balance in the account. Each POS transaction is authorized against that remaining balance and each transaction results in a corresponding credit to the retailer's account (EBT systems typically accumulate all credits destined for a retailer into a single credit posted to their account that represents all EBT transfers for that day, as opposed to consumer ATM transactions which are posted separately regardless of the number of transactions made during the day). A WIC transaction must first be converted to value by the retailer and each *item purchased must be authorized against a specific list of eligible items* instead of a single dollar limit. Depending upon the configuration of the system, once the transaction is authorized, there may not be a difference in the flow of financial information and funds between a food stamp and WIC EBT transaction. In other words, once the retailer has established that the items purchased are authorized to be purchased by the participant and the retailer has established a value for the transaction, the transaction can be processed through the existing EBT system or through the commercial infrastructure to effect a credit to the retailer and a debit to a State account. Therefore, the challenge in determining the feasibility of a stand alone WIC or a combined Food Stamp/WIC EBT system is in conceiving a viable methodology for authorization at the grocer item level and the controlled assignment of value to the transaction.

This front-end authorization and valuation process may be accomplished in tandem with, but separate from, the financial transaction. The degree of integration of these two processes drives the conceptualization of various models.

Technical FSP requirements are met by the current food stamp EBT demonstration models. These models could support the financial transaction needs of the WIC program in an automated fashion. That is, these models could effect the transfer of funds from the State to the vendor based on a dollar value entered at the point of sale. Similar to the paper systems currently in place, they would not however, meet the broader need to ensure vendor compliance with pricing policies or the provision of purchase information to the local health clinic to enhance nutrition evaluation and training. Nevertheless, they provide a starting point for the feasibility assessment.

## **WIC/FSP EBT ALTERNATIVES**

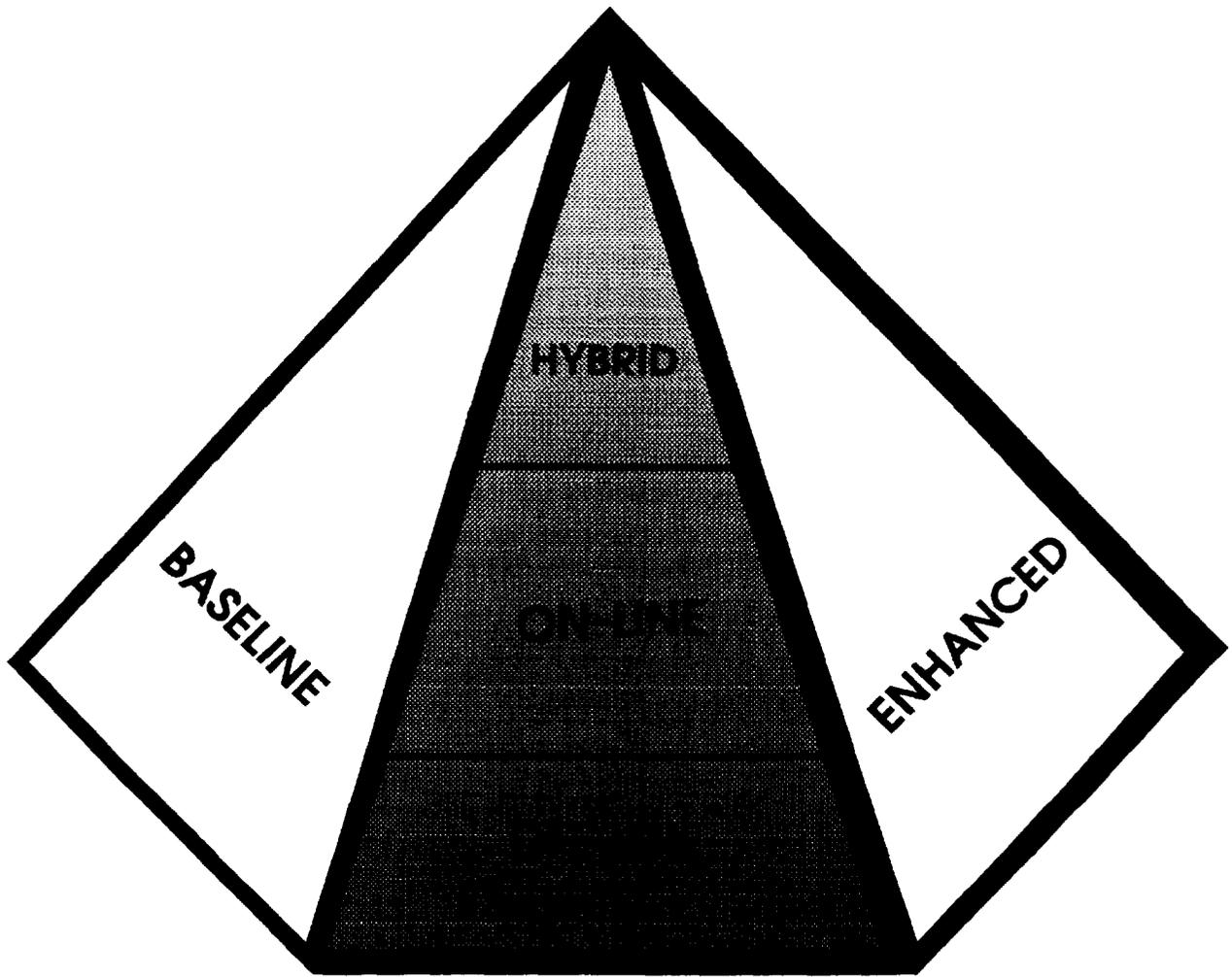
Exhibit III-1 presents a conceptual overview of the construct of alternative processing models that integrate WIC and FSP EBT systems. As this exhibit shows, WIC and FSP transactions can be processed using on-line, off-line, or hybrid technology. Each of these models is based on the observation that a WIC EBT transaction has two separate but related components. The first component is the maintenance and update of the food prescription. The second component is the translation of the delivery of food items into a dollar value and the resulting financial transaction that causes the transfer of value from the State to the retailer/vendor. Food Stamp transactions encompass only the latter component. Therefore, integration of WIC and Food Stamp EBT is focused on the financial transaction while the food prescription maintenance function is a WIC-only procedure.

The challenge in defining either a separate WIC or a combined WIC/Food Stamp EBT system is the conceptualization of the front-end food prescription inventory system. The "back-end" financial transaction settlement process is not significantly different from those processes used either in commercial debit and credit card structures or in existing Food Stamp EBT demonstrations. The electronic authorization of transactions (approval of a specific transaction based upon a pre-determined dollar limit) can occur either within the front-end food prescription inventory process or via an on-line or off-line authorization as part of the financial transaction. Food Stamp EBT demonstration systems and commercial debit/credit systems incorporate the authorization function as part of the financial transaction.

The development of any models must consider the needs of not just the FSP and the WIC program but the needs of the retailers/vendors as well. These needs are fairly basic but have substantial impact on the conceptualization of the models. Primary retailer requirements include:

- Compact size of any device or set of devices at the check-out counter. Check-out space is considered to be at a "premium" and any space not used for the conveyor, register and other equipment is used to promote products and sales. Therefore, EBT device integration with existing POS equipment for any new programs such as WIC or Food Stamps is considered highly desirable.

# WIC/FSP SYSTEM ALTERNATIVES AND TECHNOLOGICAL SOLUTIONS



*EBT Technological Solutions*

- **Minimized disruption of current check-out procedures.** The introduction of new check-out procedures implies the need for additional training. While this training is certainly feasible, it can be time consuming and expensive to the retailer, especially given high turnover and large part-time staffs.
- **Simplified POS processing.** Simplified processes, such as integrated scanning, single keying and automated recognition of WIC or Food Stamp eligible items tend to maintain a rapid flow through the check-out counter and minimize accounting errors. Integrated scanning processes tend to be utilized less frequently at small grocers who do not use scanning equipment or sophisticated ECRs. A primary motivation for retailers to interface existing POS devices with their ECRs is to eliminate the need for the cashier to re-key the dollar amount of the transaction. Re-keying the dollar amount requires an end of shift reconciliation of the cash box to the POS system as well as a reconciliation of the POS system to the bank credits. The more simplified the check-out process, the fewer errors and the faster throughput of customers. Both of these factors are concerns of the retailer community, regardless of the store type.
- **Timely credit of transactions.** Retailers/vendors generally operate with very small profit margins. Float on a transaction occurs from the time a sale is consummated to the time credit is received by the retailer. For example, float for a cash transaction occurs from the time of the sale to the time the cash is deposited in a financial institution, processed, and credited to the retailer's account. For cash deposits, credit is typically provided the day of deposit, provided deposit deadlines are met. Float for an EBT transaction occurs from the time of the sale to the time funds are credited to the retailer's account. Typically, EBT transactions incur a one to two day float, while float on checks is dependent upon the availability provided by the retailer's bank to the point on which the check was drawn. Therefore, a reduction in float is highly desirable.
- **Accurate credit of transactions.** Retailers/vendors generally balance each cash drawer to lane and each lane to the store and then balance each deposit to their bank statement. Any differences require performance of manual reconciliations that can be time consuming. Minimization of accounting errors and reconciliation requirements, while a normal cost of doing business, is desirable to the retailer community.

### **Baseline Model**

The Baseline model describes how WIC could be integrated with existing Food Stamp on-line or off-line EBT systems at minimal cost. Because the Baseline model primarily addresses the back-end financial transaction and maintains the use of paper for the front-end food prescription inventory, the Baseline concept would automate the payment to the vendors and eliminate the processing of paper WIC food instruments through the payment system. There are two reasons for presenting a "Baseline Model" that continues to utilize a paper food prescription voucher:

1. It presents a potential method to improve the processing of vendor WIC redemptions by utilizing an existing FSP EBT or commercial POS system; and
2. It presents a starting point for the building of EBT models that meet the requirements of WIC as well as the FSP. The Baseline model, which is based on existing FSP EBT systems, meets the requirements of the FSP. Other proposed models accommodate the addition of the WIC front-end food prescription inventory functionality (*the electronic prescription*) and meet the full authorization and settlement requirements of both programs through electronic means.

The Baseline process is modelled after the current on-line and off-line EBT demonstration systems.

### Authorizing Access to Benefits in the Baseline Model

Authorizing access to benefits begins with the establishment of a recipient or participant "account" within a centralized database. In an on-line system the centralized database resides at the processor; in an off-line system the benefit information is downloaded to the recipient's card and a duplicate file is retained at the processor. This duplicate file is updated when purchase information is collected from the retailer/vendor, enabling the replacement of benefits if a card is lost or stolen. The central database accounts are used to track and authorize recipient transactions. Food Stamp accounts are established by the State or county welfare agency by providing a file of certified recipients to a central processing organization. Each month, the food stamp allotment is added to the account which establishes a new maximum amount which the authorization cannot exceed. As the recipient purchases eligible food items, the account is "debited" for the amount of each purchase, thereby reducing the available balance.

WIC accounts could either be established by the State or by a local health clinic by providing a file of certified participants to the central processing organization. Since participants are certified throughout the month, the central processing organization would receive numerous files during a month, creating one central file. This file could be updated with new WIC food prescriptions on a monthly, semi-monthly or more frequent basis. The "allotment" amount could be established by calculating a maximum value for the prescription (in the same manner that many current food instruments include a "not to exceed" amount on the face of the instrument). This maximum amount should be customized for each prescription to allow the tightest parameters for authorization. Each WIC transaction would be authorized against the amount in the account and the account would be debited for the actual value of the transaction. Unlike Food Stamps, the benefits are for a specified period of time, and any unused food prescription amount becomes void at the end of that period. Food prescriptions would be provided to the participant via a paper document listing the individual items and the start and end date of validity. The account authorization could be structured to reject transactions that occur before or after these dates.

The WIC program requirement specifying that participants visit the local health clinic on a regular basis for health evaluations and nutrition education could be fulfilled by controlling both the issuance of the certified file and the paper food prescription. If the participant did not visit the clinic, her record could be held in a suspense file and would not update the EBT account.

For both the WIC program and FSP, authorizing benefits in an off-line environment requires a series of additional steps. Prior to the day the benefits are available for use by the recipient or participant, the central processing organization would transmit the authorization limit for each recipient or participant to selected retailers and/or vendors. This issuance file would need to segregate WIC and Food Stamp authorization amounts, but would be sent to the same locations. The selection of the retailer or vendor location could be made either by the recipient, by the participant or by the local health clinic. The purpose of this transmission is to provide a mechanism to transfer the benefits to the card. The dollar value of WIC benefits could be transferred to the card at the local health clinic to promote participant visits, though in the Baseline model, the participant would still need to visit the clinic to receive a paper food prescription.

The maximum value assigned to the food prescription would be loaded to the card the first time it is presented at the POS terminal after the issuance date of the benefits. Alternatively, WIC benefits could be loaded onto the participant's card at the time of their visit to the WIC clinic. At the present time more than one month's worth of WIC food instruments are provided at the time of the visit; the same benefits could be loaded onto the

card at this visit. The POS terminal initiates a transaction either within the terminal itself, or through a local area network in the retailer location to determine if there are benefits staged for issuance. If there are, the terminal would check the card to determine if the benefits have already been posted. If they have not been posted, the transaction would be completed and the account "balance" on the card would be incremented for the value of the new benefits.

#### Delivering Benefits in the Baseline Model

Delivering benefits, or converting the benefit instrument into usable value, is performed at the point of sale in any EBT model. The benefit instrument for food stamps within the Baseline model is the EBT card (and PIN) in combination with the EBT account at the central database. The benefit instrument for WIC within the Baseline model is the EBT card (and PIN), the EBT account at the central database and the paper food prescription provided by the local health clinic. While this solution could be considered as an alternative, EBT presents an opportunity to enhance program efficiency and effectiveness through the capture and transfer of information beyond simple value.

For both food stamp and WIC transactions, the recipient/participant would shop as they normally do under the paper systems. WIC participants would be encouraged to fulfill the full prescription at one time, although the model does accommodate multiple purchases if a particular item is unavailable. Under the paper-based system, multiple WIC food instruments are provided for a month's worth of benefits. Each food instrument typically represents a week's worth of purchases, reducing spoilage of fresh products before they can be used. Since the EBT card value would be the total value of the benefits for the month, the paper food instrument provided in the Baseline model may continue to represent the smaller units, or could be combined to the total amount of benefits for the month.

At the check-out counter, the recipient/participant would separate WIC and food stamp items as required by the retailer/vendor. WIC transactions would, at this point, require the cashier to verify that the items are available on the participant's paper food prescription. If less than the full prescription is purchased, those items that are purchased could be "checked" on the prescription using indelible ink, or punched. If the full prescription is purchased, either all items could be "punched" or a box indicating a full purchase could be used. In order to effectively incorporate these procedures, the quantities listed on food prescriptions should be modified to facilitate marking the instrument (for example, instead of two gallons of milk, list four one-half gallons).

The paper prescription could be retained by the participant and surrendered at the health clinic at the next visit, as a means of enhancing nutrition education and tracking purchases. This increases the responsibilities of the participant, and requires the use of an honor system to ensure that food instruments were not modified to reflect purchases that were not made, or otherwise circumventing the nutrition evaluation benefits of returning the used food instruments. Sample audits of surrendered food prescriptions to participant transaction files could be performed to assist in vendor compliance monitoring.

In an on-line environment, the recipient/participant swipes the card through the POS device and enters his or her PIN. The cashier enters the transaction type and the amount of the transaction which the recipient verifies. Upon verification, a message is sent to the central database for authorization and posting to the account. The amount of the purchase is authorized against the available funds within the account. If there are sufficient funds, an acknowledgement message is sent back to the POS. If there are non-sufficient funds in the account, a denial message is sent. If the transaction is authorized, the account is "debited" for the purchase, the retailer account is "credited" and the POS device prints a receipt confirming the transaction. Actual debit is provided when funds are requested by the processor of the central account through a concentrator bank and actual credit is provided to the retailer through the Automated Clearing House (ACH) by the creation and transmission of an ACH file from the central processor to the concentrator bank each day.

In an off-line environment, the recipient/participant inserts the card through the POS device and enters his or her PIN. This process establishes a link between the card and the terminal and, if required, a local area network at the retailer/vendor. The link is used to determine the available value of benefits on the card, the presence and processing of any staged issuances, and validation that the card is not on the negative file. Negative file information can be downloaded to each retailer/vendor during the time that the transaction information is sent to the Processor. The cashier enters the amount of the transaction and the type of transaction (FSP or WIC) both of which are verified by the recipient. Upon verification, the amount of the purchase is authorized against the available funds within the food stamp or WIC account held on the card. If there are sufficient funds, an acknowledgement message is sent back to the POS. If there are non-sufficient funds in the account, a denial message is sent. If approved, the value of the transaction, the type of transaction and transaction trace data such as location, time and unique number are recorded on both the card and a local retailer/vendor database and the POS device prints a receipt confirming the transaction. Actual debit is provided when funds are requested by the processor through a concentrator bank and actual credit is provided to the retailer through an ACH file transmitted at the end of each day.

If the customer is both a food stamp recipient and a WIC participant, the same card could be used to access both accounts by utilizing two transaction codes at the point of sale. However, each transaction must be processed separately to facilitate posting to the appropriate account.

#### Redeeming Benefits in the Baseline Model

Redeeming benefits results in the reimbursement to the retailer/vendor for the value of the transaction. In the Baseline on-line model, the central processor accumulates all food stamp and WIC transactions for each retailer, including purchases, refunds, and any other transaction types and calculates a net credit (or debit) due. This amount is included in a file processed by the concentrator bank (which could also be the central processor) through the ACH, resulting in an electronic credit to the retailer's financial institution through the ACH network. In current EBT demonstration systems the offsetting debit to these credits is a debit to an account at the concentrator bank. Coincident with the submission of the ACH file, the central processor requests funds from the Federal government for the sum of the net credits to retailers for food stamp transactions and would request funds from the State for the sum of the net credits to vendors for WIC transactions. The central processor could be authorized by the State to make the request for WIC funds directly from the government at the same time that the request is made for FSP funds. Depending upon the State's agreement with FNS, the State or central processor's request for grant funds to finance the WIC benefits at this time would ensure compliance with the Cash Management Improvement Act (CMIA) by receiving WIC funds coincident with the crediting of vendor accounts for purchases. The funds would be credited to the same account at the concentrator bank to which the offsetting debit entry was posted.

Alternatively, WIC transactions could be sent to the State prior to submission of an ACH file if the State currently processes WIC vouchers directly. In this case, the State could review the transaction listings and either prepare and submit an ACH file for processing or pass the file back to the processor for ACH submission.

There are two fundamental differences between on-line and off-line processing concepts for processing the financial transaction:

- The first is that on-line systems perform *on-line authorization* in which the POS terminal initiates a telecommunications link to a central database to check on the availability of funds while off-line systems authorize transactions between the terminal and the card without the need to access telecommunications links. The theoretical advantage of *off-line authorization*

is that it could eliminate transaction fees associated with processing on-line transactions.

- The second difference is that at the time of authorization, on-line systems post debits directly to a recipient or participant account held within a central database and credits directly to a *due-to* account set up for each retailer or vendor at the central processor. Off-line systems store the transaction data at the vendor/retailer location for batch transmission to a central processor. Again, the primary advantage of an off-line system is the avoidance of fees for each transaction.

In the Baseline off-line model, each retailer/vendor accumulates FSP and WIC transactions, including purchases, refunds and any other transaction types. At the end of each processing day, the retailer/vendor initiates a batch transmission including all transaction data to a central processor. The processor then calculates and submits an ACH file in the same way as in the on-line example.

#### Reconciling Benefits in the Baseline Model

Food stamp transactions are reconciled first at the transaction level and then at the retailer credit level. Each day, the central processor reconciles all recipient transactions to the retailer credit as input on the ACH file. The retailer credits and offsetting debit information is transmitted on a regular basis to FNS where the debit is balanced to the debit to the Treasury account at the Federal Reserve. The retailer credit information is used to update central retailer monitoring systems that are maintained by FNS.

WIC transactions could be similarly reconciled at the retailer credit level. Each day, the central processor reconciles all transactions to the retailer credit as input on the ACH file. The credit and offsetting debit information is transmitted on a regular basis to the State where the debit is balanced to the debit to the State account held by a fiscal agent. The retailer credit information could be used to update vendor monitoring systems that are maintained by the State.

For both WIC and Food Stamps, retailers/vendors would be responsible for reconciling the credit to their financial institution with their internal store totals.

In an off-line system it is also necessary to reconcile EBT card data to the recipients' and participants' accounts held on the host (central) computer. As previously discussed, the central database maintains a mirror account for each participant and/or recipient to assist

in reconciliation and to provide back-up in the event of a lost or stolen card. The beginning balance in each account is established from the issuance file submitted by the State or local agency. Each account is updated on a daily basis from the settlement transactions that are transmitted from each retailer/vendor. Included in the settlement transmission are all transactions performed at the point of sale as well as ending balances for each card after the transaction has taken place. Therefore, after update, the central database account should be in synch with the card balance. Differences may occur as a result of manual transactions (transactions processed outside the system in the event of system outages) or other system failures. These differences are identified and reconciled on a daily basis.

#### Managing Retailer/Vendor Participation in the Baseline Model

While the organizational requirements for retailer or vendor management are significantly different in the WIC program and FSP, the database management processes under EBT could be fairly similar. WIC vendors would be established in the central database by the State. The State would provide a file of authorized vendors to the central processor who could then install equipment if necessary and download any needed software to each terminal or store location. On-line transactions from any terminal or store location of a de-authorized vendor could be locked out at the central database. With off-line systems, any transmission at the end of the day from a vendor that had been de-authorized would be rejected by the processor. Authorization and de-authorization of Food Stamp retailers would be accomplished using the same process with files sent by the FNS Regional or Field Office.

In an EBT system, retailer compliance monitoring procedures for both programs would be substantially different from those used for a paper-based system. FSP compliance procedures are enhanced under EBT since EBT provides transaction level data as well as store "deposit" data. Trafficking of food stamp benefits may be detected through analysis of transaction amount patterns and shopping patterns.

WIC vendor compliance monitoring includes two components: First, ensuring that only those items that are actually purchased are in fact being charged for by the vendor; Second, ensuring that the vendor does not inflate the price for items purchased by WIC customers. Any overcharging by vendors results in an actual loss of funds to the WIC program which results in a reduction in the number of participants that could potentially be served. Current vendor monitoring procedures, including compliance buys and on-site monitoring visits, would be followed.

The Baseline model could provide a higher degree of accountability than the current paper food instruments. However, this control is predicated on the assumption that maximum values of each monthly food prescription can be established and used as the authorizing limit within each participant's account. One benefit of the EBT system is that the participant would be able to make a partial purchase of benefits, and return at a later time to purchase the remainder of her benefits. If dollar limits were established for each food prescription and reduced for each transaction, then overcharging by vendors would result in depletion of the account prior to fulfillment of the prescription or denial of the transaction. For example, if a participant does not purchase the full prescription on the first visit to a particular vendor, and that vendor submits a transaction for the full food instrument as if it had been completely filled, then the participant's subsequent purchases could be denied. The participant would inform the health clinic that their benefit had been denied which could trigger an investigation. Similarly, since the vendors would not know the authorization limit, inflating prices could lead to the rejection of a transaction. Thus, the Baseline model somewhat shifts the burden of vendor compliance monitoring to the participant.

It should be noted that diversion of benefits, using food stamp or WIC benefits to purchase other than the eligible or specified items at an authorized retailer or vendor, may not be significantly curtailed with the Baseline EBT model. The retailer will remain responsible for ensuring that only these items are purchased.

Exhibit III-2 lists the potential advantages and disadvantages of the Baseline models relative to the current paper based systems.

Exhibit III-2 Advantages and Disadvantages of the Baseline Concept	
Advantages	Disadvantages
<p>Does not require substantial changes to local health clinic or State voucher preparation processes</p> <p>Presents a low cost alternative to WIC EBT for States that are investing in on- or off-line food stamp EBT systems</p> <p>May enhance WIC vendor accountability by the "policing" of vendors by the participants</p> <p>May enhance WIC participant nutrition education opportunities by return of the food prescription at clinic visits</p> <p>Allows the issuance of a single card to WIC participants who are part of food stamp households</p> <p>Facilitates complete fulfillment of food prescriptions by participants</p> <p>Allows flexibility in retail processing capability at the point of sale since the system is not UPC- or quantity-sensitive</p> <p>Provides timely and accurate credit to vendors</p> <p>On-line systems share a common POS platform with on-line food stamp EBT and commercial POS products, eliminating the need for additional equipment at the retail site</p> <p>Off-line technology may avoid transaction fees associated with on-line transactions</p>	<p>Does not provide individual item price validation</p> <p>Does not track volumes of specific brands sold for rebate accounting</p> <p>Requires continued issuance of paper food prescriptions at each local health clinic</p> <p>Maintains vendor cashier role of monitoring WIC item eligibility</p> <p>Introduces new "check-off" procedure at retailer check-out lanes</p> <p>Participants may misplace food prescriptions either before purchase, necessitating replacement, or after purchase, limiting nutrition education feedback and the option to monitor food instrument use</p> <p>Requires use of maximum dollar limits on food prescriptions that may result in valid purchases being rejected</p> <p>Does not change possibility of vendor abuse by overcharging food prescriptions, leading to fewer eligible individuals being allowed to participate in WIC program.</p> <p>Off-line system does not take advantage of the functionality available through smart card technology to automate the food prescription inventory process.</p>

### **The Enhanced WIC EBT Concept**

The primary questions to be answered in the conceptualization of WIC EBT solutions are:

- Where will each participant's food prescription file reside?
- How will this file be accessed?
- How will the file be updated?
- How will the price and product information be acquired and validated against the food prescription file?
- How will the financial information be transferred to result in prompt credit to the vendor?
- How can these steps be accomplished in an on-line or off-line environment to take advantage of FSP EBT systems currently being conceived or developed?

The Enhanced WIC EBT concept builds upon the features of the Baseline models through the addition of electronic prescription alternatives. During the course of the study, with the input of industry focus groups and interviews with industry experts, several alternatives were examined. Many of these alternatives were deemed to be technically or operationally infeasible. For example, a primary on-line model candidate required that an interactive link be established between the point of sale (the check-out lane) and a processor. As each item was scanned, the UPC would be transmitted to the processor, converted to a product code and checked against the participant food prescription record. If the item was authorized, an authorization message was returned; if the item was not authorized, a denial message would be returned. It was the opinion of the majority of the experts that this system would entail high telecommunications costs, delays at the check-out counter, and potentially dedicated POS terminals.

Another on-line option investigated the potential to scan all WIC items at the point of sale and then transmit the set of UPCs in a batch transmission to a host. The host processor would authorize or deny each item and return a detailed message to the check-out lane. This alternative reduced the cost of telecommunications but still required that a new, extended format be implemented in POS networks or that the POS terminal be dedicated to the program. The general opinion was that this system could also result in significant

delays at the check-out lane, but that, as networks implement Electronic Data Interchange (EDI) capabilities, it may become more feasible.

A third on-line option required that WIC participants select (or be assigned) a single store in which to shop for WIC items. Each voucher period, the State would download the prescription file to this site where the information would be stored on a PC at the store. The participant would use a magnetic stripe card at the check-out lane to access this file for authorization. This system was deemed the most feasible of the three, but did not appear to be practical since it would significantly restrict the *flexibility* of the State and the participant by requiring that a participant only use one store for all WIC purchases (note that some States currently specify using only one store).

The on-line and off-line models that emerged from the study are very similar in terms of functionality at the point of sale. The primary distinction is where the participant's food prescription file is held. In the off-line alternative, the file is held on the individual's card. In the on-line alternative, the file is held within a host computer at a central processing site. In either case, the file is downloaded to the in-store WIC prescription management system to be used during the check-out process. Options for configurations of this in-store system are described below under the section *In-Store Configurations*. In general, these configurations include a communications module that serves as the link between the store and the external networks and processors, a participant prescription management module that accepts the food prescription file and manages the validation and update of individual food items, and a UPC conversion module that converts standard UPCs to WIC product codes. This latter module is necessary because while a WIC voucher may specify eight ounces of domestic cheese, there are likely to be numerous items with UPCs that could fit that description.

#### Authorizing Access to Benefits in the Enhanced WIC EBT Model

Authorizing access to benefits in this model is identical to the process in the Baseline model and begins with the establishment of a recipient or participant "account" within a centralized database. This account is used to track and authorize recipient transactions. FSP accounts are established by the State or county welfare agency by providing a file of certified recipients to a central processing organization. Each month, the FSP allotment is added to the account which establishes a new maximum amount which the authorization cannot exceed. As the recipient purchases eligible food items, the account is "debited" for the amount of each purchase, thereby reducing the available balance.

In an on-line environment, WIC accounts could either be established by the State or by a local health clinic by providing a certified file to the central processor. This file could be updated with new WIC food prescriptions on a monthly, semi-monthly or more frequent basis, with each food prescription including start and expiration dates. The WIC food prescription information must include food categories, quantities, and maximum price per item (or maximum amount of the monthly food prescription). In addition, the central processor would need to maintain a cross-reference table of food categories to UPCs since multiple UPCs may pertain to one food category. The central processor would update each participant account from these files and then authorize transactions from the updated records.

The WIC program requirement for participants to visit the local health clinic on a regular basis for health evaluations and nutrition education could be fulfilled by controlling the issuance of the certified file. If the participant did not visit the clinic, her record could be held in a suspense file and would not update the EBT account.

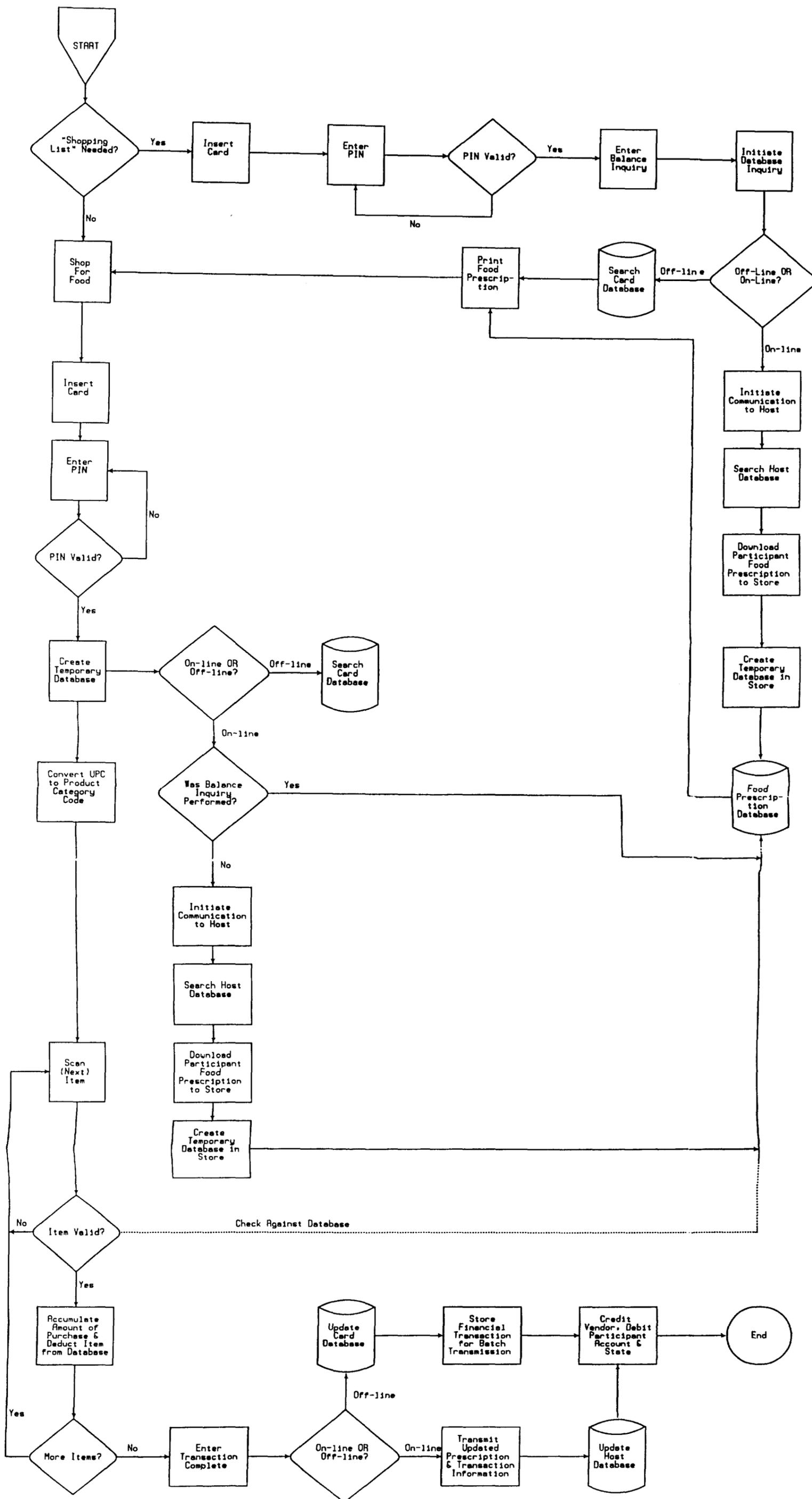
In an off-line environment, the food prescription database would be held on the participant's EBT card. Therefore, the benefits would need to be transferred (or "loaded") to the card each month<sup>3</sup>. This loading of the card could be accomplished at either the local health clinic or a set of locations specified by the health clinic or the participant. The food prescription database would contain food categories, quantities, and maximum price per item.

#### Delivering Benefits in the Enhanced WIC EBT Model

Exhibit III-3 provides a description of the flow of data that occurs at the time of a WIC purchase at an authorized vendor. The off-line flow is based upon the experience of the Dayton Off-line FSP demonstration and the Off-line WIC demonstration in Wyoming. Because there are no comparable working models of an on-line WIC system, the on-line flow is based upon a conceptual design derived from discussions with industry experts. The first decision box suggests that many WIC participants will want or need to print out a current copy of their food prescription. This could be accomplished through an in-lane terminal that

---

<sup>3</sup> The timing of the application of the food prescription to the card can be set on a local basis. The Wyoming model allows two months food prescriptions to be loaded onto the card at one time and, in the event the participant cannot visit the local health clinic, a code can be used at the point-of-sale to "unlock" an additional month's benefits. The technology permits as many months of data as desired to be loaded onto the card. Alternatively, benefits can be downloaded to specified locations on a monthly basis for pick-up by the participant as in the Ohio Food Stamp demonstration model.



is not being used or through a stand alone balance inquiry terminal. If the participant elects to print out the prescription, they would enter their card and PIN. In an off-line environment, this would trigger an interaction between the terminal and the card to search the card database. In an on-line environment, this would trigger a communication to the host processor to search the host database for the participant's food prescription. The host would respond by downloading a copy of the participant's food prescription file to the store and printing the "shopping list". The host would recognize that the file has been downloaded and would need to "lock" the file to prevent duplicate transactions.

The participant completes her shopping for the items and brings them to the check-out lane. At the check-out lane, the participant would be required to insert her card and enter her PIN before any items were scanned. This would trigger the system to create a "temporary food prescription database". In an off-line environment, this database would be created by downloading the prescription file from the card to the participant food prescription management module resident either in the terminal (if it had sufficient intelligence or memory) or within an in-store computer. In an on-line environment, the system would search the in-store computer to determine if the participant had already requested a "shopping list". If they had, then the participant's food prescription file would already be resident within the store computer and no further action would be required. If they had not, the system would initiate a communication to the host which would download the file to the store level and "lock" the file at the host. The process of downloading the food prescription file to a temporary database enables on-line processing without the need for interactive communications to verify each item. Parameters for the download of this information, including the length of time the file is retained in the vendor's database from the time the shopping list is requested, would need to be established in a processing environment.

The next step in the purchase would be to scan each item's UPC. While it is technically feasible to scan all items and accumulate the value of WIC items to one total and the value of non-WIC items to another total, it may be more practical to separate the WIC purchase from the non-WIC purchase prior to scanning. This separation would accomplish two objectives. First, it would simplify processing for the cashier, since the WIC total and WIC transaction could be completed as a separate transaction. Second, it would limit the communications to the WIC system. In addition, if WIC items were not separated, the system would need to assume that the first item scanned that meets the product code criteria is the one to be charged to the WIC "account".

As each item is validated as an authorized item for that participant, it would be deducted from the prescription and the value of the item would be accumulated to the total of the WIC transaction. Since WIC food prescriptions include quantities, the quantity of the

purchase must also be deducted from the total outstanding authorized amount of the food item. Upon the completion of the transaction, the system would update internal financial and management records. In an off-line environment, the total value of the purchase would be posted to a pending settlement file for transmission to the processor host at the end of the settlement period. In an on-line environment, the total value of the transaction and the updated food prescription (or the purchased product codes and quantities) would be transmitted back to the host at the completion of the purchase. At the host, this data would be used to update the participant food prescription record and to post a "due to" to the retailer's account. The participant file would be "unlocked" at this time. It is necessary to upload the purchase value and updated food prescription at the completion of the transaction to ensure that the participant's account remains up to date in the event that additional purchases are made during the same day.

One concern in the on-line environment could be how to handle situations in which a participant that performed a balance inquiry leaves the store before completing a WIC purchase. Since the file was locked after the balance inquiry, the participant would not be able to access benefits at another store. A possible solution would be to implement a "time-out" feature that would "return" the participant food prescription to the host after a set amount of time had elapsed. If the participant was still in the store and entered her card after this time, the file could be re-downloaded.

There are key considerations between the on-line alternative and the off-line alternative. In the on-line environment, each WIC transaction will require two transmissions to a host computer (one to download the prescription, another to upload the purchases or the resulting outstanding prescription amounts) each of which will incur telecommunications costs. In addition, due to specific information (e.g., food product code, quantity, maximum dollar amount) transmitted for WIC items, it is unlikely that any existing data format will accommodate the required WIC download or upload of detailed prescription information and therefore, utilization of commercial POS networks or third party processors could be problematic. On the other hand, if the vendor and/or State has already implemented an on-line system, then the addition of an off-line system to accommodate WIC would require additional equipment including smart card reader/writers and potentially enhanced terminals at each check-out lane.

#### Redeeming Benefits in the Enhanced WIC EBT Model

As in the Baseline models, redeeming benefits results in the reimbursement to the vendor for the value of the transactions. In on-line and off-line systems, the central processor maintains a "due to" file for each participating vendor. Throughout the day on-line systems

collect information regarding purchases as they are authorized. Off-line systems upload information to the central processing site at pre-determined times of the day. At the end of each settlement cycle, the processor submits a file of transactions to the concentrator bank for processing through the ACH, resulting in a credit to each retailer and a debit to a corresponding concentrator bank or government account. Throughout the day the central processor updates the on-line EBT system recipient/participant accounts. At the completion of daily processing, the retailer would update the off-line EBT system's duplicate participant database of reflect purchases.

#### Reconciling Benefits in the Enhanced WIC EBT Model

Since WIC and FSP transactions are processed separately in on-line and off-line systems, WIC transactions could be reconciled at the retailer credit level. Each day, the central processor could reconcile all WIC transactions at a specific retailer to that retailer's WIC credit. Credits for all retailers would be included on the ACH file. Depending upon the agreement with the central processor, all WIC and FSP credits could be included in the same ACH file. The credits on the ACH file would be offset with two debits; one for the FSP offset account, the other to the WIC offset account. The WIC debit information would be transmitted on a regular basis to the State where the debit would be balanced to the debit to the State account held at a fiscal agent. The retailer credit information could be used to update vendor monitoring systems that are maintained by the State. WIC food prescriptions would be maintained electronically at the central database and food prescription usage information reported to or transmitted to the local health clinic to assist in nutrition education. The prescription usage information also could be sent to the State for audit against vendor credits on a sample basis. This audit could improve the current methodology for identifying vendor overcharges.

item is validated against a food prescription database. If an item is not on the database, the retailer will receive a "deny" message for that item. If the item is on the database, but was not actually purchased by the participant, the quantity of that item would be removed from the participant's food prescription, resulting in reduced nutrition benefits. Any items that were not purchased remain on the database for later purchase or forfeit, if not purchased by the expiration date of the food prescription. Third, the system eliminates the potential for errors in data currently entered on the WIC voucher or check. These errors currently result in over or under payment or delays in processing retailer reimbursement.

Advantages and Disadvantages of the Enhanced WIC EBT Model

Advantages and disadvantages are discussed from two perspectives. First, from the perspective of the advantages and disadvantages of the Enhanced WIC EBT model compared to the Baseline model. Second, the advantages and disadvantages of the on-line version of the model compared to the off-line version. Exhibit III-4 lists the relative advantages and disadvantages of the Enhanced WIC EBT Model.

Exhibit III-4 Advantages and Disadvantages of the Enhanced WIC EBT Model Compared to Baseline	
Advantages	Disadvantages
<p>Enhances WIC vendor accountability</p> <p>Enhances WIC participant nutrition education opportunities by providing information on actual purchases to the clinic</p> <p>Facilitates the issuance of a single card to WIC participants who are part of food stamp households</p> <p>Electronically maintains food prescription inventory information</p> <p>Facilitates complete fulfillment of food prescriptions by participants</p> <p>May not require additional equipment at the retailer site depending upon the in-store configuration selected</p> <p>Provides timely and accurate credit to vendors</p> <p>Facilitates vendor reconciliation of cash drawer balances to POS transaction balances</p> <p>Provides a higher level of assurance that prices charged to WIC participants are the same as those charged to other customers</p>	<p>Requires development of a capability to produce a file listing all participants and all food prescriptions by participant to be sent to a central processor</p> <p>Requires extensive software development at both the point of sale terminal level and at a central database</p> <p>Requires extensive interface with existing vendor systems</p> <p>Requires that vendors maintain a UPC to product code conversion table. The initial table could be provided by the State but this table would need to be updated to include store or chain specific items</p> <p>Requires further training of participants and retailers to use the system</p> <p>May require additional telecommunications capabilities at vendor sites</p>

Advantages and Disadvantages of the Off-line Version	
Advantages	Disadvantages
<p>Requires only one transmission of financial and management data per cycle</p> <p>Food Prescription Data is held on card reducing the need to provide reports to health clinics</p> <p>Validation of individual items at the point of sale can occur between the card and the terminal limiting the need for intra store communications and back room hardware</p>	<p>Smart cards currently cost significantly more than magnetic stripe cards</p> <p>Requires that each lane be equipped with a smart card reader/writer and may require upgrades to existing on-line terminal capabilities</p> <p>Requires that card balances be reconciled to host balances to ensure correct totals</p>
Advantages and Disadvantages of the On-line Version	
Advantages	Disadvantages
<p>Utilizes existing equipment in geographic areas that have already adopted on-line technology</p> <p>Utilizes relatively inexpensive magnetic stripe cards and terminals</p>	<p>Requires extensive telecommunications between the central processor and individual POS terminals or vendors on a per transaction basis</p> <p>Requires two transmissions per transaction</p> <p>May not be able to utilize commercial POS networks or third party processors because of unique data formats and capacities</p> <p>Has not been tested in a working environment (WIC program)</p>

## **IN-STORE CONFIGURATIONS**

Based upon a review of capabilities within the vendor community, there are three potential system configurations that could be implemented at the vendor level to accommodate the Enhanced WIC model. These retail configurations include a *stand alone configuration*, a *stand beside configuration* and a *fully integrated configuration*.

### **Stand Alone Configuration**

The stand alone configuration requires no interface to the vendor's existing ECR or POS systems. It would include any required card reader/writers, software specifically designed to enable each of the aforementioned functions to be performed, hardware to serve as a system controller, and UPC scanning equipment. While this configuration could be implemented at any vendor site, it would be most appropriate for vendors that do not currently have scanning or POS (debit, credit, check authorization or EBT) capabilities. A schematic of the stand alone configuration is provided in Exhibit III-5.

As can be seen in this schematic, the stand alone configuration consists of in-lane equipment including a scanner, a POS device with an integrated card reader/writer, a printer to print receipts, balances and other transaction information and a PIN pad on which the participant enters their personal identification number. In a single lane store, the POS device, acting as the controller for the lane, would be directly connected to the WIC/FSP EBT system controller.<sup>4</sup> In a multi lane store, each lane would be linked to the WIC/FSP EBT system controller through a local area network.

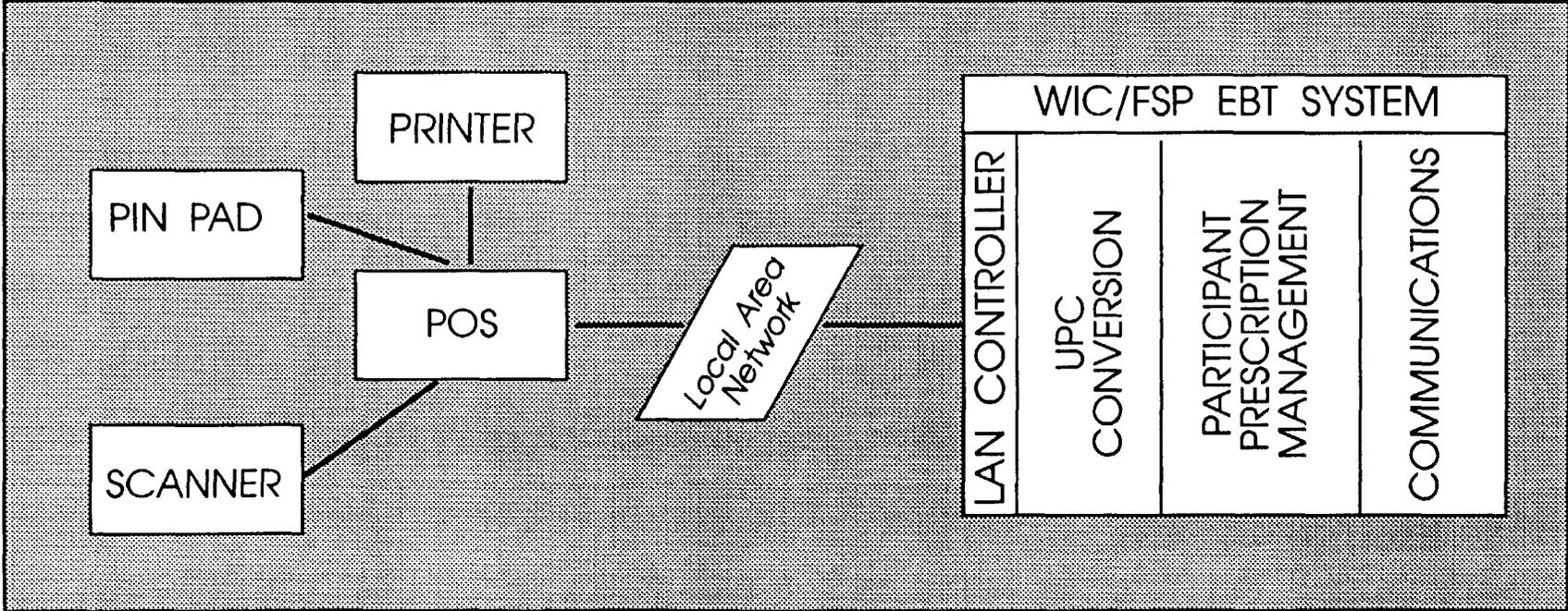
There are four main modules within the WIC/FSP EBT system controller. These modules include:

- a LAN controller to regulate the message traffic from each of the in-lane configurations;
- a UPC conversion module that accepts the UPC from the scanner, performs a lookup against a table to determine if the specific UPC corresponds to a

---

<sup>4</sup> An in-store WIC/FSP system controller may not be required in a single lane store if the selected POS device has sufficient memory and processing capability. This is especially true in an off-line environment in which the latest generation of terminals has the capability to read and write smart cards and read magnetic stripe cards as well as perform security, management and communications functions.

# STAND ALONE CONFIGURATION



WIC eligible product code and then passes that product code to the Participant Prescription Management module;

- a Participant Prescription Management module that accepts and records the participant food prescription either from a smart card database in the off-line system or from the host processor in an on-line system. The WIC eligible product code is received from the UPC conversion module and it is determined if that item is authorized for purchase by that participant. If both these validations pass, then the participant's prescription is "debited" for the quantity of that item. The value of the item can either be entered at this time at the check out lane or a manual total purchase entry can be entered upon the completion of the transaction.
- a Communications module. In an on-line environment, this module would manage the communications between the store and the host processor. It would perform the initial dial-up to the host and transfer of participant information. It would receive the balance inquiry and/or prescription information and pass that information to the Participant Prescription Management module and/or to the in-store printer to print a participant "shopping list". In an off-line environment the communications module is used to transfer the accumulated transactions that have occurred since the last transmission to the central processor for creation of the ACH file of retailer credits and offset debit.

### **Stand Beside Configuration**

The stand beside configuration includes a WIC EBT system that is similar to the WIC/FSP EBT system controller discussed under the stand alone configuration. However, implementation of the stand beside configuration assumes that the vendor has an existing ECR/POS system including scanners, electronic cash registers and an in-store controller. The in-store controller is used by the vendor to maintain the product UPC and price list and to manage intra-store message traffic. The vendor may already have POS terminals, though these could be provided with the stand beside configuration.

While there are many differences in the features and capabilities of different POS hardware and software, most of the major hardware and software providers follow a similar conceptual design. The typical configuration consists of a scanner and electronic cash register at each lane. These devices are linked to a store controller (a mini or micro computer based

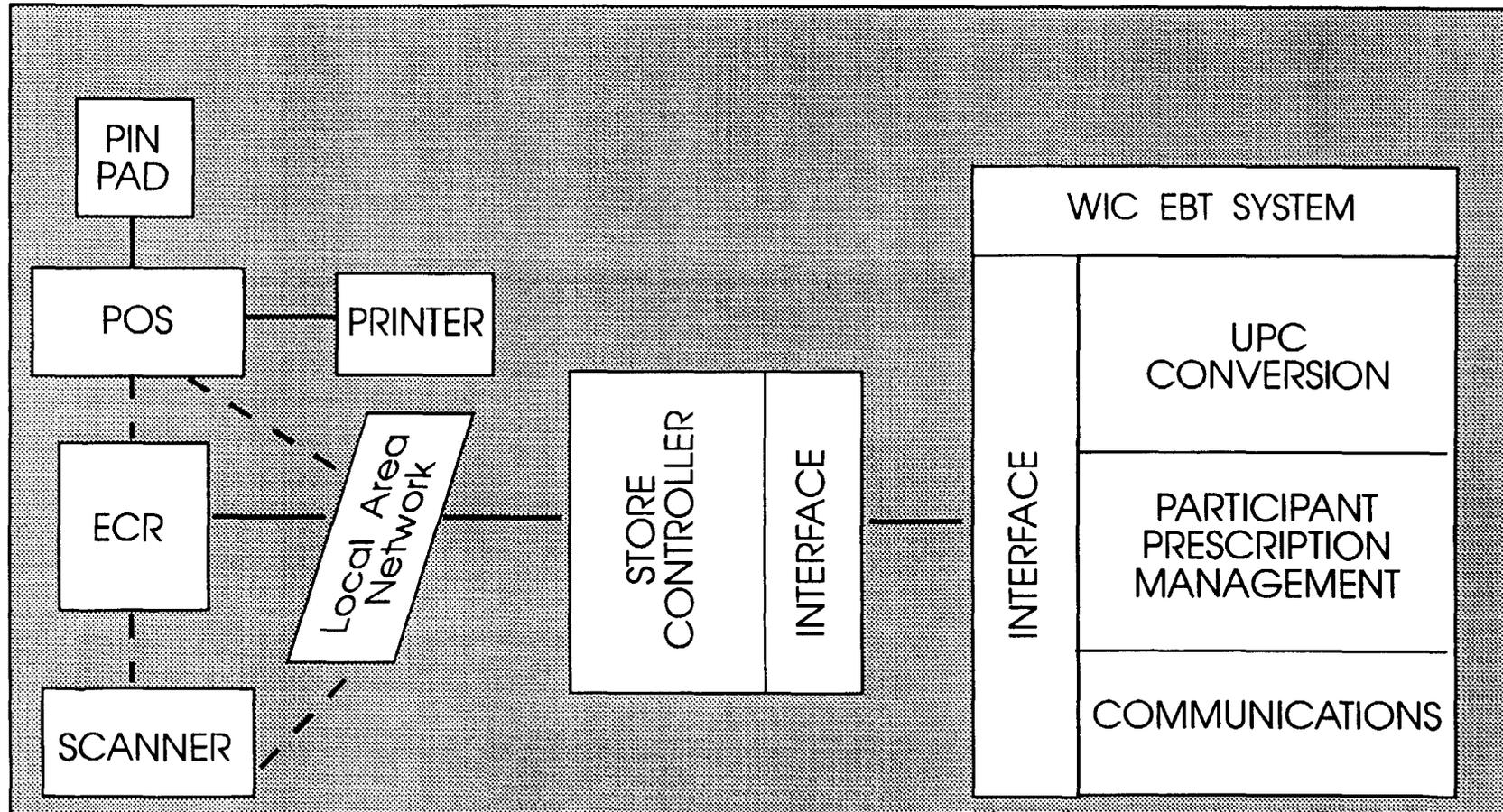
system) that maintains the store's product and price database and generates financial and management reports. This linkage is typically provided through a local area network. As each item is scanned, the scanned data is sent to the controller. This data is used to determine the product information to be displayed at the register and appear on the receipt, to determine the price of the item, and to update the store inventory. The price and product information is returned through the local area network to the in-lane register. The register has the capability to provide summary totals, subtotals and various other functions. POS debit or credit terminals can either "stand beside" the register or directly interface to the system. If they stand beside, the cashier must enter the amount of the sale. If they are integrated, the sale amount can automatically be transferred and the store controller can both capture card information and act as the communications controller to a regional, central or local switch.

In the WIC EBT stand beside scenario, it is envisioned that there would be little change to this in-store configuration except that an additional computer would be attached to the store controller. This computer would manage each WIC purchase. The stand beside configuration is illustrated in Exhibit III-6. When activated through the use of a participant's EBT card in the check-out lane, each UPC could be passed from the in-store controller to the WIC EBT system. It is assumed that FSP EBT transactions would not need to access this system and could be processed through the "normal" POS transaction routing. Several versions of the stand beside solution would be required in any particular State or other geographic area to accommodate each of the major brands of in-store hardware (NCR, IBM, Casio, etc.).

Another option for the stand beside configuration that was investigated by the project team was the placement of an in-lane device that could accept the UPC directly from the scanner. This option, while potentially feasible, was deemed to be less desirable than the interface to the store controller for several reasons. First, each type of scanner may output a different code format such that the in-lane software would need to recognize alternative formats depending upon the brand of equipment, the brand of POS/ECR equipment and the store software. Second, this alternative would require each lane to be equipped with an intelligent device to accept and process the UPC. Third, this option would require that the hardware in each lane be modified for WIC EBT. Based upon input from the hardware vendor community, it was determined that it would be more practical and less expensive to develop hardware specific interfaces than to attempt to intercept the UPC in-lane.

The WIC EBT system controller in the stand beside configuration contains a UPC conversion module, a Participant Prescription Management module and a communications module that perform identical functions as the modules described under the stand alone

# STAND BESIDE CONFIGURATION



configuration. However, an interface module replaces the LAN Controller. This interface module accepts and provides data to the store network via a physical link to the store controller.

This type of stand beside configuration is similar to stand beside marketing and promotional systems that are offered by various vendors to the retailer community. It was the general opinion of the retailers and hardware vendors interviewed during the course of this study that the type of interface required by this configuration could be developed relatively inexpensively and that a limited number of interfaces could link to each of the various brands of POS hardware on the market. These experts also stated that newer generations of POS hardware, such as the IBM 4680 or the NCR 7000 provide the most flexible platform and this equipment is typically installed as retailers upgrade their systems.

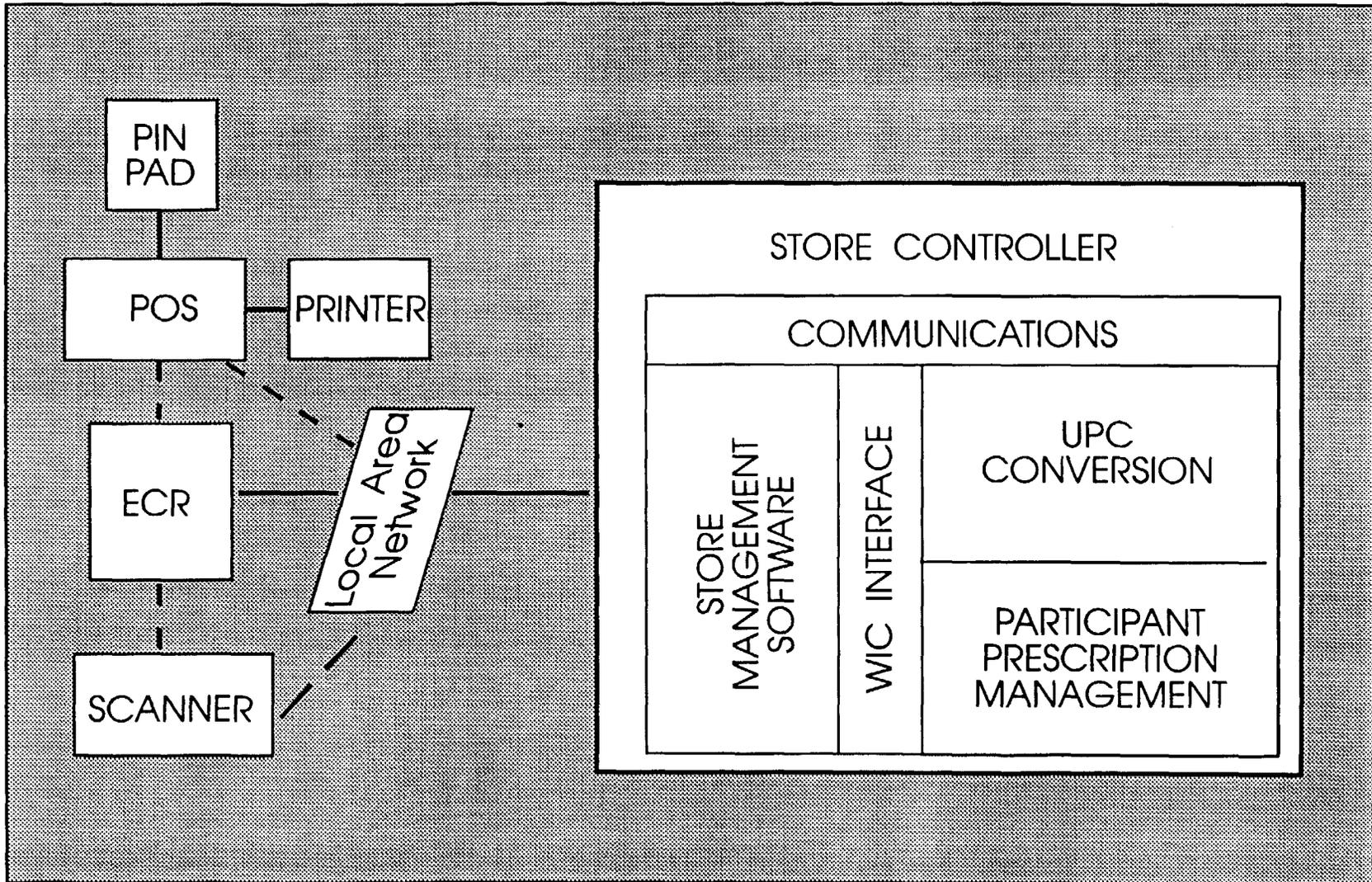
### **Fully Integrated Configuration**

The full functionality of the WIC EBT system is incorporated into the retailer's existing POS system in the fully integrated configuration. This alternative would be chosen predominantly by larger retailers with multiple stores utilizing modern equipment. Many of the larger chains maintain POS systems in which each lane within a store is linked to an in-store controller which in turn is linked to a regional node or directly to a national data processing center. Product and price information is downloaded from the central system to each store controller on a bi-weekly or weekly basis. Store financial and management information is transferred directly from the store to the central system on a batch basis. Commercial POS credit and debit transactions are routed from the store to the central site where they are transmitted to the appropriate commercial networks.

Representatives of large chains indicated that they would prefer to implement a fully integrated solution rather than a stand beside solution. They indicated that the cost to implement this software would not be excessive and that this solution would eliminate the need to house and maintain separate hardware and software in each store location.

As shown in the schematic of the fully integrated configuration, presented in Exhibit III-7, the store controller software would be modified to include the functionality of the UPC conversion module and the Participant Prescription Management module as previously discussed. The system would utilize the existing communications capability of the in-store controller. A separate *WIC Interface* could need to be developed to provide access to the WIC specific modules within the controller software. This interface and modular software would be standardized across all stores in each chain.

# FULLY INTEGRATED CONFIGURATION



## **COST CONSIDERATIONS**

Implementation of any EBT system has significant cost implications for all of the participants including FNS, State Agencies, retailers, system vendors, financial institutions, and recipients. Due to the limited scope of this project and due to the lack of empirical data to support an analysis of WIC EBT costs, this section of the report is limited to a discussion of factors that will contribute to the costs of both the Baseline and Enhanced WIC models.

The cost components of an EBT system are discussed below, and outlined in Exhibits III-8 and III-9. These components are reviewed as they relate to the *incremental cost* of adding WIC to an existing FSP EBT system, assuming that the same processor is used for both programs. This section of the report contains two subsections. The first discusses the incremental costs of adding the WIC features outlined in the Baseline model to an existing FSP EBT system. The second discusses the incremental costs of incorporating the features of the Enhanced model to an existing FSP EBT system. The costs associated with a hybrid solution were not reviewed, since the solution was determined to have significant restrictions.

In both the on-line and off-line enhanced models, it is recognized that retailers will implement the stand-alone, stand-beside and fully integrated solutions based upon their own requirements. Costs for the fully integrated solution are assumed to be borne by the retailer and will depend upon the unique characteristics of the retailer and their existing equipment. These costs are not estimated within this report. The cost components have been segregated into design and development, implementation, and operations.

### **Incremental costs for the Baseline Model**

#### **Design and Development**

Costs associated with the development of an EBT system include design and development of software utilized by the processor for handling EBT items and information, the retailer system for processing purchases, and the State or clinic systems for delivery or receipt of information to or from the Processor.

In the Baseline model, since WIC is being added to an existing FSP EBT system, the capability for handling EBT transactions exists at the processor and at the authorized Food Stamp retailers. It will be necessary to modify the software at the processor to interface with the State or local clinics to receive and/or send WIC files, to maintain segregated WIC sub-accounts within a general client account, to create reports as designed to meet the needs of

the WIC offices, and to route WIC transactions from retailers to the processor's WIC files for authorization and maintenance (on-line) or for maintenance of back-up data files (off-line).

In addition, costs will be incurred at the State or local clinic in developing programs to interface with the certification system for the creation and transmission of issuance files to the processor. One of the components of the Baseline WIC model is the use of maximum dollar amounts corresponding to each of the food prescriptions used by the WIC clinics. Some food instruments already include a "not to exceed" amount on the face of the document which could be incorporated into the issuance file as the maximum amount. These limits will need to be established when a comparable measure does not exist.

At authorized food stamp retailers who are also authorized WIC vendors, software modifications will be needed to enable the use of WIC or FSP transaction codes in order to properly differentiate the purchase and authorize the dollar amount against the appropriate sub-account. The extent of the software modifications is dependent upon the system used by the retailer. The new software may be developed by the processor, and loaded onto the POS equipment at the authorized retailers. "WIC only" authorized retailers would be able to use this same modified software to process WIC EBT purchases; however, any existing POS equipment at "WIC only" retailers may need to be modified in order to provide EBT services for WIC recipients. Any equipment that may be required to offer the EBT services would be acquired and installed during the Implementation phase. The cost of the equipment is an Operation phase cost and could be amortized over the life of the equipment. These issues are discussed more fully in the appropriate section.

### **Implementation**

During the implementation phase, testing at the processor will occur to ensure that all interface systems are in place and properly functioning to handle WIC transactions (dollar amount). This testing will cover all aspects of the combined system including transmission of issuance files from the WIC office or clinic, processing of all transaction sets at the POS, and settlement and reconciliation of these transactions. This test process will also include error condition handling, reporting, and regression testing, if required.

In the Baseline model, no additional hardware or telecommunications features will be required to add WIC EBT to stores already handling FSP EBT. At stores which are authorized to accept only WIC, equipment such as POS terminals, printers, and PIN pads may be required to meet the needs of the EBT system. While the cost of this equipment is usually amortized as an operations cost, the associated installation costs may be realized

as expenses during this phase. For retailers that already offer FSP EBT, it is expected that the incremental training costs will be minimal to accommodate the use of a transaction code to distinguish FSP from WIC transactions. At stores that are "WIC only", the training costs should be comparable to the costs of adding another FSP retailer to the EBT system.

Telecommunications lines may need to be installed at "WIC only" retailers in order to transmit items or files between the retailer and the processor (the FSP authorized retailers will already have established telecommunications lines). At the retailer's discretion, dial-up or dedicated lines may be installed. The cost of line installation is expected to vary depending upon several factors including, but not limited to, the number of lines, the geographic region (and distance from the processor in the case of dedicated lines), and local phone company requirements. In an on-line system, at least one communications line will be required for each retailer. In the off-line environment, it may be possible to utilize an existing telecommunications line since only one transmission per day is normally required.

It will be necessary for the state or local clinic to have a terminal (perhaps a PC) and communications software to interface with the processor. Each local agency/clinic will need a terminal with the capability to enable balance inquiries for on-line system users, or to load benefits to a participant's smart card for off-line system users. Administrative terminals could also be used to download information on clients from the processor which would enable caseload management and purchase behavior of clients. The costs associated with the purchase of the equipment are amortized as an operations expense; the costs of installing the equipment at each agency or local clinic are incurred during the implementation phase.

Upon completion of system design and development at the WIC offices, training of all appropriate WIC staff will be required. Training will encompass the creation of issuance files, uploading the files to the processor, receiving information from the processor, and reconciling benefit redemptions on a dollar basis. In addition, the WIC agency/clinic will be responsible for issuing EBT cards or adding WIC benefits (or access to benefits) onto existing EBT cards (for participants who are already receiving FSP benefits). These procedures and training will be developed and finalized during the implementation phase.

### **Operations**

Any new equipment deployed at "WIC only" retailer locations to process EBT transactions is amortized as an operational cost.

The addition of WIC transactions to the EBT system will increase overall telecommunications costs of on-line systems since a separate transmission will be needed for each WIC authorization. Off-line EBT systems will still require one transmission each day, however the length of the transmission time will be extended by the increased volume of transactions. These increases in transactions will correspond to potential increases in fees charged by the processor, depending upon the pricing structure established by contract. Maintenance contracts for existing equipment should not be affected, however any new equipment will incur a maintenance charge. The costs of new equipment installed at "WIC only" retailers, and maintenance of that equipment, may be borne by the retailer. Only on-line FSP EBT systems are subject to the rule barring retailers from incurring costs in the implementation of an EBT system.

Costs for EBT card replacement may increase with the addition of WIC onto the card. With increased usage (presumably all WIC purchases will not occur during the same shopping trip as the FSP purchases), may come an increased likelihood of the incidence of lost or stolen cards.

Another incremental cost item is related to file transfers. These files include:

- issuance files from the State or local offices;
- files and reports to FNS; and
- ACH files from the processor to the Concentrator Bank to initiate the credits to retailers (and potentially the debit from the funding account).

WIC offices will incur costs associated with the creation of issuance files, and file transfer charges to upload to, and receive files from, the processor. If WIC issuance files are created at local clinics, multiple interfaces may be needed to transfer the information to the processor. In addition, while FSP benefits tend to be issued during the first few days of each month, WIC benefits may be issued at any time throughout the month.

The processor will be responsible for creating the ACH file and sending it to the bank for processing. The ACH items for WIC and FSP credits to retailers can be combined onto one file; however, there may be a processing fee associated with each item on the file, depending upon the agreement with the Concentrator Bank. In order to facilitate the retailer's reconciliation process, the FSP and WIC credits should be kept separate.

Other incremental operational costs could include: additional customer service inquiries related to the WIC program; third-party transaction fees for WIC transactions; more extensive on-going training to incorporate WIC needs; and new card issuance for WIC recipients not participating in FSP. These cost components are outlined in Exhibit III-8.

Exhibit III-8

Incremental Cost Components - Baseline Model

	On-Line	Off-Line
<b>DESIGN &amp; DEVELOPMENT</b>		
Processor Design and Software	Unknown, depends upon specifications	
Clinic Interface	\$20K - \$200K	\$20K - \$200K
In-store Software	Unknown, depends upon specifications (Modification to FSP EBT system)	
<b>IMPLEMENTATION</b>		
Testing	Depends upon system design	Depends upon system design
Equipment Installation	\$100-\$300 (each lane)	\$100-\$300 (each lane)
Training at retailer	Nominal for WIC/FSP stores, \$10 / lane for WIC only stores	
Training at agency/clinic	\$5 - \$20 / participant	
EBT cards	\$0.25 - \$0.80 each	\$6. - \$10. each
<b>OPERATIONS</b>		
	\$100 - \$1000	\$750 - \$1200

*WIC/FSP EBT Feasibility Study*

	On-Line	Off-Line
Telecommunications	"WIC only" stores: ranges from \$0.10/transaction for dialup lines to \$300 plus usage charges for dedicated line. Other stores: ranges from \$0.10/transaction for dialup lines to increased usage charges on dedicated line for WIC items.	"WIC only" stores: ranges from \$0.10 per transmission for dialup lines, to \$300 plus usage charges for dedicated lines. Other stores: increased number of transactions will provide slight increase in costs.
Processor Fees	Depends upon contract.	Depends upon contract.
Card Replacement	Increase relative to volume.	
Equipment Maintenance	\$30 - \$60 per lane for maintenance contract. "WIC only" stores affected.	
File Transfers:		
Issuance	Depends upon State and local system configuration, frequency of issuance, FSP and WIC serviced by consolidated data processing site.	
Processor/FNS/States	Unknown, depends upon State requirements, and frequency of file transfers.	
ACH	One credit per store for all WIC purchases. \$0.05 - \$0.10 each credit.	

### **Incremental costs for the Enhanced Model**

The costs outlined in Exhibit III-9 represent the incremental costs of adding the WIC food prescription capabilities (Enhanced WIC model) to the existing FSP EBT system, using on-line or off-line technology. With the Enhanced WIC model, there are three possible retailer configurations, depending upon the retailer's system. These retailer configurations are presented separately to reflect differing component costs.

### **Design and Development**

An integral component of the Enhanced WIC system is the design and development of systems at the WIC office to create the participant data which will be sent to the processor. The Enhanced model requires a data file that includes the food prescription. This file will be output from the existing eligibility system used by WIC and sent to the processor. The costs to develop these interface programs can vary greatly depending upon the current system automation at the office, and the ease with which a file could be produced. In addition to the programs to create the participant data file, the WIC office may wish to receive files from the processor detailing the participant purchases, providing historical data which could be used to enhance nutrition counseling services to participants.

As noted in the discussion of the incremental costs of the Baseline model, the costs associated with the design and development of software at the EBT processor are incorporated within this phase. Progressing from an existing FSP EBT system to the Enhanced WIC model necessitates substantial modification of the client account structure since each participant's food prescription must be accessed, verified, and updated for each WIC transaction. Additional programs required for on-line or off-line models include receiving and maintaining detailed authorization files from the State or local agency/clinic and the receiving and processing of WIC purchase (dollar and item) data from authorized retailers. In addition, the on-line system will require the development of programs to download and upload prescription information to the retail location to facilitate a WIC purchase. The actual costs of modifying the processor's software are unknown until specifications are developed. After system specifications are established, the processor can determine the associated costs.

The Enhanced WIC model may require integration with existing retailer hardware and software systems. The in-store configuration may be designed as stand alone, stand beside, or fully integrated solution (with the retailer's system). In a stand alone configuration, software is needed for the microcomputer system to handle the UPC conversion (to product

category) table, participant management function, and communications. Since the stand alone system will not interact with any other equipment at the retailer, each store selecting the stand alone option will utilize the same software.

In a stand beside configuration, the basic software will be the same for all retailers, with an interface component developed to tie in with the retailer's system. There are an estimated six to eight systems<sup>5</sup> for which a stand beside solution should be considered. From the fully integrated perspective, each system will need to be tailored to the specific needs of the retailer's existing system. While a retailer may have a fully integrated system for capturing purchase information at the checkout lane, if the retailer does not offer POS services, a POS terminal and PIN pad will be necessary in order to offer EBT. If WIC follows the direction of FSP, the costs associated with the development of the software for the stand alone and stand beside systems would be carried by the processor. Costs to modify the fully integrated configuration would be assumed by the retailer.

In addition to software to handle the processing of transactions at the check-out lane, the on-line solutions will also require the development of software to handle the database upload/download of WIC prescription information from the processor. In an off-line system, the database is maintained on the card, and the processor is not involved in authorizing the individual purchase. Depending upon the design, it is possible that processor software for an off-line system would not need to be modified to accommodate WIC. This design requires that prescription data be loaded onto the card at clinic locations using software specifically designed for that purpose. No duplicate prescription database would be maintained at the processor. While each purchase transaction would be validated against the prescription stored on the card, only the amount of the purchase would be transmitted to the processor for settlement. An exception to this would be if the off-line design required the upload of complete purchase information to enable the maintenance of a detailed participant database.

### **Implementation**

Equipping retail stores with communication lines and appropriate wiring for terminal acceptance (one-time charges only), providing training for participants, retailers, local agencies/clinics, State agencies, and the processor, are all part of the Implementation costs. In this scenario, the communications lines at the "WIC only" retail store may need to be

---

<sup>5</sup> This estimate is based upon development of a stand-beside solution to accommodate the newest generations of equipment from major POS hardware manufacturers for the grocery industry. Development of interfaces to other equipment would greatly increase cost and may not be technically feasible.

installed and wiring for terminals in each lane to handle the food prescription and food purchase information requirements may be required, unless the retailer already offers a POS service.

Training at each retailer will be accommodated within the implementation phase. The automation of the authorization process in this model (where UPCs are checked with WIC approved product codes) should provide fewer detailed re-training procedures to ensure that correct items are being purchased. More extensive training for retailer settlement and reconciliation of WIC transactions may also be required. The procedures for handling FSP items will not be affected.

With the implementation of the Enhanced WIC system it will be necessary to train personnel at the local agency or clinic who will create files and interface with the processor to send and receive files, but also to train the personnel who will be responsible for assisting the participants in the correct use of the EBT system and potentially for loading benefits onto a smart card. The training for the participants is not affected by the configuration chosen at the retail location.

### **Operations**

Operations costs are those associated with the processing of transactions following the implementation of an EBT system. Costs are incurred for card issuance and replacement, the creation of benefit records at the State or local office, posting the benefits to the processor (and card for off-line systems) and amortization of hardware and software components installed at the retail locations and local clinics. The terminal that is used to load benefits to the participants' smart card, or to provide balance inquiry capabilities for on-line systems at FSP stores would be used in the Enhanced WIC system. "WIC only" stores would need to be equipped with these terminals, as would each WIC local agency/clinic.

The Enhanced WIC on-line model requires two transmissions per transaction; one to obtain the prescription information, and a second one to send the purchase information back to the processor to update the prescription balance. Each transmission will be relatively brief; however, there will be numerous calls at all times of the day. In the off-line model, transaction information will be sent to the processor once per day. It is possible that more than one transmission per day could be sent in the off-line model but the transmissions can occur at "off-peak" times. The processor fees associated with each system function in the Enhanced WIC model will be charged in accordance with the contractual arrangement.

Due to the increased complexity of the Enhanced model, it can be expected that customer service costs will rise over those experienced with the Baseline model. This is due to the fact that participants may have additional questions with the inclusion of detailed food prescription information accessed through the system (instead of using the paper food instruments), and questions from retailers with regard to transaction processing.

### **Component Costs**

In addition to items which have been individually addressed as Baseline or Enhanced WIC cost elements within Design & Development, Implementation, and Operations phases of the EBT system, the following discussion provides further details of three important cost components.

**Card Costs.** EBT card costs can vary from magnetic stripe cards which range in price from \$0.25 - \$0.80 when purchased in large quantities to smart cards, ranging from \$6.00 - \$10.00 each. It is not expected that per unit card replacement costs would be significantly different than initial issuance costs. The same card stock will be used for issuance and replacement, however additional time at the local agency or clinic will be spent if historical information needs to be added to a smart card.

**Telecommunications.** Off-line systems utilizing communications lines at off-peak hours over high speed lines should incur costs ranging between \$0.50 - \$5.00 per file. Communications costs for on-line systems, which process items throughout the day, will incur charges which are dependent upon the volume of transactions, and the time of the communication. Dial-up lines can range up to \$0.10 per call, while leased lines can cost \$300 monthly or more for the fixed fee, with a time charge component.

**Retailer.** At retail locations, each check-out lane used for FSP and WIC transactions must be equipped with a scanner, PIN pad, POS device, and printer to process transactions in the Enhanced WIC model. For stand alone configurations, it is assumed (for "WIC only" retailers) that the retailer does not have any of this equipment. The cost to equip one lane will range between \$1200-\$1500 in the stand alone system. Retailers that accept food stamp EBT may be able to use the existing POS PIN pad and printer, needing only the scanner which should range from \$100-\$600 per lane. For the other configurations, it is expected that current scanning equipment can be used since advanced functionality at the check out lane is not required to interface with the system. The need for POS terminals, printers and PIN pads will depend upon whether the retailer is already equipped to accept commercial card transactions (credit and/or debit).

Using off-line technology, a smart card reader will be required in addition to the scanner, PIN pad, and POS device. The card reader is expected to increase the cost of equipment for the off-line systems between \$150 - \$200 per lane (i.e., off-line systems will range between \$1350 - \$1700 per lane). Although retailers selecting off-line stand beside and fully integrated systems may already have scanners, PIN pads, and POS devices, it is possible that the smart card reader may not be compatible with the existing equipment. In other cases, existing equipment may be able to be upgraded to accept smart card input. For this reason, costs on a per lane basis for the off-line stand beside and fully integrated systems could also range up to \$1700.

In addition each retail location using the stand alone or stand beside configurations will need a micro-computer (PC). The cost shown in Exhibit III-9 include the computer, a hard drive, keyboard, monitor, and modem. For all equipment, the equipment owner may have a maintenance contract for all equipment purchased for the EBT program. On-line and off-line stand alone and stand beside systems will have maintenance expenses for equipment that is utilized for processing the EBT transactions. If equipment is utilized for other processes at the retail location, these maintenance charges will be shared accordingly. In the fully integrated solutions there may be no impact to retailers since they may already have the equipment (and presumably have maintenance contracts on the equipment). Off-line fully integrated solutions would incur additional costs for the maintenance of the smart card reader.

Costs to update the UPC files are expected to be nominal. On a periodic basis, files will be updated to provide food category conversion information for new UPCs. The retailers are responsible for updating the UPC tables to include store-specific codes.

**Exhibit III-9**

**Incremental Cost Components - Enhanced Model**

	On-Line			Off-Line		
	Stand Alone	Stand Beside	Fully Integrated	Stand Alone	Stand Beside	Fully Integrated
<b>DESIGN &amp; DEVELOPMENT</b>						
Processor Design & Software	Unknown, depends upon specs			Unknown, depends upon specs		
System Software (in-store)	\$25K-\$250K (once)	\$25K-\$250K (6-8)	\$10K-\$200K (each store)	\$25K-\$250K (once)	\$25K-\$250K (6-8)	\$10K-\$200K (each store)
UPC conversion table	Depends upon number of food categories (included above)			Depends upon number of food categories (included above)		
Clinic Interface	\$20K-\$200K			\$20K-\$200K		
<b>IMPLEMENTATION</b>						
Testing	Depends upon system design			Depends upon system design		

WIC/FSP EBT Feasibility Study

	On-Line			Off-Line		
	Stand Alone	Stand Beside	Fully Integrated	Stand Alone	Stand Beside	Fully Integrated
Telecommunications	"WIC only" stores: installation charges vary depending upon selection of dial-up or dedicated lines, number of lines, geographic location, local phone company practices, and other factors. Other stores: same lines used for WIC and FSP. No new installation expected.			"WIC only" stores: installation costs vary depending upon selection of dial-up or dedicated lines, number of lines, geographic location, local phone company practices, and other factors. Existing phone lines may be used. Other stores: Same phone lines used for WIC and FSP. No new installation expected.		
Training at retailer	\$20/lane			\$20/lane		
Training at agency/clinic	\$5-\$20 / participant			\$5-\$20 / participant		
EBT Cards	\$0.25-\$0.80 each			\$6.00-\$10.00 each		
<b>OPERATIONS</b>						
Retailer lane configuration	\$1200-\$1500 (each lane)	\$600-\$1000 (each lane)	\$600-\$1000 (each lane)	\$1350-\$1700 (each lane)	\$150-\$1700 (each lane)	\$150-\$1700 (each lane)
Printers	@ \$200-\$350	@ \$200-\$350	@ \$200-\$350	@ \$200-\$350	@ \$200-\$350	@ \$200-\$350
Micro-computer	\$2000-\$3500	\$2000-\$3500	N/A	\$2000-\$3500	\$2000-\$3500	N/A
Telecommunications	Range from \$0.20/transaction for dialup lines to \$300 or more plus usage charges for dedicated lines.			Higher than Baseline to accommodate additional data per transaction.		
Processor Fees	Depends upon contract **			Depends upon contract **		

*WIC/FSP EBT Feasibility Study*

	On-Line			Off-Line		
	Stand Alone	Stand Beside	Fully Integrated	Stand Alone	Stand Beside	Fully Integrated
Card Replacement	\$0.25-\$0.80 each			\$6.00-\$10.00 each		
Equipment Maintenance	contract	contract	no impact	contract	contract	contract
UPC update files*	nominal	nominal	nominal	nominal	nominal	nominal
File transfers:						
Issuance	Cannot be estimated at this time			Cannot be estimated at this time		
Processor to States and FNS	Frequency of transmission not determined			Frequency of transmission not determined		
ACH	Daily, fee based upon contract with bank			Daily, fee based upon contract with bank		

\* If States do UPC updates, this could be substantial. Retailers line of business.

\*\* Processor fees may be set on a case-month basis or on a per-transaction basis, depending upon agreement.

### **Cost Considerations Summary**

This section has addressed the incremental cost components associated with modifying an existing FSP EBT system to accommodate the WIC program. Costs associated with the Baseline and Enhanced models have been discussed separately. Given the lack of detailed design specifications and the number of possible implementation alternatives, it would be premature to extrapolate costs to a nationwide basis within the context of this report. Furthermore, any estimates of the number of terminals that would be required depends largely on the degree of deployment of commercial POS systems and whether the EBT system "piggybacks" on this hardware. Finally, a cost estimate would need to anticipate the number of transactions for both the FSP and WIC.

Several observations regarding overall costs can be made. Even considering the unique "front end" prescription management functions required for WIC, an independent WIC EBT system will be more costly to the WIC program than a system combined with FSP or commercially piggybacked. There are several reasons for this conclusion. Any EBT system requires POS hardware, telecommunications lines and processor software to be developed and utilized. Therefore, sharing these elements reduces the cost to all participating programs. Second, an independent solution implies that all training must be sponsored by the implementing program rather than sharing these costs. Third, an independent solution implies that all card costs must be incurred by the single program.

Another observation is that an independent off-line EBT solution for WIC could be more costly than an independent on-line solution. The main reason for this is the relatively small volume of WIC transactions (in comparison to FSP transactions), and the relatively high card costs for off-line systems. The cost differential for a combined WIC and FSP and/or commercial system may be less significant. The basis for this observation is as follows:

- Smart cards currently cost approximately \$9.00 per card. In a "WIC only" EBT system, the WIC program will incur the full cost of this investment and, because WIC participants stay on the program for a limited time, the cost cannot be amortized over an extended period. It is understood that the time a WIC participant receives benefits (as pregnant, post-partum, infant's benefits, and child's benefits up to age five) could extend up to almost six years, the average length of time would need to be determined to properly amortize the card costs. In a combined off-line solution, the cost of the cards can be amortized over a multi-year period and the cost to the WIC program could be based upon a pro-rata share of usage.

- In an off-line system, each retailer transmits transaction and settlement information to the host processor once each day. In a combined EBT system, this telecommunication could include data for all participating programs. Thus, the cost of the communications could be shared. In a WIC only EBT system, this cost would be incurred solely by the WIC program.
- Conversely, in an on-line system, each WIC transaction will require two transmissions of data. One to download the prescription information, and one to upload the purchase information. This requirement remains the same even in a combined WIC and FSP system. Two transmissions per transaction will still be required for the WIC program benefits.

Thus, in an off-line environment, multiple programs share not only hardware and software, but telecommunications and card costs. In an on-line environment, while card, hardware and software costs can be shared, it may not be practical to share telecommunications costs.



It should also be noted that the on-line solution presented has never been tested. Unlike the off-line alternative, there is no working model. While this solution appears to be technically feasible, it needs to be proven. In addition, even this solution would require that the POS device be able to establish, either directly or through an in-store controller, a direct link to the processor. It is unlikely that either existing commercial networks such as the ATM networks that process commercial POS transactions or third party processors could provide a consistent level of service for WIC transactions. A standard protocol could be developed and adopted for the balance inquiry transmission of the food prescription file and the upload of the completed transaction from the vendor. This protocol would need to be consistently applied across States and implemented within each participating network to utilize these services. This option may be more appropriate as more networks implement *Electronic Data Interchange* (EDI) capabilities that allow for more flexibility in transmission formats.

Hybrid smart card solutions offer little advantage to a combined food stamp and WIC EBT system over an independent WIC system. These models require not only that certain lanes be equipped with terminals capable of reading both smart cards and magnetic stripe cards, but that the WIC program also incur the cost of on-line transaction processing fees. It would be more advantageous to the WIC program to utilize full off-line processing including off-line settlement and limit the combination of the programs to sharing the enhanced terminals.

Discussions with the equipment manufacturer and vendor community indicate that if a WIC EBT solution was to be implemented, either on or off-line, the stand alone, stand beside and fully integrated retail configurations would need to be available. The stand alone configuration would be appropriate for smaller vendors that do not currently have scanning equipment. The stand beside configuration would be appropriate for vendors that cannot justify modification of their existing systems to accommodate a small volume of WIC purchases or those vendors that are utilizing older generations of equipment and software that are not easily modified. The fully integrated retail configuration is most appropriate for the larger chains that are using the newer generations of equipment. From a cost and policy standpoint, it should be recognized that only one stand alone configuration system is required. This solution could be "dropped in" to any vendor site. The stand beside configuration would require at least six versions to accommodate interfaces into each of the major manufacturers of POS equipment. While much of the software could be the same, the vendor interface would need to be customized for each manufacturer. Finally, the fully integrated configuration requires that new or modified software be developed each time it is implemented. Again, some of the functions of the software will remain unchanged and

could be transferred across vendors that are utilizing the same equipment, but the specific interfaces and custom reports would require a separate development effort.

## **RECOMMENDATIONS**

Combined FSP and WIC off-line solutions should continue to be pursued. The work currently being undertaken by the State of Wyoming will provide valuable insights into the costs and benefits of this combined alternative. The off-line design should be sufficiently comprehensive to provide full functionality, similar to the back-end accounting and control features of the Ohio off-line demonstration system. Vendors should be given the opportunity to implement any one of the three in-store configurations depending upon their internal capabilities.

The on-line alternative may present opportunities for combining a WIC EBT program at States that are pursuing an on-line environment. A number of vendors offered to "volunteer" to participate in a demonstration project. The conceptual design outline in this report should be further refined and tested in a limited demonstration environment. The demonstration should be designed to measure the costs of the system relative to the off-line alternative and to determine the impact of the system on State and local health operations, including nutrition education improvements, and on the participants and vendors.

Most importantly, States considering implementation of EBT should coordinate the needs of the WIC program and the FSP as well as other cash assistance programs. It is likely to be more cost effective to design and accommodate WIC requirements during the system development and implementation stage rather than to retrofit existing systems.

## **APPENDIX A - GOVERNMENT AND INDUSTRY CONTACTS**

Throughout this study the following individuals provided insight, reactions, and feedback to the models which have been presented in this report. We would like to take the opportunity to list those individuals who contributed to the results of the feasibility study.

**Applied Systems Institute, Inc.:**

JoAnn Bertschmann  
Phil Lee

Ted Macaluso  
Tim O'Connor  
Carol Olander  
Karl Reis

**BT North America:**

Eddie Stoops

Ron Vogel  
Fran Zorn

**Chase Manhattan:**

Bob Linsky

**Food King:**

Fred Fisher

**Citibank:**

Brian Claire

**Gemplus Card International:**

Gilles Lisimaque

**Deluxe Data Systems:**

Tom McLaughlin

**IBM:**

Jim Quigley  
Ben Stuart  
George Anderson

**Diebold:**

LuAnn Ucker

**Internet (MOST):**

Ron Rosas  
Dave O'Connor

**Electronic Data Systems:**

Don Burrell

**FNS:**

Margaret Andrews  
Ellen Buchanan  
Larry Carnes  
Jeff Cohen  
Patty Cunningham  
Art Foley  
Julie Kresge  
Joe Leo  
Debbie McIntosh

**Magic Line, Inc.:**

Al Ruggirello

**MasterCard/Maestro:**

Jack Gray

**NCR:**

Dan Marazzi  
Joe Schneider  
Clyde Dishman

**National Processing Company:**

Sid Price

**New Hampshire, State of:**

Robert Pliskin, Director  
Department of Health and  
Human Services

**PRC, Inc.:**

Harry Mass

**Safeway:**

Jerry Pesterfield

**Stop, Shop, and Save:**

Henry Baines  
Ed Hunt

**Super Pride:**

Quincy Mason

**Twin County Grocers:**

Tom Shortt

**Visa/Interlink:**

Judy Smythe

**Wegman's:**

George Hood

**Wyoming WIC:**

Terry Williams

In addition to the above individuals, we met with WIC Food Program staff in Montgomery County, Maryland, and discussed the models with several state and local WIC administrators at the WIC National Window Conference in San Antonio, Texas in June, 1992.

**APPENDIX B - REFERENCES**

Committee on Ways and Means, U.S. House of Representatives. *Overview of Entitlement Programs: 1991 Green Book*. Washington, DC; U.S. Government Printing Office, May 7, 1991.

"Development of EBT Financial Infrastructure Models"; Phoenix Technology, Ltd.; Release forthcoming.

Food Stamp Program: Standards for Approval and Operation of Food Stamp Electronic Benefit Transfer Systems; Department of Agriculture, Food and Nutrition Service; Federal Register; April 1, 1992.

"Functional Requirements Document for a Model State WIC System"; American Management Systems, Inc.; March 1990.

*Reaching Pregnant Women Through Benefit Targeting in the WIC Program*; U.S. Department of Agriculture, Food and Nutrition Service; May 1990.

Special Supplemental Food Program for Women, Infants, and Children (WIC); Department of Agriculture, Food and Nutrition Service; Federal Register; September 1990.

*Study of WIC Participant and Program Characteristics, 1988*; Department of Agriculture, Food and Nutrition Service; Research Triangle Institute; April 1990.

*The Electronic Benefit Transfer Revolution*; Department of the Treasury, Financial Management Service; Washington, DC; 1990.

"The Feasibility of a Nationwide Electronic Benefit Transfer System for the Food Stamp Program"; Abt Associates; April 1990.

"Vendor Activity Monitoring Profile, FY 1990 (Executive Summary)"; U.S. Department of Agriculture, Food and Nutrition Service, Supplemental Food Programs Division; August 1991.

*WIC Vendor Management Systems and Practices*; Department of Agriculture, Food and Nutrition Service; Professional Management Associates; December 1990.