National Library of Medicine's

Clinical Information Services Contract

AIDSinfo
Process Evaluation Study

Final Report

Contract No. N01-LM-1-3519

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1 Executive Summary

1.1 Background and Objectives

A multi-level service sponsored by several Department of Health and Human Service (DHHS) agencies, *AIDSinfo* is the primary source of information on federally approved HIV/AIDS treatment and prevention guidelines, along with information on medical research and clinical trials. The goals of *AIDSinfo* are to serve as the primary dissemination point for Federal HIV/AIDS treatment and prevention guidelines through a comprehensive Web site, and to provide user support by offering confidential, accurate, personal responses to inquiries by telephone, postal and e-mail, and Live Help. The *AIDSinfo* Coordinating Group, with the assistance of Aspen Systems Corporation (Aspen), designed a process evaluation study to assess how successfully the service is currently implemented, to determine whether *AIDSinfo* goals are being achieved, and to develop a framework for continuous quality improvement in services. This report presents the findings of the process evaluation study conducted by Aspen on behalf of the *AIDSinfo* service.

1.2 General Approach and Methods

The following primary research questions were addressed through secondary data analysis of existing *AIDSinfo* data sources, content analysis of Live Help and e-mail transcripts, and an external monitoring study of the telephone and Live Help services:

1) **Characteristics of *AIDSinfo* consumers.** What is known about the people who use the *AIDSinfo* service, and to what extent do user characteristics vary by communication channel?
2) **Usage patterns.** What types of information do users most frequently seek and do information retrieval patterns vary by communication channel?
3) **Satisfaction.** How satisfied are users and does satisfaction vary by communication channel?
4) **Accuracy of information provided to consumers.** How accurate are the responses to "real-time" inquiries (telephone and Live Help) and does accuracy vary by communication channel?

The study was conducted in seven phases, as follows:

Phase I: Review of Existing Data and Gap Analysis. Formal review and profile of current *AIDSinfo* data collection activities, including the Reference Request Tracking System (RRTS), *AIDSinfo* Web Trends reports, the American Customer Satisfaction Index (ACSI) results, and e-mail and Live Help transcripts.

Phase II: Secondary Data Analysis of the Reference Request Tracking System (RRTS). Secondary data analysis was conducted on data currently collected by *AIDSinfo* staff.

Phase III: Accuracy Monitoring and Assessment. Responses provided through test queries to the telephone and Live Help services were assessed for content accuracy.

Phase IV: Content Analysis of Open-ended Data. Content analysis of actual transcripts from the Live Help and e-mail services was conducted.

Phase V: Secondary Data Analysis of ACSI Survey Data. Secondary data analysis examined ACSI survey data to identify similarities and differences between the Web site audiences and the audiences accessing *AIDSinfo* by phone, e-mail and Live Help.

Phase VI: Analysis of Web Trends Usage Data. Secondary data analysis examined overall Web usage data and compared the relevant data from the Web Trends reports to the ACSI Survey data.

Phase VII: Integration of Results and Recommended Next Steps. Findings were synthesized and recommendations developed for presentation in the Final Report.

1.3 Summary of Major Findings

The **secondary data analyses** provided findings for three of the primary study elements: characteristics of *AIDSinfo* users, usage, and satisfaction. Key findings include the following:

- The majority of requests for information were received by e-mail (49%) or telephone (41%), with males more likely to use Live Help than females (9% versus 5%, respectively).
- Domestic contacts with the *AIDSinfo* service were more likely to be by e-mail (45%) or telephone (45%), while international contacts were more often by e-mail (91%).
- The general public accounted for the largest percentage of requests (33%) to the *AIDSinfo* service, followed by health professionals and physicians (19%), and HIV positive individuals and their families and friends (14%).
- Communication channel differed by requestor role with organizational requestors and health care professionals more likely to use e-mail, and HIV positive individuals and their families and friends more likely to use the telephone.
- The percentage of respondents requesting Spanish Web reading language (6%) was slightly higher than the percentage of Spanish language requests received by e-mail, telephone, or Live Help (2%).
- Nearly two-thirds of requestors (63%) were referred to the *AIDSinfo* service by the *AIDSinfo* Web site (not surprising as the Web site was the most widely used method of access to *AIDSinfo* services).
- Examination of referral source by communication channel found that while almost all of the e-mail (99%) and Live Help (95%) requestors were referred to the service by the Web site, approximately 28% of those using the telephone service were referred by printed materials or brochures, followed by external Web sites (16%).
- The examination of outgoing referrals showed that about 42% of requestors received at least one referral to another source; most (71%) to the *AIDSinfo* Web site (29%) and/or national or state AIDS hotlines (42%). These findings did not vary by communication channel.

The **content analysis** of e-mail and Live Help transcripts yielded several key findings that supplement those provided through the analysis of RRTS data:

- Of the 32 requestors with evidence of a negative emotional state, more were using the Live Help service (66%) than the e-mail service (34%).
- Almost 40% of exchanges in the e-mail and Live Help transcripts led to the information specialists providing statements on *AIDSinfo* content scope, suggesting that many of the requests for information were out-of-scope for the service.
- Delivery of information was either in the form of a direct answer to the question posed, or through provision of a referral (a phone number or a Web site link). Over half (56%) of the responses were referrals only, regardless of communication channel. Delivering a response in "answer only" form was more likely to occur in a Live Help interaction than in an e-mail exchange.
- Most (88%) information requests received by e-mail and Live Help led to at least one referral (either a phone number or Web site link). Approximately three quarters (74%) of the exchanges included a Web site link, and e-mails were more likely than Live Help exchanges to include six or more Web site links.
- Fourteen percent of all exchanges included a recommendation regarding health care, such as suggestions for HIV testing or for seeing a doctor. Most of these (70%) were found in the Live Help exchanges.

The **accuracy monitoring study**, piloted with two services (telephone and Live Help), involved the evaluation of responses by outside experts. The results showed that information specialists answered all but one of the queries accurately. Post-study discussions with staff involved in the study found that information specialists were often aware of a test query in progress and reported that they are atypical in both content and manner of questioning; in contrast, test posers reported being unaware that the information specialists suspected that test queries were being made.

1.4 Conclusions

The findings from the secondary data analyses confirmed that the *AIDSinfo* goal to serve as the primary dissemination point for Federal HIV/AIDS treatment and prevention guidelines is being met. Satisfaction was high among all users, and information was provided on a wide range of topics, including clinical trials, approved and experimental drugs, and preventive and therapeutic vaccines. While the analyses showed that usage patterns for consumer groups varied by communication channel, all users were provided with reliable information in response to their queries. Findings from the content analysis and the accuracy monitoring study also indicated that users were provided with confidential, accurate, and professional responses, the second goal of the service.

The following four recommendations are intended to enhance both the methods currently used to report on the impact of the service, and to continue to improve the nature and quality of responses to users.

Modify the RRTS database: These are the recommended steps for modifying the RRTS database: review current RRTS coding practices; develop a coding framework guided by and linked to key research questions pertaining to user characteristics, usage patterns, satisfaction, and response quality/accuracy; revise RRTS coding guidelines; modify database; develop a

training manual; and conduct staff training. Other related recommendations include expanding data collection efforts to include variables identified in the content analysis and considering contract reporting requirements in the overall plan.

Develop standard responses to common questions. A process could be implemented in which categories of queries are identified, and standard responses drafted, approved, and adopted. Standard responses could be evaluated periodically for accuracy, and updated as needed. This standardization of responses can include both direct answers to questions as well as referrals provided by the information specialists.

Examine the feasibility of developing a database of planned responses. The utility of the collection of standard responses would be enhanced through the development and implementation of a database of planned responses. *AIDSinfo* could benefit from the lessons learned by other information services and clearinghouses that have successfully adopted this approach.

Modify information specialist training. To be effective, information specialists need to combine their knowledge of HIV/AIDS treatment, prevention, and resources with specific skills related to the *AIDSinfo* service, including the following training elements: knowledge of the RRTS database and coding categories; competency in utilization of the RRTS database; communication skills to respond effectively to queries from users; ability to adapt skills as appropriate for each communication mode (over a telephone call, in an e-mail, through a Live Help exchange); knowledge of the (proposed) database of planned responses; and ability to quickly understand and communicate relevant new information and resources pertaining to HIV/AIDS treatment and prevention.

2 Introduction

This report provides an overview of the findings of a process evaluation study conducted on behalf of the *AIDSinfo* service. This introductory section includes a brief discussion of the background and purpose of the study, and provides an overview of the report.

2.1 Background of the Study

Launched in December 2002, *AIDSinfo* is the primary source of information on federally approved HIV/AIDS treatment and prevention guidelines, along with information on medical research and clinical trials. The service is intended for researchers, health care professionals, and the public. The goals of *AIDSinfo* are specified below:

- To serve as the primary dissemination point for Federal HIV/AIDS treatment and prevention guidelines through a comprehensive Web site. In addition, *AIDSinfo* provides information on HIV/AIDS clinical trials and related conditions, approved and experimental drugs, and preventive and therapeutic vaccines. Information is made available in a variety of electronic formats (PDF, HTML, and PDA) and in hardcopy.

- To provide user support by offering confidential, accurate, personal responses to inquiries by postal and e-mail, telephone, and Live Help.

The multi-level service is sponsored by several Department of Health and Human Service (DHHS) agencies: National Institutes of Health (National Library of Medicine, Office of AIDS Research, and National Institute of Allergy and Infectious Disease), Centers for Medicare & Medicaid Services, Health Resources and Services Administration, and the Centers for Disease Control and Prevention. Representatives from each of the sponsoring agencies participate in the *AIDSinfo* Coordinating Group. The members guide the direction of the service and ensure that the service continuously meets the needs of the target audiences.

2.2 Purpose of the Study

The *AIDSinfo* Coordinating Group, with the assistance of Aspen Systems Corporation (Aspen), designed this study[1] to address the following process evaluation goals:

- Assess how successfully the service is currently implemented
- Determine whether *AIDSinfo* goals are being achieved
- Develop a framework for continuous quality improvement in services

The overall process evaluation goals were addressed through examination of current data collection activities to assess how each addresses the following key study elements:

1 **Characteristics of *AIDSinfo* consumers.** What is known about the people who use the *AIDSinfo* service, and to what extent do user characteristics vary by communication channel?
2 **Usage patterns.** What types of information do users most frequently seek and do information retrieval patterns vary by communication channel?
3 **Satisfaction.** How satisfied are users and does satisfaction vary by communication channel?
4 **Accuracy of information provided to consumers.** How accurate are the responses to "real-time" inquiries (telephone and Live Help) and does accuracy vary by communication channel?

Using an analytic approach that combined secondary data analysis and content analysis, the Health Research Division of Aspen developed and conducted the study. In addition, a monitoring plan to assess the accuracy of information provided through the Live Help and telephone services was proposed and piloted.

[1] This study was supported through an Evaluation Express Award, funds made available through the Office of Evaluation, National Institutes of Health (NIH). Rona Siskind, of the Division of AIDS, National Institute of Allergy and Infectious Diseases (NIAID) was awarded the funds on behalf of the *AIDSinfo* Coordinating Group.

2.3 Overview of Report

This report provides a comprehensive analytical summary of the data collected through the process evaluation research methods. The remainder of the report is divided into the following three sections:

1. **Methods**: A description of the tools and approaches used to collect and analyze the data.
2. **Results**: Presentation of the results obtained through qualitative and quantitative data analysis.
3. **Conclusions**: An interpretation of the results in the context of the process evaluation goals and recommendations for future evaluation activities.

In addition, Appendices A–K are included, which provide data analysis specifications, analysis plans, the content analysis coding scheme, accuracy monitoring study materials, a research design matrix, and qualitative results of the study.

3 Methods

The methods section presents a summary of the overall study design, as well as sub-phases of the study including review of existing data and gap analysis, secondary data analyses, content analysis, and accuracy monitoring.

3.1 Study Design

The study was conducted in seven phases, as described below:

Phase I: Review of Existing Data and Gap Analysis. The first phase was a formal review and profile of current *AIDSinfo* data collection activities, including the Reference Request Tracking System (RRTS), *AIDSinfo* Web Trends reports, ACSI results, and e-mail and Live Help transcripts. NLM Clinical Information Services (CIS) monthly reports were also collected and reviewed to examine the current reporting approach for *AIDSinfo* findings.

Phase II: Secondary Data Analysis of the Reference Request Tracking System (RRTS). A secondary data analysis was conducted on data currently collected though the RRTS.

Phase III: Accuracy Monitoring and Assessment. Responses to users of the telephone and Live Help services are "real time" interactions and therefore may be more prone to error. To assess degree of accuracy, a sample of responses provided to users of these two services were assessed for content accuracy.

Phase IV: Content Analysis of Open-ended Data. To supplement the secondary analyses of RRTS data, a content analysis of actual transcripts from the Live Help and e-mail services was conducted.

Phase V: Secondary Data Analysis of ACSI Survey Data. The Phase V secondary data analysis examined ACSI survey data to identify similarities and differences between the Web site audiences and the audiences accessing *AIDSinfo* by phone, e-mail and Live Help.

Phase VI: Analysis of Web Trends Usage Data. This analysis examined overall Web usage data and compared the relevant data from the Web Trends reports to the ACSI Survey data.

Phase VII: Integration of Results and Recommended Next Steps. Drawing from the results of all phases of the study, this phase involved the synthesis of findings and development of recommendations, as presented in this Final Report.

The remainder of this section provides details on the methodology used to collect, analyze, and interpret the evaluation data for each phase. In order to provide a logical flow for presentation and discussion of study results, the phases are grouped as follows:

- Section 3.2: Review and Gap Analysis (Phase I)
- Section 3.3: Secondary Data Analyses (Phases II, V, VI)
- Section 3.4: Content Analysis (Phase IV)
- Section 3.5: Accuracy Monitoring (Phase III)

3.2 Review and Gap Analysis (Phase I)

The purpose of Phase I was to identify common or comparable variables across the three sources of data: the Reference Request Tracking System (RRTS), the American Customer Satisfaction Index (ACSI) Survey results, and *AIDSinfo* Web Trends reports. RRTS is an Intranet/Web-based data collection system that tracks *AIDSinfo* reference service activities including inbound telephone calls, e-mail inquiries, Live Help transactions, regular mail requests and other inquiries (e.g., fax requests). The ACSI Survey is a measure of Web site satisfaction that links customer satisfaction to business and research results. Web Trends tracks Web site usage patterns and visitor demographics including variables such as number of visits, unique visitors and domain-based characteristics.

Guided by the research questions included in the preliminary evaluation design and the results of the Phase I review, Aspen developed the following documents to guide the remaining analytic phases of the evaluation:

Data Analysis Specifications. The research team developed specifications for data required to conduct the secondary data analyses, as well as the content analysis. The document on data analysis specifications outlines the data collection timeframe, the required data elements, and the requested format for each dataset. The document is found in Appendix A.

Analysis Plans (Appendices B, C, D). The research team examined the data sources and mapped the available data into the key research questions. A separate analysis plan was developed for each of the three quantitative datasets -- RRTS, ACSI and Web Trends. The analysis plans outline the primary research questions, sub- or related research questions, the

specific data elements to be examined, and the methods of analysis (e.g., frequencies, crosstabulations, and measures of association).

Sections 3.3 through 3.5 describe the approach used for the secondary data analyses, as well as the content analysis and accuracy monitoring study.

3.3 Secondary Data Analysis (Phases II, V and VI)

The secondary analyses included a comprehensive review of *AIDSinfo* user demographics, usage patterns, and consumer satisfaction across all *AIDSinfo* services. Guided by the research questions presented in the Phase I analysis plans, the secondary analyses sought to 1) summarize overall patterns across the key *AIDSinfo* services, and 2) identify variations in user behavior by source of inquiry and by demographic characteristics. This section details the methodology used to collect, analyze, and interpret the RRTS (Phase II), ACSI (Phase V) and Web Trends (Phase VI) data.

Data Collection. *AIDSinfo* staff provided the Research team with raw data files from RRTS and the ACSI Survey. The files were provided in Excel format and covered two separate data collection periods: November 3, 2003 through January 31, 2004, and February 1, 2004 through April 30, 2004. The data collection periods were initially selected to coincide with the two initial ACSI Survey quarterly reporting periods. However, as described in the Results section, the databases were combined and results reported in the aggregate. Additional information on data collection specifications is provided in Appendix A.

The combined RRTS database included a total of 6,252 records after data cleaning and verification. The combined ACSI database included a total of 1,222 records. Each record included a unique identifier. For the RRTS data, the unique identifiers were the identification numbers generated by the RRTS system. For the ACSI data, the identifiers were the respondent ID numbers provided by ForeSee.

Web Trends data were provided to the Research team as MS Word files in the standard reporting format.

Creation of Analytical Files. The Excel spreadsheets containing the RRTS and ACSI data were converted to Statistical Analysis System (SAS) databases, and the following series of edit/quality control checks were performed, particularly on the RRTS data:

- *Identification of duplicate responses.* A SAS edit check, consisting of an examination of data in specific fields (e.g., question codes), was performed to identify potential duplicate entries. Approximately 95 potential duplicates were deleted from the database.

- *Identification and deletion of blank records.* The database was scanned to identify blank records. No records were dropped through this process.

- *Identification of unusable data.* Preliminary frequencies were also examined for unusable records (i.e., records missing key analytic variables). No records were deleted from the

database because of unusable information. However, inconsistencies in the coding of RRTS question categories were identified and noted during data analysis.

All Web Trends data were collected and organized in terms of number of visits. There were a total of 607,189 visits for the combined data collection period.[2]

Data Analysis and Interpretation. The following variables were examined in the secondary quantitative analysis:

- Gender of user
- Language of user
- Geographic distribution
- Role of individual accessing *AIDSinfo*
- Variation in demographics by communication channel
- Usage patterns (i.e., referrals, information sought and frequency of visits)
- Variation in usage patterns by communication channel
- Variation in usage patterns by selected user characteristics

The quantitative analyses were limited to descriptive and summary statistics. One-way frequencies and cross-tabulations were run for the selected study variables as outlined in the analysis plans (Appendices B, C, and D).

RRTS and ACSI frequencies and crosstabulations were converted from SAS to MS Word tables using the SAS Output Delivery System (ODS) feature. The Research team extracted Web Trends information and entered the data into Excel spreadsheets. As a final step, graphic displays were created for selected variables.

3.4 Content Analysis (Phase IV)

The *AIDSinfo* staff use the Reference Request Tracking System (RRTS) to capture information on a variety of key variables. The primary purpose of Phase IV of the process evaluation was to examine the transcripts from Live Help and e-mail information exchanges to determine if information relevant to the goals of this project, and not currently coded in the RRTS database, was available. In addition, qualitative analysis of these data provided information on such items as consumer satisfaction and qualities associated with the responses provided to consumers (e.g., appropriate greeting, professionalism, number of internet links provided).

Data collection. Copies of e-mail and Live Help transcripts generated from April 13 through May 31, 2004 were provided to the Research team by *AIDSinfo* staff. There were a total of 305 transcripts: 112 e-mail and 193 Live Help. Each information exchange was labeled with the unique identification number generated by the RRTS system.

[2] **Note:** If a visitor was idle longer than the designated thirty-minute idle-time limit, Web Trends assumed the visit was voluntarily terminated. If the visitor continued to browse the site after they reached the idle-time limit, a new visit was counted. The Web Trends analysis is limited to the extent that a single visit was counted more than once.

Development of the coding scheme and manual. The content analysis coding scheme was developed in several incremental steps. First, two members of the Research team independently reviewed the collection of transcripts and developed preliminary content analysis schemes. Next, the researchers met and constructed a common coding scheme, which was then compared to the variables currently coded in the RRTS database. In the final step, the variables unique to the newly constructed scheme were retained. Once the coding scheme was finalized, a coding manual was developed. The coding manual contains descriptions and response categories for the variables being coded as well as examples of responses that were difficult to code. The content analysis coding scheme can be found in Appendix E.

The content analysis addressed the following categories of information:

- Usage patterns
- Requestor characteristics
- Information provided to requestor by Information Specialist
- Information Specialist manner of providing information.

Coding. Using the coding manual as a guide, a senior research analyst trained the coders, oversaw coding and data entry, and validated codes. The coding manual was updated to reflect changes in variable meaning or coder instruction throughout the coding process. Subsets of information exchanges were double coded to ensure reliability; discrepancies between coders were discussed and resolved. Data were entered into an Excel database.

Analysis. The data were converted from an Excel file into a SAS database and quality control checks were performed to check for potential duplicate records or inconsistently coded data fields. No data inconsistencies were detected. Analyses were limited to descriptive statistics. One-way frequencies and cross-tabulations were run for the coded variables as outlined in the analysis plan (Appendix F).

3.5 Accuracy Monitoring (Phase III)

Information specialists responding on the telephone and through the Live Help service are required to produce accurate responses without the opportunity to compose and review them. The purpose of Phase III was to develop and implement an accuracy monitoring plan to assess content accuracy for responses provided through these two services. In addition, this study served as a pilot to examine the feasibility of conducting future accuracy monitoring. Members of the *AIDSinfo* Coordinating Group volunteered to pose the actual test queries. Aspen's research team provided assistance in the development of the study plan and was responsible for materials development, data coordination and analysis.

Development of the Study Plan. A draft Accuracy Monitoring and Assessment Study Plan was developed and delivered by e-mail to the *AIDSinfo* Coordinating Group members on June 21, 2004. The Study Plan was also presented at the *AIDSinfo* Coordinating Group meeting held on June 24, 2004. Following discussion of the plan, members agreed to submit sample test queries to Aspen's evaluation team for review and comparison with actual consumer-generated queries. A total of 24 queries were submitted. Based on the content of these queries, three topics were

selected to include in the study: vaccines, treatment, and clinical trials. The final set of test queries used in the pilot study was a combination of those relevant queries submitted by the experts, and a set of topic-relevant consumer-generated queries, for a total of 30 test queries.

Conduct of the Study. Two members of the Coordinating Group volunteered to pose the test queries. Aspen provided the volunteers with detailed instructions and materials to conduct the study, including a data collection checklist. September 13–24, 2004 was designated as the testing period. The volunteers were instructed to return the completed checklists to Aspen for processing and analysis. Detailed information on the methodology, including correspondence and questions posed to the information specialists, can be found in Appendix G.

Post-Study Process Review. One of the purposes for conducting the *AIDSinfo* Accuracy Monitoring study in the context of this process evaluation was to determine the feasibility of implementing similar efforts in the future. In order to address this, impressions of the process were gathered from the participants in the study including Coordinating Group members, agency staff who posed the test queries, and *AIDSinfo* staff. This process feedback will guide the refinement of current procedures and generate recommendations for future accuracy monitoring activities.

Agency and *AIDSinfo* staff persons were contacted to request their participation in brief telephone discussions designed to solicit feedback about their perceptions about accuracy monitoring and the methods used in this pilot study to assess accuracy, and to collect their suggestions for improving the processes used in this study. A semi-structured interview was developed to guide the discussion and to provide standardized results. This data collection tool can be found in Appendix H. Discussions ranged in length from 5 to 15 minutes and were conducted over the course of four days. Data were qualitatively examined and summarized by a research analyst.

4 Results

4.1 Review and Gap Analysis (Phase I)

One of the products of the review, profile, and synthesis of existing *AIDSinfo* data sources was a conceptual framework that links specific analytic questions with the key study elements (the primary research questions) and the information source. Based on the individual analysis plans for the secondary analysis evaluation phase, and informed by questions guiding the content analysis and accuracy monitoring study, this research design matrix provided a structure for plotting the analysis steps underlying the process evaluation. During the course of this evaluation, the matrix was a useful tool for identifying gaps and duplication in data collection efforts, as well as for providing guidance as to the relationship of information source and research question. The Research Design Matrix is presented in Appendix I.

4.2 Secondary Data Analyses (Phases II, V, VI)

The secondary analyses provide a coordinated overview of three of the four study elements: user demographics, usage patterns, and to the extent possible, consumer satisfaction across all *AIDSinfo* services, identifying relationships between key demographics and user behavior.

The timeframe for the secondary analysis was chosen to coincide with the two initial quarterly reporting periods for the American Customer Satisfaction Index (ACSI) survey—November 3, 2003 through January 31, 2004 and February 1, 2004 through April 30, 2004. The original intent was to report data separately for each quarter to account for any external factors affecting the data for a given period. However, preliminary analyses showed little difference in results between the two timeframes. Therefore, the quarterly analyses have been excluded from the report. Results are reported for the combined data collection period from November 3, 2003 through April 30, 2004.

This section presents the results of the secondary data analysis, reported by relevant study element.

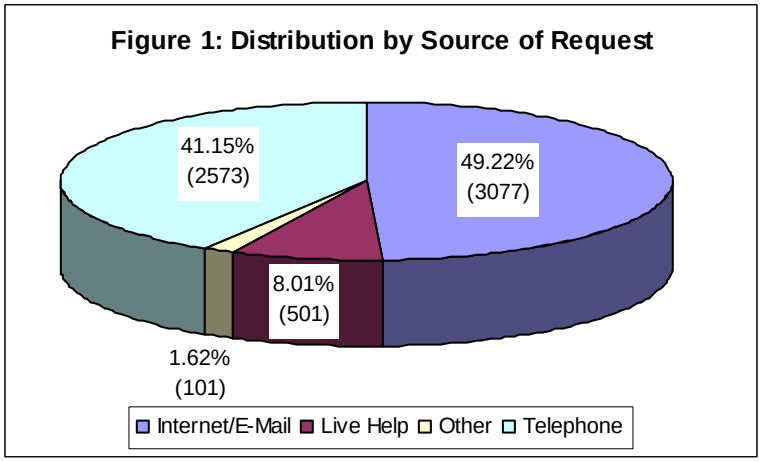
4.2.1 Characteristics of *AIDSinfo* Users (Study Element 1)

This component of the evaluation addressed two broad research questions: what are the overall characteristics of the people who use the *AIDSinfo* services, and to what extent do user characteristics vary by the communication channel they use (e.g., telephone, e-mail, Live Help or Web site)?

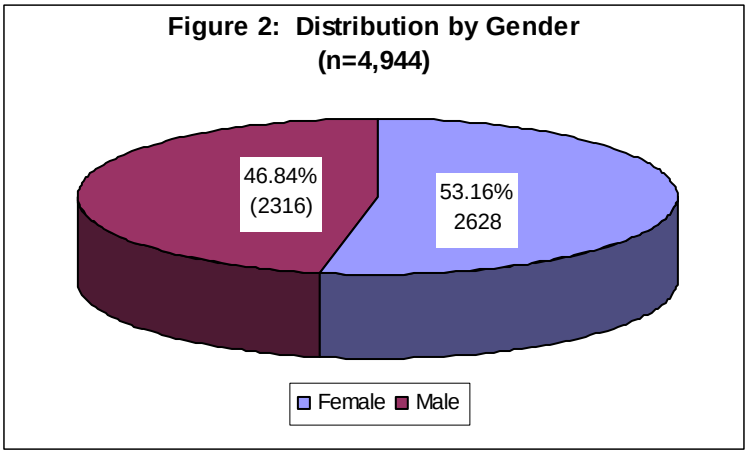
Demographic data captured during telephone, e-mail, and Live Help communications, and from the Web site survey and Web site browser statistics, made it possible to describe the characteristics of *AIDSinfo* consumers and to identify differences by communication channel. As indicated in the Research Design Matrix (Appendix I), three information sources addressed this evaluation element—RRTS, the ACSI survey and Web Trends data. The distribution of demographic characteristics and related patterns across the data sources are described below.

RRTS Secondary Data Analysis

As Figure 1 illustrates, RRTS data showed that the majority of requests for the reporting period were received either by e-mail (49%) or by telephone (41%).



Gender was fairly evenly distributed overall, and for the two primary request methods—e-mail and telephone (see Figure 2). However, as shown in figure 3, males appear more likely than females to use Live Help and other sources (e.g., mail or fax) to request information, with roughly two-thirds of these inquiries received from male requestors.



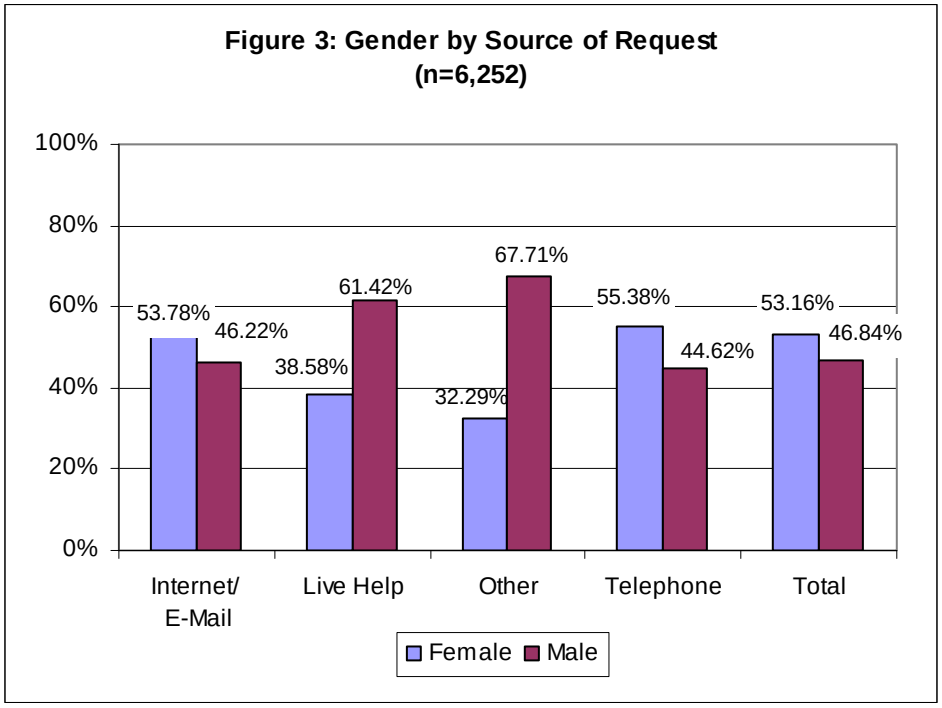
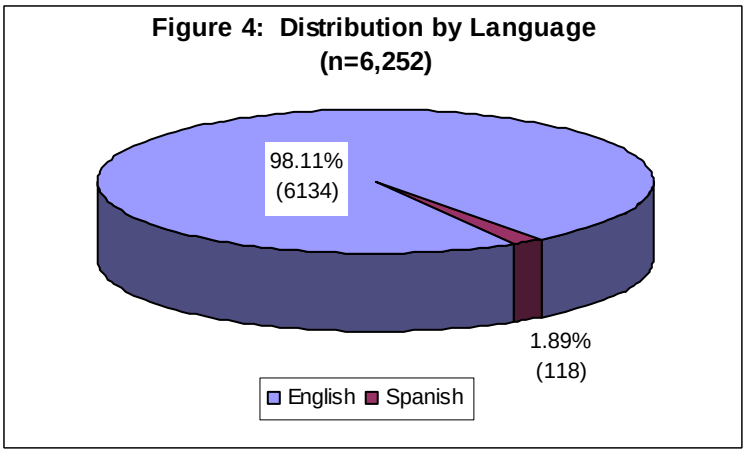
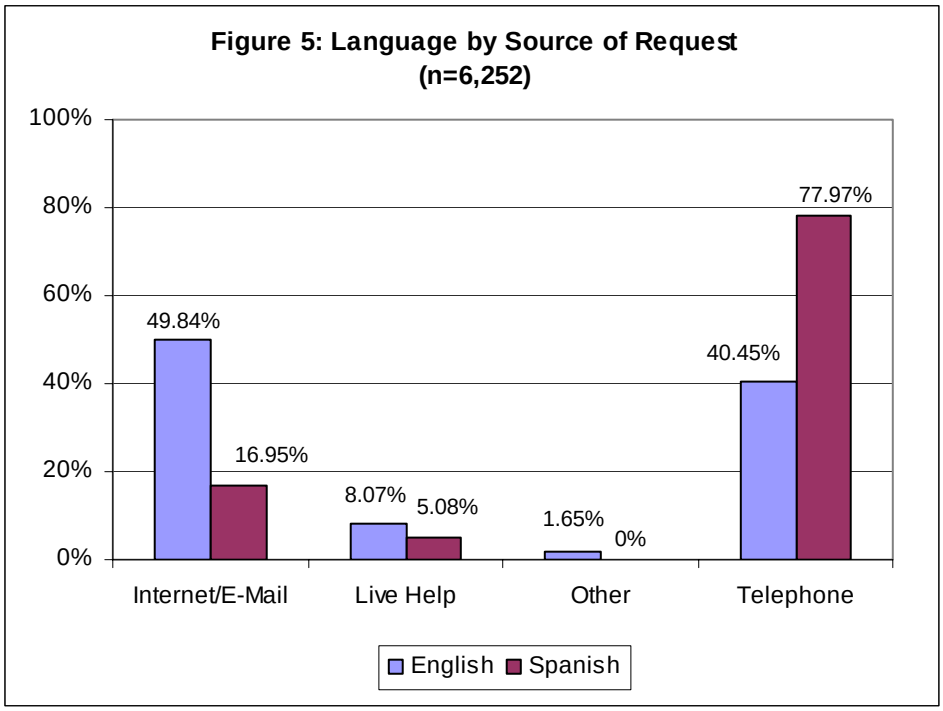


Figure 4 shows the language distribution of *AIDSinfo* requestors, collectively and by source of request. Virtually all (98%) of the requests were received in English. As expected, the distribution of inquiries by source of request for the English category was representative of the overall distribution, with the majority (90%) received by e-mail or by telephone. However, more than three-fourths of the 118 Spanish language requests were received by telephone (Figure 5).





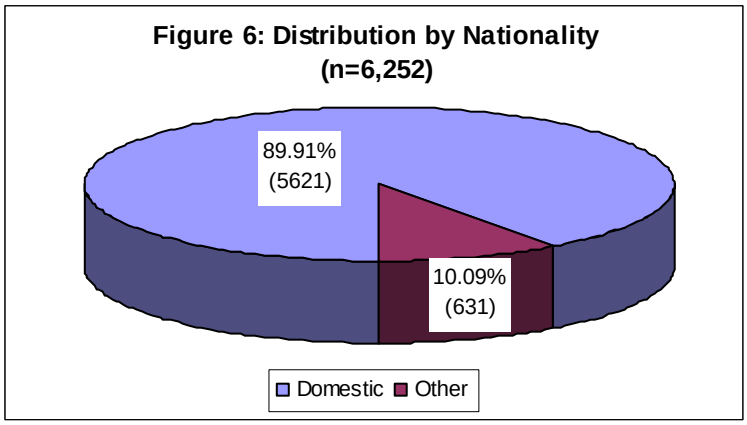
The secondary analysis also included a review of *AIDSinfo* requests by U.S. Census region, domestic versus international origin, and United Nations (UN) region. It should be noted that the results of the analysis by U.S. Census region are limited by the relatively small base. For purposes of this analysis, ZIP Codes were used to assign state codes and U.S. Census regions. ZIP Codes were only captured for 1111 of the 6252 requests. These were typically telephone requests where information specialists are instructed to collect ZIP Code information for tracking purposes.

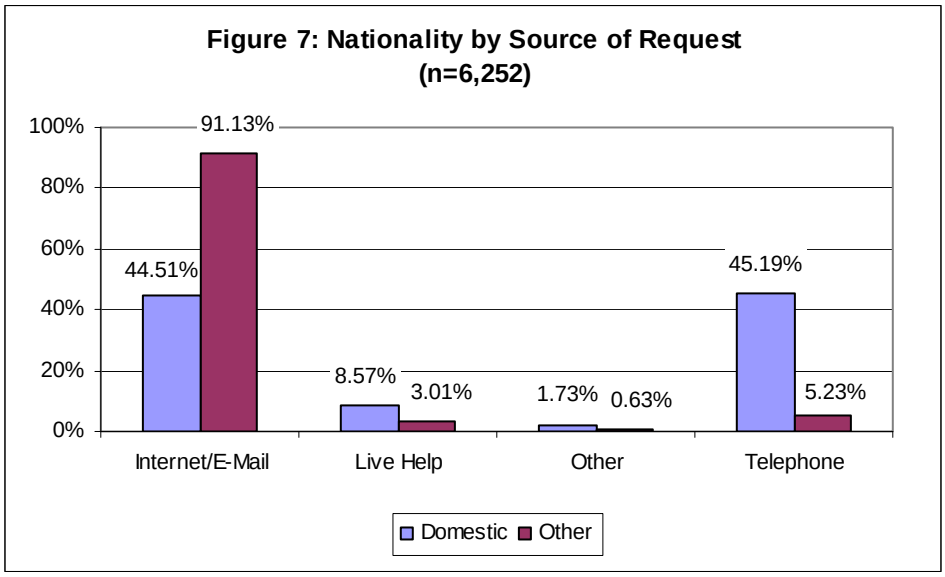
Of the 1,111 requests that included a valid ZIP Code, almost half (47%) were from the southern region (Table 1). The fewest number of requests (14%) were received from the midwestern region. Not surprisingly, telephone was the most common request method across all regions, with percentages ranging from 84 percent for the northeastern region to 95 percent for the midwestern region.

Table 1: U.S. Region By Source of Request

Region	n %	Internet /E-Mail	Live Help	Other	Phone	Total		Overall
Midwest	**n**	3	0	4	143	150		150
	%	*2.00*	*0.00*	*2.67*	*95.33*	*100.00*		*13.50*
Northeast	**n**	5	1	32	198	236		236
	%	*2.12*	*0.42*	*13.56*	*83.90*	*100.00*		*21.24*
South	**n**	21	0	42	460	523		523
	%	*4.02*	*0.00*	*8.03*	*87.95*	*100.00*		*47.07*
West	**n**	10	0	10	182	202		202
	%	*4.95*	*0.00*	*4.95*	*90.10*	*100.00*		*18.18*
Total	**n**	**39**	**1**	**88**	**983**	**1,111**		**1,111**
	%	***3.51***	***.09***	***7.92***	***88.48***	***100.00***		***100.00***

While U.S. *region* could not be identified for all cases, U.S. versus non-U.S. countries could be identified from e-mail and IP addresses as well as from telephone interactions. In cases where country could not be identified, the default category (U.S.) was assigned by RRTS. As shown in Figure 6, 90 percent (5,621) of the requests were received from domestic areas. Figure 7 further illustrates that non-U.S. countries were significantly more likely to utilize e-mail than other sources of contact, with 91 percent utilizing this source.





A further review of the 631 requests from non-U.S. countries by UN region showed that the majority of requests (57%) were received from Europe (30%) or Asia (27%) (Table 2).

Table 2: UN Region by Source of Request

UN Region	(n) %	Internet/ E-mail	Live Help	Other	Telephone	Total
Africa	n	81	4	0	2	87
	%	*14.09*	*21.05*	*0.00*	*6.06*	*13.79*
Asia	n	154	6	2	10	172
	%	*26.78*	*31.58*	*50.00*	*30.30*	*27.26*
Europe	n	181	0	1	7	189
	%	*31.48*	*0.00*	*25.00*	*21.21*	*29.95*
Latin America	n	99	4	0	4	107
	%	*17.22*	*21.05*	*0.00*	*12.12*	*16.96*
Northern America*	n	35	5	0	4	44
	%	*6.09*	*26.32*	*0.00*	*12.12*	*6.97*
Oceania	n	17	0	0	0	17
	%	*2.96*	*0.00*	*0.00*	*0.00*	*2.69*
Other	n	8	0	1	6	15
	%	*1.39*	*0.00*	*25.00*	*18.18*	*2.38*
Total	**n**	**575**	**19**	**4**	**33**	**631**
	%	***100.00***	***100.00***	***100.00***	***100.00***	***100.00***

* Note that the United States was excluded from the Northern America region for purposes of this analysis.

Table 3 presents a distribution of *AIDSinfo* requests by requestor type (or role). The general public (domestic and international) accounted for more than a third of the requests. The second largest category included health professionals and physicians (19%), and the third largest included HIV positive individuals, or family or friends of HIV positive individuals (14%). Approximately nine percent of the requests came from students, and approximately seven percent were received from community-based organizations. Each of the remaining categories accounted for less than five percent of the requests, with the majority representing less than one percent.

An examination of communication channel by requestor type revealed a clear pattern, particularly for domestic inquiries. With the exception of CDC where there were only three cases, organizational requestors (e.g., health care facilities, businesses, schools and Federal agencies) were generally more likely to use e-mail than other sources when contacting *AIDSinfo*. Members of the general public were about equally split between e-mail and telephone, while HIV positive individuals and friends and relatives were more likely to contact *AIDSinfo* by telephone. However, it was interesting that domestic *community-based* organizations used the telephone more frequently (64 percent of the time) than e-mail (33 percent of the time) when requesting information or assistance.

Table 3: Requestor Type by Source of Request

Requester Type	n / %	Internet/ E-Mail	Live Help	Other	Phone	Total		Overall
Community-Based Organization (CBOs)	**n**	126	6	6	244	382		382
	%	*32.98*	*1.57*	*1.57*	*63.87*	*100.00*		*6.29*
Centers for Disease Control (CDC)	**n**	1	0	0	2	3		3
	%	*33.33*	*0.00*	*0.00*	*66.67*	*100.00*		*0.05*
Chronic Caller	**n**	1	0	0	56	57		57
	%	*1.75*	*0.00*	*0.00*	*98.25*	*100.00*		*0.94*
Business/Company	**n**	115	5	0	46	166		166
	%	*69.28*	*3.01*	*0.00*	*27.71*	*100.00*		*2.73*
Educator/School	**n**	172	4	0	28	204		204
	%	*84.31*	*1.96*	*0.00*	*13.73*	*100.00*		*3.36*
Family and Friend of HIV Positive Individual	**n**	21	27	0	209	257		257
	%	*8.17*	*10.51*	*0.00*	*81.32*	*100.00*		*4.23*
Federal Agencies (Other Than PHS)	**n**	60	2	0	18	80		80
	%	*75.00*	*2.50*	*0.00*	*22.50*	*100.00*		*1.32*
Health Professionals/Healthcare Service	**n**	369	22	3	198	592		592
	%	*62.33*	*3.72*	*0.51*	*33.45*	*100.00*		*9757*

Requester Type	n %	Internet/ E-Mail	Live Help	Other	Phone	Total		Overall
Hotlines	**n**	0	0	0	2	2		2
	%	*0.00*	*0.00*	*0.00*	*100.00*	*100.00*		*0.03*
International Community-Based Organization (CBOs,ASOs)	**n**	41	0	0	4	45		45
	%	*91.11*	*0.00*	*0.00*	*8.89*	*100.00*		*0.74*
International Business/Company	**n**	19	0	0	1	20		20
	%	*95.00*	*0.00*	*0.00*	*5.00*	*100.00*		*0.33*
International Educator/School/University	**n**	42	0	2	1	45		45
	%	*93.33*	*0.00*	*4.44*	*2.22*	*100.00*		*0.74*
International Family and Friend of HIV Positive Individual	**n**	3	2	0	2	7		7
	%	*42.86*	*28.57*	*0.00*	*28.57*	*100.00*		*0.12*
International Health Professional/Healthcare Service	**n**	186	3	0	2	191		191
	%	*97.38*	*1.57*	*0.00*	*1.05*	*100.00*		*3.14*
International Information Provider/Media	**n**	2	0	1	1	4		4
	%	*50.00*	*0.00*	*25.00*	*25.00*	*100.00*		*0.07*
International Physician	**n**	90	3	0	3	96		96
	%	*93.75*	*3.13*	*0.00*	*3.13*	*100.00*		*1.58*
International HIV Negative Individual	**n**	0	0	0	3	3		3
	%	*0.00*	*0.00*	*0.00*	*100.00*	*100.00*		*0.05*
Information Provider	**n**	5	1	2	22	30		30
	%	*16.67*	*3.33*	*6.67*	*73.33*	*100.00*		*0.49*
Prison Inmate	**n**	2	0	40	3	45		45
	%	*4.44*	*0.00*	*88.89*	*6.67*	*100.00*		*0.74*
International Pharmaceutical Company	**n**	12	0	0	0	12		12
	%	*100.00*	*0.00*	*0.00*	*0.00*	*100.00*		*0.20*
International HIV Positive Individual	**n**	10	0	0	0	10		10
	%	*100.00*	*0.00*	*0.00*	*0.00*	*100.00*		*0.16*
International Professional Organization/Association	**n**	19	0	0	0	19		19
	%	*100.00*	*0.00*	*0.00*	*0.00*	*100.00*		*0.31*
International General Public/Consumer	**n**	150	9	1	11	171		171
	%	*87.72*	*5.26*	*0.58*	*6.43*	*100.00*		*2.82*
International Religious Organization	**n**	3	0	0	0	3		3
	%	*100.00*	*0.00*	*0.00*	*0.00*	*100.00*		*0.05*

Requester Type	n %	Internet/ E-Mail	Live Help	Other	Phone	Total		Overall
International Researcher	**n**	4	0	0	0	4		4
	%	*100.00*	*0.00*	*0.00*	*0.00*	*100.00*		*0.07*
International Student	**n**	39	1	0	1	41		41
	%	*95.12*	*2.44*	*0.00*	*2.44*	*100.00*		*0.68*
Physician	**n**	179	5	1	93	278		278
	%	*64.39*	*1.80*	*0.36*	*33.45*	*100.00*		*4. 58*
National AIDS Hotline (NAH)	**n**	2	0	0	0	2		2
	%	*100.00*	*0.00*	*0.00*	*0.00*	*100.00*		*0.03*
HIV Negative Individual	**n**	1	2	0	25	28		28
	%	*3.57*	*7.14*	*0.00*	*89.29*	*100.00*		*0.46*
Pharmaceutical Companies	**n**	102	0	0	6	108		108
	%	*94.44*	*0.00*	*0.00*	*5.56*	*100.00*		*1.78*
Public Health/Social Services Department	**n**	63	0	0	10	73		73
	%	*86.30*	*0.00*	*0.00*	*13.70*	*100.00*		*1.20*
HIV Positive Individual	**n**	32	43	15	463	553		553
	%	*5.79*	*7.78*	*2.71*	*83.73*	*100.00*		*9.10*
Correctional Facilities (Prison Officials)	**n**	16	0	6	4	26		26
	%	*61.54*	*0.00*	*23.08*	*15.38*	*100.00*		*0.43*
Professional Organizations/Associations	**n**	31	1	0	5	37		37
	%	*83.78*	*2.70*	*0.00*	*13.51*	*100.00*		*0.61*
General Public/Consumer	**n**	834	244	17	816	1911		1911
	%	*43.64*	*12.77*	*0.89*	*42.70*	*100.00*		*31.46*
Religious Organizations	**n**	12	0	2	4	18		18
	%	*66.67*	*0.00*	*11.11*	*22.22*	*100.00*		*0.30*
Researcher	**n**	9	5	1	30	45		45
	%	*20.00*	*11.11*	*2.22*	*66.67*	*100.00*		*0.74*
SLGOV	**n**	4	0	0	0	4		4
	%	*100.00*	*0.00*	*0.00*	*0.00*	*100.00*		*0.07*
Student	**n**	298	78	4	122	502		502
	%	*59.36*	*15.54*	*0.80*	*24.30*	*100.00*		*8.26*
Total	**n**	**3077**	**501**	**101**	**2573**	**6252**		**6252**
	%	***49.22***	***8.01***	***1.62***	***41.15***	***100.00***		***100.00***

Analysis of ACSI and Web Trends Demographic Data

In addition to the examination of RRTS demographic data, the evaluation included a review of data from the ForeSee American Customer Satisfaction Index (ACSI) Survey from the two initial quarterly reporting periods, and an examination of Web Trends Web usage data for the same timeframe. The following research questions were addressed:

- How does the distribution of ACSI survey respondents compare to users who accessed *AIDSinfo* by telephone, e-mail or Live Help (i.e., RRTS data)?
- How does the distribution of ACSI survey respondents compare to all Web site (Web Trends) visitors (are they representative of the overall population)?
- How does the distribution of all Web site visitors compare to demographic data captured in RRTS?

These analyses were limited to variables that were analogous between or across databases. Also, for many variables, it was not possible to make *direct* comparisons across databases. Given the different data collection methodologies (e.g., collection of Web Trends data based on browser information), response categories were often unavailable or inconsistent across the three sources.

Comparison of ACSI and RRTS Data. Comparable demographic variables between the ACSI Survey and RRTS data included the following four variables: gender, language, geographic location and user type (or role).

The distribution of ACSI Survey respondents by gender was almost identical to the distribution of users accessing *AIDSinfo* by telephone or e-mail (the primary RRTS request methods). Again, the distribution was fairly evenly distributed among females and males with a slightly higher percentage of female (54%) than male (46%) respondents (Figure 8).

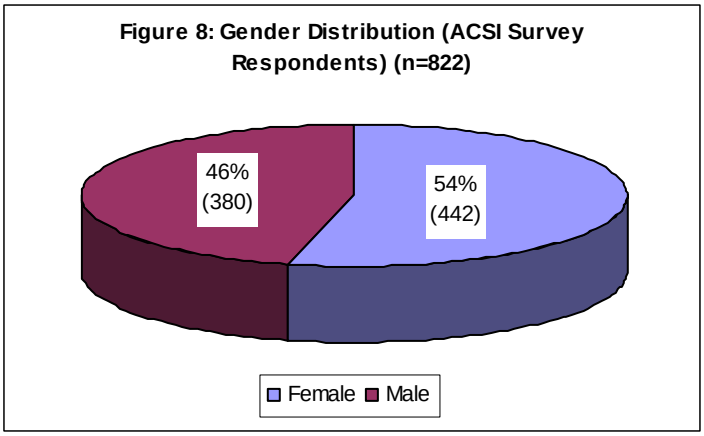
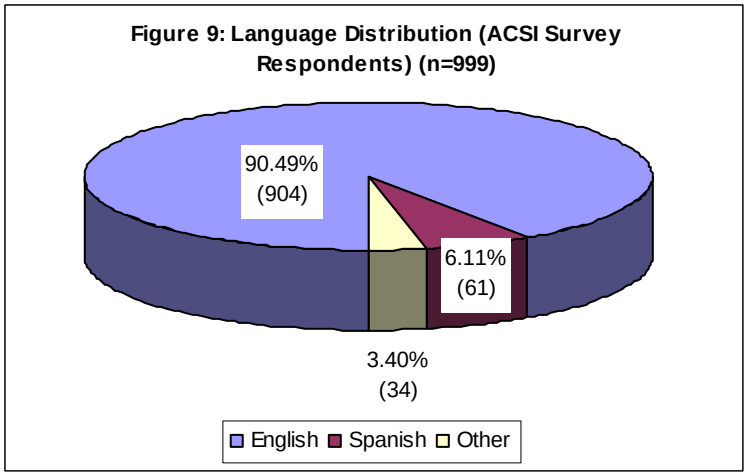


Figure 9 shows the preferred Web reading language distribution among ACSI Survey respondents. These results also parallel the findings of the RRTS secondary data analysis, with

more than 90 percent of respondents preferring the English language. However, the percentage of respondents requesting Spanish Web reading language (6%) was slightly higher than the percentage of Spanish language requests received by e-mail, telephone or Live Help (2%).

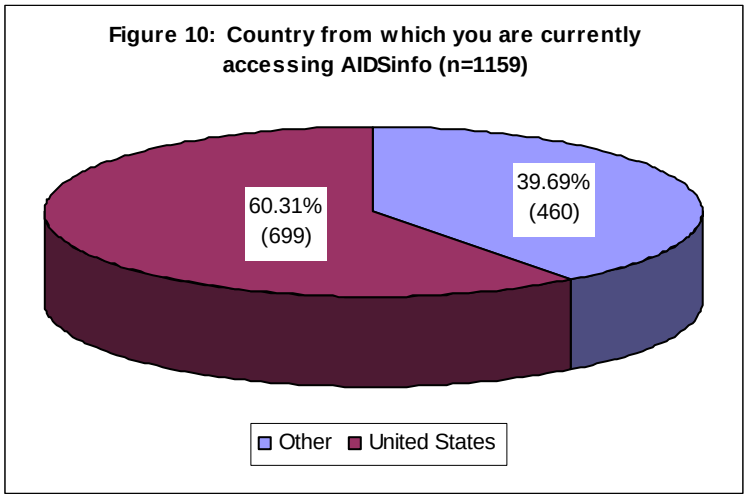


The results by U.S. Census region were also consistent with the findings of the RRTS analysis. Among the cases where region was identified, about 41 percent of the ACSI Survey respondents were from the southern region of the United States, and the fewest numbers of respondents were from the midwestern (18%) and western (17%) regions (Table 4).

Table 4: U.S. Region Distribution (ACSI Survey Respondents)

Region	Frequency	Percent
South	277	*40.98*
West	118	*17.46*
Northeast	161	*23.82*
Midwest	120	*17.75*
Total	**676**	***100.00***

However, a comparison of the distribution of responses by country showed differences between the ACSI survey results and the RRTS data. While roughly 90 percent of the RRTS requests were from the United States, only 60 percent of the ACSI Survey responses were from the U.S. (Figure 10.). This result might be explained, at least in part, by the fact that RRTS assigned U.S. as the default when a country code was unavailable.



Further, a review of the 460 surveys from non-U.S. countries by UN region showed that the majority of responses (53%) were received from Europe (28%) or Latin America (25%) (Table 5). While Europe remained the predominant UN region between the two data sources, Latin America replaced Asia as the second highest category among Web survey respondents.

Table 5:UN Region Distribution

UN Region	Frequency	Percent
Asia	89	*19.35*
Oceania	26	*5.65*
Europe	129	*28.04*
Africa	67	*14.57*
Latin America	113	*24.57*
Other	5	*1.09*
Northern America	31	*6.74*
Total	**460**	***100.01***

The final analysis of ACSI and RRTS demographic data included a comparison by user type, or role in which *AIDSinfo* users were accessing the service. The purpose was to determine how the role of Web survey respondents differed from those requesting information by e-mail, telephone or Live Help.

As Table 6 illustrates, the majority of the survey respondents (more than 80 percent) were accessing the Web site in a professional capacity. Collectively, individuals such as HIV/AIDS patients, family or friends of persons living with AIDS, the general public, advocates, and the

category "other" respondents accounted for less than 20 percent of the survey population. This finding was very similar to the examination of RRTS data, which showed that organizational (or professional) requestors were generally more likely to use electronic methods when accessing *AIDSinfo*, while individuals were just as likely, and in some cases, more likely to contact information specialists by telephone.

Table 6: Role in Visiting the *AIDSinfo* Site

Role	Frequency	Percent
Physician	367	*30.03*
Dentist	9	*0.74*
Nurse	125	*10.23*
Other provider	68	*5.56*
Researcher or Scientist	91	*7.45*
Patient	47	*3.85*
Family or friend of person living with HIV	49	*4.01*
Advocate	23	*1.88*
Pharmacist	88	*7.20*
Pharmaceutical industry official	11	*0.90*
Librarian or other information provider	22	*1.80*
College or Graduate Student	83	*6.79*
General public	22	*1.80*
Educator	52	*4.26*
Elementary school student (up to grade 6)	2	*0.16*
Secondary school student (grades 7 - 12)	49	*4.01*
Healthcare administrator	12	*0.98*
News reporter or media	10	*0.82*
Public health official	22	*1.80*
Other	70	*5.73*
Total	**1222**	***100.00***

Comparison of Web Trends Versus RRTS and ACSI Data. The Web Trends demographic analysis was limited to a comparison of two variables: broad geographic region (domestic versus international) and user type. Given the nature of the Web Trends data (i.e., browser-based data), the more meaningful comparisons were based on usage patterns, which are summarized in the next section of this report.

The Web Trends demographic variable "domestic versus international status" was created from a list of "most active countries" defined by the number of visits to the *AIDSinfo* Web site. User type was defined based on top domain types.

Web Trends reported the top 20 most active countries in terms of the number of visits to the Web site. For the evaluation period (11/3/03-4/30/04), the United States was listed as the most active country, representing 86 percent of the visits (Figure 11). This finding was consistent with both the RRTS and ACSI secondary data analyses.

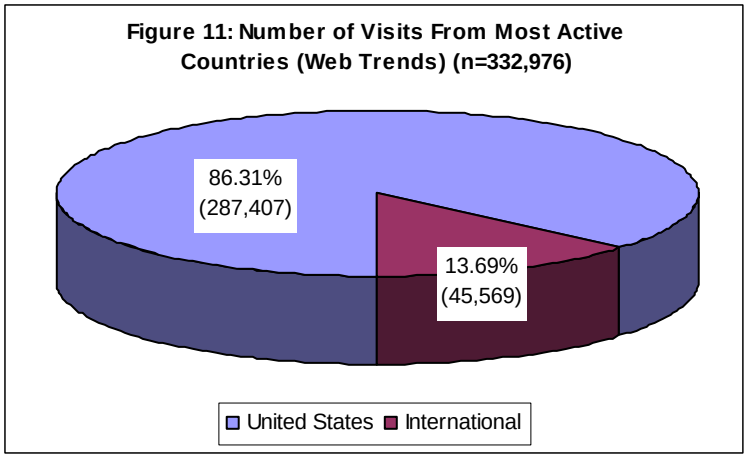


Table 7 lists the top-level domain types for the evaluation period. Since domain type was based solely on Web browser data, it was impossible to determine the specific role in which visitors were accessing the Web site. However, the fact that most (86 %) of the top-level domains include a ".com" or ".net" extension indicates that the *AIDSinfo* Web site was most frequently accessed by commercial organizations and members of the general public. Previous results of this study suggested that the majority of these visits probably occurred in a professional or organizational capacity.

Table 7: Number of Visits by Domain Type (Web Trends)

Domain Type	Frequency	Percent
Commercial	158,288	*52.78*
Network	100,098	*33.38*
Education	25,869	*8.63*
Organization	8,670	*2.89*
Government	5,291	*1.76*
Military	1,557	*.52*
Arpanet	87	*.03*
International	44	*.01*
Total	**299,904**	***100.00***

4.2.2 Usage Patterns among *AIDSinfo* Users (Study Element 2)

In addition to providing a demographic profile of *AIDSinfo* service users, the process evaluation sought to provide a coordinated overview of usage patterns across services for four variables: sources of entry into the *AIDSinfo* Web site (i.e., how users were referred to the site), referral outcomes (i.e., sources that users were most frequently referred to by *AIDSinfo*), and types of information sought. The evaluation also compared the overall volume of traffic on the *AIDSinfo* Web site to the traffic pattern among ACSI Web Survey respondents.

RRTS Secondary Data Analysis

The secondary analysis of usage data began with a review of usage patterns for the three primary request methods tracked in RRTS—e-mail, telephone and Live Help. Overall, *AIDSinfo* requestors were most frequently referred to the service by visiting the *AIDSinfo* Web site (63%). This finding was not particularly surprising since the Web site remains the most widely used method of access to *AIDSinfo* services. As shown in Table 8, no other source of referral even closely matched the Web site. In fact, only one source, printed materials/brochures, represented at least 10 percent of referrals.

However, a crosstabulation of referral source by communication channel showed that while virtually all of the e-mail (99%) and Live Help (95%) requestors were referred by the *AIDSinfo* Web site, incoming referral sources were more spread out among telephone requestors. Approximately 28 percent of telephone requestors were referred to the *AIDSinfo* service by printed materials or brochures. The second largest referral category for telephone requestors was external Web sites (16%), and the third largest category represented requestors who were repeat callers (15%).

Table 8: Referral Source by Communication Channel

Referral Source	n %	Internet/ E-mail	Live Help	Other	Phone	Total		Overall
***AIDSinfo* Web site**	**n** **%**	3045 *99.44*	431 *95.14*	1 *1.96*	200 *8.87*	3677 *100.00*		3677 *63.17*
AmFar	**n** **%**	0 *0.00*	0 *0.00*	0 *0.00*	2 *0.09*	2 *100.00*		2 *0.03*
Community Based Organization	**n** **%**	0 *0.00*	0 *0.00*	3 *5.88*	36 *1.60*	39 *100.00*		39 *0.67*
Centers for Disease Control & Prevention	**n** **%**	2 *0.07*	0 *0.00*	1 *1.96*	56 *2.48*	59 *100.00*		59 *1.01*
Company/Business	**n** **%**	0 *0.00*	0 *0.00*	0 *0.00*	3 *0.13*	3 *100.00*		3 *0.05*
Educator	**n** **%**	0 *0.00*	0 *0.00*	0 *0.00*	2 *0.09*	2 *100.00*		2 *0.03*
EML	**n** **%**	1 *0.03*	0 *0.00*	0 *0.00*	2 *0.09*	3 *100.00*		3 *0.05*
Food & Drug Adm.	**n** **%**	0 *0.00*	0 *0.00*	0 *0.00*	1 *0.04*	1 *100.00*		1 *0.02*
Federal Agency (Not PHS)	**n** **%**	0 *0.00*	0 *0.00*	0 *0.00*	7 *0.31*	7 *100.00*		7 *0.12*
Healthcare Professional/Healthcare Service	**n** **%**	0 *0.00*	0 *0.00*	1 *1.96*	43 *1.91*	44 *100.00*		44 *0.76*
Hotline (Not NAH, SAH, NAC)	**n** **%**	0 *0.00*	0 *0.00*	9 *17.65*	53 *2.35*	62 *100.00*		62 *1.07*
Information Provider/Media	**n** **%**	0 *0.00*	0 *0.00*	0 *0.00*	8 *0.35*	8 *100.00*		8 *0.14*
Live Help User	**n** **%**	0 *0.00*	12 *100.00*	0 *0.00*	0 *0.00*	12 *100.00*		12 0.21
Magazine/Journal/Print Ad	**n** **%**	0 *0.00*	0 *0.00*	4 *7.84*	47 *2.08*	51 *100.00*		51 *0.88*
Printed Materials/Brochures	**n** **%**	2 *0.07*	0 *0.00*	12 *23.53*	629 *27.89*	643 *100.00*		643 *11.05*
Meeting/Conference	**n** **%**	0 *0.00*	0 *0.00*	0 *0.00*	6 *0.27*	6 *100.00*		6 *0.10*

Referral Source	n / %	Internet/ E-mail	Live Help	Other	Phone	Total		Overall
National Prevention Information Network (NPIN)	**n**	0	0	0	21	21		21
	%	*0.00*	*0.00*	*0.00*	*0.93*	*100.00*		*0.36*
National AIDS Hotline (NAH)	**n**	0	0	1	96	97		97
	%	***0.00***	*0.00*	*1.96*	*4.26*	*100.00*		*1.67*
Phone Operator/Phone Book	**n**	1	0	0	184	185		185
	%	*0.03*	*0.00*	*0.00*	*8.16*	*100.00*		*3.18*
Organization	**n**	0	0	2	22	24		24
	%	*0.00*	*0.00*	*3.92*	*0.98*	*100.00*		*0.41*
Other	**n**	1	0	1	42	44		44
	%	*0.03*	*0.00*	*1.96*	*1.86*	*100.00*		*0.76*
Personal	**n**	1	0	2	46	49		49
	%	*0.03*	*0.00*	*3.92*	*2.04*	*100.00*		*0.84*
Public Health Service (not FDA, CDC, HCFA)	**n**	0	0	0	6	6		6
	%	*0.00*	*0.00*	*0.00*	*0.27*	*100.00*		*0.10*
Project Inform	**n**	0	0	0	7	7		7
	%	*0.00*	*0.00*	*0.00*	*0.31*	*100.00*		*0.12*
Professional	**n**	0	0	0	32	32		32
	%	*0.00*	*0.00*	*0.00*	*1.42*	*100.00*		*0.55*
Repeat Caller	**n**	9	10	14	333	366		366
	%	*0.29*	*2.21*	*27.45*	*14.77*	*100.00*		*6.29*
State AIDS Hotline	**n**	0	0	0	7	7		7
	%	*0.00*	*0.00*	*0.00*	*0.31*	*100.00*		*0.12*
Trial Site	**n**	0	0	0	1	1		1
	%	*0.00*	*0.00*	*0.00*	*0.04*	*100.00*		*0.02*
Unknown	**n**	0	0	0	3	3		3
	%	*0.00*	*0.00*	*0.00*	*0.13*	*100.00*		*0.05*
Web Site	**n**	0	0	0	360	360		360
	%	*0.00*	*0.00*	*0.00*	*15.96*	*100.00*		*6.18*
Total	**n**	**3062**	**453**	**51**	**2255**	**5821**		**5821**
	%	***52.60***	***7.78***	***0.88***	***38.74***	***100.00***		***100.0***

An examination of outgoing referrals indicated that 2,562 of the 6,252 requestors were referred to at least one source. Of these requestors, most (71%) were referred to the *AIDSinfo* Web site 29%) and/or to the National or State AIDS Hotlines (42%) (Table 9).[3] Other notable outgoing referrals included doctors and clinics (13%) and external Web sites (11%).

When outgoing referrals were compared by communication channel, the findings were consistent with the overall results. For example, 25 percent of the telephone requestors were referred to the *AIDSinfo* Web site, 24 percent were referred to a State AIDS hotline, and 20 percent were referred to the National AIDS Hotline. Doctors and clinics accounted for 15 percent of the telephone referrals, and external Web sites accounted for 10 percent.

Although the trend was very similar for both e-mail and Live Help requestors, the actual percentages for these groups were lower, since the majority of the referrals (67%) were made by telephone.

Table 9: Outgoing Referrals – Overall and by Source of Request

Outgoing Referral	n %	Overall (n=4008)	E-Mail (n=379)	Live Help (n=525)	Other (n=87)	Phone (n=2658)
AIDS ED. & Training Ctr.	**n**	8	1	0	2	5
	%	*0.31*	*0.26*	*0.00*	*0.08*	*0.20*
***AIDSinfo* Web site**	**n**	733	164	108	18	443
	%	*28.61*	*43.27*	*4.22*	*0.70*	*17.29*
American Foundation for AIDS Research (AmFar)	**n**	5	2	0	0	3
	%	*0.20*	*0.53*	*0.00*	*0.00*	*0.12*
Community-Based Organizations (CBO)	**n**	10	0	0	0	10
	%	*0.39*	*0.00*	*0.00*	*0.00*	*0.39*
Centers for Disease Control & Prevention	**n**	105	29	20	1	55
	%	*4.10*	*7.65*	*0.78*	*0.04*	*2.15*
Article/Citation	**n**	248	71	62	10	105
	%	*9.68*	*18.73*	*2.42*	*0.39*	*4.10*
Company/Business	**n**	9	0	0	0	9
	%	*0.35*	*0.00*	*0.00*	*0.00*	*0.35*
CT.GOV	**n**	40	2	3	0	35
	%	*1.56*	*0.53*	*0.12*	*0.00*	*1.37*
Drug Assistance, State Programs	**n**	28	5	7	1	15
	%	*1.09*	*1.32*	*0.27*	*0.04*	*0.59*

[3] Note that the percentage distributions are based on the number of persons who received at least one referral (2,562) and are not calculated based on the total number of outgoing referrals. Percentages add to more than 100 percent due to multiple referrals for some requestors.

Outgoing Referral	n %	Overall (n=4008)	E-Mail (n=379)	Live Help (n=525)	Other (n=87)	Phone (n=2658)
Food and Drug Administration (FDA)	**n**	26	9	2	0	15
	%	*1.01*	*2.37*	*0.08*	*0.00*	*0.59*
Hotlines (Not SAH, NAH, NAC, STD)	**n**	43	1	1	0	41
	%	*1.68*	*0.26*	*0.04*	*0.00*	*1.60*
Library	**n**	5	3	0	0	2
	%	*0.20*	*0.79*	*0.00*	*0.00*	*0.08*
Doctor/Clinic	**n**	334	25	32	7	270
	%	*13.04*	*6.60*	*1.25*	*0.27*	*10.54*
National Prevention Information Network (NPIN)	**n**	238	80	9	21	128
	%	*9.29*	*21.11*	*0.35*	*0.82*	*5.00*
National AIDS Hotline (NAH)	**n**	576	104	101	2	369
	%	*22.48*	*27.44*	*3.94*	*0.08*	*14.40*
National Library of Medicine (NLM)	**n**	68	23	16	4	25
	%	*2.65*	*6.07*	*0.62*	*0.16*	*0.98*
Office of Communication (OC) - NIAID	**n**	33	12	2	1	18
	%	*1.29*	*3.17*	*0.08*	*0.04*	*0.70*
Other NIH Number	**n**	78	7	5	1	65
	%	*3.04*	*1.85*	*0.20*	*0.04*	*2.54*
Organization	**n**	106	5	2	8	91
	%	*4.14*	*1.32*	*0.08*	*0.31*	*3.55*
Other Referral	**n**	172	64	39	2	67
	%	*6.71*	*16.89*	*1.52*	*0.08*	*2.62*
Post-Exposure Prophylaxis Hotline/Occupational	**n**	24	3	1	0	20
	%	*0.94*	*0.79*	*0.04*	*0.00*	*0.78*
Pharmaceutical Company	**n**	47	2	5	0	40
	%	*1.83*	*0.53*	*0.20*	*0.00*	*1.56*
Project Inform	**n**	14	0	0	0	14
	%	*0.55*	*0.00*	*0.00*	*0.00*	*0.55*
State AIDS Hotline	**n**	501	14	55	5	427
	%	*19.56*	*3.69*	*2.15*	*0.20*	*16.67*
San Francisco General Hospital Warmline	**n**	55	9	9	1	36
	%	*2.15*	*2.37*	*0.35*	*0.04*	*1.41*
Social Services	**n**	5	0	0	1	4
	%	*0.20*	*0.00*	*0.00*	*0.04*	*0.16*

National STD Hotline	**n**	63	6	1	0	56
	%	*2.46*	*1.58*	*0.04*	*0.00*	*2.19*
Trial Site	**n**	143	1	2	0	140
	%	*5.58*	*0.26*	*0.08*	*0.00*	*5.46*
Whitman-Walker Clinic	**n**	5	1	0	0	4
	%	*0.20*	*0.26*	*0.00*	*0.00*	*0.16*
Web Site	**n**	286	68	43	2	173
	%	*11.16*	*17.94*	*1.68*	*0.08*	*6.75*

In addition to referral data, the analysis of usage patterns included an examination of inquiries, or information sought by *AIDSinfo* requestors. This analysis was directly linked to the dissemination goals of the *AIDSinfo* program and was based on the following question categories reported in RRTS: materials, drug number (or requests for information regarding specific drugs), drug code (or broad topics related to drugs such as drug interactions, drug resistance, side effects and vaccines), general information, information regarding specific populations, treatments for HIV/AIDS, and clinical trial information.

Requestors most frequently sought HIV/AIDS-related materials, often requesting materials in PDF format. As indicated in Table 10, 54 percent of the requests were for specific materials.[4] The second most populous category was requests for general information (45%).[5]

The study results showed variation in the nature of questions by source of request. While the overall results showed a fairly close distribution between materials and general information:

- Ninety percent of *e-mail* requestors sought materials, with only 10 percent seeking general information,
- Only six percent of *Live Help* requestors sought materials, while almost 80 percent sought general information, and
- Approximately 18 percent of *telephone* inquiries were for materials, while roughly 80 percent of calls were for general information.

[4] The percentage distributions are based on number of persons (6,204) who made at least one inquiry and are not calculated based on the total number of questions or requests received (which exceeds the number of persons).

[5] As indicated in the Methods section, question codes such as wrong numbers and out of scope questions were included in the "general information" category. A review of the question codes in this category suggests that these codes and the category "Live Help disconnects (SLHDIS)" should be tracked separately from the actual questions posed by requestors.

Table 10: Information Sought by Communication Channel

Information Sought	n / %	Overall (n=6204)	E-mail (n=3073)	Live Help (n=504)	Other (n=101)	Phone (n=2529)
Materials Codes	**n**	3345	2775	29	76	465
	%	*53.92*	*90.30*	*5.79*	*75.25*	*18.39*
Drug Number	**n**	68	4	5	2	57
	%	*1.10*	*0.13*	*1.00*	*1.98*	*2.25*
Drug Code	**n**	199	21	29	5	144
	%	*3.21*	*0.68*	*5.79*	*4.95*	*5.69*
General Information	**n**	2780	307	395	46	2032
	%	*44.81*	*9.99*	*78.84*	*45.54*	*80.35*
SLSDIS	**n**	108	0	106	0	2
	%	*1.74*	*0.00*	*21.16*	*0.00*	*0.08*
Population Codes	**n**	109	14	5	14	76
	%	*1.76*	*0.46*	*1.00*	*13.86*	*3.01*
Treatment Codes	**n**	578	62	78	15	423
	%	*9.32*	*2.02*	*15.57*	*14.85*	*16.73*
Trials Codes	**n**	333	26	18	3	286
	%	*5.37*	*0.85*	*3.59*	*2.97*	*11.31*

Type of information sought was further examined by user role to identify trends and variations from the overall findings. Given the number of cells with small bases, this analysis was performed for the top five (domestic) requestor types only: *The general public, health professionals, HIV positive individuals, students, and community-based organizations*.

In general, the results reflect the correlation between requestor type and communication channel. As shown in Table 11, requests from the general public were fairly evenly split between materials and general information, with a slightly higher percentage of domestic consumers seeking general information. Health professionals requested materials 75 percent of the time, requesting general information far less frequently (26 percent of the time).

Domestic HIV positive individuals (who tended to contact *AIDSinfo* by telephone) most often requested general information (82 percent of the time). However, questions regarding HIV/AIDS treatment and clinical trials were the second and third most frequently asked questions for this group (32% and 30%, respectively), followed by general drug-related information (16%).

U.S. students most frequently requested materials relating to HIV/AIDS (59%), followed by requests for general information (45%).

Although domestic community-based organizations most often accessed *AIDSinfo* by telephone, which was less characteristic of other organizations, they most frequently sought materials (60 percent of the time), followed by general information (43 percent of the time)—a pattern consistent with other organizational requestors.

Table 11: Information Sought by Requester Type

Information Sought	n / %	General Public (n=1895)	Health Professionals (n=590)	HIV Positive Individuals (n=551)	Students (n=502)	Community Based Organizations (n=375)
Materials Codes	**n**	783	442	64	298	230
	%	*41.32*	*74.92*	*11.62*	*59.36*	*61.33*
Drug Number	**n**	3	5	39	1	2
	%	*0.16*	*0.85*	*7.08*	*0.20*	*0.53*
Drug Code	**n**	27	9	89	11	8
	%	*1.42*	*1.53*	*16.15*	*2.19*	*2.13*
General Information	**n**	1013	151	453	228	160
	%	*53.46*	*25.59*	*82.21*	*45.42*	*42.67*
SLSDIS	**n**	75	1	0	1	0
	%	*3.96*	*0.17*	*0.00*	*0.20*	*0.00*
Population Codes	**n**	13	6	41	10	8
	%	*0.69*	*1.02*	*7.44*	*1.99*	*2.13*
Treatment Codes	**n**	133	42	176	50	6
	%	*7.02*	*7.12*	*31.94*	*9.96*	*1.60*
Trials Codes	**n**	48	14	163	19	13
	%	*2.53*	*2.37*	*29.58*	*3.78*	*3.47*

Comparison of RRTS, ACSI and Web Trends Usage Data. Comparisons among the ACSI Survey and RRTS data were limited to the demographic variables presented in the previous section of the report. However, some general observations were made between the RRTS data and Web Trends with respect to type of information sought. Table 12 shows the four documents that were most commonly accessed by *AIDSinfo* Web site visitors during the data collection period. Of the top documents, general information was the most commonly accessed. Similar to the e-mail, Live Help and telephone communication channels, materials (e.g., medical practice guidelines and glossary of terms) and drug information also ranked among the most common types of information accessed by Web site visitors.

Table 12. Documents Most Commonly Accessed by *AIDSinfo* Web Site Visitors

Top Documents	Frequency	Percent
HIV/AIDS Information	232,125	*54.42*
HIV/AIDS Medical Practice Guidelines	99,993	*23.44*
HIV/AIDS Drug Information	55,081	*12.91*
HIV/AIDS Glossary	39,307	*9.22*
Total	**426,506**	***100.00***

The primary purpose of this aspect of the analysis was to 1) compare the overall volume of traffic on the *AIDSinfo* Web site with the frequency of visits among ACSI survey respondents and 2) to determine if the distribution of referring Web sites varied between survey respondents and the overall *AIDSinfo* Web site visitor population.

There were 607,189 visits to the *AIDSinfo* Web site during the data collection period, including multiple visits by the same person. Of the 225,225 *unique* visitors, 81 percent visited once, nine percent visited twice, and three percent visited three times (Table 13). The negative correlation between number of visits and number of visitors continued until the category "10 or more visits," where an increase of 1.25 percentage points occurred (.32 for nine visits vs. 2.57 for 10 or more visits).

Table 13. Number of Visits by Unique Visitors

Number of Visits by Unique Visitors	Frequency	Percent
1 visit	181,370	*80.53*
2 visits	20,676	*9.18*
3 visits	7,132	*3.17*
4 visits	3,634	*1.61*
5 visits	2,246	*1.00*
6 visits	1,567	*.70*
7 visits	1,186	*.53*
8 visits	906	*.40*
9 visits	730	*.32*
10 or more visits	5,778	*2.57*
Total	**225,225**	***100.00***

Although the response categories were not directly comparable, the results of the ACSI Survey were similar to the Web Trends results in that more than half (51%) of the survey respondents were first time visitors to the Web site (Table 14). Also, for all but the second category, the number of survey respondents decreased as frequency of visits increased.

Table 14. Frequency of Visits (ACSI Survey Respondents)

Number of Visits by Unique Visitors	Frequency	Percent
First time	629	*51.47*
Every 6 months or less	92	*7.53*
About once a month	228	*18.66*
About once a week	199	*16.28*
Daily	52	*4.26*
More than once a day	22	*1.80*
Total	**1,222**	***100.00***

As mentioned above, this aspect of the study also compared referring Web sites for the ACSI Survey respondents to those for the overall *AIDSinfo* Web site visitor population. Although the response categories were considerably different between ACSI and Web Trends, both sources showed relatively high concentrations of referrals (or links) from Federal Web sites including *AIDSinfo*.nih.gov (direct access), cdc.gov, nlm.gov, and other Federal Web sites.

4.2.3 Customer Satisfaction among *AIDSinfo* Users (Study Element 3)

The final component of the secondary analysis involved a supplemental review of customer satisfaction. Since the ACSI Survey provides a comprehensive assessment of customer satisfaction with the *AIDSinfo* Web site, the main focus of the secondary data review was on demographic characteristics and usage patterns. The purpose of the supplemental customer satisfaction analysis was to identify broad satisfaction patterns for the combined data collection period, and to provide data to support the findings of the qualitative content analysis presented in the following section of the report.

A preliminary analysis of drivers of customer satisfaction (applying a measure of association—Kendall's tau-b) showed no significant variation in the relationship between specific satisfaction measures and overall satisfaction, visitor expectations, or visitor's concept of an "ideal" Web site. Thus, individual satisfaction measures appeared to have equal weight.

For the combined data collection period, the majority of ACSI Survey respondents rated the *AIDSinfo* site highly in terms of overall satisfaction. On a scale of one to ten (with ten the highest score), 58 percent of respondents rated the site either a nine or a ten (Table 15).

Table 15: Rating for Overall Satisfaction with *AIDSinfo* Site

Rating	Frequency	Percent
1	52	*4.26*
2	12	*0.98*
3	11	*0.90*
4	20	*1.64*
5	48	*3.93*
6	53	*4.34*
7	90	*7.36*
8	231	*18.90*
9	289	*23.65*
10	416	*34.04*

As illustrated in Table 16, the ratings for visitor expectations and concept of an "ideal" Web site were similar to those for overall satisfaction, with slightly lower ratings (indicating less satisfaction) for concept of an "ideal" Web site.

Table 16: Ratings for Visitor Expectations and Concept of an "Ideal" Web Site

Rating	Visitor Expectations		Concept of "Ideal" Web Site	
	n	***%***	**n**	***%***
1	63	*5.16*	60	*4.91*
2	19	*1.55*	17	*1.39*
3	13	*1.06*	17	*1.39*
4	16	*1.31*	32	*2.62*
5	42	*3.44*	46	*3.76*
6	44	*3.60*	77	*6.30*
7	121	*9.90*	136	*11.13*
8	229	*18.74*	289	*23.65*
9	274	*22.42*	280	*22.91*
10	401	*32.82*	268	*21.93*

Finally, Table 17 shows the distribution of ratings for three key satisfaction areas that parallel the remaining phases (Phases III and IV) of the evaluation: *accuracy, quality and usefulness*. All three areas received "high marks," with more than 70 percent of respondents rating the site either a nine or a ten in all cases.

Table 17: Ratings for Key Satisfaction Areas: Accuracy, Quality and Usefulness

Rating	Accuracy		Quality		Usefulness	
	n	%	n	%	n	%
1	26	*7.05*	18	*4.47*	24	*6.00*
2	3	*0.81*	1	*0.25*	3	*0.75*
3	0	*0.00*	5	*1.24*	1	*0.25*
4	4	*1.08*	9	*2.23*	4	*1.00*
5	2	*0.54*	4	*0.99*	7	*1.75*
6	8	*2.17*	5	*1.24*	6	*1.50*
7	14	*3.79*	22	*5.46*	15	*3.75*
8	46	*12.47*	47	*11.66*	38	*9.50*
9	86	*23.31*	89	*22.08*	65	*16.25*
10	180	*48.78*	203	*50.37*	237	*59.25*

4.3 Content Analysis (Phase IV)

Qualitative and quantitative analyses were conducted on data coded during the content analysis of Live Help and e-mail transcripts. The purpose of this analysis was to address the process evaluation study elements and to provide information that could be used to supplement the RRTS database. This section presents the results of the content analysis, as follows:

- Part A: Preliminary Questions
- Part B: Usage Patterns and Requestor Characteristics
- Part C: Information Provided to Requestor
- Part D: Information Specialist Manner of Providing Information.

4.3.1 Part A: Preliminary Questions

These items focused on the communication channel (service), whether the session was terminated, and whether the information exchange could be coded.

A total of 305 transcripts were provided to the research team for content analysis. Of these, 112 (37%) were e-mail transcripts, and 193 (63%) were Live Help transcripts. Due to session termination or issues that made the transcripts uncodable, the number of information exchanges

that could be coded was reduced to 240 (79% of the original transcripts). Of these, 112 (47%) were e-mails, and 128 (53%) were Live Help.

4.3.2 Part B: Usage Patterns and Requestor Characteristics

The items in this section pertained to usage patterns and characteristics of users. The items addressed whether the requestor had first checked the Web site, whether he/she was a repeat or return user of the service, whether the requestor appeared in a negative emotional state, and whether there were expressions of satisfaction or appreciation.

Checked Web Site. This item asked: "Is there evidence that requestor checked Web site for information before asking the question?" Only 14 (6%) of the transcripts provided information indicating that the requestor had looked for the information on the Web site prior to making the request to either the Live Help or e-mail service. For the remaining 94% of the requestors, it cannot be determined whether the Web site was checked prior to the exchange.

Repeat User of the Service. This item asked if there was any "evidence that requestor is a repeat user of the service?" The data showed that only one request was from someone who indicated he/she had used the service on another occasion.

Requestor in Negative Emotional State. One question of interest was whether the requestor in the information exchange expressed negative emotions, such as anxiety, desperation, or worry. Thirteen percent, or 32 of the requestors, were coded as expressing evidence of a negative emotional state. Of these, 11 (34%) were found in e-mails, and 21 (66%) in Live Help. For the remaining 87% of the requestors, a negative emotional state was not apparent.

Expression of Satisfaction and/or Appreciation. Another variable of interest was expressions of satisfaction or appreciation. Seventy-three percent (175 requestors) expressed either satisfaction or appreciation to the information specialists. More than half (57%, 99) of these expressions were found in the Live Help transcripts, while forty-three percent (76) were found in e-mails.

Verbatim expressions of satisfaction or appreciation were recorded for closer examination of this component of requestor feedback. The typical expressions of appreciation found in the closing statements in these exchanges (e.g., "thanks," "thank you") were distinguished from those that were provided in other sections of the exchange. These data are presented by communication channel (E-mail and Live Help) and by type of expression (Found in Closing Statement and Found Elsewhere in the Body of Transcript) in Appendix J. Examination of these verbatim comments suggested that those in the body of the statement were more often expressions of appreciation (e.g., thank you for having this service), whereas comments at closing were typically brief expressions that are common or polite ways to end the interaction.

4.3.3 Part C: Information Provided to Requestor

The analysis of content also identified two other types of information that could have been provided by the information specialist. These included *recommendations*, which may or may not have been related to health care, and *policy statements*, which may or may not have been related to *AIDSinfo* scope. The verbatim text of these recommendations and statements can be found in Appendix K.

Providing a Recommendation, Opinion, or Judgment Related to Health Care. The coding manual specified that this type of comment from the information specialist should relate to health care and may include text such as "I think," or "you should." The results show that 14% (33) of the exchanges included such a recommendation. More of these recommendations were found in the Live Help exchanges (23, 70%) than in the e-mail exchanges (10, 30%). Examples of comments include the following (also see Appendix K):

- I recommend getting tested.
- If you have a doctor, you may want to contact him/her.
- You may want to get a follow-up test six months after the first test.

Providing a Recommendation, Opinion, or Judgment Not Related to Health Care. Recommendations that were made on any topic other than health care were also coded. Thirteen percent (31) of the exchanges included such comments. Of these, most (26, 84%) were in the e-mails, whereas only 5 (16%) were found in Live Help. Examples of non-health care related comments are listed below:

- You can also subscribe to the listserv to be alerted when updates occur.
- Now and in the future you can also check the HIV/AIDS section of this Web site.
- I would recommend reading the following….

Providing a Statement Pertaining to AIDSinfo Policy Regarding Content Scope. Often a response to a request for information that was not within the scope of *AIDSinfo* elicited a statement pertaining to content scope. Almost 40% (94) of the exchanges included a content scope statement. These statements were almost evenly divided between services, with 51% (48) in e-mails and 49% (46) in Live Help transcripts. Many of these comments were very similar in wording. Examples include:

- Our service deals primarily with the treatment of HIV and AIDS.
- Although we provide treatment information *AIDSinfo* does not provide medical advice or medications.
- The focus of our service is the latest federally approved information on research.

Providing a Statement Pertaining to other AIDSinfo Policies. The information specialists also provided information pertaining to other policies or procedures. Twenty three percent (55) of the

exchanges included such a statement. Of these, most were found in e-mails (45, 82%) compared to Live Help (10, 18%). Examples of the verbatim statements are listed below:

- *AIDSinfo* does not assume responsibility for nor endorse the sites or their contents.
- Due to the increased costs associated with international mailings we are no longer able to send out hard copies of our materials.
- There is no copyright restriction and the information can be reproduced.

In addition, the content analysis captured the overall form in which the information was provided. It was observed that the response could include a direct answer to the query, a referral of either a phone number or a Web site link, or a combination of both "answer" and "referral." This characterization was referred to in this content analysis as "delivery form."

Delivery Form. Text considered to address this item was the text that remained after the above recommendations and statements had been considered and coded. Thus, this item directly addressed what was considered the *content response* to the question. As discussed above, two components, text "answer" and text "referral" were identified. The form in which the response was provided was coded as one of the following: answer only (no referrals); answer and referral(s); referral(s) only; none of the above (neither answer nor referral; may include only recommendations or statements, or may reflect Live Help exchanges that were cut off and reinitiated as each was coded as a unique exchange). The following table (Table 18) presents the results by communication channel.

Table 18. Delivery Form by Communication Channel

Delivery Form	E-mail	Live Help	TOTAL
Answer only	3	21	24
Answer and referral(s)	33	42	75
Referral (s) only	71	64	135
None of the above	5	1	6
TOTAL	**112**	**128**	**240**

The results showed that "referrals only" was the delivery form for over half (56%) of the responses. This pattern was similar for the communication channels (63% of e-mails and 50% of Live Help). The results also showed that delivering a response to a query in "answer only" form was more likely for a Live Help exchange than for an e-mail response. Approximately one-third of the queries (31%) were addressed by the information specialist with a combination of a direct answer and referrals to either a Web site or telephone number.

Number of Links to Web Sites. It was observed that many of the responses included referrals to one or more Web site links. In order to quantify this variable, the number of links was counted in each response. For all responses, the number of links ranged from 0 – 16. The following table (Table 19) presents these data by communication channel.

Table 19. Number of Links by Communication Channel

Number of Links	E-mail	Live Help	TOTAL
0	15	48	63
1	30	42	72
2	20	20	40
3-5	31	14	45
6 or more	16	4	20
TOTAL	**112**	**128**	**240**

The results showed that Live Help was less likely than an e-mail response to include a Web site link, whereas e-mails were more likely to include 6 or more links. Overall, the results showed that e-mails typically included more referrals to Web sites than Live Help exchanges.

4.3.4 Part D: Information Specialist Manner of Providing Information

The content analysis also examined the data to determine if there was codable information on the manner in which the information was provided. Three variables were identified: whether the information specialist provided an appropriate greeting to the requestor, and whether professionalism and sensitivity were demonstrated.

Response Included Appropriate Greeting. All of the information exchanges (100%) included an appropriate greeting.

Response Demonstrated Professionalism. Professionalism was operationalized to include the presence of any of the following: demonstrating knowledge, assessing for understanding, providing the requested information, and avoiding personalizing the interaction. All of the responses (100%) were coded as demonstrating professionalism.

Response Demonstrated Sensitivity. A demonstration of sensitivity was not always required in a typical exchange between *AIDSinfo* requestor and information specialist. However, it was apparent that some of the exchanges included a response that also conveyed empathy for the requestor. Twenty nine (12%) of the 240 responses were found to include an expression indicating sensitivity on the part of the information specialist. Of these, 2 (7%) were e-mails exchanges and 27 (93%) were Live Help.

4.4 Accuracy Monitoring (Phase III)

Completed checklists were returned to Aspen by Wednesday, September 24, 2004. A total of 29 (out of a possible 30) test queries were posed to the information specialists. Of these, 12 were conducted by phone, 16 through Live Help (1 data collection checklist was missing data on communication channel). The test questions were posed by staff from two agencies, Division of AIDS (DAIDS) and HRSA. Fourteen of the questions were posed by one HRSA staff person and 15 by 4 staff persons in the DAIDS.

4.4.1 Accuracy of Response

Agency staff completing the checklist were asked "Was *all* the information provided accurate (i.e., factually correct)? Of the 29 questions, only 1 was coded as "no," indicating that the response provided by the information specialist included inaccurate information. This question was from the set of expert-generated questions on the topic of vaccines and was posed on the telephone. According to the comment provided by the staff posing the question, the information specialist did not answer according to the script. No other comments regarding inaccurate information were provided.

4.4.2 Completeness of Response

Staff were also asked the following: "Did the response include *all* the information you expected?" For twelve of the 29 responses, the staff indicated "no." Four of 12 "incompletes" were submitted by HRSA, 8 by DAIDS. Table 20 shows the results by topic and communication channel.

Table 20. Incomplete Responses by Query Topic and Communication Channel

	Telephone	Live Help	TOTAL
Clinical Trials	1	1	2
Treatment	0	6	6
Vaccines	1	2	3
Clinical Trials/Vaccines	0	1	1
TOTAL	**2**	**10**	**12**

Staff comments regarding incomplete responses were examined to identify key elements. This examination suggested that staff comments typically contained two types of feedback: insights into the nature of the incomplete response (specifically, content that was missing), and comments regarding the nature of the interaction itself.

Below are verbatim examples of comments indicating that the content was incomplete:

- Only referred to *AIDSinfo*; no other sources.
- Expected more content text, not just referral to site.
- Very little additional info provided except reference to Web site.

- Could not herself explain how we would know if a vaccine worked.
- No follow-up provided on different types of vaccines, in pipeline, how to volunteer, etc.
- As for why vaccines are difficult to develop safety and tolerability didn't tell me much….just said that HIV was tricky and you might be able to prevent in one form but not another.
- ...didn't tell me the 4 classes of AIDS drugs, rather he directed me to the Web site.

These are examples of comments regarding the nature of the interaction:

- Did not offer to walk me through search or explain how to use it. Felt like I wasn't given the proper attention or helpful advice.
- The person answered correctly, but didn't seem too confident in the answer.
- No attempt at figuring out why I asked the question.
- …not too pleasant or engaging; no thanks for calling, your call is important.
- Pushy but not in a constructive manner.
- Sent me to a link but never told me if I'd be disconnected from the chat if I checked on it.
- Overall, I felt like I had to pull for information and the assistant wasn't very willing or helpful to provide assistance other than "see the Web site." Very disappointing.

4.4.3 Post-Study Process Review

Post-study discussions were carried out with eight individuals. Respondents included members of the Coordinating Group and their staff members (n = 5) who posed the queries, as well as management and information specialists from the *AIDSinfo* communication service (n = 3).

The discussions focused on three elements: respondents' perceptions of accuracy monitoring in general, and the pilot study in particular; query preparation and delivery; and suggestions for improving the process.

Perceptions of Accuracy Monitoring and the Pilot Study. Respondents were asked to indicate whether or not they agreed with a series of statements. Table 21 presents each statement and the number of respondents who expressed agreement and disagreement.

Table 21: Respondent Perceptions of Accuracy Monitoring Study

Statement	# Agreed	# Disagreed	Total
"It is important to conduct accuracy monitoring of the *AIDSinfo* Service on a regular basis."	8	0	8
"This study was a valid test of the accuracy of the *AIDSinfo* Service."	5	3	8
"The checklist was a helpful data collection tool."*	5	0	5
"This study should be conducted on a regular basis."	8	0	8
"The information specialists are/ Are you aware of when a test query is being posed."	3	5	8

*Note: This statement was only presented to Coordinating Group members and staff who posed the test queries.

Those who agreed with the fifth statement about awareness of the test nature of the query, each of whom was an *AIDSinfo* staff member, were asked how that perception might influence the response to the query and/or the validity of the data. The responses fell into two categories: cues that an incoming call or Live Help query might be accuracy monitoring, and comments about the potential impact of such an awareness. The comments are provided below:

Cues:

- There is a different sort of interaction than usual.
- The [test] callers are less responsive; they provide less feedback that shows they understand the information you have given them (e.g., "I understand")
- There are large increases in call/live help volume.
- The questions are atypical in content or the caller seems to be asking a list of questions, sometimes failing to fully listen to the answer to the first question before asking subsequent questions.

Potential impact of awareness:

- The Information Specialists might feel stressed or nervous because he/she wants to impress the test caller.
- If queries are posed as a list the Information Specialist may respond with a similar list-type answer.
- Responses might contain too much information or be confusing when there is limited feedback about understanding from the caller, due to the Information Specialist's effort to provide every possible sort of information that might be helpful.

Query Preparation and Delivery. Only the Coordinating Group members and their staff were asked about the study processes. Two of the Coordinating Group members/staff prepared test queries. They reported that the process took only about 5 minutes. All five of the Coordinating Group member/staff respondents posed at least one question. Overall, they reported that the test queries each took between 5-15 minutes to complete, with Live Help queries requiring more time.

Suggestions for Improvement. All respondents provided at least one suggestion. Comments for each of the three discussion questions are summarized in this section.

Respondents provided several ***suggestions for improving the methods used in this assessment.*** These included using queries that are more typical in both content and the manner in which they are posed, avoiding excessive calls in a short time period, providing feedback, and improving the format of the expected responses. The following comments are representative of these ideas:

- Make the questions more real/typical in both content and the way they are asked. Callers usually ask one question and then provide feedback indicating that they understand or that they need more information (e.g., ask additional questions)
- Spread calls out over a longer time period
- Use actual transcripts to generate queries
- Provide feedback so the Information Specialists can improve
- Stagger the topic questions and timeframe for data collection so that the Clearinghouse isn't inundated with a topic or a high volume of requests.
- Combine a series of questions together into one information exchange instead of making so many test queries.
- Improve the expected answers – maybe a bulleted list instead of a paragraph.

Respondents offered some ***suggestions for alternative methodologies*** to ensure that the *AIDSinfo* service provides accurate information. These include examining the internal quality control processes, reviewing actual transcripts/recordings of information exchanges, and testing in multiple languages. In addition, respondents provided suggestions for how this type of study might be expanded to include other elements of the information exchanges. The following comments are illustrative of these ideas:

- Examine the internal quality control process
- Include e-mail in the study
- Examine transcripts for accuracy
- Voice record a subset of calls for assessment
- Expand the assessment form for accuracy to include other elements of the information exchanges (e.g., rapport, professionalism); capture the total interaction
- Test in English and Spanish
- Solicit consumer feedback about the services

There was a wide range of ***general comments or suggestions*** provided at the end of the post-study discussions. The following is a list of all comments as captured by the interviewer.

- There is a lot of information on this topic so it is challenging to stay up to date
- Consistency in answers is impacted by personal knowledge base, past experience (e.g., having answered the question before), and style, not just by accuracy of the information.
- In addition to studying accuracy, appropriateness of the information should also be examined – e.g., how current is it; are Federal guidelines on referrals being followed.
- Pleasant, straightforward process
- Improve the Live Help by using instant messaging as a model.

5 Conclusions and Recommendations

The purpose of the process evaluation was three fold: to assess how successfully the service is currently implemented, to determine whether *AIDSinfo* goals are being met, and to develop a

framework for continuous quality improvement. The summary of findings (Section 5.1) addresses the first two elements, while the Recommendations (Section 5.2) translate the findings into specific suggestions for proactive improvements that will ensure the continued provision of quality information services.

5.1 Summary of Findings

A key component of the effectiveness of *AIDSinfo* pertains to the capacity of the data collection methods to provide the necessary information for monitoring, reporting, and evaluation. *AIDSinfo* utilizes three sources of data to understand its users, usage patterns, and consumer satisfaction. The secondary data analyses were designed to determine whether these data sources are sufficient in addressing the primary research questions, and whether additional analyses should be conducted on a more regular basis. The results of the process evaluation indicated that each of the three data sources uniquely and adequately address research questions, as defined in this evaluation, that are important to the *AIDSinfo* service. The relationship between specific research question, broader study element, and information source is depicted in the Research Question Matrix (Appendix I).

In this section, the summary of findings is presented for the secondary data analyses, the content analysis, and the accuracy monitoring study.

5.1.1 Secondary Data Analyses

The secondary data analyses provided findings for three of the primary study elements: characteristics of *AIDSinfo* users, usage patterns, and satisfaction. The range of findings was limited due to the relatively small number of comparable variables between datasets.

Several findings pertaining to ***characteristics of AIDSinfo users*** emerged from the RRTS analysis and the analysis comparing ACSI and RRTS data. Findings from the RRTS secondary data analysis are summarized below:

- The majority of requests for information were received by e-mail (49%) or telephone (41%), with males more likely to use Live Help than females (9% versus 5%, respectively).
- Domestic contacts with the *AIDSinfo* service were more likely to be by e-mail (45%) or telephone (45%), while international contacts were more often by e-mail (91%).
- The general public accounted for the largest percentage of requests (33%) to the *AIDSinfo* service, followed by health professionals and physicians (19%), and HIV positive individuals and their families and friends (14%).
- Communication channel differs by requestor role with organizational requestors and health care professionals more likely to use e-mail, and HIV positive individuals and their families and friends more likely to use the telephone.

The analysis of ACSI and RRTS data found the following:

- The percentage of respondents requesting Spanish Web reading language preference (6%) was slightly higher than the percentage of Spanish language requests received by e-mail, telephone, or Live Help (2%).
- While roughly 90 percent of the RRTS requests were from the U.S., only 60 percent of the ACSI Survey responses were from the U.S. (A possible explanation for the this finding was that RRTS assigns U.S. as the default when country information was otherwise missing.)

Usage patterns examined in the secondary data analyses primarily involved comparison of three variables: source of entry into the Web site (i.e., how users were referred to the site), referral outcomes (i.e., sources to which *AIDSinfo* most frequently referred users), and type of information sought. Key findings on these variables emerging from the RRTS secondary data analysis are reported below:

- Nearly two-thirds of requestors (63%) were referred to the *AIDSinfo* service by the *AIDSinfo* Web site (not surprising as the Web site was the most widely used method of access to *AIDSinfo* services).
- Examination of referral source by communication channel found that while almost all of the e-mail (99%) and Live Help (95%) requestors were referred to the service by the Web site, approximately 28% of those using the telephone service were referred by printed materials or brochures, followed by external Web sites (16%).
- The examination of outgoing referrals shows that about 42% of requestors received at least one referral to another source; most (71%) to the *AIDSinfo* Web site (29%) and/or National or State AIDS hotlines (42%). These findings did not vary by communication channel.
- With regard to information sought, requestors most often asked for specific materials (54%), followed by general information (45%). This varied by communication channel, with 90% of e-mail requestors seeking materials and 80% of telephone requestors asking for general information. (This latter finding might have been influenced by the RRTS practice of coding wrong numbers and out-of-scope questions in the "general information" category.)

The ACSI survey provides a comprehensive assessment of customer satisfaction with the Web site; therefore the primary focus of the secondary data analysis was to identify broad ***satisfaction patterns*** across the data collection period. This analysis found that ACSI survey respondents reported high levels of satisfaction with the *AIDSinfo* Web site, with 77% giving it a rating of 8 or more on a 10-point scale. About 85% of respondents gave ratings of 8 or more for three other information attributes: accuracy, quality, and usefulness.

5.1.2 Content Analysis

Although the e-mail and Live Help transcripts did not always include information pertaining to user characteristics, usage patterns, or satisfaction, the content analysis has yielded findings that supplemented those provided through the analysis of RRTS data. In addition to addressing the three primary study elements, the content analysis also had results regarding the nature and manner of information provided by the *AIDSinfo* staff.

Three variables pertaining to ***characteristics of users*** were included in the content analysis (checked Web site, repeat user, and negative emotional state). The key findings were that few (6%) of the transcripts provided information indicating that the requestor had looked for information on the Web site prior to making the request. In addition, of the 32 requestors with evidence of a negative emotional state, more were using the Live Help service (66%) than the e-mail service (34%).

Information sought and referral outcomes (usage patterns) were also examined in the content analysis. Almost 40% of exchanges in the e-mail and Live Help transcripts led to the Information Specialist providing a statement on *AIDSinfo* content scope, suggesting that many of the requests for information were out-of-scope for the service. Additional analyses, linking specific questions to the presence of a scope statement, could be conducted to confirm this finding.

Overall, it was clear from review of the transcripts that there were two primary forms in which the information specialist could respond to the e-mail or Live Help request. They could either provide a direct answer to the question posed, or they could provide a referral of either a phone number or a Web site link; a combination of both forms in the same response was also possible. The term "delivery form" was used to describe the global nature of the referral outcome. The results showed that over half (56%) of the responses were referrals only, regardless of communication channel. Delivering a response in "answer only" form was more likely to occur in a Live Help interaction than in an e-mail exchange. The content analysis findings also showed that most information requests (88%) received by e-mail and Live Help led to at least one referral (either a phone number or Web site link). Approximately three quarters (74%) of the exchanges included a Web site link, and e-mails were more likely than Live Help exchanges to include six or more Web site links.

The content analysis complemented the RRTS data collection by examining the text for other ***recommendations and/or statements provided to the requestor***. In particular, the analysis examined whether information specialists provided a recommendation (which may or may not be related to health care), or a policy statement (relevant to *AIDSinfo* scope or not). Fourteen percent of all exchanges included a recommendation regarding health care, such as suggestions for HIV testing or for seeing a doctor. Most of these (70%) were found in the Live Help exchanges. And, as stated above, a statement on *AIDSinfo* content scope was provided in almost 40% of all exchanges.

The analysis of the ***manner in which the information specialist provided information*** found that all the responses included an appropriate greeting and exhibited professionalism. Additionally, some of the responses (12%) included a statement that expressed sensitivity on the part of the information specialist. Nearly three-quarters (73%) of all requestors expressed ***satisfaction or appreciation*** to the information specialist.

In summary, the results of the content analysis discriminated between the nature of the Live Help and e-mail interactions. In contrast to e-mails, the Live Help information exchanges were more likely to be initiated by someone anxious or in distress, to elicit an "answer only" response from the information specialist, and to include a health care recommendation. Future analysis of

combined content analysis and RRTS data could address additional research questions of interest.

5.1.3 Accuracy Monitoring Study

The fourth study element, accuracy of responses, was examined as part of the monitoring study that was piloted during this project with two services – telephone and Live Help. Queries were posed and responses evaluated for accuracy by outside experts, who found that information specialists answered all but one of the queries accurately.

Impressions of response completeness were also gathered. Forty-one percent of the responses were rated as incomplete. Thus, while not providing inaccurate information, some responses were evaluated as insufficient in the volume of information provided in response to the question posed. Review of post-study discussions with staff involved in the study suggested that the evaluation of "completeness" pertained for some to the quantity of information and for others to the nature of the interaction (i.e., the manner in which the information specialist provided the information). In addition, review of these discussions suggested that information specialists were often aware of a test query in progress and reported that they are atypical in both content and manner of questioning; in contrast, test posers reported being unaware that the information specialists suspected that test queries were being made.

5.1.4 Conclusions

The secondary data analysis of RRTS provided valuable information on the relationship of key variables, such as characteristics of users and usage patterns by communication channel, that are not currently part of the reporting routine for *AIDSinfo*. Furthermore, the findings of the content analysis showed differences between e-mail and Live Help information exchanges that have implications for staff training. Finally, the pilot test of the accuracy monitoring study confirmed the value of external assessment and indicated that not only are studies of this sort feasible, but that they provide a method of confirming that the information specialists are providing consumers with correct information. The qualitative findings of the monitoring study suggested that assumptions regarding the manner of providing information should be reexamined. Overall, the synthesis of findings suggested that the responses of *AIDSinfo* staff exhibit professionalism, helpfulness, and knowledge of HIV/AIDS and related topics.

Overall, the secondary data analyses confirmed that the *AIDSinfo* goal to serve as the primary dissemination point for Federal HIV/AIDS treatment and prevention guidelines is being met. Satisfaction was high among all users, and information was provided on a wide range of topics including clinical trials, approved and experimental drugs, and preventive/therapeutic vaccines. While the analyses showed that usage patterns for consumer groups varied by communication channel, all users were provided with reliable information in response to their queries. Findings from the content analysis and the accuracy monitoring study also indicated that users were provided with confidential, accurate, and professional responses.

5.2 Recommendations

This section translates the findings reported above into specific recommendations for improvements to the *AIDSinfo* service. The recommendations are intended to enhance both the methods currently used to report on the impact of the service, and to continue to improve the quality of responses to users. There are four recommendations based on the findings of the process evaluation:

- Modify the RRTS database
- Develop standard responses to common questions
- Examine the feasibility of developing a database of planned responses
- Modify information specialist training

Modifying the database will improve the capacity of the service to track and report findings. Implementation of the last three recommendations will enhance the overall quality of exchanges among health information specialists and the people who call, inquire via postal or e-mail, and use Web site services, such as Live Help. It will also improve specialist's information exchange skills across each of the communication channels. Evidence from the accuracy monitoring study and the content analysis suggested that response accuracy is only one of the essential components of a quality information exchange. The findings also indicated that the focus on response quality should be expanded beyond accuracy to also encompass other aspects that impact the overall perception of quality. Thus, these recommendations are intended to increase overall user satisfaction with the manner in which information specialists handle telephone calls, e-mails, and Live Help exchanges.

5.2.1 Modify the RRTS Database

The secondary analysis of RRTS data suggested that the database may not be optimally structured to address the range of research questions of interest to AIDSinfo users. Examples of coding inconsistencies or irregularities found during this process evaluation are summarized below:

- ***Information sought***. "General information" was the second most frequently requested type of information sought by users. However, this category included a wide range of uncategorized requests, including wrong numbers and out-of-scope inquires, which should have been captured in a separate coding category.
- ***Origin of request.*** International/domestic labels modify several "requestor type" codes. A simpler solution is to have a separate variable that codes origin of request. Furthermore, since the domestic/U.S. code is the default code, it may over represent the number of domestic inquiries. A "missing" code could be utilized in the absence of information on origin.
- ***Duplicate records.*** Approximately 100 duplicate records were identified during data verification. Systems staff could incorporate a code to alleviate this problem.

These are the recommended steps for modifying the RRTS database:

- Review current RRTS coding practices to identify the strengths and weaknesses.
- Develop a coding framework guided by and linked to key research questions pertaining to user characteristics, usage patterns, satisfaction, and response quality/accuracy.
- Align reporting capabilities of RRTS to key contract reporting requirements.
- Revise RRTS coding guidelines based on coding and reporting factors noted above.
- Modify database based on the revised coding guidelines.
- Develop training manual based on the revised coding guidelines.
- Conduct staff training on the revised coding guidelines.
- Evaluate the impact of the modification.

Expand data collection efforts. An additional recommendation is to expand the data collection efforts to include some of the variables identified in the content analysis. For example, delivery form, a variable in the content analysis, could be included in the RRTS database, and its relationship to existing RRTS variables such as requestor role or information sought could be examined. The presence of a scope statement, also from the content analysis, could be examined in relationship to requestor role or information sought. The inclusion of these additional variables in the analysis can contribute to the continuous improvement of the *AIDSinfo* service.

Coordinate data collection with contract reporting requirements. Included in the above RRTS modification steps is the opportunity to embed contract-reporting requirements into the overall restructuring plan. The adoption of these recommendations will necessarily impact the presentation of findings in the monthly report. Currently, AIDSinfo results are presented monthly in several different formats. A text narrative summarizes the highlights for the month, followed by several tables, presented under the title "Requests and Referral Activities Report," which report findings from a subset of data available in the RRTS database (e.g., channels of communication, top five referrals, top five "how callers heard about service."). Improvements to the RRTS database would also have a positive impact on the clarity and comprehensiveness of the monthly report findings.

5.2.2 Develop Standard Responses to Common Questions

Data exists in the RRTS on the queries most frequently posed to information specialists. A process could be implemented in which categories of queries are identified, and standard responses drafted, approved, and adopted. Standard responses could be evaluated periodically for accuracy, and updated as needed.

This standardization of responses can include both direct answers to questions as well as referrals provided by the information specialists to guide users to the correct answers. In some instances, a standard response may provide both an answer and a referral. Related questions to address include the following:

- When is it appropriate to include referrals in response to queries vs. more direct, text responses?

- Should use of referrals vary by communication channel?
- When is it appropriate for the information specialists to provide health care recommendations?
- Should recommendations and statements made by information specialists be examined for consistency, accuracy, and appropriateness?
- What are the appropriate scope statements and when and how are they to be utilized?

5.2.3 Examine the Feasibility of Developing a Database of Planned Responses

The utility of the collection of standard responses would be enhanced through the development and implementation of a database of planned responses. *AIDSinfo* could benefit from the lessons learned by other clearinghouses and information services that have successfully adopted this approach.

5.2.4 Modify Information Specialist Training

Modifying information specialist training will ensure that *AIDSinfo* continues to meet its goal of providing user support by offering confidential, accurate, personal responses to inquiries. The findings of this evaluation confirmed that query characteristics vary by communication channel, as does the nature of the exchange. These results have implications for improving staff training as they impact the form of the response as well as users' perceptions of response quality.

To be effective, information specialists need to combine their knowledge of HIV/AIDS treatment, prevention, and resources with specific skills related to the *AIDSinfo* service. Each of the above recommendations has an impact on the skills required to provide an accurate, reliable, and quality response. Thus, the following components are recommended for inclusion in the development of the revised information specialist training manual:

- Knowledge of the RRTS database and coding categories
- Competency in utilization of the RRTS database
- Communication skills to respond effectively to queries from users
- Ability to adapt skills as appropriate for each communication mode (over a telephone call, in an e-mail, through a Live Help exchange)
- Knowledge of the (proposed) database of planned responses
- Ability to quickly understand and communicate relevant new information pertaining to HIV/AIDS treatment, prevention, and resources.

As part of this recommendation, periodic evaluation of the responses provided by information specialists should be conducted to monitor fidelity to the policies and procedures as well as for continual enhancement of communication skills.