Multi-year Analyses of TEDS and N-SSATS

The Substance Abuse and Mental Health Data Archive (SAMHDA) promotes use of SAMHSA’s substance abuse and mental health data by providing downloadable public-use data files and documentation and online analysis tools. The available data sets include the Treatment Episode Data Set (TEDS), the National Survey of Substance Abuse Treatment Services (N-SSATS), the National Survey on Drug Use and Health (NSDUH), the Drug Abuse Warning Network (DAWN), and the Monitoring the Future (MTF) Series to name a few. Study data are often available in single-year formats as well as in concatenated files encompassing multiple years to allow for trend analysis. The purpose of this report is to show how such trend analyses can be conducted using concatenated files from the TEDS and N-SSATS data sets.

Combined files for the 1992-2010 TEDS and 1997-2010 N-SSATS data are available from SAMHDA (see http://datafiles.samhsa.gov) using the archive’s online Survey Documentation and Analysis system (SDA). TEDS data provide descriptive information about admissions to providers of substance abuse treatment and include treatment admissions (i.e., TEDS-A data) and treatment discharges (i.e., TEDS-D data). The concatenated TEDS-A 1992 to 2010 data file on SDA contains 31.9 million records. N-SSATS data include information from all...
facilities in the United States, both public and private, that provide substance abuse treatment. The concatenated N-SSATS 1997 to 2010 data file on the SDA contains 159,870 records.

Both data sets are useful for conducting geographic comparisons and analyzing changes over time. These and other analyses can be performed online through the SDA, which provides tabulation, recoding, analysis, and charting capabilities. To facilitate the use of these data, this report gives examples of online analyses of TEDS-A data and N-SSATS data using the SDA system and describes how to produce graphics with Microsoft’s Excel software. The procedures described in this report have been tested with Internet Explorer v.8 and Firefox v.13.0.1 Web browsers, and with Excel 2007 spreadsheet software.

### Initial Steps

To access the SAMHDA data and follow the two examples provided below, go to [http://datafiles.samhsa.gov](http://datafiles.samhsa.gov) and navigate to the SAMHDA “Analyze Online” Web page (see second option on the “Quick Start” menu entitled “Analyze Online” or click on this link directly: [http://www.icpsr.umich.edu/icpsrweb/SAMHDA/sda](http://www.icpsr.umich.edu/icpsrweb/SAMHDA/sda)), where it is possible choose from a variety of data sets, including TEDS-A admissions, TEDS-D discharges, and N-SSATS facilities (Figure 1).

### Example 1—TEDS Admissions

This example illustrates how to obtain data on trends in treatment admissions for non-heroin opiates (primarily prescription pain relievers) in
(1) the United States, (2) the South Census region, (3) Tennessee, and (4) the Knoxville, Tennessee, metropolitan area.

1. On the SAMHDA “Analyze Online” Web page (http://www.icpsr.umich.edu/icpsrweb/SAMHDA/sda), expand the “TEDS-A” series and click on the “TEDS-A, Concatenated, 1992 to 2010” option. Then, click the “More on Study Scope, Description, and Methodology for TEDS-A, Concatenated, 1992 to 2010” link that appears just below it.

2. In the “What Can I Do With This Collection?” section of the page resulting from the previous step, choose the “Analyze data using SDA” option (Figure 2). Note the “Quick Tables” option just below this link.
3. Read through SAMHDA's terms of use. Clicking the “I Agree” button opens the SDA online analysis form to begin data analysis.

4. For the desired U.S. trend numbers, set up a cross tabulation using these variables:
   - **Row:** OPSYNFLG (whether a non-heroine opiate was mentioned as a primary, secondary, or tertiary drug of abuse at admission)
   - **Column:** YEAR

Type the variable names directly into the “Row” and “Column” input fields in the right-hand column or select them from the variable directory in the left-hand column and copy them into the appropriate input field. (Expand the “Substances of Abuse: Created Variables” menu on the left to find the “OPSYNFLG” variable; expand the “Identification” menu to find the “YEAR” variable.) The resulting input screen is shown in Figure 3.

Note that data users may access the TEDS-A codebook by clicking on the “Codebook” tab at the top of the input screen. Moreover, there are several ways of customizing the tables and the output by clicking on various options from the “TABLE OPTIONS” and “CHART OPTIONS” menus (see Figure 3).

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**Figure 3. Example 1—SDA Setup for U.S. Non-heroine Opiate Admissions, 1992-2010**

- **SDA Frequencies/Crosstabulation Program**
  - Help: General / Recoding variables
  - REQUIRED Variable names to specify:
    - Row: OPSYNFLG
    - Column: YEAR
  - OPTIONAL Variable names to specify:
  - Control:
  - Selection filters:
    - Example: age(10-20)
  - Weight:

- **TABLE OPTIONS**
  - Percentage:
    - By Column, Row, Total
    - Confidence intervals:
      - Level
      - Standard error of each percent
    - N of cases to display:
      - Unweighted, Weighted
    - Summary statistics:
    - Question text
    - Suppress table
    - Color coding
    - Show Z-statistic
    - Include missing-data values

- **CHART OPTIONS**
  - Type of chart:
    - Bar chart options:
      - Orientation: Vertical, Horizontal
      - Visual effects: 2-D, 3-D
    - Show percent: Yes
    - Palette: Color, Grayscale
    - Site: Width, Height
5. To obtain results, click the “Run the Table” button. The output Web page is shown in Figure 4. It is possible to save this result as an HTML Web page file which can later be opened with Excel (see Creating Graphics with Excel section below).

6. For the desired census region, State, and metropolitan area trends, repeat the cross tabulation above three times, but adding each of the following into the “Selection Filter(s)” input field in turn (see step 4 above):
   - For the South Census region, specify: REGION(3)
   - For Tennessee, specify: STFIPS(47)
   - For the Knoxville metro area, specify: CBSA(28940)

Note that the variable menu on the left side of the input screen cannot be expanded to select the South Region, Tennessee, or the Knoxville metropolitan area. Find the codes for these in the TEDS-A codebook, which can be accessed by clicking on the “Codebook” tab at the top of the input screen (as shown in Figure 3).

7. Each new cross tabulation (i.e., Census, State, and Metro data run) results in a new Web page. Note that Internet Explorer users can copy and paste the “SUBSTANCE REPORTED” row from each cross tabulation page directly into an Excel workbook.3

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**Figure 4. Example 1—SDA Results for U.S. Non-heroin Opiate Admissions, 1992-2010**

<table>
<thead>
<tr>
<th>SDA 3.5: Tables</th>
<th>Treatment Episode Data Set – Admissions (TEDS-A) – Concatenated, 1992 to 2010</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jul 26, 2012 (Thu 02:11 PM CST)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Variables</th>
<th>Range</th>
<th>MID</th>
<th>Dataset</th>
</tr>
</thead>
<tbody>
<tr>
<td>Row: OPSYNFLG OTHER OPiates/SYNTHETICS REPORTED AT ADM</td>
<td>0-1</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Column: YEAR YEAR OF ADMISSION</td>
<td>1992-2010</td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Frequency Distribution</th>
<th>YEAR</th>
</tr>
</thead>
<tbody>
<tr>
<td>SUBSTANCE NOT REPORTED</td>
<td></td>
</tr>
<tr>
<td>0</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td></td>
</tr>
<tr>
<td>SUBSTANCE REPORTED</td>
<td></td>
</tr>
<tr>
<td>0</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td></td>
</tr>
<tr>
<td>COL TOTAL</td>
<td></td>
</tr>
<tr>
<td>100.0</td>
<td></td>
</tr>
<tr>
<td>1,248,752</td>
<td>1,810,000</td>
</tr>
</tbody>
</table>

Color coding:  
- <2.0: Smaller than expected  
- 2.0: Smaller than expected  
- 2.0: Larger than expected  
- 2.0: Larger than expected  
- 2.0: Larger than expected
The results, displayed in Table 1 and Figure 5, show that between 1992 and 2010, the percentage of non-heroin opiate admissions increased as a proportion of all admissions nationally, in the South, in Tennessee, and in the Knoxville metropolitan area. The findings show that non-heroin opiate admissions were consistently more likely in the South than in the United States, in Tennessee than in the South, and generally much more likely in Knoxville than in Tennessee. The trend data also show that throughout most of the 1990s, the percentages were roughly similar, but by 2000, sharp increases were seen in the Knoxville metropolitan area in particular and Tennessee in general.

Table 1. Example 1—U.S., South Census Region, Tennessee, and Knoxville Metro Area Non-heroin Opiate Substance Abuse Treatment Admissions as a Percentage of All Admissions in the Specified Area: 1992-2010

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>United States</td>
<td>1.8</td>
<td>1.8</td>
<td>1.9</td>
<td>2.0</td>
<td>2.0</td>
<td>2.0</td>
<td>2.2</td>
<td>2.5</td>
<td>2.9</td>
<td>3.8</td>
</tr>
<tr>
<td>South</td>
<td>2.3</td>
<td>2.3</td>
<td>2.1</td>
<td>2.2</td>
<td>2.3</td>
<td>2.6</td>
<td>3.0</td>
<td>3.4</td>
<td>4.1</td>
<td>5.4</td>
</tr>
<tr>
<td>Tennessee</td>
<td>5.8</td>
<td>5.6</td>
<td>4.9</td>
<td>4.2</td>
<td>5.1</td>
<td>6.4</td>
<td>7.4</td>
<td>7.3</td>
<td>8.2</td>
<td>11.3</td>
</tr>
<tr>
<td>Knoxville</td>
<td>9.3</td>
<td>6.9</td>
<td>4.3</td>
<td>5.3</td>
<td>7.4</td>
<td>8.0</td>
<td>8.8</td>
<td>12.8</td>
<td>15.7</td>
<td>25.0</td>
</tr>
<tr>
<td>2002</td>
<td>4.5</td>
<td>5.1</td>
<td>5.9</td>
<td>6.5</td>
<td>7.4</td>
<td>8.5</td>
<td>9.9</td>
<td>11.5</td>
<td>13.8</td>
<td></td>
</tr>
<tr>
<td>South</td>
<td>6.3</td>
<td>7.0</td>
<td>8.6</td>
<td>9.8</td>
<td>11.3</td>
<td>12.9</td>
<td>14.5</td>
<td>17.0</td>
<td>20.8</td>
<td></td>
</tr>
<tr>
<td>Tennessee</td>
<td>15.1</td>
<td>16.4</td>
<td>16.9</td>
<td>18.5</td>
<td>19.1</td>
<td>23.9</td>
<td>27.4</td>
<td>32.8</td>
<td>39.8</td>
<td></td>
</tr>
<tr>
<td>Knoxville</td>
<td>31.5</td>
<td>39.7</td>
<td>43.3</td>
<td>49.3</td>
<td>46.4</td>
<td>53.0</td>
<td>54.2</td>
<td>55.8</td>
<td>65.4</td>
<td></td>
</tr>
</tbody>
</table>

Source: SAMHSA Treatment Episode Data Set (TEDS), 1992-2010.

Figure 5. Example 1—U.S., South Census Region, Tennessee, and Knoxville Metro Area Non-heroin Opiate Substance Abuse Treatment Admissions as a Percentage of All Admissions in the Specified Area: 1992-2010

Source: SAMHSA Treatment Episode Data Set (TEDS), 1992-2010.
Example 2—N-SSATS

This second example illustrates how to use SAMHSA's online N-SSATS data and SDA to obtain trends in the percentages of facilities known to provide HIV/AIDS education, counseling, or support. This is a measure used by the HealthyPeople Initiative as an indicator of progress in the area of HIV/AIDS. Trends will be obtained for (1) the United States, (2) the Midwest Census region, (3) Michigan, and (4) the Detroit-Warren-Livonia metropolitan area. To illustrate other SDA features, analyses are limited to 2008 to 2010, and facilities with missing values are included in the analysis.

1. From the SAMHDA “Analyze Online” Web page (see http://www.icpsr.umich.edu/icpsrweb/SAMHDA/sda), expand the “N-SSATS” series and then expand the “N-SSATS, Concatenated, 1997 to 2010” option. Then, click the “More on Study Scope, Description, and Methodology for N-SSATS, Concatenated, 1997 to 2010” link that appears just below it.

2. In the “What Can I Do With This Collection?” section of the resulting page, choose the “Analyze data using SDA” option (refer to Figure 1).

3. Read through SAMHDA’s terms of use. Clicking the “I Agree” button opens the SDA online analysis form to begin data analysis.

4. For the desired U.S. trend numbers, set up a cross tabulation using these variables:
   - **Row:** SRVC24 (Ancillary: HIV or AIDS education)
   - **Column:** YEAR
   - **Selection Filter(s):** YEAR(2008-2010)
   - Include missing-data values: Checked

As with the TEDS analysis, the N-SSATS variable names may be typed directly into the “Row” and “Column” input fields in the right-hand column, or can be selected from the variable directory in the left-hand column and then copied to the appropriate input fields. (To find the “SRVC24” variable, first expand “Section A: Facility Characteristics” and then expand the “General Services Offered” menu; to find the “YEAR” variable expand “Section 1: Identification.”) Check the “Include missing-data values” box at the bottom of the “TABLE OPTIONS” menu. The resulting input screen is shown in Figure 6.

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Figure 6. Example 2—SDA Setup for Detroit N-SSATS Facilities Known to Provide HIV/AIDS Education, Counseling, or Support, 2008-2010
5. For the desired census region, State, and metropolitan area trends using only 2008 through 2010 data, repeat the cross tabulation above three times, but using the following variables in the “Selection Filter(s)” input box in turn:

- For the Midwest Census region, specify: \textit{YEAR(2008-2010), REGION(2)}
- For Michigan, specify: \textit{YEAR(2008-2010), STFIPS(26)}
- For the Detroit metro area, specify: \textit{YEAR(2008-2010), CBSA(19820)}

The output for the Detroit metro area is displayed in Figure 7. Each cross tabulation results in a new Web page that can be saved and processed with an Excel workbook to produce charts and graphs (discussed in more detail below).

Note that the variable menu on the left side of the input screen (see Figure 6) cannot be expanded to select the Midwest Region, Michigan, or the Detroit-Warren-Livonia metropolitan area. Instead, the codes for these may be found in the N-SSATS codebook, which can be accessed by clicking on the “Codebook” tab at the top of the input screen (as shown in Figure 6).

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**Figure 7. Example 2—SDA Results for Detroit N-SSATS Facilities Known to Provide HIV/AIDS Education, Counseling, or Support, 2008-2010**

![SDA Table](image)
Creating Graphics with Excel

While SDA provides some online graphics capabilities, it cannot combine the data series produced in the examples (Nation, census region, State, and metro area) into a single analysis and chart. The simplest method for collecting and graphing multiple SDA results is to use Excel to simultaneously open each of the HTML output files saved from SDA runs. The following steps show how to do this:

1. Activate Excel, select the “Office” button and choose the “Open” action.
2. Navigate to the directory where the output HTML files are saved and select the desired files simultaneously with the Shift-click or Control-click multiple selection action (Figure 8). This will open four separate workbooks within the Excel application.

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**Figure 8. Example 2—Opening Multiple HTML Files with Excel**
3. Figure 9 shows the initial step towards combining those four files into a single workbook: right-clicking the first worksheet tab (the “Tables – SDA-NSSATS-Midwest” tab), choosing “Move or Copy,” and creating a copy in a new workbook. Copy the worksheets from the other three workbooks (U.S., Michigan, Detroit) into the same new workbook, then save it.

4. Create a new, fifth worksheet in that workbook (use the small “starred folder” tab to the right of the rightmost data worksheet tab). Type column headers for the years (2008, 2009, 2010) and row headers for the areas (U.S., Midwest, Michigan, Detroit) into spaces appropriate for the desired three-column by four-row table.

5. To begin to populate the empty table with values from the first four worksheets, click on the “US, 2008” cell, type an “=” sign, navigate to the U.S. data worksheet, and click the cell in that worksheet corresponding to the desired percentage (in this case, the percentage corresponding with “Yes” on the U.S. data worksheet under 2008) and press the “Enter” key. Finish filling the column with 2008 data by repeating this for the Midwest, Michigan, and Detroit sheets.

Figure 9. Example 2—N-SSATS Example Data Series and Excel Workbook Setup
6. Select all four 2008 data values, then use the mouse pointer to touch the little black square at the bottom right corner of that range (indicated with the lower red arrow in Figure 10). When the mouse pointer becomes a black “+” sign, it is ready to be used to copy the formulas added to those cells (C3 through C6 in Figure 10). Drag that “+” symbol two columns further to the right to populate the 2009 and 2010 columns with their proper values.

7. To make a chart from the resulting table, select the whole table (including row and column headers), choose the Excel “Insert” menu strip tab, and choose the “Line” menu choice from that tab (Figure 11).

8. Choose and click a style, such as “Line” or “Line with Markers.” Excel will initially display regions as the X-axis and years as the Y-axis; this can be reversed by choosing the “Switch Row/Column” in the “Design” menu strip that automatically appears.

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**Figure 10. Example 2—N-SSATS Example Data Series and Excel Data Setup**

![Figure 10](image)

**Figure 11. Example 2—Creation of Excel Chart from Example N-SSATS Data Series**

![Figure 11](image)
The results, displayed in Table 2 and Figure 12, show that between 2008 and 2010, over half of U.S. facilities were known to provide HIV/AIDS education, counseling, or support; the percentage of Midwest facilities increased to nearly 50 percent, while the corresponding percentage for Michigan facilities held steady at about 35 percent. The percentage of Detroit facilities known to provide HIV/AIDS education, counseling, or support declined from 43 percent in 2008 to 37 percent in 2010.

### Table 2. Example 2—Facilities Known to Provide HIV/AIDS Education, Counseling, or Support in the United States, Midwest Census Region, Michigan, and Detroit Metro Area: 2008-2010

<table>
<thead>
<tr>
<th>Area</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
</tr>
</thead>
<tbody>
<tr>
<td>United States</td>
<td>54.4</td>
<td>55.3</td>
<td>56.2</td>
</tr>
<tr>
<td>Midwest Census Region</td>
<td>45.5</td>
<td>47.3</td>
<td>49.2</td>
</tr>
<tr>
<td>Michigan</td>
<td>36.1</td>
<td>35.7</td>
<td>36.4</td>
</tr>
<tr>
<td>Detroit-Livonia-Warren</td>
<td>43.3</td>
<td>39.5</td>
<td>37.3</td>
</tr>
</tbody>
</table>


### Figure 12. Example 2—Facilities Known to Provide HIV/AIDS Education, Counseling, or Support in the United States, Midwest Census Region, Michigan, and Detroit Metro Area: 2008-2010

Discussion

The SAMHDA TEDS and N-SSATS data and SDA analytic tools allow users to explore a wealth of data on U.S. substance abuse admissions and facilities and can help give policy analysts and the public useful information on trends in substance abuse treatment in the United States. As new years of data become available, they are uploaded to the SAMHDA servers. For example, 2011 N-SSATS data are expected to become available later this year. Those interested in receiving SAMHDA-related news may subscribe to SAMHDA-Announcements to receive e-mail notifications of new and upcoming data releases, updates to current holdings, information on features added to the SAMHDA Web site and online analysis system, and conferences which will exhibit or present SAMHDA data. Access the online subscription form for SAMHDA-Announcements at: http://www.icpsr.umich.edu/icpsrweb/content/SAMHDA/maillist.html.

This report focused on only two of the many data sets that are available on SAMHDA and provided just a few examples of the analytic capabilities and resources accessible to SAMHDA users. For instance, some studies have Quick Tables and Interactive Maps, and SAMHDA provides links to publications, including a searchable database of bibliographic citations for publications that are based on SAMHDA data. SAMHDA also provides links to other federal resources, including websites related to substance abuse and mental health research and treatment. Each study page includes links to relevant reports and related sites for that study.

SAMHDA studies consist of one or more data files and codebooks, as well as setup files for SPSS, SAS, and Stata; detailed description files are available for each study. Many studies can be analyzed using the online SDA system (as demonstrated in this report). For more information on the SDA system and its capabilities, visit the SAMHDA SDA Tutorial at: http://www.icpsr.umich.edu/files/SAMHDA/tutorial/. Additional help for using these resources may be found at: http://www.icpsr.umich.edu/SDAHELP/helpan.htm. The archive staff may also be contacted for assistance at samhda-support@icpsr.umich.edu or toll-free at 888-741-7242.

End Notes

1 The archive is supported by the Center for Behavioral Health Statistics and Quality (formerly the Office of Applied Studies), SAMHSA, and based at the Inter-university Consortium for Political and Social Research at the University of Michigan through a subcontract with the National Organization for Research at the University of Chicago (NORC).

2 Survey Documentation and Analysis (SDA) software was formerly referred to as DAS at the SAMHDA Web site; it was developed at the Computer-assisted Survey Methods (CSM) Program at the University of California at Berkeley. For more information and help, consult http://www.icpsr.umich.edu/SDAHELP/helpan.htm

3 When using the Firefox browser, copying and pasting directly from the Web page to Excel results in data that is inconveniently rearranged. As described in the “Graphics with Excel” section, an alternative for any browser user is to save each output Web page HTML file, open all of them with Excel, move or copy the resulting pages into a single workbook, and create tables and charts with the data combined in that workbook.


Suggested Citation

Multi-year Analyses of TEDS and N-SSATS

The Treatment Episode Data Set (TEDS) is an administrative data system providing descriptive information about the national flow of admissions aged 12 or older to providers of substance abuse treatment. TEDS intends to collect data on all treatment admissions to substance abuse treatment programs in the United States receiving public funds. Treatment programs receiving any public funds are requested to provide TEDS data on publicly- and privately-funded clients.

The National Survey of Substance Abuse Treatment Services (N-SSATS) is an annual survey designed to collect information from all facilities in the United States, both public and private, that provide substance abuse treatment. N-SSATS provides the mechanism for quantifying the dynamic character and composition of the United States substance abuse treatment delivery system.

TEDS and N-SSATS are components of the Behavioral Health Services Information System (BHSIS), maintained by the Center for Behavioral Health Statistics and Quality (CBHSQ), Substance Abuse and Mental Health Services Administration (SAMHSA). TEDS records represent admissions rather than individuals, as a person may be admitted to treatment more than once. Information on treatment admissions is routinely collected by State administrative systems and then submitted to SAMHSA in a standard format. There are significant differences among State data collection systems. Sources of State variation include the amount of public funding available and the constraints placed on the use of funds, facilities reporting TEDS data, clients included, services offered, and completeness and timeliness of reporting. See the annual TEDS reports for details. TEDS received approximately 1.8 million treatment admission records from 48 States and Puerto Rico for 2010.

N-SSATS collects three types of information from facilities: (1) characteristics of individual facilities such as services offered and types of treatment provided, primary focus of the facility, and payment options; (2) client count information such as counts of clients served by service type and number of beds designated for treatment; and (3) general information such as licensure, certification, or accreditation and facility Web site availability. In 2010, N-SSATS collected information from 13,339 facilities from all 50 States, the District of Columbia, Puerto Rico, the Federated States of Micronesia, Guam, Palau, and the Virgin Islands. Information and data for this report are based on data reported to N-SSATS for the survey reference date March 31, 2010.

The BHSIS Report is prepared by the Center for Behavioral Health Statistics and Quality, SAMHSA; Synectics for Management Decisions, Inc., Arlington, VA; and RTI International, Research Triangle Park, NC.

Latest TEDS reports:
http://www.samhsa.gov/data/DASIS.aspx#TEDS

Latest TEDS public use files and variable definitions:
http://datafiles.samhsa.gov

Latest N-SSATS reports:
http://www.samhsa.gov/data/DASIS.aspx#N-SSATS

Latest N-SSATS public use files and variable definitions:
http://datafiles.samhsa.gov

Other substance abuse reports:
http://www.samhsa.gov/data