

ANNUAL SYNAR REPORT

42 U.S.C. 300x-26

OMB № 0930-0222

FFY 2014

State: Pennsylvania

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INTRODUCTION

The Annual Synar Report (ASR) format provides the means for states to comply with the reporting provisions of the Public Health Service Act (42 U.S.C. 300x-26) and the Tobacco Regulation for the Substance Abuse Prevention and Treatment Block Grant (SABG) (45 C.F.R. 96.130 (e)).

How the Synar report helps the Center for Substance Abuse Prevention

In accordance with the tobacco regulations, states are required to provide detailed information on progress made in enforcing youth tobacco access laws (FFY 2013 Compliance Progress) and future plans to ensure compliance with the Synar requirements to reduce youth tobacco access rates (FFY 2014 Intended Use Plan). These data are required by 42 U.S.C. 300x-26 and will be used by the Secretary to evaluate state compliance with the statute. Part of the mission of the Center for Substance Abuse Prevention (CSAP) is to assist states¹ by supporting Synar activities and providing technical assistance helpful in determining the type of enforcement measures and control strategies that are most effective. This information is helpful to CSAP in improving technical assistance resources and expertise on enforcement efforts and tobacco control program support activities, including state Synar program support services, through an enhanced technical assistance program involving conferences and workshops, development of training materials and guidance documents, and onsite technical assistance consultation.

How the Synar report can help states

The information gathered for the Synar report can help states describe and analyze substate needs for program enhancements. These data can also be used to report to the state legislature and other state and local organizations on progress made to date in enforcing youth tobacco access laws when aggregated statistical data from state Synar reports can demonstrate to the Secretary the national progress in reducing youth tobacco access problems. This information will also provide Congress with a better understanding of state progress in implementing Synar, including state difficulties and successes in enforcing retailer compliance with youth tobacco access laws.

¹The term “state” is used to refer to all the states and territories required to comply with Synar as part of the Substance Abuse Prevention and Treatment Block Grant Program requirements (42 U.S.C. 300x-64 and 45 C.F.R. 96.121).

FFY 2014: FUNDING AGREEMENTS/CERTIFICATIONS

The following form must be signed by the Chief Executive Officer or an authorized designee and submitted with this application. Documentation authorizing a designee must be attached to the application.

PUBLIC HEALTH SERVICES ACT AND SYNAR AMENDMENT
42 U.S.C. 300x-26 requires each state to submit an annual report of its progress in meeting the requirements of the Synar Amendment and its implementing regulation (45 C.F.R. 96.130) to the Secretary of the Department of Health and Human Services. By signing below, the chief executive officer (or an authorized designee) of the applicant organization certifies that the state has complied with these reporting requirements and the certifications as set forth below.
SYNAR SURVEY SAMPLING METHODOLOGY
The state certifies that the Synar survey sampling methodology on file with the Center for Substance Abuse Prevention and submitted with the Annual Synar Report for FFY 2014 is up-to-date and approved by the Center for Substance Abuse Prevention.
SYNAR SURVEY INSPECTION PROTOCOL
The state certifies that the Synar Survey Inspection Protocol on file with the Center for Substance Abuse Prevention and submitted with the Annual Synar Report for FFY 2014 is up-to-date and approved by the Center for Substance Abuse Prevention.
State: Pennsylvania
Name of Chief Executive Officer or Designee: Tom Corbett
Signature of CEO or Designee:
Title: Governor Date Signed: December 30, 2013
If signed by a designee, a copy of the designation must be attached.

**SECTION I: FFY 2013 (Compliance Progress)
YOUTH ACCESS LAWS, ACTIVITIES, AND ENFORCEMENT**

42 U.S.C. 300x-26 requires the states to report information regarding the sale/distribution of tobacco products to individuals under age 18.

1. Please indicate any changes or additions to the state tobacco statute(s) relating to youth access since the last reporting year. If any changes were made to the state law(s) since the last reporting year, please attach a photocopy of the law to the hard copy of the ASR and also upload a copy of the state law to WebBGAS. (see 42 U.S.C. 300x-26).

a. Has there been a change in the minimum sale age for tobacco products?

Yes No

If Yes, current minimum age: 19 20 21

b. Have there been any changes in state law that impacted the state's protocol for conducting Synar inspections?

Yes No

If Yes, indicate change. (Check all that apply.)

Changed to require that law enforcement conduct inspections of tobacco outlets

Changed to make it illegal for youth to possess, purchase or receive tobacco

Changed to require ID to purchase tobacco

Other change(s) *(Please describe.)* _____

c. Have there been any changes in state law that impacted the following?

Licensing of tobacco vendors Yes No

Penalties for sales to minors Yes No

Vending machines Yes No

2. Describe how the Annual Synar Report (see 45 C.F.R. 96.130(e)) and the state Plan (see 42 U.S.C. 300x-51) were made public within the state prior to submission of the ASR. (Check all that apply.)

Placed on file for public review

Posted on a state agency Web site *(Please provide exact Web address and the date when the FFY 2014 ASR was posted to this Web address.)*

<http://www.portal.state.pa.us/portal/server.pt?open=514&objID=1186018&mode=2>

Notice published in a newspaper or newsletter

Public hearing

Announced in a news release, a press conference, or discussed in a media interview

Distributed for review as part of the SABG application process

Distributed through the public library system

Published in an annual register

Other *(Please describe.)* Listserve announcing ASR availability on website.

3. Identify the following agency or agencies (*see 42 U.S.C. 300x-26 and 45 C.F.R. 96.130*).

- a. The state agency (ies) designated by the Governor for oversight of the Synar requirements:**

The Pennsylvania Department of Health (DOH)

Has this changed since last year's Annual Synar Report?

Yes No

- b. The state agency(ies) responsible for conducting random, unannounced Synar inspections:**

The Pennsylvania Department of Health (DOH)

Has this changed since last year's Annual Synar Report?

Yes No

- c. The state agency(ies) responsible for enforcing youth tobacco access law(s):**

The Pennsylvania Department of Health, Bureau of Health Promotion & Risk Reduction, Division of Tobacco Prevention & Control

Has this changed since last year's Annual Synar Report?

Yes No

4. Identify the following agencies and describe their relationship with the agency responsible for the oversight of the Synar requirements.

- a. Identify the state agency responsible for tobacco prevention activities (the agency that receives the Centers for Disease Control and Prevention's National Tobacco Control Program funding).**

The Pennsylvania Department of Health, Bureau of Health Promotion & Risk Reduction, Division of Tobacco Prevention & Control

- b. Has the responsible agency changed since last year's Annual Synar Report?**

Yes No

- c. Describe the coordination and collaboration that occur between the agency responsible for tobacco prevention and the agency responsible for oversight of the Synar requirements. (Check all that apply.) The two agencies**

Are the same

Have a formal written memorandum of agreement

Have an informal partnership

Conduct joint planning activities

Combine resources

Have other collaborative arrangement(s) (*Please describe.*) _____

- d. **Identify the state agency responsible for enforcing the youth access and advertising restrictions in the Family Smoking Prevention and Tobacco Control Act (the agency that is under contract to the Food and Drug Administration's Center for Tobacco Products (FDA/CTP)).**

The Pennsylvania Department of Health, Bureau of Health Promotion & Risk Reduction, Division of Tobacco Prevention & Control

- e. **Has the responsible agency changed since last year's Annual Synar Report?**
 Yes No

- f. **Describe the coordination and collaboration that occur between the agency contracted with the FDA to enforce federal youth tobacco access laws and the agency responsible for oversight of the Synar requirements. (Check all that apply.) The two agencies:**

- Are the same
 Have a formal written memorandum of agreement
 Have an informal partnership
 Conduct joint planning activities
 Combine resources
 Have other collaborative arrangement(s) *(Please describe.)* _____

- g. **Does the state use data from the FDA enforcement inspections for Synar survey reporting?**
 Yes No

5. **Please answer the following questions regarding the state's activities to enforce the state's youth access to tobacco law(s) in FFY 2013 (see 42 U.S.C. 300x-26 and 45 C.F.R. 96.130(e)).**

- a. **Which one of the following describes the enforcement of state youth access to tobacco laws carried out in your state? (Check one category only.)**

- Enforcement is conducted exclusively by local law enforcement agencies.
 Enforcement is conducted exclusively by state agency (ies).
 Enforcement is conducted by both local *and* state agencies.

- b. The following items concern penalties imposed for all violations of state youth access to tobacco laws by LOCAL AND/OR STATE LAW ENFORCEMENT AGENCIES (this does not include enforcement of federal youth tobacco access laws). Please fill in the number requested. If state law does not allow for an item, please mark “NA” (not applicable). If a response for an item is unknown, please mark “UNK.” The chart must be filled in completely.

PENALTY	OWNERS	CLERKS	TOTAL
Number of <u>citations issued</u>	44	66	110
Number of <u>fin es assessed</u>			
Number of <u>permits/licenses suspended</u>			
Number of <u>permits/licenses revoked</u>			
Other (<i>Please describe.</i>)			

- c. Which one of the following best describes the level of enforcement of state youth access to tobacco laws carried out in your state? (*Check one category only.*)

- Enforcement is conducted only at those outlets randomly selected for the Synar survey.
- Enforcement is conducted only at a subset of outlets not randomly selected for the Synar survey.
- Enforcement is conducted at a combination of outlets randomly selected for the Synar survey and outlets not randomly selected for the Synar survey.

- d. Did every tobacco outlet in the state receive at least one compliance check that included enforcement of the state youth tobacco access law(s) in the last year?

- Yes No

- e. What additional activities are conducted in your state to support enforcement and compliance with state youth tobacco access law(s)? (*Check all that apply.*)

- Merchant education and/or training
- Incentives for merchants who are in compliance (e.g., nonenforcement compliance checks in which compliant retailers are given positive reinforcement and noncompliant retailers are warned about youth access laws)
- Community education regarding youth access laws
- Media use to publicize compliance inspection results
- Community mobilization to increase support for retailer compliance with youth access laws
- Other activities (*Please list.*) _____

Briefly describe all checked activities:

Merchant education and/or trainings, community education, publication of offenders through media at the localized level by eight regional tobacco prevention and control primary contractors. Community mobilization also occurs at the regional level with support from the Division of Tobacco Prevention and Control.

f. Are citations or warnings issued to retailers or clerks who sell tobacco to minors for inspections that are part of the Synar survey?

Yes **No**

If “Yes” to 5f, please describe the state’s procedure for minimizing risk of bias to the survey results from retailers alerting each other to the presence of the survey teams:

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SYNAR SURVEY METHODS AND RESULTS

The following questions pertain to the survey methodology and results of the Synar survey used by the state to meet the requirements of the Synar Regulation in FFY 2013 (see 42 U.S.C. 300x-26 and 45 C.F.R. 96.130).

6. Has the sampling methodology changed from the previous year?

Yes No

The state is required to have an approved up-to-date description of the Synar sampling methodology on file with CSAP. Please submit a copy of your Synar Survey Sampling Methodology (Appendix B). If the sampling methodology changed from the previous reporting year, these changes must be reflected in the methodology submitted.

7. Please answer the following questions regarding the state’s annual random, unannounced inspections of tobacco outlets (see 45 C.F.R. 96.130(d)(2)).

a. Did the state use the optional Synar Survey Estimation System (SSES) to analyze the Synar survey data?

Yes No

If Yes, attach SSES summary tables 1, 2, 3, and 4 to the hard copy of the ASR and upload a copy of SSES tables 1–5 (in Excel) to WebBGAS. Then go to Question 8. If No, continue to Question 7b.

b. Report the weighted and unweighted Retailer Violation Rate (RVR) estimates, the standard error, accuracy rate (number of eligible outlets divided by the total number of sampled outlets), and completion rate (number of eligible outlets inspected divided by the total number of eligible outlets).

Unweighted RVR	8.8	
Weighted RVR	10.5	
Standard error (s.e.) of the (weighted) RVR	1.2	

Fill in the blanks to calculate the right limit of the right-sided 95% confidence interval.

$$\begin{array}{ccccccc}
 10.5 & + & (1.645 & \times & 1.2) & = & 12.5 \\
 \text{RVR Estimate} & \text{plus} & (1.645 & \text{times} & \text{Standard Error}) & \text{equals} & \text{Right Limit}
 \end{array}$$

Accuracy rate	58.4	
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Completion rate	99.7	
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c. Fill out Form 1 in Appendix A (Forms 1–5). (Required regardless of the sample design.)

d. How were the (weighted) RVR estimate and its standard error obtained?

(Check the one that applies.)

- Form 2 (Optional) in Appendix A (Forms 1–5) *(Attach completed Form 2.)*
 Other *(Please specify. Provide formulas and calculations or attach and explain the program code and output with description of all variable names.)*

See Attachments:
 Attachment 1: Calculation of Weighted Retailer Violation Rate Explanation
 Attachment 2: Calculation of Weighted Retailer Violation SAS Programming Code
 Attachment 3: Weight Check and Weights Table
 Attachment 4: Survey Means Tables
 Attachment 5: 2013 Results Table

e. If stratification was used, did any strata in the sample contain only one outlet or cluster this year?

- Yes No No stratification

If Yes, explain how this situation was dealt with in variance estimation.

f. Was a cluster sample design used?

- Yes No

If Yes, fill out and attach Form 3 in Appendix A (Forms 1–5), and answer the following question.

If No, go to Question 7g.

Were any certainty primary sampling units selected this year?

- Yes No

If Yes, explain how the certainty clusters were dealt with in variance estimation.

g. Report the following outlet sample sizes for the Synar survey.

	Sample Size
Effective sample size (sample size needed to meet the SAMHSA precision requirement assuming simple random sampling)	533
Target sample size (the product of the effective sample size and the design effect)	693
Original sample size (inflated sample size of the target sample to counter the sample attrition due to ineligibility and noncompletion)	1,874
Eligible sample size (number of outlets found to be eligible in the sample)	1,095
Final sample size (number of eligible outlets in the sample for which an inspection was completed)	1,092

h. Fill out Form 4 in Appendix A (Forms 1–5).

8. Did the state’s Synar survey use a list frame?

Yes **No**

If Yes, answer the following questions about its coverage.

a. The calendar year of the latest frame coverage study: 2013

b. Percent coverage from the latest frame coverage study: 99.1%

c. Was a new study conducted in this reporting period?

Yes **No**

If Yes, please complete Appendix D (List Sampling Frame Coverage Study) and submit it with the Annual Synar Report.

d. The calendar year of the next coverage study planned: 2018

9. Has the Synar survey inspection protocol changed from the previous year?

Yes **No**

The state is required to have an approved up-to-date description of the Synar inspection protocol on file with CSAP. Please submit a copy of your Synar Survey Inspection Protocol (Appendix C). If the inspection protocol changed from the previous year, these changes must be reflected in the protocol submitted.

a. Provide the inspection period: From 07/01/13 to 08/15/13
MM/DD/YY MM/DD/YY

b. Provide the number of youth inspectors used in the current inspection year:

59

NOTE: If the state uses SSES, please ensure that the number reported in 9b matches that reported in SSES Table 4, or explain any difference.

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b. Fill out and attach Form 5 in Appendix A (Forms 1–5). (Not required if the state used SSES to analyze the Synar survey data.)

SECTION II: FFY 2014 (Intended Use):

Public law 42 U.S.C. 300x-26 of the Public Health Service Act and 45 C.F.R. 96.130 (e) (4, 5) require that the states provide information on future plans to ensure compliance with the Synar requirements to reduce youth tobacco access.

1. In the upcoming year, does the state anticipate any changes in:

- Synar sampling methodology Yes No
Synar inspection protocol Yes No

If changes are made in either the Synar sampling methodology or the Synar inspection protocol, the state is required to obtain approval from CSAP prior to implementation of the change and file an updated Synar Survey Sampling Methodology (Appendix B) or an updated Synar Survey Inspection Protocol (Appendix C), as appropriate.

2. Please describe the state's plans to maintain and/or reduce the target rate for Synar inspections to be completed in FFY 2014. Include a brief description of plans for law enforcement efforts to enforce youth tobacco access laws, activities that support law enforcement efforts to enforce youth tobacco access laws, and any anticipated changes in youth tobacco access legislation or regulation in the state.

Pennsylvania enacted the Tobacco Settlement Act (Act 2001-77) on June 26, 2001. Chapter 7 of that legislation outlined requirements relative to prevention and cessation activities. The Act established a tobacco use prevention and cessation program with the Department of Health. Seventy percent of funds received through the Tobacco Settlement fund to the Department under Chapter 7 must be awarded to primary contractors to establish comprehensive tobacco control programs within their service areas.

Act 2002-112 amended the youth access to tobacco law, creating a fine structure for both store owners and clerks, as well as increased penalties and license revocation and/or suspension for owners. This Act also restricted placement of vending machines and provided a penalty structure for youth attempting to purchase tobacco. In addition, enforcement authority was expanded to include the Department of Health, County or Municipal Health Departments, Single County Authorities created pursuant to the Pennsylvania Drug and Alcohol Control Act, or Primary Contractors pursuant to Chapter 7 of the Tobacco Settlement Act. The eight Regional Primary Contractors (RPCs), providing services to all sixty-seven counties of the Commonwealth, are currently required to conduct compliance checks on all tobacco retail outlets within their service area. With the implementation of on-going enforcement, standardization of the compliance check protocol, annual enforcement training, and effective statewide partnerships with the Department of Revenue, the Office of the Attorney General Enforcement Division, and the Pennsylvania Justice Systems, the rate of illegal tobacco sales has steadily decreased over time.

The Department of Health continues to collaborate with the RPCs to integrate statewide media retailer education campaigns with initiatives that engage local communities through customized retailer and community-specific youth access education.

3. Describe any challenges the state faces in complying with the Synar regulation. (Check all that apply.)

- Limited resources for law enforcement of youth access laws
- Limited resources for activities to support enforcement and compliance with youth tobacco access laws
- Limitations in the state youth tobacco access laws
- Limited public support for enforcement of youth tobacco access laws
- Limitations on completeness/accuracy of list of tobacco outlets
- Limited expertise in survey methodology
- Laws/regulations limiting the use of minors in tobacco inspections
- Difficulties recruiting youth inspectors
- Issues regarding the age balance of youth inspectors
- Issues regarding the gender balance of youth inspectors
- Geographic, demographic, and logistical considerations in conducting inspections
- Cultural factors (e.g., language barriers, young people purchasing for their elders)
- Issues regarding sources of tobacco under tribal jurisdiction
- Other challenges (*Please list.*)_____

Briefly describe all checked challenges and propose a plan for each, or indicate the state's need for technical assistance related to each relevant challenge.

Continued limitations relative to available funding challenges the ability to support effective tobacco prevention strategies and maintain the number of annual enforcement checks conducted in comparison to the levels previously completed on an annual basis. This severely hampers the ability to sustain the lower retailer violation rates attained several years ago.

APPENDIX A:
FORMS

FORM 1 (Required for all states not using the Synar Survey Estimation System [SSES] to analyze the Synar Survey data.)

Summary of Synar Inspection Results by Stratum													
											State: <u>Pennsylvania</u>		
											FFY: <u>2014</u>		
(1)		(2)			(3)			(4)			(5)		
STRATUM		NUMBER OF OUTLETS IN SAMPLING FRAME			ESTIMATED NUMBER OF ELIGIBLE OUTLETS IN POPULATION			NUMBER OF OUTLETS INSPECTED			NO. OF OUTLETS FOUND IN VIOLATION DURING INSPECTIONS		
(a) Row #	(b) Stratum Name	(a) Over-the-Counter (OTC)	(b) Vending Machines (VM)	(c) Total Outlets (2a+2b)	(a) Over-the-Counter (OTC)	(b) Vending Machines (VM)	(c) Total Outlets (3a+3b)	(a) Over-the-Counter (OTC)	(b) Vending Machines (VM)	(c) Total Outlets (4a+4b)	(a) Over-the-Counter (OTC)	(b) Vending Machines (VM)	(c) Total Outlets (5a+5b)
1	NC	1,529		1,529	954		954	78		78	4		4
2	NE	3,807		3,807	2,062		2,062	156		156	22		22
3	NW	1,396		1,396	829		829	78		78	3		3
4	SC	2,880		2,880	1,731		1,731	130		130	11		11
5	SE	4,876		4,876	3,241		3,241	214		214	5		5
6	SW	3,023		3,023	1,595		1,595	144		144	16		16
7	AL	2,531		2,531	1,266		1,266	65		65	0		0
8	DE	1,036		1,036	622		622	36		36	5		5
9	ER	481		481	279		279	57		57	2		2
10	PH	7,320		7,320	4,359		4,359	134		134	28		28
11	TOTALS	28,879		28,879	16,938		16,938	1,092		1,092	96		96

RECORD COLUMN TOTALS ON LAST LINE (LAST PAGE ONLY IF MULTIPLE PAGES ARE NEEDED).

FORM 3 (Required when a cluster design is used for all states not using the Synar Survey Estimation System [SSES] to analyze the Synar survey data.)

Form 3 reports information about primary sampling units when a cluster design was used for the Synar survey.

Summary of Clusters Created and Sampled				
State: Pennsylvania				
FFY: 2014				
(1) Row #	(2) Stratum Name	(3) Number of PSUs Created	(4) Number of PSUs Selected	(5) Number of PSUs in the Final Sample
1	NC	16	6	6
2	NE	31	12	12
3	NW	14	6	6
4	SC	29	10	10
5	SE	45	16	16
6	SW	32	11	11
7	AL	2,531	130	65
8	DE	1,036	60	36
9	ER	481	100	57
10	PH	7,320	225	134
Total		11,535	576	353

FORM 4 (Required for all states not using the Synar Survey Estimation System [SSES] to analyze the Synar Survey data)

Form 4 provides detailed tallies of ineligible sample outlets by reasons for ineligibility and detailed tallies of eligible sample outlets with noncomplete inspections by reasons for noncompletion.

Inspection Tallies by Reason of Ineligibility or Noncompletion			
		State: Pennsylvania	
		FFY: 2014	
(1) INELIGIBLE		(2) ELIGIBLE	
Reason for Ineligibility	(a) Counts	Reason for Noncompletion	(a) Counts
Out of business	203	In operation but closed at time of visit	0
Does not sell tobacco products	294	Unsafe to access	1
Inaccessible by youth	88	Presence of police	0
Private club or private residence	98	Youth inspector knows salesperson	0
Temporary closure	23	Moved to new location	0
Unlocatable	38	Drive-thru only/youth inspector has no driver's license	0
Wholesale only/Carton sale only	0	Tobacco out of stock	0
Vending machine broken	0	Ran out of time	0
Duplicate	34	Other noncompletion reason(s) (<i>Describe.</i>) 2 Outlets placed in wrong geographic PSU	2
Other ineligibility reason(s) (<i>Describe.</i>) Itinerant Vendor	1		
Total	779	Total	3

FORM 5 (Required for all states not using the Synar Survey Estimation System [SSES] to analyze the Synar survey data)

Form 5 shows the distribution of outlet inspection results by age and gender of the youth inspectors.

Synar Survey Inspector Characteristics		
		State: Pennsylvania
		FFY: 2014
	(1) Attempted Buys	(2) Successful Buys
Male		
15 years	137	3
16 years	247	17
17 years	141	11
18 years		
Male Subtotal	525	31
Female		
15 years	240	23
16 years	202	18
17 years	125	24
18 years		
Female Subtotal	567	65
Other	0	0
Total	1,092	96

APPENDIX B:

SYNAR SURVEY SAMPLING METHODOLOGY

APPENDIX B: SYNAR SURVEY SAMPLING METHODOLOGY

State: Pennsylvania
 FFY: 2014

1. What type of sampling frame is used?

- List frame (*Go to Question 2.*)
- Area frame (*Go to Question 3.*)
- List-assisted area frame (*Go to Question 2.*)

2. List all sources of the list frame. Indicate the type of source from the list below. Provide a brief description of the frame source. Explain how the lists are updated (method), including how new outlets are identified and added to the frame. In addition, explain how often the lists are updated (cycle). (*After completing this question, go to Question 4.*)

Use the corresponding number to indicate Type of Source in the table below.

- | | |
|---|--|
| 1 – Statewide commercial business list | 4 – Statewide retail license/permit list |
| 2 – Local commercial business list | 5 – Statewide liquor license/permit list |
| 3 – Statewide tobacco license/permit list | 6 – Other |

Name of Frame Source	Type of Source	Description	Updating Method and Cycle
Electronic Cigarette Licensing System (ECLS)	3	Pennsylvania requires a license to sell cigarettes. The ECLS contains a complete list of all locations licensed to sell cigarettes. The database is maintained by the Department of Revenue.	Current licenses are annually renewed by January 15th. New licenses can be applied for anytime.

3. If an area frame is used, describe how area sampling units are defined and formed.

a. Is any area left out in the formation of the area frame?

- Yes No

If Yes, what percentage of the state's population is not covered by the area frame?

_____ %

4. Federal regulation requires that vending machines be inspected as part of the Synar survey. Are vending machines included in the Synar survey?

- Yes No

If **No**, please indicate the reason(s) they are not included in the Synar survey. Please check all that apply.

- State law bans vending machines.
- State law bans vending machines from locations accessible to youth.
- State has a contract with the FDA and is actively enforcing the vending machine requirements of the Family Smoking Prevention and Tobacco Control Act.
- Other (Please describe.) _____

5. Which category below best describes the sample design? (Check only one.)

- Census** (STOP HERE: Appendix B is complete.)

Unstratified statewide sample:

- Simple random sample (Go to Question 9.)
- Systematic random sample (Go to Question 6.)
- Single-stage cluster sample (Go to Question 8.)
- Multistage cluster sample (Go to Question 8.)

Stratified sample:

- Simple random sample (Go to Question 7.)
- Systematic random sample (Go to Question 6.)
- Single-stage cluster sample (Go to Question 7.)
- Multistage cluster sample (Go to Question 7.)
- Other** (Please describe and go to Question 9.) _____

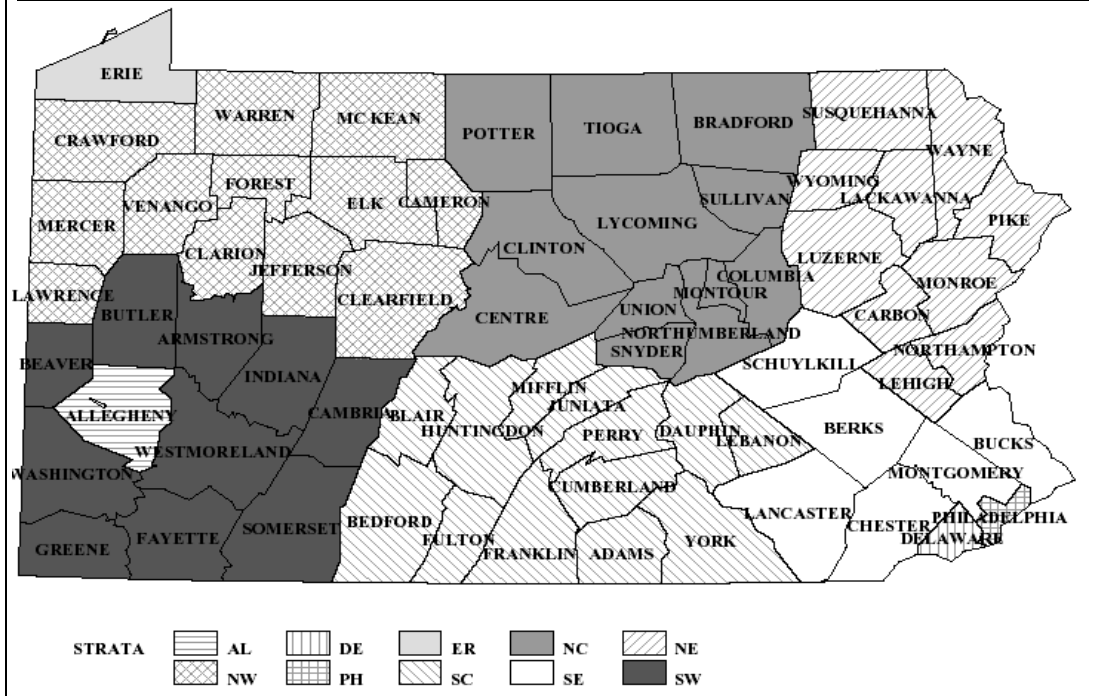
6. Describe the systematic sampling methods. (After completing Question 6, go to Question 7 if stratification is used. Otherwise go to Question 9.)

7. Provide the following information about stratification.

a. Provide a full description of the strata that are created.

Pennsylvania is divided into ten (10) geographic strata. Six of the strata are groups of counties located in specific geographical areas, while the remaining strata are single-county strata.

Stratum	Geographical Area	Counties
1	North Central (NC)	Bradford, Centre, Clinton, Columbia, Lycoming, Montour, Northumberland, Potter, Snyder, Sullivan, Tioga, Union
2	Northeast (NE)	Carbon, Lackawanna, Lehigh, Luzerne, Monroe, Northampton, Pike, Susquehanna, Wayne, Wyoming
3	Northwest (NW)	Cameron, Clarion, Clearfield, Crawford, Elk, Forest, Jefferson, Lawrence, Mckean, Mercer, Venango, Warren
4	South Central (SC)	Adams, Bedford, Blair, Cumberland, Dauphin, Franklin, Fulton, Huntingdon, Juniata, Lebanon, Mifflin, Perry, York
5	Southeast (SE)	Berks, Bucks, Chester, Lancaster, Montgomery, Schuylkill
6	Southwest (SW)	Armstrong, Beaver, Butler, Cambria, Fayette, Greene, Indiana, Somerset, Washington, Westmoreland
7	Allegheny (AL)	Allegheny
8	Delaware (DE)	Delaware
9	Erie (ER)	Erie
10	Philadelphia (PH)	Philadelphia



b. Is clustering used within the stratified sample?

Yes (Go to Question 8.)

No (Go to Question 9.)

8. Provide the following information about clustering.

- a. Provide a full description of how clusters are formed.** *(If multistage clusters are used, give definitions of clusters at each stage.)*

The outlets within the six “District” strata numbered 1 thru 6 (NC, NE, NW, SC, SE and SW) are grouped into geographic clusters of adjacent zip codes. Using the sampling frame and a zip code map, the clusters were created by combining outlets with the same zip code to geographically adjacent zip codes. The sampling frame is a list of all outlet zip codes and cluster ids. Every year a list of cigarette outlets with zip codes is obtained from the Department of Revenue and it is used to populate the sampling frame with outlet addresses by matching zip codes. If a new zip is found on the outlet list, a zip code map is used to update the frame and add that zip to the appropriate cluster. Although the size (number of outlets) of the cluster varies from cluster to cluster, pre-determined limits have been placed on the cluster size. If it is discovered that a cluster has become too large (greater than the sampling interval) or too small (less than 40 outlets), it will be divided into two clusters or merged with another cluster. The clusters are mutually exclusive and exhaustive, covering the entire area of strata 1-6. Strata 7-10 are not clustered. Outlets are randomly selected within those strata.

- b. Specify the sampling method (simple random, systematic, or probability proportional to size sampling) for each stage of sampling and describe how the method(s) is (are) implemented.**

Pennsylvania uses a mix of cluster and random sampling. The entire state is divided into mutually exclusive and exhaustive strata. A two-stage cluster sampling method is used in 6 of the strata while a simple random method is used in the remaining 4 strata.

Within the random 4 strata, each outlet is given a unique random number using the SAS Ranuni function. The Ranuni function returns a number that is generated from the uniform distribution on the interval (0,1) using a prime modulus multiplicative generator with modulus 2^{31} and multiplier 397204094. The outlets within each stratum are sorted by their random number and a pre-determined number of outlets are selected, starting with the first record. Supplemental sample are not provided for these strata.

Alternatively, a two-stage cluster sampling method is used in the remaining strata. During stage 1 of the sampling process, clusters are selected with probability proportional to size (number of outlets in the cluster). SAS is used to select both stages of sample. The following describes the method and how it is implemented.

- a. The sampling frame is used to draw the sample. The sampling frame is a file containing cluster level records. Among the variables included are PSU_ID (cluster identification number), PSUsize (Number of outlets within the cluster), bzip (zip code of the outlet) and zipcount (Number of outlets with the same zip code).
- b. A sampling interval is calculated for each stratum (Stratum size/number of clusters to be selected).
- c. A random start is calculated using the SAS Ranuni function. The random start is calculated by multiplying the random number created by Ranuni by

the sampling interval. The result is a number between 1 and the sampling interval (note: Only non-zero random starts are accepted. If the random start is 0, a new random number is used).

- d. The sampling frame file is expanded so each record represents one outlet. This enables the use of probability proportional to size sampling. Since larger clusters will have more records on the file and therefore will have a greater chance of being selected. Conversely, smaller clusters will have fewer records and a lesser chance of being selected.
- e. The file is sorted by PSU_ID and each record is given a record number according to the new order. The PSU_ID of that record will identify which cluster must be sampled first. To find the second cluster to sample, add the sampling interval to the record number of the first record selected and the PSU_ID of that record tells you the 2nd cluster to sample. Continue adding the sampling interval until the max number of clusters for that stratum is reached. Repeat the process for the remaining clustered strata. Each stratum is done separately and has a different random start.

Example of Stage1 sampling from 2008 survey: The random Start for stratum1, also known as the NC (North Central) Stratum was 33. The sampling interval was 197. It was calculated by dividing the stratum size (number of outlets in stratum1) by the number of clusters we want to sample in stratum1.

$$\text{Sampint} = \text{Stratsize}/\text{Clustnum} = 1182 / 6 = 197.000$$

- (1) Count to record number 33. The Psu_Id of that record is 65, therefore the first cluster to sample is cluster 65.
- (2) Add the sampling interval (197) to the previously selected record number (33) to obtain the current record number (230). Count to record 230. The Psu_Id of that record is 76, therefore the second cluster to sample is cluster 76.
- (3) Add the sampling interval (197) to the previously selected record number (230) to obtain the current record number (427). Count to record 427. The Psu_Id of that record is 143, therefore the Third cluster to sample is cluster 143.
- (4) Add the sampling interval (197) to the previously selected record number (427) to obtain the current record number (624). Count to record 624. The Psu_Id of that record is 169, therefore the fourth cluster to sample is cluster 169
- (5) Add the sampling interval (197) to the previously selected record number (624) to obtain the current record number (821). Count to record 821. The Psu_Id of that record is 207, therefore the fifth cluster to sample is cluster 207.
- (6) Add the sampling interval (197) to the previously selected record number (821) to obtain the current record number (1018). Count to record 1018. The Psu_Id of that record is 220, therefore the sixth cluster to sample is cluster 220.

Record Number	Strata	Psu_Id	Psusize	Selected cluster
1	NC	65	57	.
2	NC	65	57	.
3	NC	65	57	.
.
.
.
33	NC	65	57	1
.
.
.
230	NC	76	81	2
.
.
.
427	NC	143	80	3
.
.
.
624	NC	169	100	4
.
.
.
821	NC	207	59	5
.
.
.
1018	NC	220	58	6
.
.
.

The results for the North Central can be seen below. “Dist” is the stratum name, “Psu_ID” is the cluster id, “Area” is the cluster description, “Psusize” is the number of outlets in the cluster and “Hit” means that the cluster was selected for the sample. The NC strata had 6 clusters chosen with probability proportional to size.

Dist	Psu_Id	Area	Psusize	Hit
NC	65	Centre	57	1
NC	66	Centre	70	0
NC	75	Clinton	97	0
NC	76	Columb/Montour	81	1
NC	77	Columb/Montour	81	0
NC	143	Lycom/Sullivan	80	1
NC	144	Lycom/Sullivan	67	0
NC	145	Lycom/Sullivan	80	0
NC	169	Northumberland	100	1
NC	170	Northumberland	85	0
NC	207	Potter	59	1
NC	214	Snyder	59	0
NC	218	Tioga	94	0
NC	220	Union	58	1
NC	243	Bradford	59	0

In stage 2, each outlet within the selected cluster is given a unique random number using the SAS Ranuni function. The number of outlets to be selected is pre-determined and the same number is selected from each cluster. The outlets are sorted by their random number and the pre-determined number of outlets is selected beginning with the first record. If supplemental sample is needed, the next available outlet on the list is issued.

9. Provide the following information about determining the Synar Sample.

a. Was the Synar Survey Estimation System (SSES) used to calculate the sample size?

Yes (Respond to part b.)

No (Respond to part c and Question 10c.)

b. SSES Sample Size Calculator used?

State Level (Respond to Question 10a.)

Stratum Level (Respond to Question 10a and 10b.)

c. Provide the formulas for determining the effective, target, and original outlet sample sizes.

(1) **Effective Sample Size.** According to CSAP requirements, the width (w) of the upper limit of the confidence interval must be less than or equal to 3 %. Using the equation for the upper limit of a 95% confidence interval of the sample mean \bar{x} gives

$$\bar{x} + w \quad (S1)$$

applying the CSAP requirement for w gives

$$w \leq 3 \quad (S2)$$

Where w is defined as

$$w = z(s.e.) \quad (S3)$$

Substituting S3 into S2

$$z(s.e.) \leq 3 \quad (S4)$$

Where z is the critical value of the standard normal distribution for a one sided 95% confidence interval and $s.e.$ is the standard error or standard deviation estimated from the sample data. Substituting 1.645 for z and solving equation S4 for $s.e.$ gives

$$s.e. \leq \frac{3}{1.645} \leq 1.82$$

Therefore the $s.e.$ must be less than or equal to 1.82 to maintain a width of 3% or less for a right-sided 95% confidence interval.

Ignoring the finite population correction, the $s.e.$ is defined as,

$$s.e. = \frac{\sqrt{p(1-p)}}{\sqrt{n_e}} \quad (S5)$$

Substituting S5 into S3 gives

$$w = z \left(\frac{\sqrt{p(1-p)}}{\sqrt{n_e}} \right)$$

Solving for n_e gives the equation for the effective sample size

$$n_e = \left(\frac{z}{w} \right)^2 p(1-p),$$

Where $z = 1.645$, $w = 0.03$ (both z & w are based on 95% one-sided CI with tolerance of 3%) and $p = 3\%$ over the target rate ($20\% + 3\% = 23\%$).

(2) Target Sample Size. The equation is:

$$n_t = \text{Deff}_h \times n_e,$$

Deff_h is the highest design effect from historical Synar surveys of a similar design.

(3) Original Sample Size. The equation is:

$$n_o = \frac{n_t}{r_l r_c} + n_A + n_S;$$

r_l = lowest eligibility rate of historical Synar surveys of similar design.

r_c = lowest completion rate of historical Synar surveys of similar design or 80%
(whichever is lower).

n_A = sample added or subtracted needed to fit the clustered sample design.

n_S = supplemental sample.

n_A is the number of sample added or subtracted to guarantee that our precision goals are met and the sample size fits the design. The size of n_A is estimated after reviewing output created by a SAS program designed to simulate survey outcomes with varying designs. n_S is the number of supplemental sample allocated to the clustered areas due to sample attrition. Supplemental sample is issued if a cluster does not obtain the minimum number of completions allowed per cluster.

10. Provide the following information about sample size calculations for the current FFY Synar survey.

- a. If the state uses the sample size formulas embedded in the SSES Sample Size Calculator to calculate the state level sample size, please provide the following information:**

Inputs for Effective Sample Size:

RVR:

Frame Size:

Input for Target Sample Size:

Design Effect:

Inputs for Original Sample Size:

Safety Margin:

Accuracy (Eligibility) Rate:

Completion Rate:

- b. If the state uses the sample size formulas embedded in the SSES Sample Size Calculator to calculate the stratum level sample sizes, please provide the stratum level information:**

- c. If the state does not use the sample size formulas embedded in the SSES Sample Size Calculator, please provide all inputs required to calculate the effective, target, and original sample sizes as indicated in Question 9.**

Although the methodology and formula used in calculating the Original Sample Size remains constant, the values associated with the referenced variables changes on a yearly basis, based on the most current available data. The effective, target and original sample size formulas were constructed as described in question 9 but the specific inputs and calculations for the Federal Fiscal Year 2014 are described below:

Effective Sample Size calculations:

$$n_e = \left(\frac{z}{w}\right)^2 p(1-p)$$

Where $z = 1.645$, $w = 0.03$ (both z & w are based on 95% one-sided CI with tolerance of 3%) and $p = 3\%$ over the target rate ($20\% + 3\% = 23\%$). Solving,

$$n_e = \left(\frac{1.645}{0.03}\right)^2 .23(1-.23) = 532.5 \approx 533$$

Target Sample Size calculations:

The highest design effect was used.

Year	Complex Design Variance	Srs Design Variance	Stderr (Complex)	Stderr (SRS)	Deff
2004	0.000084463	0.000065663	0.00919	0.008103	1.29
2005	0.000093154	0.000074792	0.009652	0.008648	1.25
2006	0.000070025	0.00006112	0.008368	0.007818	1.15
2007	0.000087331	0.000067288	0.009345	0.008203	1.30
2008	0.000069768	0.000056163	0.008353	0.007494	1.24
2009	0.000074242	0.000073052	0.008616	0.008547	1.02
2010	0.000092791	0.000080016	0.009633	0.008945	1.16
2011	0.000132254	0.00011264	0.0115	0.010613	1.17
2012	0.000121755	0.000118312	0.011034	0.010877	1.03

$$n_t = Deff_h \times n_e$$

$$n_t = 1.30 \times 533 = 693$$

Original Sample Size calculations:

The lowest eligibility rate occurred in 2010 and it was used for the calculations. The lowest completion rate of past surveys was 98%. Since this is extremely high, it was decided to use a completion rate of 80% instead.

Year	Eligibility Rate	Completion Rate
2004	71.0048	98.3802
2005	67.959	98.7416
2006	68.3353	99.4037
2007	65.2002	99.5675
2008	63.3803	99.8291
2009	60.4425	99.6429
2010	54.5362	99.7212
2011	58.9648	99.638
2012	55.8624	100

Eligibility Rate: 55%

Completion Rate: 80%

$$n_o = \frac{n_t}{r_i r_c} + n_A + n_S$$

$$n_o = \frac{693}{(.55)(.80)} - 23 + 322 = 1575 - 23 + 322 = 1874$$

APPENDIX C:
SYNAR SURVEY INSPECTION PROTOCOL

APPENDIX C: SYNAR SURVEY INSPECTION PROTOCOL

State: Pennsylvania
FFY: 2014

Note: Upload to WebBGAS a copy of the Synar inspection form under the heading "Synar Inspection Form" and a copy of the protocol used to train inspection teams on conducting and reporting the results of the Synar inspections under the heading "Synar Inspection Protocol."

1. How does the state Synar survey protocol address the following?

a. Consummated buy attempts?

- Required
- Permitted under specified circumstances (Describe:)
- Not permitted

b. Youth inspectors to carry ID?

- Required
- Permitted under specified circumstances (Describe:)
- Not permitted

c. Adult inspectors to enter the outlet?

- Required
- Permitted under specified circumstances (Describe: Safety of outlet determination)
- Not permitted

d. Youth inspectors to be compensated?

- Required
- Permitted under specified circumstances (Describe:)
- Not permitted

2. Identify the agency(ies) or entity(ies) that actually conduct the random, unannounced Synar inspections of tobacco outlets. (Check all that apply.)

- Law enforcement agency(ies)
- State or local government agency(ies) other than law enforcement
- Private contractor(s)
- Other

List the agency name(s): Department of Health and agencies under its jurisdiction.

3. Are Synar inspections combined with law enforcement efforts (i.e., do law enforcement representatives issue warnings or citations to retailers found in violation of the law at the time of the inspection)?

Always Usually Sometimes Rarely Never

4. Describe the type of tobacco products that are requested during Synar inspections.

a. What type of tobacco products are requested during the inspection?

- Cigarettes
- Small Cigars/Cigarillos
- Smokeless Tobacco
- Other

b. Describe the protocol for identifying what types of products and what brands of products are requested during an inspection.

Inspectors are permitted to attempt to purchase smokeless tobacco when visiting retail outlets that frequently sell such a product, such as in rural areas of the state.

5. Describe the methods used to recruit, select, and train youth inspectors and adult supervisors.

Youth inspectors and adult supervisors are recruited through Tobacco Prevention and Control Primary Contractors, local tobacco prevention coalitions, schools, and other community organizations (i.e. scouts, YMCA, YWCA, after school programs).

6. Are there specific legal or procedural requirements instituted by the state to address the issue of youth inspectors' immunity when conducting inspections?

a. Legal

Yes No

(If Yes, please describe.)

Pennsylvania Act 2002-112 provides minors immunity when conducting Synar survey inspections or participating in tobacco enforcement compliance checks.

b. Procedural

Yes No

(If Yes, please describe.)

7. Are there specific legal or procedural requirements instituted by the state to address the issue of the safety of youth inspectors during all aspects of the Synar inspection process?

a. Legal

Yes No

(If Yes, please describe.)

b. Procedural

Yes No

(If Yes, please describe.)

Youth safety is addressed in the comprehensive training protocol.

8. Are there any other legal or procedural requirements the state has regarding how inspections are to be conducted (e.g., age of youth inspector, time of inspections, training that must occur)?

a. Legal

Yes No

(If Yes, please describe.)

b. Procedural

Yes No

(If Yes, please describe.)

The Pennsylvania Department of Health conducts an annual training with field staff on the conduction of the Synar Survey. This training covers safety of youth inspectors, age of youth inspectors, time of inspections, completion of survey forms, and training of youth inspectors. Recruitment and training of youth inspectors is completed by Regional Primary Contractors and includes role-modeling by youth.

APPENDIX D:

LIST SAMPLING FRAME COVERAGE STUDY

APPENDIX D: LIST SAMPLING FRAME COVERAGE STUDY

(LIST FRAME ONLY)

State: Pennsylvania
FFY: 2014

1. Calendar year of the coverage study: 2013
2.
 - a. Unweighted percent coverage found: 99.4%
 - b. Weighted percent coverage found: 99.1%
 - c. Number of outlets found through canvassing: 168
 - d. Number of outlets matched on the list frame: 167
3.
 - a. Describe how areas were defined. (e.g., census tracts, counties, etc.)

The state is divided into three mutually exclusive geographical strata; Allegheny county, Philadelphia county and the rest of the state (state stratum). The state stratum is divided into mutually exclusive clusters consisting of zip codes or groups of zip codes. These clusters are the primary sampling units (PSU) for the survey and it is estimated that each PSU contains roughly 50 to 200 outlets. Allegheny and Philadelphia are not clustered.

- b. Were any areas of the state excluded from sampling?

Yes No

If Yes, please explain.

4. Please answer the following questions about the selection of canvassing areas.

- a. Which category below best describes the sample design? (Check only one.)

Census (Go to Question 6.)

Unstratified statewide sample:

- Simple random sample (Respond to Part b.)
- Systematic random sample (Respond to Part b.)
- Single-stage cluster sample (Respond to Parts b and d.)
- Multistage cluster sample (Respond to Parts b and d.)

Stratified sample:

- Simple random sample (Respond to Parts b and c.)
- Systematic random sample (Respond to Parts b and c.)
- Single-stage cluster sample (Respond to Parts b, c, and d.)
- Multistage cluster sample (Respond to Parts b, c, and d.)

Other (Please describe and respond to Part b.) _____

b. Describe the sampling methods.

A two stage sampling method was used in the state stratum. During the first stage, 14 PSUs were randomly selected using probability proportional to size sampling where the size of the PSU referred to the estimated number of outlets within that PSU.

During stage two, a zip code was randomly selected from each selected PSU and one starting address was randomly selected from within that zip code. The starting address was determined by randomly selecting an address from the Census Bureau's Tiger file and then entering that address into Google Maps to find the nearest convenience store to that address within the sampled PSU. If Google Maps didn't recognize the typed-in address, then Google Maps used the zip code centroid and the nearest convenience store to the centroid was used as the "starting address". The convenience store address found using Google Maps served as the "starting address" for each PSU. We used Google Maps to keep survey costs down. Since the Tiger File contained ALL addresses, not just businesses addresses, we used Google Maps to increase the chance that the survey did NOT begin in the middle of nowhere OR a residential area.

The methodology for the Allegheny and Philadelphia strata was slightly different than the state stratum. Allegheny and Philadelphia only had one stage of sampling. One starting point was randomly selected from Allegheny and two starting points were randomly selected from Philadelphia using the Tiger file. The addresses were entered into Google Maps and 10 outlets were found for each starting address.

c. Provide a full description of the strata that were created.

The state is divided into three mutually exclusive geographical strata: Allegheny county, Philadelphia county and the rest of the state (state stratum).

d. Provide a full description of how clusters were formed.

The state stratum was divided into mutually exclusive clusters consisting of geographically adjacent zip codes or groups of zip codes. These clusters were the primary sampling units (PSU) for the survey and it was estimated that each PSU contains roughly 50 to 200 outlets. Allegheny and Philadelphia were not clustered but designed as a random sample design.

5. Were borders of the selected areas clearly identified at the time of canvassing?

Yes **No**

6. Were all sampled areas visited by canvassing teams?

Yes (*Go to Question 7.*) **No** (*Respond to Parts a and b.*)

a. Was the subset of areas randomly chosen?

Yes **No**

b. Describe how the subsample of visited areas was drawn. Include the number of areas sampled and the number of areas canvassed.

7. Were field observers provided with a detailed map of the canvassing areas?

Yes **No**

If No, describe the canvassing instructions given to the field observers.

8. Were field observers instructed to find all outlets in the assigned area?

Yes **No**

If No, respond to Question 9.

If Yes, describe any instructions given to the field observers to ensure the entire area was canvassed, then go to Question 10.

9. If a full canvassing was not conducted:

a. How many predetermined outlets were to be observed in each area? 20 in Philadelphia, 10 in Allegheny and 10 in each of the 14 clustered areas

b. What were the starting points for each area? The nearest convenience store to a randomly selected address

c. Were these starting points randomly chosen?

Yes **No**

d. Describe the selection of the starting points.

The starting address was determined by randomly selecting an address from the Census Bureau's Tiger file and entering that address into the Google.com/maps database to find the nearest convenience store to the randomly selected address within the sampled PSU. The "nearest" convenience store served as the starting point.

f. Please describe the canvassing instructions given to the field observers, including predetermined routes.

Every surveyor was provided with a list of starting addresses, instructions, collection sheets, maps, a list of valid zip codes for the area, surveying routes and were instructed to go to the starting address. If the starting address sold cigarettes over-the-counter, they record the location information onto the survey collection sheet. If the outlet didn't sell cigarettes over the counter or there wasn't a building at the location, they did not record any information. Next, the surveyor canvassed the first survey route from the starting address to the first randomly ordered post office, recording all outlets along the way. The next outlet could be 20 feet or 20 miles away. They walked or drove according to the provided directions until 10 total outlets were found that sold cigarettes over-the-counter. They entered, recorded the location information and verified the zip code for every outlet that sold cigarettes along the route, on both sides of the street, until all 10 total outlets for the area were found. Since the starting point is randomly selected and the post offices are randomly ordered, these are random routes. The protocol for reaching the last post office of the last zip code with less than 10 outlets recorded was to make a right turn from the main entrance of the post office and canvassing in that direction. When an outlet was found, the information was recorded and another right turn was made, and so on. This was not necessary for the 2013 survey.

Definition of Canvass:

All sampled areas were grouped into geographic clusters of adjacent zip codes and most zip codes had a post office. Every zip code in the cluster was randomly ordered. Using an online mapping system, a route from the random starting point to the post office of the first randomly ordered zip code in the cluster was mapped. A route from the post office of the first randomly ordered zip code to the post office of the second zip code was mapped. Routes were mapped from the second to the third, the third to the fourth and so on. If a zip code didn't have post office, the zip code centroid was used.

10. Describe the process field observers used to determine if an outlet sold tobacco.

Surveyors entered the outlet and asked the clerk if they sell cigarettes.

11. Please provide the state's definition of "matches" or "mismatches" to the Synar sampling frame? (i.e., address, business name, business license number, etc).

Completions:

Exact Match: Exactly matched an address on the sampling frame.

Close Match: Closely matched an address on the sampling frame but had a small insignificant difference. Such as, one address was spelled slightly different than the other. For example, 32 4th street is considered a close match to 32 Fourth Street.

No Match: There wasn't an address match on the sampling frame.

Non-completions:

Not Enough Info: There wasn't enough information to make a determination.

Out of the Area: The outlet information was recorded by the surveyor but the outlet was outside of the cluster area. Therefore it could not be used for the survey.

Other Non-completion: The outlet was not completed for a reason not listed above.

12. Provide the calculation of the weighted percent coverage (if applicable).

Proc Surveymeans was used and the rate was calculated using the formula:

$$PercentCoverage = \frac{(ExactMatch) + (CloseMatch)}{(ExactMatch) + (CloseMatch) + (NoMatch)}$$

A weight was given to each outlet. The base (design) weight is the inverse of the probability of selection. The probability of selecting an outlet is calculated from the probability of selecting the nearest address. For the random strata, the probability of selecting any address is simply the total sample size of the stratum divided by the total population of the stratum.

The probability of selecting an address in the state stratum (clustered) is a little more complex. The state stratum employs a cluster design where the clusters are selected using PPS (Probability Proportionate to Size) sampling. The overall probability of selecting an outlet is the product of the probabilities of each stage of sampling (The probability of selecting a cluster in the first stage, times the probability of selecting an address in the second stage.)

Let,

PROBCL = Probability of selecting a cluster

PROBADD = Probability of selecting an address within the cluster

PROBST = Probability of selecting the address in the stratum

NCLUST = Number of clusters in the stratum

CPS = Cluster population size (cancels out in PPS sampling)

ELIGN = Eligible stratum population size

SAMPSIZE = Sample size of the cluster

$$(i) \text{ PROBCL} = (NCLUST) \times \left(\frac{CPS}{ELIGN} \right)$$

$$(ii) \text{ PROBADD} = \left(\frac{SAMPSIZE}{CPS} \right)$$

$$(iii) \text{ PROBST} = (\text{PROBCL}) \times (\text{PROBADD})$$

$$(iv) \text{ PROBST} = (\text{NCLUST}) \times \left(\frac{\text{CPS}}{\text{ELIGN}} \right) \times \left(\frac{\text{SAMPSIZE}}{\text{CPS}} \right)$$

$$(v) \text{ PROBST} = (\text{NCLUST}) \times \left(\frac{\text{SAMPSIZE}}{\text{ELIGN}} \right)$$

$$(vi) \text{ Base (design) Weight} = \left(\frac{\text{ELIGN}}{\text{NCLUST} \times \text{SAMPSIZE}} \right)$$

The final weight adjusts for non-completion. Let, FINALWT = Final Weight and SAMPOBS = the number of completed and eligible sample per cluster.

$$\text{Final Weight} = \text{Base Weight} \times \left(\frac{\text{SAMPSIZE}}{\text{SAMPOBS}} \right)$$

SAS Proc Surveymeans was used to calculate the percent coverage.

ATTACHMENTS

The following is an explanation of the program code used to obtain the RVR estimate and its standard error. The actual code is contained in Attachment2: Calculation of Weighted Retailer Violation SAS Programming Code.

Program Overview

- (1) Raw survey data is imported.
- (2) Variable types are standardized (i.e., character or numeric).
- (3) Record level variables are created. Each record is coded as compete, incomplete, eligible and/or ineligible.
- (4) Cluster level totals are calculated.
- (5) Stratum level totals are calculated.
- (6) The *eligible* population for each stratum is estimated. The estimated number of eligible outlets per stratum (Elign) is determined with the following equation:

$$Elign = (Stsize) \times \left[\frac{(Sampst - Ineligst)}{Sampst} \right]$$

- (7) A base weight for each observation is calculated. The base weight is the inverse of the probability of selection. Determining the base weight requires the calculation of the probability of selection where each outlet has a quantifiable probability of selection. The survey uses a stratified cluster design with the clusters being selected using PPS (Probability Proportionate to Size) sampling. In a complex design, the overall probability of selecting an outlet is the product of each stage's probability of selection. Therefore, the survey's probability of selection is the probability of selecting a cluster multiplied by the probability of selecting an outlet within the cluster. (See **NOTE: Probability of selection**)
- (8) A final weight is calculated for each observation. The final weight is an adjustment of the base weight to account for non-completions.

```
*****SAS Code*****  
Finalwt = (Weight * (Sampsize/Sampobs));  
*****
```

- (9) The weights are exported to be checked and verified.
- (10) A weight table is created.
- (11) The weight table and weight check table are exported.
- (12) The data is recoded and prepared for Proc Surveymeans.
- (13) The weighted statewide mean, standard error and confidence bounds are calculated using Proc Surveymeans which uses the Taylor expansion method to estimate sampling errors that take into account both the between cluster and the within cluster variances.
- (14) An unweighted statewide mean is calculated.
- (15) The results are outputted.
- (16) Data is prepared for Excel.
- (17) Data is Exported to Excel.

NOTE: Probability of Selection

Let,

- ProbCl* = Probability of selecting a cluster,
- ProbOut* = Probability of selecting an outlet within the cluster,
- ProbSt* = Probability of selection for each outlet in the stratum,
- Nclust* = Number of clusters in the stratum,
- CPS* = Cluster population size,
- Elign* = Eligible stratum population size,
- Sampsize* = Sample size of the cluster,

Then,

$$ProbCl = (Nclust) \times \left(\frac{CPS}{Elign} \right)$$

$$ProbOut = \left(\frac{Sampsize}{CPS} \right)$$

$$ProbSt = (ProbCl) \times (ProbOut) = (Nclust) \times \left(\frac{CPS}{Elign} \right) \times \left(\frac{Sampsize}{CPS} \right) =$$

$$ProbSt = (Nclust) \times \left(\frac{Sampsize}{Elign} \right)$$

The Base Weight is the inverse of the probability of selection for each outlet divided by the total eligible outlets in the stratum (ELIGN). The base weight gives each sampled outlet a weight such that it sums to the number of eligible outlets in the state.

$$\text{Base Weight} = \frac{1}{\frac{(Nclust)(Sampsize)}{(Elign)}} = \frac{(Elign)}{(Nclust)(Sampsize)}$$

```
*****SAS Code*****
Weight = (1/((Nclust * Sampsize) / (Elign)));
*****
```

Input and Output files used in the program

- (1) SynarResult13.mdb – (Input) database contains one record for every outlet sampled. The database is created from the data collected from the survey forms.
- (2) Weights13.htm (Output) – table that lists all sampled clusters, outlet weights, cluster sample size, eligible sample and completed sample. Also includes a table that verifies that the weights add up correctly and shows the unweighted RVR. (Attachment3)
- (3) SurveyMeans13.htm (Output) – table showing the statewide weighted RVR estimate, statewide standard error, statewide unweighted RVR, statewide frequencies, strata weighted RVR estimates, strata standard error and strata frequencies calculated using the SAS surveymeans procedure(Attachment4)
- (4) ResultTables13.xls (Output) – Excel tables created with the outputted data from the Surveymeans procedure. The tables contain the statewide weighted RVR estimate, statewide standard error, statewide frequencies, strata weighted RVR estimates, strata standard error and strata frequencies (Attachment5)

Permanent SAS datasets created

- (1) Synar13.Rawinput - Permanent SAS dataset created from the raw survey data for additional analysis and comparisons to previous surveys. The dataset is used to create Form4, Form5 and to check the other forms of the Synar report. The dataset contains all records whether they are eligible, ineligible, completed or not completed. The variables are standardized so the variable types (i.e., character or numeric) are compatible with past variables. The variables Clnum, Sampob, Inelig and Elig are created and added to the dataset.
- (2) Synar13.Weighted - Permanent SAS dataset containing one record for each eligible outlet. The weights are contained in this dataset.
- (3) Synar13.Stratadat - Permanent SAS dataset containing strata level data. Used for additional analysis including Form1 of the Synar report.
- (4) SynarAll.Raw13 - Permanent SAS dataset used in trend analysis.
- (5) SynarAll.Strat13 - Permanent SAS dataset used in trend analysis.
- (6) SynarAll.Wgt13 - Permanent SAS dataset used in trend analysis.

Explanation of Variables

A. Variables inputted from the survey database

1. **Anum** – Numeric cluster identifier.
2. **Snum** – Numeric outlet identifier within cluster. Snum combined with Anum uniquely identifies each outlet.
3. **Outcome** – Compliance check result. Variable is coded 1 for a sale, 2 for a refusal and 3 for a non-completion.
4. **Noncomp** – Numeric variable used to classify the non-completed compliance checks.

5. **Alcohol** – Numeric variable that identifies outlets that serve alcohol by the glass and codes them with a 1 if they serve alcohol, 2 if they don't and 3 if it cannot be determined.
6. **Buyer Age** – Numeric variable that identifies the age of the youth surveyor and code them with a 1 if 15 years old, 2 if 16 years old and 3 if 17 years old.
7. **Buyer Sex** - Numeric variable that identifies the sex of the youth surveyor and codes them with a 1 if male and 2 if female.
8. **Buyer Race** – Numeric variable that identifies the race of the youth surveyor. Codes them with a 1 if white, 2 if Black, 3 if Hispanic and 4 if other.
9. **Stsize** –The stratum size which is the total number of outlets licensed to sell cigarettes per stratum. The variable is calculated from the original tobacco files and the number is typed into the program.

B. Outlet level variables created in the program

1. **Elig** – Variable that identifies eligible outlets by coding each observation with either a 1 or a 0 depending on its eligibility.
2. **Inelig** - Variable that identifies ineligible outlets by coding each observation with either a 1 or a 0 depending on its eligibility.
3. **Sampob** – Variable that identifies completed observations by coding each record with either a 1 or a 0.

C. Cluster level variables created within the program

1. **Sampsize** – The total number of outlets sampled per cluster.
2. **Eligs** – The total number of eligible (Elig) sampled outlets per cluster.
3. **Ineligs** - The total number of ineligible (Inelig) sampled outlets per cluster.
4. **Sampobs** – The total number of completed sample observations (Sampob) per cluster.

D. Stratum level variables created within the program

1. **Sampst** – The total number of outlets sampled (Sampsize) per stratum.
2. **Eligst** – The total number of eligible sampled outlets (Eligs) per stratum.
3. **Ineligst** – The total number of ineligible sampled outlets (Ineligs) per stratum.
4. **Nclust** The total number of clusters per stratum.
5. **Elign** – The estimated number of eligible outlets per stratum.

Attachment 2: Calculation of Weighted Retailer Violation SAS Programming Code

```
/*-----*
|   NAME: Weight13.SAS
|   AUTHOR: Stephen Muccioli
|   TITLE: Synar 2013 weighting program
|
|   DATASETS(Perm.): Synar13.RAWinput
|                   Synar13.Weighted
|                   Synar13.Stratadat
|                   SynarAll.Raw13
|                   SynarAll.Wgt13
|
|   DATASETS(Out): ResultTables13.xls
|
|   PROC OUTPUT: SurveyMeans13.htm
|               Weights13.htm
|
|   FUNCTION: See notes at the bottom of the program
|   NOTES: See notes at the bottom of the program
|-----*/

*Last 2 digits of current year;
%let yr=13;

Filename OTC
"S:\Tarkoff\Synar2013\Results\FinalDataFile\SynarResult&yr..mdb";
Filename Tables "S:\Tarkoff\Synar2013\Results\Analysis\Weights&yr..htm";
Filename WTRES "S:\Tarkoff\Synar2013\Results\Analysis\SurveyMeans&yr..htm";

Proc Catalog Catalog=Synar&yr..Formats; Copy Out=Work.Formats; Run; quit;

Proc Import
  Table="Results"
  Out=Work.Steelers
  Dbms=Access2002 Replace;
  Database=Otc;
Run;

Data Preraw(Drop=Anum Snum Stratum2 Clnum2);
Set Steelers;
Stratum2=Substr(Anum,1,2);
Clnum2=Substr(Anum,3,2);
Anum2=Anum+0;
Snum2=Snum+0;
Stratum=Stratum2+0;
Clnum=Clnum2+0;
Run;

Data Rawin(Drop=Anum2 Snum2 Non_Completion Warn_sign);
Set Preraw;
Anum=Anum2;
Snum=Snum2;
Noncomp=Non_Completion+0;
Warn=Warn_Sign;
Run;

Proc Sort Data=Rawin; By Stratum Anum Snum; Run;
```

Attachment 2: Calculation of Weighted Retailer Violation SAS Programming Code

```

*----- Code data -----*;
Data Synar&yr..Rawinput;
  Set Rawin;
  By Stratum Anum Snum;
  Options Missing=0;
  Inelig=0;
  Sampob=0;
  Elig=0;
  If (Clnum Eq 0) Then Clnum=1;
  If ((Outcome Eq 1) Or (Outcome Eq 2)) Then Sampob=1;
  If Noncomp In(1 2 3 4 5 6 7 8 9 10 11 12) Then Inelig=1;
  If (Noncomp In(13 14)) Or (Outcome In(1 2)) Then Elig=1;
  If (Outcome Eq 1) Then Violate=1;
Run;
Proc Sort; By Stratum Anum Snum; Run;
Data SynarAll.Raw&yr.;
  Retain Year Stratum Anum Snum Clnum Sampob Elig Inelig Violate Outcome
  Outlet Noncomp Alcohol Buyersex Buyerage Buyerrace Adult AskID AskAge
Warn
  Clerksex ClerkAge;
  Set Synar&yr..Rawinput;
  Year=20&yr.;
Run;

*----- Cluster Level Totals -----*;
Data Given1 (Keep=Anum Stratum Sampsize Ineligs Sampobs Eligs Clnum
Violates);
  Set Synar&yr..Rawinput;
  By Anum Snum;
  Options Missing=0;

  If First.Anum Then Do; Sampsize=0; Ineligs=0; Sampobs=0; Eligs=0;
  Violates=0; End;

  Sampsize+1;
  Ineligs+Inelig;
  Sampobs+Sampob;
  Eligs+Elig;
  Violates+Violate;
  If Last.Anum;
Run;
Proc Sort; By Stratum Anum; Run;

*----- Strata Level Totals -----*;
Data Sumit (Keep=Stratum Sampst Ineligst Nclust Eligst Sampobst Violatst);
  Set Given1;
  By Stratum Anum;

  If First.Stratum Then Do; Sampst=0; Ineligst=0; Nclust=0; Eligst=0;
  Violatst=0; Sampobst=0; End;

  Sampst+Sampsize;
  Sampobst+Sampobs;
  Ineligst+Ineligs;
  Eligst+Eligs;
  Violatst+Violates;
  Nclust=Clnum;
  If Last.Stratum Then Output;
Run;

```


Attachment 2: Calculation of Weighted Retailer Violation SAS Programming Code

```

Data Sumall;
  Merge Given1 Sumit;
  By Stratum;
Run;

Proc Sort; By Stratum Anum; Run;

Data Given2;
  Set Sumall;
  By Stratum Anum;
  Elign=0;
  Temp=1;
  *Stsize updated for 2013;
  /* ----- */
  * Stname   PSUtot  PSUsamp  Stsize      *
  * NC       16      6          1529        *
  * NE       31      12         3807        *
  * NW       14      6          1396        *
  * SC       29      10         2880        *
  * SE       45      16         4876        *
  * SW       32      11         3023        *
  * AL      2403     130        2531        *
  * DE      1021      60        1036        *
  * ER       474     100         481         *
  * PH      7149     225        7320        *
  *-----*/

If (Stratum Eq 1) Then Do; /*North Central*/
  Stsize = 1529;
  Elign = ((Stsize)*((Sampst-Ineligst)/Sampst));
  Elign = Round(Elign,1); End;

If (Stratum Eq 2) Then Do; /*Northeast*/
  Stsize = 3807;
  Elign = ((Stsize)*((Sampst-Ineligst)/Sampst));
  Elign = Round(Elign,1); End;

If (Stratum Eq 3) Then Do; /*Northwest*/
  Stsize = 1396; /*(Minus ER)*/
  Elign = ((Stsize)*((Sampst-Ineligst)/Sampst));
  Elign = Round(Elign,1); End;

If (Stratum Eq 4) Then Do; /*South Central*/
  Stsize = 2880;
  Elign = ((Stsize)*((Sampst-Ineligst)/Sampst));
  Elign = Round(Elign,1); End;

If (Stratum Eq 5) Then Do; /*Southeast*/
  Stsize = 4876; /*(Minus DE,PH)*/
  Elign = ((Stsize)*((Sampst-Ineligst)/Sampst));
  Elign = Round(Elign,1); End;

If (Stratum Eq 6) Then Do; /*Southwest*/
  Stsize = 3023; /*(Minus AL)*/
  Elign = ((Stsize)*((Sampst-Ineligst)/Sampst));
  Elign = Round(Elign,1); End;

```

Attachment 2: Calculation of Weighted Retailer Violation SAS Programming Code

```

If (Stratum Eq 7) Then Do;                                /*Allegheny*/
    Stsize = 2531;
    Elign = ((Stsize)*((Sampst-Ineligst)/Sampst));
    Elign = Round(Elign,1); End;

If (Stratum Eq 8) Then Do;                                /*Delaware*/
    Stsize = 1036;
    Elign = ((Stsize)*((Sampst-Ineligst)/Sampst));
    Elign = Round(Elign,1); End;

If (Stratum Eq 9) Then Do;                                /*Erie*/
    Stsize = 481;
    Elign = ((Stsize)*((Sampst-Ineligst)/Sampst));
    Elign = Round(Elign,1); End;

If (Stratum Eq 10) Then Do;                               /*Philadelphia*/
    Stsize = 7320;
    Elign = ((Stsize)*((Sampst-Ineligst)/Sampst));
    Elign = Round(Elign,1); End;

Run;

Proc Sort; By Stratum Anum; Run;

*****
* Base Weight: Since clusters were selected with probability      *
* proportionate to size, the size of the cluster cancels out and  *
* the base weight is the inverse of the number of opportunities an  *
* observation had to be selected (Nclust * Sampsize) divided by the *
* estimated number of eligible outlets in the stratum (Elign).    *
* .....*
* Final Weight: Final Wgt adjusts for original sample elements    *
* for which data was not collected for any reason.                *
*****;

Data Weights;
Set Given2;
  By Stratum;
  *Temp Is Only Needed For Printing The Weights Table;
Temp=1;
Weight = (1/((Nclust * Sampsize) / (Elign)));
Finalwt = (Weight * (Sampsize/Sampobs));
Run;

*Stratum level data. Can be used for Form1;
Data prestr(Drop=Stnum);
  Set Licen&yr..Distfreq;
  Stratum=Stnum;
Run;
Proc sort; By Stratum; run;

Data prStrat(Keep=Stratum Stsize Elign Nclust Sampst Eligst
  Ineligst Sampobst Violatst);
  Set Weights;
  By Stratum;
  If first.Stratum;
Run;

```

Attachment 2: Calculation of Weighted Retailer Violation SAS Programming Code

```
Proc sort; By Stratum; run;

Data Synar&yr..Stratadat(drop=nclust);
  Attrib Sname length=$5;
  Merge prStrat prestr;
  By Stratum;
  If stratum in(1 2 3 4 5 6) Then PSUfinal=PSUsamp;
  If stratum in(7 8 9 10) Then PSUfinal=Sampobst;
Run;
*Add state totals;
Data stated(keep=stratum sampst Ineligst Eligst Violatst Sampobst Elign
Stsize
           Sname PSUtot PSUsamp PSUfinal);
  Attrib Sname length=$5;
  set synar&yr..stratadat end=a;
  tSampst + sampst;
  tIneligst + Ineligst;
  tEligst + Eligst;
  tViolatst + Violatst;
  tSampobst + Sampobst;
  tElign + Elign;
  tStsize + Stsize;
  tPSUtot + PSUtot;
  tPSUsamp + PSUsamp;
  tPSUfinal + PSUfinal;
  If a then do;
    Stratum=0;
    Sampst=tSampst;
    Ineligst=tIneligst;
    Eligst=tEligst;
    Violatst=tViolatst;
    Sampobst=tSampobst;
    Elign=tElign;
    Stsize=tStsize;
    Sname="State";
    PSUtot=tPSUtot;
    PSUsamp=tPSUsamp;
    PSUfinal=tPSUfinal;
  Output;
End;
run;
Data Synar&yr..Stratadat; set stated Synar&yr..Stratadat; Run;
Data SynarALL.Strat&yr.; set Synar&yr..Stratadat; Run;
Proc sort; by Stratum; run;

Data A;
  Set Given2;
  By Stratum;
*Temp Is Only Needed For Printing The Weights Table;
Temp=1;
If First.Stratum;
  Output;
Run;

Proc Means Data=A Sum Noprint;
  Var Elign;
  Id Temp;
```

Attachment 2: Calculation of Weighted Retailer Violation SAS Programming Code

```
Output Out=Elignsum Sum=Totelign;
Run;

Data Printit;
  Merge Weights Elignsum;
  By Temp;
Run;

* Weight Check;
Data Chk;
  Set Weights;
  *Base weight: The sum should equal the total eligible population;
  Checkb=Weight*Sampsize;
  *Final weight: The sum should equal the total eligible population;
  Checkf=Finalwt*Sampobs;
Run;

Ods Html Body=Tables
  Style=meadow
  Rs=None;
Proc Means Sum;
  Var Checkb Checkf;
  Label Checkb="Base Weight Check" Checkf="Final Weight Check";
  Title "20&yr. Synar Weight Check";
Run;

Proc Print Data = Printit label split="$";
  Id Anum;
  Var Stratum Weight Finalwt Nclust Sampsize Eligs Sampobs Sampst Elign
  Totelign;
  Label Weight="Outlet$BaseWt" Finalwt="Outlet$Finalwt"
  Nclust="Cluster$Total"
  Sampsize="Cluster$Samplesize" Eligs="Cluster$Elig"
  Sampobs="Cluster$Completed"
  Sampst="Stratum$Samplesize" Elign="Stratum$Elig"
  Totelign="State$Eligible";
  Format Stratum Stra2fmt.;
  Title "20&yr. Synar Weights Table";
Run;
Ods Html Close;
Quit;

/* preobs is needed to assure that all sampobs will be recognized even if the
   last record of the stratum is an inelligible non sample observation like
   stratum 9 in 2006.*/
Data preobs;
  Set Synar&yr..Rawinput;
  If (Sampob Eq 1);
Run;

Data Observ (Drop=A B);
  Merge preobs Weights;
  By Stratum Anum;
  Psu_Id=0;
  Co_Str=0;
  Rec_Num=0;
  If Last.Stratum Then LStrat=1;
```

Attachment 2: Calculation of Weighted Retailer Violation SAS Programming Code

```
If Stratum In(1,2,3,4,5,6) Then Do;
  A+1; Rec_Num=A; Co_Str=Stratum; Psu_Id=Anum+0;
  If Lstrat=1 Then A=0;
End;

If Stratum In(7 8 9 10) Then Do;
  *Multiply by 10 so numbers dont overlap if cluster bigger than 100;
  B+1; Rec_Num=B; Co_Str=Stratum; Psu_Id=(Anum*10)+B;
  If Lstrat=1 Then B=0;
End;

Run;

Proc Sort Data=Observ; By Stratum Anum; Run;
Proc Sort Data=Weights; By Stratum Anum; Run;

Data Synar&yr..Weighted;
  Merge Observ Weights;
  By Stratum Anum;
Run;
Proc Sort Data=Synar&yr..Weighted; By Stratum Anum; Run;
Data SynarALL.Wgt&yr.(drop=temp lstrat);
  Retain Stratum Co_Str Clnum PSU_ID Anum Snum Rec_num Weight Finalwt
Stsize
  Elign Sampobst Violatst Eligst Nclust Ineligst Sampst Violates Eligs
  Sampobs Ineligs Sampsize Inelig Sampob Elig Violate Outcome Outlet
  Noncomp Alcohol Buyersex Buyerage Buyerrace Adult AskID AskAge Warn
Clerksex
  ClerkAge;
  Set Synar&yr..Weighted;
  Year=20&yr.;
Run;

/*State and Domain Analysis*/
ods noproctitle;
ods html file=WTRES;
title1 "Weighted Domain Results 20&yr (by Stratum)";
Proc Surveymeans Data=synarall.wgt13 VARMETHOD=TAYLOR ;
  domain stratum;
  Strata Co_Str ;
  Cluster Psu_Id;
  class outcome;
  var Outcome ;
  Weight Finalwt;
  format stratum STRAFMT. outcome Q1FMT.;
  ods output DOMAIN=Results ;
run;
title1 "Unweighted Domain Results 20&yr (by Stratum)";
Proc Surveymeans Data=synarall.wgt13 NOBS MEAN ;
  domain stratum;
  Strata Co_Str ;
  Cluster Psu_Id;
  class outcome;
  var Outcome ;
  format stratum STRAFMT. outcome Q1FMT.;
run;
```

Attachment 3: Weight Check & Weights Table

2013 Synar Weight Check

The MEANS Procedure

Variable	Label	Sum
Checkb	Base Weight Check	16938.00
Checkf	Final Weight Check	16938.00

2013 Synar Weights Table

Anum	Stratum	Outlet BaseWt	Outlet Finalwt	Cluster Total	Cluster Samplesize	Cluster Elig	Cluster Completed	Stratum Samplesize	Stratum Elig	State Eligible
101	NC	6.9130	12.2308	6	23	13	13	125	954	16938
102	NC	7.5714	12.2308	6	21	13	13	125	954	16938
103	NC	8.8333	12.2308	6	18	13	13	125	954	16938
104	NC	5.8889	12.2308	6	27	13	13	125	954	16938
105	NC	8.3684	12.2308	6	19	13	13	125	954	16938
106	NC	9.3529	12.2308	6	17	13	13	125	954	16938
201	NE	5.3698	13.2179	12	32	13	13	288	2062	16938
202	NE	9.5463	13.2179	12	18	13	13	288	2062	16938
203	NE	6.6090	13.2179	12	26	13	13	288	2062	16938
204	NE	6.6090	13.2179	12	26	13	13	288	2062	16938
205	NE	8.5917	13.2179	12	20	13	13	288	2062	16938
206	NE	7.8106	13.2179	12	22	13	13	288	2062	16938
207	NE	8.5917	13.2179	12	20	13	13	288	2062	16938
208	NE	4.9095	13.2179	12	35	13	13	288	2062	16938
209	NE	9.5463	13.2179	12	18	13	13	288	2062	16938
210	NE	7.4710	13.2179	12	23	13	13	288	2062	16938
211	NE	9.0439	13.2179	12	19	13	13	288	2062	16938
212	NE	5.9253	13.2179	12	29	13	13	288	2062	16938
301	NW	4.6056	10.6282	6	30	13	13	133	829	16938
302	NW	6.9083	10.6282	6	20	13	13	133	829	16938
303	NW	6.9083	10.6282	6	20	13	13	133	829	16938
304	NW	6.2803	10.6282	6	22	13	13	133	829	16938
305	NW	6.9083	10.6282	6	20	13	13	133	829	16938
306	NW	6.5794	10.6282	6	21	14	13	133	829	16938
401	SC	6.6577	13.3154	10	26	14	13	218	1731	16938
402	SC	6.9240	13.3154	10	25	13	13	218	1731	16938
403	SC	8.6550	13.3154	10	20	13	13	218	1731	16938
404	SC	10.1824	13.3154	10	17	13	13	218	1731	16938
405	SC	8.6550	13.3154	10	20	13	13	218	1731	16938
406	SC	7.5261	13.3154	10	23	13	13	218	1731	16938
407	SC	7.5261	13.3154	10	23	13	13	218	1731	16938

Attachment 3: Weight Check & Weights Table

Anum	Stratum	Outlet BaseWt	Outlet Finalwt	Cluster Total	Cluster Samplesize	Cluster Elig	Cluster Completed	Stratum Samplesize	Stratum Elig	State Eligible
408	SC	8.2429	13.3154	10	21	13	13	218	1731	16938
409	SC	7.5261	13.3154	10	23	13	13	218	1731	16938
410	SC	8.6550	13.3154	10	20	13	13	218	1731	16938
501	SE	11.9154	13.5042	16	17	15	15	322	3241	16938
502	SE	10.6612	15.5817	16	19	13	13	322	3241	16938
503	SE	8.1025	15.5817	16	25	13	13	322	3241	16938
504	SE	10.1281	15.5817	16	20	13	13	322	3241	16938
505	SE	6.5343	15.5817	16	31	13	13	322	3241	16938
506	SE	10.6612	15.5817	16	19	13	13	322	3241	16938
507	SE	9.2074	15.5817	16	22	13	13	322	3241	16938
508	SE	10.1281	15.5817	16	20	13	13	322	3241	16938
509	SE	11.9154	15.5817	16	17	13	13	322	3241	16938
510	SE	8.4401	16.8802	16	24	12	12	322	3241	16938
511	SE	11.9154	14.4688	16	17	14	14	322	3241	16938
512	SE	11.9154	13.5042	16	17	15	15	322	3241	16938
513	SE	11.9154	15.5817	16	17	13	13	322	3241	16938
514	SE	11.9154	13.5042	16	17	15	15	322	3241	16938
515	SE	10.1281	15.5817	16	20	13	13	322	3241	16938
516	SE	10.1281	15.5817	16	20	13	13	322	3241	16938
601	SW	4.2647	11.1538	11	34	13	13	273	1595	16938
602	SW	8.5294	10.3571	11	17	14	14	273	1595	16938
603	SW	6.3043	11.1538	11	23	13	13	273	1595	16938
604	SW	4.3939	11.1538	11	33	13	13	273	1595	16938
605	SW	7.2500	11.1538	11	20	13	13	273	1595	16938
606	SW	8.0556	11.1538	11	18	13	13	273	1595	16938
607	SW	5.0000	11.1538	11	29	13	13	273	1595	16938
608	SW	5.3704	11.1538	11	27	13	13	273	1595	16938
609	SW	4.8333	11.1538	11	30	13	13	273	1595	16938
610	SW	5.8000	11.1538	11	25	13	13	273	1595	16938
611	SW	8.5294	11.1538	11	17	13	13	273	1595	16938
700	AL	9.7385	19.4769	1	130	65	65	130	1266	16938
800	DE	10.3667	17.2778	1	60	36	36	60	622	16938
900	ER	2.7900	4.8947	1	100	58	57	100	279	16938
1000	PH	19.3733	32.5299	1	225	134	134	225	4359	16938

Attachment 4: Survey Means Table

Weighted Domain Results 2013 (by Stratum)

Data Summary	
Number of Strata	10
Number of Clusters	353
Number of Observations	1092
Sum of Weights	16938

Class Level Information			
Class Variable	Label	Levels	Values
Outcome	Outcome	2	Sale Refusal

Statistics						
Variable	Level	Label	N	Mean	Std Error of Mean	95% CL for Mean
Outcome	Sale	Outcome	96	0.105081	0.011565	0.08233355 0.12782854
	Refusal	Outcome	996	0.894919	0.011565	0.87217146 0.91766645

Domain Analysis: Stratum							
Stratum	Variable	Level	Label	N	Mean	Std Error of Mean	95% CL for Mean
Northcentral	Outcome	Sale	Outcome	4	0.051282	0.025641	0.00084861 0.10171549
		Refusal	Outcome	74	0.948718	0.025641	0.89828451 0.99915139
Northeast	Outcome	Sale	Outcome	22	0.141026	0.035217	0.07175785 0.21029343
		Refusal	Outcome	134	0.858974	0.035217	0.78970657 0.92824215
Northwest	Outcome	Sale	Outcome	3	0.038462	0.017201	0.00462976 0.07229332
		Refusal	Outcome	75	0.961538	0.017201	0.92770668 0.99537024
Southcentral	Outcome	Sale	Outcome	11	0.084615	0.029123	0.02733400 0.14189676
		Refusal	Outcome	119	0.915385	0.029123	0.85810324 0.97266600
Southeast	Outcome	Sale	Outcome	5	0.024038	0.011578	0.00126475 0.04681218
		Refusal	Outcome	209	0.975962	0.011578	0.95318782 0.99873525
Southwest	Outcome	Sale	Outcome	16	0.110889	0.036370	0.03935344 0.18242478
		Refusal	Outcome	128	0.889111	0.036370	0.81757522 0.96064656
Allegheny	Outcome	Sale	Outcome	0	.	.	.
		Refusal	Outcome	65	1.000000	0	1.00000000 1.00000000
Delaware	Outcome	Sale	Outcome	5	0.138889	0.058456	0.02391147 0.25386631
		Refusal	Outcome	31	0.861111	0.058456	0.74613369 0.97608853
Erie	Outcome	Sale	Outcome	2	0.035088	0.024588	0.00000000 0.08345044
		Refusal	Outcome	55	0.964912	0.024588	0.91654956 1.00000000
Philadelphia	Outcome	Sale	Outcome	28	0.208955	0.035253	0.13961511 0.27829534
		Refusal	Outcome	106	0.791045	0.035253	0.72170466 0.86038489

Attachment 4: Survey Means Table

Unweighted Domain Results 2013 (by Stratum)

Data Summary	
Number of Strata	10
Number of Clusters	353
Number of Observations	1092

Class Level Information		
Class Variable	Label	Levels Values
Outcome	Outcome	2 Sale Refusal

Statistics				
Variable	Level	Label	N	Mean
Outcome	Sale	Outcome	96	0.087912
	Refusal	Outcome	996	0.912088

Domain Analysis: Stratum					
Stratum	Variable	Level	Label	N	Mean
Northcentral	Outcome	Sale	Outcome	4	0.051282
		Refusal	Outcome	74	0.948718
Northeast	Outcome	Sale	Outcome	22	0.141026
		Refusal	Outcome	134	0.858974
Northwest	Outcome	Sale	Outcome	3	0.038462
		Refusal	Outcome	75	0.961538
Southcentral	Outcome	Sale	Outcome	11	0.084615
		Refusal	Outcome	119	0.915385
Southeast	Outcome	Sale	Outcome	5	0.023364
		Refusal	Outcome	209	0.976636
Southwest	Outcome	Sale	Outcome	16	0.111111
		Refusal	Outcome	128	0.888889
Allegheny	Outcome	Sale	Outcome	0	.
		Refusal	Outcome	65	1.000000
Delaware	Outcome	Sale	Outcome	5	0.138889
		Refusal	Outcome	31	0.861111
Erie	Outcome	Sale	Outcome	2	0.035088
		Refusal	Outcome	55	0.964912
Philadelphia	Outcome	Sale	Outcome	28	0.208955
		Refusal	Outcome	106	0.791045

Attachment 5: 2013 Results Table

Stratum	Outlets Selected	Outlets Completed	PSUs Sampled	Total Violations	Wgted Mean	Standard Error	Lower Limit	Upper Limit
Statewide	1874	1092	576	96	11	1.2	8	13
Northcentral	125	78	6	4	5	2.6	0	10
Northeast	288	156	12	22	14	3.5	7	21
Northwest	133	78	6	3	4	1.7	0	7
Southcentral	218	130	10	11	8	2.9	3	14
Southeast	322	214	16	5	2	1.2	0	5
Southwest	273	144	11	16	11	3.6	4	18
Allegheny	130	65	130	0	0	0.0	0	5
Delaware	60	36	60	5	n/a	n/a	n/a	n/a
Erie	100	57	100	2	4	2.5	0	8
Philadelphia	225	134	225	28	21	3.5	14	28

Note1: Confidence limits were calculated using the t-distribution with the degrees of freedom (df) determined by subtracting the total strata from the total clusters. For example, The df for Northcentral is five because there are six clusters and one stratum.

Note2: The weighted mean takes into account unequal probabilities of selection and non-completions. It is different than the unweighted mean, which is calculated by dividing Total Violations by Outlets Completed. The WEIGHTED rate should be used at all times.

Note3: When Total Violations = 0, the "Rule of Three (3/n)" is used to calculate Upper limit.

Note4: The rate was marked n/a if Outlets Completed was less than 40.



SURVEY REPORT FORM (Synar 2013)
 Pennsylvania Department of Health

Area	Sample	License	Date of visit
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/> / <input type="text"/> / <input type="text"/> <input type="text"/>

Outlet Location

<input type="text"/>
<input type="text"/>
<input type="text"/>
<input type="text"/>
<input type="text"/>
<input type="text"/>
<input type="text"/>

4. Gender of buyer

Male Female

5. Age of buyer

15 16 17

6. Race/ethnicity of buyer

White Hispanic

Black Other

1. What was the outcome?

Sale Refusal Non-Completion

7. Does the outlet serve alcohol for on-site consumption?

Yes No Unknown

2. Type of retail outlet (Select one)

<input type="radio"/> Bar/Tavern(1)	<input type="radio"/> News Outlet(8)
<input type="radio"/> Beer Distributor(2)	<input type="radio"/> Restaurant/eat-in(9)
<input type="radio"/> Convenience-chain(3)	<input type="radio"/> Restaurant/take-out(10)
<input type="radio"/> Convenience-Grocery(4)	<input type="radio"/> Supermarket(11)
<input type="radio"/> Deli(5)	<input type="radio"/> Tobacco(12)
<input type="radio"/> Drug Store(6)	<input type="radio"/> (EMP-LOT-PVR-UNL)
<input type="radio"/> Gas Station/Auto Service(7)	<input type="radio"/> Other _____

8. Was adult supervisor in the outlet?

Yes No

9. Was buyer asked to show ID?

Yes No

10. Was buyer asked his/her age?

Yes No

3. Non-completion type (Select one)

<input type="radio"/> (CBB) Cigarettes Behind Bar (1)	<input type="radio"/> (OCN) Outlet Closed/NotAccess. (8)
<input type="radio"/> (BNA) Bar Not Accessible (2)	<input type="radio"/> (ONA) Other/Not Accessible (9)
<input type="radio"/> (DNS) Does Not Sell (3)	<input type="radio"/> (PCL) Private Club (10)
<input type="radio"/> (DUP) Duplicate (4)	<input type="radio"/> (PVR) Private Residence (11)
<input type="radio"/> (EMP) Empty Building (5)	<input type="radio"/> (UNL) Unlocatable (12)
<input type="radio"/> (ITV) Itinerant Vendor (6)	<input type="radio"/> (ACC) Accessible-Other (13)
<input type="radio"/> (LOT) Empty Lot (7)	<input type="radio"/> (ODG) Outlet Dangerous (14)

11. Were warning signs visible?

Yes No

12. Gender of clerk

Male Female

13. Age of clerk

<18 18 - 25 26 - 40 40+

14. Time of visit (military)

15. Brand

16. Cost .

Notes: _____

Questions? Contact Division of Statistical Support (717-783-2548)

III. Survey Procedures

Conducting a Valid Survey

Probability theory allows the use of well-defined segments (sample) of a population to estimate characteristics describing that population. Pennsylvania's Synar survey uses probability theory and a small sample of cigarette outlets to estimate the proportion of cigarette outlets which sell cigarettes to youth under the age of 18. Since a small sample is used to make inferences about the entire population, any errors or biases are magnified many times. To prevent inaccurate results and ensure the integrity and validity of the survey, surveyors must employ the following characteristics or follow the "SCRIPT".

Secret **C**onsistent **R**igorous **I**mpartial **P**atient **T**enacious

Secret. Keep the survey a secret. The survey is "unannounced" and cannot be mentioned to the public for the entire survey period. Participants should not initiate conversations about their participation in this survey with persons outside the survey team, except for their parents. If asked about the survey, it is acceptable to explain that a yearly survey is conducted to estimate the rate that retailers sell cigarettes to minors, but do not give specifics of the sampled outlets or the timeframe of the survey.

Consistent. The same survey procedures must be followed throughout the state. Any variation in procedures will bias the survey results. Every store must be attempted in exactly the same manner. Strictly comply with the survey rules and procedures. An approximately equal number of inspections must be conducted by male and females throughout the state and a consistent distribution of male and female inspectors must be maintained from year to year to make valid year to year comparison.

Rigorous. Rigorously complete the Survey Report Form and all accompanying forms. The Survey Report form is the primary tool for the Synar survey. Properly complete all forms. The survey results are meaningless if the data on the form is inaccurate. Consult the manual or contact DSS (*see Figure 1*). Give detailed explanations, when they are required. The more information given, the easier it is to identify and correct problems.

Impartial. Remain impartial to the inspection outcome. Do not bias the outcome with your actions. A successful inspection is NOT achieved by enticing a sale or a refusal. A successful inspection is defined as one where the surveyor follows survey procedures and documents exactly what happened. Even though a high "Refusal" rate is desired, as surveyors it is your responsibility to be indifferent to the outcome of the inspection. Any actions taken to lower the violation rate are done before or after the entire survey period, not during the survey.

Patient. Remain patient throughout the entire survey process. Surveys rely on many different people with many different personalities. Unexpected delays should be expected.

Tenacious. Don't quit until all eligible outlets on the list are inspected. If the outlet is eligible and safe, complete the inspection. The completion rate or the percent of completed eligible outlets is very important to survey validity. A low completion rate negatively affects the validity of the survey.

Procedures for Attempting to Purchase Tobacco

Checklist before Departure

- A list of outlets, directions and maps
- The name and telephone number of the health district contact
- A Letter of Verification
- Cash for purchases
- Forms for recording the results of each compliance check
- Black ink pens (*no markers or pencils*)
- A plastic bag to hold the cigarettes purchased
- Parental permission slips for the youth participants

Prior to Inspection (before entering the outlet)

Adult supervisor/driver:

- Ensure the vehicle is parked out of site of outlet personnel.
- Evaluate the outlet for safety from the outside.
- Evaluate the outlet for eligibility. Although the outlet may be included on the sample list, locations inaccessible to the public (e.g., private clubs, prisons, and private homes) are not part of the survey, but must be accounted for on the Report Form and accounting forms. If there is a sign on the entrance stating that no one under the age of 21 or 18 is permitted, do not allow the minor to enter that outlet.

Youth Participant:

- Decide which brand of cigarettes will be attempted before entering the outlet.
- Decide on a similar back-up brand in the event that the first choice is not in stock.
- Carry more than enough money to cover the cost of the cigarettes.

During Inspection

Adult supervisor:

- Enter the outlet before the youth.
- Evaluate the outlet for safety from the inside. If it is deemed unsafe, leave immediately and stop the youth from entering.
- Locate where cigarettes are located and look for warning signs.
- Observe the gender and age of the clerk.

Attachment 7: Inspection Protocol

- Determine whether the outlet sells alcohol for on-site consumption.
- If the outlet sells alcohol, determine whether the cigarettes are sold from behind the bar.
- If the outlet is a non-completion, gather enough information to satisfy the collection forms.
- If budgeted, the adult can purchase a small item to appear inconspicuous.
- In some cases, the outlet may be too small for the adult to enter without tipping off the clerk. If the supervisor does not enter the outlet, an explanation is given on the Survey Report Form and Compliance Sheet.

Youth Participant:

- Enter the outlet after the adult supervisor had enough time to establish that the inside of the outlet is safe.
- Attempt to purchase cigarettes.

Both the adult supervisor and the youth participant should appear as inconspicuous as possible in the outlet and not wear or carry anything that will make them stand out. Do not take the data collection forms or note pads into the outlet.

Post Inspection (After leaving the outlet)

Adult supervisor:

- Immediately after exiting the outlet, complete the Survey Report Form with the youth. Instructions for completing the form are located in Appendix 1 of this manual.
- After each sale, attach a label to the cigarettes purchased, with the name and address of the outlet and the date on it. Place the purchase in a plastic bag.
- Discuss the experience with the youth.

Youth Participant:

- Assist the adult with the Survey Report Form.
- Discuss your experience with the adult and voice any concerns.

General Survey Procedures

- ◆ Synar survey uses “**Address Based Sampling**.” When an address is visited and the business name is different than what is listed on the sample list, inspect the outlet at the address, regardless of the name.
- ◆ If the youth participant enters a sampled outlet that is accessible to minors and finds that it only sells cigarettes through a **vending machine**, the youth participant **must** attempt to buy cigarettes from the vending machine.
- ◆ Make only **one attempt** to purchase per outlet.
- ◆ Adult supervisors will not wear **uniforms** or visible forms of **identification**.

Attachment 7: Inspection Protocol

- ◆ Youth participants will not wear clothing that could be perceived as "gang related".
- ◆ Youth participants will *not* take their **IDs** into the outlets.
- ◆ Serving **alcohol** is NOT a valid non-completion reason. An outlet is NOT inaccessible just because it serves alcohol.
- ◆ Youth participants will *not* attempt to purchase cigarettes if someone in the outlet **knows them**. The outlet must be revisited at another time.
- ◆ **Survey procedures** must be the same for every outlet. A **script** should be followed when attempting to purchase cigarettes to avoid biasing survey results.
- ◆ Youth participants will **answer all questions honestly**. If the clerk asks for whom the cigarettes are being purchased, the youth is to respond "me".
- ◆ The youth participant will give his/her **age** accurately, if asked by the clerk. It is against the law to knowingly and falsely represent oneself to be 18 years of age or older to purchase cigarettes.
- ◆ **Do not argue with the clerk**. If the clerk refuses to sell to the youth participant, leave the outlet quietly and do not argue or try to persuade the clerk to sell.
- ◆ **Complete the entire sample list**. It is very important to attempt every outlet on the sample list. The completion rate is an important aspect of any survey.
- ◆ **NEVER use youth under the age of 15**.
- ◆ If an outlet on the sample list only sells thru a **vending machine**, The youth must attempt to purchase cigarettes from it.
- ◆ Do not inspect any **Type I** Drinking Establishments that have an exact address match on the Type I list on the Department of Health website.
- ◆ The definition of a "**Sale**" is when money changes hands and the youth leaves the counter with cigarettes OR the youth obtains cigarettes from a vending machine, the transaction is considered a "sale", even if the employee follows the youth outside and demands that they return the cigarettes.
- ◆ A **refusal** is when the youth asks for cigarettes and is refused by the clerk.
- ◆ A **non-completion** is when the youth does not have the chance to attempt to buy cigarettes because of one of the non-completion reasons described in Appendix 2.