ANNUAL SYNAR REPORT

42 U.S.C. 300x-26

OMB № 0930-0222

FFY 2018

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 2017 Compliance Progress) and future plans to ensure compliance with the Synar requirements to reduce youth tobacco access rates (FFY 2018 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 states[1] 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.

[1]The 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 2018: 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 2018 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 2018 is up-to-date and approved by the Center for Substance Abuse Prevention.
State: Pennsylvania
Name of Chief Executive Officer or Designee: Tom Wolf
Signature of CEO or Designee:
Title: Governor **Date Signed:** December 29, 2017
If signed by a designee, a copy of the designation must be attached.

SECTION I: FFY 2017 (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 impact 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
   ☐ Changed definition of tobacco products
   ☐ Other change(s) *(Please describe.)* _____

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

Licensing of tobacco vendors	☐ **Yes**	☒ **No**
Penalties for sales to minors	☐ **Yes**	☒ **No**
Vending machines	☐ **Yes**	☒ **No**
Added product categories to youth access law	☐ **Yes**	☒ **No**

2. **Describe how the Annual Synar Report** *(see 45 C.F.R. 96.130(e))* **was 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 2018 ASR was posted to this Web address.)*

   Web address: http://www.ddap.pa.gov/Pages/Annual-Reports.aspx

   Date published: December 21, 2017

   ☐ 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.)* Notice under Announcements on Agency 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:***

DOH Bureau of Health Promotion & Risk Reduction, Division of Tobacco Prevention & Control (DTPC)

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):***

DOH Bureau of Health Promotion & Risk Reduction, Division of Tobacco Prevention & Control (DTPC)

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).
DOH Bureau of Health Promotion & Risk Reduction, Division of Tobacco Prevention & Control (DTPC)

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.)* _____
☐ No relationship

d. Does a state agency contract with the Food and Drug Administration's Center for Tobacco Products (FDA/CTP) to enforce the youth access and advertising restrictions in the Family Smoking Prevention and Tobacco Control Act?
☒ **Yes** ☐ **No (if no, go to Question 5)**

e. If yes, 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)).
DOH Bureau of Health Promotion & Risk Reduction, Division of Tobacco Prevention & Control (DTPC)

f. Has the responsible agency changed since last year's Annual Synar Report?
☐ **Yes** ☒ **No**

g. 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.)* _____
☐ No relationship

h. 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 2017 *(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 local laws or 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 citations issued	817	290	817
Number of fines assessed	817	290	817
Number of permits/licenses suspended	UNK		UNK
Number of permits/licenses revoked	UNK		UNK
Other *(Please describe.)*	N/A	N/A	N/A

c. 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 5c, 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:

d. 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.

e. 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**

f. What additional activities are conducted in your state to support enforcement and compliance with state youth tobacco access law(s)? *(Check all that apply and briefly describe each activity in the text boxes below each activity.)*

☒ Merchant education and/or training

Merchant education and training remains on-going with a focus on face to face conversations with tobacco retail outlet owners in violation. RPCs also follow-up on calls reporting clerks selling to multiple under-age youth, with education/enforcement.

☒ 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)

Congratulatory letters are issued to merchants who are in compliance, encouraging merchants to recognize clerks in compliance with the youth access law.

☒ Community education regarding youth access laws

RPCs partner with members of the statewide youth coalition, TRU (Tobacco Resistance Unit) to participate in initiatives that educate the public about tobacco prevention and cessation, including Point of Sale and conduction of tobacco retailer enforcement.

☒ Media use to publicize compliance inspection results

RPCs produce media at the local level to publicize non-compliance offenders. Additionally, the Food and Drug Administration's (FDA's) website for their Tobacco Compliance contracts with states list all outlets in which both Undercover Buy and Advertising and Labeling checks have been conducted. It also lists both successful check results, as well as those found to be in violation of the law. This website serves as a resource to the DTPC, RPCs, and the public.

☒ Community mobilization to increase support for retailer compliance with youth access laws

The DTPC implements programs to educate state leaders, decision makers, and the public about the burden of tobacco use and evidence-based policies and other strategies to reduce this burden. Over 90% of tobacco company expenditures are spent on point-of-sale (POS) marketing in convenience stores, gas stations, pharmacies, and other retail outlets. This POS marketing is very effective in reaching youth and influencing them to smoke. To counteract this practice, the Division of Nutrition and Physical Activity collaborates with the DTPC to provide technical assistance, assess program progress, and provide trainings and training materials to implement the Health Corner Store Initiative (HCSI) with the RPCs,

coalition members, stakeholders, and DOH staff. The DTPC continues to expand this effort through a Pennsylvania POS initiative by conducting the following activities: 1) identifying POS coordination opportunities by leveraging resources and utilizing tobacco data collected from the current statewide PA HCSI focused on corner stores to increase access to health foods and beverages, 2) assessing the retail environment through systematic data collection to inform POS activities and action focused on retailers selling tobacco products, 3) educating local community decision makers and the public by incorporating TRU youth activities and messages that are delivered by youth within communities, and 4) encouraging tobacco retail owners to sign memorandums of understanding committed to the reduction and/or elimination of tobacco product signage and sales, and to sell nicotine replacement therapy products and post PA Free Quitline materials in their establishments as cost effective ways to promote cessation services.

☒ Other activities *(Please list.)* Young Lungs at Play & the Multi-Unit Housing Initiative

The DTPC has several initiatives impacting compliance with Pennsylvania's tough access law by implementing community-based programs that change community norms through environmental approaches to promote health behaviors. Young Lungs at Play (YLAP) was adapted from successful initiatives in Rockland County, New York and Luzerne County Pennsylvania. YLAP promotes the establishment of tobacco-free parks and playgrounds. Participating communities and organizations receive signs in English and Spanish, free of charge, to display in tobacco-free areas. YLAP has reached disparate populations across Pennsylvania with considerable success rates in low income and African American areas, as well as rural playgrounds and parks. Currently, there are over 942 YLAP programs in local boroughs, townships, municipalities, youth organizations, and school districts, including all the recreational parks and playgrounds within the City of Pittsburgh. DTPC maintains an "Honor Roll" listing of YLAP sites on the PA DOH website and a Certificate of Recognition, signed by the Secretary of Health, is provided to all YLAP participants. Members of the DOH Executive Staff have attended local media events to recognize community-based efforts to create tobacco-free outdoor parks and playgrounds. YLAP became the catalyst to expand the smoke-free multi-unit housing initiative in Pennsylvania. YLAP is present in all 67 counties and an estimated 77% of youth under the age of fifteen live in municipalities or counties participating in YLAP.

Smoke-free multi-unit housing is another key initiative identified by the DTPC. The smoke-free multi- unit housing initiative was developed and implemented by the DTPC as a standardized statewide effort. The DTPC identified public housing as the initial focus of the initiative and then at the county and regional levels to maximize impact through the RPCs. Strategies under this initiative include: 1) identifying, educating, and mobilizing key stakeholders, specifically those at city and county housing authorities; 2) conducting community education and raising public awareness concerning the dangers of secondhand smoke in multi-unit housing settings; and 3) providing tobacco cessation resources and referrals to both staff and residents of multi-unit housing sites. To capture policy focused activities and results, the DTPC staff works with the statewide external evaluator to maintain

standardized reporting tools. The primary tool used is the Smoke-Free Multi-Unit Housing Policy Initiative Tracking Sheet. This tool captures completed and ongoing policy work on a quarterly basis. Pennsylvania has one hundred forty (140) multi-unit housing organizations on the Department of Health Honor Roll under this program. An estimated 124,679 individuals have been impacted by smoke-free multi-unit housing policies in both public and private housing settings throughout Pennsylvania.

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 2017 (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.

a. If yes, describe how and when this change was communicated to SAMHSA

N/A

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 6.5

Weighted RVR 7.3

Standard error (s.e.) of the (weighted) RVR 0.9

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

7.3	+	(1.645	×	0.9)	=	8.8
RVR Estimate	**plus**	(1.645	**times**	**Standard Error)**	**equals**	**Right Limit**

Accuracy rate 67.6

Completion rate 99.8

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 Tables
Attachment 4: Survey Means Tables

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.*

N/A

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)	1,793
Eligible sample size (number of outlets found to be eligible in the sample)	1,212

Final sample size (number of eligible outlets in the sample for which an inspection was completed)	1,209

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 Sampling frame coverage study: 2013

b. Percent coverage from the latest Sampling 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. **If Yes, describe how and when this change was communicated to SAMHSA**

N\A

b. Provide the inspection period: From 07/01/17 **to** 09/15/17
MM/DD/YY MM/DD/YY

c. Provide the number of youth inspectors used in the current inspection year: 52

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.

N\A

d. 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 2018 (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 2018. 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) 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 within the Pennsylvania Department of Health (DOH). Seventy percent of funds received through the Tobacco Settlement fund by DOH must be awarded to their primary contractors to establish comprehensive tobacco control programs within their service areas.

Act 2002-112 amended the youth access to tobacco law by creating a fine structure for both store owners and clerks, as well as increased penalties and license revocation and/or license 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 DOH, County or Municipal Health Departments, Single County Authorities created pursuant to the Pennsylvania Drug and Alcohol Control Act, or Primary Contractors established pursuant to Chapter 7 of the Tobacco Settlement Act. The contracts with the eight Regional Primary Contractors (RPCs), who provide services to all sixty-seven counties of the Commonwealth, contain language requiring them to conduct compliance checks on all tobacco retail outlets within their service area. However, with more recent limitations associated with funding, it has been necessary to waive this requirement and instead implement a more strategic and limited approach in conducting enforcement checks within the confines of available resources.

With on-going enforcement, standardization of the compliance check protocols, annual enforcement training, and effective statewide partnerships with the Department of Revenue, the Office of the Attorney General's Enforcement Division, and the Pennsylvania Justice Systems, the rate of illegal tobacco sales continues to be sustained within the violation rate maximum allowance identified under 42 U.S.C. 300x-26. DOH 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 and describe each challenge in the text box below it.)*

☐ Limited resources for law enforcement of youth access laws

☒ Limited resources for activities to support enforcement and compliance with youth tobacco access laws

Limitations relative to funding continue to challenge the ability to support effective tobacco prevention strategies and hamper the ability to conduct annual enforcement checks. This negatively impacts the ability to sustain the lower retailer violation rates attained previously.

The Single State Authority (SSA) for Substance Abuse, the Pennsylvania Department of Drug and Alcohol Programs (DDAP), is working collaboratively with DOH, the agency responsible for tobacco prevention and control, to strategize and gauge the most effective measures to be utilized to meet federal and state requirements while adequately addressing tobacco prevention and enforcement activities within the resources available.

While addressing the diminished capacity to maintain adequate enforcement checks specific to the state law prohibiting the sale of tobacco products to minors, Pennsylvania, as a contract recipient of FDA funds, has been able to conduct compliance checks on retailers under this funding source. The addition of these funds and ability to conduct compliance checks under this agreement enhances the state's ability directed to enforcement and to sustain a more reasonable retailer violation rate, absent sufficient funding through previously available sources.

☐ 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

Pennsylvania recognizes the need to clean the list received from the Department of Revenue (DOR) as much as possible prior to creating a sampling frame. It is necessary to accomplish this without compromising the quality of the frame by erroneously removing outlets that may be eligible and potentially biasing the survey results. In part, this is achieved by identifying and removing out-of-state licenses, duplicate license numbers, private club, and iterant vendor licenses, as well as licenses with duplicate addresses where only one license per address is kept. In recent years these efforts have been challenged by the completeness and accuracy of the list received from DOR. In the future, additional mechanisms to improve the

accuracy rate will be explored, such as supplementing the list through outcomes of enforcement checks. Through such measures, the focus will remain to ensure coverage, as well as accuracy, without compromising the integrity of the survey or biasing the results.

☐ Limited expertise in survey methodology

☐ Laws/regulations limiting the use of minors in tobacco inspections

☐ Difficulties recruiting youth inspectors

☒ Issues regarding the balance of inspections conducted by youth inspectors age 15 and under

The recruitment of youth to balance age can prove somewhat difficult, although efforts are made to ensure the survey is as unbiased as possible. As such, greater efforts are concentrated towards creating a cadre of youth that align with the race and ethnic populations of the areas where retailers ply their trade. Pennsylvania believes that the survey practice overall is statistically pristine and continues to put forth its greatest effort to ensure an unbiased result through the methodologies executed to conduct the survey.

☒ Issues regarding the balance of inspections conducted by one gender of youth inspectors

An analysis of the Annual Synar Reports dating back to Federal Fiscal Year 2002 indicates that representation of males and females has vacillated between the genders. However, as was indicated in prior responses to questions about the recruitment of youth to balance age or gender, such an exercise can prove challenging, although efforts are made to ensure the survey is as unbiased as possible. As such, a greater effort is concentrated towards creating a cadre of youth that align with the cultural representation of the areas being surveyed, that is, youth that align with the race and ethnic populations of the areas where retailers are located. As indicated above, Pennsylvania believes that the survey practice overall is statistically pristine and continues to put forth a concerted effort to assure an unbiased result through the methodologies executed to conduct the survey.

☐ 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.)*_____

APPENDIX A

FORMS 1–5

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

Form 1 reports sampling frame and sample information used to calculate the unweighted retailer violation rate (RVR), using results from the current year's Synar survey inspections.

Summary of Synar Inspection Results by Stratum

State: Pennsylvania

FFY: 2018

(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	1,012	0	1,012	701	0	701	81	0	81	3	0	3
2	NE	2,680	0	2,680	1,668	0	1,668	158	0	158	7	0	7
3	NW	989	0	989	671	0	671	78	0	78	2	0	2
4	SC	2,170	0	2,170	1,741	0	1,741	138	0	138	1	0	1
5	SE	3,384	0	3,384	2,197	0	2,197	210	0	210	5	0	5
6	SW	2,102	0	2,102	1,461	0	1,461	148	0	148	12	0	12
7	AL	1,748	0	1,748	1,170	0	1,170	87	0	87	23	0	23
8	DE	751	0	751	512	0	512	75	0	75	7	0	7
9	ER	381	0	381	248	0	248	65	0	65	1	0	1
10	PH	5,001	0	5,001	3,327	0	3,327	169	0	169	17	0	17
	Total	20,218	0	20,218	13,696	0	13,696	1,209	0	1,209	78	0	78

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 is used for the Synar survey.

Summary of Clusters Created and Sampled

State: Pennsylvania

FFY: 2018

(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	1,748	130	87
8	DE	751	110	75
9	ER	381	100	65
10	PH	5,001	245	169
	Total	**8,048**	**646**	**457**

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: 2018

(1) INELIGIBLE		(2) ELIGIBLE	
Reason for Ineligibility	**(a) Counts**	**Reason for Noncompletion**	**(a) Counts**
Out of business	146	In operation but closed at time of visit	0
Does not sell tobacco products	223	Unsafe to access	2
Inaccessible by youth	84	Presence of police	0
Private club or private residence	55	Youth inspector knows salesperson	0
Temporary closure	25	Moved to new location	0
Unlocatable	20	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	24	Other noncompletion reason(s) *(Describe.)* Adult entertainment store accessible, but not appropriate for minors	1
Other ineligibility reason(s) *(Describe.)* Itinerant vendors	4		
Total	581	**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:** 2018		
	(1) Attempted Buys	(2) Successful Buys
Male		
15 years	335	9
16 years	342	28
17 years	59	7
18 years		
Male Subtotal	**736**	**44**
Female		
15 years	239	9
16 years	233	25
17 years	1	0
18 years		
Female Subtotal	**473**	**34**
Other		
Total	**1,209**	**78**

APPENDIX B

SYNAR SURVEY SAMPLING METHODOLOGY

APPENDIX B: SYNAR SURVEY SAMPLING METHODOLOGY

State: Pennsylvania
FFY: 2018

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
2 – Local commercial business list
3 – Statewide tobacco license/permit list
4 – Statewide retail license/permit list
5 – Statewide liquor 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.	Existing licenses are annually renewed by January 15th. New licenses can be applied for at any time.

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.)* _____

*If **Yes**, please indicate how likely it is that vending machines will be sampled.*

☐ Vending machines are sampled separately to ensure vending machines are included in the sample
☐ Vending machines are sampled together with over the counter outlets, so it is possible that no vending machines were sampled, however they are included in the sampling frame and have a non-zero probability of selection
☐ Other reasons *(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.)* _____

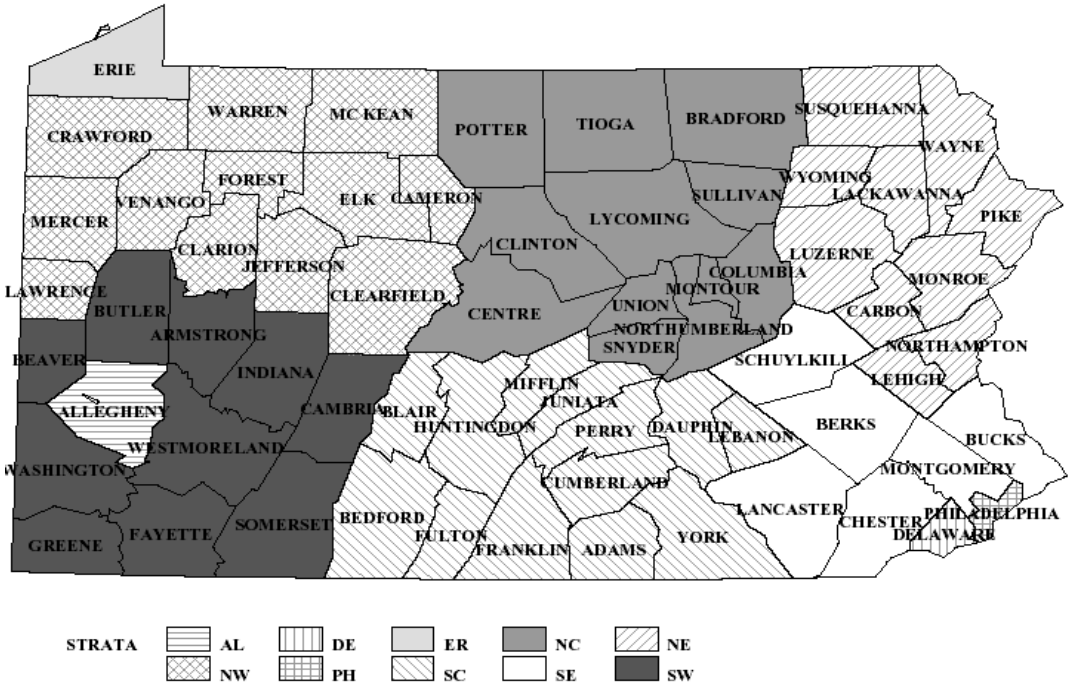
6. Describe the systematic sampling methods. *(After completing Question 6, go to Question 7 if stratification is used. Otherwise go to Question 9.)*

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 geographic areas, while the remaining strata are sign-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) it will be divided into two. 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.

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.

Sampint = Stratsize/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 $\overline{x}$ gives

$$\overline{x} + w \qquad \text{(S1)}$$

Applying the CSAP requirement for w gives

$$w \leq 3 \qquad \text{(S2)}$$

Where w is defined as

$$w = z(s.e.) \qquad \text{(S3)}$$

Substituting S3 into S2

$$z(s.e.) \leq 3 \qquad \text{(S4)}$$

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,

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

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:

$$n_t = \mathrm{Deff}_{\mathrm{h}} \times n_e,$$

$\mathrm{Deff}_{\mathrm{h}}$ 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 2017 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 Variance	Srs 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
2013	0.000133752	0.00012536	0.011565	0.011196	1.07
2014	0.000134009	0.000127929	0.011576	0.011311	1.05
2015	0.000121925	0.000102821	0.011042	0.01014	1.19
2016	0.000107769	0.000083784	0.010381	0.009153	1.29

$$n_t = \mathrm{Deff}_{\mathrm{h}} \times n_e$$

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

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	98.380
2005	67.959	98.742
2006	68.3353	99.404
2007	65.2002	99.568
2008	63.3803	99.829
2009	60.4425	99.643
2010	54.5362	99.721
2011	58.9648	99.638
2012	55.8624	100.000
2013	58.4312	99.726
2014	55.7028	99.065
2015	70.7359	99.758
2016	73.433	99.060

Eligibility Rate: 55%
Completion Rate: 80%

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

$$n_o = \frac{693}{(.55)(.80)} + 47 + 171 = 1793$$

APPENDIX C

SYNAR SURVEY INSPECTION PROTOCOL SUMMARY

APPENDIX C: SYNAR SURVEY INSPECTION PROTOCOL SUMMARY

State: Pennsylvania
FFY: 2018

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): The 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
☐ Electronic Cigarettes/Electronic Nicotine Delivery Systems (ENDS)
☐ 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.

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

Adult supervisors are recruited through RPCs, community-based tobacco coalitions, schools and other community organizations (i.e. scouts, YMCA, YWCA, after school programs).

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

Youth inspectors are recruited throug the TRU (Tobacco Resistance Unit) Coalition, schools, and other community organizations (i.e., scouts, YMCA, YWCA)

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's 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 the Regional Primary Contractors and include role-modeling by youth.

ATTACHMENTS

Attachment 1: Calculation of Weighted Retailer Violation Rate Explanation

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 Attachment 2: Calculation of Weighted Retailer Violation SAS Programming Code.

Program Overview

(1) 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 complete, 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:

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

(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.

Attachment 1: Calculation of Weighted Retailer Violation Rate Explanation

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,

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

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

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

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

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)));
*****************************************
```

Attachment 1: Calculation of Weighted Retailer Violation Rate Explanation

Input and Output files used in the program

(1) SynarXX.rrecode (Input) – Permanent SAS dataset contains one record for every outlet sampled. The dataset is created from the data collected from the survey forms.

(2) WeightsXX.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. (Attachment 3)

(3) SurveyMeansXX.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) ResultTablesXX.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. (Attachment 5)

Permanent SAS datasets created

(1) SynarXX.Rawinput – Permanent SAS dataset created from the 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) SynarXX.Weighted – Permanent SAS dataset containing one record for each eligible outlet. The weights are contained in this dataset.

(3) SynarXX.Stratadat – Permanent SAS dataset containing strata level data. Used for additional analysis including Form1 of the Synar report.

(4) SynarAll.RawXX – Permanent SAS dataset used in trend analysis.

(5) SynarAll.StratXX – Permanent SAS dataset used in trend analysis.

(6) SynarAll.WgtXX – 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. **BuyerAge** – 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. **BuyerSex** - Numeric variable that identifies the sex of the youth surveyor and codes them with a 1 if male and 2 if female.
8. **BuyerHisp** – Numeric variable that identifies if the youth surveyor is of Hispanic origin and codes them with a 1 if yes and 2 if no.
9. **BuyerRace** - Numeric variable that identifies the race of the youth surveyor and codes them with a 1 if white, 2 if black, 3 if Asian and 4 if other.
10. **Adult** – Numeric variable that identifies whether the adult supervisor was in the outlet and codes them with a 1 if yes and 2 if no.
11. **AskAge** – Numeric variable that identifies whether the youth surveyor was asked their age and codes them with a 1 if yes and 2 if no.
12. **AskId** – Numeric variable that identifies if the youth surveyor was asked for identification and codes them with a 1 if yes and 2 if no.
13. **Warn** – Numeric variable that identifies if there were signs indicating selling to youth under the age of 18 is illegal and codes them with a 1 if yes and 2 if no.
14. **Clerksex** – Numeric variable that identifies the sex of the clerk and codes them with a 1 if male and 2 if female.
15. **Verifyloc** – Numeric variable that identifies if the adult supervisor verified the location fields provided on the survey form are accurate and codes them with a 1 if yes and 2 if no.

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: Weight17.SAS                                 |
 |  AUTHOR: Nathanael Tinik                              |
 |   TITLE: Synar 2017 weighting program                 |
 |                                                       |
 | DATASETS(Perm.): Synar17.RAWinput                     |
 |                  Synar17.Weighted                     |
 |                  Synar17.Stratadat                    |
 |                  SynarAll.Raw17                       |
 |                  SynarAll.Strat17                     |
 |                  SynarAll.Wgt17                       |
 |                                                       |
 |   DATASETS(Out): ResultTables17.xls                   |
 |                                                       |
 |     PROC OUTPUT: SurveyMeans17.htm                    |
 |                  Weights17.htm                        |
 |                                                       |
 | FUNCTION: See notes at the bottom of the program      |
 |    NOTES: (See notes at the bottom of the program)    |
 |
        |
 |              *Check "Synar&yr..Rawinput" to make sure it      |
 |               matches the eligible rules decided on.            |
 |              *Update "Given2". Eventually rewrite program    |
 |               to read in strata data from SynarALL          |
 *-------------------------------------------------------*/

*Last 2 digits of current year;
%let yr=17;

Libname Synar&yr.
"\\dhpacwicpapp901\usershare\Shared\StatServe\SASlibs\SYNAR\Synar&yr."
;
Libname SynarALL
"\\dhpacwicpapp901\usershare\Shared\StatServe\SASlibs\SYNAR\SynarALL";
Libname Licen&yr.
"\\dhpacwicpapp901\usershare\Shared\StatServe\SASlibs\SYNAR\Licen&yr."
;

Filename Tables
"\\dhpacwicpapp901\usershare\Shared\StatServe\SYNAR20&yr.\Results\FINA
L-Weighted-Results\Weights&yr..htm";
Filename WTRES
"\\dhpacwicpapp901\usershare\Shared\StatServe\SYNAR20&yr.\Results\FINA
L-Weighted-Results\SurveyMeans&yr..htm";

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

/*rrecode is the raw recode of Survey123 export created in Ck1-
S123_Recode in DataChecks folder. New for 2017, replaces import of
Access database*/
Data Steelers(Drop=Anum);
```

Attachment 2: Calculation of Weighted Retailer Violation SAS Programming Code

```
      Set Synar&yr..rrecode;
      Anum2=Put(Anum,$4.);
Run;

Data Preraw(Drop=Anum2 Snum Stratum2 Clnum2 Outlet);
 Set Steelers;
    Stratum2=Substr(Anum2,1,2);
    Clnum2=Substr(Anum2,3,2);
    Anum3=Anum2+0;
    Snum2=Snum+0;
    Stratum=Stratum2+0;
    Clnum=Clnum2+0;
      Outtemp=Outlet+0;
 Run;

 Data Rawin(Drop=Anum3 Snum2 Non_Completion Warnsign Outtemp);
    Set Preraw;
    Anum=Anum3;
    Snum=Snum2;
    Noncomp=Non_Completion+0;
    Warn=Warnsign;
      Outlet=Outtemp;
 Run;

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

*--------- 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 Adult Askid Askage
Warn
        Clerksex;
    Set Synar&yr..Rawinput;
    Year=20&yr.;
Run;

*------- Cluster Level Totals --------*;
```

Attachment 2: Calculation of Weighted Retailer Violation SAS Programming Code

```
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;

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 2017;
/* ------------------------------------------------------------------
-----------------------*
```

Attachment 2: Calculation of Weighted Retailer Violation SAS Programming Code

```
 *
\\dhpacwicpapp901\usershare\Shared\StatServe\SYNAR20&yr.\SAMPLE\Output
\Prestage1.Htm    *
 *-------------------------------------------------------------------
-----------------------*/

If (Stratum Eq 1) Then Do;                                    /*North
Central*/
            Stsize = 1012;
            Elign = ((Stsize)*((Sampst-Ineligst)/Sampst));
            Elign = Round(Elign,1); End;

If (Stratum Eq 2) Then Do;
/*Northeast*/
            Stsize = 2680;
            Elign = ((Stsize)*((Sampst-Ineligst)/Sampst));
            Elign = Round(Elign,1);  End;

If (Stratum Eq 3) Then Do;
/*Northwest*/
            Stsize = 989;                                    /*(Minus
ER)*/
            Elign = ((Stsize)*((Sampst-Ineligst)/Sampst));
            Elign = Round(Elign,1);  End;

If (Stratum Eq 4) Then Do;                                    /*South
Central*/
            Stsize = 2170;
            Elign = ((Stsize)*((Sampst-Ineligst)/Sampst));
            Elign = Round(Elign,1);  End;

If (Stratum Eq 5) Then Do;
/*Southeast*/
            Stsize = 3384;                                    /*(Minus
DE,PH)*/
            Elign = ((Stsize)*((Sampst-Ineligst)/Sampst));
            Elign = Round(Elign,1);  End;

If (Stratum Eq 6) Then Do;
/*Southwest*/
            Stsize = 2102;                                     /*(Minus
AL)*/
            Elign = ((Stsize)*((Sampst-Ineligst)/Sampst));
            Elign = Round(Elign,1);  End;

If (Stratum Eq 7) Then Do;
/*Allegheny*/
            Stsize = 1748;
            Elign = ((Stsize)*((Sampst-Ineligst)/Sampst));
            Elign = Round(Elign,1);  End;
```

Attachment 2: Calculation of Weighted Retailer Violation SAS Programming Code

```
If (Stratum Eq 8) Then Do;
/*Delaware*/
            Stsize = 751;
            Elign = ((Stsize)*((Sampst-Ineligst)/Sampst));
            Elign = Round(Elign,1);  End;

If (Stratum Eq 9) Then Do;                                  /*Erie*/
            Stsize = 381;
            Elign = ((Stsize)*((Sampst-Ineligst)/Sampst));
            Elign = Round(Elign,1); End;

If (Stratum Eq 10) Then Do;
/*Philadelphia*/
            Stsize = 5001;
            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;
```

Attachment 2: Calculation of Weighted Retailer Violation SAS Programming Code

```
Run;
Proc sort; By Stratum; run;

Data Synar&yr..Stratadat(drop=nclust);
    Attrib Stname 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
            Stname PSUtot PSUsamp PSUfinal);
    Attrib Stname 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;
        Stname="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;
```

Attachment 2: Calculation of Weighted Retailer Violation SAS Programming Code

```
 Output;
Run;

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

Attachment 2: Calculation of Weighted Retailer Violation SAS Programming Code

```
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;

 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 Buyerhisp Buyerrace Adult
Askid
           Askage Warn Clerksex Verifyloc;
    Set Synar&yr..Weighted;
    Year=20&yr.;
Run;

Options Nodate;
Ods Html Body=Wtres;
```

Attachment 2: Calculation of Weighted Retailer Violation SAS Programming Code

```
Proc Surveymeans Data=Synar&yr..Weighted;
 Class Outcome;
 Strata Co_Str;
 Cluster Psu_Id;
 Var Outcome;
 Weight Finalwt;
 Format Stratum Stra2fmt.;
 Title "Final Weighted Results 20&yr.";
 ODS Output Statistics=Xstat
            Summary=Xsum;
Run;

Proc Freq Data=Synar&yr..Weighted;
    Tables Outcome;
    Format Outcome Q1fmt.;
    Title "Unweighted Results";
Run;

Proc Surveymeans Data=Synar&yr..Weighted;
 Domain Stratum;
 Class Outcome;
 Strata Co_Str;
 Cluster Psu_Id;
 Var Outcome;
 Weight Finalwt;
 Format Stratum Stra2fmt.;
 Title "Final Weighted Results 20&yr. (By Stratum)";
 ODS Output Domain=Ystat
            Summary=Ysum;
Run;
Ods Html Close;
Quit;
```

Attachment 3: Weight Check and Weights Table

2017 Synar Weight Check

The MEANS Procedure

Variable	Label	Sum
Checkb	Base Weight Check	13696.00
Checkf	Final Weight Check	13696.00

2017 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	6.8725	8.9872	6	17	13	13	117	701	13696
102	NC	5.3106	8.9872	6	22	13	13	117	701	13696
103	NC	6.8725	7.7889	6	17	15	15	117	701	13696
104	NC	5.3106	8.9872	6	22	13	13	117	701	13696
105	NC	6.8725	8.3452	6	17	14	14	117	701	13696
106	NC	5.3106	8.9872	6	22	13	13	117	701	13696
201	NE	6.0435	10.6923	12	23	13	13	257	1668	13696
202	NE	8.1765	10.6923	12	17	14	13	257	1668	13696
203	NE	8.1765	10.6923	12	17	13	13	257	1668	13696
204	NE	7.3158	10.6923	12	19	13	13	257	1668	13696
205	NE	6.6190	10.6923	12	21	13	13	257	1668	13696
206	NE	7.3158	10.6923	12	19	13	13	257	1668	13696
207	NE	5.3462	9.9286	12	26	14	14	257	1668	13696
208	NE	5.1481	9.9286	12	27	14	14	257	1668	13696
209	NE	5.1481	10.6923	12	27	14	13	257	1668	13696
210	NE	5.7917	10.6923	12	24	13	13	257	1668	13696
211	NE	6.9500	10.6923	12	20	13	13	257	1668	13696
212	NE	8.1765	10.6923	12	17	13	13	257	1668	13696
301	NW	5.5917	8.6026	6	20	13	13	115	671	13696
302	NW	4.8623	8.6026	6	23	13	13	115	671	13696
303	NW	6.5784	8.6026	6	17	13	13	115	671	13696
304	NW	5.8860	8.6026	6	19	13	13	115	671	13696
305	NW	6.2130	8.6026	6	18	13	13	115	671	13696
306	NW	6.2130	8.6026	6	18	13	13	115	671	13696
401	SC	10.2412	13.3923	10	17	13	13	172	1741	13696
402	SC	10.2412	14.5083	10	17	12	12	172	1741	13696
403	SC	10.2412	10.8813	10	17	16	16	172	1741	13696
404	SC	10.2412	12.4357	10	17	14	14	172	1741	13696

Attachment 3: Weight Check and Weights Table

405	SC	10.2412	12.4357	10	17	14	14	172	1741	13696
406	SC	10.2412	13.3923	10	17	13	13	172	1741	13696
407	SC	10.2412	12.4357	10	17	14	14	172	1741	13696
408	SC	9.1632	13.3923	10	19	13	13	172	1741	13696
409	SC	10.2412	11.6067	10	17	15	15	172	1741	13696
410	SC	10.2412	12.4357	10	17	14	14	172	1741	13696
501	SE	7.2270	10.5625	16	19	13	13	325	2197	13696
502	SE	8.0772	10.5625	16	17	14	13	325	2197	13696
503	SE	7.2270	10.5625	16	19	13	13	325	2197	13696
504	SE	7.2270	10.5625	16	19	13	13	325	2197	13696
505	SE	6.2415	10.5625	16	22	13	13	325	2197	13696
506	SE	7.2270	10.5625	16	19	13	13	325	2197	13696
507	SE	6.8656	10.5625	16	20	13	13	325	2197	13696
508	SE	5.7214	10.5625	16	24	13	13	325	2197	13696
509	SE	7.6285	10.5625	16	18	13	13	325	2197	13696
510	SE	5.0856	10.5625	16	27	13	13	325	2197	13696
511	SE	7.6285	10.5625	16	18	13	13	325	2197	13696
512	SE	5.7214	10.5625	16	24	13	13	325	2197	13696
513	SE	8.0772	9.8080	16	17	14	14	325	2197	13696
514	SE	5.2813	10.5625	16	26	13	13	325	2197	13696
515	SE	8.0772	9.8080	16	17	14	14	325	2197	13696
516	SE	7.2270	10.5625	16	19	13	13	325	2197	13696
601	SW	7.8128	10.2168	11	17	13	13	213	1461	13696
602	SW	6.3247	10.2168	11	21	13	13	213	1461	13696
603	SW	5.5341	10.2168	11	24	13	13	213	1461	13696
604	SW	6.6409	10.2168	11	20	13	13	213	1461	13696
605	SW	6.6409	10.2168	11	20	13	13	213	1461	13696
606	SW	6.6409	10.2168	11	20	13	13	213	1461	13696
607	SW	7.8128	7.8128	11	17	17	17	213	1461	13696
608	SW	7.8128	9.4870	11	17	14	14	213	1461	13696
609	SW	5.7747	10.2168	11	23	13	13	213	1461	13696
610	SW	7.8128	10.2168	11	17	13	13	213	1461	13696
611	SW	7.8128	10.2168	11	17	13	13	213	1461	13696
700	AL	9.0000	13.4483	1	130	87	87	130	1170	13696
800	DE	4.6545	6.8267	1	110	75	75	110	512	13696
900	ER	2.4800	3.8154	1	100	65	65	100	248	13696
1000	PH	13.0984	19.6864	1	254	169	169	254	3327	13696

Attachment 4: Survey Means Table

Final Weighted Results 2017

The SURVEYMEANS Procedure

Data Summary	
Number of Strata	10
Number of Clusters	457
Number of Observations	1209
Sum of Weights	13696

Class Level Information		
CLASS Variable	Levels	Values
Outcome	2	1 2

Statistics						
Variable	Level	N	Mean	Std Error of Mean	95% CL for Mean	
Outcome	1	78	0.073025	0.009405	0.05454226	0.09150801
	2	1131	0.926975	0.009405	0.90849199	0.94545774

Unweighted Results

The FREQ Procedure

Outcome	Frequency	Percent	Cumulative Frequency	Cumulative Percent
Sale	78	6.45	78	6.45
Refusal	1131	93.55	1209	100.00

Final Weighted Results 2017 (By Stratum)

The SURVEYMEANS Procedure

Data Summary	
Number of Strata	10
Number of Clusters	457
Number of Observations	1209
Sum of Weights	13696

Attachment 4: Survey Means Table

Class Level Information		
CLASS Variable	Levels	Values
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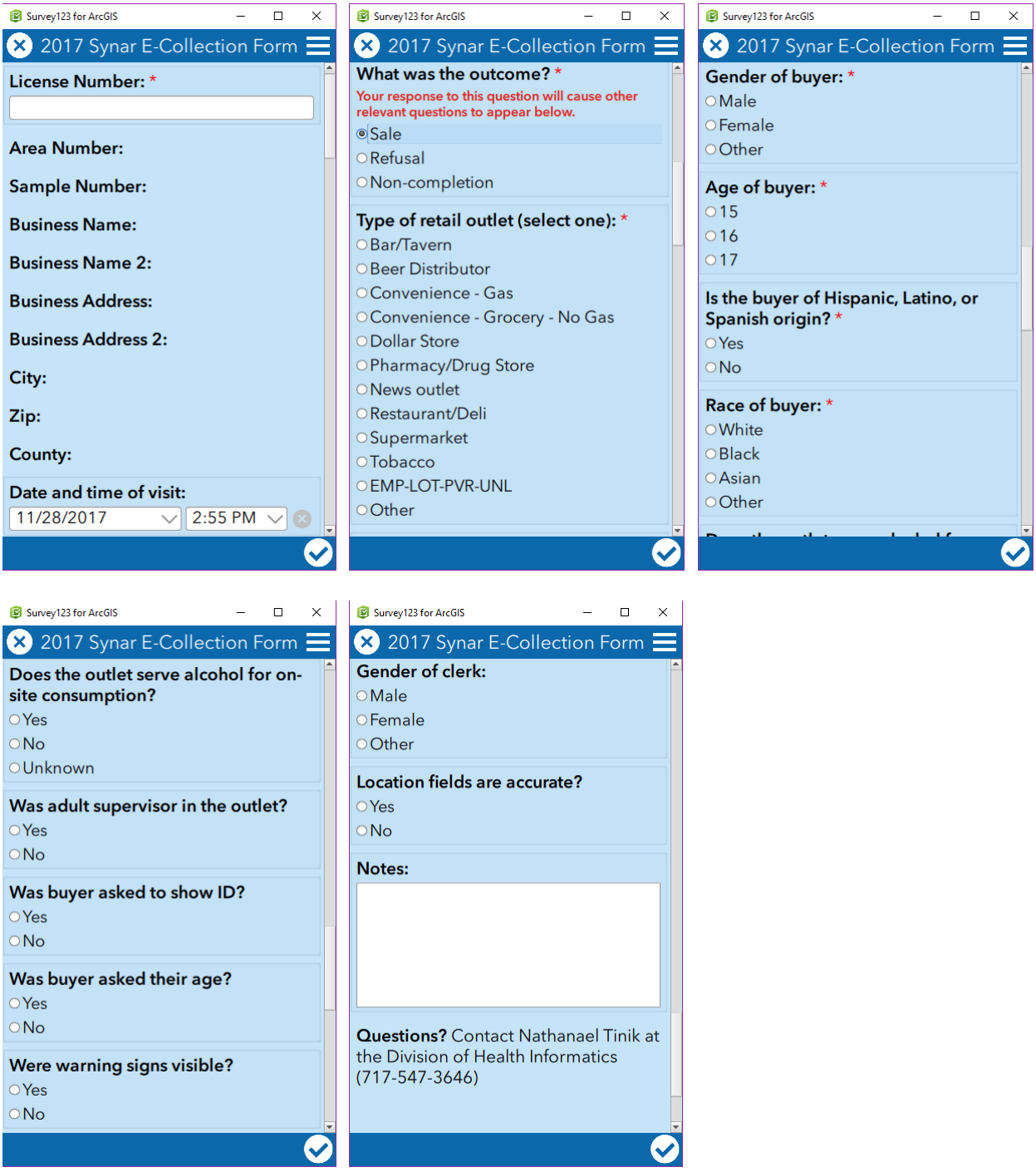
	2	1131	0.926975	0.009405	0.90849199	0.94545774

Final Weighted Results 2017 (By Stratum)

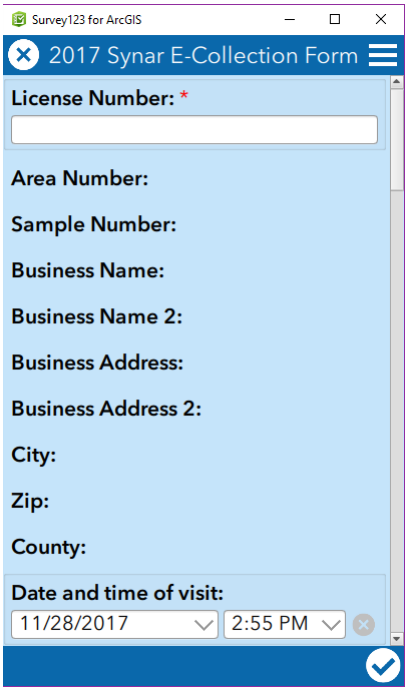
The SURVEYMEANS Procedure

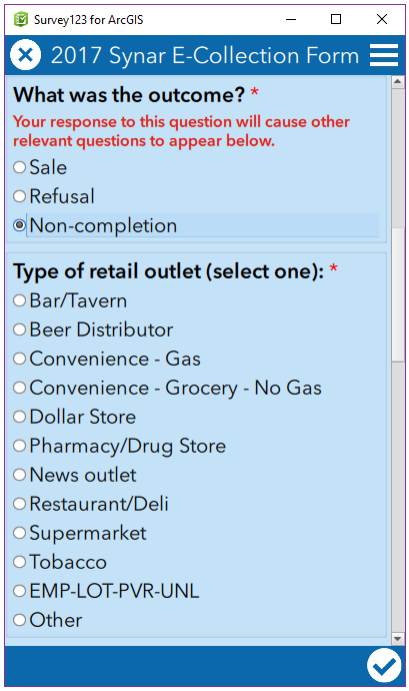
Domain Statistics in Stratum							
Stratum	Variable	Level	N	Mean	Std Error of Mean	95% CL for Mean	
NC	Outcome	1	3	0.038462	0.026274	0.00000000	0.09009790
		2	78	0.961538	0.026274	0.90990210	1.00000000
NE	Outcome	1	7	0.043498	0.014162	0.01566604	0.07133030
		2	151	0.956502	0.014162	0.92866970	0.98433396
NW	Outcome	1	2	0.025641	0.016217	0.00000000	0.05751168
		2	76	0.974359	0.016217	0.94248832	1.00000000
SC	Outcome	1	1	0.007143	0.007143	0.00000000	0.02118061
		2	137	0.992857	0.007143	0.97881939	1.00000000
SE	Outcome	1	5	0.024038	0.015254	0.00000000	0.05401663
		2	205	0.975962	0.015254	0.94598337	1.00000000
SW	Outcome	1	12	0.083916	0.048044	0.00000000	0.17833534
		2	136	0.916084	0.048044	0.82166466	1.00000000
AL	Outcome	1	23	0.264368	0.047554	0.17091099	0.35782464
		2	64	0.735632	0.047554	0.64217536	0.82908901
DE	Outcome	1	7	0.093333	0.033816	0.02687462	0.15979205
		2	68	0.906667	0.033816	0.84020795	0.97312538
ER	Outcome	1	1	0.015385	0.015385	0.00000000	0.04561977
		2	64	0.984615	0.015385	0.95438023	1.00000000
PH	Outcome	1	17	0.100592	0.023206	0.05498482	0.14619861
		2	152	0.899408	0.023206	0.85380139	0.94501518

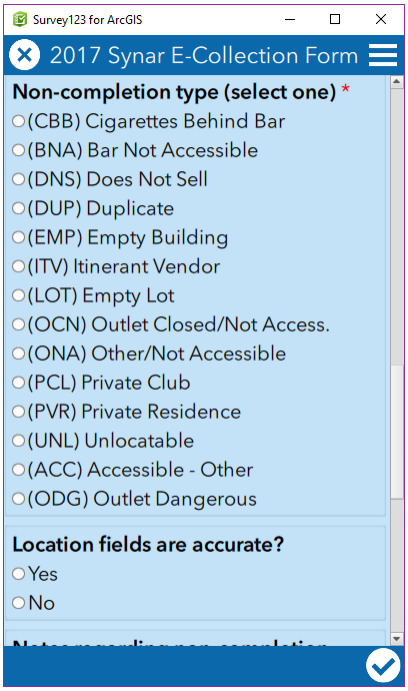
Attachment 5: Synar Inspection Form – Completion Screenshots

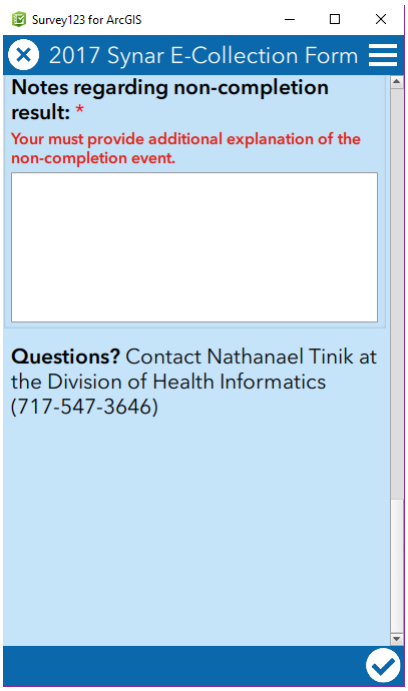


Attachment 5: Synar Inspection Form – Non-completion Screenshots









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.

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

T*enacious.* 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
- ❑ 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:

- 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 of the clerk.
- 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**.

- 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**.

- 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.