Section E: Source of Questions

1. **What is the source of the question(s)? Why are questions from those currently used by the NHIS?**

☒ We developed the question(s) **{skip to Q4}**

☐ The question(s) is/are from an existing instrument or adapted from an existing instrument. Please provide details on the use of the questions by other surveys.

Section F: Performance

If the question(s) was not developed by your program, then answer Q2-3; otherwise, skip to Q4

2. **Please provide the name of the original instrument or source for each question. Please provide links to online sources using the questions if applicable:**

List all federal/state surveys that have used the questions and the dates of use in the table below:

Name of survey(s) (include hyperlink to survey)	Dates the questions were included in the survey	Are the questions proposed the EXACT language of previous use (Y/N)	Provide comment on why wording has changed from use by other surveys (if applicable)

3. **Have these questions been part of a human subjects review determination?**
   Please enter name of state/agency conducting IRB review_____
   Please enter protocol # _____.

4. **Have the question(s) undergone validation testing?**

☐ Yes

☒ No

☐ Yes – but not completed

If yes, please provide evidence of the extent of validity testing by providing the following information for each study conducted:

Citation (if applicable):

5. **Has the reliability of question(s) been tested?**
   - ☐ Yes
   - ☒ No
   - ☐ Yes – but not completed

   If yes, please provide evidence of the extent of reliability testing by providing the following information for each study conducted:

6. **Have the question(s) undergone cognitive testing?**
   - ☒ Yes (skip next question and go to Date of testing Question)
   - ☐ No

Regarding (NO) response:

If no, does program want PHSB to have testing conducted?

☐ Yes (go to Question 8) —be sure to complete Part II: Funding Form to provide CAN number(s) to cover costs of cognitive testing.

☐ No (go to Question 8)

If yes, please describe the study design and results:
Date of testing: January 28, 2026
Study design: Methods in the cognitive testing report attached.
Results: Cognitive testing results in attached report.

7. **Please indicate approximate total time to administer the set of questions in a telephone survey, including instructions.**
   - ☐ <30seconds
   - ☐ 30s-1min
   - ☒ 1-2 min
   - ☐ >2 min
   - ☐ Unknown

8. **Please indicate the average time to administer <u>per question.</u>**
   - ☐ <5 seconds
   - ☐ 5-10 seconds
   - ☒ >10-20 seconds
   - ☐ Unknown

Please provide the methods used to obtain timing data: *Timed conducting interview questions with colleagues.*

9. **Are the question(s) telephone-survey ready?**
   - ☒ Yes
   - ☐ No

Please describe how you determined readiness of the questions. *Readiness was determined based on cognitive testing recommendations and adjustments.*

Section G: Public Health Importance

10. **Please provide a rationale for why the question(s) is/are important to health behavior or chronic disease by addressing the following:**

Prevalence or disease burden:

Medication nonadherence is a significant factor affecting chronic disease management in the United States, with more than 9 million U.S. adults aged 18 to 64 years reporting not filling a prescription in the past year due to cost alone (NCHS Data Brief and JAMA). Chronic conditions that often require long-term pharmacotherapy, such as hypertension, diabetes, and hyperlipidemia, are particularly affected. Only 40–74% of patients treated for hypertension take medications as prescribed (CDC), and approximately 31% of insured U.S. adults with hypertension were considered nonadherent to their antihypertensive medication regiment (AHA Journals). Nonadherence among Medicare beneficiaries is more common in those with low income and those living in the Southern US (CDC). Among adults with hypertension, only about one-fifth have their blood pressure controlled with no significant improvements in recent years

(NCBI), highlighting the need for continued monitoring of factors associated with medication adherence.

Estimated costs to the public and healthcare:

The total costs of medication nonadherence across all chronic conditions are estimated at up to $528 billion per year (Annals of Pharmacotherapy). For hypertension, individuals nonadherent to their medications incur approximately $1,441 more in annual medical costs per person compared to adherent individuals, and experience 200 more emergency department visits and 89.6 more inpatient admissions per 1,000 individuals per year (AHA Journals).

How the topic is related to a state or national initiative (e.g. Healthy People 2030):

The module aligns directly with multiple Healthy People 2030 objectives, including the leading health indicator of HDS-05 (increase the proportion of adults with controlled blood pressure) (Healthy People). There are other Healthy People 2030 objectives that rely on medication adherence to improve goals, such as objectives related to heart disease and stroke, diabetes, mental health and mental disorders, and other chronic conditions requiring medication for management. Evidence-based resources linked to these objectives explicitly include tailored pharmacy-based interventions and mobile health interventions to improve medication adherence, both of which require reliable population-level data on the prevalence and reasons for nonadherence to target appropriately.

The medication adherence module can also directly support the Million Hearts initiative. These initiatives depend on surveillance data that identifies where and why adults are not adhering. These data currently do not exist at the state level.

Besides your program, how will other states, programs or agencies benefit from the inclusion of these question(s) in the BRFSS?

The benefits of this module extend broadly across public health stakeholders. Because the proposed questions broadly ask about prescription medication adherence, the data generated will be directly applicable to other conditions and most useful for describing overall medication nonadherence.

The absence of a single data system providing information on nonadherence across all age groups and health insurance plan types poses a challenge for clinical and public health organizations to effectively allocate resources among populations most at risk (AHA Journals). This module would help address that gap.

Geographic differences in medication nonadherence could inform allocation of specific public health resources needed to improve medication adherence. State-level estimates are essential. For example, the prevalence of hypertension, controlled blood pressure, and the socioeconomic factors driving nonadherence vary substantially across states. County-level hypertension prevalence ranges from 39.5% to 63.1%, with hotspots concentrated in the Southeast United States (AHA Journals).

Section H: Analytic Plan

Please explain why state-level estimates are desired (e.g., impact for your program/agency, local/state/national policy implications, support to research funding.)
State health departments tend to be the primary entities providing hypertension control programs, and they require state-specific data to inform program funding, targeted interventions, and measured outcomes. Without state-level adherence data, programs cannot determine whether the adherence gap in their state is driven primarily by cost barriers, side effects, forgetfulness, or polypharmacy and therefore cannot design appropriately targeted responses.

11. **Please explain why there is a need to measure the question(s) over time and/or the periodicity of the data.**
    Medication adherence behaviors may be sensitive to changes in the healthcare environment including insurance coverage, drug pricing policies, pharmaceutical formulary changes, and the availability of adherence support programs. Measuring these behaviors at a single point in time provides only a cross-sectional snapshot and cannot detect trends or evaluate the impact of policy changes.
    For hypertension specifically, the medication and guidelines landscape is evolving (AHA). Additionally, national initiatives like Million Hearts® and Healthy People 2030 require ongoing surveillance data to assess whether adherence is improving toward stated targets. No significant change was seen in awareness, treatment, or control of hypertension among adults with hypertension between 2017–2020 and 2021–2023 (NCBI) underscoring the need for persistent monitoring.

12. **Please describe how calculated variable(s) will be constructed from the question(s)**
    a. Using Non-Fill Frequency (from Q1): This variable will be considered binary and ordinally. A binary calculated variable can be created to classify respondents as exhibiting medication nonadherence at the moment of prescription filling (non-filling [sometimes or always vs never or rarely]). This variable may also be retained in its ordinal form (a 4-level frequency variable [always, sometimes, rarely, never]) for trend analyses.
    b. Intentional and Nonintentional Nonadherence Frequency (from Q2 and Q3): Constructed identically to Variable 1. Respondents reporting "sometimes" or "always" for forgetting or choosing to skip can be classified as “dose non-adherent." A composite medication nonadherence variable may also be constructed by combining 1-3.
    c. Barrier Profile (from Q4): Variable will remain in a categorical format

13. **Please describe how the variable(s) will be used in analyses (e.g., outcome, predictor, etc.).**
    In descriptive analyses, Variables 1 and 2-3 can be used as the primary outcomes of interest, estimating the prevalence of non-filling and dose nonadherence overall and by demographic and socioeconomic subgroups (age, sex, race/ethnicity, income, insurance status, education, and state). Variable 4 barriers can be used as the outcome in analyses examining which adult characteristics are correlated with specific barrier types (e.g., who

is most likely to report cost as a barrier) and used to identify leading reasons for nonadherence by looking at distributions across characteristics.
Variables 1 and 2-3 can serve as proxies for downstream outcomes of factors related to healthcare access or other socioeconomic characteristics already captured in the BRFSS core.

14. Based on your questions of interest and anticipated effect size, please provide an estimate for required sample size and the rationale/calculations used to determine the size.

Rationale/calculations:

Sample size requirements were calculated using Cochran's formula for proportions in large populations: $n = z^2\, p(1-p) / E^2$, *where:*

n = Required sample size
z = Standard normal deviate corresponding to a 95% C.I. ($z = 1.96$)
p = Anticipated population prevalence of medication nonadherence
E = Acceptable margin of error (±5% or 0.05)

The table below outlines the required sample sizes across the full spectrum of anticipated prevalence rates:

Anticipated Nonadherence Prevalence (*p, %*)	**Complementary Proportion (*1−p,%*)**	**Required Sample Size (*n*)**
50	50	385
60 (or 40)	40 (or 60)	369
70 (or 30)	30 (or 70)	323
80 (or 20)	20 (or 80)	246
90 (or 10)	10 (or 90)	139