

Using Online Survey Panels to Evaluate Response Error in Health Insurance Questions

Bridget M. Reynolds, PhD

Paul Scanlon, PhD

National Center for Health Statistics

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Health Insurance Question Evaluation

- **Health insurance in the United States is complicated**
- **Many experience uncertainty and confusion when asked about their health care plans**
- **Important to evaluate the potential for response error**
 - Traditionally done primarily through cognitive interviews
 - Reporting problems are consistently uncovered

The “Laundry List” Question

- A single question used to identify coverage type

NHIS “Laundry List” Question:

Do you have any of the following kinds of health insurance or health care coverage? Include those plans that pay for only one type of service, such as nursing home care, accidents, or dental care. Exclude private plans that only provide extra cash while hospitalized.

| | |
|-----|---|
| 1. | Private Health Insurance |
| 2. | Medicare |
| 3. | Medi-Gap |
| 4. | Medicaid |
| 5. | SCHIP (CHIP/Children's Health Insurance Program) |
| 6. | Military health care (TRICARE/VA/CHAMP-VA) |
| 7. | Indian Health Service |
| 8. | State-sponsored health plan |
| 9. | Other government program |
| 10. | Single service plan (e.g., dental, vision, prescriptions) |

Errors Identified in Cognitive Interviews

- **Answer categories don't always match up with respondents' understanding of their coverage**
 - Where and how coverage was obtained is more salient than terms used in answer categories (e.g., "Private Health Coverage")
 - Answer categories aren't mutually exclusive
- **Misreporting of public health insurance as private**
 - Managed care or "brand name" plan
- **Mixing up Medicaid and Medicare**

Using Embedded Web Probes in Question Evaluation

- **Cognitive Interviewing:**
 - Purposive sample
 - Uncovers rich information about response error
 - Cannot tell us about distribution of error patterns outside the immediate sample

- **RANDS Mixed Method Approach:**
 - Develop close-ended probe questions
 - Embed in web survey directly after the question under evaluation

Using Embedded Web Probes in Question Evaluation

NHIS Question under Evaluation

Do you have any of the following kinds of health insurance or health care coverage? ...

1. Private Health Insurance
2. Medicare
3. Medi-Gap
4. Medicaid
5. SCHIP (CHIP/Children's Health Insurance Program)
6. Military health care (TRICARE/VA/CHAMP-VA)
7. Indian Health Service
8. State-sponsored health plan
9. Other government program
10. Single service plan (e.g., dental, vision, prescriptions)

Embedded Probe Question

Which of the following describes how you got your health insurance? (*Select all that apply.*)

1. Through an employer (other than a government employer)
2. Through a government employer
3. Through one of my parent's or guardian's employers
4. It's given to all people older than 65
5. It's provided by the government to people who have difficulty affording health insurance
6. Through healthcare.gov or one of the state health insurance marketplaces

NCHS Research and Development Survey (RANDS)

- Two rounds of data collection using the Gallup Panel

Round 1



Only National Health Interview Survey (NHIS) questions



Fielded in Fall 2015

#

N = 2304

Round 2



NHIS and Embedded Probe Questions



Fielded in Winter 2016

#

N = 2480

Gallup Auxiliary Health Insurance Data

Gallup Health Insurance Question

Are you currently covered by any of the following health insurance plans, or not?

- | | |
|----|---|
| 1. | An insurance plan through an employer or union |
| 2. | Medicare, or health insurance for seniors and those with disabilities |
| 3. | Medicaid, or state-provided health insurance for needy families |
| 4. | Military or veterans coverage |
| 5. | Other insurance that you or your family pays for completely |

Gallup Auxiliary Health Insurance Data

NHIS Question under Evaluation

Do you have any of the following kinds of health insurance or health care coverage? ...

- | | |
|----|---|
| 1. | Private Health Insurance |
| 2. | Medicare |
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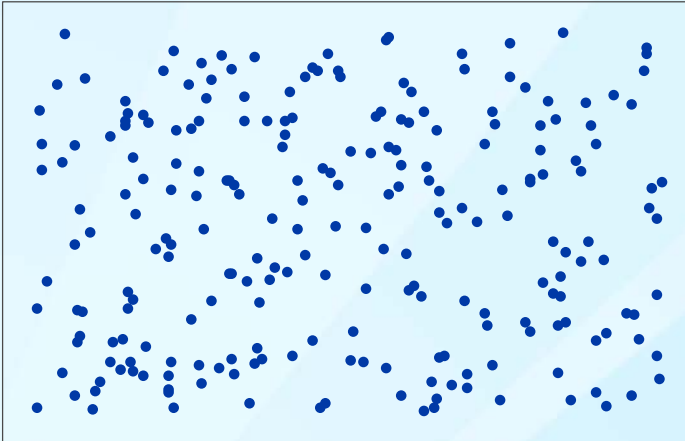
Gallup Health Insurance Question

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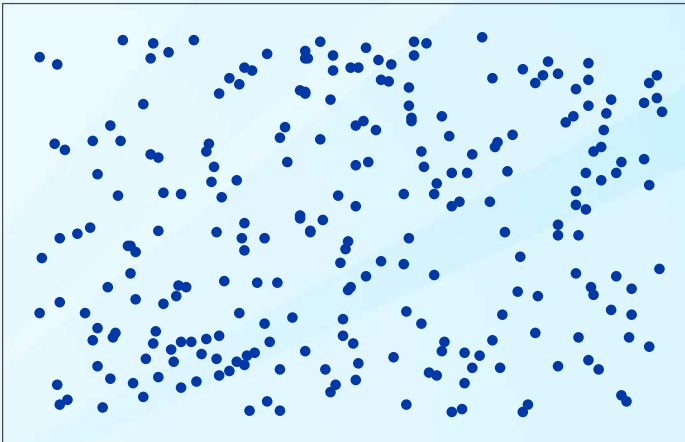
RANDS Sample

Round 1



$N = 2304$

Round 2



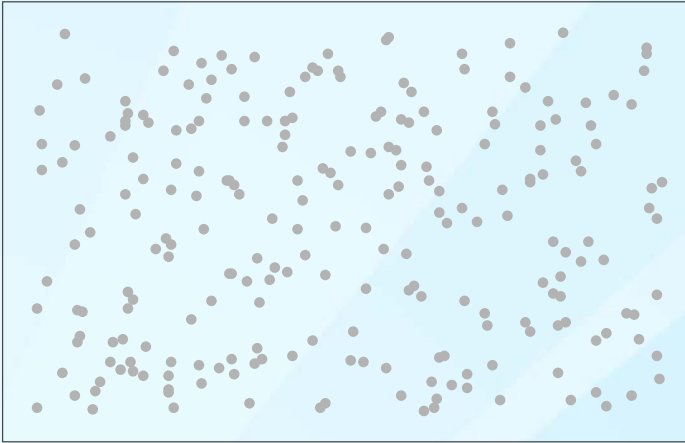
$N = 2480$

Each dot = 10 respondents

Analysis Sample

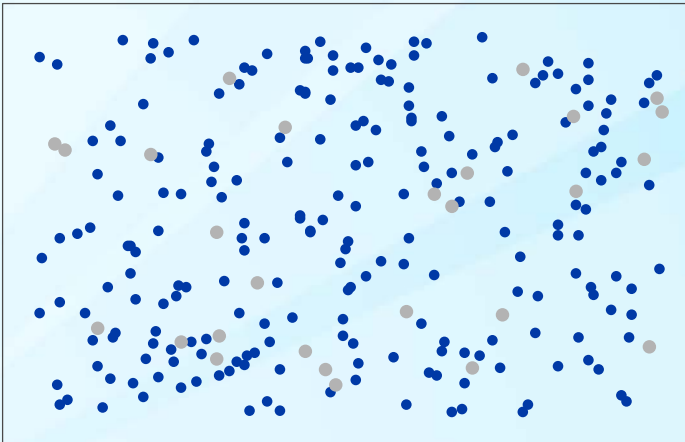
RANDS Embedded Probe Question

Round 1



N = 0

Round 2



N = 2334

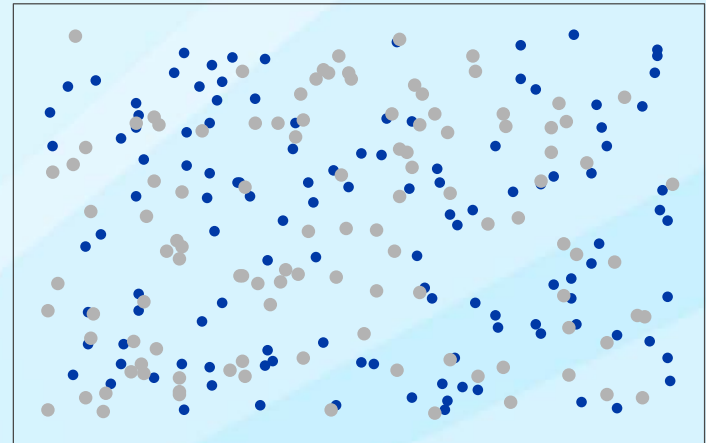
Each dot = 10 respondents

Analysis Sample

Gallup Auxiliary Health Data

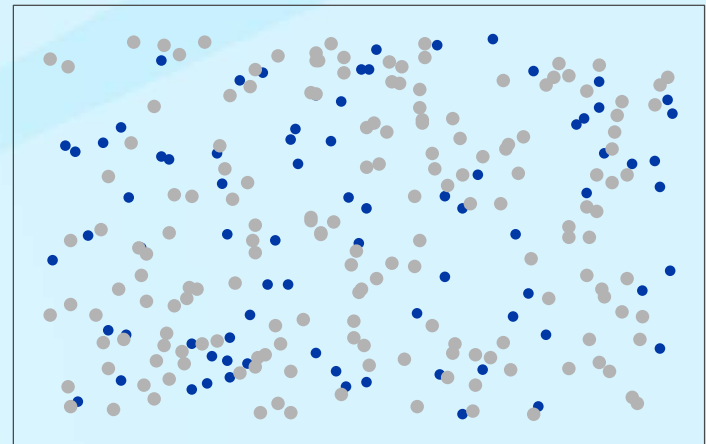
Round 1

N = 1203 (52%)



Round 2

N = 783 (32%)



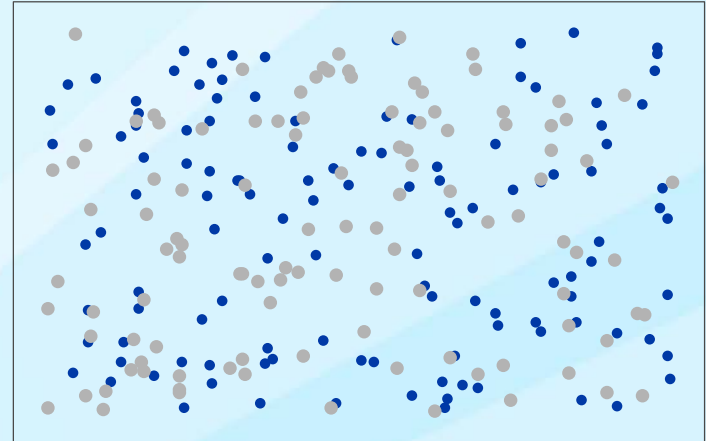
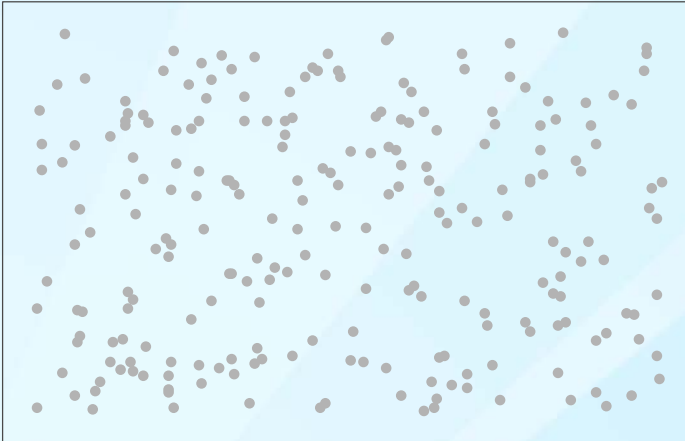
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Analysis Sample

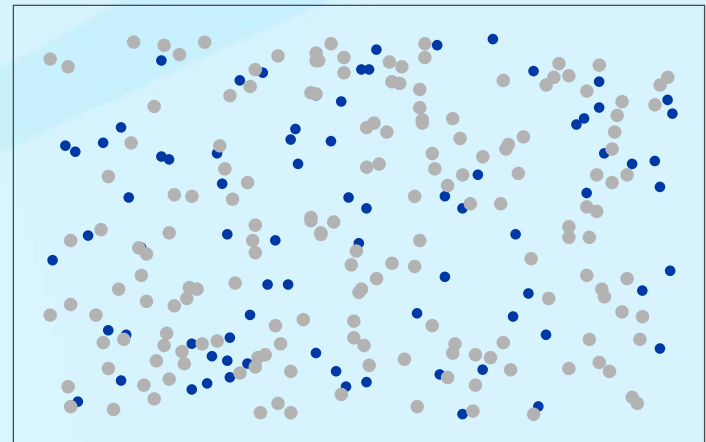
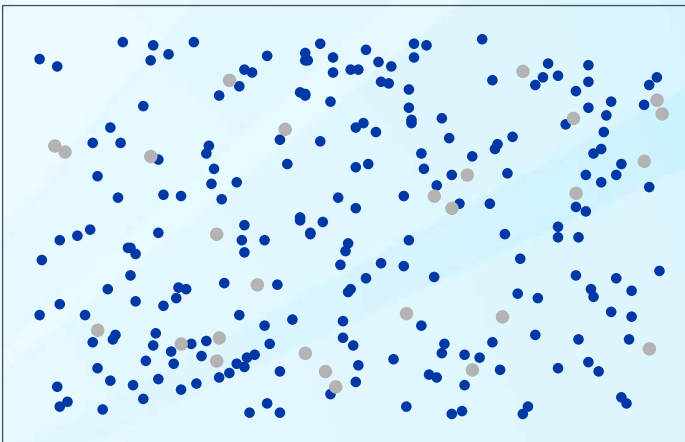
RANDS Embedded Probe Question

Gallup Auxiliary Health Data

Round 1



Round 2



Each dot = 10 respondents

Analyses

- **Evaluate potential response error for the NHIS “laundry list” health insurance question**
- **Verify accuracy using responses from**
 - Embedded probe question
 - Gallup auxiliary health insurance data
- **Examine whether respondents’ confidence in their answers differs by the accuracy of answers**

PRIVATE HEALTH INSURANCE

1. Accuracy verified by the embedded probe question

Accurate Private Health Insurance Answer, as verified by the embedded probe question

Do you have any of the following kinds of health insurance or health care coverage? ...

1. Private Health Insurance
2. Medicare
3. Medi-Gap
4. Medicaid
5. SCHIP (CHIP/Children's Health Insurance Program)
6. Military health care (TRICARE/VA/CHAMP-VA)
7. Indian Health Service
8. State-sponsored health plan
9. Other government program
10. Single service plan (e.g., dental, vision, prescriptions)

Which of the following describes how you got your health insurance?
(Please select all that apply.)

1. Through an employer (other than a government employer)
2. Through a government employer
3. Through one of my parent's or guardian's employers
4. It's given to all people older than 65
5. It's provided by the government to people who have difficulty affording health insurance
6. Through healthcare.gov or one of the state health insurance marketplaces



Suggests Accurate "Private Health Insurance" Answer

Inaccurate Private Health Insurance Answer, as verified by the embedded probe question

Do you have any of the following kinds of health insurance or health care coverage? ...

1. Private Health Insurance
2. Medicare
3. Medi-Gap
4. Medicaid
5. SCHIP (CHIP/Children's Health Insurance Program)
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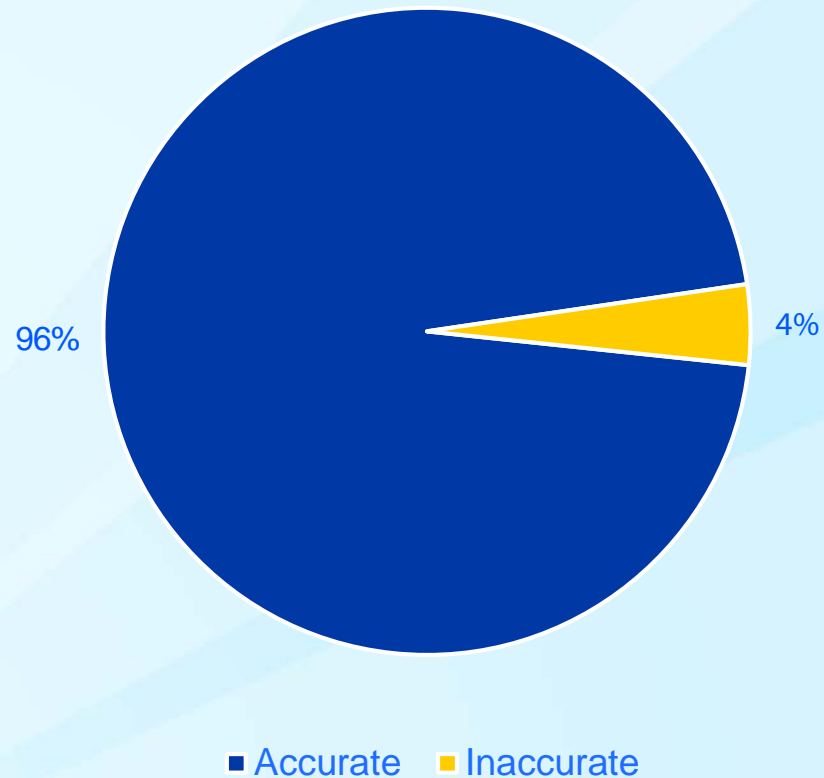
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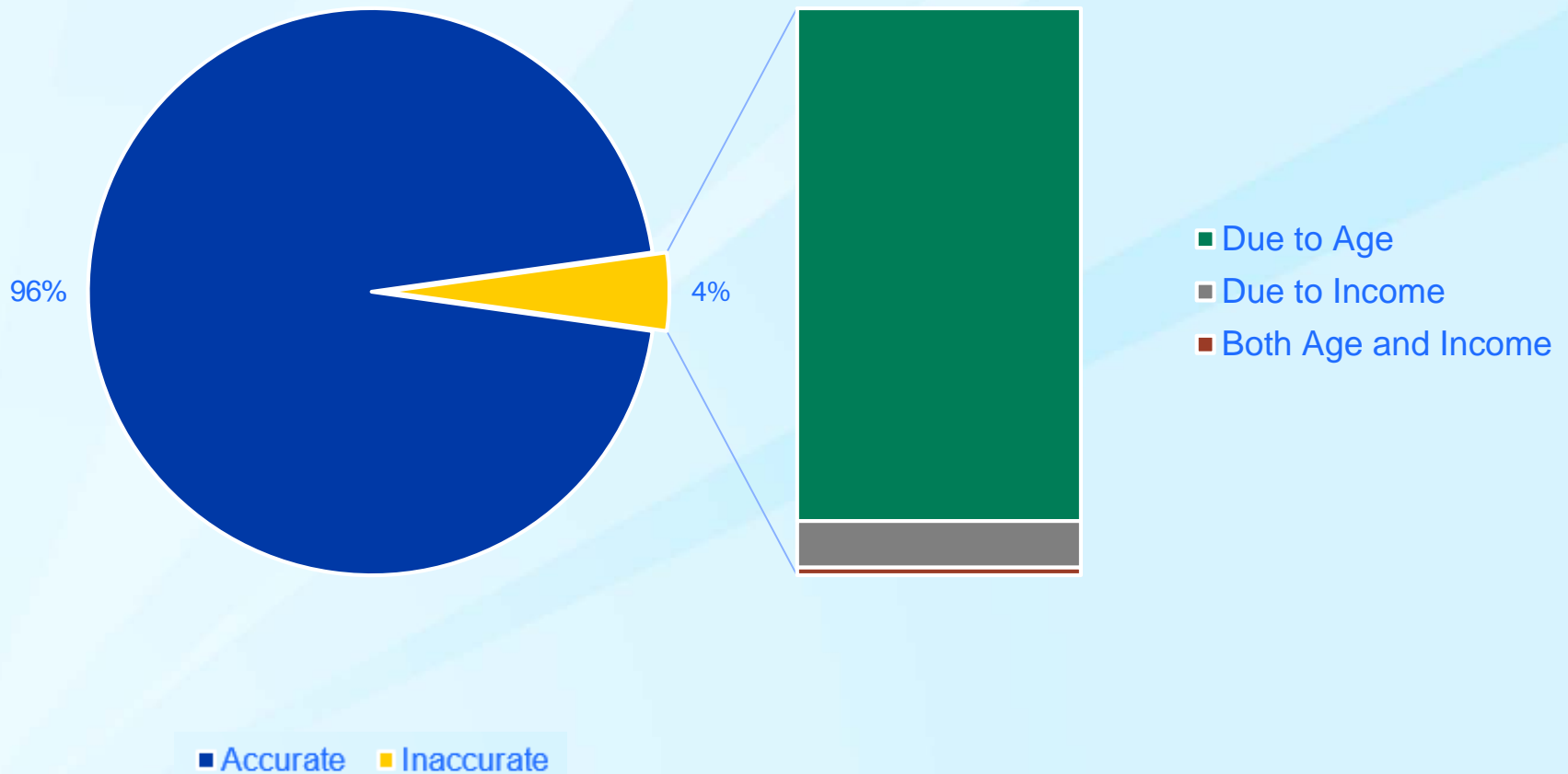


Suggests **Inaccurate** "Private Health Insurance" Answer

Private Health Insurance Response Accuracy, as verified by the embedded probe question



Probe Answers associated with Inaccurate Private Health Insurance Responses



PRIVATE HEALTH INSURANCE

1. Accuracy verified by the embedded probe question
- 2. Accuracy verified by Gallup auxiliary health insurance data**

Accurate Private Health Insurance Answer, as verified by Gallup Auxiliary Health Insurance Data

Do you have any of the following kinds of health insurance or health care coverage? ...

1. Private Health Insurance
2. Medicare
3. Medi-Gap
4. Medicaid
5. SCHIP (CHIP/Children's Health Insurance Program)
6. Military health care (TRICARE/VA/CHAMP-VA)
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Are you currently covered by any of the following health insurance plans, or not?

1. An insurance plan through an employer or union
2. Medicare, or health insurance for seniors and those with disabilities
3. Medicaid, or state-provided health insurance for needy families
4. Military or veterans coverage
5. Other insurance that you or your family pays for completely



Suggests **Accurate** "Private Health Insurance" Answer

Inaccurate Private Health Insurance Answer, as verified by Gallup Auxiliary Health Insurance Data

Do you have any of the following kinds of health insurance or health care coverage? ...

1. Private Health Insurance
2. Medicare
3. Medi-Gap
4. Medicaid
5. SCHIP (CHIP/Children's Health Insurance Program)
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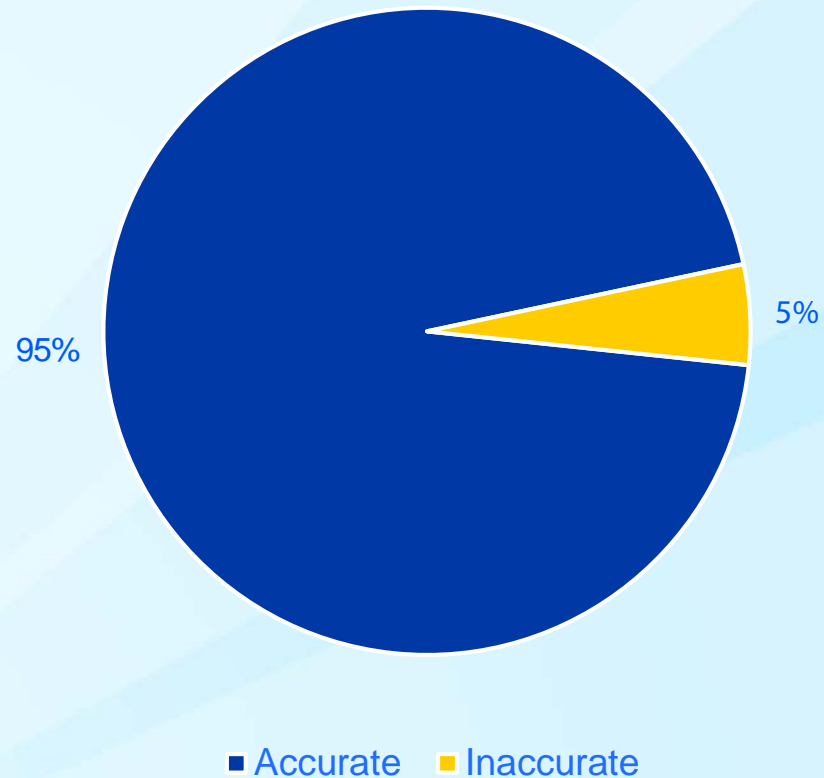
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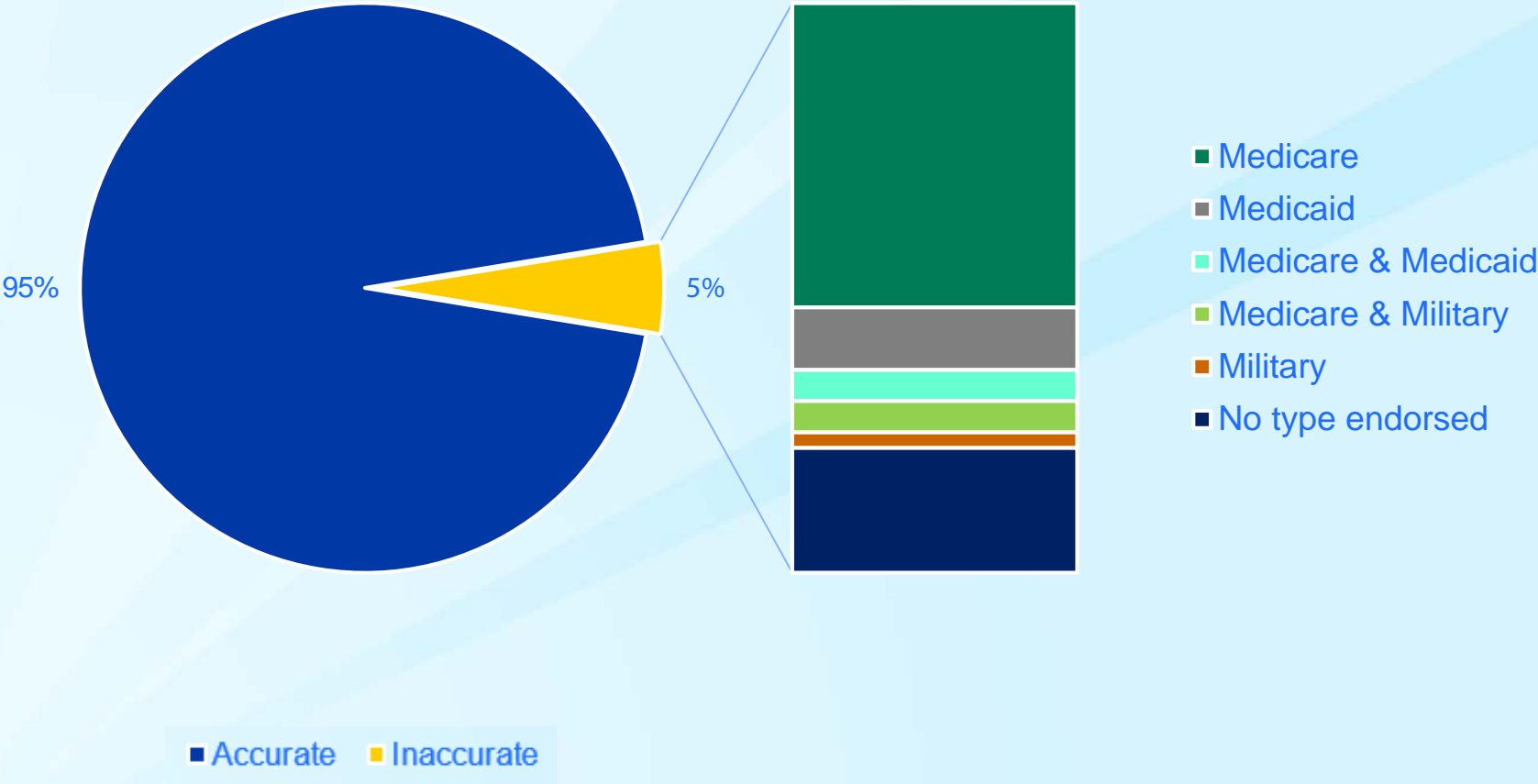


Suggests **Inaccurate** "Private Health Insurance" Answer

Private Health Insurance Response Accuracy, as verified by Gallup auxiliary data



Gallup Auxiliary Health Insurance Answers associated with Inaccurate Private Health Insurance Responses



PRIVATE HEALTH INSURANCE

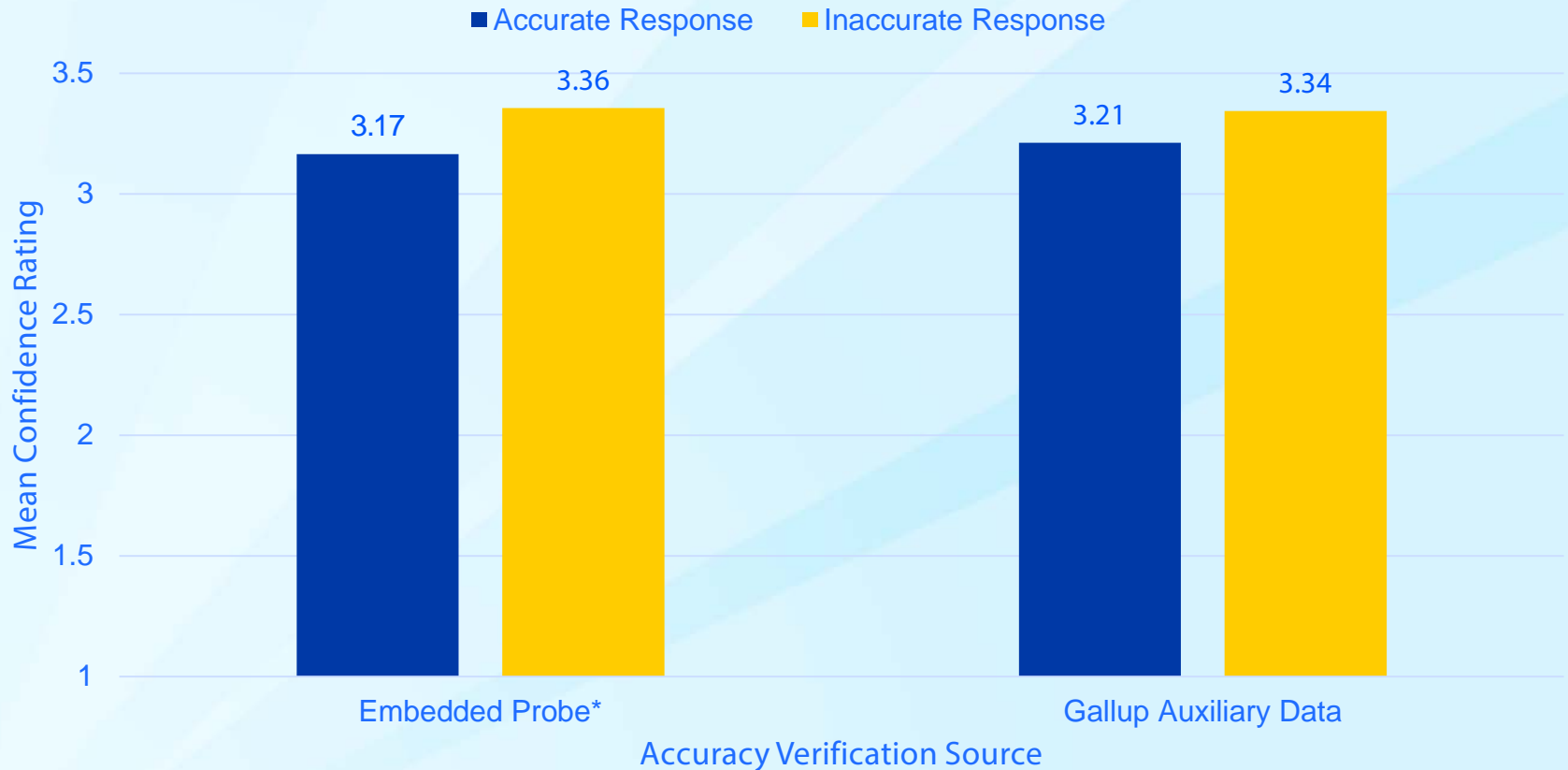
1. Accuracy verified by the embedded probe question
2. Accuracy verified by Gallup auxiliary health insurance data
- 3. Confidence in ability to answer correctly**

Confidence in Ability to Answer Correctly

- **How confident are you that you were able to correctly answer the health insurance questions?**
 1. Not at all confident
 2. A little confident
 3. Somewhat confident
 4. Very confident

- Round 2 respondents only

Confidence Ratings by Accuracy of “Private Health Insurance” Response



*Significant difference between accurate and inaccurate ($p < 0.05$)

Summary of Private Health Insurance Findings

- Out of those selecting “Private Health Insurance” on the NHIS laundry list question, 4 – 5% may be inaccurate
- Most who inaccurately selected “Private Health Insurance” chose answers consistent with Medicare or Medicaid on the embedded probe and Gallup verification questions
- Supports cognitive interview findings of misreporting public health insurance as private
- Those identified as having inaccurate responses tended to have slightly more confidence in their answers

MEDICARE

1. Accuracy verified by the embedded probe question

Accurate Medicare Answer, as verified by the embedded probe question

Do you have any of the following kinds of health insurance or health care coverage? ...

1. Private Health Insurance
2. Medicare
3. Medi-Gap
4. Medicaid
5. SCHIP (CHIP/Children's Health Insurance Program)
6. Military health care (TRICARE/VA/CHAMP-VA)
7. Indian Health Service
8. State-sponsored health plan
9. Other government program
10. Single service plan (e.g., dental, vision, prescriptions)

Which of the following describes how you got your health insurance?
(Please select all that apply.)

1. Through an employer (other than a government employer)
2. Through a government employer
3. Through one of my parent's or guardian's employers
4. It's given to all people older than 65
5. It's provided by the government to people who have difficulty affording health insurance
6. Through healthcare.gov or one of the state health insurance marketplaces



Suggests **Accurate** "Medicare" Answer

Inaccurate Medicare Answer, as verified by the embedded probe question

Do you have any of the following kinds of health insurance or health care coverage? ...

1. Private Health Insurance
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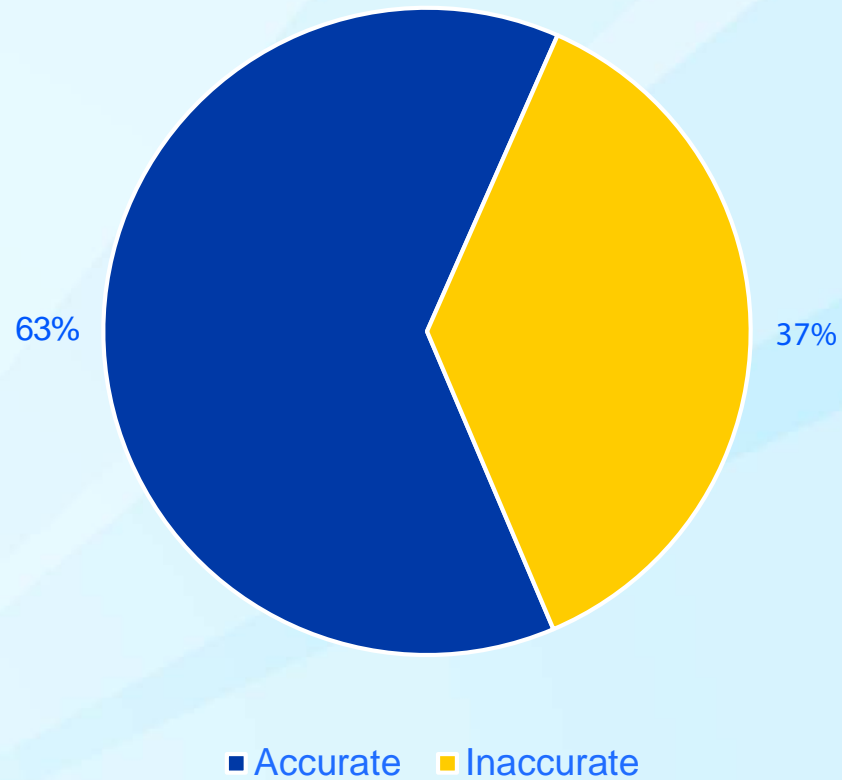
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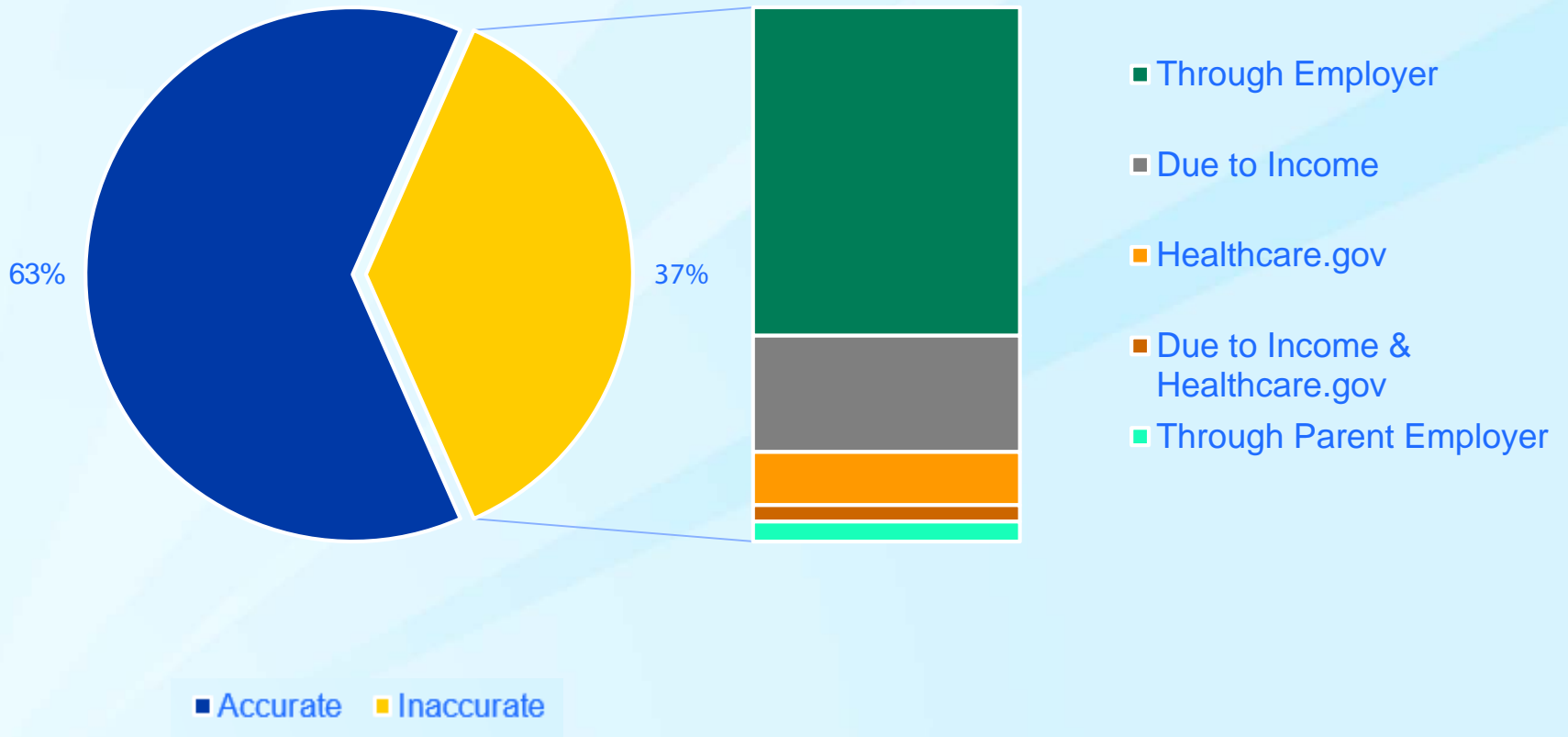


Suggests **Inaccurate** "Medicare" Answer

Medicare Response Accuracy, as verified by the embedded probe question



Probe Answers associated with Inaccurate Medicare Responses



MEDICARE

1. Accuracy verified by the embedded probe question
- 2. Accuracy verified by Gallup auxiliary health insurance data**

Accurate Medicare Answer, as verified by Gallup Auxiliary Health Insurance Data

Do you have any of the following kinds of health insurance or health care coverage? ...

1. Private Health Insurance
2. Medicare
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4. Medicaid
5. SCHIP (CHIP/Children's Health Insurance Program)
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Are you currently covered by any of the following health insurance plans, or not?

1. An insurance plan through an employer or union
2. Medicare, or health insurance for seniors and those with disabilities
3. Medicaid, or state-provided health insurance for needy families
4. Military or veterans coverage
5. Other insurance that you or your family pays for completely



Suggests Accurate "Medicare" Answer

Inaccurate Medicare Answer, as verified by Gallup Auxiliary Health Insurance Data

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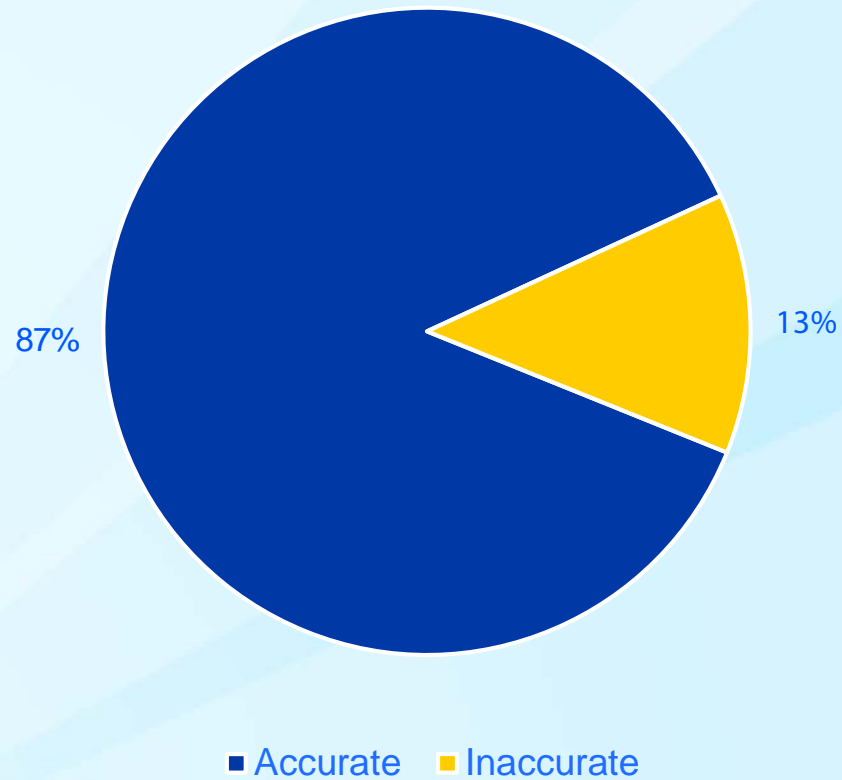
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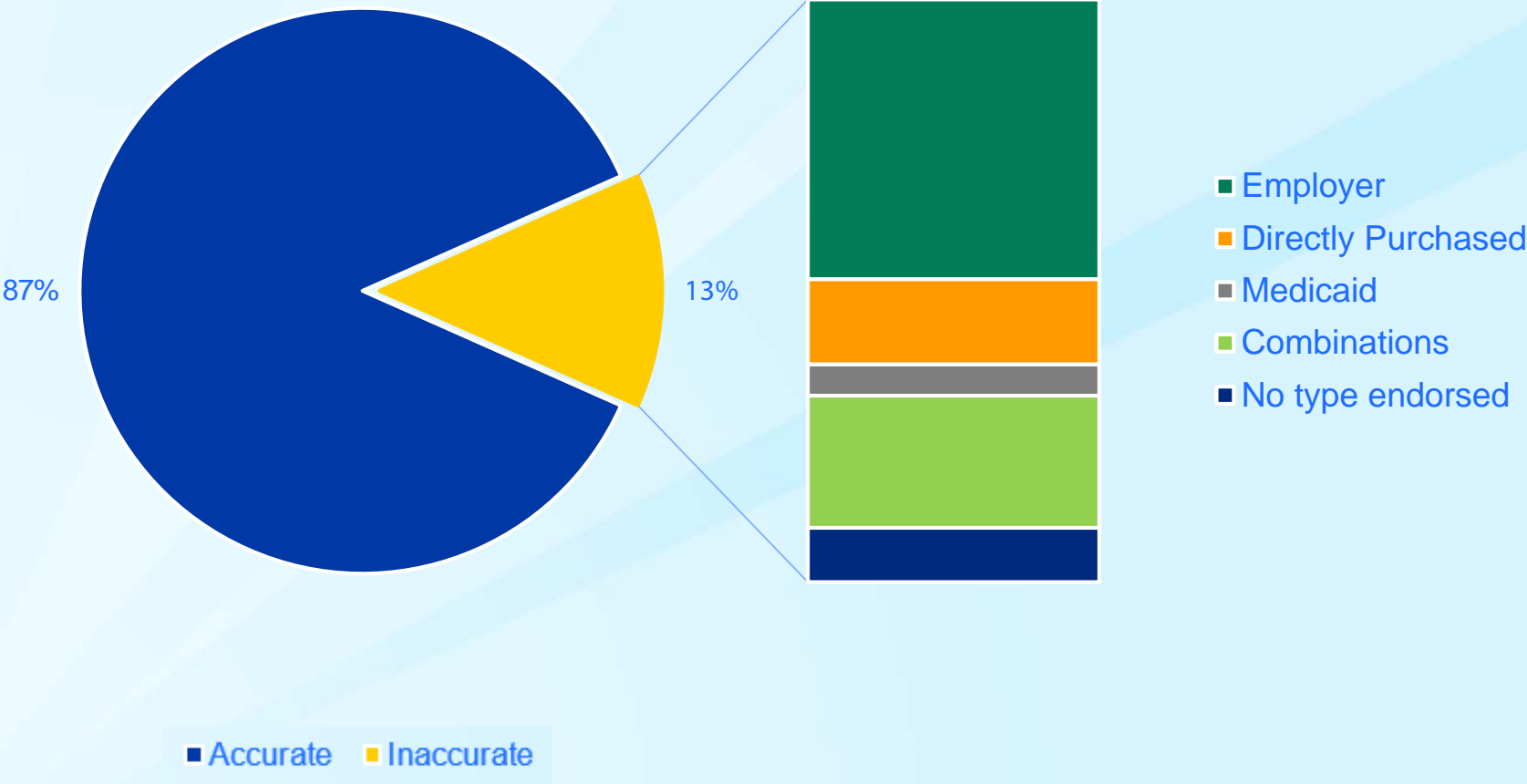


Suggests **Inaccurate** "Medicare"
Answer

Medicare Response Accuracy, as verified by Gallup auxiliary data



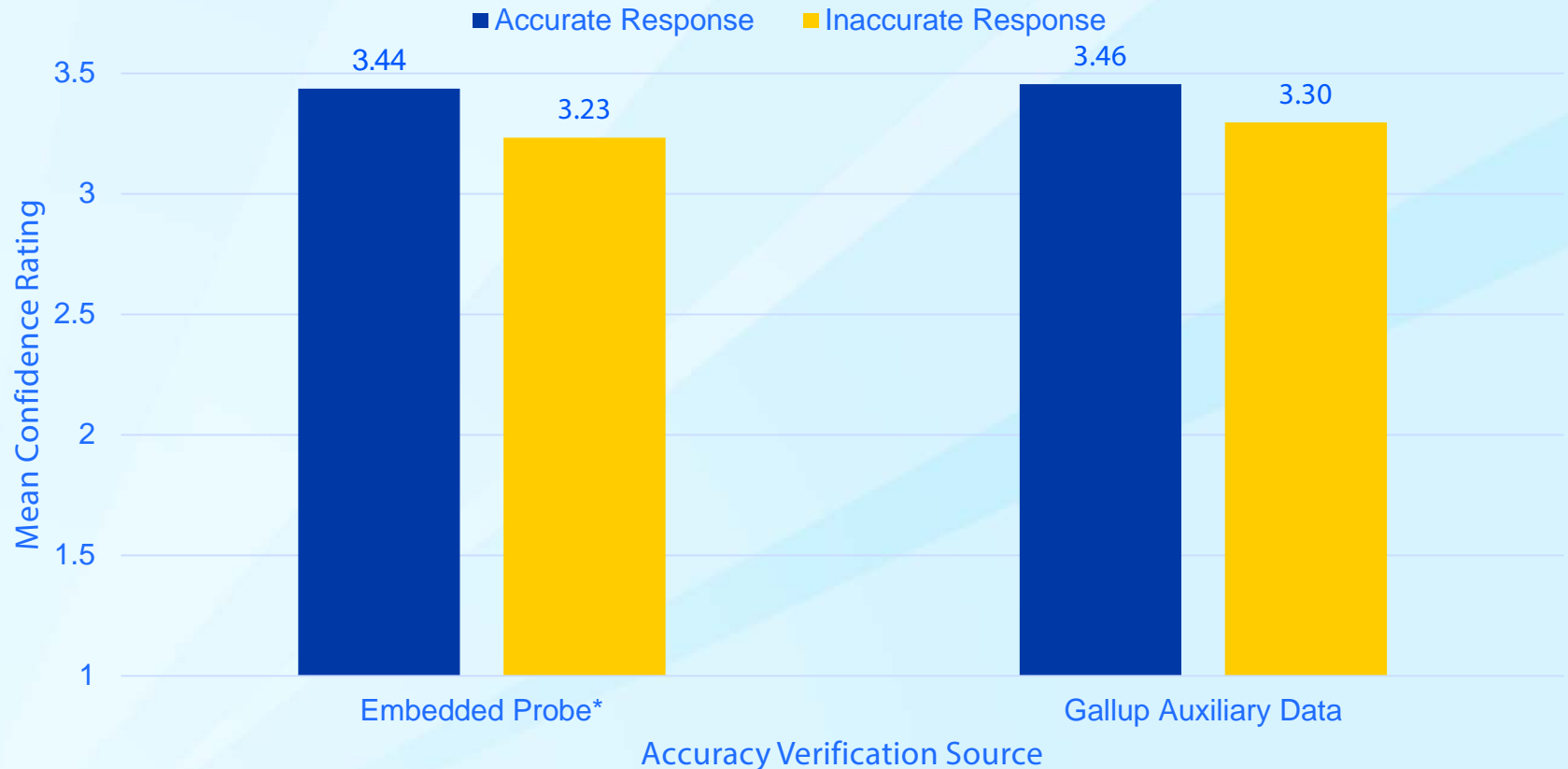
Gallup Auxiliary Health Insurance Answers associated with Inaccurate Medicare Responses



MEDICARE

1. Accuracy verified by the embedded probe question
2. Accuracy verified by Gallup auxiliary health insurance data
- 3. Confidence in ability to answer correctly**

Confidence in Health Insurance Answers by Accuracy of “Medicare” Response



*Significant difference between accurate and inaccurate ($p < 0.01$)

How confident are you that you were able to correctly answer the health insurance questions? 1=not at all, 2=a little, 3=somewhat, 4=very

Summary of Medicare Findings

- **Medicare responses tended to have more error, or inconsistencies between the different questions, as compared to Private Health Insurance**
- **Combinations of answers to the different questions suggest that some respondents:**
 - Think of Medicare coverage as provided through one's employer, or through employment history
 - Mix up "Medicare" and "Medicaid"
- **Those identified as having inaccurate Medicare responses tended to have slightly less confidence in their answers**

MEDICAID

1. Accuracy verified by the embedded probe question

Accurate of Medicaid Answer, as verified by the embedded probe question

Do you have any of the following kinds of health insurance or health care coverage? ...

1. Private Health Insurance
2. Medicare
3. Medi-Gap
4. Medicaid
5. SCHIP (CHIP/Children's Health Insurance Program)
6. Military health care (TRICARE/VA/CHAMP-VA)
7. Indian Health Service
8. State-sponsored health plan
9. Other government program
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Which of the following describes how you got your health insurance?
(Please select all that apply.)

1. Through an employer (other than a government employer)
2. Through a government employer
3. Through one of my parent's or guardian's employers
4. It's given to all people older than 65
5. It's provided by the government to people who have difficulty affording health insurance
6. Through healthcare.gov or one of the state health insurance marketplaces



Suggests Accurate "Medicaid" Answer

Inaccurate Medicaid Answer, as verified by the embedded probe question

Do you have any of the following kinds of health insurance or health care coverage? ...

1. Private Health Insurance
2. Medicare
3. Medi-Gap
4. Medicaid
5. SCHIP (CHIP/Children's Health Insurance Program)
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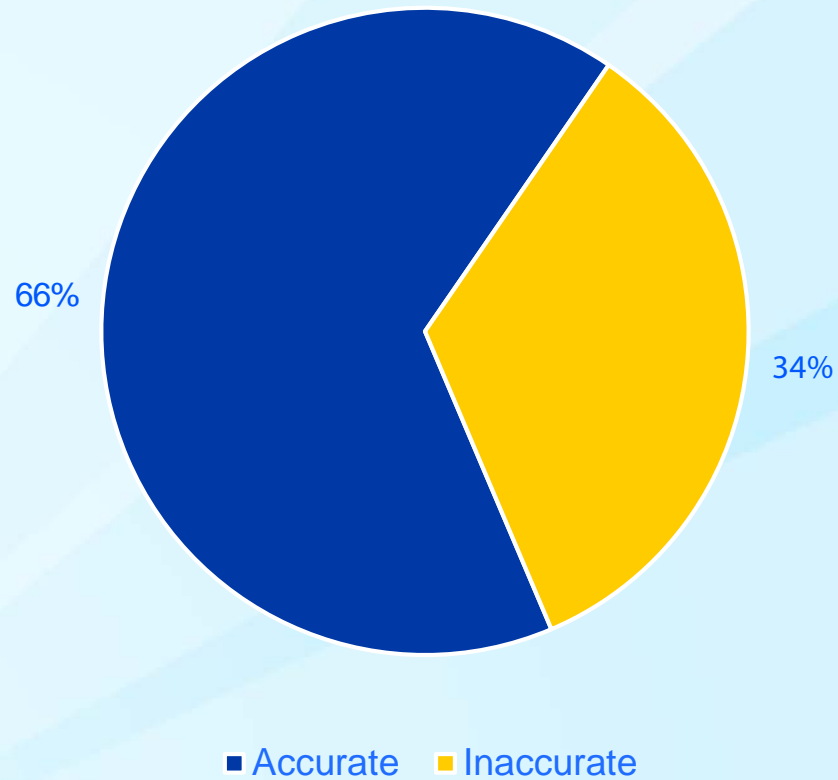
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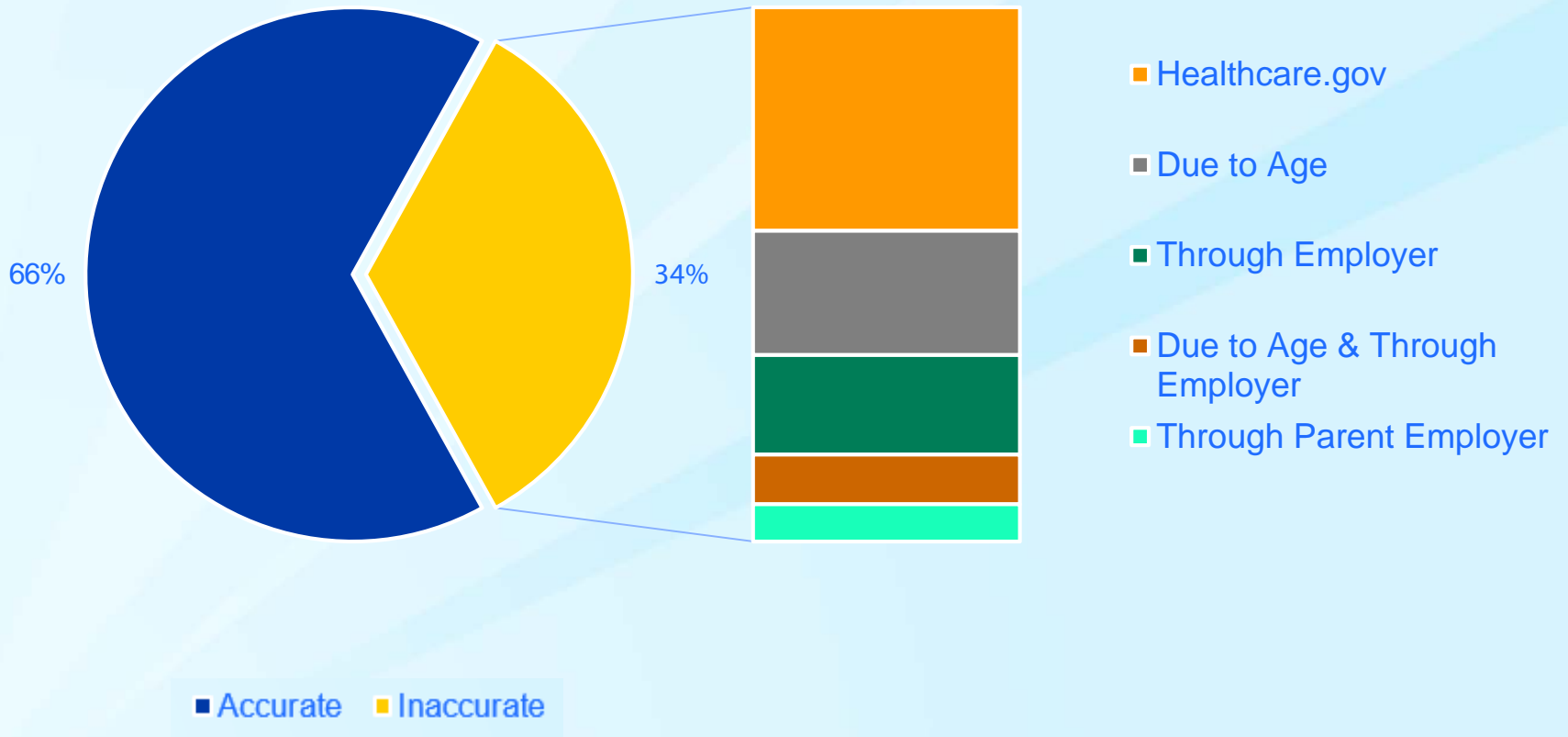


Suggests Inaccurate "Medicaid" Answer

Medicaid Response Accuracy, as verified by the embedded probe question



Probe Answers associated with Inaccurate Medicaid Responses



MEDICAID

1. Accuracy verified by the embedded probe question
- 2. Accuracy verified by Gallup auxiliary health insurance data**

Accurate Medicaid Answer, as verified by Gallup Auxiliary Health Insurance Data

Do you have any of the following kinds of health insurance or health care coverage? ...

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4. Medicaid
5. SCHIP (CHIP/Children's Health Insurance Program)
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1. An insurance plan through an employer or union
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Suggests Accurate "Medicaid" Answer

Inaccurate Medicaid Answer, as verified by Gallup Auxiliary Health Insurance Data

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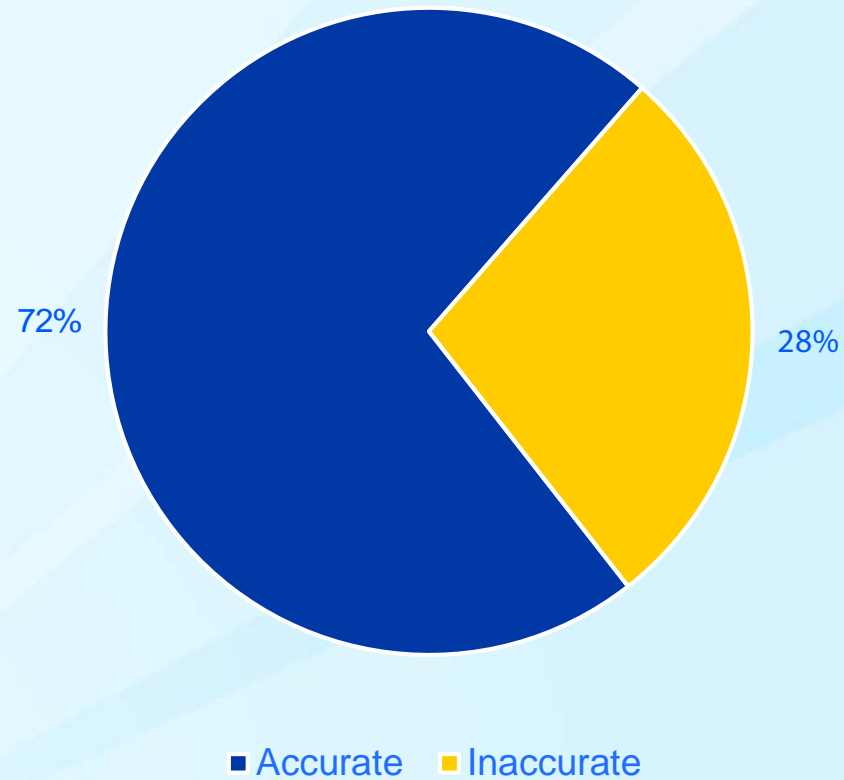
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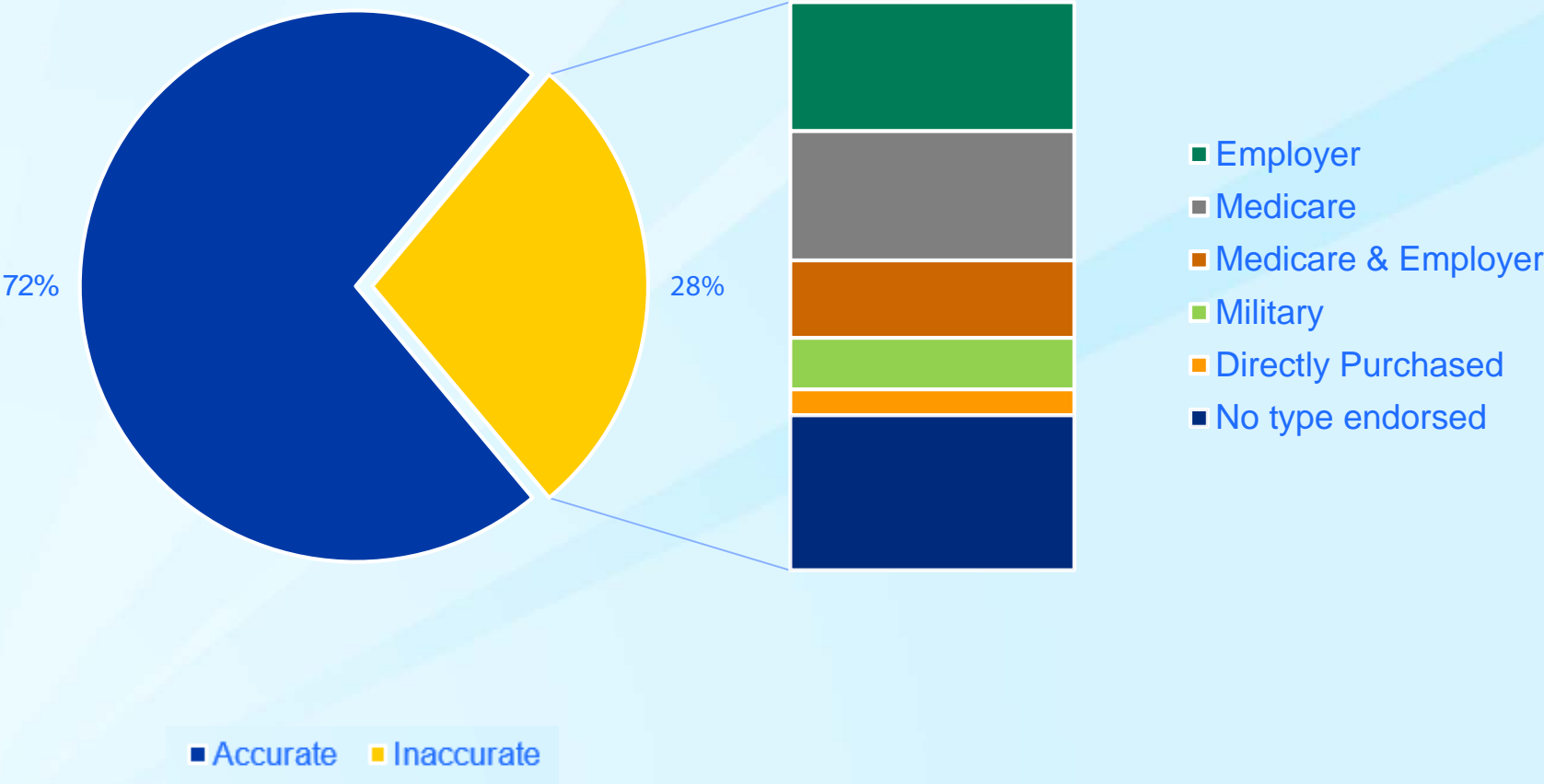


Suggests **Inaccurate** "Medicaid" Answer

Medicaid Response Accuracy, as verified by Gallup auxiliary data



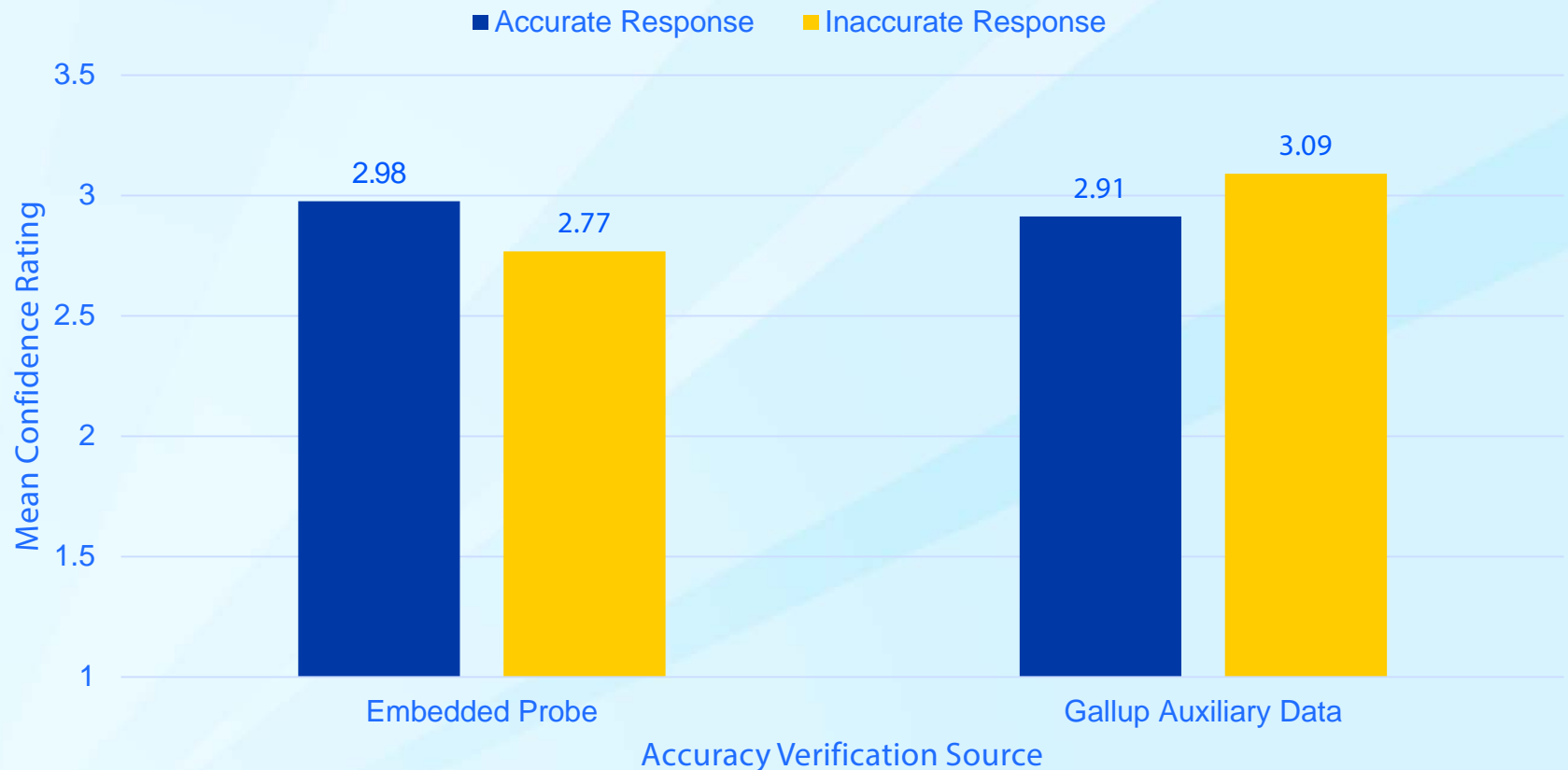
Gallup Auxiliary Health Insurance Answers associated with Inaccurate Medicaid Responses



MEDICAID

1. Accuracy verified by the embedded probe question
2. Accuracy verified by Gallup auxiliary health insurance data
- 3. Confidence in ability to answer correctly**

Confidence in Health Insurance Answers by Accuracy of “Medicaid” Response



How confident are you that you were able to correctly answer the health insurance questions? 1=not at all, 2=a little, 3=somewhat, 4=very

Summary of Medicaid Findings

- **Like Medicare, Medicaid responses were also more inconsistent across the different questions, as compared to Private Health Insurance**
- **Confusion surrounding how Medicaid interacts with state health insurance marketplaces**
- **More evidence of mixing up Medicaid and Medicare**
- **Interpreting Medicaid/Medicare as coverage obtained through an employer or one's employment history**

Limitations

- **Auxiliary data not available for all panelists**
- **Time interval between collection of auxiliary data and RANDS survey**
- **Questions used to verify accuracy are also subject to response error**

Conclusions

- **Creative use of embedded probes in online surveys has a lot to offer in terms of supplementing and extending traditional question evaluation methods**
- **Online surveys provide a larger sample with greater geographic dispersion**
- **Especially important for health insurance question evaluation projects**

Thank You!!

For more information please contact:

Bridget Reynolds

BReynolds2@cdc.gov

Paul Scanlon

pscanlon@cdc.gov

Collaborating Center for Questionnaire Design and Evaluation Research
National Center for Health Statistics
Centers for Disease Control and Prevention

The findings and conclusions in this report are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention.