Assessing Child Vaccine Hesitancy using Mobile Panels

AAPOR
2017

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2016 Childhood Immunization Attitudes and Behavior Survey: Background

- **Childhood Immunization rates are a priority public health issue**
- **National Immunization Survey (NIS) is primary tool for monitoring these rates**
  - Dual frame RDD sampling methodology to screen for children aged 19-35 months of age
  - Household eligibility rate: 1.5% for landline, 3.3% for cell phone
- **NIS Challenges**
  - Low incidence population+ lack of targeted frame → Large sample needs to be screened
  - Estimates needed for more than 50 geographic areas → Larger sample needed
  - Immunization estimates based on provider records for children → Larger sample needed
  - Declining response rates → Larger sample needed
- **The current methodology requires 7.5 million telephone numbers dialed to obtain 24,000 completed interviews with parents of age-eligible children, to get 15,000 cases with adequate provider data**
- **Vaccine hesitancy, particularly among minorities, has gotten increased attention in the past year**
- **Since NIS cannot cover all public health issues associated with childhood immunization, such as vaccine hesitancy, and resources are limited, alternative methods are needed to supplement it in a timely and cost-efficient manner**

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What Are the Alternatives for Large Samples of Low Incidence Populations?

- **Web**
  - The fastest and least expensive mode of data collection
- **Email addresses**
  - No national population based frame exists
- **Non-probability Web Panels**
  - Large enough (<1,000,000) to generate national samples of low incidence populations
  - Have member profiles with characteristics (e.g., children in HH) that can reduce screening costs and time
- **Mobile panels**
  - Particularly appropriate in terms of coverage and use for web surveys of young adults --- 85% smart phone ownership among 18-29 year olds, 79% among 30-49 year olds (PEW 2014)
  - App based surveys are much more “mobile optimized” for use on mobile devices than more traditional web based survey designs

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What Should I Know about Non-Probability Samples?

- Non-probability samples are **not based on statistical models** that allow us to estimate sampling variability and calculate confidence limits about sample estimates
- However, they are **not necessarily subject to other sources of total survey error** to a greater degree than probability samples (i.e., point estimate may be accurate even if confidence interval cannot be calculated)
- AAPOR acknowledges that non-probability samples **may be "fit for purpose"** for certain populations or study objectives
- **CDC already uses non-probability samples** to track immunization rates among key populations at the beginning and end of flu season
- This study explores using a national mobile web panel as a particularly appropriate **method for exploring factors affecting childhood immunization in the population**

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Methodology for 2016 ChIMPS

- National sample drawn from national mobile panel with one million + members
- Invitations were sent to adults with children in household from panel profile
- Interviews conducted in English only
- Interview length: 10.1 minutes (average)
- 10,000 invitations sent to households with children
- 1029 completed interviews with adults with children aged 19-35 months
- All 50 states and District of Columbia represented in completed sample
- Field period 12/16/16 to 12/21/16

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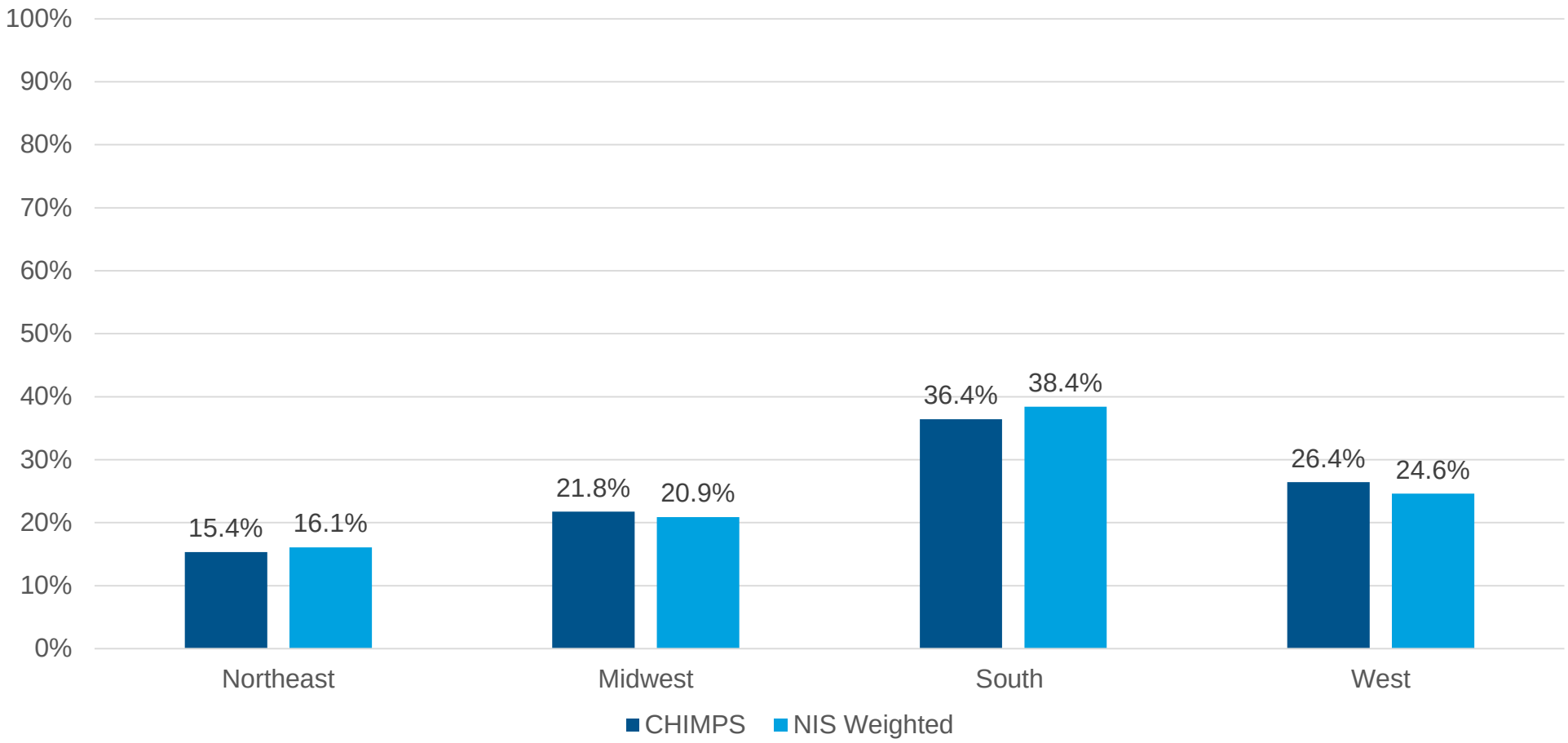
Geographic Distribution: Census Regions



N=1029 households with age-eligible children

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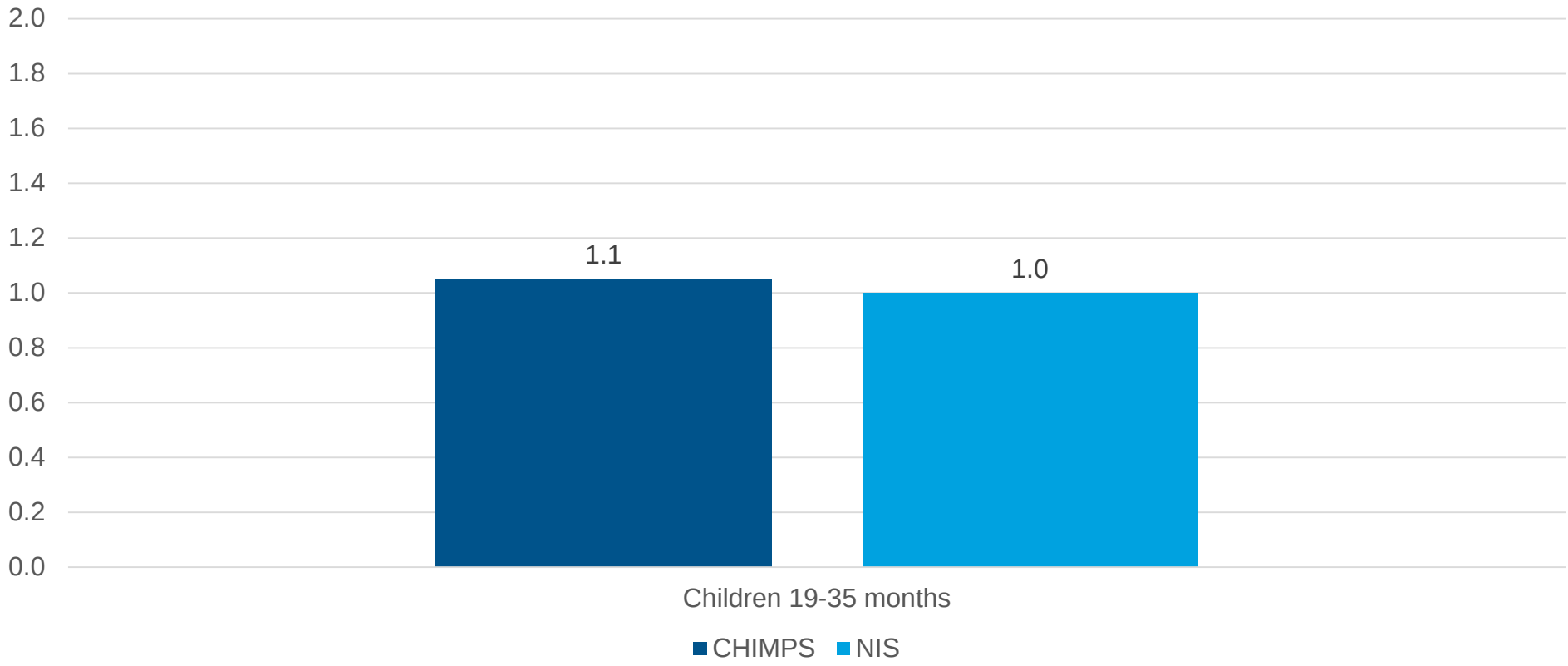
Number of Eligible Children (19-35 months) Based on Date of Birth



S3. Please tell me the month, day, and year of birth for the FIRST/SECOND/THIRD/FOURTH child in your household who is between 19-35 months old. N=1020 households (1072 eligible children)

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Relationship of Respondent to Target Child: 1st Child 19 – 35 Months (Base: All respondents)

What is your relationship to {S5}?			
Code	**Option**	**CHIMPS %**	**NIS %**
1	Mother (step, foster, adoptive) or female guardian	63.1%	69.0%
2	Father (step, foster, adoptive) or male guardian	29.4%	23.4%
3	Grandparent	2.5%	5.9%
7	Other family member or friend	4.9%	1.7%

C5X. What is your relationship to (S5)? n=1020

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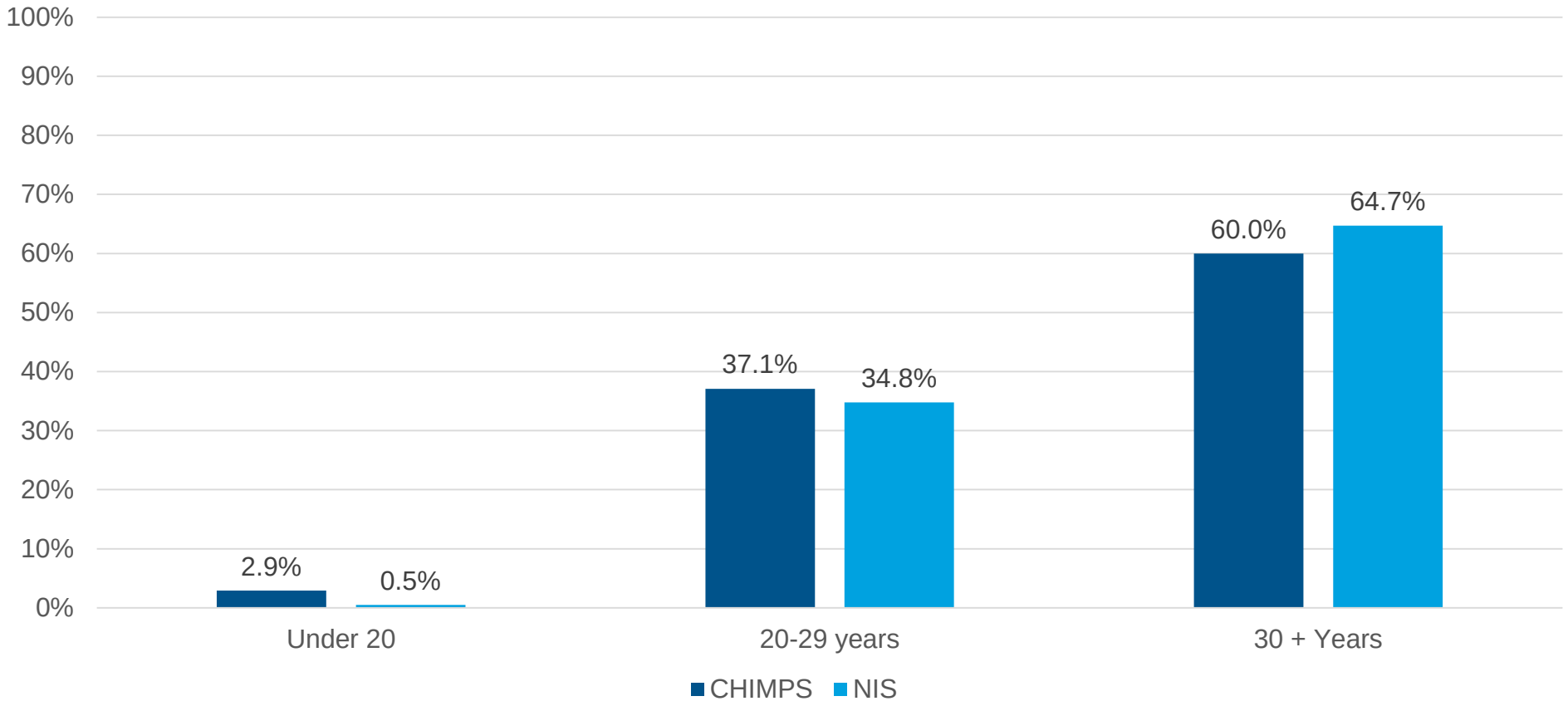
Respondent Age



Respondent Age from Sample Profile n=1020

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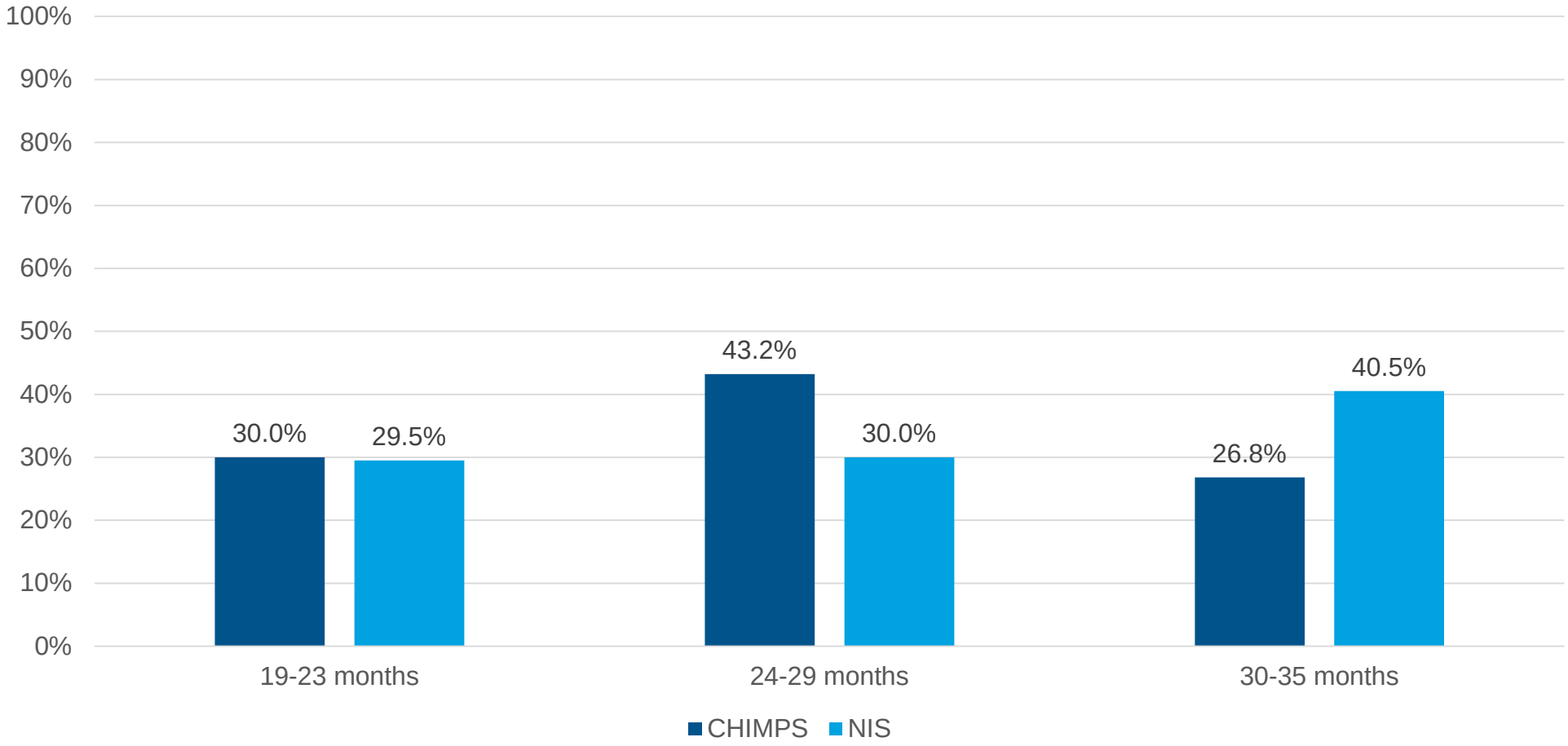
Age Group of Eligible Child



S3: Please tell me the month, day, and year of birth of the (FIRST/NEXT) child in your household who is between 19-35 months old. (Converted to months of age.) N=1072 age-eligible children

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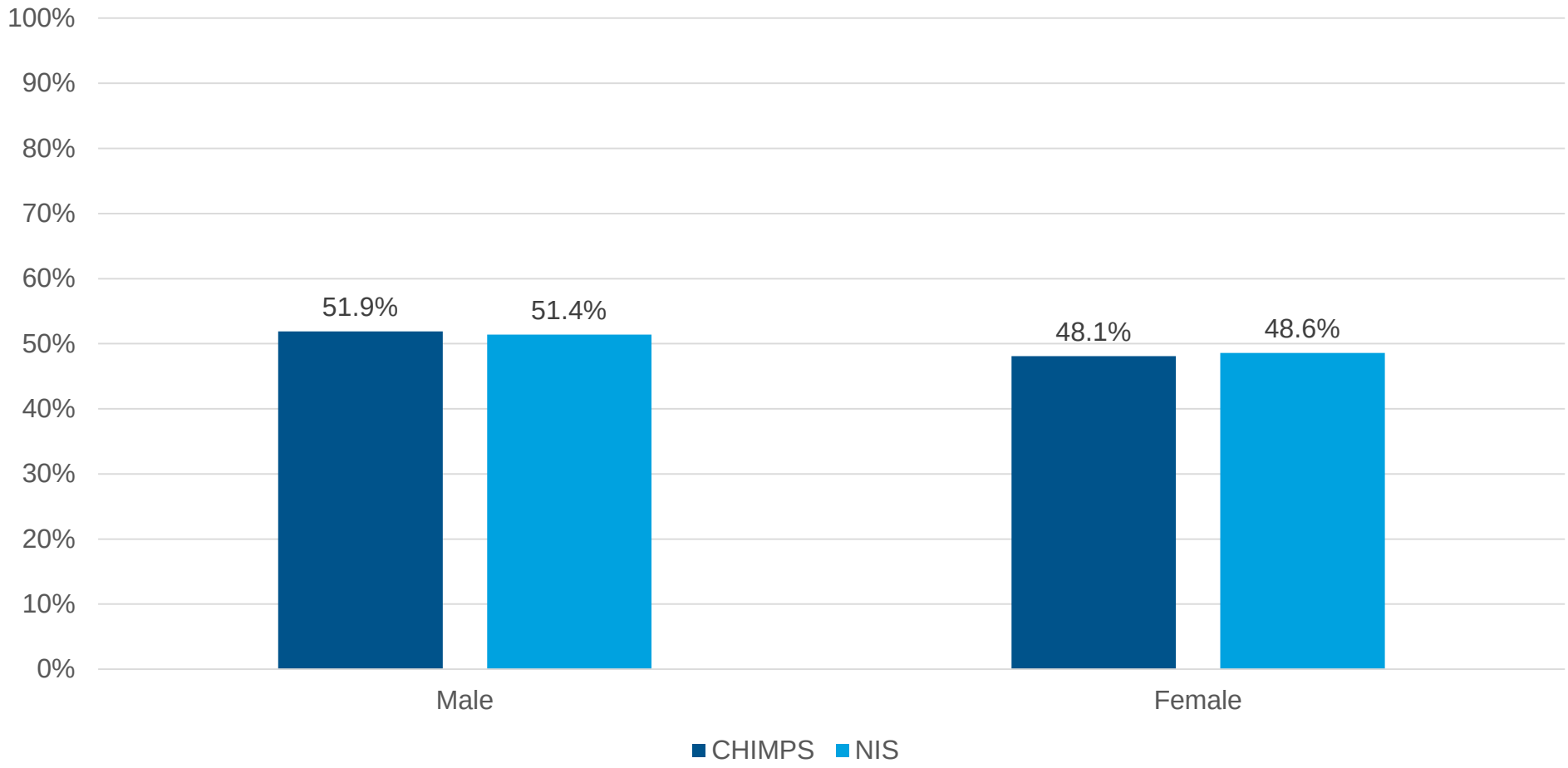
Gender of Eligible Child



S4. Is the child born on (date) male or female? N=1072 age-eligible children

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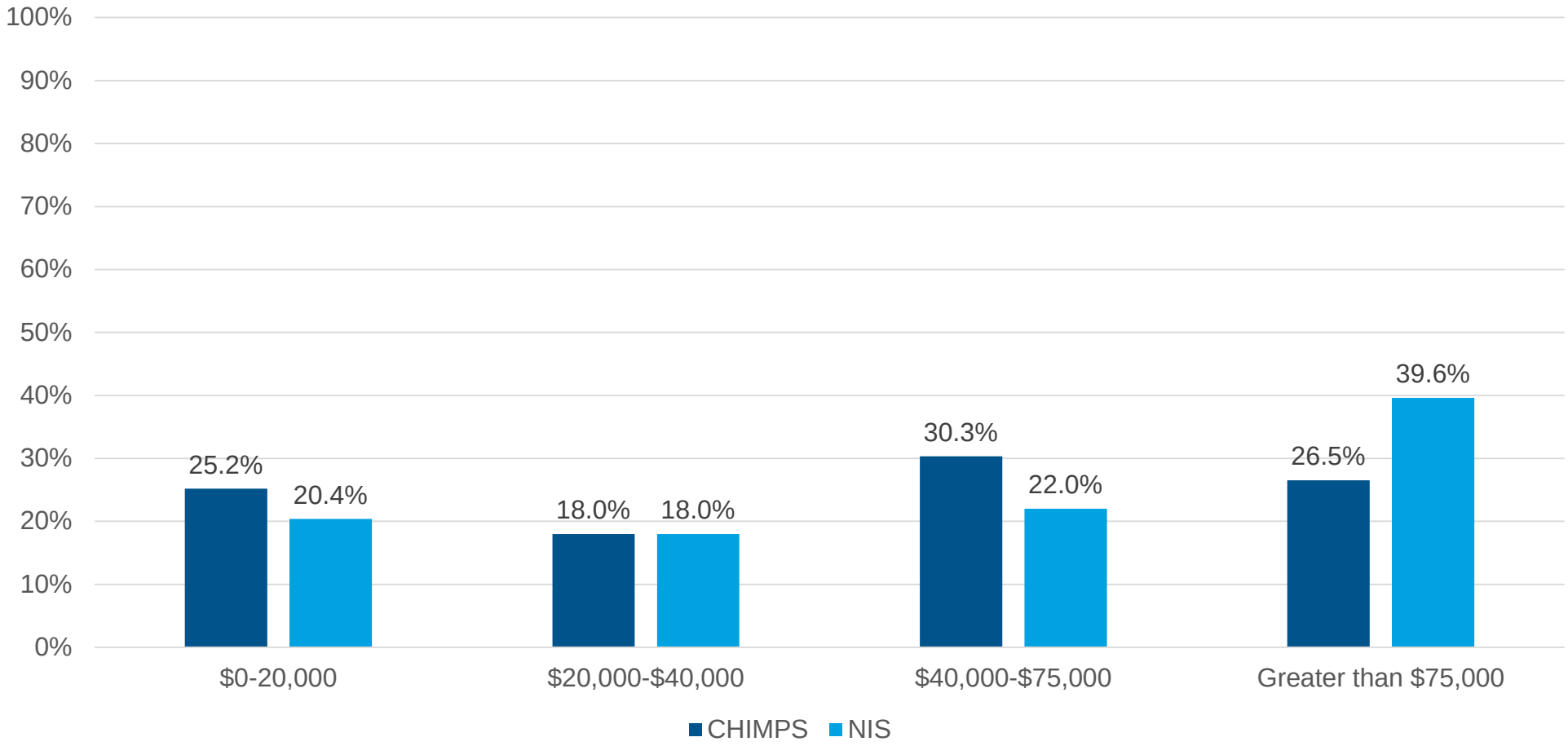
Household Income



N=1029 households with age-eligible children

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Vaccine Attitudes and Behaviors

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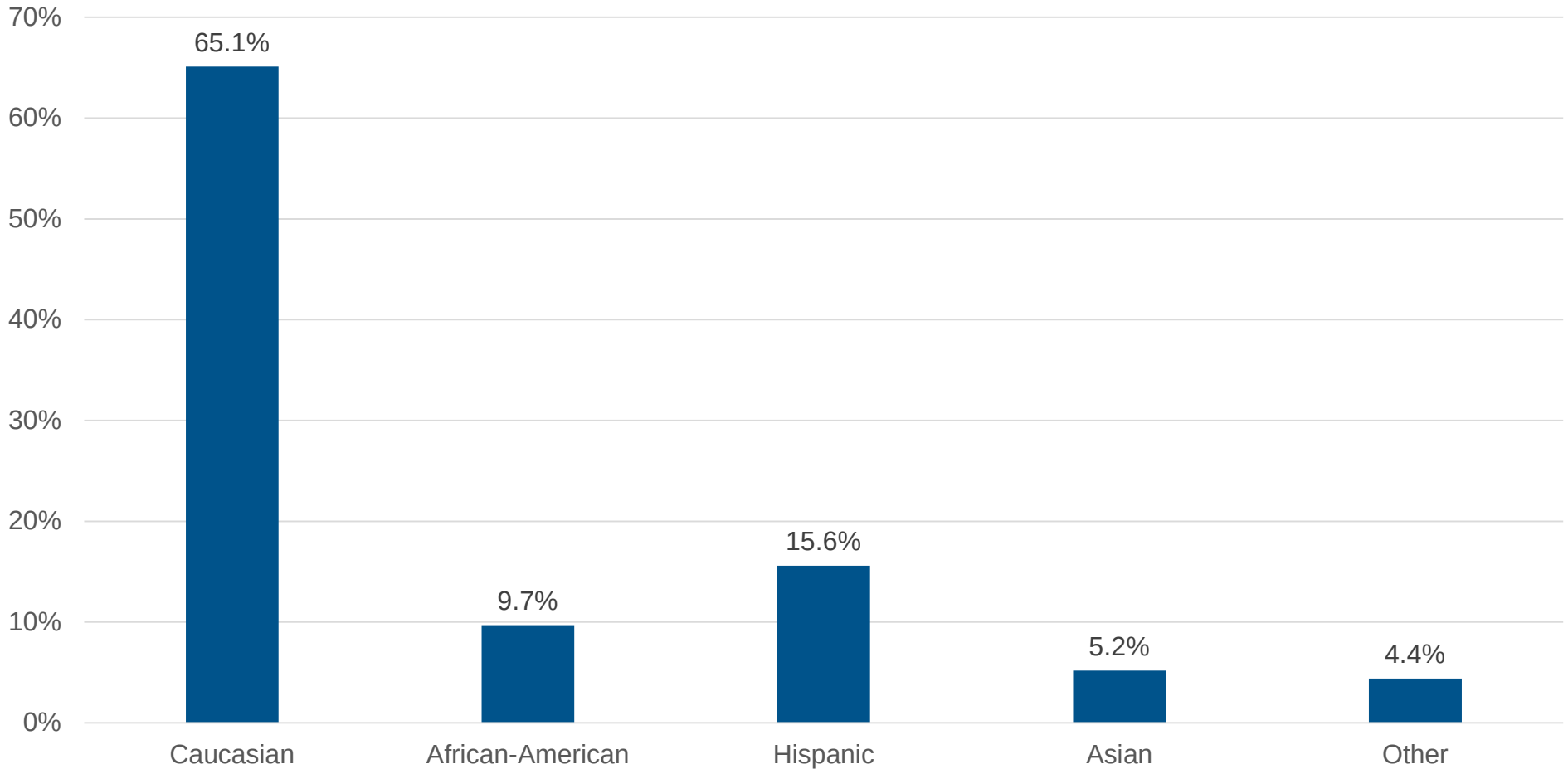
Race/Ethnicity of Respondent



Base: All respondents: n=1029

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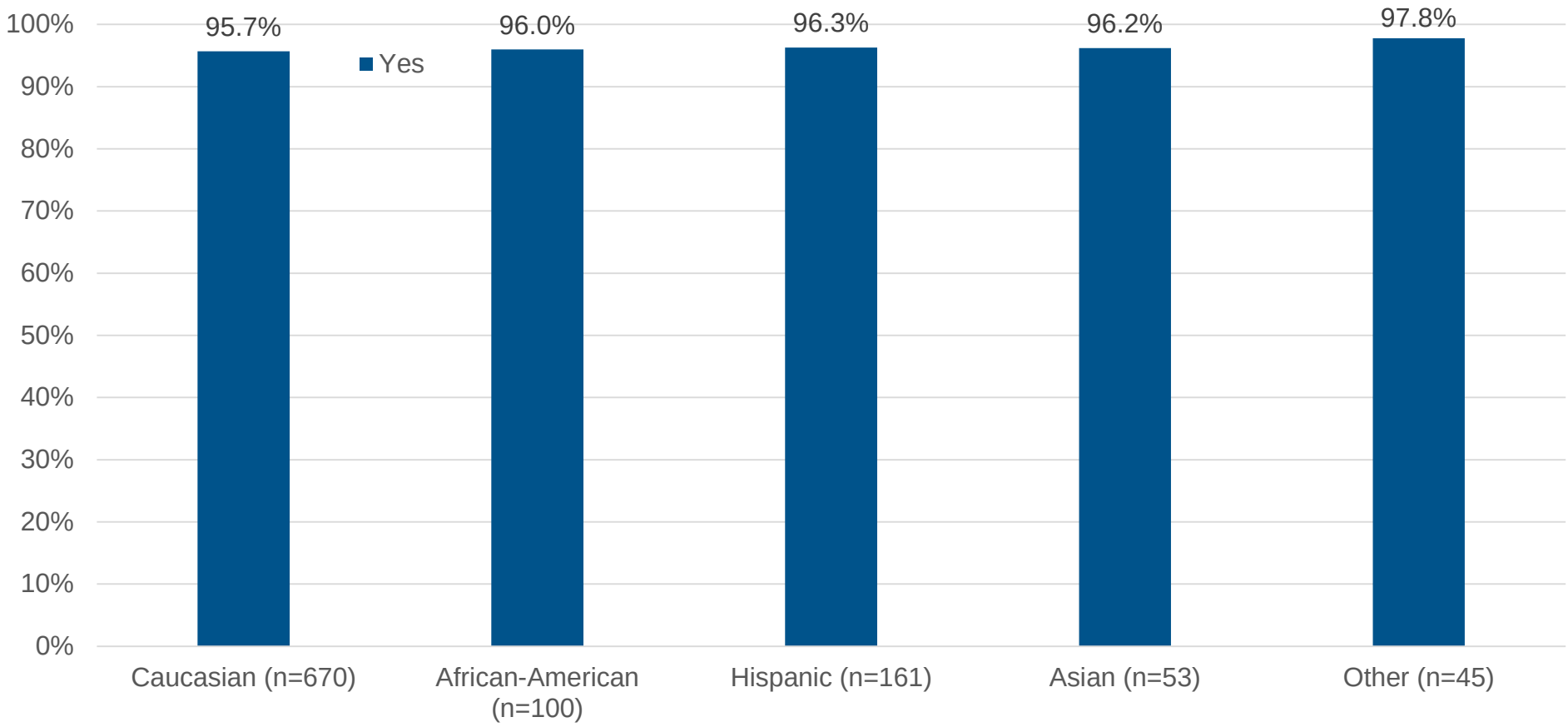
Child Received All Recommended Vaccines



CBF01 - (Has your child / have all of your children) received all of the vaccines that are recommended for children up to his / her age? (Base: All respondents: n=1029)

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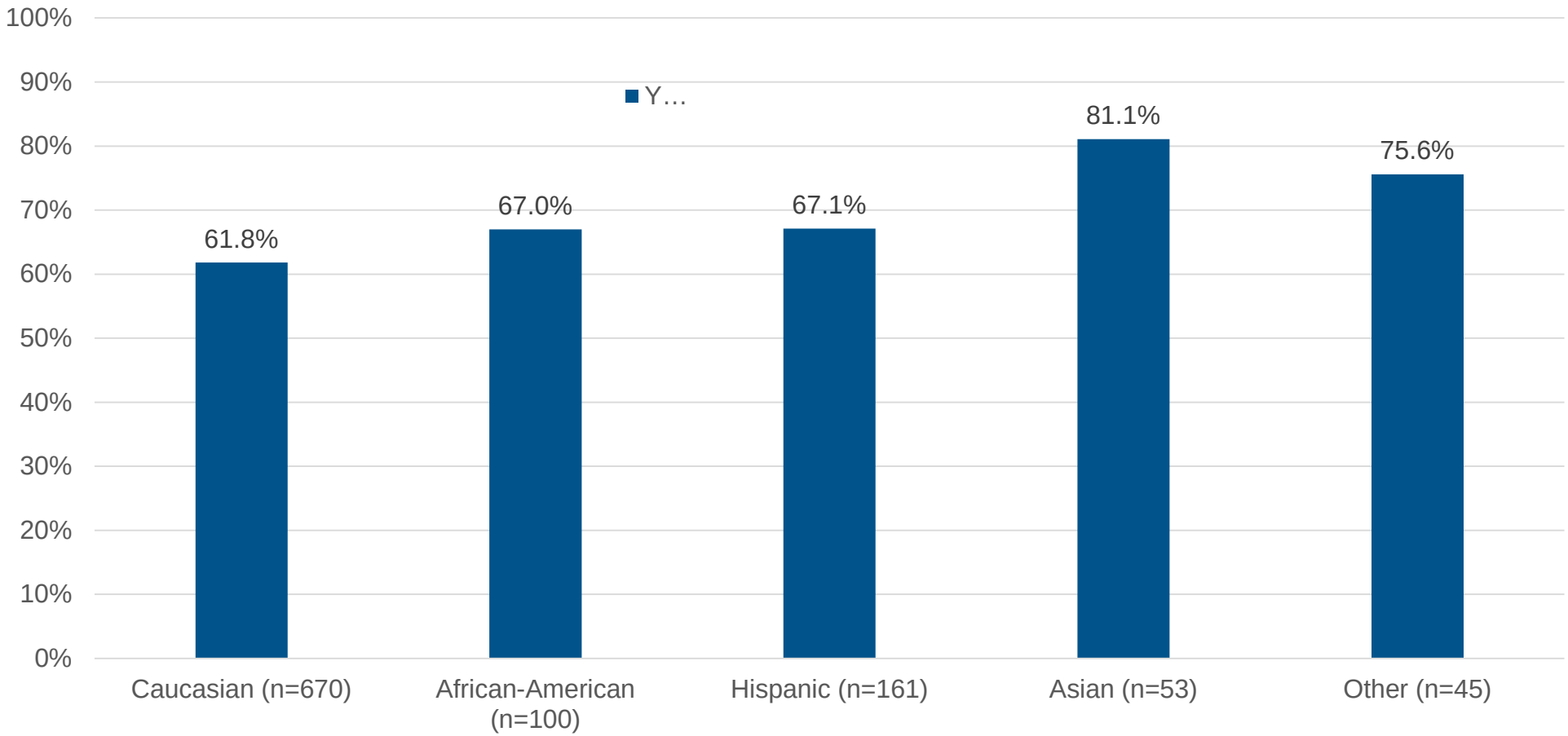
Child had Flu Vaccine Since July 1, 2016



BBX. Since July 1, 2016 has (S5) had a flu vaccination? There are two types of flu vaccinations. One is a shot and the other is a spray, mist, or drop in the nose. (Base: All respondents: n=1029)

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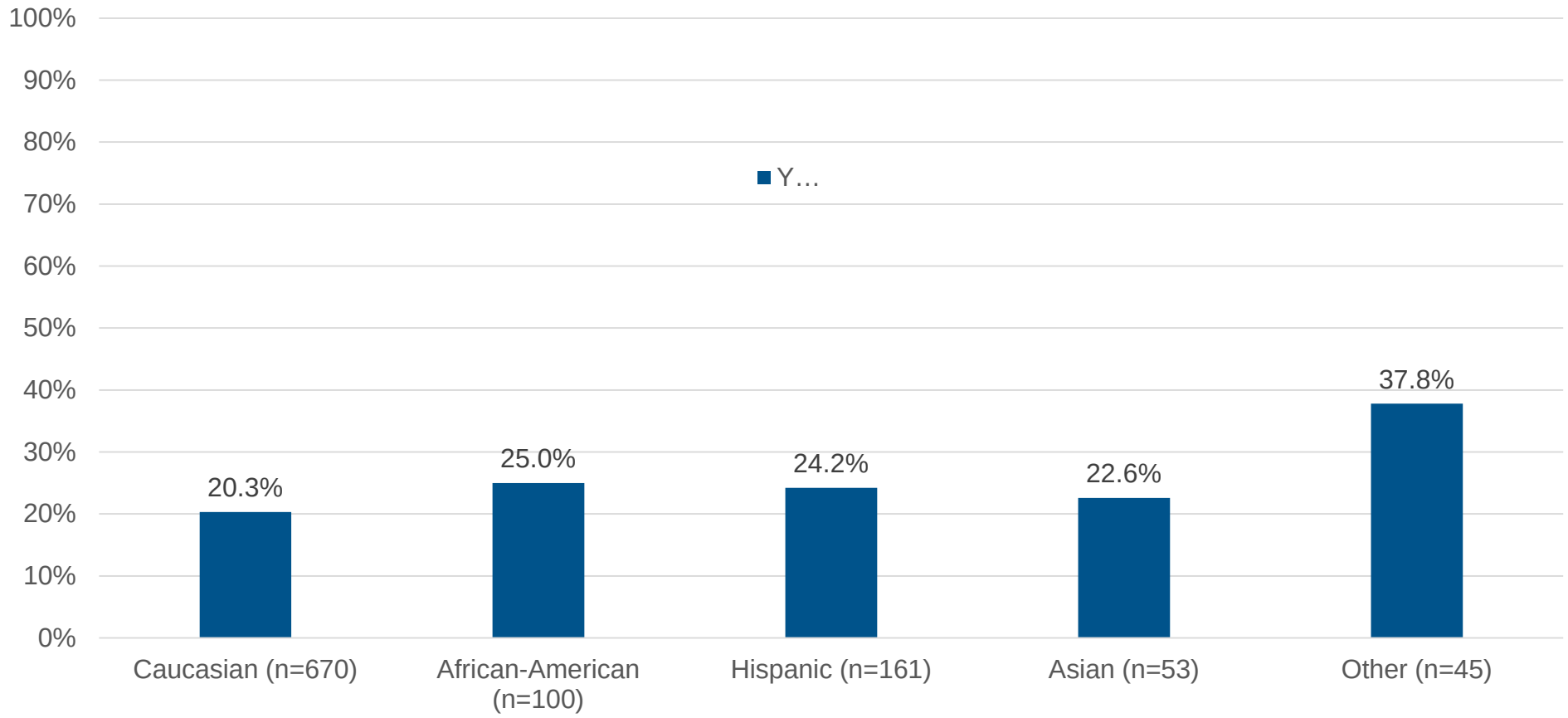
Ever Delayed Recommended Vaccine for Child



A1: Have you ever delayed having your child or children get a recommended vaccine for reasons other than illness or allergy? By delayed we mean put off, but ultimately ended up having it done. (Base: All respondents: n=1029)

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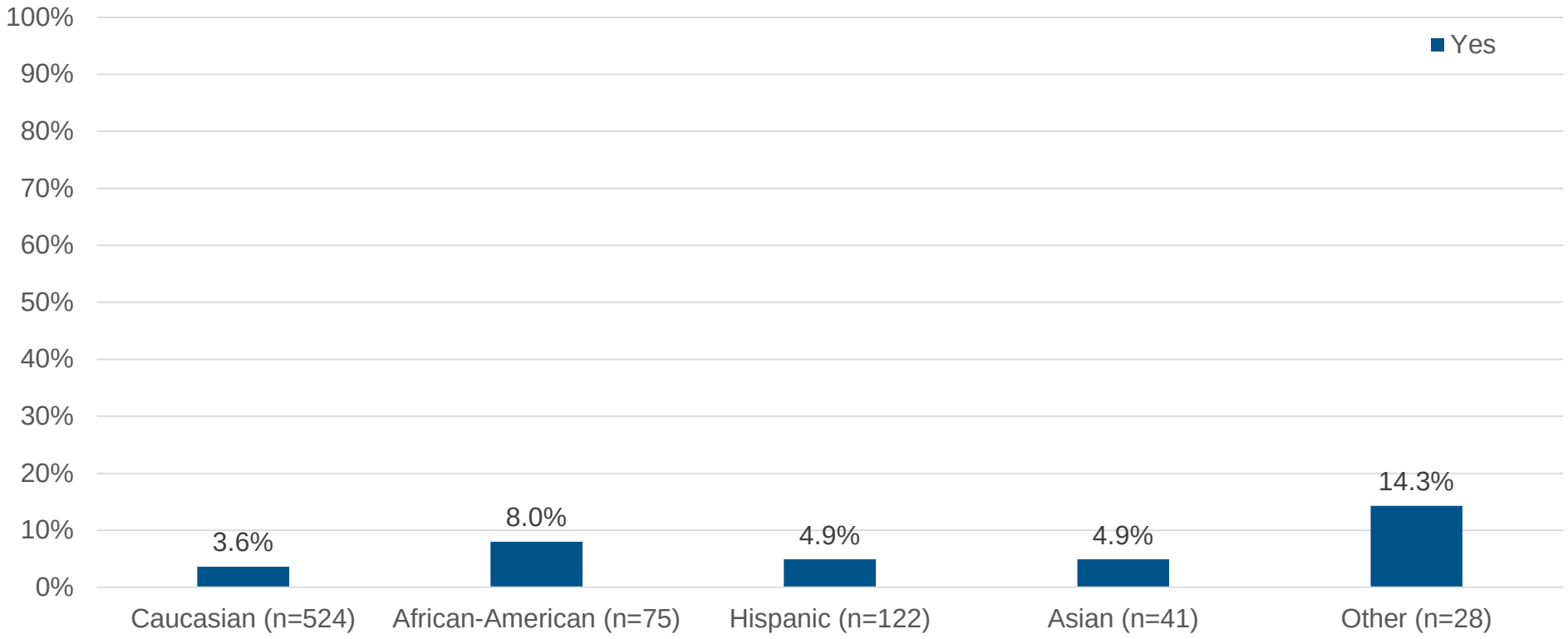
Ever Decided Not to Give Vaccine to Child



B2: Have you ever decided not to have your child or children get a recommended vaccine for reasons other than illness or allergy? (Base: Never delayed a recommended vaccine: n=800)

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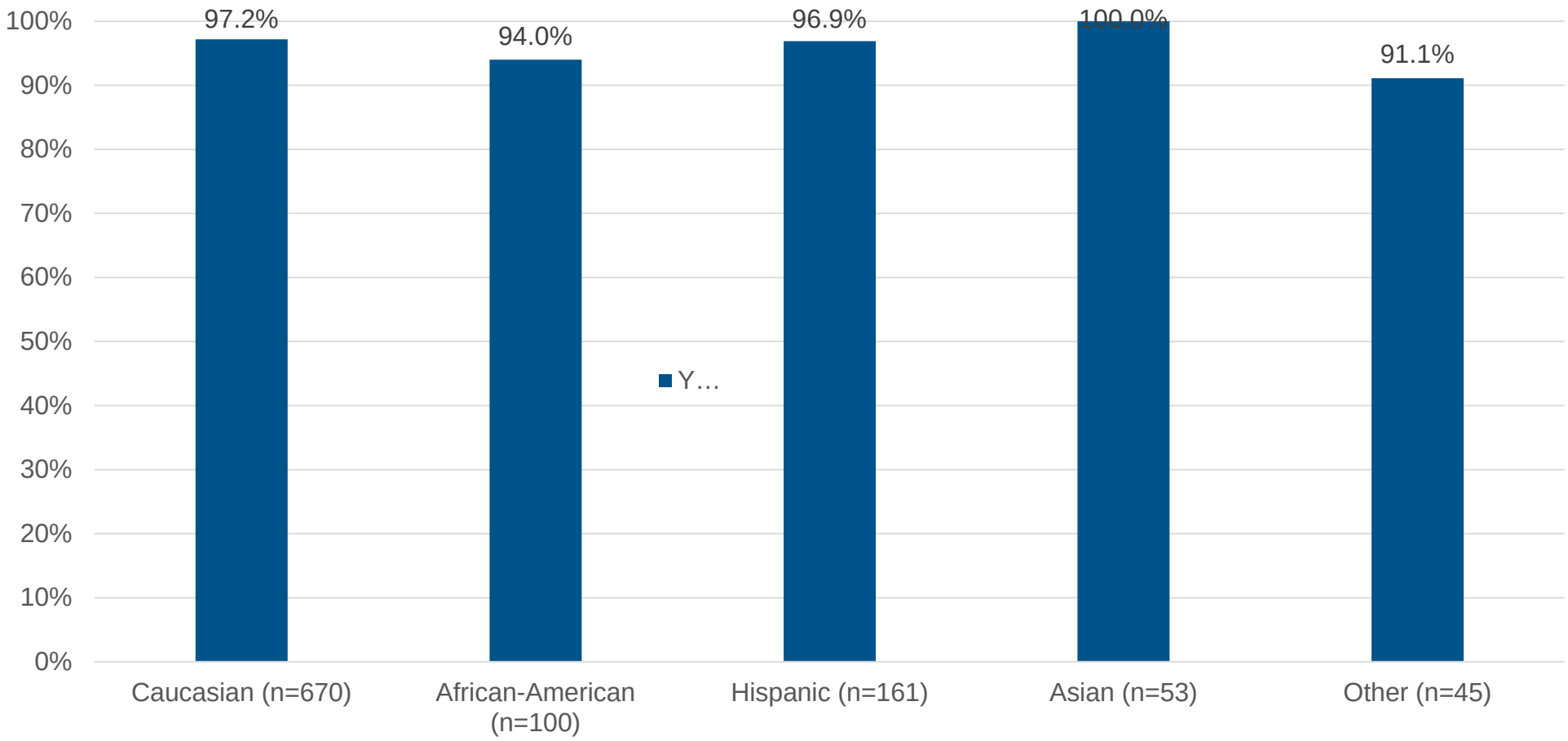
Plan for Child to Get All Remaining Vaccines



B3: Do you plan or intend to have your child or children get all the remaining recommended vaccines? (Base: All respondents: n=1029)

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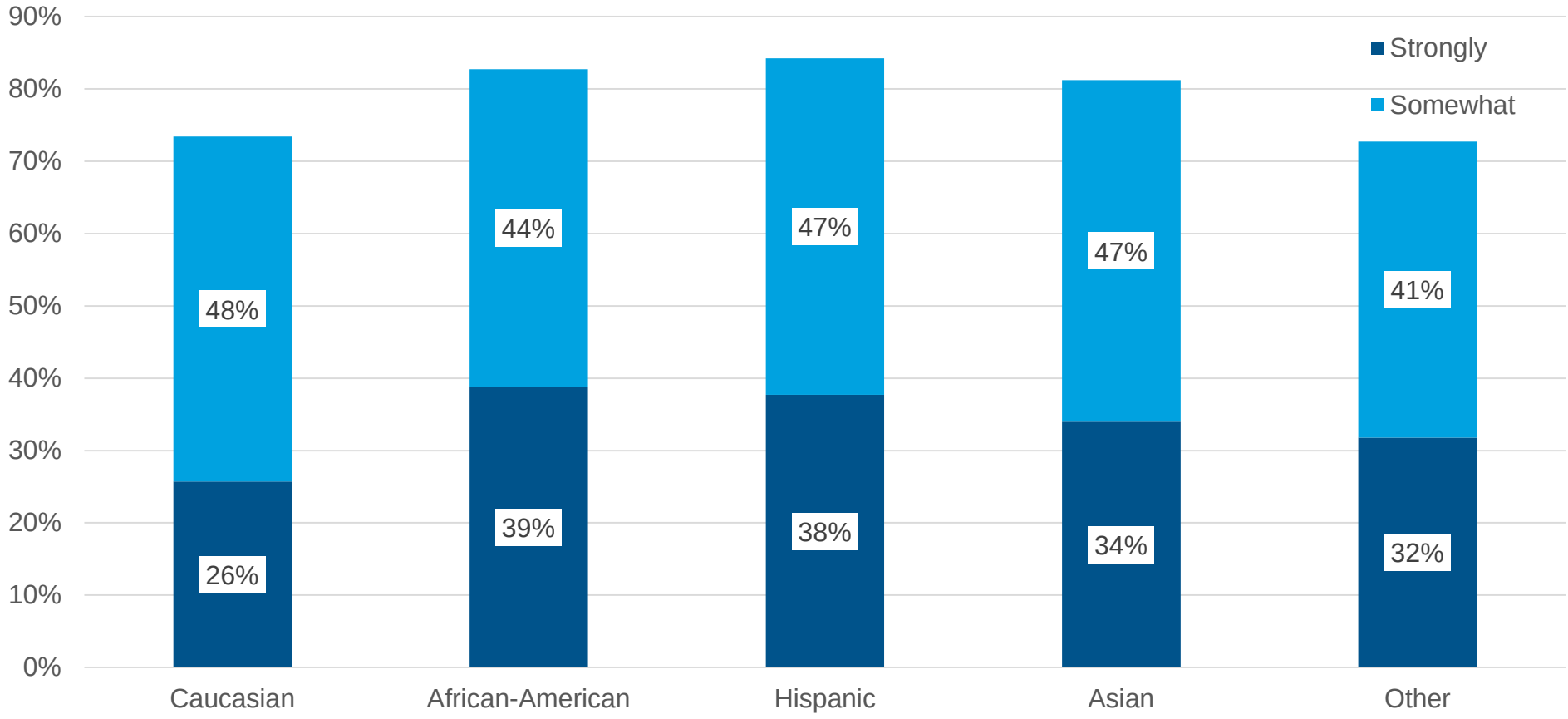
Painful for Children to Get So Many Shots: Agree



Att1: Please indicate how much you would agree or disagree with the following statement. **It is painful for children to receive so many shots during one doctor visit.** (Base: All respondents: n=1029)

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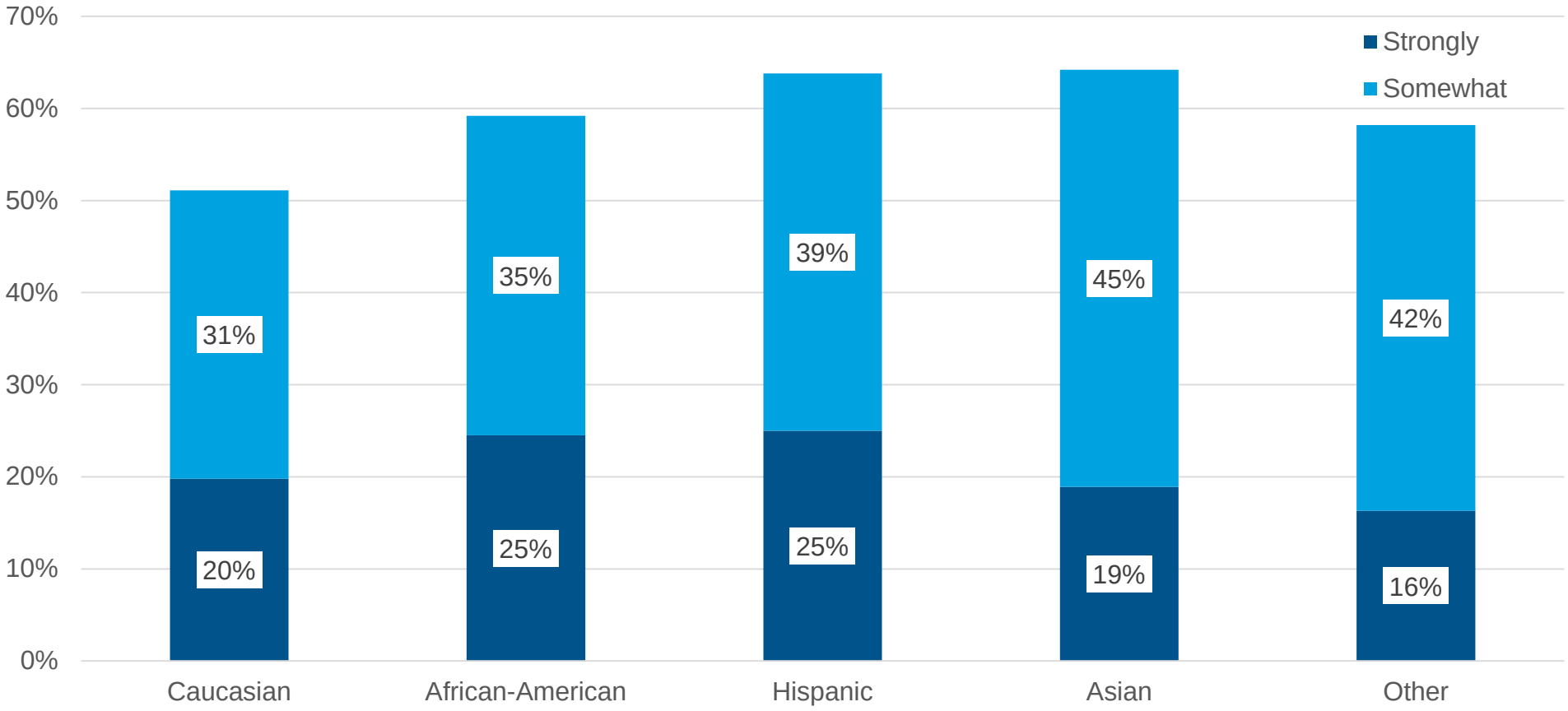
Children Receive too Many Vaccines in one Doctor’s Visit: Agree



Att2: Please indicate how much you would agree or disagree with the following statement. **Children receive too many vaccines in one doctor's visit**. (Base: All respondents: n=1029)

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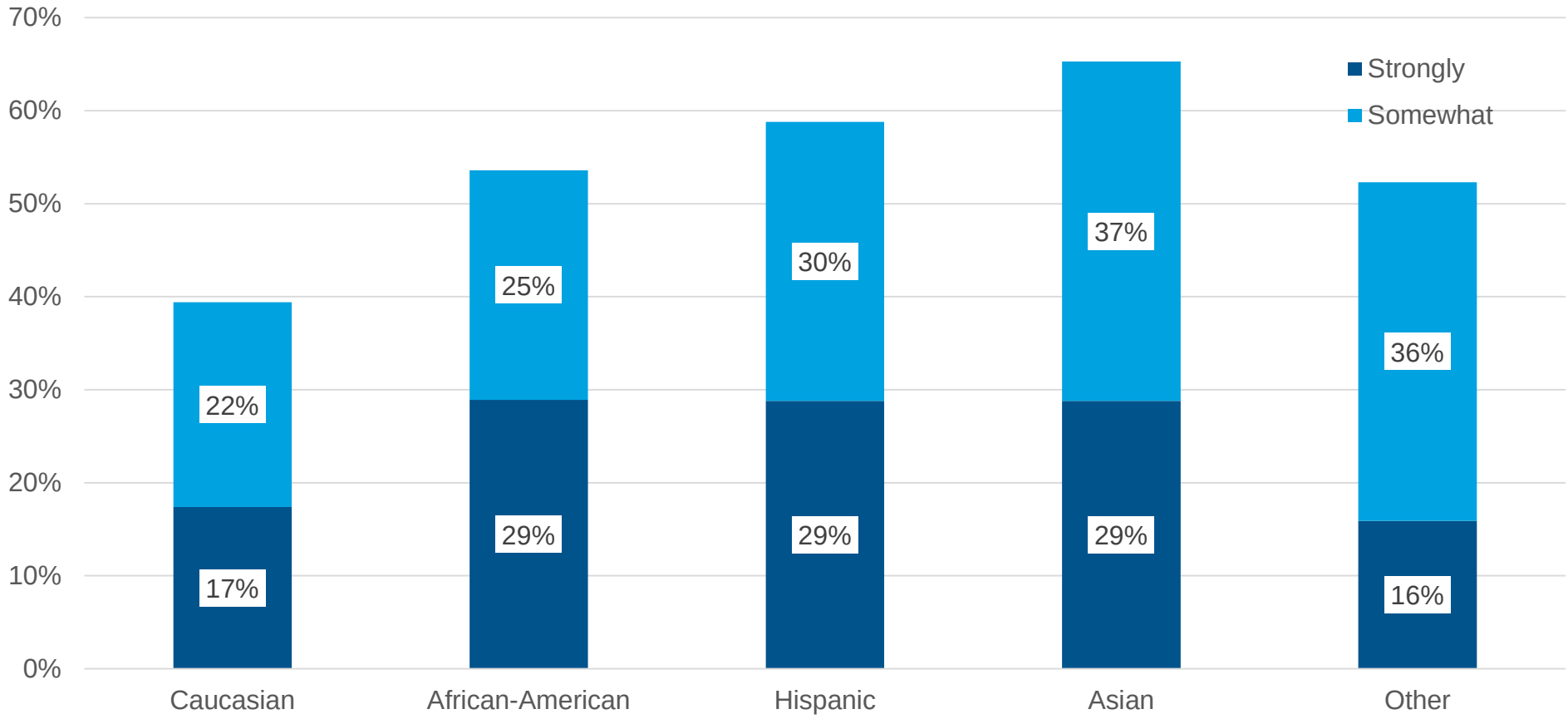
Too Many Vaccines in the First 3-years of life: Agree



Att3: Please indicate how much you would agree or disagree with the following statement.
Children get too many vaccines during the first three years of life. (Base: All respondents: n=1029)

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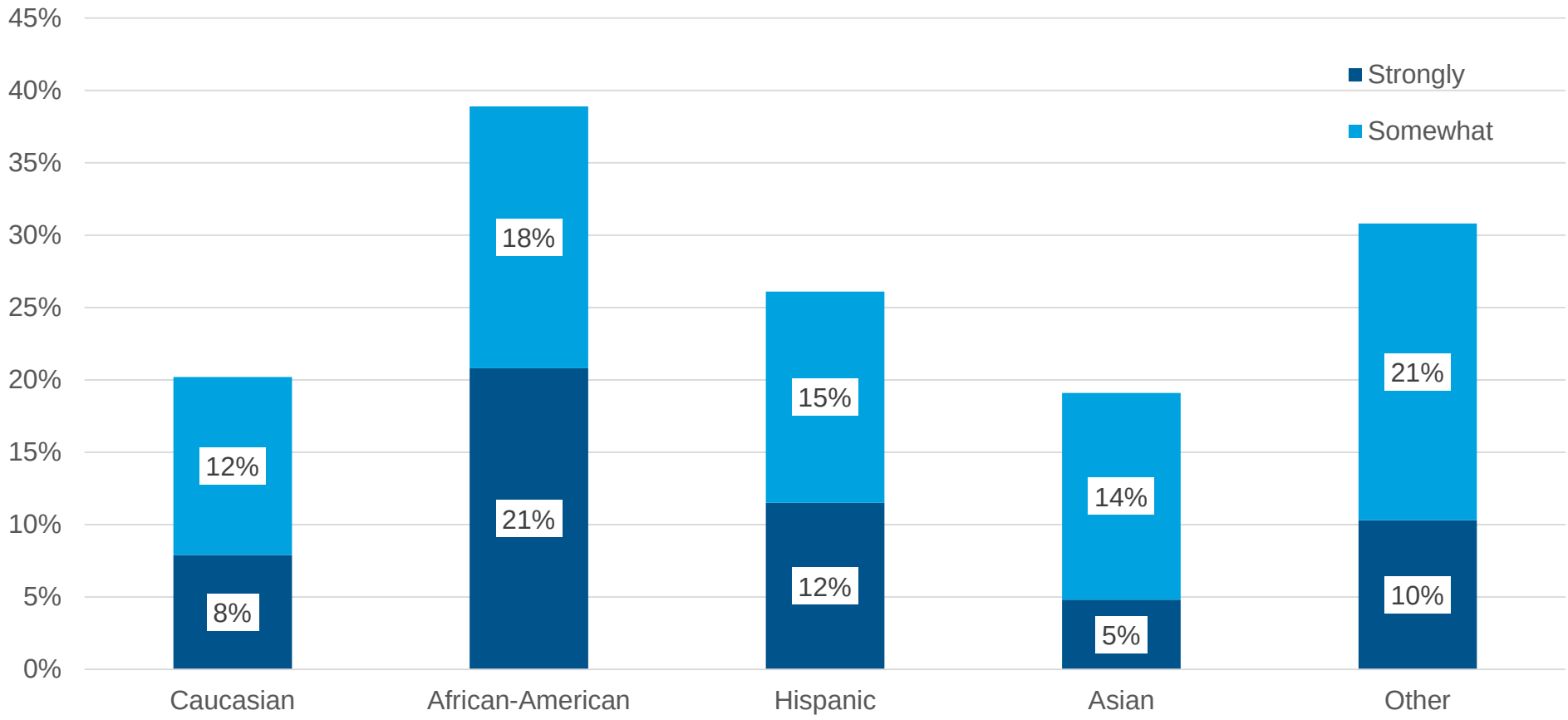
Vaccines May Cause Learning Disabilities, Such as Autism: Agree



Att4: Please indicate how much you would agree or disagree with the following statement. **Vaccines may cause learning disabilities, such as autism**. (Base: All respondents: n=1029)

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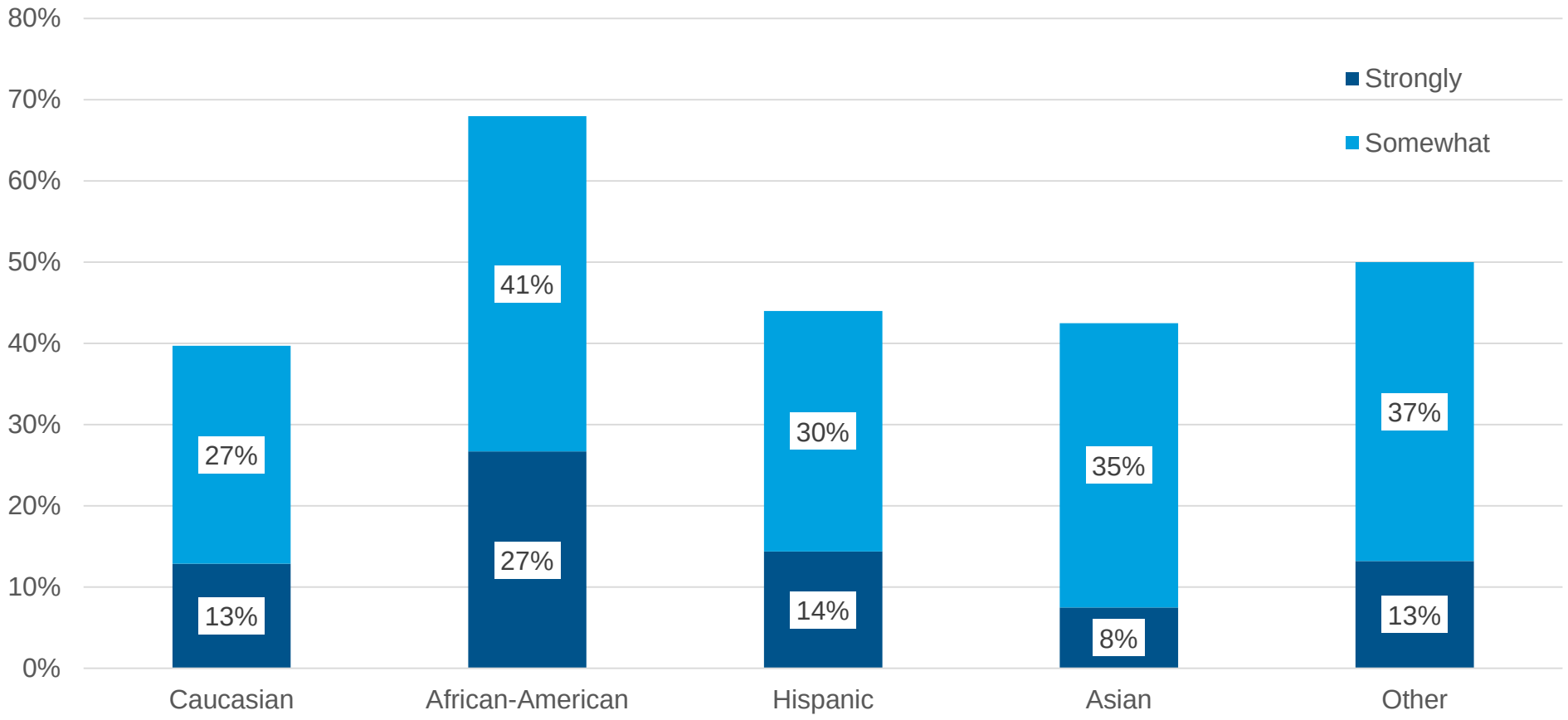
Some Vaccines Have Unsafe Ingredients: Agree



Att5: Please indicate how much you would agree or disagree with the following statement**.**
Some vaccines have ingredients that are unsafe. (Base: All respondents: n=1029)

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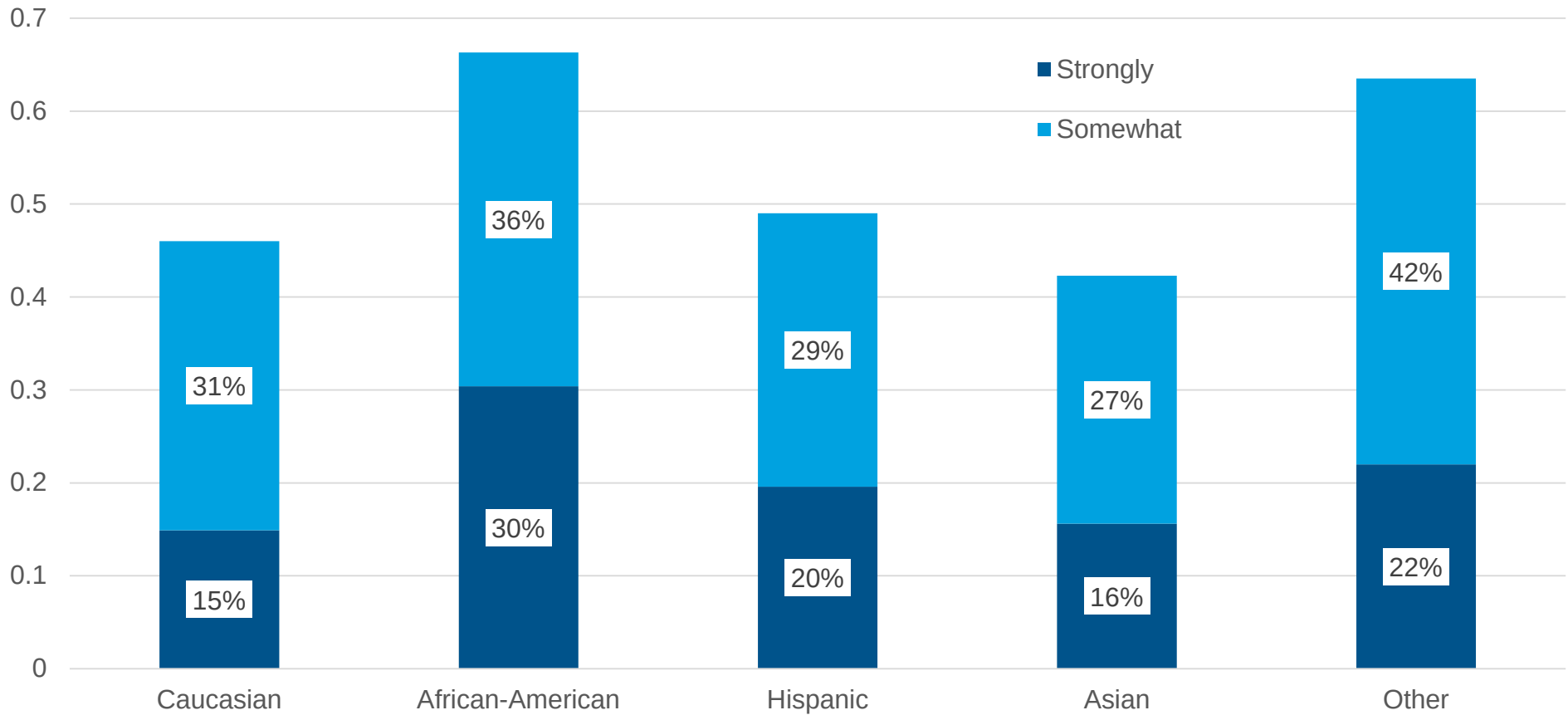
Some Vaccines Prevent Unlikely Diseases: Agree



Att6: Please indicate how much you would agree or disagree with the following statement.
Some vaccines are given to children to prevent diseases they are not likely to get. (Base: All respondents: n=1029)

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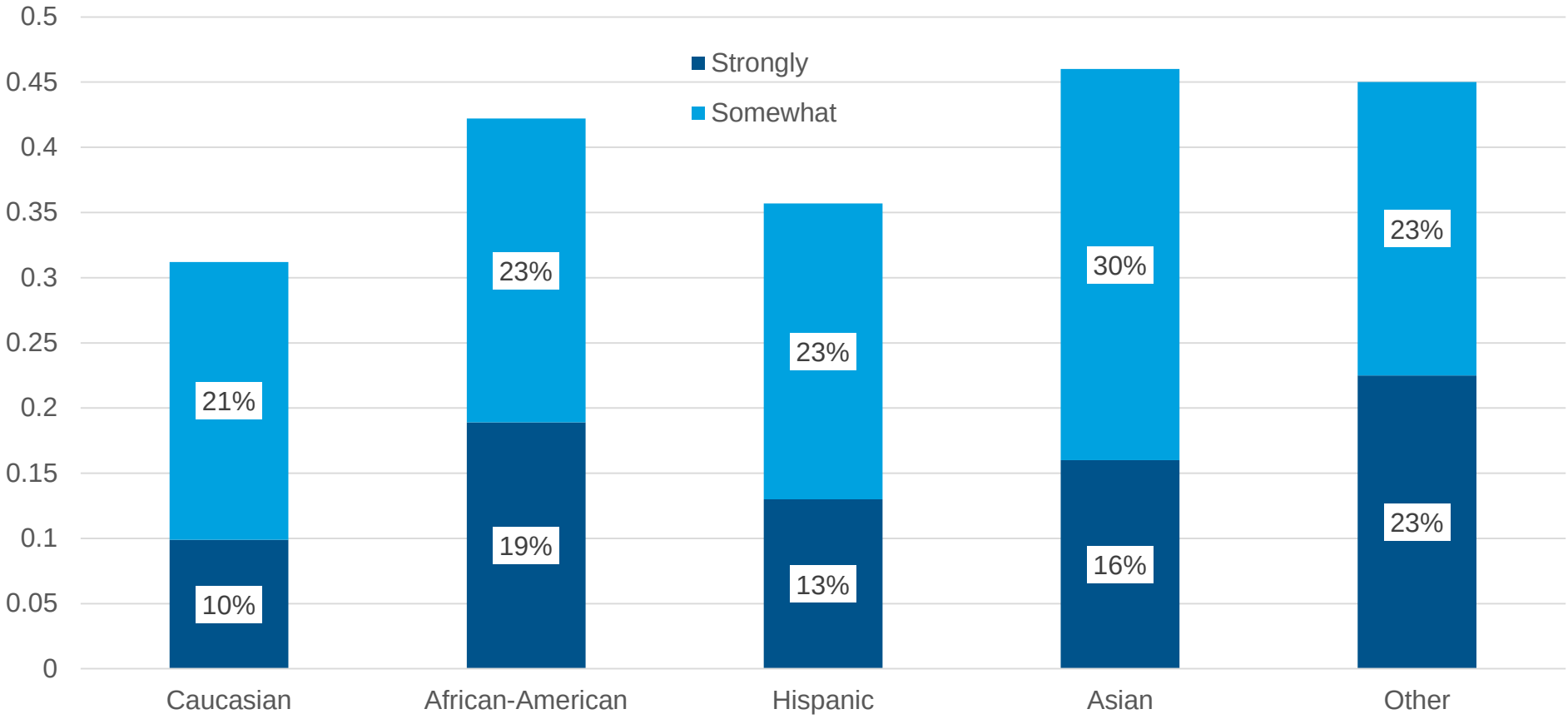
Some Vaccines Prevent Non-Serious Diseases: Agree



Att7: Please indicate how much you would agree or disagree with the following statement.
Some vaccines are given to children to prevent diseases that are not serious. (Base: All respondents: n=1029)

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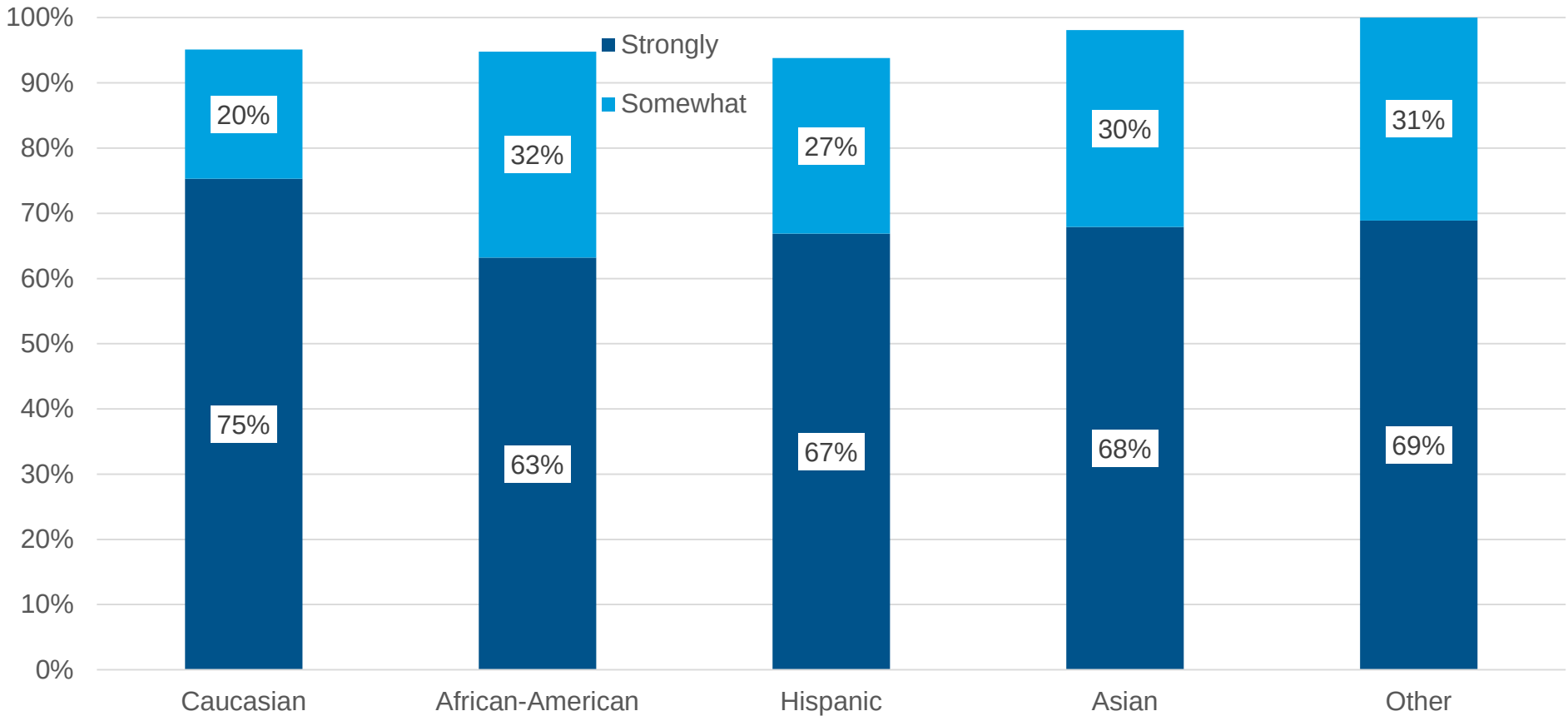
Vaccines are Important to My Child’s Health: Agree



Att8: Please indicate how much you would agree or disagree with the following statement. **Childhood vaccines are important for my child's health.** (Base: All respondents: n=1029).

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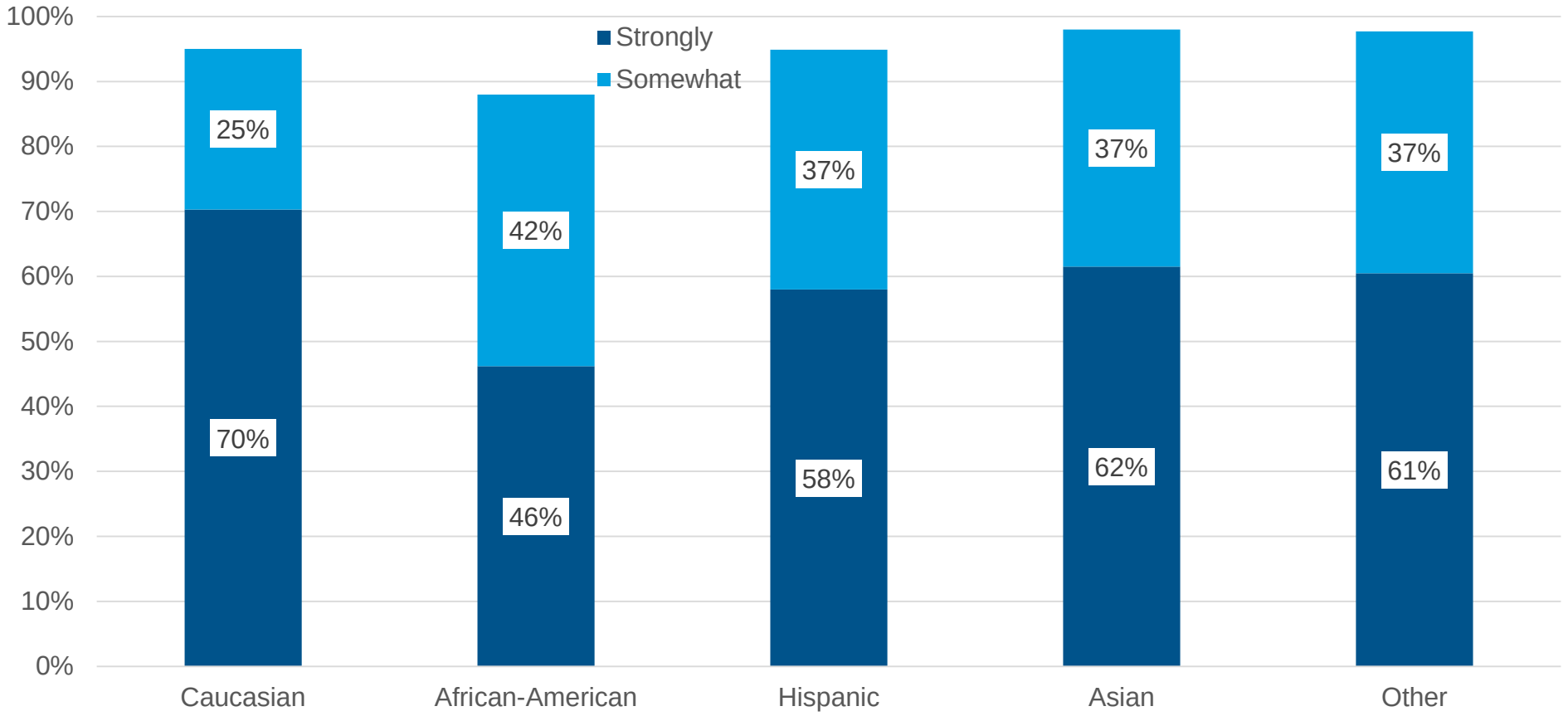
Childhood Vaccines are Effective: Agree



Att9: Please indicate how much you would agree or disagree with the following statement: **Childhood vaccines are effective**. (Base: All respondents: n=1029)

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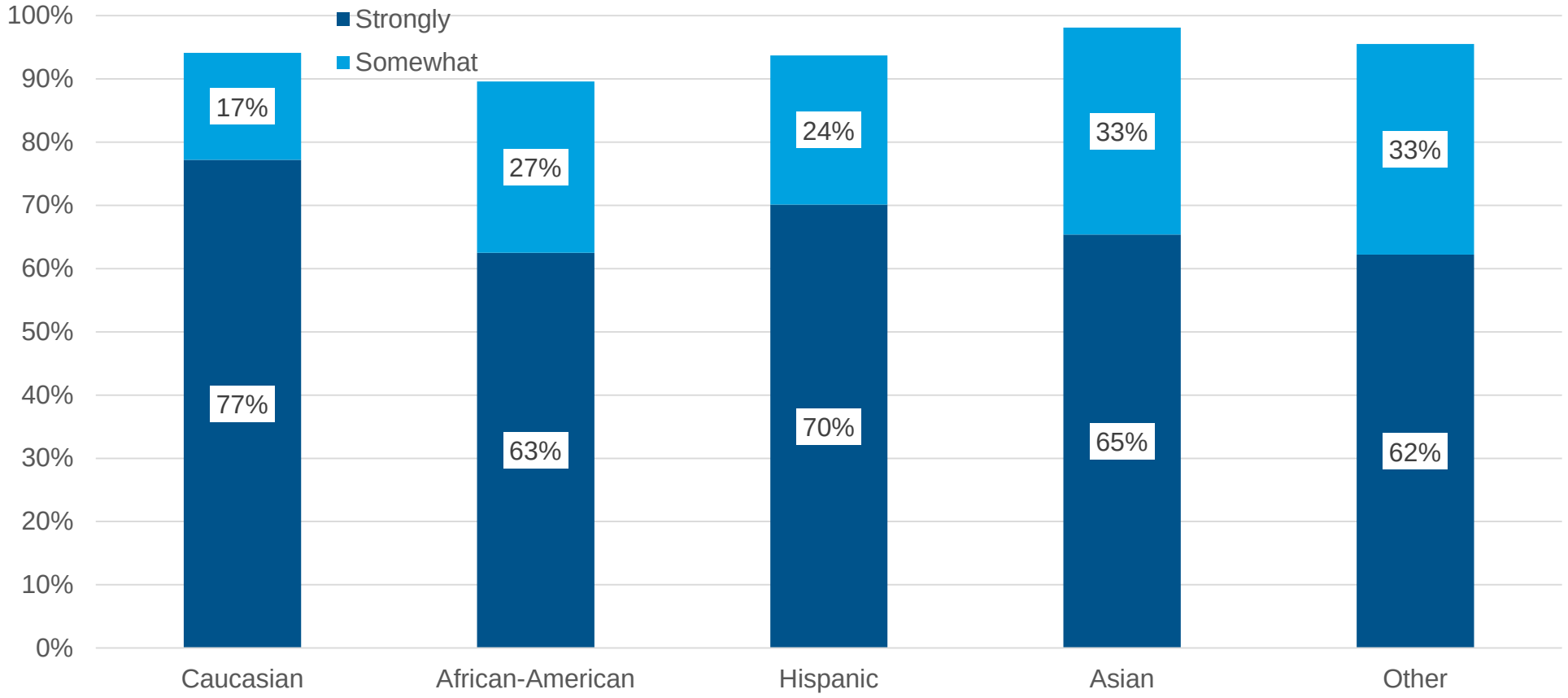
Vaccination is Important to Community Health: Agree



Att10: Please indicate how much you would agree or disagree with the following statement: **Having my child vaccinated is important for the health of others in my community.**
(Base: All respondents: n=1029)

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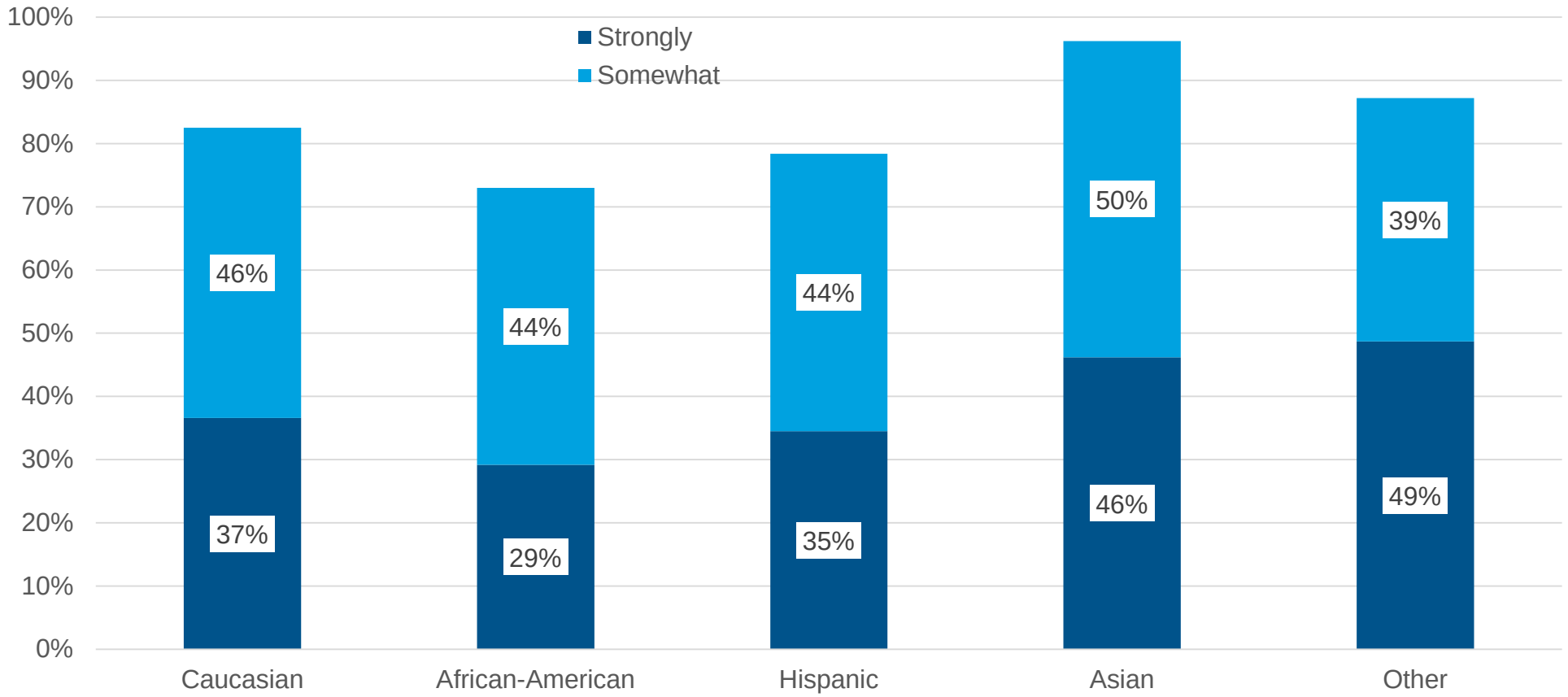
Vaccine Information from the Government is Reliable and Trustworthy: Agree



Att11: Please indicate how much you would agree or disagree with the following statement: **The information I receive about vaccines from the government is reliable and trustworthy**. (Base: All respondents: n=1029)

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Correlations between Vaccine Attitudes and Behavior

	Had Flu Vaccination	Plan to Have Remaining Vaccines	Ever Delayed Vaccination	Ever Decided Not to Vaccinate
Too Painful	-.082**	-.111**	.278**	.120**
Too many in one visit	-.139**	-.171**	.344**	.182**
Too many in first 3 years	-.113**	-.199**	.334**	.211**
May cause learning disabilities	-.074	-.250**	.338**	.289**
Have unsafe ingredients	-.103**	-.239**	.361**	.241**
Prevent unlikely diseases	-.063	-.181**	.250**	.155**
Prevent diseases not serious	-.079	-.203**	.251**	.202**
Important for my child's health	.185**	.404**	-.167**	-.350**
Are effective	.151**	.375**	-.177**	-.312**
Important to health of others	.203**	.402**	-.156**	-.351**
Government information on vaccines is reliable/trustworthy	.270**	.315**	-.140**	-.235**

Pearson correlation. **Significant at .01 (two-tailed)

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Discussion

- **Mobile panel is an efficient and low cost approach for vaccination estimates in NIS age eligible children**
- **Characteristics (gender, age, household income) are generally comparable although not identical between non-probability panel and NIS.**
- **96% of parents report their children received their recommended vaccinations. While some children have had delays in getting vaccinations, few decided not to immunize their children and most expect to get the remaining shots.**
- **Nonetheless, there is concern among parents about the age children receive shots, number of shots, and associated perceived pain. And, there remains concern about autism. Most of these concerns are substantially higher among minorities than among white parents.**
- **At the same time, a majority of parents agree that vaccinations are effective and important to children and communities. And, the government can be trusted regarding vaccine information. However, these positive attitudes are held by somewhat fewer minority parents than white parents.**
- **There is a positive correlation between beliefs in the effectiveness and importance of vaccination and trust in government information, and immunization behavior among parents of young children. Conversely, there is a positive correlation between concerns about pain and vaccine safety, and immunization delay and avoidance among parents. For those planning to have the remaining vaccinations there is a strong correlation with the belief that vaccinations are important to a child's health or that vaccinations are effective.**
- **The public health education model posits a causal relationship between knowledge, attitudes, beliefs and behavior, which would make attitudes and beliefs precursors of public health related behaviors.**
- **At the present time, there is no ongoing surveillance system for immunization knowledge, attitudes and beliefs that might predict challenges and changes to immunization behavior. A properly designed non-probability panel might represent an alternative to measuring such trends in the target population.**

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