**Title:**

**Change in testing for blood glucose during the COVID-19 pandemic, United States 2019-2021.**

Running title: Testing for glucose during COVID-19 pandemic

Yoshihisa Miyamoto, Ryan Saelee, Alain K. Koyama, Ibrahim Zaganjor, Fang Xu, Stephen Onufrak, Meda E. Pavkov

Division of Diabetes Translation, National Center for Chronic Disease Prevention and Health Promotion, Centers for Disease Control and Prevention (CDC), Atlanta, GA, USA.

Corresponding author:

Yoshihisa Miyamoto, MD, PhD, Division of Diabetes Translation, National Center for Chronic Disease Prevention and Health Promotion, Centers for Disease Control and Prevention, 4770 Buford Hwy NE, Atlanta, GA, 30341. Phone: +1 770-488-2548, Email: twh8@cdc.gov

**Supplemental Table 1.** Crude prevalence of adults without diagnosed diabetes who received testing for blood glucose in the past 12 months, and age-adjusted change in prevalence between 2019 and 2021, by year and socio-demographic characteristics, National Health Interview Survey, United States, 2019 – 2021

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | **Crude Prevalence\* (95% CI)** | | | **Change from 2019 to 2021 (95% CI)** | | |
|  | **2019** | **2020** | **2021** | | **Absolute change** | **Percent change** |
| **Overall** | 64.2 (63.3, 65.1) | 62.7 (61.8, 63.6) | 60.0 (59.1, 60.9) | | -4.5 (-5.6, -3.5) | -7.1 (-8.6, -5.5) |
| **Age groups, years** |  |  |  | |  |  |
| 18-39 | 48.8 (47.5, 50.2) | 46.8 (45.3, 48.3) | 43.9 (42.4, 45.3) | | -5.0 (-6.8, -3.2) | -10.3 (-13.7, -6.7) |
| 40-64 | 70.2 (69.1, 71.4) | 68.5 (67.3, 69.6) | 65.0 (63.8, 66.2) | | -5.2 (-6.8, -3.5) | -7.3 (-9.6, -5.1) |
| ≥65 | 84.5 (83.4, 85.6) | 84.1 (83.0, 85.1) | 82.3 (81.2, 83.4) | | -2.2 (-3.7, -0.8) | -2.6 (-4.3, -0.9) |
| **Sex** |  |  |  | |  |  |
| Men | 60.4 (59.2, 61.7) | 59.7 (58.4, 61.0) | 56.0 (54.9, 57.2) | | -4.7 (-6.2, -3.3) | -7.8 (-10.1, -5.5) |
| Women | 67.8 (66.7, 68.9) | 65.5 (64.3, 66.6) | 63.7 (62.6, 64.8) | | -4.4 (-5.7, -3.1) | -6.4 (-8.3, -4.6) |
| **Race and ethnicity** |  |  |  | |  |  |
| Hispanic | 60.7 (58.4, 63.0) | 60.7 (58.1, 63.1) | 54.7 (52.5, 56.9) | | -6.1 (-8.8, -3.4) | -10.0 (-14.1, -5.6) |
| NH White | 64.0 (63.0, 65.0) | 62.8 (61.8, 63.8) | 60.4 (59.3, 61.5) | | -4.0 (-5.2, -2.7) | -6.2 (-8.1, -4.2) |
| NH Black | 70.6 (67.9, 73.1) | 67.2 (64.6, 69.7) | 67.2 (64.8, 69.4) | | -4.0 (-7.1, -0.9) | -5.7 (-9.8, -1.3) |
| NH Asian | 67.7 (64.6, 70.7) | 62.7 (59.5, 65.9) | 58.3 (55.1, 61.4) | | -10.0 (-13.9, -6.2) | -14.8 (-20.0, -9.3) |
| NH AIAN | 58.7 (52.1, 65.1) | 55.6 (44.9, 65.8) | 61.4 (54.3, 68.2) | | 2.5 (-7.0, 11.9) | 4.2 (-11.0, 21.9) |
| Other single or multiple races | 51.7 (44.3, 59.0) | 53.9 (46.0, 61.6) | 51.9 (45.4, 58.3) | | 1.1 (-7.9, 10.1) | 2.1 (-14.2, 21.6) |
| **Weight Status \*\*** |  |  |  | |  |  |
| Underweight | 53.9 (47.8, 59.9) | 57.4 (50.3, 64.4) | 54.6 (49.2, 59.8) | | 2.3 (-4.7, 9.3) | 4.3 (-8.4, 18.7) |
| Normal | 59.7 (58.3, 61.0) | 57.5 (56.0, 58.9) | 55.0 (53.6, 56.5) | | -5.1 (-6.8, -3.4) | -8.5 (-11.3, -5.7) |
| Overweight | 65.8 (64.5, 67.0) | 64.5 (63.1, 65.9) | 61.1 (59.8, 62.5) | | -5.1 (-6.6, -3.5) | -7.7 (-10.0, -5.3) |
| Obese | 68.3 (66.9, 69.8) | 66.7 (65.2, 68.1) | 64.7 (63.4, 66.1) | | -3.6 (-5.5, -1.8) | -5.3 (-7.9, -2.7) |
| **Diagnosed Prediabetes** |  |  |  | |  |  |
| Yes | 85.1 (82.9, 87.0) | 83.0 (80.9, 84.9) | 82.5 (80.6, 84.4) | | -3.0 (-5.6, -0.4) | -3.5 (-6.5, -0.5) |
| No | 62.6 (61.6, 63.5) | 60.8 (59.9, 61.8) | 57.8 (56.8, 58.8) | | -4.9 (-6.0, -3.9) | -7.9 (-9.5, -6.2) |
| **Rural-urban classification** |  |  |  | |  |  |
| Large central metro | 65.5 (64.0, 67.0) | 62.7 (61.1, 64.2) | 58.8 (57.2, 60.4) | | -6.9 (-8.5, -5.2) | -10.5 (-12.8, -8.0) |
| Large fringe metro | 65.7 (64.1, 67.3) | 64.1 (62.4, 65.8) | 62.0 (60.4, 63.6) | | -4.0 (-6.0, -2.0) | -6.1 (-9.0, -3.1) |
| Medium and small metro | 63.0 (61.1, 64.9) | 62.2 (60.4, 63.9) | 59.7 (57.8, 61.6) | | -4.3 (-6.2, -2.3) | -6.7 (-9.7, -3.7) |
| Nonmetropolitan | 61.2 (58.9, 63.5) | 61.3 (58.6, 63.9) | 59.8 (57.9, 61.8) | | -1.1 (-3.9, 1.8) | -1.7 (-6.3, 3.1) |
| **U.S. Census Bureau region** |  |  |  | |  |  |
| Northeast | 67.4 (65.0, 69.6) | 65.6 (63.4, 67.8) | 63.2 (60.7, 65.7) | | -3.9 (-6.4, -1.5) | -5.8 (-9.4, -2.2) |
| Midwest | 62.1 (60.1, 64.0) | 60.3 (58.4, 62.1) | 58.0 (56.0, 59.9) | | -4.2 (-6.7, -1.8) | -6.9 (-10.6, -2.9) |
| South | 66.4 (65.0, 67.8) | 65.3 (63.8, 66.8) | 64.0 (62.7, 65.3) | | -3.3 (-4.8, -1.7) | -4.9 (-7.1, -2.6) |
| West | 60.3 (58.4, 62.2) | 58.7 (56.6, 60.7) | 53.2 (51.2, 55.2) | | -7.2 (-9.3, -5.2) | -12.0 (-15.2, -8.7) |
| **Health insurance** |  |  |  | |  |  |
| Yes | 67.3 (66.3, 68.2) | 65.3 (64.3, 66.2) | 63.0 (62.0, 63.9) | | -4.6 (-5.7, -3.5) | -6.8 (-8.3, -5.2) |
| No | 36.8 (34.2, 39.3) | 38.5 (35.5, 41.6) | 30.4 (27.9, 33.1) | | -6.3 (-10.0, -2.7) | -17.3 (-25.9, -7.6) |
| **Educational attainment** |  |  |  | |  |  |
| Below high school | 61.9 (59.2, 64.5) | 59.0 (55.9, 62.1) | 59.5 (56.8, 62.1) | | -3.4 (-6.7, -0.1) | -5.4 (-10.5, -0.1) |
| High school graduate or GED | 60.9 (59.4, 62.5) | 61.7 (60.2, 63.3) | 57.3 (55.6, 58.9) | | -3.5 (-5.5, -1.5) | -5.8 (-8.9, -2.5) |
| Some college | 61.0 (59.0, 62.9) | 58.7 (56.6, 60.8) | 56.1 (54.0, 58.2) | | -5.3 (-7.9, -2.8) | -8.7 (-12.6, -4.7) |
| ≥ College graduate | 68.4 (67.2, 69.5) | 66.1 (65.0, 67.2) | 63.0 (62.0, 64.1) | | -5.5 (-6.8, -4.2) | -8.1 (-9.9, -6.2) |
| **Family income, %** |  |  |  | |  |  |
| <100 | 57.9 (55.5, 60.2) | 57.9 (54.8, 61.0) | 59.1 (56.2, 61.9) | | 0.4 (-2.8, 3.5) | 0.7 (-4.6, 6.2) |
| 100-300 | 61.0 (59.6, 62.4) | 60.0 (58.5, 61.4) | 56.7 (55.2, 58.1) | | -4.7 (-6.5, -3.0) | -7.7 (-10.5, -4.9) |
| ≥300 | 67.5 (66.4, 68.6) | 65.2 (64.1, 66.2) | 62.0 (61.0, 63.1) | | -5.5 (-6.8, -4.2) | -8.1 (-9.9, -6.2) |

Abbreviations: AIAN, American Indian and Alaska Native; CI, confidence interval; GED, General Educational Development; NH, non-Hispanic;

\* Prevalence was weighted to produce nationally representative estimates.

\*\*Categories are defined by BMI (kg/m²): underweight <18.5, healthy weight 18.5 to 25, overweight 25 to 30, and obese ≥30.

**Supplemental Table 2.** Multivariable-adjusted change in prevalence between 2019 and 2021, by year and socio-demographic characteristics, National Health Interview Survey, United States, 2019 – 2021

|  |  |  |
| --- | --- | --- |
|  | **Change from 2019 to 2021 (95% CI)** | |
|  | Absolute change | Percent change |
| **Overall** | -5.2 (-6.2, -4.1) | -8.0 (-9.5, -6.4) |
| **Age groups, years** |  |  |
| 18-39 | -5.6 (-7.4, -3.8) | -11.3 (-14.8, -7.7) |
| 40-64 | -5.9 (-7.5, -4.3) | -8.3 (-10.5, -6.1) |
| ≥65 | -2.8 (-4.2, -1.4) | -3.3 (-4.9, -1.6) |
| **Sex** |  |  |
| Men | -5.3 (-6.8, -3.9) | -8.7 (-10.9, -6.4) |
| Women | -5.0 (-6.3, -3.7) | -7.4 (-9.2, -5.5) |
| **Race and ethnicity** |  |  |
| Hispanic | -6.3 (-9.0, -3.5) | -10.2 (-14.3, -5.8) |
| NH White | -4.9 (-6.1, -3.6) | -7.5 (-9.4, -5.6) |
| NH Black | -4.5 (-7.6, -1.4) | -6.3 (-10.4, -2.0) |
| NH Asian | -10.4 (-14.3, -6.5) | -15.4 (-20.6, -9.8) |
| NH AIAN | 3.0 (-6.2, 12.2) | 5.1 (-9.8, 22.3) |
| Other single or multiple races | 1.9 (-6.5, 10.4) | 3.9 (-12.1, 22.6) |
| **Weight Status\*\*** |  |  |
| Underweight | 0.1 (-6.9, 7.1) | 0.2 (-11.9, 14.0) |
| Normal | -5.6 (-7.3, -3.9) | -9.3 (-12.0, -6.6) |
| Overweight | -5.7 (-7.3, -4.1) | -8.6 (-10.9, -6.3) |
| Obese | -4.4 (-6.2, -2.7) | -6.5 (-8.9, -3.9) |
| **Diagnosed Prediabetes** |  |  |
| Yes | -3.4 (-5.9, -0.9) | -4.0 (-6.8, -1.1) |
| No | -5.4 (-6.4, -4.3) | -8.5 (-10.2, -6.8) |
| **Rural-urban classification** |  |  |
| Large central metro | -7.1 (-8.7, -5.5) | -10.8 (-13.1, -8.3) |
| Large fringe metro | -4.6 (-6.7, -2.6) | -7.0 (-9.9, -3.9) |
| Medium and small metro | -5.1 (-7.1, -3.1) | -7.9 (-10.8, -4.9) |
| Nonmetropolitan | -1.7 (-4.6, 1.1) | -2.8 (-7.3, 1.9) |
| **U.S. Census Bureau region** |  |  |
| Northeast | -4.4 (-6.9, -1.9) | -6.5 (-10.1, -2.8) |
| Midwest | -4.9 (-7.4, -2.5) | -7.9 (-11.7, -4.0) |
| South | -4.2 (-5.8, -2.6) | -6.2 (-8.4, -4.0) |
| West | -7.4 (-9.6, -5.3) | -12.3 (-15.6, -8.8) |
| **Health insurance** |  |  |
| Yes | -5.0 ( -6.1, -3.9) | -7.4 ( -9.0, -5.8) |
| No | -7.1 (-10.8, -3.3) | -18.7 (-27.4, -9.0) |
| **Educational attainment** |  |  |
| Below high school | -5.0 (-8.3, -1.7) | -7.8 (-12.7, -2.6) |
| High school graduate or GED | -4.2 (-6.2, -2.2) | -6.9 (-10.0, -3.6) |
| Some college | -5.1 (-7.7, -2.6) | -8.4 (-12.3, -4.3) |
| ≥ College graduate | -5.7 (-7.1, -4.4) | -8.4 (-10.2, -6.5) |
| **Poverty Income Ratio, %** |  |  |
| <100 | 0.7 (-2.5, 3.8) | 1.2 ( -4.1, 6.8) |
| 100-300 | -5.5 (-7.2, -3.8) | -8.9 (-11.5, -6.2) |
| ≥300 | -6.0 (-7.3, -4.7) | -8.9 (-10.7, -7.0) |

Abbreviations: AIAN, American Indian and Alaska Native; CI, confidence interval; GED, General Educational Development; NH, non-Hispanic;

Multivariable-adjusted absolute and relative changes of testing prevalence were estimated using logistic regression and predictive marginal prevalence. The model included all variables shown in the table. For the estimates in each subgroup, all variables but the subgroup of interest were adjusted.

\*\*Categories are defined by BMI (kg/m²): underweight <18.5, healthy weight 18.5 to 25, overweight 25 to 30, and obese ≥30.