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ARTICLE TITLE: Screening for Prediabetes and Diabetes: Clinical Performance and Implications for Health Equity

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APPENDIX MATERIAL FOR ONLINE PUBLICATION

Appendix Table 1: Characteristics of U.S. Adults with Prediabetes and Undiagnosed Diabetes According to Alternate Diagnostic Criteria

Appendix Table 2: Performance of Screening Criteria based on Fasting Plasma Glucose Alone by Self-Reported Race and Ethnicity

Appendix Table 3: Performance of Screening Criteria based on Hemoglobin A_{1c} Alone by Self-Reported Race and Ethnicity

Appendix Table 4: Characteristics of U.S. Adults Aged 35-70 Years without Diagnosed Diabetes

Appendix Table 1: Characteristics of U.S. Adults with Prediabetes and Undiagnosed Diabetes According to Alternate Diagnostic Criteria

Characteristic ^a	Fasting Plasma Glucose or Hemoglobin A _{1c} ^b		Fasting Plasma Glucose ^c		Hemoglobin A _{1c} ^d	
	Population size ^e	% (95% CI)	Population size ^e	% (95% CI)	Population size ^e	% (95% CI)
Unweighted n	1,654		1,213		1,134	
Weighted n ^e	100.7	46.8 (43.9-49.7)	77.9	36.1 (33.2-39.1)	58.2	27.0 (24.6-29.6)
Female sex	47.6	47.3 (43.9-50.7)	33.7	43.3 (39.2-47.5)	32.2	55.3 (50.6-60.0)
Age, years	100.7	52.5 (50.9-54.1)	77.9	52.1 (50.1-54.1)	58.2	55.8 (54.2-57.4)
Age categories						
18-29	11.5	11.4 (9.4-13.9)	9.1	11.7 (8.4-16.2)	4.1	7.1 (4.7-10.4)
30-34	6.4	6.4 (4.1-9.7)	5.4	6.9 (4.2-11.3)	2.2	3.7 (2.5-5.5)
35-39	6.9	6.8 (5.4-8.6)	5.9	7.5 (5.9-9.6)	3.6	6.2 (4.5-8.5)
40-70	61.4	61.0 (57.1-64.8)	46.0	59.0 (54.1-63.7)	38.7	66.5 (62.3-70.4)
≥71	14.5	14.4 (11.5-17.9)	11.6	14.8 (11.4-19.0)	9.7	16.6 (13.2-20.6)
Race and ethnicity						
Asian	6.0	5.9 (4.1-8.5)	4.5	5.8 (4.0-8.3)	4.4	7.5 (4.9-11.4)
Black	12.1	12.1 (9.0-16.0)	6.9	8.8 (6.3-12.2)	10.2	17.5 (12.9-23.4)
Hispanic	15.1	15.0 (11.9-18.6)	12.5	16.0 (12.4-20.4)	9.0	15.4 (12.2-19.3)
White	63.0	62.5 (58.3-66.6)	50.2	64.4 (60.0-68.7)	32.7	56.2 (49.3-62.9)
Educational attainment <High School	12.2	12.2 (10.6-14.1)	9.7	12.5 (10.3-15.1)	8.8	15.2 (13.6-16.9)
Income below the federal poverty level	11.4	12.7 (10.0-15.9)	8.7	12.5 (9.7-15.9)	7.6	14.7 (10.3-20.7)
Uninsured	13.1	13.0 (9.9-16.8)	10.7	13.7 (10.3-18.1)	6.9	11.8 (9.4-14.8)

Usual source of care	85.9	85.3 (81.9-88.1)	65.8	84.4 (80.9-87.4)	51.8	89.0 (85.0-92.1)
Weight status ^f						
Normal	17.1	17.0 (14.1-20.3)	12.5	16.1 (12.9-19.8)	9.1	15.7 (12.1-20.1)
Overweight	34.8	34.5 (31.0-38.3)	26	33.4 (29.8-37.2)	19.2	32.9 (27.7-38.7)
Obesity	48.8	48.5 (45.2-51.8)	39.4	50.5 (45.7-55.4)	29.9	51.4 (47.1-55.6)
Body mass index, kg/m ²	100.7	31.0 (30.6-31.5)	77.9	31.3 (30.8-31.9)	58.2	31.6 (30.7-32.4)
Waist circumference, cm	98.6	104.2 (103.1-105.3)	76.3	105.1 (103.7-106.5)	57	105.3 (103.6-107.0)
Fasting plasma glucose, mg/dL	100.7	111.8 (110.7-113.0)	77.9	116.0 (114.8-117.3)	58.2	112.3 (110.3-114.3)
Hemoglobin A _{1c} , %	100.7	5.73 (5.69-5.78)	77.9	5.70 (5.64-5.76)	58.2	6.02 (5.98-6.07)

- a Categorical variables are expressed as weighted column percentages (95% CI). Body mass index, waist circumference, and glycemic testing results are expressed as mean (95% CI).
- b Defined as fasting plasma glucose ≥ 100 mg/dL or hemoglobin A_{1c} $\geq 5.7\%$.
- c Defined as fasting plasma glucose ≥ 100 mg/dL.
- d Defined as hemoglobin A_{1c} $\geq 5.7\%$.
- e These numbers represent the population size in millions among all U.S. adults.
- f Overweight and obesity status were determined based on a measured BMI of ≥ 25 kg/m² and ≥ 30 kg/m², respectively, for all racial and ethnic groups. Normal weight status was defined by a BMI < 25 kg/m².

Appendix Table 2: Performance of Screening Criteria based on Fasting Plasma Glucose Alone by Self-Reported Race and Ethnicity^{a,b}

Screening Criteria and Population group	Sensitivity, % (95% CI)	Specificity, % (95% CI)	Positive predictive value, % (95% CI)	Negative predictive value, % (95% CI)
2015 USPSTF Criteria^c				
Total population	52.0 (48.1-55.9)	71.1 (67.8-74.3)	50.4 (46.1-54.8)	72.4 (68.7-75.9)
Asian	37.5 (27.8-48.3)	81.3 (74.7-86.5)	53.4 (44.7-61.8)	69.5 (63.0-75.2)
Black	61.4 (54.0-68.3)	66.2 (61.7-70.4)	42.1 (37.0-47.4)	81.1 (76.3-85.0)
Hispanic	54.0 (48.0-59.9)	73.9 (69.3-78.1)	54.1 (47.6-60.4)	73.9 (69.1-78.1)
White	53.0 (47.9-58.0)	70.1 (64.7-75.0)	50.9 (44.9-56.9)	71.9 (66.5-76.7)
<i>P</i> -value ^d	0.02	<0.01	<0.01	0.01
2021 USPSTF Criteria^e				
Total population	58.3 (54.2-62.3)	64.6 (61.0-68.1)	48.2 (44.3-52.1)	73.3 (69.2-77.1)
Asian	43.7 (32.7-55.4)	77.7 (72.0-82.5)	52.8 (45.7-59.8)	70.7 (63.1-77.4)
Black	68.7 (62.0-74.6)	60.9 (55.8-65.8)	41.3 (36.3-46.6)	82.9 (78.3-86.7)
Hispanic	65.0 (57.6-71.8)	62.8 (58.4-67.1)	49.9 (43.3-56.4)	76.0 (70.3-80.8)
White	57.6 (52.8-62.3)	64.3 (58.7-69.5)	48.6 (43.2-53.9)	72.2 (66.6-77.2)
<i>P</i> -value ^e	<0.01	<0.01	0.03	0.02

USPSTF = United States Preventive Services Task Force

- a The eligible population for this analysis comprises U.S. adults without diagnosed diabetes.
- b Prediabetes and undiagnosed diabetes are collectively defined by fasting plasma glucose \geq 100 mg/dL.
- c The 2015 USPSTF screening criteria were age 40-70 years and BMI \geq 25kg/m².
- d *P*-values for racial and ethnic differences in performance characteristics of the USPSTF screening criteria were determined using Chi-square tests. Boldface indicates statistical significance.
- e The 2021 USPSTF screening criteria are age 35-70 years and BMI \geq 25kg/m².

Appendix Table 3: Performance of Screening Criteria based on Hemoglobin A_{1c} Alone by Self-Reported Race and Ethnicity^{a,b}

Screening Criteria and Population group	Sensitivity, % (95% CI)	Specificity, % (95% CI)	Positive predictive value, % (95% CI)	Negative predictive value, % (95% CI)
2015 USPSTF Criteria^c				
Total population	57.3 (53.1-61.4)	70.1 (67.0-73.1)	41.5 (36.9-46.3)	81.6 (78.9-84.0)
Asian	42.7 (29.7-56.9)	83.8 (79.0-87.7)	58.8 (48.8-68.1)	73.0 (65.7-79.2)
Black	59.2 (53.2-64.9)	70.9 (65.8-75.6)	60.3 (53.9-66.3)	70.0 (65.0-74.6)
Hispanic	55.6 (47.7-63.3)	70.7 (66.0-75.0)	40.1 (33.9-46.7)	81.8 (77.9-85.2)
White	59.7 (53.2-66.0)	68.2 (63.5-72.6)	37.4 (30.4-45.0)	84.2 (79.7-87.8)
<i>P</i> -value ^d	0.06	<0.01	<0.01	0.01
2021 USPSTF Criteria^e				
Total population	63.1 (59.2-66.8)	63.4 (60.1-66.6)	39.0 (34.7-43.4)	82.3 (79.7-84.6)
Asian	47.9 (35.9-60.1)	79.5 (73.8-84.3)	55.9 (46.8-64.6)	73.8 (66.4-80.1)
Black	65.5 (59.5-71.1)	65.5 (59.8-70.8)	58.6 (52.3-64.6)	71.8 (66.7-76.4)
Hispanic	67.3 (59.1-74.7)	59.8 (54.9-64.5)	37.2 (31.6-43.2)	83.8 (78.9-87.8)
White	63.4 (57.8-68.7)	62.3 (57.3-66.9)	34.8 (28.1-42.2)	84.3 (80.3-87.5)
<i>P</i> -value ^e	0.10	<0.01	<0.01	0.01

USPSTF = United States Preventive Services Task Force

- a The eligible population for this analysis comprises U.S. adults without diagnosed diabetes.
- b Prediabetes and undiagnosed diabetes are collectively defined by hemoglobin A_{1c} ≥ 5.7%.
- c The 2015 USPSTF screening criteria were age 40-70 years and BMI ≥25kg/m².
- d *P*-values for racial and ethnic differences in performance characteristics of the USPSTF screening criteria were determined using Chi-square tests. Boldface indicates statistical significance.
- e The 2021 USPSTF screening criteria are age 35-70 years and BMI ≥25kg/m².

Appendix Table 4: Characteristics of U.S. Adults Aged 35-70 Years without Diagnosed Diabetes

Characteristic ^a	% (95% CI)
Unweighted n	1922
Weighted n ^b	124.1
Female sex	53.1 (50.5-55.7)
Mean age, years	51.9 (51.0-52.9)
Age categories, years	
18-34	0.0 (. -.)
35-39	14.4 (12.5-16.6)
40-70	85.6 (83.4-87.5)
≥71	0.0 (. -.)
Race and ethnicity	
Asian	5.8 (4.1-8.1)
Black	10.8 (8.4-13.9)
Hispanic	15.5 (12.5-19.0)
White	64.3 (59.7-68.7)
Educational attainment <High School	11.6 (10.2-13.1)
Income below the federal poverty level	12.5 (10.1-15.5)
Uninsured	13.3 (10.5-16.8)
Usual source of care	85.1 (81.0-88.5)
Weight status ^c	
Normal	23.6 (20.7-26.7)
Overweight	37.8 (34.5-41.3)
Obesity	38.6 (35.3-42.1)
Body mass index, kg/m ²	29.7 (29.2-30.2)
Waist circumference, cm	100.8 (99.5-102.2)
Fasting plasma glucose, mg/dL ^{d,e}	
100-109	35.7 (32.9-38.6)
110-125	13.8 (11.1-17.1)
≥126	4.5 (3.5-5.7)
Mean	105.1 (104.4-105.9)
Hemoglobin A1c, % ^{d,e}	
5.7-5.9	21.0 (18.5-23.9)

6.0-6.4	9.9 (8.3-11.8)
≥6.5	3.5 (2.8-4.4)
Mean	5.56 (5.53-5.59)

- a Categorical variables are expressed as weighted column percentages (95% CI). Body mass index and waist circumference are expressed as mean (95% CI).
- b This number represents the population size in millions among all U.S. adults.
- c Overweight and obesity status were determined based on a measured BMI of $\geq 25\text{kg/m}^2$ and $\geq 30\text{kg/m}^2$, respectively, for all racial and ethnic groups. Normal weight status was defined by a BMI $< 25\text{kg/m}^2$.
- d Glycemic measures are expressed as weighted column percentages (95% CI) within each specified range of test values, followed by the mean value for each glycemic test.
- e Some estimates within strata of glycemic values may not be statistically reliable due to small sample sizes.