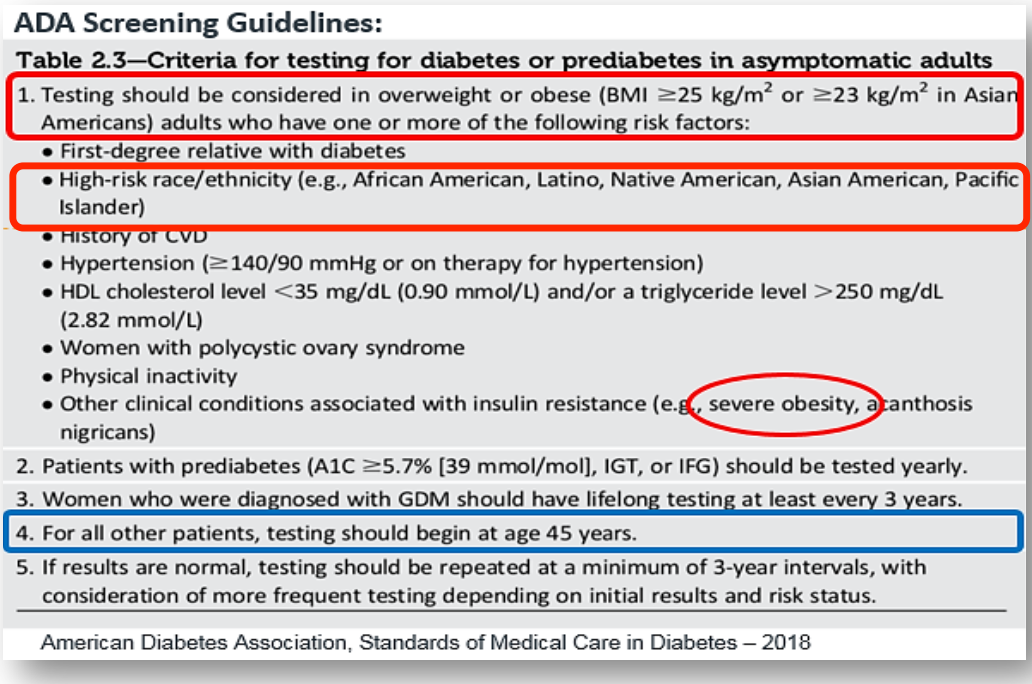
INSIGHT: DIABETES SCREENING AND UNDIAGNOSED PATIENTS AT RISK

AMGA ANALYTICS

AMGA examined screening patterns for Type 2 diabetes across and within 23 U.S. healthcare organizations using the Optum® Analytics database.[1] Among 5.1 million adult patients included in the analysis, we determined who was eligible for screening according to the American Diabetes Association (ADA) Standards of Medical Care in Diabetes,[2] and whether those eligible were properly screened. Among the population of patients screened, AMGA examined overall screening yields (i.e., results indicating diabetes or prediabetes), stratified by demographic and socioeconomic factors. The most disturbing finding: patients least likely to be screened are most likely to have results indicating diabetes or prediabetes.



ADA Screening Guidelines:

Table 2.3—Criteria for testing for diabetes or prediabetes in asymptomatic adults

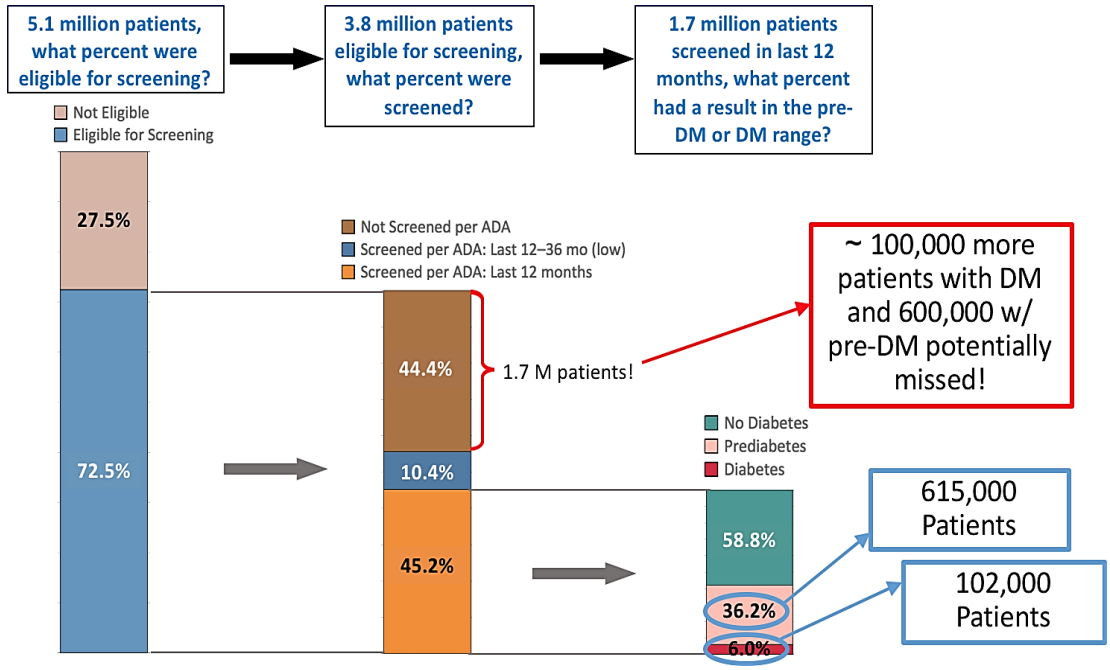
1. Testing should be considered in overweight or obese (BMI ≥25 kg/m^2 or ≥23 kg/m^2 in Asian Americans) adults who have one or more of the following risk factors:
   - First-degree relative with diabetes
   - High-risk race/ethnicity (e.g., African American, Latino, Native American, Asian American, Pacific Islander)
   - History of CVD
   - Hypertension (≥140/90 mmHg or on therapy for hypertension)
   - HDL cholesterol level <35 mg/dL (0.90 mmol/L) and/or a triglyceride level >250 mg/dL (2.82 mmol/L)
   - Women with polycystic ovary syndrome
   - Physical inactivity
   - Other clinical conditions associated with insulin resistance (e.g., severe obesity, acanthosis nigricans)
2. Patients with prediabetes (A1C ≥5.7% [39 mmol/mol], IGT, or IFG) should be tested yearly.
3. Women who were diagnosed with GDM should have lifelong testing at least every 3 years.
4. For all other patients, testing should begin at age 45 years.
5. If results are normal, testing should be repeated at a minimum of 3-year intervals, with consideration of more frequent testing depending on initial results and risk status.

American Diabetes Association, Standards of Medical Care in Diabetes – 2018

Who Was Screened?

AMGA used electronic health records (EHR) from 2012 to 2017 to identify our study population of 5.1 million patients, age 18-75 with no prior evidence of diabetes. About 73% of the study population, or 3.8 million adult patients, were found to be eligible for diabetes screening. Yet only about half (55.6%) of these patients received appropriate screening (45.2% in orange + 10.2% in blue, Figure 1). Among the 44.4% who did not receive appropriate screening, more than a third (36.2%) were likely to have prediabetes and 6% to have diabetes. This translates to 600,000 patients who were not properly screened and who potentially missed clinical opportunities for early intervention across these 23 healthcare organizations (Figure 1). Patients who were least likely to have been screened were younger (age <45 years).

Figure 1. Eligibility, Screening and Yield among 5.1 Million Patients

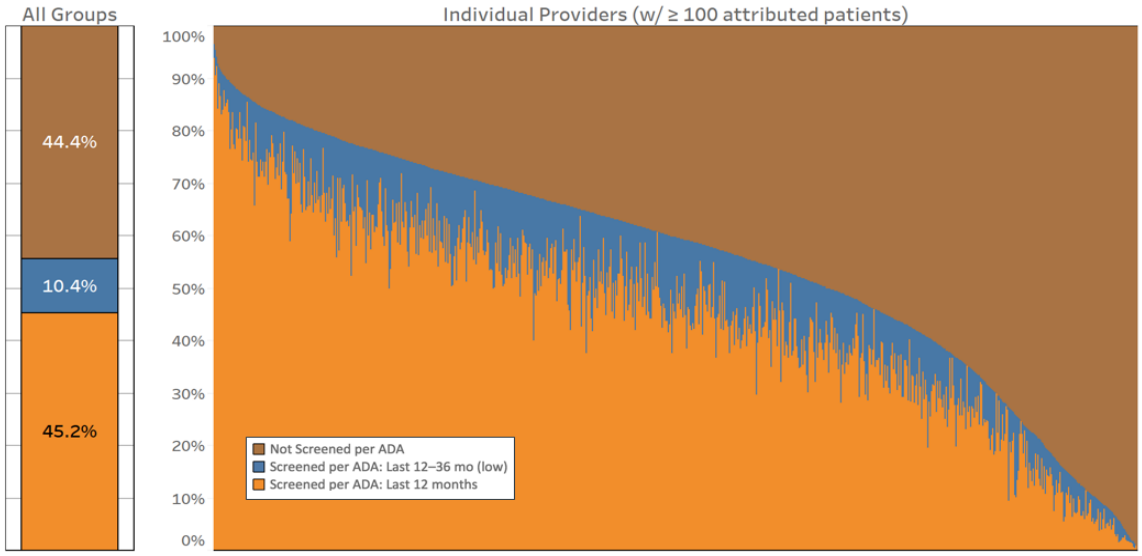


Socioeconomic factors more common among patients who were not properly screened included insurance status (i.e., Medicaid or uninsured) and patients with less education (determined by % of population in ZIP code with a bachelor's degree). Disparities by race and ethnicity were also found among those eligible for screening. Patients of Black or African American race were less likely to be appropriately screened than patients who were White or Asian (51% vs. 58%). Patients of Hispanic ethnicity were less likely than Non-Hispanic White patients to be screened (53% vs. 57%).

Provider Screening Rates

AMGA looked at screening practices for a total of 13,830 primary care providers. For this analysis, each patient's provider was determined by who they saw the most over the past 24 months. Providers with fewer than 100 patients with Type 2 diabetes were excluded from the study. AMGA found wide variation in screening performance across healthcare organizations and among individual providers in the same organization. Among patients eligible for screening (according to ADA guidelines), the proportion properly screened was 55.6% overall (45.2% in orange + 10.4% in blue, Figure 1), but the range was 45–65% across healthcare organizations and 1–96% across individual providers (Figure 2). This suggests that organizations may benefit from looking at screening rates by provider within their own organizations.

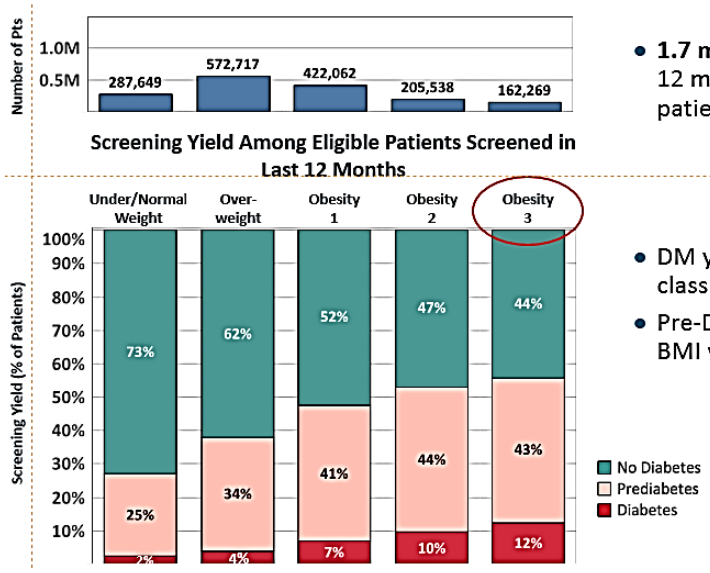
Figure 2: Screening Rates by Provider



BMI: A Significant Factor in Screening Yields

AMGA looked at screening by weight class. Overall, 6% of patients screened had results in diabetes range (dark red, Figure 3). Figure 3 shows diabetes yield among patients with class 3

Figure 3. Eligible Patients Screened in the Past 12 Months



- **1.7 million patients** with DM screening in last 12 months (among ADA guideline eligible patients)

- DM yield (dark red) increases with BMI weight class: 2% to 12%
- Pre-DM yield (light red) also increases with BMI weight class: 25% to 43%

obesity was 6 times that of their low-to-normal weight counterparts (12% vs 2% in red, Figure 3). Although BMI was determined to be a significant factor in screening yield (i.e., results indicating diabetes or prediabetes), none of the 23 healthcare organizations had targeted screening efforts for patients with class 2 and 3 obesity.

Steps to Improve Screening for High-Risk Patients

- Leverage EHR clinical data to identify patients with no prior evidence of diabetes (diagnosis or prescription for diabetes medications) who may be falling between the cracks (see highlights in red in ADA Screening Guidelines Table 2-3). Other socioeconomic factors to consider when determining who to screen include insurance status (i.e., Medicaid or uninsured) and level of education (< B.S./B.A. degree). *(See campaign plank: Embed Point-of-Care Tools)*

- Assess screening programs to determine whether certain at-risk groups are participating at levels comparable with the rest of your patient population. (*See campaign plank: Conduct Practice-Based Screening*)

- Identify providers with the highest percentage of patients screened for diabetes, particularly those who have succeeded at engaging hard-to-reach, underserved patients, and encourage them to:
    - Speak during trainings providing insights on what they are doing to succeed
    - Pair up with and mentor low performers
    - Document strategies used by successful providers and disseminate widely across your organization

  (See campaign plank: Build an Accountable Diabetes Team)

- Emphasize positive engagement strategies in your outreach to improve screening rates, (e.g., providers working with one another, healthcare organizations working with underserved communities, and patients working to overcome barriers and achieve optimum screening and health). *(See campaign plank: Integrate Emotional and Behavioral Support)*

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AMGA ANALYTICS

- Recognize the impact social determinants have on health outcomes of specific populations. Use a multi-stakeholder approach, engaging community-based organizations and leaders in:
    - Developing screening messages and materials that are respectful of culture, lifestyle and traditions
    - Hosting local educational forums on the importance of early detection and screening for patients at risk, emphasize the need to prevent progression of diabetes, and avoid adverse outcomes (e.g., vision loss, nerve pain, chronic kidney disease, poor wound healing, and amputation, as well as heart attack, stroke, and cardiovascular disease)
    - Identifying specific community barriers such as transportation, child care, and other factors that prevent people in certain communities from receiving proper screenings and engage the community in solving these problems
    - Disseminating information through trusted sources and intermediaries

- Host screening events in communities with low diabetes screening rates, invite opinion leaders from the community to participate. Promote these activities and help educate the community on the importance of diabetes screening and preventive health care.

References

1. The study used longitudinal electronic health record (EHR) data from 23 U.S. healthcare organizations who pool their EHR data as part of a national learning collaborative. All organizations in the collaborative use Optum's population health management and risk analytics platform which extracts data for multiple sources, cleans, normalizes and validates it, making it possible to conduct accurate lateral analysis and comparisons. Optum Analytics' clinical database is comprised of longitudinal ambulatory EHR data from 106 million patients treated by 84 US healthcare organizations. The longitudinal patient records are de-identified and become part of one of the largest integrated data warehouses in the U.S., also managed by Optum.
2. Open Access: 2. Classification and Diagnosis of Diabetes: *Standards of Medical Care in Diabetes—2018,* American Diabetes Association, Diabetes Care 2018 Jan; 41 (Supplement 1): S13-27.

Developed in partnership with Optum, AMGA's Distinguished Data & Analytics Corporate Collaborator