

Section 4:

# Comprehensive Medical Evaluation and Assessment of Comorbidities

Diabetes treatment goals aim to prevent or delay complications and optimize quality of life. These goals should be developed collaboratively with people with diabetes to honor their preferences and values. Comprehensive diabetes care should be provided by an interprofessional team which may include but is not limited to diabetes care and education specialists, primary care and subspecialty clinicians, nurses, registered dietitian nutritionists, exercise specialists, pharmacists, dentists, podiatrists, behavioral health professionals, and community partners such as community health workers and community paramedics. Ongoing treatment necessitates regular follow-up and the active engagement of people with diabetes and their care partners. Comprehensive medical evaluations (described in the table below) and the provision of all recommended vaccinations (cdc.gov/vaccines) are essential components of ongoing diabetes care.

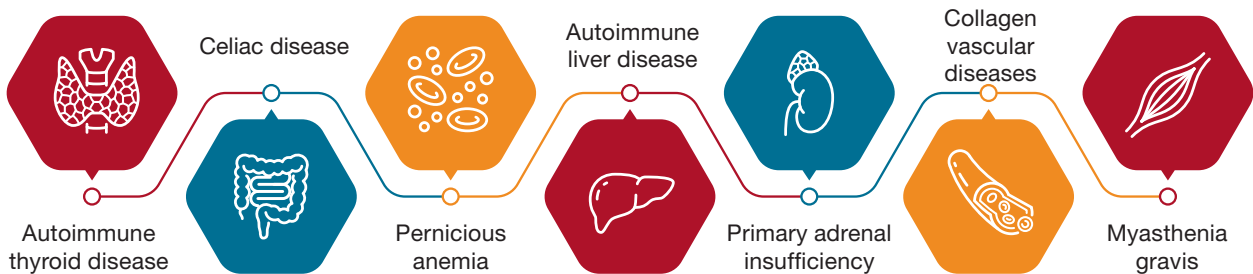
## Assessment of Comorbidities

**What autoimmune conditions should people with type 1 diabetes be screened for?**

People with type 1 diabetes should be screened soon after diagnosis and periodically thereafter for:

- Autoimmune thyroid disease
- Other autoimmune conditions, if suggestive signs and symptoms are present

### Autoimmune Conditions Associated With Type 1 Diabetes



**How does diabetes affect bone health?**

- People with type 1 or type 2 diabetes have a higher fracture risk than those without diabetes.
- This risk escalates with longer diabetes duration and poor glycemic control.
- People with type 2 diabetes on thiazolidinediones, insulin, or a sulfonylurea have an even higher fracture risk.

### Optimizing Bone Health in People With Diabetes

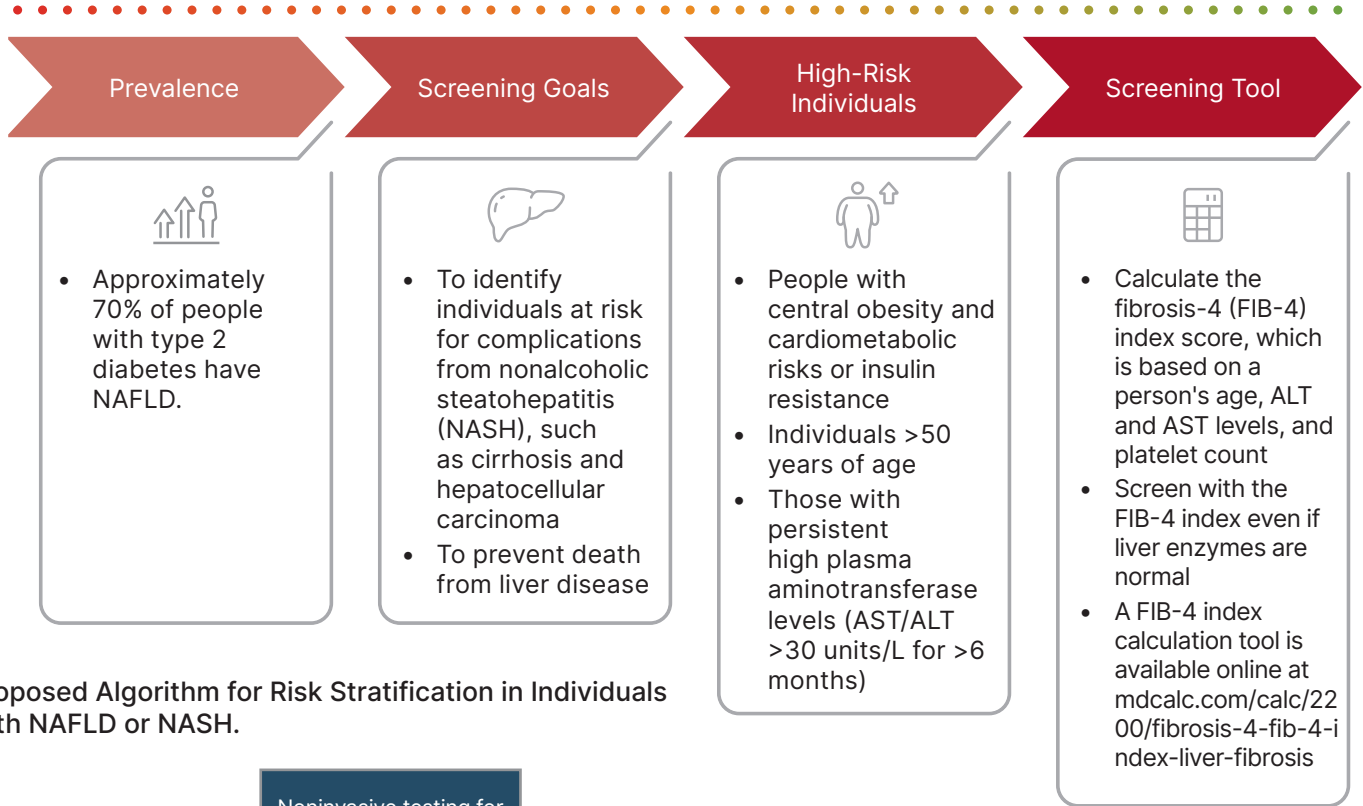
| Screening  | Nutrition and Activity   | Pharmacotherapy  |
|--|--|--|
| <ul style="list-style-type: none"> <li>In older adults (&gt;65 years of age) and high-risk young adults</li> <li>Dual-energy X-ray absorptiometry every 2–3 years</li> </ul> | <p>Counsel on:</p> <ul style="list-style-type: none"> <li>Calcium and vitamin D</li> <li>Aerobic and weight-bearing physical activity</li> <li>Fall precautions</li> </ul> | <ul style="list-style-type: none"> <li>Choose glucose-lowering medications with safe profiles for bone health and low hypoglycemia risk to prevent falls.</li> <li>Consider antiresorptive and osteo-anabolic agents for those with a T-score <math>\leq -2.0</math> or previous fragility fractures.</li> </ul> |

Suggested citation: American Diabetes Association Primary Care Advisory Group. 4. Comprehensive medical evaluation and assessment of comorbidities: *Standards of Care in Diabetes—2024* abridged for primary care professionals. Clin Diabetes 2024;42:189–192 (doi: 10.2337/cd24-a004). ©2024 by the American Diabetes Association.

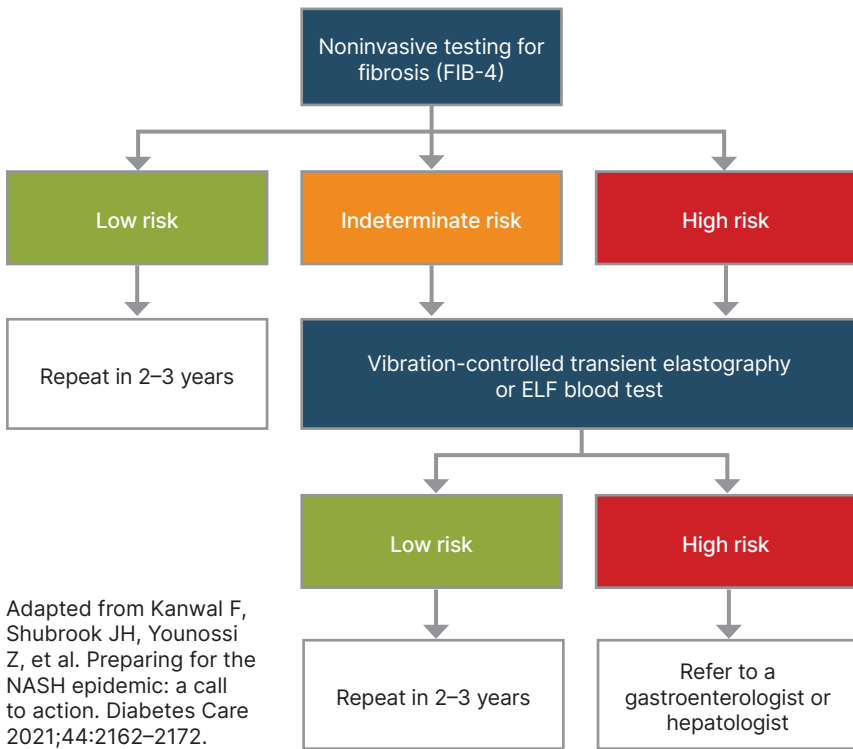
**Are people with diabetes at increased risk for cancer?**

Diabetes is associated with increased risk of cancers of the liver, pancreas, endometrium, colon/rectum, breast, and bladder. Nevertheless, cancer screening recommendations are the same for people with diabetes as for those without diabetes.

**How prevalent is nonalcoholic fatty liver disease (NAFLD)? Who should be screened for it and how?**



Proposed Algorithm for Risk Stratification in Individuals with NAFLD or NASH.



Adapted from Kanwal F, Shubrook JH, Younossi Z, et al. Preparing for the NASH epidemic: a call to action. Diabetes Care 2021;44:2162-2172.

ELF, enhanced liver fibrosis.

**Management**

- Weight loss with intensive lifestyle therapy and/or metabolic surgery, as appropriate, is recommended.
- Pioglitazone and glucagon-like peptide 1 receptor agonists are the preferred agents for treatment of hyperglycemia in adults with type 2 diabetes and NASH, unless decompensated cirrhosis is present.
- People with type 2 diabetes and decompensated cirrhosis from NASH should be treated with insulin.
- Statin therapy is safe in the setting of NAFLD. Use with caution and close monitoring in people with decompensated cirrhosis.

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## Components of the Comprehensive Diabetes Medical Evaluation at Initial, Follow-Up, and Annual Visits

|  |   | Initial Visit | Every Follow-Up Visit | Annual Visit |
|--|---|---------------|-----------------------|--------------|
| PAST MEDICAL AND FAMILY HISTORY                      | <b>DIABETES HISTORY</b>   |               |                       |              |
|  | • Characteristics at onset (e.g., age, symptoms)  | ✓             |                       |              |
|  | • Review of previous treatment plans and response   | ✓             |                       |              |
|  | • Assess frequency/cause/severity of past hospitalizations  | ✓             |                       |              |
|  | <b>FAMILY HISTORY</b>   |               |                       |              |
|  | • Family history of diabetes in a first-degree relative   | ✓             |                       |              |
|  | • Family history of autoimmune disorder   | ✓             |                       |              |
|  | <b>PERSONAL HISTORY OF COMPLICATIONS AND COMMON COMORBIDITIES</b>   |               |                       |              |
|  | • Common comorbidities (e.g., obesity, OSA, NAFLD)  | ✓             |                       |              |
|  | • High blood pressure or abnormal lipids  | ✓             |                       | ✓            |
|  | • Macrovascular and microvascular complications   | ✓             |                       | ✓            |
|  | • Hypoglycemia: awareness/frequency/causes/timing of episodes   | ✓             | ✓                     | ✓            |
|  | • Presence of hemoglobinopathies or anemias   | ✓             |                       | ✓            |
|  | • Last dental visit   | ✓             |                       | ✓            |
|  | • Last dilated eye exam   |               |                       | ✓            |
|  | • Visits to specialists   |               |                       | ✓            |
|  | • Disability assessment and use of assistive devices (e.g., physical, cognitive, vision and auditory, history of fractures, podiatry) | ✓             | ✓                     | ✓            |
|  | • Personal history of autoimmune disease  | ✓             |                       |              |
|  | <b>INTERVAL HISTORY</b>   |               |                       |              |
| • Changes in medical/family history since last visit |   | ✓             | ✓                     |              |
| BEHAVIORAL FACTORS                                   | • Eating patterns and weight history  | ✓             | ✓                     | ✓            |
|  | • Assess familiarity with carbohydrate counting (e.g., type 1 diabetes, type 2 diabetes treated with intensive insulin therapy)       | ✓             |                       | ✓            |
|  | • Physical activity and sleep behaviors, screen for obstructive sleep apnea   | ✓             | ✓                     | ✓            |
|  | • Tobacco, alcohol, and substance use   | ✓             |                       | ✓            |
| MEDICATIONS AND VACCINATIONS                         | • Current medication plan   | ✓             | ✓                     | ✓            |
|  | • Medication-taking behavior, including rationing of medications and/or medical equipment   | ✓             | ✓                     | ✓            |
|  | • Medication intolerance or side effects  | ✓             | ✓                     | ✓            |
|  | • Complementary and alternative medicine use  | ✓             | ✓                     | ✓            |
|  | • Vaccination history and needs   | ✓             |                       | ✓            |
| TECHNOLOGY USE                                       | • Assess use of health apps, online education, patient portals, etc.  | ✓             |                       | ✓            |
|  | • Glucose monitoring (meter/CGM): results and data use  | ✓             | ✓                     | ✓            |
|  | • Review insulin pump settings and use, connected pen and glucose data  | ✓             | ✓                     | ✓            |

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|                        |   | Initial Visit | Every Follow-Up Visit | Annual Visit   |  |
|------------------------|---|---------------|-----------------------|----------------|--|
| SOCIAL LIFE ASSESSMENT | <b>SOCIAL NETWORK</b>   |               |                       |                |  |
|                        | • Identify existing social supports   | ✓             |                       | ✓              |  |
|                        | • Identify surrogate decision maker, advanced care plan   | ✓             |                       | ✓              |  |
|                        | • Identify social determinants of health (e.g., food security, housing stability & homelessness, transportation access, financial security, community safety) | ✓             |                       | ✓              |  |
| PHYSICAL EXAMINATION   | • Assess daily routine and environment, including school/work schedules and ability to engage in diabetes self-management                                     | ✓             | ✓                     | ✓              |  |
|                        | • Height, weight, and BMI; growth/pubertal development in children and adolescents  | ✓             | ✓                     | ✓              |  |
|                        | • Blood pressure determination  | ✓             | ✓                     | ✓              |  |
|                        | • Orthostatic blood pressure measures (when indicated)  | ✓             |                       |                |  |
|                        | • Fundoscopic examination (refer to eye specialist)   | ✓             |                       | ✓              |  |
|                        | • Thyroid palpation   | ✓             |                       | ✓              |  |
|                        | • Skin examination (e.g., acanthosis nigricans, insulin injection or insertion sites, lipodystrophy)  | ✓             | ✓                     | ✓              |  |
|                        | • Comprehensive foot examination  | ✓             |                       | ✓              |  |
|                        | » Visual inspection (e.g., skin integrity, callous formation, foot deformity or ulcer, toenails) **   | ✓             | ✓                     | ✓              |  |
|                        | » Screen for PAD (pedal pulses—refer for ABI if diminished)   | ✓             |                       | ✓              |  |
|                        | » Determination of temperature, vibration or pinprick sensation, and 10-g monofilament exam   | ✓             |                       | ✓              |  |
|                        | • Screen for depression, anxiety, diabetes distress, fear of hypoglycemia, and disordered eating  | ✓             |                       | ✓              |  |
|                        | • Consider assessment for cognitive performance*  | ✓             |                       | ✓              |  |
|                        | • Consider assessment for functional performance*   | ✓             |                       | ✓              |  |
|                        | • Consider assessment for bone pain   | ✓             |                       | ✓              |  |
| LABORATORY EVALUATION  | • A1C, if the results are not available within the past 3 months  | ✓             | ✓                     | ✓              |  |
|                        | • If not performed/available within the past year   | ✓             |                       | ✓              |  |
|                        | » Lipid profile, including total, LDL, and HDL cholesterol and triglycerides <sup>#</sup>   | ✓             |                       | ✓ <sup>^</sup> |  |
|                        | » Liver function tests <sup>#</sup>   | ✓             |                       | ✓              |  |
|                        | » Spot urinary albumin-to-creatinine ratio  | ✓             |                       | ✓              |  |
|                        | » Serum creatinine and estimated glomerular filtration rate <sup>+</sup>  | ✓             |                       | ✓              |  |
|                        | » Thyroid-stimulating hormone in people with type 1 diabetes <sup>#</sup>   | ✓             |                       | ✓              |  |
|                        | » Vitamin B12 if on metformin   | ✓             |                       | ✓              |  |
|                        | » Complete Blood Count (CBC) with platelets   | ✓             |                       | ✓              |  |
|                        | » Serum potassium levels in people with diabetes on ACE inhibitors, ARBs, or diuretics <sup>+</sup>   | ✓             |                       | ✓              |  |
|                        | » Calcium, vitamin D, phosphorus for appropriate patients   | ✓             |                       | ✓              |  |

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ABI, ankle-brachial pressure index; ARBs, angiotensin receptor blockers; CGM, continuous glucose monitors; MDI, multiple daily injections; NAFLD, nonalcoholic fatty liver disease; OSA, obstructive sleep apnea; PAD, peripheral arterial disease.

\*At 65 years of age or older.

+May be needed more frequently in people with diabetes with known chronic kidney disease or with changes in medications that affect kidney function and serum potassium

#May also need to be checked after initiation or dose changes of medications that affect these laboratory values (i.e., diabetes medications, blood pressure medications, cholesterol medications, or thyroid medications).

<sup>^</sup>In people without dyslipidemia and not on cholesterol-lowering therapy, testing may be less frequent.

\*\*Should be performed at every visit in people with diabetes with sensory loss, previous foot ulcers, or amputations.