Reducing Microvascular Risks:
A Guide to Screenings

Hyperglycemia causes damage to the microvasculature and nerves, potentially leading to diabetes-related co-conditions including retinopathy, nephropathy and neuropathy. Microvascular co-conditions can be prevented by achieving glycemic targets soon after a diagnosis of type 1 or type 2 diabetes. Due to the asymptomatic nature of early microvascular disease, screenings and early interventions, if indicated, are important components of caring for people with diabetes.

As diabetes-related microvascular disease progresses, multiple body systems may become affected, and symptoms become more burdensome with detrimental effects on quality of life. Severe consequences such as limb amputations, blindness and kidney failure are possible.

Strategies to reduce the risk of diabetes-related co-conditions:

1. Avoid therapeutic inertia and act promptly when treatment targets are not met.
2. Optimize cardiometabolic care:
   - Blood pressure.
   - Cholesterol.
   - Smoking.
   - Body weight.
3. Routinely screen for microvascular complications.

MICROVASCULAR DISEASE SCREENING RECOMMENDATIONS

Nephropathy				
Screening Method	**Children and Adolescents**		**Adults**	
	Initial Screening	Follow-up Screening	Initial Screening	Follow-up Screening
Random spot urine albumin-to-creatine ratio	**Type 1 diabetes** • 5 years after diagnosis. • Plus, puberty or age > 10 years. **Type 2 diabetes** • At the time of diagnosis.	• Annual. • Confirm elevation (>30 mg/g creatinine) with 2 of 3 samples.	**Type 1 diabetes** • 5 years after diagnosis. **Type 2 diabetes** • At the time of diagnosis.	• Annual for most. • Twice yearly if urinary albumin >300 mg/g creatinine and/or eGFR 30 to 60 mL/min/1.73 m2.
Estimated glomerular filtration rate (eGFR)	• At the time of diagnosis.	• Repeat as indicated based on clinical status, diabetes duration & therapies.	• At the time of diagnosis.	• Annual.

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Retinopathy				
Screening Method	**Children and Adolescents**		**Adults**	
	Initial Screening	Follow-up Screening	Initial Screening	Follow-up Screening
Dilated and comprehensive eye exam Retinal photography with referral for comprehensive eye exam can be used when indicated	**Type 1 diabetes** • 3 to 5 years after diagnosis. • Plus, puberty or age > 11 years. **Type 2 diabetes** • At or soon after diagnosis.	**Type 1 diabetes** • Every 2 years (every 4 years may be acceptable upon advice of eye care professional and A1C < 8%). **Type 2 diabetes** • Annual (Every 2 years may be acceptable in the presence of optimal glycemia and no presence of retinopathy).	**Type 1 diabetes** • Within 5 years of diagnosis. **Type 2 diabetes** • At the time of diagnosis.	• Every 1 to 2 years in the presence of optimal glycemia and no detection of retinopathy. • Yearly, at minimum if retinopathy is present.
	Pregnant Women with Pre-Existing Diabetes			
	Initial Screening	Follow-up Screening		
	• Prior to pregnancy or early in the 1st trimester.	• Every trimester if no retinopathy detected or mild to moderate retinopathy is present. • Every 1 to 3 months if severe retinopathy is present 1 year postpartum.		

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Neuropathy				
Screening Method	**Children and Adolescents**		**Adults**	
	Initial Screening	Follow-up Screening	Initial Screening	Follow-up Screening
Foot inspection with education about foot care	Every visit if evidence of sensory loss is present or there is a history of amputation or ulcers.			
Comprehensive foot exam	**Type 1 diabetes** • 5 years after diagnosis. • Plus, puberty or age > 10 years. **Type 2** • At the time of diagnosis.	• Annual.	**Type 1 diabetes** • 5 years after diagnosis. **Type 2 diabetes** • At the time of diagnosis.	• Annual.
	Comprehensive foot assessment should include: • Inspection and assessment of the skin. • Palpation of pedal pulses. • Assessment of proprioception. • Identification of foot deformities. • Assessment of ankle reflexes. • Inquiry for symptoms of neuropathic pain. • Use of 10-g monofilament to assess protective sensation. • Examination of at least one of the following: – Pinprick and temperature sensation. – Vibration perception.			

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