Sixty second screening identifies persons at risk for diabetic foot ulcers

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Background – The modified International Working Group for the Diabetic Foot (IWGDF) risk classification correlates increasing risk of ulceration, infection, hospital admission and amputation with: neuropathy, deformity, Peripheral arterial Occlusive Disease (PaOD), and previous ulcer (DFU) or amputation[1].

Context – Guyana, South America, is a poor country with a high burden of diabetic foot disease. Two hundred patients are seen in the weekly medical diabetic clinic at Georgetown Public Hospital Corporation (GPHC), the national referral hospital with a diabetic population base of 2000.

Conditions in 2007 – feet not routinely examined, no screening or risk assessment[2]

60 Second Screen for the HIGH RISK DIABETIC FOOT				
Name______ Phone #______ DOR (dd/mm/yy)___/___/___ Years with diabetes______ Gender: M____ F____ Date of Exam (dd/mm/yy)___/___/___		If all responses CIRCLED NO: re-screen in 1 year	If any CIRCLED RESPONSE send patient to Diabetic Foot center	
History				
	1. Previous Ulcer	NO	YES	H
	2. Previous amputation	NO	YES	I
Physical exam				
	3. Deformity	NO	YES	J
	4. Pedal pulses are absent (Dorsalis Pedis or Posterior Tibial)	NO	YES	K
	5. Fixed joint (no movement)			
	a) Ankle	NO	YES	L
	b) Large toe	NO	YES	M
Foot lesions				
	6. Active ulcer	NO	YES	N
	7. Ingrown toenail	NO	YES	O
	8. Calluses (thick plantar skin)	NO	YES	P
	9. Blisters	NO	YES	Q
	10. Fissure (linear crack)	NO	YES	R
(Remember to check 4th and 5th web spaces and nails for fungal infection)				
Neuropathy	11. Monofilament exam (record negative reaction)			
	a) Right_____/10 negatives	NO <4/10 neg	YES >_4/10 neg	S
	b) Left_____/10 negatives	NO <4/10 neg	YES >_4/10 neg	T
Plan	A. At least 1 YES response refer to foot clinic (Increase risk of foot ulcer, infection or amputation) Foot clinic appointment time:			U
	B. All responses were NO; re-screen in 1 year Date for Re-Exam (dd/mm/yy)____/____/____			

Protocol

- To implement screening as part of comprehensive diabetic foot project.
- Screen all patients at GPHC weekly diabetic clinic.
- To modify Shane Inlow's 60 second foot exam[3] into context- specific tool.
- A single positive result on screening = high risk.
- Refer high risk patients to interprofessional Diabetic Foot Centre(DFC)[4] for enhanced foot assessment and education.

Outcome: audit of first 1200 patients

ITEM	NO %	YES %
Previous Ulcer	**91**	**9**
Previous Amp	**96**	**4**
Absent pulse	88	12
Stiffness ankle/toe	98.7	1.3
Active DFU	**91**	**9**
Ingrown toenail	81.7	18.3
Callus	77.7	22.3
Fissure	89.5	10.5
Neuropathy	**76.6**	**23.4**
REFERRED to DFC	**52**	**48**

Significance

- **Gender = 70% Female**
- **Mean age = 57.5** ***A decade earlier than in high income countries***
- **Individuals have multiple risk factors**
- **Reduces workload –** ***41% high risk individuals referred***
- **Identifies unrecognized ulcers – 9%**
- **First 24 months –** ***major amputation rate cut by 46%***
- **Accuracy, reliability and predictive validity being assessed**
- **This simplified 60 second tool adopted by Guyana Ministry of Health**

References:
(1) Lavery LA, Peters EJ, Williams JR, Murdoch DP, Hudson A, Lavery DC, et al. Reevaluating the way we classify the diabetic foot: restructuring the diabetic foot risk classification system of the International Working Group on the Diabetic Foot. Diabetes Care 31(1):154-6, 2008
(2) Ostrow B, Martin C, Rambaran M. Clinicians Work to Enhance Diabetic Foot Program in Guyana. Advances in Wound and Skin Care 2007;20(12):640-1. (3) Inlow S. A 60 second foot exam for people with diabetes. Wound Care Canada 2004;2(2):10-1.
(4) Sibbald R, Woo K, Ostrow B. Preventing amputations: the need for screening, diagnosis and treatment of diabetic foot complications in Guyana, South America. Journal of World Council of Enterostomal Therapists 2008;28(2):34-6.

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