

Lower limb complications

DIABETES CARE

Revised classification better predicts diabetic foot complications

Readability	✓✓✓✓
Applicability to practice	✓✓✓✓
WOW! factor	✓✓✓✓

1 The authors of this study examined whether a modified version of the International Working Group on the Diabetic Foot's (IWGDF) risk classification could better predict complications in the diabetic foot.

2 In total, 1666 people with diabetes were followed for an average of 27 months (± 4.2 months).

3 The modified risk classification is: Group 0 (no peripheral neuropathy [PN], no peripheral arterial occlusive disease [PAOD]); Group 1 (PN, no PAOD or foot deformity); Group 2A (PN and foot deformity, no PAOD); Group 2B (PAOD); Group 3A (history of lower extremity ulceration); Group 3B (amputation).

4 A detailed foot and lower extremity assessment and medical history were taken at baseline. The modified IWGDF risk classification was applied to determine complications during follow up.

5 The modified IWGDF successfully predicted more ulcerations, infections, amputations and admissions in increased-risk participants. There were significantly more incidences of infection, amputation and hospitalisations among those who had been previously admitted for ulceration or amputation ($P < 0.01$).

6 The results of the study suggest that the modified IWGDF risk-classification may be more effective in predicting those at risk of diabetic foot complications than the original.

Lavery LA, Peters EJG, Williams JR et al (2008) Re-evaluating the way we classify the diabetic foot. *Diabetes Care* **31**: 154–6

Am I right, am I wrong? Do we need a new classification?



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Last year, *The Diabetic Foot Journal* produced a consensus document: *Best practice pathway of care for people with diabetic foot problems* (The Diabetic Foot Journal, 2007). This was praised and damned in varying amounts for pushing the boundaries of what should be acceptable footcare in the UK.

As part of compiling this consensus document, the panel re-examined the accepted consensus for classifying at-risk feet. In clinical terms, low-, medium- and high-risk have little relevance for an individual patient. Personality and behavioural factors are probably an even bigger influence than the loss of sensation or circulation, which explains why so many patients never ulcerate and those that do generally have recurrent ulceration. For this reason, all those with no proven risk factors were deemed 'low risk', those with risk factors were called 'at risk' and those with a history of ulceration or amputation were deemed 'high risk'. Further support for this viewpoint comes from Lavery et al's article (abstracted alongside). Curiously, they have expanded the number of categories to five, but, as is stated in the paper, categories 0, 1 and 2A are equivalent. The prevalence of

foot ulceration in their neuropathy group is low compared to other studies (Abbott et al, 2002) and it is only the presence of arterial disease and then previous ulceration or amputation that makes a major difference to the risk of ulceration. Only previous amputation increased the risk of future amputations in this study. In Carrington et al's study (2001), it was peripheral vascular disease that mainly predicted future amputations.

If the neuropathic ulcer risk had been higher, nearer to Peters and Lavery's earlier paper (2001), then I think perhaps the Diabetic Foot Consensus panel had it about right. Maybe three risk categories are enough and preventative foot care can be targeted at the previous foot ulcer groups. Concentrating on these might produce a tangible benefit from preventative care which is not yet described for pre-ulcer care in general populations.

Abbott CA, Carrington AL, Ashe H et al (2002) The North-West Diabetes Foot Care Study: incidence of, and risk factors for, new diabetic foot ulceration in a community-based patient cohort. *Diabetic Medicine* **19**: 377–84

Carrington AL, Abbott CA, Griffiths J et al (2001) A foot care program for diabetic unilateral lower-limb amputees. *Diabetes Care* **24**: 216–21

Peters EJ, Lavery LA; International Working Group on the Diabetic Foot (2001) Effectiveness of the diabetic foot risk classification system of the International Working Group on the Diabetic Foot. *Diabetes Care* **24**: 1442–7

The Diabetic Foot Journal (2007) *Best practice pathway of care for people with diabetic foot problems*. SB Communications Group, London

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SINGAPORE MEDICAL JOURNAL

ABPI is a useful measure for lower limb ischaemia

Readability	✓✓✓
Applicability to practice	✓✓✓✓
WOW! factor	✓✓✓

- The authors screened patients with diabetes for lower limb ischaemia by measuring their ankle brachial pressure index (ABPI).
- The study comprised 100 people with type 2 diabetes and 100 control people without diabetes who had been admitted to hospital for non-lower-limb-related problems.
- ABPI was measured using a sphygmomanometer and a hand-held Doppler ultrasound probe; comparisons were made between the diabetes and control groups.
- Findings showed a significantly higher incidence of hypertension, angina and claudication in patients with diabetes compared with those in the control group.
- Foot pulses were significantly higher in the control group (palpable in 96 patients) than in the diabetes group (palpable in 84 patients).
- The mean ABPI in the control group was 1.01 and in the diabetes group was 0.99; readings were <0.9 in 25 patients in the control group and in 34 patients in the diabetes group.
- ABPI was significantly lower in patients with hypertension and angina, but not in patients with claudication.
- ABPI should be used routinely in hospitalised patients with diabetes, especially those with hypertension and ischaemic heart disease as these patients are likely to be at-risk of developing lower limb ischaemia.

Khammash MR, Obeidat KA, El-Qarqas EA (2008) Screening for hospitalised diabetic patients for lower limb ischaemia: is it necessary? *Singapore Medical Journal* **49**: 110–13

JOURNAL OF WOUND CARE

Echocardiography useful in people with foot ulcers

Readability	✓✓✓✓
Applicability to practice	✓✓✓✓
WOW! factor	✓✓✓

- Echocardiography was used to determine the presence and severity of cardiac disease in 80 people with diabetes and chronic foot ulcers.
- Patient history, clinical examination, blood pressure and echocardiography were performed on all participants: 55 people (69%) had

a history of congestive heart failure or myocardial infarction or hypertension or a combination of the three; 62 people (78%) had signs of cardiac dysfunction; and 19 people without a history of cardiac disease (76%) showed abnormal cardiac function on echocardiography.

- Cardiac disease is prevalent in people with diabetes and chronic foot ulcers, even in those without known heart problems or hypertension.
- Thus, routine echocardiography may be a useful screening procedure for cardiac disease in people with diabetes and chronic foot ulcers, although further studies are needed.

Löndahl M, Katzman P, Fredholm O, Nilsson A, Apelqvist J (2008) Is chronic diabetic foot ulcer an indicator of cardiac disease? *Journal of Wound Care* **17**: 12–16

DIABETES CARE

A multidisciplinary foot care service reduces amputation rate

Readability	✓✓✓✓
Applicability to practice	✓✓✓✓
WOW! factor	✓✓✓✓

- The study objective was to determine whether lower-extremity amputation rates improved in people with diabetes attending a foot clinic.
- Over 11 years, patients with diabetes who attended Ipswich Hospital with

foot problems were surveyed twice-weekly; the incidence of amputations was determined per 100000 of the general population.

- During this time, there was a 61.5% reduction in major amputations and a 40.3% reduction in total amputations per 100000 general population.
- Such a significant improvement in outcome for diabetic foot complications was achieved by a multidisciplinary team offering improved foot care and better awareness of the at-risk foot.

Krishnan S, Nash F, Baker N et al (2008) Reduction in diabetic amputations over 11 years in a defined UK population. *Diabetes Care* **31**: 99–101

TOHOKU JOURNAL OF EXPERIMENTAL MEDICINE

Procalcitonin is a diagnostic marker for DFI

Readability	✓✓✓
Applicability to practice	✓✓✓
WOW! factor	✓✓✓

- The authors of this study evaluated serum procalcitonin levels in people with diabetes and foot ulcers in order to determine its diagnostic role in diabetic foot infections (DFI).
- Participants (n=49 people with diabetes and foot ulcers and 22

controls) were evaluated for the presence of a DFI; of the 49 people with diabetes and foot ulcers, DFI was diagnosed in 27 (DFI group) and not detected in 22 (NDFI group).

- Blood samples were analysed in all three groups. Procalcitonin level, white blood cell (WBC) count and erythrocyte sedimentation rate (ESR) were significantly higher in people in the DFI group compared with those in the NDFI and control groups.
- Results showed that procalcitonin is valuable as a superior marker of DFI in people with diabetes and foot ulcers.

Uzun G, Solmazgul E, Curuksulu H et al (2007) Procalcitonin as a diagnostic aid in diabetic foot infections. *Tohoku Journal of Experimental Medicine* **213**: 305–12

Cardiac disease is prevalent in people with diabetes and chronic foot ulcers, even in those without known heart problems or hypertension.