Responses to proposed wound classification system

In the last issue of The Diabetic Foot *(**2**(4): 123–31), a new classification for diabetic foot lesions, S(AD) SAD, was proposed (Macfarlane and Jeffcoate, 1999). This had five key elements: size (area and depth), sepsis, arteriopathy, and denervation. The key problems in defining such a classification were examined.*

The proposed classification was designed for the purposes of audit and research — with the main aim being to identify populations of similar lesions, which could then be subjected to prospective study (possibly multicentre). It could nevertheless be adapted for the purposes of routine clinical management. It was suggested that each lesion could be graded on a scale of 0 to 3 using criteria that were either quantitative or qualitative (see Table 1).

Table 1. The S(AD) SAD Classification

Grade	Area	Depth	Sepsis	Arteriopathy	Denervation
0	Skin intact	Skin intact	No infection	Pedal pulses palpable	Pinprick sensation/VPT normal
1	<10 mm^2	Skin and subcutaneous tissues	Superficial: slough or exudate	Diminution of both pulses or absence of one	Reduced or absent pinprick sensation; VPT raised
2	10–30 mm^2	Tendon, joint capsule, perisoteum	Cellulitis	Absence of both pedal pulses	Neuropathy dominant: palpable pedal pulses
3	>30 mm^2	Bone and/or joint spaces	Osteomyelitis	Gangrene	Charcot foot

Clinic currently testing the S(AD) SAD classification system

The diabetic foot is a huge problem among Portuguese patients with diabetes. Some of the reasons for this are the lack of organised primary care for the prevention of diabetic foot problems, poor sanitary conditions and differentiated care centres.

Since 1987, we have run a multidisciplinary foot clinic in Oporto, which has helped to reduce the high amputation rate.

All of us had already felt the need to establish a plan for the treatment and prognosis of different types of diabetic foot. We realised the need for a classification that was objective, simple and robust to provide a common language for discussion among different diabetic foot care centres.

The classification suggested by Macfarlane and Jeffcoate (1999) in the last issue of *The Diabetic Foot* seems to cover all the main points of the observation of diabetic foot ulcers. Among other classifications of this kind proposed previously, San Antonio's was the most complete; however, it is difficult to use, and is not as complete as it might at first appear because it ignores the different stages of denervation.

We are already testing the classification in our clinic. The initials S(AD) SAD are better because they are easy to remember and applicable in both clinical and investigation areas.

Even in a multidisciplinary centre like ours with a large number of patients (300 first appointments and about 4000 second appointments per year), this classification does not seem to incur additional work, but instead is very helpful.

It is still too early for us to have a solid opinion; however, our use of the S(AD) SAD system so far has resulted in no difficulties in classifying new patients with regard to their gravity (area and depth), prognosis (grade of sepsis) and aetiology (ischaemia or denervation).

We intend to test this method on all first appointments from now on, to determine its efficacy for future clinic investigations.

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S(AD) SAD is on the right tracks, but there is work left to do

Macfarlane and Jeffcoate (1999) correctly identify wound classification as both an important and vexatious topic. They argued cogently in the last issue of *The Diabetic Foot* about the aspects of diabetic foot disease that continue to defeat the objective of a practical taxonomy to support research and quality improvement. And they describe with some clarity many of the features that would characterise such a classification. There follows a commendable attempt to move this important topic forward, but I doubt that it has yet reached its destination.

They suggest that 'systems designed for the purpose of studying methods of care must be different from those used for departmental record keeping' because lesions are dynamic and sequential charting may result in multiple classifications of a single lesion. Surely, however, it is not incompatible to use one system both to define the presenting lesion and to record its progress. Indeed, elsewhere, they argue for minimising complexity and providing a 'basis upon which observations can be made of an ulcer's management and/or outcome either in one centre or several', both of which probably warrant having a single system. So, would the S(AD) SAD classification meet

these objectives and is it superior to previous attempts?

Macfarlane and Jeffcoate have adopted and adapted features of existing systems, particularly the San Antonio group's proposals. They extend the concept of size to include area as well as depth. The need for this increased complexity needs testing but clinical experience suggests it will be validated. Their categories of infection have clinical 'face validity' but depart from their commendable ambition to use only terms that are unequivocal because they fail to define 'cellulitis' and 'osteomyelitis'. Ischaemia is categorised using pulses, which have been validated as a clinical sign, and 'signs suggestive of reduced perfusion' which are neither defined nor validated. The exclusion of temperature, the other validated clinical sign of ischaemia (McGee and Boyko, 1998), needs to be defended. The addition of neuropathy, its subclassification and definition of the terms seems appropriate and practical, but requires validation. The recent paper by Reiber et al (1999) is supportive. But this same paper, allied to everyday experience, might also question why deformity, oedema, and possibly callus have been omitted. The authors might argue that these are important only as descriptors but since they 'are variously associated with anticipated outcome, and also determine broad strategies for management' they should, perhaps, be seriously considered as candidates for inclusion notwithstanding the inevitable increase in complexity.

This is a valuable contribution to an important debate. Ultimately, however, a widely adopted classification must fulfil the authors' correctly defined requirements of being 'simple enough to be remembered and yet precise enough to be useful'. Simplicity can only really be evaluated in practice. Precision depends both on the consistent use of unequivocal terms between observers and centres and on the ability of those terms to describe adequately the factors that determine the natural history and treatment responsiveness of the ulcers. The time has come for more to follow the San Antonio lead by testing the practicability and validity of classifications and basing further refinements on experience derived from practice.

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McGee SR, Boyko EJ (1998) Physical examination and chronic lower-extremity ischemia: a critical review. *Arch Intern Med* **158**: 1357–64

Reiber GF et al (1999) Causal pathways for incident lower-extremity ulcers in patients with diabetes from two settings. *Diabetes Care* **22**: 157–62

There is a need for classification systems for clinical and research purposes

Classification of diabetic foot wounds is needed to compare treatments, to evaluate the outcome of clinical studies, to enable understanding of the pathophysiological processes leading to the diabetic foot, and to develop treatment strategies. Wound classification systems should be based on objective criteria, and measurements should be precise and clear. For clinical practice, in particular, they should be practical, easy to use and an important tool in clinical decision making. Problems encountered include: complex aetiology of ulcers, multiple ulcer types, imprecise clinical methods (e.g. wide inter-observer variation), evaluation over time, lack of an agreed glossary and general acceptance of definitions.

The key elements of a classification are size, infection, ischaemia and neuropathy. Some experts feel that associated risk factors should also be included.

Since the first developed classification systems (Meggit, 1976; Wagner, 1979), more than a dozen systems have been developed, but only a few have been clinically tested, albeit partially. Full testing is essential for evaluation for practical and scientific use.

The S(AD) SAD system (Macfarlane and Jeffcoate, 1999) deserves clinical validation as soon as possible. The authors point out that the developed classification is 'not intended as a guide to management, but an aid to audit and research enabling certain types of ulcers to be identified for recruitment to prospective studies, as well as a means of comparing outcome between centres'. This implies, as many specialists feel, that we should work with two classifications: one for practical use and one for clinical research purposes. It is important to strive for consensus now.

The International Working Group on the Diabetic Foot (1999) agreed 43 definitions and glossaries, which should be validated. A classification of diabetic foot ulcers was not included because there was not enough clinical experience at that time. However, the board of the working group is now planning to organise an international conference with the experts in the field of classification systems to set a worldwide accepted general classification on diabetic foot ulcers for daily practice and clinical research. This should serve as part of an update on the second edition of *The International Consensus and Practical Guidelines on the Diabetic Foot* for 2003.

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Armstrong DG, Lavery LA, Harkless LB (1998) Validation of diabetic wound classification systems. *Diabetes Care* **21**: 855–9

International Working Group on the Diabetic Foot (1999) *The International Consensus and Practical Guidelines on the Diabetic Foot.* International Working Group on the Diabetic Foot, Amsterdam.

Macfarlane RF, Jeffcoate WJ (1999) Classification of foot ulcers: The S(AD) SAD system. *The Diabetic Foot* **2**(4): 123–31

Meggit B (1976) Surgical management of the diabetic foot. *British Journal of Hospital Medicine* **16**: 227–332

Wagner FW (1979) Classification and treatment program for diabetic, neuropathic and dysvascular foot problems. *American Academy of Orthopaedic Surgeons Instructional Course Lectures* **28**: 143–65

The next issue of* The Diabetic Foot *will extend the debate by presenting views from others such as Edmonds and Foster (King's College, London) as well as collective responses from Macfarlane and Jeffcoate.