

Lower limb complications

Get the balance right



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As the consultant lead of a large diabetic foot clinic, the decision whether a patient should or should not have an amputation is one which is faced almost every other week. On balance I know (from regular audit) that we save more limbs than we lose but a couple of times per year there are patients for whom the request for an amputation or indeed the request to avoid amputation at all costs is at variance with the clinical opinion of myself and the team looking after them.

Leon et al (2010; summarised alongside) raise some important points through an illustrative, if of American practice, case history. Their patient undergoes eight operative procedures and 108 days of intensive in- and out-patient care, accruing unknown costs, to save a limb. The functional component of the remaining partial foot must be at question and the long-term prognosis will be similarly guarded. I doubt I would have suggested as much to one of my patients, since even the best centres report ulcer recurrence rates of over 35% at 1 year and 50% at 3 years (Maciejewski et al, 2004) and the residual foot will be a high risk for these events (Peters et al, 2001).

On the opposite side of this, the high risk of second amputation, which is likely to render a person wheelchair bound, make the efforts to preserve the first at-risk limb a priority. As Leon et al say, all such decisions should

be made with the patient being as informed as possible and, I believe, with an informed clinical team. By this I mean auditing practice to provide the best information from your local centre on what your recurrence and re-amputation rates are. This has to be the minimum for any specialist centre.

Ultimately, the level of intervention outlined by Leon et al may be so atypical of UK practice as to be irrelevant. The study by Moxey et al (2010; summarised below) across England between 2003 and 2008 highlights that despite distal bypass, endovascular procedures, antibiotics and multidisciplinary clinics, the overall amputation (above or below knee) rate has not changed for 5 years. There are regional variations, but people with diabetes remain nine times more likely to have an amputation than people without diabetes. As people with diabetes have grown to represent a larger proportion of the total population, it is possible that diabetes-related amputations have fallen nationally, but not by the levels achieved locally by the best multidisciplinary clinics.

Variations in amputation rates may reflect that there are still not enough regional multidisciplinary diabetic foot clinics, that patients are still being referred late, or possibly that people with diabetic foot ulcers are not being referred for specialist care at all. Further research is required to identify the missing link.

Maciejewski ML, Reiber GE, Smith DG et al (2004) Effectiveness of diabetic therapeutic footwear in preventing reulceration. *Diabetes Care* **27**: 1774–82

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

VASCULAR AND ENDOVASCULAR SURGERY



Repeated, prolonged therapies to salvage a diabetic limb

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

1 The authors describe a case of limb salvage in a 52-year-old man with T2D in the USA as a typical case of this nature at their institution and go on to question whether the repeated, prolonged therapies undertaken were the best clinical course.

2 Presenting with a left foot ulcer that appear spontaneously 4 weeks prior, the man (T2D duration, 10 years; a range of comorbidities) was treated with antibiotics as an outpatient.

3 The man's health quickly deteriorated and he was admitted to hospital with systemic infection and congestive heart failure.

4 An orthopaedic consultation was obtained, the recommendation being for a below-knee amputation to which the patient agreed. However, following further discussion with the attending physicians, continued limb salvage attempts were undertaken.

5 One hundred and eight days following presentation, after eight surgical interventions, including superficial femoral artery angioplasty and stenting, development of a secondary heel ulcer, synthetic skin therapy and transmetatarsal amputation, the man was given leave to begin ambulating in a custom boot.

6 The authors question whether a single high-level amputation might have been more appropriate in this case and stress that frequent reevaluation must be undertaken along the therapeutic path, by people with diabetic foot disease, their families and treating healthcare professionals.

Leon LR Jr, Pacanowski J, Ranellone E, Armstrong D (2010) Diabetic limb salvage: too much of a good thing? *Vasc Endovascular Surg* **44**: 661–7

BRITISH J SURGERY

English lower limb amputation rate static for 5 years

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

1 Data on lower-extremity amputations in England were extracted from the Hospital Episodes

Statistic database for 2003–2008. Risk adjustment and linear regression were used for analysis.

2 The major amputation rate was static for the period (1.5/100 000).

3 Of those who underwent major amputation, >39% had diabetes.

4 Amputation and post-amputation mortality rates varied significantly between regions ($P < 0.001$).

Moxey PW, Hofman D, Hinchliffe RJ et al (2010) Epidemiological study of lower limb amputation in England between 2003 and 2008. *Br J Surg* **97**: 1348–53

DIABETOLOGIA

Microbiology guidance reduced number of DFU associated multidrug-resistant organisms

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

1 Following those of the International Working Group on the Diabetic Foot, the authors wrote and implemented guidance on the management of diabetic foot infection in 2003.

2 The effects of implementation of these guidelines on the microbiology and costs of infected diabetic foot ulcers (DFUs) were assessed.

3 People ($n=406$) referred to the authors' diabetic foot clinic between 2003 and 2007 were included.

4 During the study period a significant decrease in the median number of bacteria species per sample was observed (from 4.1 to 1.6). The prevalence of multidrug-resistant organisms (35.2% vs 16.3%) and meticillin-resistant *Staphylococcus aureus* (52.2% vs 18.9%) also dropped (both $P<0.001$).

5 The prevalence of pathogens considered to be colonisers fell significantly (23.1% to 5.8% of all isolates; $P<0.001$).

6 The guideline's introduction was also associated with a total saving of €57 872 (76.4% decrease in cost to the hospital) between 2003 and 2008 – the result of a reduced microbiology laboratory workload and reduced prescription of extended-spectrum antibiotic agents.

7 The authors concluded that the implementation of guidelines for obtaining specimens for culture from people with DFUs is cost-saving, and provides important quality indicators.

Soito A, Richard JL, Combescure C et al (2010) Beneficial effects of implementing guidelines on microbiology and costs of infected diabetic foot ulcers. *Diabetologia* **53**: 2249–55

INTERNATIONAL WOUND JOURNAL

Validation of a wound impact schedule among people with DFUs

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

1 The authors sought to evaluate and validate the Cardiff Wound Impact Schedule (CWIS) in a Canadian population with active diabetic foot ulceration (DFU) at enrolment.

2 The CWIS assesses health-related quality-of-life measures among people with chronic lower-limbs wounds.

3 Participants ($n=30$; mean age 59 ± 11 years; active DFU) were recruited from an outpatient clinic.

4 The CWIS social life, well-being and general health measures correlated well with the World Health Organization's wound impact scale (SF-36v2; all $P<0.01$).

5 Participants with more severe wounds as measured by the University of Texas wound classification system did not have significantly worse scores on the CWIS.

6 Although the CWIS is reliable and valid, the authors concluded that more research is required to determine the relationship between CWIS score and wound severity.

Jaksa PJ, Mahoney JL (2010) Quality of life in patients with diabetic foot ulcers: validation of the Cardiff Wound Impact Schedule in a Canadian population. *Int Wound J* **7**: 502–7

JOURNAL OF ANTIMICROBIAL CHEMOTHERAPY

Higher failure rate for outpatient antibiotic therapy in DFUs

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

1 Outpatient parenteral antibiotic therapy (OPAT) failure rates in bone and joint infection managed over a period of 4 years were investigated.

2 A prospective registry of people attending for OPAT was the data

source. Diagnosis, demographics, microbiology and treatment were recorded and evidence for failure of the initially prescribed OPAT followed-up for up to 24 months.

3 In the cases identified ($n=198$) an overall success rate of 86.4% following initial OPAT was seen.

4 The poorest OPAT success rate (71.8%) was seen in infections associated with diabetic foot ulcers, with the authors suggesting the need for newer or more aggressive treatments in this group.

Mackintosh CL, White HA, Seaton RA (2010) Outpatient parenteral antibiotic therapy (OPAT) for bone and joint infections: experience from a UK teaching hospital-based service. *J Antimicrob Chemother* [Epub ahead of print]

DIABETES CARE

Probe-to-bone test best for chronic DF OM diagnosis

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

1 There is currently no consensus on the protocol for the clinical diagnosis of osteomyelitis (OM).

2 In this prospective study among people referred to a diabetic foot (DF) clinic in Spain, probe-to-bone (PTB) test, clinical signs of infection,

radiographic signs of infection and ulcer specimen culture were assessed against bone histology (gold standard) for their power to diagnose OM.

3 Over 2.5 years, 132 ulcers with suspected OM were studied.

4 Of the tests compared, the PTB test yielded the highest sensitivity (98%) and specificity (78%), with a positive predictive value of 95% (negative predictive value, 91%).

5 The authors found the PTB test of the greatest diagnostic value for OM.

Morales Lozano R, González Fernández ML, Martínez Hernández D et al (2010) Validating the probe-to-bone test and other tests for diagnosing chronic osteomyelitis in the diabetic foot. *Diabetes Care* **33**: 2140–5

“The [diabetic foot microbiology] guidelines introduction was also associated with a total saving of €57 872...”