

Lower limb complications

Multidisciplinary teams: All together now?



Matthew Young,
Consultant Physician,
Edinburgh Royal
Infirmary

I am sure we have all seen presentations on diabetes foot care where the multidisciplinary team (MDT) is discussed and a diagram, list or photograph illustrates everyone from the patient to the clinic cleaning staff who are name-checked and included in the "must haves".

I believe I work in an interdisciplinary team where each of us works across each other's former professional boundaries. My podiatry colleagues request X-rays, take drug histories, measure blood samples and can dispense antibiotics with a patient group directive while awaiting independent prescriber status, and I debride and dress ulcers. However, the absence of all but the core components – myself, my podiatry colleagues and an orthotist one session a week from all the main ulcer clinics – does not meet the specification of the ideal MDT.

Everyone else, in our and probably many other services, is in a wider network, but fortunately for us we are nearly all in the same hospital. Our diabetes nursing colleagues are in the same clinic, surgical colleagues practice in parallel clinics and inpatient care is just a short lift ride away. Only the rehabilitation team are on a different site and we are trying to link more closely with them too.

On a number of occasions we have considered what to do about this possible "deficiency" in

our service planning. We have considered joint surgical review clinics, perhaps once a month, but then always thought what if the Charcot presents a week after the orthopaedic clinic, or the black foot the week before the vascular surgeon attends? If there were no relevant referrals to be seen that month then we could not justify using a session of surgical time with no patients. Therefore, we went with a virtual MDT. The core communicates with, and draws on the skills of, the wider team as and when required. They in turn provide a rapid response service with the minimum of unnecessary reviews. Until now, however, there has been no evidence that this approach works as well as the full MDT.

Hellingman and Smeets (2008) provide some of the answers. Although their clinic deals with general wounds and not just diabetes foot ulceration, and there is no before and after, or randomised approach to measuring the outcome of a streamlined team structure, the paper has some relevance to this question. They demonstrate that similar healing rates to those of larger MDTs can be achieved using the approach of the patient being seen by the most appropriate person for that visit, leaving the rest of the team free to see other patients. This model has significant potential advantages for NHS resources and could also be used for areas where a full MDT cannot be brought together in one place, as long as communication and documentation can be shared effectively throughout its members.

JOURNAL OF WOUND CARE



Efficacy and efficiency of a leaner MDT foot service

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

- 1 In 2000 the authors set up a foot care service multidisciplinary team (MDT); organisationally, this proved time-consuming and inefficient as all team members were expected to attend every patient follow-up.
- 2 In 2003 the foot care service was streamlined so the entire team only attended the patient's initial and final visit, with intervening visits undertaken by the appropriate specialist.
- 3 An audit comprising 146 patients with 274 foot ulcers was conducted between March 2003 and November 2006 to evaluate patient outcomes.
- 4 The primary endpoint was rate of major limb amputation; secondary endpoints were time to wound closure, number of MDT visits, recurrence rate of ulcers, and mortality.
- 5 Eighty-six (59%) patients had diabetes, which was associated with 161 ulcers (59%). Over the audit period 13 major amputations were undertaken; Wagner scores of 3–5 were significantly associated with this ($P=0.004$).

- 6 Mean ulcer healing time was 4.2 months. Some 232 ulcers (85%) were treated conservatively; 274 ulcers (15%) required an intervention.
- 7 Median number of consultations per patient by the MDT was 2.0; median number by the wound care nurse was 2.0.
- 8 The audit shows that a leaner organisational structure can achieve good patient outcomes, and is efficient, demonstrated by the low rate of major amputations, high rates of wound healing and low number of consultations.

Hellingman AA, Smeets HJ (2008) Efficacy and efficiency of a streamlined multidisciplinary foot ulcer service. *J Wound Care* 17: 541–4

ARCHIVES OF PHYSICAL MEDICINE AND REHABILITATION

Skin problems of the stump

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

- 1 This survey by questionnaire aimed to identify determinants of skin problems in lower limb amputees.
- 2 In total, 872 lower limb amputees agreed to participate.

- 3 Participants filled out a questionnaire to assess characteristics of the amputation and prosthesis, level of activity, stump and prosthesis hygiene, and skin problems.

- 4 Protective determinants in order of magnitude of decreased risk were older age, male sex, and amputation.

- 5 Provocative determinants in order of magnitude of association were use of antibacterial soap, smoking, and washing the stump four times a week or more.

Muelenbelt HE, Geertzen JH, Jonkman MF et al (2009) Determinants of skin problems of the stump in lower-limb amputees. *Arch Phys Med Rehabil* 90: 74–81

CLINICAL INFECTIOUS DISEASES

Topical versus systemic anti-microbial therapy

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

1 This randomised, controlled, double-blind, multicentre trial compared the efficacy of using a topical antimicrobial peptide, pexiganan cream, with systemic therapy using an oral fluorquinolone antibiotic, ofloxacin, for mildly infected diabetic foot ulcers.

2 In two consecutive trials (study 303 and study 304), 835 people with mildly infected diabetic foot ulcers were randomised to receive either the active topical agent or active oral antibiotic, plus a respective inactive placebo.

3 The primary outcome was clinical cure or improvement of infection. Secondary outcomes were elimination of wound pathogens and wound healing.

4 Regarding the primary outcome, topical pexiganan failed to demonstrate statistical equivalence to oral ofloxacin in study 303 (493 participants); however, study 304 (342 participants), and combined data for the two trials, demonstrated equivalent results in clinical improvement rates (85–90%), overall microbiological elimination rates (42–47%) and wound healing rates.

5 Incidence of worsening cellulitis (2–4%) and amputation (2–3%) did not differ significantly between the groups.

6 Bacterial resistance to ofloxacin developed in some patients, yet no significant resistance to pexiganan was observed.

7 Pexiganan cream might be an effective alternative to oral antibiotic therapy for treating mildly infected diabetic foot ulcers, and might reduce the risk of antimicrobial resistance.

Lipsky BA, Holroyd KJ, Zasloff M (2008) Topical versus systemic antimicrobial therapy for treating mildly infected diabetic foot ulcers: a randomized, controlled, double-blinded, multicenter trial of pexiganan cream. *Clin Infect Dis* **47**:1537–45

DIABETES CARE

Amputation eight times higher in people with diabetes

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

1 This study aimed to compare the incidence of vascular lower limb amputation (LLA) in people with diabetes versus the general population.

2 All LLAs performed in 1997–2006 in a region of Sweden were recorded and classified; incidence rates were estimated in both groups aged ≥45 years.

3 During the 10-year study, 133 people with diabetes (53% men) and 157 people without (50% men) underwent LLA.

4 The incidence of vascular LLA at or proximal to the transmetatarsal is eight times higher in people with diabetes than in the general population.

Johannesson A, Larsson GU, Ramstrand N (2008) Incidence of lower-limb amputation in the diabetic and nondiabetic general population: a 10-year population-based cohort study of initial unilateral and contralateral amputations and reamputations. *Diabetes Care* **32**: 275–80

JOURNAL OF WOUND CARE

Topical phenytoin use on recalcitrant neuropathic ulcers

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

1 The objectives of this study were to evaluate the impact of topical phenytoin on the healing of recalcitrant neuropathic diabetic foot ulcers, and to gauge its antibacterial effect.

2 Topical phenytoin in the form of 2% aerosol powder was applied once daily to 32 patients, in addition to their usual treatment, for 8 weeks.

3 The primary outcome was change in ulcer area; secondary outcomes were the ability of phenytoin to eradicate bacterial isolates, and the occurrence of adverse events.

4 Baseline wound area was $319.3 \pm 340.4 \text{ mm}^2$, reducing to $286.1 \pm 341.1 \text{ mm}^2$ and $269.1 \pm 341.2 \text{ mm}^2$ after 4 and 8 weeks, respectively.

5 At study end, phenytoin therapy had not eradicated any of the bacterial wound isolates.

6 Topical phenytoin can enhance healing in recalcitrant neuropathic diabetic foot ulcers; however, only 25% of participants achieved more than 50% reduction in ulcer size after 8 weeks.

El-Nahas M, Gawish H, Tarshoby M et al (2008) The impact of topical phenytoin on recalcitrant neuropathic diabetic foot ulceration. *J Wound Care* **18**: 33–7

CLINICS IN PODIATRIC MEDICINE AND SURGERY

Treatment of ankle fractures in people with diabetes

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

1 Treatment of ankle fractures in diabetes is often accompanied by increased complication rates, and peripheral vascular disease (PVD) is thought to be a contributing factor to these complications.

2 Percutaneous reduction with an ilizarov-type fixator for treatment of ankle fractures in people with diabetes and PVD is recommended by the authors.

3 Estimated time for bony consolidation in people with diabetes is around double that of a patient without diabetes.

4 This technique may be an effective alternative for surgeons treating unstable ankle fractures in immunocompromised people with diabetes and PVD.

DiDomenico LA, Brown D, Zgonis T (2008) The use of ilizarov technique as a definitive percutaneous reduction for ankle fractures in patients who have diabetes mellitus and peripheral vascular disease. *Clin Podiatr Med Surg* **26**: 141–8

“The incidence of vascular lower limb amputation ... is eight times higher in people with diabetes than in the general population.”