Please cite the Published Version

Bosun-Arije, Stella F (2023) Commentary: Development of a resource-use measure to capture costs of diabetic foot ulcers to the United Kingdom National Health Service, patients and society. Journal of Research in Nursing, 28 (8). pp. 579-581. ISSN 1744-9871

DOI: https://doi.org/10.1177/17449871231208173

Publisher: SAGE Publications

Version: Accepted Version

Commentary: Development of a resource-use measure to capture costs of diabetic foot ulcers to the United Kingdom National Health Service, patients and society

Stella F Bosun-Arije

Senior Lecturer and Senior Fellow of Advance HE, Faculty of Health and Education, School of Nursing and Public Health, Manchester Metropolitan University, Manchester, UK

Corresponding author(s):

Stella F Bosun-Arije, Senior Lecturer and Senior Fellow of Advance HE, Faculty of Health and Education, School of Nursing and Public Health, Manchester Metropolitan University, Brooks Building, Bonsall Street, Manchester M15 6GX, UK. Email: F.Bosun-Arije@mmu.ac.uk

As diabetic foot ulcer (DFU) poses a strain on individuals living with it, so it presents various shades of financial burdens on the health facilities providing services to the people living with it. Therefore, it is pertinent to adopt collaborative strategies in halting the progression of DFUs.

DFU is preventable yet it is one of the most serious microvascular complications of diabetes mellitus (DM) which is caused by neuropathy, trauma, deformity, high plantar pressures and peripheral arterial disorder leading to lower limb amputations (Ahmad, 2016; Frykberg et al., 2006). From the point of DFU diagnosis, it becomes a burden for the individual, the families and the healthcare system to manage the exacerbation of the ulcers (Bosun-Arije et al., 2020; Margolis et al., 2011). One of the factors constituting the management challenges of DFUs in Europe is management heterogeneity intra-country and inter-country (Garcia-Klepzig et al., 2018) as well as delayed referrals (Manu et al., 2018). Consequently, most patients with the condition often develop anxiety and depression and a reduced quality of life (Polikandrioti et al., 2020). There is significant evidence that DFUs can lead to loss of job and income (Crocker et al., 2021), the risk for infections (Pitocco et al., 2019), financial burden (Raghav et al., 2018), loss of self (Kinmond et al., 2003), loss of foot (Meriç et al., 2019), stigmatisation, which is recently reported among the Chinese population (Liu et al., 2020; Luo et al., 2023; Yip et al., 2023) as well as causing a prolonged period of hospitalisation in the United Kingdom (Arias et al., 2019; Kerr et al., 2014; McInnes, 2012) and in the worst cases, death (Edmonds et al., 2021; Walsh et al., 2016).

Therefore, to minimise the impact of the condition on individuals, families and carers, the National Health Service (NHS), since the emergence of the National Service Framework (NSF) has a fundamental role to play in diabetes care – the NHS bears most of the management and health costs of DFUs. In 2013, it was estimated that 10% of the entire NHS budget was spent on diabetes (McInnes, 2012). The cost of NHS care for ulceration and amputation in diabetes in 2014–2015 was estimated at between £837 million and £962 million. This means that over 90% of the NHS expenditure was related to ulceration management of which 60% was for care in community, outpatient and primary care (Kerr et al., 2014).

However, within the NHS and for over a decade, despite various interventions to halt the financial burden DFUs posed on the NHS, the high cost of managing DFU is relentless (Jodheea-Jutton et al., 2022). There have been different recommendations about how DFU can be effectively managed. Guest et al. (2017) advise that screening is a great way to identify individuals at risk of DFU and timely interventions such as prescription of healthy footwear and podiatry referral should be provided. Manu et al. (2018) add that timely referral to specialists is cost-intensive and effective. Somayaji et al. (2017) reiterated that the screening and referral approaches must be consistent and well-integrated to be effective. More recently, Pappachan et al. (2022) added that artificial intelligence can be used to improve the remote monitoring of diabetic foot ulcers with the use of mobile apps. Despite these interventions and to save the millions the NHS spends on DFUs, it was advised that everyone should pause and take one step at a time (Saving the NHS Millions, One Step at a Time, 2023).

Therefore, I believe it was in the light of taking one step at a time, that the authors of this paper sought to contribute to the body of knowledge around DFUs management in the United Kingdom. However, it is fascinating to see the unique approach adopted for the research. The researchers considered and involved the people most affected by DFUs; patients, family members and carers, and the healthcare professionals key to DFU management. This is an integrated approach which has a prospect of improving the quality of life of people living with DFUs (Bhandari et al., 2019; Mills, 2018; Tzeravini et al., 2018).

Additionally, this paper is theoretically driven. It provides a convincing justification for health professionals to reflect on the relevance of person-centred care in DFUs management. It is a novel idea for the authors to involve patients with DFUs during the data collection phase – their actions show that they see the condition as being patient foot and not diabetic foot.

Although the findings of the research are easy to read and understand, a pictorial presentation of findings may improve the understanding of non-clinical individuals when they read the article. Also, the initial discussion and pilot study should have explored the potential role that culture, religion and gender orientations play in informing ‘better quality and more relevant economic evaluations’.

In the contemporary world, strategies for cost-effective DFU management are not far-fetched, I believe this sits around collaboration, partnership and innovative use of technology. Patients, their relations, healthcare professionals, caregivers within healthcare settings, community, local and national governments should work with health policymakers to ensure efficacious and cost-effective DFU care for the people and with the people.

In conclusion, there is a lesson for everyone to learn in this paper. I recommend that health professionals, families and carers of people living with DFUs should continually seek collaborative ways to apply these research findings in real-world settings. I am optimistic that the outcome of this research, which centres on integrated care and patient involvement, can contribute 'a drop in the ocean' of DFUs management not only in the United Kingdom but globally.

References

Ahmad J (2016) The diabetic foot. *Diabetes & Metabolic Syndrome: Clinical Research & Reviews* 10: 48–60. Crossref. PubMed. ISI.

Arias M, Hassan-Reshat S, Newsholme W (2019) Retrospective analysis of diabetic foot osteomyelitis management and outcome at a tertiary care hospital in the UK. *PLoS One* 14: e0216701. Crossref.

Bhandari M, Rao PN, J GB, et al. (2019) An integrated approach for the management of diabetic foot ulcer: A case report. *Journal of Complementary and Integrative Medicine* 16(3): 20180126. Crossref. PubMed.

Bosun-Arije FS, Ling J, Graham Y, et al. (2020) Organisational factors influencing non-pharmacological management of type 2 diabetes mellitus (T2DM) in public hospitals across Lagos, Nigeria: A qualitative study of nurses' perspectives. *Diabetes Research and Clinical Practice* 166, 108288. Crossref. PubMed.

Crocker RM, Palmer KNB, Marrero DG, et al. (2021) Patient perspectives on the physical, psycho-social, and financial impacts of diabetic foot ulceration and amputation. *Journal of Diabetes and Its Complications* 35: 107960. Crossref. PubMed.

Edmonds M, Manu C, Vas P (2021) The current burden of diabetic foot disease. *Journal of Clinical Orthopaedics and Trauma* 17: 88–93. Crossref. PubMed.

Frykberg RG, Zgonis T, Armstrong DG, et al. (2006) Diabetic foot disorders: A clinical practice guideline (2006 revision). *The Journal of Foot and Ankle Surgery* 45: S1–S66. Crossref. PubMed.

Garcia-Klepzig JL, Sánchez-Ríos JP, Manu C, et al. (2018) Perception of diabetic foot ulcers among general practitioners in four European countries: Knowledge, skills and urgency. *Journal of Wound Care* 27: 310–319. Crossref. PubMed.

Guest JF, Fuller GW, Vowden P (2017) Diabetic foot ulcer management in clinical practice in the UK: Costs and outcomes. *International Wound Journal* 15: 43–52. Crossref. PubMed.

Jodheea-Jutton A, Hindocha S, Bhaw-Luximon A (2022) Health economics of diabetic foot ulcer and recent trends to accelerate treatment. *The Foot* 52: 101909. Crossref. PubMed.

Kerr M, Rayman G, Jeffcoate WJ (2014) Cost of diabetic foot disease to the National Health Service in England. *Diabetic Medicine* 31: 1498–1504. Crossref. PubMed. ISI.

Kinmond K, McGee P, Gough S, et al. (2003) "Loss of self": A psychosocial study of the quality of life of adults with diabetic foot ulceration. *Journal of Tissue Viability* 13: 6–16. Crossref. PubMed.

Liu C, You J, Zhu W, et al. (2020) The COVID-19 outbreak negatively affects the delivery of care for patients with diabetic foot ulcers. *Diabetes Care* 43: e125–e126. Crossref.

Luo R, Ji Y, Liu Y, et al. (2023) Relationships among social support, coping style, self-stigma, and quality of life in patients with diabetic foot ulcer: A multicentre, cross-sectional study. *International Wound Journal* 20: 716–724. Crossref. PubMed.

Manu C, Lacopi E, Bouillet B, et al. (2018) Delayed referral of patients with diabetic foot ulcers across Europe: Patterns between primary care and specialised units. *Journal of Wound Care* 27: 186–192. Crossref. PubMed.

Margolis DJ, Malay DS, Hoffstad OJ, et al. (2011) Economic burden of diabetic foot ulcers and amputations: Data Points #3. In: *Data Points Publication Series*. Rockville, MD: Agency for Healthcare Research and Quality. Available at: http://www.ncbi.nlm.nih.gov/books/NBK65152/

McInnes AD (2012) Diabetic foot disease in the United Kingdom: About time to put feet first. *Journal of Foot and Ankle Research* 5: 26. Crossref. PubMed.

Meriç M, Ergün G, Meriç C, et al. (2019) It is not diabetic foot: It is my foot. *Journal of Wound Care* 28: 30–37. Crossref. PubMed.

Mills JL (2018) An integrated approach for the effective management of limb-threatening ischaemia in the diabetic foot. In: Piaggesi A, Apelqvist J (eds.) *Frontiers in Diabetes*. Basel, Switzerland: S. Karger AG, Vol. 26, pp. 147–160. Crossref.

Pappachan JM, Cassidy B, Fernandez CJ, et al. (2022) The role of artificial intelligence technology in the care of diabetic foot ulcers: The past, the present, and the future. *World Journal of Diabetes* 13(12): 1131. Crossref. PubMed.

Pitocco D, Spanu T, Di Leo M, et al. (2019) Diabetic foot infections: A comprehensive overview. *European Review for Medical & Pharmacological Sciences* 23. PubMed.

Polikandrioti M, Vasilopoulos G, Koutelekos I, et al. (2020) Quality of life in diabetic foot ulcer: Associated factors and the impact of anxiety/depression and adherence to self-care. *The International Journal of Lower Extremity Wounds* 19: 165–179. Crossref. PubMed. ISI.

Raghav A, Khan ZA, Labala RK, et al. (2018) Financial burden of diabetic foot ulcers to world: A progressive topic to discuss always. *Therapeutic Advances in Endocrinology and Metabolism* 9: 29–31. Crossref PubMed. ISI.

Saving the NHS Millions, One Step at a Time (2023, March 27) Fyous products. Available at: https://fyous.com/blogs/press-releases/saving-the-nhs-millions-one-step-at-a-time

Somayaji R, Elliott JA, Persaud R, et al. (2017) The impact of team based interprofessional comprehensive assessments on the diagnosis and management of diabetic foot ulcers: A retrospective cohort study. *PLoS One* 12: e0185251. Crossref. PubMed.

Tzeravini E, Tentolouris A, Tentolouris N, et al. (2018) Advancements in improving health-related quality of life in patients living with diabetic foot ulcers. *Expert Review of Endocrinology & Metabolism* 13: 307–316. Crossref. PubMed.

Walsh JW, Hoffstad OJ, Sullivan MO, et al. (2016) Association of diabetic foot ulcer and death in a population-based cohort from the United Kingdom. *Diabetic Medicine* 33: 1493–1498. Crossref. PubMed. ISI.

Yip K-H, Yip Y-C, Tsui W-K (2023) Thoughts and experiences regarding leg amputation among patients with diabetic foot ulcers: A phenomenological study. *International Wound Journal* 20: 2159–2168. Crossref. PubMed.

Biography

Stella F Bosun-Arije is a Registered Nurse/Midwife in Nigeria as well as a Registered Adult Nurse in the United Kingdom. Her research interests include the management and remission and management of type 2 diabetes mellitus.