The burden of diabetic complications in Wales

KEY WORDS
- Diabetes
- Diabetic foot ulcer
- Lower limb amputation
- NHS Wales
- Welsh Assembly Government

With the prevalence of diabetes significantly on the rise (Diabetes UK, 2015), the NHS in Wales faces a considerable challenge to meet the growing demand for healthcare services. It is estimated that 10% of the annual budget (£500 million) in Wales is spent on diabetes, with 80% being spent on managing preventable complications of the disease (Diabetes UK, 2017). Foot ulcers are a recognised complication of diabetes that can result in lower extremity amputation and early mortality. Jodie Neads explains how patients need to be empowered to participate in the management of their condition, in order to improve treatment outcomes and to minimise the strain on the health system.

The NHS in Wales is facing financial crisis, which threatens the sustainability of the service to continue to deliver high-quality healthcare (Taunt et al, 2014).

It is estimated that 10% of the annual budget (£500 million) in Wales is spent on diabetes, with 80% being spent on managing preventable complications of the disease (Diabetes UK, 2017).

Diabetes is a chronic progressive condition, associated with peripheral arterial disease and neuropathy, that predispose to foot ulceration and lower limb amputations (Alavi et al, 2014). Diabetic foot ulceration (DFU) is understood to affect 15% of all patients with diabetes during their lifetime (Yazdanpanah et al, 2015) and results in substantial morbidity, mortality and socioeconomic burden (Wilkinson et al, 2014).

The development of DFU can lead to infection, gangrene and major amputations, which results in prolonged periods in hospital (Yazdanpanah et al, 2015). Phillips et al, (2016) estimated that 24,000 hospital admissions occur annually in the UK due to complications of the diabetic foot. Nonetheless, Alavi et al, (2014) stressed with appropriate diagnosis and treatment, much of the burden associated with diabetes could be avoided. However, Shrivastava et al, (2013) proposed that one of the greatest healthcare challenges is addressing the continued needs of patients with chronic illness such as diabetes, in order to avert long term complications of the disease.

Successive UK governments have targeted improvements in NHS service delivery in the prevention and management of diabetes (McInnes, 2012). Investing in prevention and early intervention foot-care strategies has been deemed cost effective to avoid costly reactive interventions (NHS Confederation, 2016). This article will focus on the issue of healthcare demands in Wales as a result of DFU.

DEMANDS ON HEALTH CARE SYSTEM

In 2009, the Welsh Assembly Government (WAG) reorganised the healthcare system in Wales under the One Wales Strategy Document, to adapt to the healthcare demands of the 21st century. As part of the reorganisation of the NHS in Wales, seven Local Health Boards (LHB) were created and are responsible for both funding and the provision of NHS services (NHS Wales, 2013).

In Wales, the epidemiology of disease has changed from predominantly communicable disease to chronic conditions (WAG, 2007). Wales has an ageing population with 624,773 aged 65 and over (WAG, 2016), and the impact of an industrialised society has attributed to the highest incidence of chronic conditions in the UK (NHS Wales, 2016). Furthermore, the South Wales Valleys is an area of deprivation which is associated with health inequalities (WAG, 2016). Research has identified that 63% of the population in South Wales are overweight or obese (Phillips et al, 2014), which

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"It is estimated that around 2,000 people with diabetes in Wales have foot ulcers at any given time with around 330 amputations carried out each year."

is associated with a four-fold increase in the relative risk of diabetes (Joslin, 2005). The risk of diabetes-related complications in Wales is significant, with Diabetes UK (2017) reporting that 7.1% of people aged 17 and over are living with diabetes, which is higher than England and Northern Ireland (6.37% and 5.6%, respectively). Consequently, the high incidence of diabetes translates into a high incidence of diabetes complications such as DFU (Yazdanpanah et al, 2015). Annual figures released by Diabetes UK (2015) reported that leg, foot and toe amputations as a result of complications of the diabetic foot have increased to more than 300 in Wales and 6,000 in England (Diabetes UK, 2015). Furthermore, it is reported that 80% of people die within five years of having an amputation (Weledji and Fokam, 2014).

IMPACT ON PATIENTS' QUALITY OF LIFE

Solli et al (2010) proposed that the effect of diabetes on health-related quality of life (HRQol) is significant, and decreases with disease progression and in the presence of foot disease (Hogg et al, 2012). Studies have identified that advancing foot disease is also associated with reduced mobility, depression and social isolation (Herber et al, 2007; Vileikyte, 2008). Evidence suggests that a reduction in HRQol diminishes adherence to foot care behaviours (Saleh et al, 2014), which increases the risk of developing DFU, delays wound healing and increases wound recurrence (Steel et al, 2016).

The Diabetes Delivery Plan for Wales 2016–2020 advocates preventative foot-care strategies including improved access to healthcare, screening programmes for those at risk of developing DFU and patient education. Furthermore, as part of the WAG guidelines (2016), LHB across Wales are required to participate in the National Diabetes Audit (NDA), which enables foot protection services to measure their performance against NICE clinical guidelines (NICE, 2015). The audit is an essential source of data to target improvements in service delivery (Hillson, 2015). In 2015, participation in the NDA had decreased when compared to 2013 (70.7–57.3%), which signifies a failure to capture the true extent of the burden of diabetic foot disease in Wales (Diabetes UK, 2015). Paisey (2014) reported that auditing diabetes-related outcomes is challenging because of the diversity of adverse outcomes and their causation. However, since the introduction of The Diabetes Delivery Plan for Wales 2016–2020, participation in the NDA is reported to be in excess of 90% (NHS, 2017).

The Together for Health: A Diabetes Delivery Plan (2013) requires all LHB in Wales to provide "NICE-compliant structured education programmes." Essential self-care behaviours advocated in the NICE guidelines (2015) include glycaemic control and compliance with medication. Chrvala et al (2016) conducted a systematic review to determine the effect of diabetes self-management education and its influence on glycaemic control. Notably, 61.9% of interventions achieved improvements in HbA1c in participants engaged in education programmes, compared with those who received no intervention. Nonetheless, a previous meta-analysis conducted by Williams et al, (1998), revealed improved glycaemic control immediately after an education session, however, the observed benefit declined after one month after the intervention had ceased. Therefore, Shrivastava et al, (2013) proposed that continuing education is essential. Consequently, LHB in Wales have introduced the Making Every Contact Count (MECC) scheme, where timely and opportunistic advice is given in a healthcare setting (Bennett, 2015). MECC empowers staff to educate and motivate patients to improve their own health and wellbeing during clinical appointments (Public Health Wales, 2016).

MANAGING IN TIMES OF AUSTERITY

The NHS in Wales faces an ongoing challenge to meet public demand in a period of austerity (NHS Confederation, 2016). A report produced by The Nuffield Trust on healthcare services in the UK, identified that Wales had the greatest reduction in healthcare expenditure of 4.3% between 2009–10 and 2012–13 (Bevan et al, 2014). The cut in government funding has reportedly resulted in hospital downgrading, delays in hospital waiting times and staff shortages (BBC News, 2014). In order to improve the efficiency of the health service in Wales, the WAG has pioneered the principles of Prudent Healthcare, where the healthcare provided fits the needs and circumstances of patients and actively avoids wasteful care (WAG, 2016). Diabetes is typically managed by an integrated multidisciplinary team, however, lack

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of communication between professionals results in an absence of structured care or a common duplication of effort (Goulder and Kar, 2013). Therefore, collaborative working can provide quality healthcare, minimise duplication and enhance patient experiences (Williams, 2011).

Currently, the demand for healthcare services in Wales exceeds the available supply due to demographic changes in the population and changes in healthcare expenditure (Public Health Wales, 2016). In 2015, Appleby estimated that a 4% increase in UK productivity is required to close the gap between healthcare funding and need. The programme budgeting and marginal analysis framework has been adopted in Wales, which helps decision-makers allocate resources so that benefits are maximized (Charles et al, 2016). Consequently, the WAG has invested significantly in diabetes prevention and management to minimise the long-term economic burden of the disease (NHS Confederation, 2016).

FOCUSING ON PREVENTION AND SELF MANAGEMENT

In Wales the leading causes of premature mortality are cardiovascular disease, cancer and diabetes (Public Health Wales, 2016). However, the prevalence of diabetes is more than three times higher than the prevalence of all cancers combined (Diabetes UK, 2015). Consequently, in 2013–2014 NHS funding for cancer services was £301.1 million compared to £500 million for diabetes care (WAG, 2015). The key driver for investing in, and developing diabetes prevention strategies is that the current rate of expenditure for diabetes is unsustainable (NHS Confederation, 2016). Therefore, focusing on prevention and condition self management has the potential to reduce the risk of long-term complications of the disease and the associated costs (WAG, 2016).

In order to accurately measure the burden of diabetes on healthcare services, under the National Service Framework (WAG, 2016), LHB have been tasked with the responsibility of auditing and reporting on diabetes-related demands. However, a number of LHB have failed to report key data (Diabetes UK, 2015), which emphasises that there is a lack of accurate cost data in diabetes care (McInnes, 2012). Public Health Wales has implemented mandatory surveillance of surgical site infection in orthopaedics and following caesarean sections, in order to analyse and report trends in infection rates (Public Health Wales , 2011). This data collection tool has been highly successful in Wales and could potentially be reproduced in diabetes care.

CONCLUSION

With the incidence of diabetes reaching epidemic proportions (Diabetes UK, 2015), the NHS in Wales faces a considerable challenge to meet the growing demand for healthcare services. The WAG has invested significantly into the prevention and management of diabetes, however, the risk of diabetes-related complications in Wales remains high (Diabetes UK, 2015). In order to reduce the burden of foot disease, patients should be empowered to be accountable for, and participate in the management of their condition to improve treatment outcomes and minimise the risk of secondary complications.

In conclusion, the strategies published by the WAG provide a clear vision for diabetes management and preventing complications of the diabetic foot, which is a powerful driver for change. However, the current rate of expenditure for diabetes is unsustainable and there is growing concern for the future of the NHS in Wales. WUK

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