

Chapter 26

Facilitating Mobile Initiatives in Healthcare and Wellness Management

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ABSTRACT

Arguably, the most prevailing chronic disease today is diabetes. The World Health Organization (WHO) notes that diabetes is a silent epidemic, and by 2020, there will be a 54% rise in the total number of individuals diagnosed with this disease. These are distressing figures. Many are turning to technology solutions to assist. What becomes important is the ability to rapidly design and develop appropriate digital health and wellness solutions.

INTRODUCTION

Today chronic conditions such as diabetes, cancer and obesity are increasing exponentially and dominate healthcare budgets globally (Lancet, 2016). At the same time, technology and digital health continue to advance. We see this as an opportunity to design and develop suitable technology solutions to support digital health and wellness initiatives. A key success factor in this regard is to have a suitably robust business model and delivery framework as the following presents.

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Diabetes and its Management

Diabetes Mellitus is characterised by a lack of endogenous insulin and resulting in hyperglycaemia and the excretion of excess glucose in urine (Krall and Beaser, 1989). The basic defect appears to be an absolute or relative lack of insulin production from the pancreas, which leads to abnormalities mainly in carbohydrate metabolism, as well as in protein and fat metabolisms (ibid). Severe untreated diabetes, of which hyperglycaemia is just one aspect of metabolic derangement, can lead to both macro and microvascular complications (ibid). A relatively simple and non-invasive method of preventing these complications is to recognise the impact of diet on insulin production and maintenance and thus follow a healthy diet and regular exercise regimen or wellness plan (Hu et al., 2001). Therefore, people with diabetes mellitus need help in planning and accepting a daily diet which contains the appropriate amounts of carbohydrates, protein, fat and fibre, together with adequate amounts of vitamins and minerals (ibid). It is important to distinguish that Type I Diabetes Mellitus (T1DM) is characterised as an autoimmune disease, while Type II Diabetes Mellitus is an acquired chronic disease characterised by decreased insulin secretion and an increase in insulin resistance (Krall and Beaser, 1989). Although diet plays a role in T1DM, it has a greater impact in the management of T2DM (Hu et al., 2001).

Early diabetes management needs to focus on lifestyle modification, specifically modest weight loss and increased physical activity (ibid). Even for people with advanced stages of diabetes, lifestyle and diet intervention are likely to be beneficial in limiting the complications of sustained hyperglycaemia (ibid). Lifestyle changes including daily exercise and appropriate diet can be applied broadly, or can be directed to individuals who are thought to be at increased genetic risk for diabetes as ascertained by information such as family history of diabetes (ibid). When individuals transfer from a pre-diabetic to a diabetic phase then the focus to addressing the problem changes from a wellness management to a healthcare management issue (ibid).

According to Davidson et al. (1986), there are three streams of lifestyle and medical interventions:

- i) Diet (Kepf et al., 2014): Prolonged dietary treatment of diabetes is the very baseline of all forms of anti-diabetic treatment (ibid). An important cornerstone and the aim of dietary treatment is a well designed meal, taking account of the total calorie content and nature of diet (ibid).
- ii) Diet and oral hypoglycemic agents (Kohnert et al., 2009): Diet combined with oral hypoglycaemic agents is the next tier in diabetes treatment. There are several classes of orally administered anti-diabetic agents available for use in patients with T2DM,
- iii) Diet and insulin (ibid): When a person with T2DM cannot be managed with diet and oral hypoglycemic agents alone, insulin is introduced for better management of the condition. Insulin therapy in T2DM supplements endogenous insulin and is often given as a single injection before breakfast or at bedtime.

Key Issues Emerging Due to Diabetes

Diabetes can lead to a number of health issues e.g., blindness, amputation, heart disease, kidney, nerves and blood vessels problems (Krall and Beaser, 1989).

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