ELECTIVE (SSC5b) REPORT (1200 words)

A report that addresses the above four objectives should be written below. Your Elective supervisor will assess this.

1.

According to the Centers for Disease Control and Prevention (CDC) the prevalence of Type 2 Diabetes Mellitus (T2DM) in the District of Columbia was 9.1% in 2015. Over a period of 4 years from 2010 the prevalence of T2DM rose by 15.7%, diabetes became the ninth highest cause of hospitalisation and 5th cause of death in 2013. (1) The District of Columbia was also ranked 25th out of 54 other American states and territories for prevalence of T2DM.

On the other hand, the national prevalence was 9.4% in 2015, however there were also 7.2 million undiagnosed Type 2 diabetics which suggests that the actual prevalence is much higher. (2) In terms of ethnicity, the highest prevalence was amongst American Indian women and men, 15.3% and 14.9% respectively, followed by African-American women (13.2%) and Hispanic men (12.6%)

Across the United States there were a reported 1.5 million newly diagnosed cases of T2DM in adults in 2015, or 6.7 per 1000. In contrast, the incidence of T2DM in the District of Columbia was 7.8 per 1000 adults in 2013. Although the data for 2015 is not available for the District of Columbia, the incidence is already higher than the national average and one can assume this did not change drastically over 2 years.

Nationally over 50% of new cases were amongst adults between the ages of 45 to 64 years old. The highest incidences occurred in the southern states such as Alabama, Louisiana and Arkansas, also known as the 'diabetes belt'. (4) American Indians were also the ethnic group with the highest incidence of T2DM mirroring the trend seen with prevalence in 2015. (2)

2.

Healthcare in the United States is underpinned by insurance providers, most Americans are insured via their employers or through family however 28.2 million people, 10.4% of the population, under the age of 65 were uninsured in 2016 (5). There are also national schemes such as Medicare and Medicaid for the elderly and those from lower income backgrounds respectively, which provide insurance coverage funded by the federal government. Each insurance company provides different products and individualized plans that govern the services a patient will have access to.

Patients have the autonomy to choose their primary care provider (PCP) which may be local to them or in a neighbouring state, but most insurance companies will recommend a list of PCPs that are covered by the patient's plan to choose from. Patients choose their PCP based on recommendations from friends and family or they may be referred by another doctor. Any patient has the opportunity to see any primary care physician but if they are not covered by their plan, also called "in network" with their insurance company, then they would have to cover the costs themselves.

A primary care physician cares for patients in the same way as General Practitioners do in the United Kingdom, they are usually the first point of call when a patient feels unwell, they provide care for chronic conditions such as diabetes and heart disease, and they conduct annual physical examinations.

Although patients can see a specialist directly, insurance companies will discourage this practice by implementing additional charges. In this way, most patients will see a primary care physician and receive a referral to a specialist similar to the UK system.

Another similarity to the UK is the concept of a 'postcode lottery'; each state is able to pass their own laws which can affect the services covered by insurance plans. For example, there are only 15 states that require insurance companies to cover or offer coverage for infertility diagnosis and treatment. (6) After the introduction of the Affordable Care Act in 2010 twenty-one states passed legislation restricting coverage for abortion services. (7)

3.

The prevalence of T2DM in adults in the United Kingdom was 3.7 million in 2017, given the current trend it is predicted that there will be more than 5 million people diagnosed with diabetes by 2025. (8) The cost to the NHS of treating diabetes and its complications is currently £8.8 billion (9) and will most likely grow if nothing is done to combat the increasing prevalence.

The NHS Diabetes Prevention Programme does focus on encouraging patients to maintain a healthy weight, become more active and use behavioural interventions with pre-diabetic and diabetic patients. The dietary modifications include restricting patients to 600kcal per day (10) which although results in weight loss in the short-term, sufficient enough to reverse T2DM, may not be sustainable in the long-term. There is also no specific restriction on the intake of fat in the diet which is conerning for the patients' cardiovascualar health.

However, there is increasing evidence to show that a low-fat, whole food plant-based diet can not only achieve weight loss, reversal of T2DM but also reduces cholesterol and encourages long-term weight reduction. Dr Barnard et al (2009) conducted a randomised, controlled, clinical trial in which patients were either on a low-fat vegan diet or a diet recommended by the American Diabetes Association.

After 74 weeks, those patients on a low-fat vegan diet had lost almost 1.5 times more weight and their HbA1c values were 2.5 times lower than those on the coventional diet. The LDL values for the patients on the vegan diet also decreased by 13.5 mg/dL compared to 3.4mg/dL for patients on the conventional diet. Moreover, the largest propspective study conducted by Satija et al (2016) analysed over 400,000 peoples' data for 10 years, the analysis demonstrated that those adhering to a plant-based diet had a reduced risk of 34% for developing T2DM after adjusting for Body Mass Index. (12)

Overall, the implementation of a whole foods plant-based diet shows mulitple benefits to patients' health which has the potential to prevent and reverse the leading causes of morbidity and mortality in the Western world.

4.

During the 4 weeks I have spent at the Barnard Medical Center I have gained a vast amount of knowledge on plant-based nutrition and its practical application to patients. Whilst observing new patient consultations I was able to see how the discussion begins with the patient's intrinsic motivation for change. Some of the most common reasons patients came to the medical center were for weight loss, diabetes management, heart disease prevention and medication reduction. The discussion on adopting a plant-based diet is always centered on the 'power plate' which includes fruits, vegetables, legumes and whole grains. For patients who are either diabetic or pre-diabetic there have been

numerous studies published to show that a low-fat, whole food plant-based diet can improve insulin sensitivity and reverse T2DM.

As a result, I have learned the difference between low and high caloric foods, for example one of pound of broccoli contains 100 calories whereas one pound of olive oil contains 4000 calories. In order for patients to reverse their diabetes the physicians encouraged them to focus on the lower calorie foods but not necessarily to restrict their daily caloric consumption. In general, the idea is not to eat less food but to eat better, more nutrient dense foods.

References

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