

Diabetes in Malta: Current Findings and Future Trends

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Abstract

Diabetes is a considerable global problem. Recent projections suggest that at least 194 million people suffer from diabetes worldwide. The World Health Organization suggests this number will increase to 333 million by 2025. Approximately four million deaths each year are caused by diabetes-related complications totaling an astounding 9% of deaths worldwide.

Currently, epidemiological studies indicate that 1% of the Maltese population suffer from Type I Diabetes Mellitus and 9% from Type II Diabetes Mellitus. Following global predictions, it is probable that the incidence of Type I diabetes will increase also. This article evaluates the current Maltese diabetic care system and conducts a strategic analysis of diabetic practices. Recommendations for a cost-effective standard of care, legislative support for comprehensive diabetic care, and a national policy are proposed.

Introduction

Diabetes is a considerable global problem. Recent projections suggest that at least 194 million people suffer from diabetes worldwide and the World Health Organization suggests this number will increase to 333 million by 2025. Approximately 4 million deaths each year are caused by diabetes-related complications, totaling an astounding 9% of deaths worldwide. Although no nations or cultures are exempt from this devastating disease, developing countries will account for 150% of the increase.¹ Diabetes was once considered a disease of wealthy countries but now is affecting low-income and developing countries that currently have the fastest growing numbers of newly diagnosed patients. For example, in India it is estimated that over the next 25 years, the number of citizens with diabetes will soar from 32 million currently affected to over 80 million persons diagnosed with diabetes. Additionally, obesity and overweight, often precursors to diabetes, now affect an alarming 50-60% of a nation's population, not only in the USA, Europe and Australia, but also in lower to moderate income countries such as Mexico, Egypt and the black population of South Africa.²

Recently, and for the first time, the leading global obesity and diabetes organizations have come together to provide recommendations to avert worldwide public health crises. Their mission is to ameliorate the twin epidemics of diabetes and obesity working within a global perspective. The resulting report, *Diabetes and Obesity: Time to Act*, was presented in Prague at the 13th European Congress on Obesity and Diabetes in May of 2004. The report states that actions are required from individuals, healthcare professionals, industries and policy makers in order to avert a worldwide epidemic. Additionally, the report recommends that strategies must be developed to encourage and facilitate physical activity and a healthy diet while controlling access to energy dense foods and drinks.

The Costs of Diabetes Mellitus

The expenses associated with caring for persons with diabetes are staggering. Studies have shown that diabetes mellitus is a costly disease with Type II diabetes accounting for between 3% and 6% of total healthcare expenditures in eight European countries.³ The same study estimated that the total direct medical costs for the 10 million people with diabetes in these European countries were 20 billion Euros or \$27 billion

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US dollars. Of further concern is the lack of information on the indirect and intangible costs of diabetes. Methodological difficulties in gathering this data have revolved around either direct care issues or quality of life issues. Currently, there is considerable interest in developing standardized guidelines to collect this information. At this time the lifetime risk of developing diabetes (Type I or Type II), if born in the US in 2000, is 33% for males and 39% for females. The public health implications of Diabetes Mellitus are astounding because of the associated morbidity and mortality of the illness. In persons diagnosed before the age of 40 years, there is a decrease of 12 life years in males and 19 life years in females.⁴ Diabetes is the leading cause of blindness, causing 2% of diabetic patients to lose their sight. Fifty percent of all diabetic related deaths are linked to cardiovascular disease. People with diabetes have an increased risk of heart attacks, strokes and peripheral vascular disease. Diabetes causes the development of foot ulcers and is the most common cause of non-traumatic amputation of the lower limb. Other complications of diabetes mellitus result from microvascular disease leading to retinopathy, nephropathy and neuropathy, all of which compromise the quality of life for diabetes patients.

Diabetes Mellitus in Malta

Currently, 10% of the Maltese population has diabetes mellitus as compared to 2% to 3% of their European neighbors. The prevalence of diabetes in Malta is significant and results in nearly one out of every four deaths occurring prematurely before the age of 65 years of age. The main cause of death in Malta is cardiovascular diseases (SDR 331 per 100,000).⁵

Historically, an awareness of diabetes as a disease in Malta emerged in the mid-seventeenth century. Insulin therapy was introduced in the 1920s. Treatment at this time focused more on disease management as opposed to epidemiology. As awareness and treatment therapies developed, more Maltese came forward for screening and treatment, contributing to a statistical rise in the prevalence of the disease.

In the 1940s following the Second World War, diabetes in the Maltese population reached an epidemiological peak, most likely due to the economical effects of the war. One theory, the Thrifty Genotype theory, suggests that a restricted diet in pregnancy and a fetal reduction of pancreatic cells made the Maltese people vulnerable to diabetes.⁶

While the increased awareness and incidence of diabetes is important, the altered nutritional habits of the Maltese population in recent decades have significantly affected the increasing levels of diabetes mellitus in the Maltese population. Despite Malta's location, its diet is not in keeping with the traditional Mediterranean diet. The traditional diet includes more fish than red meat, more olive oil than butter, and lots of fresh fruits and vegetables. Malta's history of colonization has altered its cuisine which currently offers a combination of tastes of many different cultures, which are much higher in red meat,

fried foods, refined sugar, fats and carbohydrates. Regular consumption of these foods over time has led to increased rates of obesity in Malta, and essentially, increased rates of diabetes mellitus.

Recent epidemiological studies indicate that 10% of the Maltese population today suffers from diabetes, 9% of whom suffer from Type II or adult-onset diabetes. Furthermore, 84% of the Maltese diabetic population is overweight or obese, and the diabetic rates of Malta are among the highest in all of Europe. The leading cause of death in Malta, cardiovascular disease, kills nearly two-thirds of all diabetic patients.

Analysis of Current Diabetic Practice Patterns in Malta

An Interdisciplinary Approach

Decisions in the provision of health care require *a priori* interdisciplinary approach relative to current practices, the strengths and weaknesses of these practices, and opportunities for improvements. Care of diabetic patients provides the perfect scenario where interdisciplinary teamwork can provide a holistic and a cost-effective management plan. Effective interdisciplinary teams are associated with improved decisions about patient care.⁷

Many health care systems tend to be reactive problem solvers rather than organized and planned visionaries. With the escalating costs of health care worldwide, this reactionary tendency will not meet or position health care systems adequately for future sustainability relative to quality outcomes and financial resources consumed. More recent recognition of the emerging diabetes and obesity issue has pushed healthcare systems to look to other, more refined models, to analyze practices. One model of analysis referred to a SWOT analysis and used in the business or industry sectors involves critique of practices through detailed review of strengths, weaknesses, opportunities, and threats.

Analysis of the care of diabetic patients in Malta was completed in accordance with the SWOT model. Initial components to this endeavor required extensive literature review, as previously reported, with a particular focus on the incidence and prevalence of diabetes mellitus in Malta, the European Community and internationally. Further, recommended guidelines for best practices based on scientific evidence for prevention, treatment and case management were also targeted.

Understanding the Current Practice of Diabetic Care in Malta

Immersion into the current diabetic practices in Malta was required to appreciate service delivery of diabetic care. This was accomplished via numerous lectures from recognized Maltese experts in diabetic care, observation of patient care practices in St. Luke's outpatient diabetic clinic and interviews with Maltese individuals diagnosed with diabetes. Findings

reflect the information gained during this process. However, some caution is required in the interpretations of these findings. Limitations, possibly affecting validity, include self-reported patient data, the resource and time constraints (i.e., completed within one month), and potentially, cultural differences influencing observations.

Strengths, Weaknesses, Opportunities and Threats

The Strengths.

- Diabetic services include a dedicated interdisciplinary team of highly qualified practitioners with specialization skills in diabetic care. In health care, teamwork is primarily concerned with the interaction of different health care professionals. Good teamwork requires integration, adaptation, tolerance, cooperation, and building on each others' strengths.⁸ This appears to be present in the services offered to Maltese diabetic patients.
- Care is provided in an interdisciplinary setting including physicians, nurses, podiatrists and educators. This allows for "one stop provision of outpatient services" minimizing the need for patients to visit multiple sites for their care.
- Given the high volume of patients cared for within the outpatient diabetic clinic, clinical competencies specific to diabetes remain well established for these practitioners.
- Cost of diabetic care for patients is free therefore making the financial status of patients a non-factor to seeking care for their condition.
- The Maltese Diabetic Association works closely with the healthcare system and patients to optimize education, prevention and treatment for diabetes.
- The "traditional" Mediterranean diet IF followed promotes healthy eating habits

The Weaknesses

- The actual costing of current practices such as how much does it cost the government to care for a diabetic patient appears lacking. Cost accounting systems and necessary infrastructure to support this knowledge acquisition is imperative to make informed decisions on outcomes of care based on lira spent. This will be crucial to future generations with regard to sustainability of care and quality.
- Community based care, though evident to a degree, requires expansion and greater integration into the continuum of care initiated at St. Luke's outpatient diabetic clinic.
- Resource utilization practices require further investigation. At present, there are homebound diabetic patients receiving nurse visits daily or even more than once a day, to receive their insulin injections. Although this is an admirable practice, it may suggest a culture of "entitlement" (i.e., the government must take care of me).
- Denial of diabetic supplies (i.e., test strips) once the patient reaches age 35 years. This arbitrary withdrawal for

monitoring blood sugars may not prove beneficial to either the patient or the government payer over time and potentially increase the complications of long term diabetic disease.

- Access to more recent technology (i.e., the pump) for the pharmacological management of delivery of insulin. This mode of insulin administration is currently not funded by the government even though insulin pump utilisation results in a better control of diabetic disease.
- Unfortunately, western influences have altered the traditional Mediterranean diet. This change coupled with decreased availability and higher costs for fresh fruits and vegetables make adherence to a diabetic diet more challenging for Maltese patients.

The Opportunities.

- Recent European Union (EU) membership offers opportunities for funding and development in diabetes care as well as access to centralized data bases for research use.
- European Union membership also offers increased opportunities for collaborative practice, collegiality and networking opportunities.
- Access to EU Training and Development Grants can contribute significantly to the current interdisciplinary model of diabetic care.
- Maltese practitioners can seize the opportunity for planning proactively for future care based on "best practices" and evidence based practice as opposed to developing practice changes as a reactive strategy.
- "Best Practices" will allow the centralized diabetic clinic and community based health centers to increase access and quality of care while decreasing the cost burden.

The Threats

- The most significant threat to diabetes care in Malta is "to do nothing" to control spiraling costs based on population demographics and international projections of morbidity and mortality associated with diabetes.
- An additional threat is the perpetuation of feelings of "entitlement" to healthcare by the Maltese citizens in concert with the increasing cost and resource burdens associated with Diabetes Mellitus.

Recommendations

There is currently significant interest in diabetes mellitus and obesity from a worldwide perspective and it is logical to expect increased research dollars and funding to allow countries to better deal with the emerging issue. Malta, based on its small size, capable resources and high incidence of diabetes should explore these funding opportunities as soon as possible.

An analysis of the strengths, weaknesses, opportunities and threats suggest that interventions in diabetic care should occur at three levels. First, legislation and government support for a national comprehensive diabetic care policy must occur.

Second, a national diabetes cost-effective standard of care must be implemented and evaluated. This evaluation of diabetes care across the continuum assesses disease prevention, health promotion, case finding (i.e., identification of diabetics) and outcomes. Third, the National Health Policy must address the social barriers encountered by Maltese citizens, including social stigma and inequitable treatment.

Legislative and government support for diabetes care is imperative since this disease approaches epidemic proportions in Malta. To effect this policy, several preliminary steps must occur. An interdisciplinary task force should be appointed and dedicated to researching current diabetes care provision with regard to prevention, promotion, case finding (incidence and prevalence) as well as both clinical and cost outcomes. Funding for this national policy must be secured by statute. Government oversight and support must be present at all levels during the policy development process.

Strategies to implement a national policy should be based on the findings of the task force, current Maltese practice patterns and global health recommendations on diabetes. A statistical database and information systems to manage this initiative are optimal for continuous program evaluation.

Mechanisms to minimize the reported social stigmas and discriminatory practices towards diabetic individuals must be enacted. Currently, persons diagnosed with diabetes are required to disclose this information when applying for personal loans, mortgages and employment.

Conclusions

With the projected aging demographics and the high incidence of diabetes in Malta, it is critical that passage and implementation of a comprehensive, cost conscious plan for treating diabetic mellitus occur. If left unchecked, diabetes as well as the complications of this disease could overburden the Maltese health care system.

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