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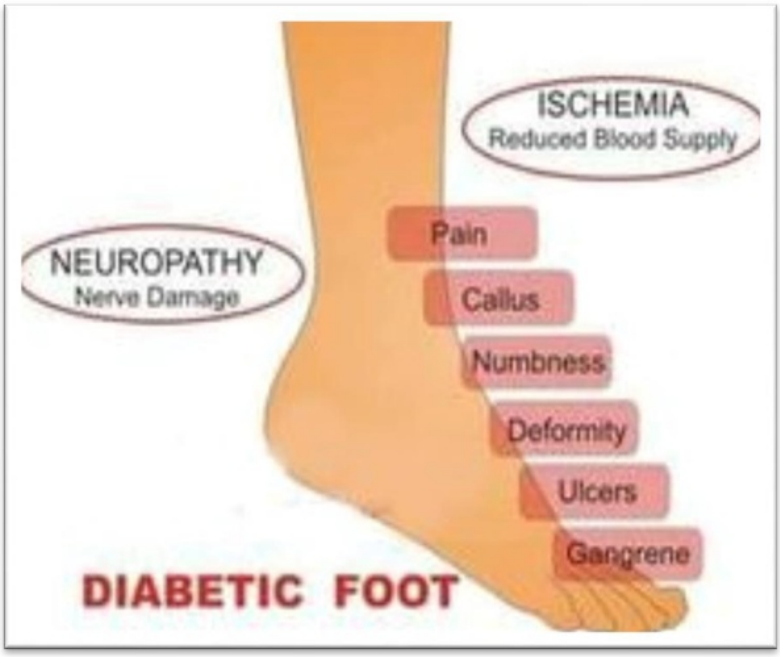
Submission date: 25-Feb-2018 09:48AM (UTC+0400)
Submission ID: 920883947
File name: Final_Thesis_Report.docx (2.02M)
Word count: 32087
Character count: 191125

THE MANAGEMENT OF CHRONIC DIABETIC FOOT ULCER: A NURSE PERSPECTIVES



Self-foot care, Self-Care Management, Knowledge, and the Phenomenal Drug Heberprot-P a Model for Managing Chronic Diabetic Foot Ulcer: A Small Island State Perspectives

Final Thesis Report

Submitted to Texila American University in partial fulfillment of the requirement for the award of the Degree of

Doctorate in Nursing Practice

Submitted by

Marrie Davis

Under the Guidance of

Doctor Audrey Gittens

TEXILA AMERICAN UNIVERSITY
GUYANA

CERTIFICATE

This is to certify that the thesis, entitled **"Self-foot care, Self-Care Management, Knowledge, and the Phenomenal Drug Heberprot-P a Model for Managing Chronic Diabetic Foot Ulcer: A Small Island State Perspectives"** submitted to the Texila American University, in partial fulfillment of the requirements for the award of the Degree of **Doctor of Philosophy in Clinical Research** is a record of original research work done by **MARRIE DAVIS** under my supervision and guidance and the thesis has not formed the basis for the award of any Degree / Diploma / Associateship / Fellowship or other similar titles to any candidate of any University.

Signature of Guide

DECLARATION

I, Marrie Davis declare that this thesis entitled **Self-foot care, Self-Care Management, Knowledge, and the Phenomenal Drug Heberprot-P a Model for Managing Chronic Diabetic Foot Ulcer: A Small Island State Perspectives** submitted in partial fulfillment of the degree of **Doctor of Philosophy** is a record of original work carried out by me under the supervision of **Dr. Audrey Gittens** and has not formed the basis for the award of any other degree or diploma, in this or any other Institution or University. In keeping with the ethical practice in reporting scientific information, due acknowledgments have been made wherever the findings of others have been cited.

Marrie Davis

Date 30/10/2017

ACKNOWLEDGEMENT

. I am thankful to Almightily God for the strength, health, endurance, patience, and knowledge he gave me to complete this document. He is indeed a grateful God.

I take this opportunity to thank my children, siblings, relatives and others who had supported and encouraged me.

I extend sincere thanks to my colleagues at the district clinics and hospitals for accommodating me.

It was a privilege working with and receiving the necessary support from all of my student coordinators for the past three years. Thank you for your support and cooperation. It was a pleasure working with your guidance.

Special thanks to my Research Guide an individual who believes that quality work portrays your inner ability and her vision striving for excellence is the way forward.

Sincere thanks to all for their cooperation, guidance, and support these factors made this thesis realized.

Marrie Davis

ABBREVIATIONS

AADE – American Association of Diabetes Educators

CCP – Chronic Care Passport

DFU – Diabetic foot ulcer

DM – Diabetic Mellitus

DSME – Diabetes self-management education

EGF – Epidermal growth factor

GBD – Global Burden of Disease Injuries and Risk Factors

HbA1C – Haemoglobin A1C

MCMH – Milton Cato Memorial Hospital

NCD - Non-communicable disease

PAHO – Pan American World Health Organization

SPSS – Statistical Package for Social Sciences

SVG – St. Vincent and the Grenadines

SWOT – Strength, weakness, opportunity, and threat

WHO - World Health Organization

Abstract

Diabetes remains the chief cause of death, disability, and disease in St. Vincent and the Grenadines (SVG). Recent data from the 39 Health Clinics revealed a total of 2546 registered diabetics and this figure represented two percent (2% of the total population (Ministry of Health, Wellness and the Environment Strategic Plan 2007-2012).Diabetic foot ulceration is considered as one of the most devastating complications of diabetes and is associated with neuropathy and or peripheral arterial disease of the lower limb (WHO, 2016). A total of 434 cases of amputations were due to diabetes, during 2009-2013 (Focus News, 2015). A significant increase of one hundred and forty-two cases of chronic diabetic foot ulcers (DFU) in comparison to eighty cases and a double increase in death resulted from diabetes for the period 2008 to 2012, raised major concerns in healthcare management of diabetes in St. Vincent and the Grenadines (SVG).

Increase in leg amputations over a four-year period due to chronic diabetic foot ulcers raised grave concerns in the small island state.Would the usage of the drug Heberprot-P aid in reducing the incidence of leg amputations in support with knowledge self-foot care and self-care management in St. Vincent and the Grenadines? The Heberprot-P project a joined venture with the government of Cuba aims to reduce the number of diabetic foot amputations in the small island state.

This study aims to determine patients' knowledge of self-foot care, self-care management, the benefits derived from using the drug Heberprot-P; and compliance with treatment. A qualitative research design and a purposive sampling technique used. An evaluative research design and a mixed method approach applied. The ISBAR Tool, Diabetic Self-efficacy Scale, and SWOT Analysis were the theoretical framework used. The descriptive statistical analysis of data done, using the Statistical Package for Social Sciences (SPSS). The Mya Levine Conservation Theory used to discuss the intricacy of care outcomes.

The nurse's role in this research focused on educating the clients on the functions of daily self-care such as self-foot care, examination, and the right shoes to be worn and early detection of any changes in the skin and lost of the sensation of the feet. Knowledge was the key focus. Diabetes self-management education (DSME) focuses on facilitating knowledge and other skills necessary for self-care. Educational programs to make the clients and their families more aware. Educational sessions focused on the importance of follow-up checks, blood glucose monitoring, and compliance. Wagner Wound Classification helped to determine the nature of the ulcers and the care management.

The 6045-Da protein human recombinant epidermal growth factor Heberprot-P injection used to treat DFU (Berlanga, 2013).The use of the drug along with knowledge, self-foot care, self-care management, and the roles of the nurse in the caring process resulted in the desired outcomes.
The affected age group was between the ages of their 50s and 60s. A total of 35% male and 50% female received medical treatment with effective results. Of the 60 clients, 15% (9) died due to complications of the disease.The affected clients, 18.3% (11) were diagnosed with the disease for 10 years and 45% (27) people for over 10 years. The general awareness and the benefits derived from the using the drug Heberprot-P encouraged DFU clients to seek medical care. DFU clients a total of 55% of the participants used the drug and 23.3% had their leg amputated. Clients refused to use the drug 6.7%.

One month after using the drug 30% of the clients reported significant improvement in their wounds, also, 30% two months later, 18.3% three months later and 5% no improvement seen. The healing of wounds resulted due to many factors, the roles of the nurse, patients and family active participation and patients' compliance with care. The findings presented determined patients' outcomes based on knowledge and compliance with treatment. Documentation associated with self-care behaviors and patients' outcomes contributed to the development of health policies and improved management of chronic illnesses.

TABLE OF CONTENTS

CHAPTER ONE

A model managing chronic diabetic foot ulcer

Diabetic foot ulceration is considered as one of the most devastating complications of diabetes and is associated with neuropathy and or peripheral arterial disease of the lower limb (WHO, 2016). Annually, the government of St. Vincent and the Grenadines continues to add a large sum of monies for managing non-communicable diseases (NCD), human resource and training. The joined venture with the government of Cuba aims to reduce the number of diabetic foot amputations, by initiating the Heberprot-P project. A significant increase of one hundred and forty-two cases of chronic diabetic foot ulcers (DFU) in comparison to eighty cases and a double increase in death resulted from diabetes for the period 2008 to 2012, raised major concerns in healthcare management of diabetes in St. Vincent and the Grenadines (SVG).

This study aims to determine patients' knowledge on self-foot care, self-care management; the benefits derived using the drug Heberprot-P and compliance with treatment. Knowledge the key factor refers to the state of being aware, information received, the ability to understand acquired through education (Roy, 2013). Educational programs for clients and their families, sessions on follow-up checks, blood glucose monitoring, and compliance with medical therapy are principles of diabetic care that prevent complications.

The nurse's role in this research focused on educating the clients on the functions of daily self-care, self-foot care, examination, and the right shoes to be worn, and early detection of any changes in the skin and sensation of the feet.

Compliance is the extent to which patients correctly follow medical advice such as medication or drug therapy, other treatment planned such as medical devices use, self-directed exercises or therapy sessions (Farlex, 2012), that lead to increased longevity and prevents complications.

Diabetes self-management education (DSME) focuses on facilitating knowledge and other skills necessary for self-care. Self-care management involves incorporating critical processes and care guided by evidence-based standards. Self-monitoring, the process aided in the general assessment of therapy, medication regulation, diet, physical and other activities to meet ideal glycemic control.

A qualitative research design and a purposive sampling technique were used. The diabetic foot clients the unequivocal subset. The sampling group was clients who visited the Diabetic Foot Care Clinic and were admitted to the Milton Cato Memorial Hospital (MCMH). The healthcare team gave pertinent feedback relative to patients' compliance**.** Wagner wound classification helped to determine the nature of the ulcers and the care management. The 6045-Da protein human recombinant epidermal growth factor Heberprot-P injection used to treat DFU (Berlanga, 2013).

The strengths, weaknesses, opportunity, and threats (SWOT) analysis, analyzed the internal and external environment. The diabetic self-efficacy scale measured clients' compliance, and the Statistical Package for Social Sciences (SPSS) version 20 used to analyze the data. The Mya Levine Conservation Theory to discuss the intricacy of care outcomes. The findings presented determined patients' outcomes based on knowledge and compliance.

Rationale/need for the study

The main reason for leg amputations at MCMH was due to DFU. In 2000 a total of 60.4% of DFU were amputated. In 2001 and 2002 respectively, a total of 65% increase**.** A total of 434 cases of amputations were done during 2009-2013 (Focus News, 2015).The average length of hospitalization for diabetic patients with amputations are about 52 days. The cost of treatment amounted to $3000 Eastern Caribbean dollars per patient. Also, an increase of diabetics' visits recorded a total of 4070 visits to the clinics.

A significant increase of one hundred and forty-two cases of chronic diabetic foot ulcers in comparison to eighty cases and a double increase in death resulted from diabetes for the period 2008 to 2012, raised major concerns in healthcare management of diabetes in St. Vincent and the Grenadines the rationale for this study.

Objectives

- Conduct interview sessions with diabetics' clients that used the drug Heberprot-P to appraise its usefulness.

- Determine patients' compliance with their prescribed drug therapy and Heberprot-P.

- Evaluate the significance of self-care management, the understanding of diabetes and its complications.

- Determine diabetics' perceptions of the usage of their medication and drug Heberprot-P.

- Estimate the percentage and the outcome of the usage of clients' prescribed medication and the drug Heberprot-P.

- Obtain feedback from healthcare providers on the usage of the drug Heberprot-P, patient compliance and the success of the Heberprot-P program.

Hypothesis

Increase in leg amputations over a four-year period due to chronic diabetic foot ulcers raised grave concerns in the small island state. Would the usage of the drug Heberprot-Paid in reducing the incidence of leg amputations in support with knowledge self-foot care and self-care management in St. Vincent and the Grenadines?

Conceptual definition

Diabetes Mellitus commonly known as diabetes is a metabolic disorder that affects the pancreas causing high levels of blood glucose (WHO, 2014).

Diabetic foot ulcer is the presence of sores on the feet due to the impaired sensation. The ulcer is associated with neuropathy and or peripheral arterial disease of the lower limb (WHO, 2016).

Self-care management referred to the encouragement given by healthcare care providers and informed patient's education to maintain healthy lifestyle choices to improve clients' well-being (Farlex, 2012). Self-care the actions initiated and taken by clients to maintain healthy lifestyle practices.

Self-foot care is the actions taken by clients especially DM people to reduce the risk of foot injury and possible infection (American Diabetes Association, 2001).

Knowledge is the facts of knowing something and the familiarity gained through experiences (Webster's Dictionary, 2010).Procedural knowledge, knowing how to do things and involves making discrimination, understanding the concepts, applying rules that govern relationships, motor skills and cognitive strategies. Declarative knowledge defined as information conveyed in words; written or oral. This knowledge must be evidence-based and relevant to the patients (Webster's Dictionary, 2010).

Compliance is a rule or order, giving into a request or patients' passivity (Webster's Dictionary, 2010).The extent to which persons behave in taking their medication, following a diet plan, executing to lifestyle changes or agreed with the recommendation from the healthcare providers.

Amputation is the intentional removal of part of a limb. It is done to prevent gangrene or any conditions that impair blood circulation (MedicineNet.com).

Heberprot-P is a registered Cuban drug. The human 6045-Da protein Recombinant human epidermal growth factor (EGF) sold under the brand name Heberprot-P. The drug can be injected deep into the wounds (Berlanga, 2013) and used topically (Yang, 2016).

Theoretical Framework

Levine's Conservation Model to Guide Practice focused on wound management and conservation. The term conservation defined the complex system functions even in challenging cases (Alligood & Tomey, 2010). Its application allows the patients to retain his/her integrity within the realities of their internal and external environment. The principles offer a scientific and research-oriented approach. The theory focuses holistically on the well-being of the client and wound management, managing the flight, fight, inflammatory, stress response, the perceptual awareness, and the process of change.

The acute-care model based on direct care and supervision; in chronic disease patients. The model focuses on the client's needs, daily self-care and compliance to treatment. The contemporary model empowers the patient and equips them with the knowledge and skills necessary to manage their lives living with the chronic disease.

The ISBAR Tool an assessment process used. The tool focuses on efficient communication with clinicians and enables the execution of appropriate treatment (Collins, 2014).This approach helped in identifying many situations, the presentation of background information, general appraisal and suggestions. The ISBAR tool provided the means of structured communication such as shared, concise, focused information and fostered a culture of patient safety.

The SWOT Analysis the analytical framework used to determine the internal and external environmental factors and evaluated the effectiveness of the Heberprot-P program.

The diabetic self-efficacy scale an assessment tool used to evaluate the daily self-care activities performed.

The Strategy checklist evaluated the goals of the Heberprot-P program.

CHAPTER TWO

Review of literature

The word diabetes came from a Greek Physician during the second century A.D. He named the condition Diab Au Nein and described the patients with frequent urination like a siphon (polyuria). In 1675, Thomas Willis added the term Mellitus to the word diabetes (diabetes mellitus) (IDF, 2015). The English adaptation coined the term diabetes mellitus.

St. Vincent and the Grenadines (SVG) is in the Windward Islands, the group of Lesser Antilles, about 34 kilometers southwest of St. Lucia and 160 kilometers east of Barbados. The Grenadines are about 100 small scattered islands shared between St. Vincent and Grenada. It is a rugged island of volcanic formation. About 66% of the islanders were descendants of African slaves. The Arawak Amerindians migrated from South America were the earliest inhabitants known on the island.

The Milton Cato Memorial Hospital (MCMH) is the main health facility in SVG. The vision of the nursing service is the provision of quality, cost-effective nursing care to all users through professional practice.

The main reason for leg amputations at MCMH was due to diabetic foot ulceration (DFU). In 2000 a total of 60.4% of DFU were amputated. In 2001 and 2002 respectively, a total of 65% increase. Moreover, the average length of hospitalization for diabetic patients with amputations average about 52 days. The cost of treatment amounted to $3000 Eastern Caribbean dollars per patient. Also, an increase of diabetics' visits recorded a total of 4070 visits to the clinics. According to reports by Focus News, a total of 434 cases of amputations were due to diabetes, during 2009-2013 (Focus News, 2015).

The Global Burden of Disease Injuries and Risk Factors (GBD, 2010) ranked diabetes number four. The GBD also, reported that the disease contributed to 5.6% of the cause of death in St. Vincent and the Grenadines (GBD, 2010). Diabetes prevalence in SVG rated 9.95% of the

population age 20 to 79 and ranked number 52 globally (World Bank Indicator, 2013). In the year 2000, the highest total of deaths due to complications of diabetes was reported. This figure amounted to over 500 people. In 2001 there 153 cases; in 2000 a total of 103, 89 in 2002, and 120 people in 2003 and 2004 a total of 125 people reported deaths. Between 2004-2000 the principal cause of death was due to diabetes complications (Ministry of Health, Wellness and the Environment Strategic Plan 2007-2012). Diabetes remains the chief cause of death, disability, and disease in SVG. Recent data from the 39 Health Clinics revealed a total of 2546 registered diabetes and this figure represented two percent (2%) of the total population.

Recent studies found multiple risk factors associated with the development of DFU (Bortoletto, 2014). These factors remained associated with the male gender, and persons diagnosed with the disease for over10 years. Lifestyle change is a vital prerequisite for managing diabetes, including physical activity, dietary changes, monitoring of blood glucose levels and moreover, compliance with medication (Small, 2012).

On the other hand, one author felt that the quality of life could improve with people living with diabetes. The author further affirmed that self-care management and education helped in managing the disease (Grady, 2011). Diabetes self-management education is a dynamic and a changing field that continues to provide an essential service for diabetic clients and their supporters. The American Association of Diabetes Educators (AADE, 2010) identified the Seven Self-Care Behaviors framework: healthy eating, daily healthy activities, self-monitoring, and compliance with medication, problem-solving skills, reduce risks and healthy coping as the key areas of the framework (AADE, 2010).

Knowledge is the greatest weapon known to fight diabetes. Knowledge helps people to test their risks, motivate people to seek treatment, to take care and charge of their health for a lifetime. What was imperative, what was learned, understood or being aware of or as the theoretical and practical understanding of a subject (Webster's Dictionary, (2010). One survey conducted, reported

that many patients remembered less than half of what doctors explained to them after leaving the doctor offices.

The fact or condition of knowing and familiarity gained through experiences or association describes knowledge. Procedural knowledge, knowing how to do things and involves making discrimination, understanding the concepts, applying rules that govern relationships, motor skills and cognitive strategies. Declarative knowledge defined as information conveyed in words; written or oral. Knowledge must be evidence-based and relevant to the patients (Webster's Dictionary, 2010). Most importantly, knowledge must enable patients to assume an essential part in disease control and treatment. Improving patient knowledge about the risks, benefits, and characteristics of medical procedures remain critical to support informed decision-making.

Compliance is a major issue to healthcare delivery. Compliance is a rule or order, giving into a request or patients' passivity (Webster's Dictionary, 2010). The extent to which persons behave in taking their medication, following a diet plan, executing to lifestyle changes or agreed with the recommendation from the healthcare providers described compliance. The reasons stated for not complying were due to many factors- affordability, the lack of understanding of the importance of the medication and unpleasant side effects were some reasons patients reported for not complying with medication orders. These factors contributed to billions of dollars yearly in the United States of America. Increase in the number of hospital admissions and patients with chronic illnesses up by 69 percent and the cause for thousands of premature deaths. The estimated annual cost for patients not taking their medication as prescribed amounted to $290 billion (HIN, 2010).

The key to providing evidence-based care focused on a thorough and comprehensive evaluation of the feet, the patients' history, and physical examination. The ISBAR tool was an assessment process used; it relied on effective communication with clinicians and enabled the execution of treatment (Collins, 2014). Efficient and improved communication is the method used to identify many situations, obtaining background information, suggestions, and conducting the

general appraisal. The tool provided the means of structured communication such as shared, clear, focused information and fostered a culture of patient safety.

The Pan American World Health Organization (PAHO) developed a Chronic Care Passport (CCP) as a strategy to manage non-communicable diseases in the Caribbean. The method used to enhance communication between patients, the healthcare teams, and to strengthen the control and adherence to medication. Standards of care medication list, results, examination and meal planning are the elements of the passport. CCP promoted valuable, shared care and empowered patients (PAHO. 2011). The passport also made up of patients' educational sessions supported by chronic care management and strategies to promote patient outcomes.

A multidisciplinary and a holistic team approach to DFU are needed to optimize wound management. One author stated that DFU led to infection, gangrene, amputations and eventually death. The rate of lower limb amputations in DM patients rose 15 times higher (Leone, 2012). Recent studies found multiple risk factors associated with the development of DFU (Bortoletto, 2014). Additionally, advanced in the clients' age, high Body Mass Index and other illnesses such as retinopathy, diabetic peripheral neuropathy, peripheral vascular disease and high glucose levels (HbA1C), foot deformities, high plantar pressure and inappropriate self-foot care are contributory factors of DFU (Waaijman, 2014). Foot care activities in diabetic patients remained essential to lessen the high prevalence of foot ulcers and lower-extremity amputations. These factors impinge on the quality of life. The study further demonstrated positive correlations between diabetes self-efficacy and self-care subscale.

Many authors identified other contributory factors for lower extremity ulcerations and amputations, causes such as ischemic, neuropathic or combined neuro-ischemic abnormalities (Alavi, 2014). Peripheral sensor motor and autonomic neuropathy contributed to high foot pressures, foot deformities and gait instability in diabetic people (Fernando, 2014). Significantly, these factors contributed to higher risks of developing foot ulcers (Formosa, 2012).

It was imperative, however, to transform and add current knowledge across the entire care team within a system context to enhance quality care (IOM, 2011a). The care delivered, customers' needs identified and validated research evidence, and expert opinions, societal expectation, and the decisions made focused on evidence-based practice (Yip, 2013).

Levine's Conservation Model to Guide Practice focused on wound management and conservation. The term conservation defined the complex system functions even in challenging cases (Alligood & Tomey, 2010). The principles offer a scientific and research-oriented approach. On the other hand, the theory focused holistically on the well-being and wound management, managing the flight, fight, inflammatory, stress response, the perceptual awareness, and the process of change. Its application allows the patient to retain his integrity within the realities of his internal and external environment. Moreover, the assessment strategy considered the man holistically and all systems working together (Alligood & Tomey, 2010).

Nurses' roles are to prevent complications such as foot ulcers and lower limb amputations hence, educational sessions, screening high-risk people and providing care remained pivotal (Peterman, 2010). Many studies showed that patient education and nurse-patient education on foot care was vital in preventing diabetic foot ulcers.

The acute-care model based on direct care and supervision; in chronic disease patients focused on the client needs, daily self-care, and medication. Self-management and guidance by primary health care providers were the focal points. The contemporary model empowers the patient and equips them with the knowledge and skills necessary to manage their lives living with the chronic disease.

The human 6045-Da protein Recombinant human epidermal growth factor (EGF) sold under the brand name Heberprot-P the drug of choice presently used to treat DFU. Heberprot-P

can be injected deep into the wounds (Berlanga, 2013) and used topically (Yang, 2016). Exploratory evidence showed improved wound healing from its usage (Marti-Cavajal, 2015). Findings affirmed from injecting the epidermal growth factor deep into the contours and to the bottom of wounds encouraged pharmacodynamics responses of tissue growth granulation and wound closure. EGF injected into the ulcers matrix resulted in connection with extracellular matrix proteins and enhanced cell production and movement with excellent results in more than 100 000 patients (Berlanga, 2013). Localized injection into complex diabetic wounds demonstrated favorable risk-benefits ratios by hastening healing, reduced recurrences and attenuated risk for amputations.

Benefits derived from patient education programs attracted patients to their providers and increased their satisfaction with care. Also, a better understanding of the disease process, the more likely the person and family will comply with care. Documentation associated with self-care behaviors and patients' outcomes contributed to the development of health policies and improved management of chronic illnesses.

CHAPTER THREE

Materials and Methods

Statement of the problem

A significant increase of one hundred and forty-two cases of chronic diabetic foot ulcers in comparison to eighty cases and a double increase in death resulted from diabetes for the period 2008 to 2012, raised major concerns in healthcare management of diabetes in St. Vincent and the Grenadines.

Methodology

Approval received from the National Ethics Committee, St. Vincent and the Grenadines and Ph.D. Board Texila American University. Consent was sought from each participant. The research ensures that various viewpoints were considered and taken into account. Moreover, no protective health information was used. Therefore, there was no breach of privacy and confidentially. The ultimate aim focused on educating and complying with prescribed medical therapy. Therapeutic compliance included patient compliance with medication, self-care management, self-foot care, diet, lifestyle changes exercise and knowledge. The method used assisted in answering questions such as;was the goals accomplished the results and the improvement seen?

Research design

A qualitative research design and a purposive sampling technique were used. The diabetic foot clients the unequivocal subset. The sampling group was clients who visited the Diabetic Foot Care Clinic and were admitted to the Milton Cato Memorial Hospital. The ultimate aim focused on educating and complying with prescribed medical therapy. The healthcare team gave pertinent feedback relative to patients' compliance to treatment.

Wagner wound classification helped to determine the nature of the ulcers and the care management. The 6045-Da protein human recombinant epidermal growth factor Heberprot-P injection used to treat DFU (Berlanga, 2013).

Participants

A total of one-hundred and forty-two (142) patients consisted of both male and female were admitted to the MCMH for the management of diabetic foot ulcers during a twelve-month period. A purposive sample was done. Of the total sixty patients slated for amputations were selected. Health professionals and relatives shared their views on compliance.

Instrument

The self-structured questions designed by the researcher. Questions were asked pertinent to patients' compliance to self-care, medical therapy, self-foot care and the drug Heberprot-P. Participants were required to tick yes or no and the frequencies of self-care activities. The Wagner classification aided in classifying wounds. The monofilament test, a method used for screening. Questionnaires were stored in an envelope, in a zipped bag, and in a locked cupboard. Instrument used (Appendix 1)

Reliability/Validity

Reliability was such that if someone other than the researcher had administered the questionnaires under the same or similar conditions, they will get the same or similar responses, and would yield the same results. The researcher made sure that all the questions were appropriately constructed and criterion-related. The terminologies used were precise and easily understood by all participants to enhance the soundness of the questionnaire. A pilot survey completed by 20 diabetic clients with foot ulcers proved the questionnaire reliability. The re-test yielded the same results.

Procedures

Sixty patients who were slated for amputation and decided to use the drug therapy Heberprot-P were selected over a three months period. Participants gathered in groups at the various health clinics and district hospitals throughout St. Vincent and the Grenadines. The researcher introduced herself and the purpose of collecting the data outlined. Oral consent obtained from all of the participants. The clients were asked not to write their names on the questionnaires.

Participants were required to answer all the questions based on their knowledge, the medication used and self-management of their diabetes. The return questionnaires were placed in an envelope and stored in a zipped bag in a locked cupboard. At the end of the research process, the questionnaires were destroyed.

Variables

Independent	Dependent
Increase in diabetic foot ulcers	The usage of the drug Heberprot-P
Increase in the number of leg amputations performed	In support with knowledge
	Self-care management
	Self-foot care
	Compliance with treatment

Data analysis

The Statistical Package for Social Sciences (SPSS) version 20 used to analyze the data using descriptive statistics and cross tabulation. Demographics collected on 60 participants, gender, male 20 and female 31. Of the 60 participants, 9 died due to complications. Age ranged 30-90 years. Self-care management such as medication type, blood sugar monitoring, diet, foot care practices and exercise was analyzed. The SWOT analysis examined the internal and external environmental factors.

The diabetic self-efficacy scale a tool used to evaluate daily self-care activities. The Strategy checklist evaluated the goals of the Heberprot-P program.

The Mya Levine Conservation Theory discussed the roles of the nurse and the intricacy of care outcomes. The findings presented determined patients' outcomes based on knowledge and compliance.

CHAPTER FOUR

Results and Discussion

Gender				
		Value	Count	Percent
Standard Attributes	Position			
	Label	Participants' sex		

Valid Values	1	Male	21	35.0%
	2	Female	30	50.0%
Missing Values	System		9	15.0%

A total of 21 (35%) were male and 30 (50%) female. Clients died due to complications 9 (15%).

Participants by age group

Total participants	Participants by age group
11	30-40
39	50-60
9	70-80
1	90

The 50-60 age group was most affected a total of 39 participants and one participant 90 years

Participants' years diagnosed

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Under 5 Years	6	10.0	11.8	11.8
	Over 5 years	7	11.7	13.7	25.5
	10 years	11	18.3	21.6	47.1
	Over 10 years	27	45.0	52.9	100.0
	Total	51	85.0	100.0	
Total		60	100.0		

People diagnosed with DM for 10 years 21.6% (11) and 52.9% (27) over 10 years

Medication Type

		Frequency	Percent	Valid Percent	Cumulative Percent
	Oral	13	21.7	21.7	36.7
	Injection	21	35.0	35.0	71.7
	Both	16	26.7	26.7	98.3
	No medication	1	1.7	1.7	100.0
	Total	60	100.0	100.0	

Clients on insulin therapy (21) 35% complied with their medication and (13) 21.7% on oral medication

Clinic visits

		Frequency	Percent	Valid Percent	Cumulative Percent
	monthly	20	33.3	33.3	48.3
	quarterly	18	30.0	30.0	78.3
	six monthly	6	10.0	10.0	88.3
	yearly	7	11.7	11.7	100.0
	Total	60	100.0	100.0	

Follow–up visits (20) 33.3% of the clients visited their healthcare provider monthly

Specialists visits

		Frequency	Percent	Valid Percent	Cumulative Percent
	quarterly	10	16.7	16.7	31.7
	six monthly	9	15.0	15.0	46.7
	yearly	18	30.0	30.0	76.7
	never	14	23.3	23.3	100.0
	Total	60	100.0	100.0	

Specialist checks such as eye and dental (18) 30% of the clients attended yearly clinics

lood sugar monitoring

		Frequency	Percent	Valid Percent	Cumulative Percent
	daily	7	11.7	11.7	26.7
	weekly	17	28.3	28.3	55.0
	monthly	16	26.7	26.7	81.7
	yearly	11	18.3	18.3	100.0
	Total	60	100.0	100.0	

More persons monitored their blood glucose weekly (17) 28.3% and (7) 11.7% daily

Participants' knowledge on the importance of the test HBA1C					
		Frequency	Percent	Valid Percent	Cumulative Percent
	Yes	22	36.7	36.7	51.7
	No	29	48.3	48.3	100.0
	Total	60	100.0	100.0	

Clients 48.3% (29) had no knowledge on the importance of HbA1c test

Home management of DM					
			Value	Count	Percent
Standard Attributes	Position		10		
	Label		Home management of DM		
Valid Values	1		medication	9	17.6%
	2		Exercise	0	0.0%
	3		Diet	0	0.0%
	4		Blood sugar checks	0	0.0%
Frequency			Percent	Valid Percent	Cumulative Percent
	medication	9	15.0	15.0	30.0
	All of the above	14	23.3	23.3	53.3
	three of the above	14	23.3	23.3	76.7
	Two of the above	13	21.7	21.7	98.3
	One of the above	1	1.7	1.7	100.0
	Total	60	100.0	100.0	

Compliance to home management (9) 15% of the participants took their tablets only (14) 23% on daily basis adhere to their medication, blood sugar checks, diet and exercise

Foot care practice					
		Frequency	Percent	Valid Percent	Cumulative Percent
	Daily	18	30.0	30.0	45.0
	Weekly	10	16.7	16.7	61.7
	Monthly	4	6.7	6.7	68.3
	Sometimes	16	26.7	26.7	95.0
	Never	3	5.0	5.0	100.0
	Total	60	100.0	100.0	

More clients practice daily foot-care a total of (18) clients 30% and (16) 26.7% sometimes

Treatment recommended					
		Frequency	Percent	Valid Percent	Cumulative Percent
	The use of the drug Heberprot-P	33	55.0	55.0	70.0
	Amputation	14	23.3	23.3	93.3
	Refused the drug	4	6.7	6.7	100.0
	Total	60	100.0	100.0	

Of the 60 clients (33) 55% complied with the Heberprot-P treatment (14) 23.3% had their legs amputated

Participants' relationship with health care provider					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		10	16.7	16.7	16.7
	Excellent	17	28.3	28.3	45.0
	Very good	13	21.7	21.7	66.7
	Good	15	25.0	25.0	91.7
	Fair	5	8.3	8.3	100.0
	Total	60	100.0	100.0	

Overall of 91.7% of the clients reported a good relationship with health care providers.

Feedback from relatives					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		10	16.7	16.7	16.7
	Excellent Outcome	6	10.0	10.0	26.7
	Good outcome	16	26.7	26.7	53.3
	Fair outcome	9	15.0	15.0	68.3
	Satisfied	19	31.7	31.7	100.0
	Total	60	100.0	100.0	

Most of the relatives felt satisfied with the outcome of care

Would you recommend the drug to person with DM foot ulcer					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		10	16.7	16.7	16.7
	Yes	37	61.7	61.7	78.3
	No	9	15.0	15.0	93.3
	May be	4	6.7	6.7	100.0
	Total	60	100.0	100.0	

Of the 60 clients a total of 61.7% (37) will recommend the Heberprot-P injection to other clients

Participants' feedback on wound care after using Heberprot-P					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		10	16.7	16.7	16.7
	Wound healed	24	40.0	40.0	56.7
	Ongoing wound care	12	20.0	20.0	76.7
	Amputation after treatment	5	8.3	8.3	85.0
	Died due to complication	9	15.0	15.0	100.0
	Total	60	100.0	100.0	

Total wound healed (24) 40%, (12) 20% ongoing dressing and wounds progressing

Participants' feedback * Compliance of care Cross tabulation				
			Compliance of care	Total
Participants' feedback				
		% within Participants' feedback	100.0%	100.0%
		% within Compliance of care		
	Wound healed	Count	24	24
		% within Participants' feedback	100.0%	100.0%

		% within Compliance of care	47.1%	47.1%
	Ongoing wound care	Count	12	12
		% within Participants 'feedback	100.0%	100.0%
		% within Compliance of care	23.5%	23.5%
	Amputation after treatment	Count	5	5
		% within Participants' feedback	100.0%	100.0%
		% within Compliance of care	9.8%	9.8%
	Died due to complication	Count	9	9
		% within Participants' feedback	100.0%	100.0%
		% within Compliance of care	17.6%	17.6%
Total		Count	51	51
		% within Participants' feedback	100.0%	100.0%
		% within Compliance of care	100.0%	100.0%

Table showing compliance and possible outcomes

155

Case Processing Summary			
		N	%
Cases	Valid	51	85.0
	Excluded	9	15.0
	Total	60	100.0

Table II

SWOT Analysis

Analysis/Key Areas	Strengths	Weaknesses	Opportunity	Threats
Visits to the Physicians/Clinics	The location of health facilities/services were reachable and in close approximation to the patients' homes.	(a) Services poorly utilized by some clients.	(a) The avoidance of plantar pressure enhanced tissue granulation and proliferation.	The unavailability of a Vascular Surgeon posed many drawbacks in care management.

		(b)Some of the clients experienced difficulties moving from one area to another. © The unavailable of transportation to some of the clients. (d) Incur cost due to the unavailability of Vascular Surgeon. (e) No linkages within healthcare systems due to the inadequacy of the Health Information System (HIS).	(b) The availability and accessibility of quality health care/services. © The need for the organization to recruit a Vascular Surgeon. (d) Improve HIS by linking district hospitals, clinics, and the main hospital to foster better management of clientele	
Self-care	(a) The clients/patients are aware of the disease process and the improvement of self-care. (b) Easy access to information.	(a) Inadequate knowledge on the disease process due to low intelligent quotient identified in some clients/ patients. (b) The deficit in self-care due to unbalanced dietary intake, lack of exercise and poor foot-care practices.	(a) Increased in self-care awareness by using all sources and the media to educate clients on the importance of self-care. (b) Training and development of staff in the specialist field. © Improved in schedule visits to homes/clinics by the healthcare team. (d) Training of clients and relatives on the importance of self-care.	(a) An increase in the utilization of the private health facilities for additional information on self-care. (b) Unavailability of trained nursing staff in the specialist area.

Compliance with care and treatment	The availability of medication at the district clinics, hospitals, government and local pharmacies.	(a) The available medication poorly-utilized by some clients. (b) The low intelligent quotient of some patients and the difficulties understanding treatment plan of care © The used of herbal medication over-prescribed medication.	(a) The opportunity was given to improve awareness of the importance of compliance with care and treatment regimen. (b) An increase in the number of trained Pharmacists and other staff.	(a)The available resources were not effectively utilized to enhance the general well-being of the clients. (b) An increase in the sale of herbal medicines over generic medication. © Limited use of DM medication. (d)Some patients lack finance to purchase the necessary resources to monitor and control their blood glucose levels.
The importance of HbA1C	Easier diagnosing and a reliable indicator of the clients present diabetic status over a three months period	Most patients were not knowledgeable about the importance of the HbA1C test and the benefits derived from being tested at least twice per year.	(a) Improved clients' awareness on the importance of the HbA1C test. (b) Improved educational sessions for DM clients. © Provided training for staff to perform the test at the district clinics.	(a) The reagent not available at times at the government laboratory. (b) Some clients lack finance.

The used of the drug Heberprot-P	(a) Heberprot-P described as a miracle drug for diabetic foot ulcers and lowers the risk of leg amputation. (b) Epidermal growth factor injected deeply into the bottom and contours of wounds allowed for pharmacodynamic response. © The drug Heberprot-P injection stimulates the granulation of tissue growth and wound closure. (d) The use of Heberprot-P associated with extracellular matrix proteins which helped in enhancing cell production, migration, and wound healing. (e)The drug proved to be useful in treating chronic leg ulcers	Heberprot-P is an expensive drug not readily available to customers.	(a) The drug is not available to other pharmaceutical suppliers (only at the Government Medical Stores). (b)The drug Heberprot-P considered as an unmet medical need.	(a) Many patients complained of significant side effects such as nausea, vomiting, and shivering after using the drug. (b)The severe adverse effects of the drug remained a threat to patients' safety. (c) A highly costly drug and many dosages needed to enhance healing. (d) The drug incurs a financial burden on the clients and patients.

(a) The need for specialist personnel such as a Vascular Surgeon and trained nursing personnel deployment

(b) To maintain the program it will incur significant cost to the patients

(c) Increase use of herbal medicine over generic medicine

Table III

Strategy checklist used to evaluate the goals of the Heberprot-P program.

Goals	Checklist

To attained critical care with the application of the drug Heberprot-P with the aim of reducing the rate of amputations in complicated DM foot ulcerations.	The general assessment of patients using the nursing process included physiological, psychological, socio-cultural, spiritual, and economic and lifestyle factors provided a baseline of information and the guide to the effectiveness of the drug. Self-management education with the focus on compliance to self and foot care. Improved patients' awareness on the importance of using prescribed DM medication only. Knowledgeable clients who understood the importance of maintaining clinically clean wounds and intact dressings. More responsive clients' on maintaining their diet and physical activities.
To trained medical officers and nursing staff in comprehensive foot care and the application of the drug Heberprot-P.	Training and development of staff to perform the monofilament test, foot, and ulcer assessment, diagnosing of foot ulcers, the clinical signs, and symptoms of neuropathic and ischemic foot ulcers; the use of the Wagner Wound classification, the general management and the holistic approach of DFU using the drug Heberprot-P.
To conduct consultation and follow-up care with beneficiaries who received the treatment.	Awareness meetings with the beneficiaries and their relatives. Educational sessions with clients on the importance of compliance with medication, self and follow- up care. The importance of monitoring the blood glucose and HBA1C levels. Follow-up on wound care at strategic locations. Home visits follow-up where necessary. Referral of clients for specialist care based on the needs identified.
To promote Heberprot-P awareness for staff and the general population.	The Health Promotion Department and staff involvement such as the Podiatrist, Dietician, Physiotherapist, and Diabetic Focal Point Personnel to aid the awareness process. Sensitization sessions and the use of social media to aid in awareness on the usage of the drug Heberprot-P and the distribution of leaflets/pamphlets throughout the Island. Symposium and awareness meetings held for staff, patients, beneficiaries, and relatives at all health facilities throughout the state.
To develop health promotion activities to aid in modifying the lifestyle of patients/clients.	A healthcare team approach used to assist clients/patients in lifestyle changes.

The Strategy Check List used to educate, make clients more aware and the general management of diabetes

Table IV

The Diabetic Self-Efficacy Scale

Key areas measured daily	Score obtained
Blood glucose	A total of seven clients monitored their blood glucose levels daily and scored 11.7 %
Compliance with medication/physical activities/ blood glucose monitoring and diet.	Nine people gained 15% for taking their DM medication daily. 14 persons scored 23.3% for performing all the activities on a daily basis. 14 clients received the same score for participating in three of the behaviors. 13 clients completed two of the actions and scored 21.7%. One client took part in a single daily activity and scored 1.7%. A total of 9 clients never involved doing their daily activities.
Foot-care practice	18 people checked their feet daily and scored 30%.

The Diabetic Self-Efficacy Scale a tool used to evaluate the participants understanding and compliance with care.

Discussion

Compliance is a major issue to healthcare delivery. The use of herbal medicine over prescribed DM medication by some clients interfered with compliance to medical therapy.These

factors contributed to billions of dollars spent yearly, and an increase in the number of admissions and premature death (Ministry of Health, Wellness and the Environment Strategic Plan 2007-2012). Also, a recorded increase visits to the Health Centers throughout the island (Focus News, 2015).

Foot-care practice plays a pivotal role in self-care management. Many authors identified many contributory factors for lower extremity ulcerations and amputations, causes such as ischemic, neuropathic and or combined (Alavi, 2014). Damage or injuries to the foot and long toenails were other contributory factors identified. The role of a nurse is paramount in educating and screening high-risk people (Peterman, 2010).

The general awareness on the usage of the drug Heberprot-P encouraged DFU clients to seek medical care. EGF stimulated cells growth, production when injected deep into wounds (Berlanga, 2013). The use of the drug resulted in a decrease in the number of amputations in St. Vincent and the Grenadines.

The Levine's Conversation Model was applied to promote the physical and emotional being of the clients. It was the nurse's role to observe behavioral changes in every client and to protect and maintain their integrity. The caring period focused on the general assessment of patients, reporting, referring and documenting care.

To conserve energy the responsibility of the nurse was to ensure a balanced, nutritional intake and close monitoring of the patients' output. It was critical for each client to receive rest, exercise and to comply with tasks that aid in physical healing. Conserving activities in the acute stage was important.

On the other hand, the patients were allowed to perform activities that promote physical healing. The individual rights to privacy, respect, dignity, self-awareness, and self-determination

conservation of personal integrity and support from loved ones were essential roles in the caring and healing process.

Maintaining or restoring body structures, preventing physical breakdown and promoting healing were critical and aided in the restoration process. The focal point of care was to maintain aseptic wound care, compliance to medication, diet, exercise and taking care of affected needs identified.

Continuity of care at district clinics, hospitals and follow up care was essential. Clients were able to return home with their families and loved ones. Most important, clients were able to share their views with other patients on the importance of self-care and compliance with medical therapy.

The ISBAR Method an assessment process used to improved communication, and the execution of treatment (Collins, 2014) and transferring of information. This approach helped to develop the effective nurse-client relationship with healthcare personnel and stakeholders. Effective communication allowed the nurse to obtain detailed background information and to conduct awareness sessions.

Knowledge helps in enhancing self-care and compliance. Clients were more knowledgeable and better able to comply with self-care and general management of their conditions.

A guide to self-care is the Chronic Care Passport. A tool developed by the Pan American World Health Organization (PAHO) as a strategy to manage NCDs in the Caribbean. The tool enhances communication between patients, the healthcare team, and strengthened the control and adherence to medication. The CCP promoted valuable, shared care and empowered patients (PAHO. 2011). There is a need for the CCP to be implemented as a tool to guide self-care and compliance to treatment in St. Vincent and the Grenadines

Summary

Compliance is a major issue to healthcare delivery. The use of herbal medicine over prescribed DM medication by some clients interfered with compliance to medical therapy.These factors contributed to billions of dollars spent yearly, and an increase in the number of admissions and premature death (Ministry of Health, Wellness and the Environment Strategic Plan 2007-2012). Also, a recorded increase visits to the Health Centers throughout the island (Focus News, 2015).

The 50-60 age group was most affected a total of 39 participants. Participants diagnosed with DM for over ten years (27) 52.9%.Participants who adhere to medication, blood sugar checks, diet, and exercise participants (9) 15% and on a daily basis (14) 23% took tablets only. Compliance with medication, physical activities, blood glucose monitoring and diet, 14 persons scored 23.3% for performing all the activities on a daily basis, 14 clients received the same score for participating in three of the behaviors. Findings revealed more than 50% of the participants had to be educated on the importance of the HbA1c test.

More clients practice daily foot-care a total of (18) 30% and (16) 26.7% sometimes. Foot-care practice plays a pivotal role in self-care management. Many authors identified many contributory factors for lower extremity ulcerations and amputations, causes such as ischemic, neuropathic and or combined (Alavi, 2014).The use of the drug Heberprot-P helped in alleviating the number of leg amputations and managing DFU in a more invasive way in support with knowledge self-foot care and self-care in SVG. The total number of wounds healed (24) 40%, (12) 20% ongoing wound care and wounds healing progressively. Findings revealed (5) 8.3% of the participants had their legs amputated after treatment and (9) 15% died due to complications.

Therefore, ongoing awareness and promotion on the importance of the drug Heberprot-P remain vital. Of the 60 clients, a total of 61.7% (37) will recommend the Heberprot-P injection to other clients.

Other significant findings reveal-

(a) The need for specialist personnel such as a Vascular Surgeon and trained nursing personnel deployment.

(b) Ongoing monitoring and evaluation of the Heberprot-P program

(c) Improved patients' awareness on the importance of using prescribed DM medication only.

(d) Knowledgeable clients who understood the importance of maintaining clinically clean wounds and intact dressings.

(e) More responsive clients' on maintaining their diet and physical activities.

(f) A healthcare team approach used to assist clients/patients in lifestyle changes.

(g) Monitoring of the cost and financial implications using the drug Heberprot-P.

The general awareness on the usage of the drug Heberprot-P encouraged diabetic foot ulcer clients to seek medical care. Epidermal growth factor-stimulated cells growth production, when injected deep into wounds (Berlanga, 2013). The use of the drug resulted in a decrease in the number of amputations in St. Vincent and the Grenadines.

Conclusion

Diabetes self-management education is a dynamic and a changing field that continues to provide an essential service for diabetic clients and their supporters. The objectives of care could be only achieved through evidenced-based practice, staff and client awareness and application of the knowledge obtained.

The use of the drug Heberprot-P helped in alleviating the number of leg amputations and managing DFU in a more invasive way in support with knowledge self-foot care and self-care management.

This research did not target all DFU patients only those who were slated for amputations. The research was carried out for a three months period. An extended period would have targeted more clients and the opportunity for educating other DM clients on compliance with care.

The Levine's Conversation Model was applied to promote the physical and emotional being of the clients. It was the nurse's role to observe behavioral changes in every client and to protect and maintain their integrity; also paramount in educating and screening high-risk people.The caring period focused on the general assessment of patients, reporting, referring and documenting care.

Ongoing awareness and promotion on the importance of the drug Heberprot-P remain vital. The recruitment of a Program Manager and a Vascular Surgeon will improve the management of the Heberprot-P program and the way forward in achieving the programs' objectives. Also, monitoring and evaluation of the program are pivotal.

The implementation of the CCP will be a vital tool to manage NCDs in this small island state, a tool that will enhance communication between patients and their healthcare providers, strengthen the control and adherence to medication.

Structured payment policies are needed for persons of low socioeconomic battling with NCD.

The general awareness on the usage of the drug Heberprot-P encouraged DFU clients to seek medical care. The use of the drug resulted in a decrease in the number of amputations in St. Vincent and the Grenadines.

Contribution to knowledge

The focal points-These are contemporary factors that are vital to the contribution of knowledge.

(1) Self-foot care, Self-Care Management, Knowledge and The Phenomenal Drug Heberprot-P a Model for Managing Chronic Diabetic Foot Ulcer: A Small Island State Perspectives. This research topic is the first study of this nature ever conducted. St. Vincent and the Grenadines is the first Caribbean Island to use the phenomenal drug Heberprot-P to manage diabetic foot ulcers.

(2) The research idea is contemporary, the drug Heberprot-P based on the researched literature is a Cuban manufactured drug; local infiltration of the drug proven to enhance healing of chronic diabetic wounds as evidence based on this research findings.

(3) A model design to management chronic diabetic foot ulcers using many approaches.

(4) The application and the integrated approaches- the roles of the nurse, awareness, the collaborative support from healthcare providers, the family, the community, and clients compliance with care proven to be an ideal model/action plan to manage DFU.

(5) The initiation of the drug Heberprot-P program commences in December 2015 to December 2016 in St. Vincent and the Grenadines. This research is the first evaluation done to determine compliance with therapy and the outcomes of care.

Suggestion for Future Research

(1) Future research is recommended to determine clients' outcomes using the same approaches and the drug Heberprot-P as an ongoing treatment plan use for managing DFU in St. Vincent and the Grenadines.

(2) The same methodology could be implemented with advancement based on the nature of the study.

(3) A larger number of the diabetic population should be targeted to assess general compliance of treatment.

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Appendix

QUESTIONNAIRE

TITLE: Self-foot care, Self-Care Management, Knowledge and The Phenomenal Drug Heberprot-P a Model for Managing Chronic Diabetic Foot Ulcer: A Small Island State Perspectives.

Demographic Data

(a) Age……Years (b) Sex (male) (Female)

(c) List of present treatment……

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1. How long were you diagnosed with diabetes?

(a) Under 5 years (b) over 5 years (c) 10 years (d) over 10 years

2. How often do you visit your Physician?

(a) Monthly (b) Quarterly (c) 6 monthly (d) Yearly

3. How often do you visit the Dentist and Ophthalmologist?

(a) Quarterly (b) 6 monthly (c) Yearly (d) Never

4. How often do you check your blood glucose level?

(a) Daily (b) Weekly (c) Monthly (d) 6 monthly (E) Yearly

5. Do you understand the importance of HBA1C?

(a) Yes (B) No

6. How do you manage your diabetes at home?

(a) Medication (b) Exercise (c) Diet (d) Blood sugar checks

All of the above, three of the above, two of the above, one of the above, none of the above

7. How often do you check your feet?

(a) Daily (b) weekly (c) monthly (d) sometimes (e) never

8. Kindly state the onset of the wound and was it due to?

(a) Damage/injury to the foot (b) long toenail (c) sudden (d) unsure

9. Did you seek medical attention or home care when you recognized the wound?

(a) Medical attention (b) home care

10. When and where did you first heard about the drug Heberprot-P

(a) Media (b) Health care provider (c) Friend (d) Never

11. The importance of the drug Heberprot-P was explained prior treatment?

(a) Fully (b) not fully

12. Amputation was recommended or the use of the drug Heberprot-P?

(a) Amputation (b) Heberprot-P

13. At what stage of the process did you recognize improvement in the wound?

(a) 1 month after treatment (b) 2 months after treatment (c) 3 months after treatment

14. How are you feeling about the outcome of the treatment?

(a) Happy (b) sad

If sad state

why……

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15. Would you recommend the drug to other persons with diabetic foot ulcer?

(a) Yes (b) no

16. How would you describe your relationship with the health team?

(a) Excellent (b) very good (c) good (d) fair (e) bad

17. Feedback from relatives about the care and relationships with health care team

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18. Feedback from healthcare team

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Approval Ethic Committee St. Vincent and the Grenadines

Ref No.
In replying the date and
Number above of this letter
Should be quoted.

Tel No: 784-457-2586
Fax No: 784-457-2684
Email: md[illegible]@gmail.com/mohesvg@gov.vc

MINISTRY OF HEALTH, WELLNESS AND THE ENVIRONMENT
Ministerial Building
Kingstown
SAINT VINCENT AND THE GRENADINES

February 2nd, 2017

Sis. Mamie Davis
marriedavis63@hotmail.com

Dear Sis. Davis,

RE: SELF-FOOT CARE, SELF-CARE MANAGEMENT, KNOWLEDGE AND THE PHENOMENA DRUG HEBERPROT-P A MODEL FOR MANAGING CHRONIC DIABETIC FOOT ULCER. A SMALL ISLAND STATE PROSPECTIVE

I refer to your research proposal of re: the subject at caption and write to advise you that approval has been granted for the aforementioned research project.

Please be advised that you are required to submit a summary report of the project to the Ministry of health, Wellness and the Environment Research and Ethics Committee.

In the event that any changes are anticipated, you must notify the NERC to seek permission to make such changes before you proceed.

We wish you all the best and look forward to the findings of this Study.

We encourage you to present your findings for the Annual CARPHA Scientific Conference.

CHIEF MEDICAL OFFICER

Dr. Simone Keizer-Beache
Chief Medical Officer

PUBLICATION ONE

Self-care Management and Education of Diabetic Clients

Publication by *Marrie L Davis*
Ph.D. Student Texila American University
marriedavis63@hotmail.com

Abstract

The roles and responsibilities of clients in managing non-communicable diseases (NCDs) remain vital.*Diabetes mellitus is a chronic disease that affects people from underdeveloped, developing and developed countries despite stages of economic and social development. Diabetes self-management education (DSME) is an ongoing process of facilitating the knowledge, other skills necessary for self-care and incorporating the critical processes such as the needs affected goals and care guided by evidence-based standards.*

The overall goals of the article supported informed decision-making, self-care behaviors, problem-solving and collaboration with healthcare teams to improve clinical outcomes, enhanced health status and the quality of life living with diabetes. The self-care management model was designed to help clients living with the disease. The model provided supports and education of clients on how to best adjust their lifestyle practices to sustain healthy living. The nursing process used as an assessment tool for designing the model. A client-friendly action plan and a simple take-home card used to chart the way forward in managing self-care.

Technology has influenced many lives, which can be motivational and allowed for more frequent contact between healthcare providers and clients, to enhanced self-care management behaviors and treatment plans.The application of scientific knowledge can be broadened to clients, homes, and communities, and provided individualized care and just-in-time information.

***Key terms**: diabetes, self-care management, diabetes self-management education, compliance, lifestyle modifications*

Introduction

Diabetes mellitus (DM) is a chronic disease that affects people from underdeveloped, developing and developed countries despite stages of economic and social development. In spite of scientific advances and easy access to health care, the prevalence of diabetes continues to increase (Seuring, 2015). The roles and responsibilities of clients in managing non-communicable diseases (NCDs) are vital. Therefore, self-care management and education improved health outcomes; however, knowledge must be evidence-based and relevant to the client's condition. Most important, knowledge must allow the client to assume a fundamental part in disease control and treatment. By improving clients' knowledge about the dangers, advantages and medical procedures in support to informed decision-making is paramount.

Self-care described as an evolutionary process of development or awareness living with the multifaceted nature of the disease (Paterson, 2000). Education is known as the wealth of knowledge acquired by an individual on a particular subject that provides an understanding of something or deposits knowledge. Health education is consciously constructed opportunity for learning which involved communication designed to improve health literacy knowledge and developed life skills which are helpful to people and community health (WHO, 1998). Self-care management of diabetes involved day-to-day care

and helps the client to live and function with the disease. Education enhances the understanding of the condition, self-advocacy in deciding to act independently and to comply with care.

Diabetes self-management education (DSME) is an ongoing process of facilitating the knowledge, other skills necessary for self-care and incorporating the critical processes such as the needs affected goals and care guided by evidence-based standards. The overall goals of the article are to support informed decision-making, self-care behaviors, problem-solving and active collaboration with health care team to improve clinical outcomes, enhanced health status and to improve the quality of life living with diabetes. Therefore, the designed model of self-care management will ably help clients living with the disease to sustain healthy day-to-day activities through lifestyle modifications, working with the healthcare team and compliance with medical therapy.

Key definitions: diabetes is a chronic metabolic non-communicable disease. The disease is evident once the pancreas is unable to produce the adequate amount of insulin or it is not capable of using insulin, resulting in the elevation of the blood glucose level (WHO, 1999)

Education is known as the wealth of knowledge acquired by an individual on a particular subject that provides the understanding of something or the deposits of knowledge.

Self-care management is the decisions and behaviors of clients with chronic illnesses and their engagement in what affects their health.

Diabetes self-management education (DSME) is an ongoing process of facilitating knowledge, other skills necessary for self-care and incorporating the necessary processes such as the needs affected goals and care guided by evidence-based standards.

Compliance describes the extent to which clients correctly follows medical advice such as medication or drug. It also applies to other situations such as medical devices used, self-care, self-directed exercises or therapy sessions (WHO, 2003).

Lifestyle modification entails changing of long-term habits, typically of eating or physical activity, adopting, maintaining and modifying behaviors for months, years, or for a lifetime.

General goal of the article

Optimal self-management entails the ability to monitor the disease and to build and use cognitive, behavioral, emotional strategies and a holistic approach improving the quality of life living with diabetes.

Objectives of the article

- Educate clients on the importance of complying and self-care management.
- Educate clients on the advantages of self-care management.
- Design a model of self-care management.
- Devise a take-home passport or manual on self-care.

Literature

Diabetes mellitus (DM) is one of the oldest diseases known. About 3000 years ago the disease was first reported in Egyptian manuscript. Diabetes is one of the fastest developing chronic diseases known and has affected over 300 million people worldwide Matricciant, 2015). During 1936 the distinction was made between type one and type two DM (DM, 2011). The disease is characterized by hyperglycemia, insulin resistance and insulin deficiency (Maitra, 2005). Type 2 DM, is a chronic metabolic disorder and appears as an epidemic in some countries of the world. No cure was found for DM; however, treatment modalities included lifestyle modifications, treatment of obesity, oral hypoglycemic agents and insulin sensitizers.

The American Association of Diabetes Educators stressed the Seven Self-Care Behaviors framework for people living with diabetes should be skilled in and self-care behaviors to improve the quality of life and reduced associated complications (Boren, 2007). This author also affirmed the skills needed to carry out included blood glucose levels and blood pressure monitoring, eliminates smoking, foot self-checks, eyes and dental checks. The American Association of Diabetes Educators further forecasted seven essential self-care behaviors. These are healthy eating habits, being physically active, monitoring of blood glucose levels, complying with medications, rational problem-solving skills, healthy coping practices and less risky behaviors (AADE, 2008). The capacity to lower the gap between patient needs and access to health care service are aspects of self-care management (Barlow, 2002).

On the other hand, one author felt that the quality of life could improve with people living with diabetes. The author affirmed self-care management and education helped in managing the condition (Grady, 2011). Self-care in diabetes has been described as a gradual process of development, knowledge or awareness of learning to survive with the complexities of diabetes (Cooper, 2003). However, the day-to-day care in diabetes is managed by the clients and their families. Therefore, it is a vital need for constant and valid measures for self-care management of the disease (McNabb, 1997). There are many proposed measures suggested and useful for clinicians and educators managing diabetic people. It was reported that self-report is one of the most practical and cost-effective approaches to self-care management. The seven behaviors identified, have found to be positively correlated with good glycemic control, reduction of complications and improvement in the quality of life (ADA, 2009).

Diabetes self-care requires the patients to make many dietary and lifestyle modifications supplemented with supportive role of healthcare team for maintaining a higher level of self-confidence that leads to successful behavior change (Shobhana, 1999). Diabetic patients are expected to be knowledgeable and to follow a complex set of behavioral actions on a daily basis. Behavioral actions such as healthy lifestyle behaviors, after the recommended meal plan, engaging in physical activity, compliance to medication, monitoring blood glucose levels and responding to self-treating diabetes-related symptoms; foot-care guidance and seek medical care (Goodall, 1991).

The American Association of Clinical Endocrinologists accentuates the importance of patients becoming active and knowledgeable in their care (AACE, 2002). On the other hand, WHO has recognized the importance of patients learning to manage their diabetes (Hendra, 1997). The American Diabetes Association revised the standards of diabetes self-management education and findings revealed a four-fold increase in diabetic complications for people who had not received formal education about self-care practices (Mensing, 2006).

Self-management refers to the ability of clients, including their families, communities, healthcare professionals, to manage symptoms, treatment modalities, lifestyle changes, and psychosocial, cultural and

spiritual consequences of health conditions. Also, self-management is described as the healthy lifestyle behaviors undertaken by people for optimal growth and development, or preventive strategies performed to promote or to support health (Richard, 2011). Therefore, ideal self-management entails the ability to monitor the disease and to develop and use cognitive, behavioral and emotional strategies to sustain a satisfactory quality of life.

Clients' knowledge improved health outcomes. The knowledge must be evidence-based and relevant to the patients. Most important, the knowledge must enable patients to assume an essential part in disease control and treatment. Hence, by improving patients' knowledge about risks, benefits and characteristics of medical procedures remain critical to support informed decision-making.

Studies on self-management education for adults with type-2 diabetes revealed improvement in glycemic control and observed benefits declined one to three months after the intervention ceased; these factors suggested that continuing education is necessary (Williams, 1998). Most importantly, reviews showed that diabetes self-management education revealed successes in lowering glycosylated hemoglobin levels (Norris, 2002). On the other hand, high-quality structured education has a philosophical effect on health outcomes and can significantly improve the quality of life. A Cochrane review affirmed that culturally, appropriate health education has short-to-medium term effects on glycemic control, the knowledge of diabetes and healthy lifestyles (Attridge, 2014).

Model of care

Aims and assessment:

- Educate clients on the importance of monitoring and managing their diabetes.
- The ability to ably identify and to assess any problems in glycemic control and address them effectively.
- Skillfully identify complications of diabetes and to obtain urgent treatment.
- Educate clients on the importance of healthy lifestyle practices.
- Assess clients' general health status and to provide treatment of associated or coincidental illness, physical, mental or others.
- Provide support and to educate clients on how to live with the disease and to best adjust their lifestyle practices to sustain healthy living.

Complete assessment of client: Assessment can be done at their homes, clinics, health facility or hospitals.

- Assessment includes physiological data, psychological, socio-cultural, spiritual, and economic and lifestyle factors.

Subjective data:

- History taking: demographic profile, the past, present and medical history, family history and other data needed.
- Obtain information from clients, relatives, next of kin, medical records, clinics, hospitals, medical practitioners and other sources to manage care.

Objective data: Use findings of physical examination to manage client's conditions.

- Record general observation during the assessment process and use findings to help in managing client.
- Diagnostic data obtained are analyzed

Data analysis

- Helps to find the real health problems
- Potential and high-risk health problems
- Also, helps to set goals centered on promoting and enhancing patients' level of wellness.

Nursing diagnosis

- The nursing diagnosis is made based on the real and potential problems identified. The plan of care is client-centered and holistic. Needs are prioritized based on the present needs affected, potential and high-risk health problems identified.
- Education centers on promoting, enhancing and modifying of healthy lifestyle activities, practices, and compliance with care.

Plan of care

- The goals must be short-term and long-term to manage the actual and potential problems.
- The goals must be specific, measurable, achievable, and realistic and time restricted.
- Each goal must be singular and relevant to the client's outcomes.
- The goals must be relevant and focus on a set of activities designed to improve client's actual problems and to prevent potential ones.
- These goals should provide the medical practitioners with a plan in which they can measure and evaluate client's improvement and collaboration of care.
- Intervention strategies are developed and communicated to the client, health care team and family to meet the unique circumstances of the client.
- The evidence-based care guide helps to addresses medications, diet, physical activities, self-monitoring and follow-up care.
- Modification of plans should be ongoing to discuss the affected needs.

Client friendly action plan: Do it, share it and document it

- Client-oriented goals are activated.
- Goals are based on physiological and psychological needs affected.
- The approach must be holistic.
- Independent interventions are implemented.
- Collaborative interventions are performed in conjunction with the family and other members of the healthcare team.
- Interventions are based on the priority of care.
- Direct and indirect care should be rendered.
- Ongoing data collection is essential to enhance care.
- Documentation of care is vital and in charting the way forward in managing care.

Do it: Direct care

- Care can be physical or verbal.
- Assist client with general activities of daily living.

- Educational sessions are necessary and should be ongoing.
- Give feedback to client, medical team, and relatives.

Indirect care

- Ongoing monitoring of the client's general condition and improvement.
- Advocate on the client's behalf.

Nursing staff also is accountable; it is an important aspect and the legal requirement of nursing practice. Critical thinking skills helped to make the safest and most helpful choices for clients. Intellectual, interpersonal and technical skills are required in the decision-making process, safe and competent performance is required.

Questions healthcare personnel should ask during the caring process

- Does the plan protect the safety of the client?
- Is the plan based on sound nursing knowledge and developed according to scientific problem-solving approach?
- Is the plan workable with the desired results?
- Is the plan prioritized based on the client's needs?
- Is the client actively involved, along with the health team and relatives in the plan of care?

Share it: Interdisciplinary planning helps and offers an excellent method to coordinates care and interacts with other members of the healthcare team. This process helps to ensure effective planning, coordinating with other health care providers and assess care.

- The process focuses on ongoing data collection.
- Effective communication with the healthcare team, clients, and their relatives.

Document it: Documentation is a communication tool used. An effective means to exchange client's information. Documentation promotes effective communication between clients, caregivers, healthcare team, and their relatives. Documentation must be

- Accurate, clear, concise, comprehensive and confidential.
- Chronological and timely.
- Facilitate evidence-informed practice and a source for improving clients' outcomes. "Work not documented means it was not done" an old nursing quote.
- Quality nursing documentation promotes effective communication among caregivers which enhances quality care.

Evaluation: Measuring the effectiveness of assessing, analyzing, diagnosing, planning and implementing is done through the process of evaluation. The following steps are necessary to evaluate and reevaluate care. These steps can be done at any stage during the assessment process to ascertain progress.

- Analyzing clients' responses
- Identifying factors that contribute to success or failure.
- Determine the type of progress made in achieving the desired outcomes.
- Determine if the process is workable if not reassessment can be done to decide whether there is a need to change or to eliminate the goals or present action plan.
- Regular evaluation is necessary it aids in determining the proper course of action to be taken identifies potential errors and ensures a smooth working process.
- This process aids in planning for ongoing and follow-up care.

Self-management, education, and compliance: Diabetic self-management education is the process of educating DM clients on how to manage their diabetes a vital aspect of clinical management. The self-management education model aims to increase knowledge, skills, and confidence leading to an informed

decision regarding the disease. The goals of diabetic education are to optimize metabolic control, prevent acute and chronic complications, compliance and to enhance the quality of life. Also, to enable DM clients to increase control of their conditions and incorporate effective self-management into their daily activities of lives.

Effective self-management strategies require clients to have a sense of ownership of managing the disease. Self-management can be fostered through timely provision of information (Frost, 2014). On the other hand, high-quality structured education has a profound effect on health outcomes and can significantly improve the quality of life for people living with the disease.

What all diabetic clients should be educated on:

The types of diabetes

- Type 1 / Insulin-dependent diabetes mellitus (IDDM) or juvenile DM
- Type 2 or adult onset
- Gestational- onset during pregnancy

The pathophysiology of the disease: The cause of DM is multi-factorial and included both genetic and environmental elements that affect the beta-cell functions and tissues. DM also involved the muscles, liver, adipose tissue and the pancreas to insulin sensitivity. Diabetes occurs due to dis-balance between the demand and production of the hormone insulin. After eating or drinking the body breaks down sugars in the blood and converts it into glucose. The glucose travels through the bloodstream and provides the body with energy. The process is accomplished through the pancreas which produces the hormone insulin. The pancreas is an organ in the abdomen between the stomach and the spine and the remaining part in the small intestine. The pancreas produces the hormone insulin and secretes it into the bloodstream to regulate the body's glucose or sugar level.

People with diabetes the pancreas is either unable to use insulin effectively or produces too little insulin or none at all. The cells are deprived of their needed energy when the blood glucose level rises. Many problems are likely to occur affecting almost every part of the body. The common symptoms experience is excessive thirst, frequent urination, profuse sweating and in some case generalized itching.

High blood glucose levels can give to the formation of fatty deposits in the blood vessel walls; restricts the flow of blood and increases the risk for atherosclerosis that is the hardening of the blood vessels. People with diabetes are prone to foot problems due to the narrowing of blood vessels in the legs and feet. This problem can result in decreased sensation in the extremities and developed to a condition called diabetic neuropathy. Poor blood flow and nerve damage increase the chance of having a foot or leg amputated.

Monitoring: HBA1C levels show the mean blood glucose concentration over several weeks and months. Hence, monitoring of the mean blood glucose concentration should be tested every three months. It is an excellent method of determining compliance with medication, self-management and determining the risk for diabetes-related complications.

Medication and compliance: There are four main groups of insulin- fast acting, intermediate-acting, short-acting and long-acting. Insulin plays many roles in the body including the management of sugar levels in the blood. In the absence of insulin, the body is unable to use glucose as energy in the cells. This factor causes glucose to stay in the bloodstream and lead to high blood glucose or hyperglycemia. Insulin helps to control the blood glucose levels by sending the message to the liver, muscle and fat cells to take in

glucose from the blood. On the other hand, if there is enough glucose the liver takes it and stores it as glycogen.

Additionally, besides glucose regulation, insulin plays other roles in the body as to change the activity of enzymes. Building of muscle following sickness or injury; this process is facilitated through the transportation of amino acids to muscle tissue, to repair muscle damage and to increase its size and strength. It also helps to regulate the uptake of amino acids, DNA replication, and synthesis of proteins.

Insulin manages the breakdown of protein and lipids due to changes in fat cells. It helps to uptake amino acids and potassium into cells that cannot take place in the absence of insulin. Insulin manages the excretion of sodium and fluid volume in the urine. Most importantly, it enhances learning and memory of brain functions.

Alpha-glycosidase inhibitors: The types of oral medications are recommended based on the health status. Alpha-glucosidase is one the enzymes responsible for the breaking down carbohydrates to smaller sugar particulars. The alpha-glucosidase inhibitors work by competitive and reversible inhibition of the intestinal enzymes. Hence, digestion of carbohydrates is slower and delay of glucose absorption. Therefore, there is smaller and slower rise in the blood glucose levels following meals, throughout the day.

Nutritional food groups: Macronutrients are essential nutrients that offer calories. Nutrients are substances needed for growth, metabolism and other functioning in large quantities. Categories of macronutrients are carbohydrates, proteins, and fats.

Our body also needed micronutrients and water. Micronutrients include vitamins and minerals. It is important for people with diabetes to understand what foods are made of, so they can better manage and control their blood glucose levels. It is important to eat foods from each of the food group daily.

Portions and servings: Too much food from any of the group will cause weight gain and high blood glucose levels. Serving sizes vary depending on the nutrition facts labels. Therefore, it is important to determine the caloric values and macronutrients based on the nutrition facts labels and recommended portions per servings from your Dietician.

Starch and starchy vegetable group: People with diabetes need to eat food from this group to help them to meet their daily requirement for calories, macronutrients, fibers, vitamins and minerals for good health. It is vital to space serving and to eat the required portions recommended. Starchy foods are healthy and have more calories. Hence, it is important to group them with vegetables. On the other hand, it is essential to

- Choose starches made with little fat regularly such as a slice of toast instead of a doughnut.
- Choose foods made from whole grains due to the fiber content such as whole wheat bread, grain pasta, and cereals.
- Always check the nutrition facts labels of foods to determine the servings from the starchy food group.

Tortillas vary in size, shape, color, and texture; hence, it is imperative when counting calories and carbohydrates to self-manage your blood sugar levels. All tortillas are not of the same. It is vital when choosing them.

Fruit group: Fruits can be fresh, frozen, canned, dried and in the form of juices. Fruits are grouped together because the calories content come from carbohydrates and contain very little protein and no fat. Fruits are needed and are part of the meal plan.

Vegetable group: Non-starchy vegetables are rich in vitamins and minerals. Vegetables low in calories and fats are a good source of fiber. Vegetables are lower in carbohydrates. Larger servings can be eaten.

Fish, meat and substitutes group: The groups of food contain calories from protein and fat. Some meat substitutes and cheese contained small amounts of carbohydrate; the main macronutrients in these foods are protein and fat. Protein is essential to maintain muscles, make enzymes and keep the immune system working. Meat, eggs, and cheese are high in saturated fat and cholesterol.

Self-management of diabetes, people need to make heart-healthy choices when choosing food from this group due to the risk for increased cardiovascular complications.

Fats and oils group: Foods including butter, margarine, salad dressing, oils, and nuts just to name a few. These foods contain similar amounts of calories and fat per serving. Polyunsaturated, monounsaturated, trans and saturated fats are the chemical structure of different fats. Saturated and trans fats, studies showed the risk for increased heart disease.

Avoiding weight gain: Factors essential for managing weight are healthy eating habits and physical activities. Determining the body-mass index (BMI) is a tool used to measure the body fat based on height and weight. A BMI between 18.5 and 24.9 is considered normal, between 25 and 29.9 overweight and 30 and higher obese.

The body weight is regulated mainly by the number of calories consumed and burnt off. However, there are challenging factors such as stress, low-income levels, some medical conditions and medications that challenged weight gain. Too little or too much sleep, not enough physical exercise and too much alcohol consumption are contributed to weight gain.

- It helps to prevent or manage diabetes.
- It improves blood glucose levels, blood pressure, and blood lipids.
- It reduces the risk for complications such as heart disease and stroke
- It improves well-being and energy levels.

Sweeteners and sugar substitutes: Low calories sweeteners are called artificial sweeteners, sugar substitutes or non-nutritive sweeteners. They are used to sweeten food and drinks of lesser calories and carbohydrate to replaced sugar. Many foods labeled sugar-free, reduced sugar or no sugar added are not necessarily sugar-free; therefore, it is important to check nutrition facts.Sugar alcohols are known to produce side effects such as gas, bloating and abdominal discomfort. However, it is advisable to limit total added sugar intake and not to switch to sugar substitutes.

The effects of alcohol:

- It stimulates the appetite and can cause overeating and interfere with the blood glucose level.
- Alcoholic drinks are high in calories and contribute to excessive weight gain.
- The effects of alcohol altered the sense of judgment causing poor food choices.
- Alcohol interferes with the effects of oral diabetes medication and insulin and causes hypoglycemic.
- Alcohol increases the levels of triglyceride.
- It also increases the blood pressure levels and causes flushing nausea and increased heart rate.
- Alcohol intake may also confuse or mask the symptoms of low blood sugar.
- Alcohol can cause blood glucose levels to rise or fall depending on the amount consumed and stimulate the pancreas to make more insulin.
- Combining the blood-sugar-lowering effects of the medication with alcohol intake can lead to hypoglycemia or insulin shock which is a medical emergency.
- Blood glucose levels are low up to about 12 hours of alcohol intake.

Measures to be taken prior consuming alcohol

- Be cautious and conservative if you are using insulin and test your blood sugar before consuming alcoh
- Have a meal or snack with carbohydrates when you consume alcohol.
- Keep glucose or fast-acting glucose supplements with you at all times.
- Wear your medical identification band at all times (I am a Diab).

A step-wise approach to insulin dose adjustment: Type 2 DM is characterized by progressive B-cell failure and escalating difficulties in maintaini glycemic control (Turner, 2012). Scientific research has proven that possible cellular mechanisms are responsible for the decrease in B-cell function. Additionally, identification of allelic variants of several genes contributed to the risk of type 2 DM development. The number of risk alleles increase and worsen many aspects of th -cell function. The reaction to insulin reduces in a relative number of risk alleles (t'Hart, 2010). The cellular me anisms of risk alleles impair insulin secretion is not known. Despite the use of multiple oral anti-diabetes drugs, many people need insulin therapy to maintain normal levels of glycated hemoglobin (HbA1c).

The step-wise approach can be achieved through improve patient-provider communication; continuous discussion with clients and their relatives on the risk and benefits shared decision-making and educating clients in how to self-mange the disease and their insulin regime (Karter, 2010). Non-compliance resulted in the rise of the HbA1c levels which cause multiple drugs to be added to the medication regime and to improve glycemic control. Most of the times have the effect on clients such as loss of confidence, increased in emotional burden and the need for treatment compliance. Clients taking oral anti-diabetic drugs with high levels of HbA1c insulin therapy are the drug of choice.

Safety is essential when lecting the dose of mealtime insulin because at mealtime the insulin target is achieved. There are many barriers to initiation of insulin therapy. Many clients fear about injections and the risk of hypoglycemia, difficulties managing insulin therapy and the perceptions that insulin may impose life-restrictions. Some people felt that that insulin use indicates a greater severity of disease and failure of self-management.

Hyperglycemia: Hyperglycemia is high blood glucose or blood sugar level. It is likely to occur when the body produces too little insulin and or cannot use it effectively.

Causes of hyperglycemia

- Inadequate doses of insulin in cases of type 1 DM.
- Unhealthy eating habits.
- Inadequate exercise.
- Stressful situation.

Signs and symptoms of hyperglycemia

- High blood glucose level
- High level of sugar in the urine
- Increased thirst
- Frequent urination
- Dry mouth

The treatment and prevention of hyperglycemia: To avoid hyperglycemia quality self-monitoring of blood glucose levels and compliance to drug therapy is essential. The management of high blood sugar is necessary to avert complications. The following plan is necessary to prevent hyperglycemia.

- Reassessment and restructuring of drug therapy are essential to prevent episodes of hyperglycemia.

It is of great importance to consult with the medical team.

- A recommended dietary change that is eating a well-balanced meal is a vital part of taking care and managing diabetes. A meal plan will help in the process of selecting the correct food choice with the required caloric values.
- Regular physical activity is vital to managing diabetes.
- Regular blood glucose monitoring da and treating high blood glucose helps to avoid problems associated with hyperglycemia. The blood glucose meter gives a direct measure of the glucose concentration at the time of the test to detect hyperglycemia or hypoglycemia. Training is necessary to prevent confusion and inappropriate actions. Urine testing is not as accurate as the blood glucose monitoring. Urine output depends on the client's renal threshold for glucose. It can be difficult for people who are visually impaired to read the urine strips.

Hypoglycemia: Hypoglycemia is a condition characterized by abnormally low blood glucose or blood sugar levels lower than 70mg/dl. The condition is known as insulin reaction or insulin shock.

Causes of hypoglycemia

- Hypoglycemia occurs due to many reasons such as in diabetic persons who take too much insulin.
- Diabetic persons who took insulin but did not have their regular meal or did not eat on time.
- Diabetic persons who over-exercise and insulin requirement at that time fell lower than usual.
- Medication-induced, alcohol abuse, liver diseases, and kidney disorders are other likely causes.

Signs and symptoms of hypoglycemia: The signs and symptoms are described as the "Whipple's Triad" a collection of three criteria that suggested an individual's is experiencing hypoglycemia.

- Signs and symptoms of hypoglycemia
- Low plasma glucose levels below 50mg/dl at the time of onset
- Symptoms go away when glucose levels return to normal.

Treatment for hypoglycemia: There are two possible approaches for treatment

- Immediate treatment- that is the treatment for the abnormal low blood sugar attack.
- Treating the underlying cause.

Persons with a low blood sugar need to use sugar substances as soon as possible. Persons who are hungry need to eat to reduce the attack of hypoglycemia. It is important for diabetic persons to maintain their regular eating times. Stabilizing the blood glucose levels within 15 to 20 minutes is vital to prevent further complications.

Foot care: Foot care is essential for all diabetic clients. Foot self-examination, doctor check up, and many other things to do to keep your feet in good shape, improve circulation d identify any problems before it is severe. It is advisable to get your feet examine once per year and r t any corns, calluses, sores, bruises, cuts, infections or foot pain. It is important to note that diabetic-related foot problems can worsen rapidly and are difficult to treat. Therefore, prompt attention is needed. Steps necessary for foot self-care

- Inspect your feet daily.
- Make sure you are aware of what should be done and should not be done to your feet.
- Visit your foot care specialist as soon as you recognize any problems with your feet.

Cari for your feet: Things to do to maintain healthy feet-

- Take care of your diabetes by working with your health care team to keep your blood glucose at a normal range.
- Check your feet every day for spots, cuts, swelling, and blisters. A mirror can be used to check difficult areas or seek help.

- Be active and plan physical activities with your health team.
- Wear comfortable fitting shoes with stocks at all times.
- Wash your feet every day, dry them gently and check between the toes,
- Keep your feet moist and smooth.
- Trim toenails, when needed cut them straight across and file the edges.
- Protect feet from hot and cold and never use hot water bottles, heating pad or electric blanket which is likely to cause burns.
- Elevate feet when you are in the sitting position and do not cross them for long periods.
- Avoid smoking.

Compliance: Compliance with self-care activities is an essential component of managing diabetes. Successful outcomes depend on treatment adherence and the interconnectivity with health professionals. Adherence to therapy is defined as the extent to which the clients behave in taking their medication, following a diet plan, and executing lifestyle changes with agreed recommendations from healthcare providers. Medication, diet, exercise and lifestyle changes can only be achieved through adherence to the overall recommended regime. Compliance with self-care activities involved a set of behavioral actions to care on a daily basis. These actions involve engaging in positive lifestyle behaviors.-following a meal plan, daily physical activity, and taking of prescribed medication oral hypoglycemic or insulin, monitoring of blood glucose levels, responding to and self-treating diabetes-related problems. Foot care guidelines, the quest for medical care for diabetes and or any other related health problems are critical activities.

The daily self-care regime aids in reducing the chances of developing long-term complications. Non-compliance to medication decreases glycemic control and leads to complications including microvascular and macrovascular diseases and altered lipid metabolism. Examples of microvascular disease are retinopathy, neuropathy and diabetic neuropathy (kidney disease).

Self-care management model: a small island perspective: St. Vincent and the Grenadines is a small island with natural vegetation. Mountainous in nature and its main crops are starchy foods such as eddoes, dasheen, plantain, sweet potatoes, bananas, and breadfruit. Hence, the daily meal plan contains high levels of carbohydrates. High intake of daily starchy foods is one of the factors for high incidences of diabetics. On the other hand, most of these people are farmers and of a low socio-economic status. Many people have little knowledge of diabetic and low intelligent quotients (IQ). This self-care management model was designed for people of low socio-economic status and underdeveloped countries.

Self-management relates to the tasks that an individual living with diabetes must undertake to live healthily. These tasks include gaining confidence to deal with the medical management, role management, and emotional management. To assume each task individuals must collaborate with health professionals, actively share in decision-making with the health team, monitors and manages signs and symptoms of his or her condition. These can be achieved through lifestyles modification that addresses risk factors and promotes health by focusing on prevention, early intervention and by assessing and supporting the confidence in the ability to use support services.

Self-management support model

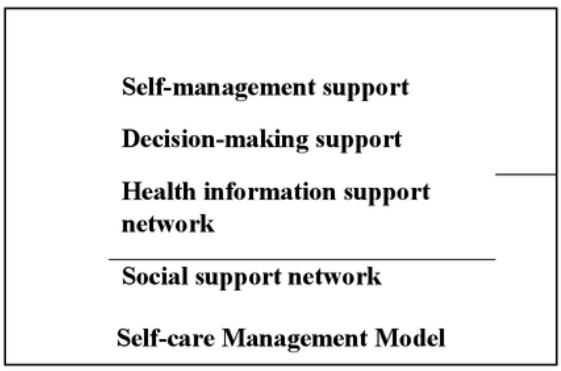


Table 1 showing the critical aspects of self-management

Self-management support: Self-care management is client-centered. It is an ongoing process and provides the client with knowledge and skills necessary for self-care. The needs and goals are guided by evidence-based standards. The model aims to

- Establish a plan with the client and relatives ensuring that they receive full support.
- Design a self-management plan, the goals set to fit clients needs to be based on priorities, lifestyles and their conditions.
- Provide ongoing support to sustain healthier lifestyle.
- Set up support programs to ensure continued enhancement of self-management skills, behavioral strategies and metabolic improvement flexible for self-management interventions to the uniqueness of their personal lifestyle.
- Encourage clients to attend as many educational sessions to improve their knowledge on managing the disease.
- Educate clients on the importance of autonomy and motivate them to start and value diabetes self-management behaviors.
- Educate client on the importance of compliance with all aspect of care and adherence to medication.
- Educate client on chronic illness care, choices, control, compliance, and consequences that are fundamental and clearly defined each aspect to the client.
- Ensure follow-up checks and evaluation of care.

Decision-making support: The decision-making process involves identifying and defining problems; to ascertain client's beliefs, thoughts, and feelings that may support or hinder their efforts. Healthcare professional set long-term goals that the clients work toward achieving. However, it is vital to allow the clients to choose and commit to making behavioral changes that will help in achieving long-term goals. On the other hand, these self-care behaviors must be adhered to ensuring effective decision-making and maintaining a healthy lifestyle.

- Healthy eating practice: choosing food from each of the food groups in the right proportion daily.
- Daily exercise or being active such as walking, playing games or gardening.
- Monitoring of blood glucose level daily and HbA1c level every three to four months. Other monitoring such as daily foot checks, observe for signs and symptoms of hyperglycemia and hypoglycemia and general monitor of health status.
- Compliance with care and the taking of prescribed medication.
- Problem-solving seeks help and discusses any concerns with your loved ones or healthcare providers.
- Reducing risks and healthy coping are behavioral factors that must be attended to daily.

The client should be able to evaluate their efforts, identify what was learned, make the necessary changes in their behaviors, how to solve problems and to evaluate the process. It is imperative also, for the client to understand his/her roles as a decision-maker and on how to assume the responsibility for care.

Shared and improved decision-making involved the client, relatives and healthcare team; providing information to promote informed decision-making throughout the lifetime. Involving the client as an active partner with clinicians in the treatment process is an effective way in the decision-making support process. Health professionals should work together with their clients identifying, enacting decision and planning based on medical evidence. The decision-making process requires a civilization of collaborative work and skills that support the clients to think through and communicate their preferences. Also, to design and work with the necessary tools to make the decision-making process useful.

The aims of the decision-making support process are to

- Help clinicians and clients to work together as active partners to clarify acceptable medical options and to choose appropriate treatments.
- Acknowledge decision-making that may be influenced by knowledge, experience, personal situation, preferences, capabilities and values or beliefs.
- Assist the client in recognizing what was presented to clinicians and valuing the outcomes.
- Advocate for the client.

The collaborative effort improves health literacy and helps the client to read, understand, evaluate and use health information to make appropriate decisions about self-management. On the other hand, reduces the risk of hospitalizations, complications and make suitable lifestyle changes.

Active involvement enhances knowledge, lessens anxiety and allows the client to feel in control of his/her care. Hence, evidence-based client's decision aids in facilitating the process of making informed decisions about self-management, complying with care and improves client's perception of the risk for complications.

Health support network: Health support networking is essential, collaborative and an integrated team approach to assist clients living with diabetes to assume an active role in their care. This aspect of the model allows the health professionals to implement various strategies and techniques, to provide adequate education on and to support the development of problem-solving skills in various aspects of diabetes management. In the planning process self-management of diabetes education should be recognized and ongoing support the integral components of care. Therefore, self-management education is a continuous process of facilitating knowledge, skills and the necessary abilities for diabetes self-care. It is imperative for healthcare providers and other integrating teams to define their shared vision of diabetes care to enhance the process. The goals are

- Healthcare professionals should ably support clients while taking into account multiple physiological and personal factors.
- Develop collaborative daily self-management plan.
- Encourage, cajole and persuade clients to do their daily tasks.
- Inform clients on the daily choices made have a greater impact on their outcomes.
- The consequences and rights of decision-making accrue directly on clients.
- The rights and responsibly of clients managing their conditions in the way best suited to the context and culture of their lives.
- Listen attentively to clients; ask what their needs are and what they will like to receive.
- Ask clients how they are doing in reaching their self-selected goals and caring for their diabetes.
- Design or used the Health Information System (HIS) as a feedback method to inform healthcare teams involved in the treating and the caring process of the client.

The HIS will inform healthcare providers on a complex set of behavioral actions, and daily activities implemented. The linkage will connect all healthcare providers such as the dietician, foot care practitioner,

medical officer, dentist, laboratory, outpatient department, district hospital/clinic and other facilities that are necessary for the caring process. The goals of health support network are

- Coaching and partnering in the caring process.
- Offer referrals with helpful feedback.
- Close monitoring and follow-up care.
- Review and revise care plan as needed on clients' and healthcare providers' assessment and follow-up care recommended.
- Obtain ongoing information of therapeutic and behavioral options and clients concerns about each option.
- Collaborative approaches improve clients' outcomes.
- Creates a client-centered environment and receive support from all healthcare professionals.

Social support network: Social support is an intricate concept which coincides with multiple social networks such as the family, community, private and public sectors. Social support has the potential to exert positive influences on self-care management. However, the family plays a vital a role in the everyday instrumental tasks of diabetes care, especially in indigent and minority families. Social support is a process of interacting with others and comprised of emotional and informational support, positive and social interaction and has a significant impact on a person's physical and psychological well-being.

By helping people to cope with various situations, making them feel better about themselves by raising their self-esteem and improving their abilities and competently performing self-management task. Social support such as part of this self-care management model from a small island perspective can aid to improve health outcomes, cut cost due to limited and limited available resources. The main goal focuses on education which helps to support behavior change and improve self-management of people living with the long-term disease.

Family support, group interactions, community support groups, religious organization, health groups and counseling interventions are methods used to increase self-management. These interventions aid in improving self-monitoring, knowledge, and skills. Group involvement enhances learning and has effects on people with low IQ. There are many benefits achieved from social support networking such as

- Improved health behaviors such as exercise, consuming of nutritionally balanced diets and adherence to medical regimens. These factors promote health and prevent complications.
- Involvement with formal groups such religious organizations and informal groups such as friends and family these social ties help to improve the general wellbeing of clients. Social ties influence health behavior due to the influence or control, a spouse may have and their ongoing checks, reduce, regulate or facilitate healthy behaviors in many ways that will promote a partner's health and well-being. Social support network provides information and creates standards that influence and improves healthy habits.

Technology plays a significant role. Many devices are readily available and help to improve self-management. Technology can support daily diabetes self-management activities of blood glucose monitoring, exercising, and healthy eating, taking medication, monitoring for complication and problem-solving. The internet and Smartphone can be used for educational and motivational support. Clinical information can be downloaded or recorded such as daily self-management activities. Visual activities improve clients' ability and problem-solving skills.

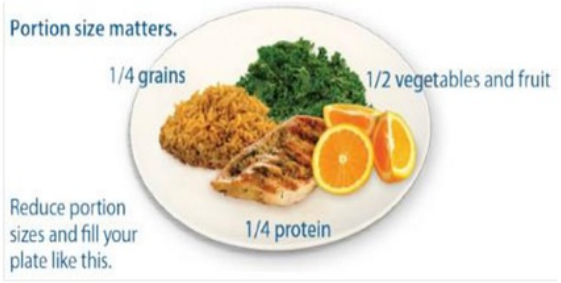
Technology has changed many lives, which can be motivational and allow for more frequent contact between healthcare providers and clients and enhance self-care management behaviors and treatment plans. Technology can be extended to clients' communities and homes and provide individualized care and just-in-time information.

Diabetic take home card

The diabetic take home card a guide designed to channel the way forward in self-management, a holistic approach to self-care. The take home card guide is the ABC of managing diabetes. The card is the size of a passport. The content of the card is a reminder of what is to be done daily and records of clinical and medical visits, results of laboratory findings and documented care provided by the healthcare team.

Simple take home-card: a client guide

Page	Content
Cover	I. I am a diabetic II. Name of clinic III. Name of client IV. Contact and emergency numbers V. Present medication used
Page 2	ABC of care HbA1c, blood pressure, cholesterol level
	 Monitoring blood glucose daily morning and evening and HbA1c level quarterly
Page 3	Meal plan charts showing portion sizes



The best foods to be eaten

Vegetables: non-starchy: includes broccoli, carrots, greens, peppers, and tomatoes. Starchy: includes potatoes, corn, and green peas.

Fruits: includes oranges, melon, berries, apples, bananas, and grapes

Grains: at least half of your grains for the day should be whole grains such as wheat, rice, oats, cornmeal, barley, bread, pasta, and cereal.

Protein: lean meat, chicken or turkey without the skin, fish, eggs, nuts, and peanuts, dried beans, peas, such as chickpeas and split peas and meat substitutes.

Dairy: nonfat or low fat, milk, yogurt, **and** cheese. Use oil instead of butter.

Page 4 Physical activities

Drink water to stay hydrated

Page 5	Daily foot care: wash dry and moist feet. Check between toes and always wear your shoes.
page 6	Daily medication plan- pill or injectable as prescribed.

Page 7	Record daily activities such as glucose levels, medication, foot care and physical activities.
Page 8	Participation in educational activities/remarks
Page 9	Visits at district clinics/remarks
Page 10	Visits to practitioners/remarks

Table 2 representations of client take home card

Acknowledgement

This publication was submitted as part of my requirement of my thesis; a partial fulfillment of the requirements for the award of Ph.D. in Nursing at the Texila American University (TAU). It is good to give thanks unto God for his goodness and loving kindness. With God all things are possible. On the other hand, special thanks to my immediate family for their encouragement, support, and prayers. Thanks to my colleagues for their support. Most importantly, I am thankful to Almighty God for bringing me thus far. Thank you, Lord, for guidance, protection, knowledge and the strength you continue to bestow unto me. Indeed he is a grateful God, the beginning, and the end.

Conclusion

Self-care has seen an evolutionary process of development or awareness living with the multifaceted nature of diabetes. Self-care management remains client-centered and continues to be an ongoing process by providing the client with knowledge and skills necessary for self-care. The needs and goals are guided by evidence-based standards. Family support, group interactions, community support groups, religious organization, health groups and counseling interventions continued to play pivotal roles in self-management. These interventions aided in improving self-monitoring, knowledge, and skills. Group involvement enhanced learning and has effects on people with low IQ.

There are many benefits achieved from social support networking especially immediate family support. Health support networking also remains essential, collaborative and an integrated team approach to help clients living with the disease to assume an active role in their care. This aspect of the model allowed health professionals to implement various strategies and techniques, provided adequate education and supports the development of problem-solving skills in various aspects of diabetes management. In the planning process, self-management education should be recognized and ongoing support the integral components of care.

Technology continues to playa significant role. Many devices are readily available and help to improve self-management. The decision-making process aided in identifying and defining problems; to find out client's beliefs, thoughts, and feelings that may support or hinder their efforts. Health care professional should identify long-term goals that are achievable. However, it is vital to allow the client to choose and commit to making behavioral changes that will help in achieving those goals. On the other hand, these self-care behaviors must be adhered to, ensure effective decision-making and maintaining healthy lifestyle practices. The self-management clients take-home card, an excellent reminder of daily activities.

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PUBLICATION TWO

Nurses' Role in Diabetic Foot Prevention and Care: A Healthcare Challenge

Publication by *Marrie L Davis*
Ph.D. Student Texila American University
marriedavis63@hotmail.com

Abstract

The diabetic foot is considered one of the most devastating complications of diabetes. Diabetic foot is defined as a foot affected by ulceration. It is associated with neuropathy and or peripheral arterial disease of the lower limb. Health education is a combination of learning experiences designed to help people; by increasing their knowledge and influencing their attitudes to improve well-being. The aims of nursing interventions in diabetic foot care- to enhance patients care and services through health promotion, prevention, and patient-centered care. Nurses play vital roles in achieving these goals by providing health care, educating, consulting, being transformational leaders, researching and advocating for patients. However, this action plan focused on the roles of nurses in diabetic foot prevention and care and identified some of the challenges faced. The main goal of the article- to provide health services and to improve the physical, emotional, mental, socio-cultural and spiritual needs of clients.

Education on the basics of foot care, how to perform the physical examination and educating clients on the importance of wearing the right shoes are fundamental areas. Developing educational programs for each client and their families, teaching on the importance of follow-up checks, monitoring of blood glucose at a specified interval, the primary principles of diabetic care and prevention of complications are vital roles of a nurse.

On the other hand, minimizing the risk of the recurrence of the wound is vital. Therefore, by managing contributing systemic factors such as hypertension, hyperlipidemia, obesity, heart conditions or renal insufficiency is crucial. DFU are classified based on the features of the wound and tissues involvement. The study focused on the importance of complying with self-foot care the prevention of complications and the roles of the nurse in the process.

Method *An evaluative study was completed using the nursing process. The monofilament test a method used for the screening process. Educational sessions were conducted and practical demonstrations on the importance of self-foot care. Cases were referred for further management based on the needs identified. Many tables were used to aid in the teaching processes.*

Results *All clients visited for follow-up checks were knowledgeable on the importance of compliance with care and ably demonstrated foot examination. 20% of the clients reported difficulties encountered with complying to care due to socioeconomic challenges. Notably, there were no newly diagnosed cases.*

Conclusion *Nurses' roles remained the key factors in managing, caring, educating, advocating and helping clients in modifying their lifestyle practices.*

Keywords: Diabetic foot, diabetic foot ulcer, education, compliance.

Introduction

Diabetes is the major cause of blindness, kidney failure, heart attacks, stroke and lower limb amputation (WHO, 2016). Annually, a large sum has allocated for managing non-communicable diseases and human resources. Healthcare providers play pivotal roles in the prevention and early detection of diabetes and its complications. The role of nurses is to educate in the field of prevention and early detection of any changes in the skin and sensation of the feet. The management of diabetic foot requires close collaboration among health teams. Compliance to treatment can lead to the increased longevity of clients. The prevention of complications such as eyes, renal, cardiovascular, diabetic foot and impose cost and economic burden on health systems (2006).

The diabetic foot is considered one of the most devastating complications of diabetes. Diabetic foot is defined as a foot affected by ulceration. It is associated with neuropathy and or peripheral arterial disease of the lower limb (Lauterbach, 2010). It is important to note that, care and treatment of diabetic foot are costly worldwide. Therefore, compliance with self and foot care are essential aspects of care. Compliance is the extent to which clients correctly follows medical advice such as medication, dietary plan, and self-care. It also applies to other situations such as medical devices used, self-care, self-directed exercises or

therapy sessions (WHO, 2003). Diabetic foot ulcers are results of peripheral nerves damages and arterial diseases (Naves, 2016).

Health education is a combination of learning experiences designed to help people; by increasing their knowledge and influencing their attitudes to improve well-being (WHO, 2017). The aims of nursing interventions in diabetic foot care are to enhance patients care and services through health promotion, prevention, and patient-centered care. Nurses play vital roles in achieving these goals by providing health care, educating, consulting, transformational leadership, researching and advocating for patients. However, this action plan focuses on the roles of nurses in diabetic foot prevention and care. The main goal of the article is to provide health services and to improve the physical, emotional, mental, socio-cultural and spiritual needs of the clients. The care provided must be evident–based and render through a holistic approach.

However in St. Vincent and the Grenadines diabetic foot ulceration (DFU) contributed for most of the amputations done at the main health facility, the Milton Cato Memorial Hospital (MCMH). In 2000, 60.4% of DFU resulted in amputations, in 2001 and 2002 respectively a total of 65% increased. Moreover, the average length of hospitalization for a diabetic patient with an amputation average about 52 days and the cost of treatment among to $3 000 00 Easter Caribbean dollars. Hence, the importance of nurses' roles to prevent and to improve the quality of care rendered. Also, to combat the many healthcare challenges encountered. Weekly educational sessions and demonstrations were conducted at the Poly Clinic; one of the strategies used to educate diabetic clients on the prevention of complications, compliance with care. Many methods were implemented whereby clients could have a better understanding and acknowledged the importance of complying with care and the possible outcomes. An evaluation of the daily sessions and examination of clients complied. Actual and potential needs were identified and the relevant cases referred for further interventions.

Specific goal

To enhance patient care and services through health promotion, prevention, and patient-centered care on managing foot-care

Methodology

An evaluative study was completed using the nursing process, assessments of the feet and the monofilament test were methods implemented for examination and screening. Weekly foot examinations were done to assess for foot temperature, toes and soles pressure, and detection for sores, cuts, lacerations, callus, and observation for discoloration and skin changes. The monofilament test was applied to determine loss of protective sensation of the feet.

Complete physical assessment on all diabetic clients visited the Poly Clinic for follow-up checks were completed for the period of one month. A brief explanation of the examination process and screening were explained to each diabetic client. Oral consent was obtained. Five diabetic clients were examined and screened daily. Educational sessions were conducted. The significance of complying with self-care was discussed. Practical demonstrations were done to help clients to understand the importance of self-foot care. Cases were referred for further management based on findings and actual and potential needs identified. Many approaches were used to aid in the teaching process

Action plan: the roles of the nurse

Examination and screening- Conduct a neurological examination the first criterion for screening and detection of foot ulcers. Nurses' role in diabetic foot care involves foot examination, wound care and encourage patients and their families on the necessary care and follow-up visits. Screening is a critical part of care. It allows for early detection of diabetic foot problems, identification of those at risk and planning of care to reduce the risk of ulcers.

A foot examination is a routine assessment- foot temperature, vascular, toe, and pressure on the sole. A foot care examination includes checks for circulation, nerve damage, skin change, and deformities. Good communication with the client during the process helps to identify other underlying problems.

Devices including a monofilament or tuning fork aided in determining the extent of nerve damage. A monofilament is a thin, flexible thread used. The sense of pressure in various areas of the foot is determined. The tuning folk assessed the sense of vibration in various parts such as the foot and toe joints.

The monofilament testing is done to determine loss of protective sensation of diabetic neuropathic feet for adults and children. It is an inexpensive assessment identifying clients at risk for developing a foot ulcer. Early detection reduces the incidence of diabetic neuropathic ulcers. The Semmes-Weinstein 5.07 monofilament takes 10 grams of force to bend it when it touches on the skin or foot. An inability to detect the degree of force indicates that the client has loss of protective sensation in the foot. A monofilament test should be done yearly as part of an overall assessment for persons diagnosed with diabetes, diabetic foot ulcer, numbness, and tingling, burning or crawling sensation in one or both feet. Diabetic care is holistic and ensuring effective care all other areas of care is vital. Table one indicated the other areas of care necessary for managing diabetic foot ulcer.

Holistic approach to ensure effective care of foot ulcers

The past, present and family history, medications and allergies	Check for medications that may inhibit healing such as steroids and immunosuppressant
Check for other complications	Neurological, vision, cardiac, renal, vascular
❖ Glycemic control	Hb (Hemoglobin) A1c < 7.5% (depending on the specific situation of the patient, e.g. medication, the risk of hypoglycemia, body weight)
❖ Hypertension control	< 140/90 mmHg

- Hyperlipidemia control — Cholesterol < 5.2 mmol/L (200 mg/dL)

Table 1

Blood sugar control- The primary cause of DFU is due to inadequate control of the blood glucose level (Bowering, 2001). The best indicator of glucose control is HbA1c. It measures the average blood sugar concentration over a 90-d span of the average red blood cell in the peripheral circulation. A high HbA1c level indicated glycosylation of hemoglobin. Greater elevation of blood glucose level has been associated with a higher potential for suppressing inflammatory responses and decreasing host response to infection. Therefore, controlling the blood glucose is vital to prevent foot ulcers.

Nurses' role in education- Educational interventions, critical thinking, screening of high-risk clients and providing health care are interventions implemented to prevent foot ulcers and lower limb amputation. Education on the basics of foot care, how to perform the physical examination and educating clients on the wearing of the right shoes were fundamental areas discussed. Developing educational programs for each client and their families, teaching on the importance of clinic visits, blood glucose monitoring at specified intervals and the primary principles of diabetic care and prevention of complications are vital roles of a nurse.

Foot assessment and diagnosing of foot ulcer

Skin assessment	❖ Edema ❖ Color ❖ Callus ❖ Temperature
Vascular examination	Assessed for peripheral arterial disease the following signs may be present ❖ Cold feet ❖ Absent of hair ❖ Dry, shine and atrophic skin ❖ Blanching on elevation Check for pulse ❖ femoral, popliteal, posterior tibial and dorsal ❖ Ankle brachial pressure index measure, the toe pressure or transcutaneous oxygen can be assessed and due to arterial calcification a falsely elevated result.
Neuropathy	❖ Sensory loss ❖ Autonomic-reduce sweating that may result in dry and cracked skin (a port of entry for bacteria). Muscular loss-poor reflexes and atrophy of the muscles which lead to foot deformity.

Deformity and footwear	❖ ·Check for deformity-Charcot foot, hammer and claw toes ❖ Wear properly fitted shoes

Table two

Ulcer assessment

Neuropathic pain	❖ Burning. stinging, shooting and stabbing (non-stimulus dependent)
Local pain	Deep infection or Charcot joint pain
Size	Length, width, depth, and location, preferably with clinical photograph
Wound bed	Appearance ❖ Black and necrotic. ❖ Yellow, red, pink ❖ Undermined
Infection signs	❖ Odor ❖ Be aware that some signs such as fever and pain ❖ Increased white blood count may be absent. ❖ Evaluate the ulcer for signs of infection, inflammation, and edema.
Exudates	Copious, moderate, minimal and ins some case none
Wound edge	Callus and scales, maceration, erythema, edema

Table 3

Clinical symptoms of neuropathic and ischemic foot ulcers

Clinical signs	Neuropathic	Ischemic
Foot deformities	Clawed toes, possible high arch, and Charcot deformities	❖ No obvious deformities. ❖ Possible absent toes or forefoot from amputation done before.
Foot temperature	Warm	❖ Cold or decreased temperature
Skin color	Normal or red	❖ Pale and bluish discoloration ❖ Pronounced redness when lowered ❖ Blanching on elevation
Skin condition	Dry skin due to decreased sweating	Thin, fragile and dry skin
Ulcer site	Ulcer is seen on the plantar aspect of the toes and foot	Ulcers present on the distal end or tip of the toes, heel or margins of the foot.
Callus present	Commonly seen on the weight-bearing areas and is generally thick.	❖ Not usually seen. ❖ If present, seen at the distal eschar or necrosis
Ulcer characteristics	Painless ulcers, with a "punched out" appearance. Surrounded by callus granulation or deep based.	Painful, especially with necrosis
Sensation	Reduced or absent sensation to touch, vibration, pain, and pressure	❖ Sensation may be present. ❖ Decreased if the ulcer is associated neuropathy

Ankle reflexes	Not present	Present
Foot pulses	Present and often bounding with dilated and prominent veins	Absent or markedly reduced

Table 4

The importance of foot care

Damage to nerves, circulation problems and infections can lead to serious foot problems. Managing diabetes and maintaining a healthy lifestyle helps to keep your feet healthy. Poor foot-care practices account for about 70% of diabetic patients with lower limb amputations. The risk for lifetime foot ulcer could be as high as 25% (Abu-Qamar, 2014). Patients with lower limb amputation are faced with many challenges. Therefore, education and preventative activities aid in reducing most of the challenges. Regular foot inspections, medical checks, blood glucose monitoring, regular exercises, healthy eating habits and proper footwear are some preventative methods (Abu- Qamar, 2014).

Foot care procedure

Foot inspection- check feet and toes, inspect sides, soles, heels and between toes. Use a mirror or asked someone to help if unable inspect. Contact the healthcare team if you discover any sores, redness, cuts, blisters or bruises.

Wash your feet daily in warm water with mild soap make sure the temperature is checked before placing feet into the water. Dry feet and pat between toes well; the moist area is a source of infection. Moisturize skin to prevent dryness; however, do not place lotion between toes.

Daily foot practices include washing of feet but do not use antiseptic solution, hot water bottles, walking barefoot and removing of corn, callus with razor blades or corn remover.

Toenail care- Trim nail after washing your feet. Cut nails straight across and not too short.

Footwear- Choose comfortable well-fitting shoes. Avoid thong sandal, flip flops, pointed and open toes. Wear shoes with adjusted buckle and laces. Inspect the inside of your shoes every day for tear or breakage. Wearing of socks provides an extra layer of protection between the foot and shoes. Wear clean and dry socks. Avoid non-binding pantyhose.

The patient's role- Any laceration must be reported and treated by the healthcare provider. Inspect and check shoes and feet daily. Any changes detected should be reported. Patients should always remove socks and shoes and carry out a daily inspection of the feet.

Nursing role in diabetic foot care at home-Diabetic follow-up is an essential part of the care plan. Home care is necessary for clients with limited vision and other chronic illnesses. A complete assessment should be conducted on every visit. All problems identified should be managed. A foot care guide should be kept at client's home.

Prevention of ulcer formation

- Daily foot care is essential.
- Daily foot inspection by the client is vital; it could be done by a family member or

healthcare provider.

- ❖ Wounds or sores should be considered critical and treat with urgent.
- ❖ Wear comfortable shoes and inspect them before placing feet.
- ❖ Wear supporting and padded sock/stocking.
- ❖ Simple injuries to the foot can worsen by home treatments that interfere with the healing process.
- ❖ Avoid hot foot soak and the use of an antiseptic solution.

Reinforcing preventative advice and inspecting the client's feet and routine follow-up care. Healthcare provider can help the client to develop and support good foot-care practi.

Preventing other foot problems- Controlling the blood glucose levels reduces blood vessel and nerve damage that can lead to diabetic foot complications. Foot care is an important aspect and following the guidelines in managing diabetes is paramount.

Strategies to reduce the chances of developing foot problems

DFU is the most costly and devastating complication of DM. It affects about 15% of diabetic patients during their lifetime. Advanced dressings and offloading modalities remain an essential part of management. Failure of wound healing resulted in lower limb amputatio. These factors are associated with gender specifically male diagnosed over 10 years with the disease, advanced age of patients, high Body Mass Index and other comorbidities such as retinopathy, diabetic peripheral neuropathy, peripheral vascular disease, high glycated hemoglobin level (HbA1 C), foot deformity, high plantar pressure, infections and inappropriate foot self-care habits are associated and contributory factors(Waaijman, 2014).

- ❖ Complying to self-foot care is the first step to avoid foot ulcer.
- ❖ Reduce smoking it worsens vascular conditions by reducing blood circulation to the feet.
- ❖ Avoid activity such as walking barefoot; it is a risk for injury.
- ❖ Maintain healthy lifestyle practices such as daily physical activities, healthy eating habits; reduce alcohol consumption and comply with medication and follow-up care.
- ❖ Control blood pressure
- ❖ Lipid management
- ❖ Monitor and manage blood glucose levels daily.

Management of DFU

Treatment is recommended based on the presence and the severity of foot ulcers. Care can be done at home, at the district clinic, and in cases where hospitalization is recommended.

Case 1 Simple dressing is required, ongoing foot care, monitoring of blood glucose, self-care management and complying with medication.

Case 2 Closer wound observation and management are needed. The client visits the district clinic daily or three to four times per week. The dressing of the ulcer is done by a healthcare provider.

Case 3 Extensive treatment is needed such as surgical intervention, antibiotics therapy and other treatment to manage the severity of the case.

Medications have a role in the treatment of diabetes; it depends on the complications and the etiologies of diabetic foot ulcers. The approach is holistic. Treatment requires management of systemic and local factors. Diabetic control is critical and achieving resolution and healing of the wound. On the other hand, minimizing the risk of the recurrence of the wound is vital. Therefore, by managing

contributing systemic factors such as hypertension, hyperlipidemia, obesity, heart conditions or renal insufficiency is crucial. DFU are classified based on the features of the wound and tissues involvement.

Wagner classification

Grade	Ulcer appearance
Grade 0	No open lesions present have deformity or cellulitis
Grade 1	Superficial diabetic ulcer (partial or full thickness)
Grade 2	Ulcer extended to ligament, tendon, joint capsule, or deep fascia without abscess or osteomyelitis
Grade 3	Deep ulcer with abscess, osteomyelitis, or joint sepsis
Grade 4	Gangrene localized to portion of forefoot or heel
Grade 5	Extensive gangrenous involvement of the entire foot

Table 5

The evaluation and classification of DFU are essential for planning the management of care. The Wagner classification aids in the treatment plan. The classification of wounds is based on the depth as per table 5. Many studies showed decreased in the growth factor concentration in DFU in particular epidermal growth factor. Growth factor shortage impaired wound healing and contributed to chronic non-healing wounds and possible amputation. Epidermal growth factor (EGF) stimulated cell growth proliferation and separation by binding to its receptor. Human EGF a 6045-DaproteinRecombinant human epidermal growth factor sold under the brand name Heberprot-P to treat DFU. Heberprot-P can be injected into wounds (Berlanga, 2013) and used topically (Yang, 2016).

There are several approaches managing DFU. However, in St. Vincent and the Grenadines, an initiative was taken to prevent limb amputations except in extreme cases. The drug Heberprot-P an innovative Cuban product has recombinant human epidermal growth factor for peri-and intra-lesions infiltration is presently used in cases where amputation is considered. The drug accelerates healing of deep and complex ulcers, both ischemic and neuropathic and most importantly reduces diabetic-related amputations. Repeated local infiltration of the drug enhanced healing of chronic wounds. The drug is injected deep into the contours and bottom of the wounds and caused an effective response of tissue growth granulation and wound closure.

Heberprot-P the unique therapy for complicated and recalcitrant chronic wounds associated with high amputation risk. Localized injection in complex diabetic wounds demonstrated favorable risk-benefits ratios by hastening healing, reduced recurrences and attenuated amputation risk (Berlanga, 2013).

The Nurse's roles in the recovery process

- Guide and educate the client throughout the recovering process.
- Skillfully identify the affected needs and refer case where necessary.
- The care rendered is based on patient-centered goals.
- Educate the client on self-care management and training where necessary.
- Identify the actual and potential problems based on the needs affected.

- Involved the family, the healthcare team, support groups and religious organizations.
- Educate client on the importance of follow-up visits and compliance with care.
- Actively involved all members in the planning of self-care and make sure each task is realistic based on the client's needs.
- Document care and communicate with other healthcare providers for the enhancement of care.
- Evaluate the client's perception and understanding on self-care.

Results

All clients visited for follow-up checks were knowledgeable on the importance of compliance with care and ably demonstrated foot examination. However, 80% of the clients were very knowledgeable on the importance of self-foot care modified lifestyle changes and maintained compliance with care. 20% of the clients reported difficulties with complying to care due to socioeconomic challenges. The clients were referred to social services. Notably, there were no newly diagnosed cases during the examination and screening processes.

Healthcare challenges

- Length of hospitalization is extended for many patients due to many complications and other related health issues.
- Health care is costly and impacted significantly on a healthcare organization.
- The rising prevalence of the disease, in some countries DM is considered an epidemic.
- The availability of assistive devices, many patients are unable to buy prosthesis due to their poor economic status.
- Some patients are abandoned by their loved ones and the government has to provide suitable accommodation.

Conclusion

DFU remains the most costly and devastating complication of DM. It affects about 15% of diabetic patients during their lifetime. Advanced dressings and offloading modalities remain the essential aspect of management. Damage to nerves, circulation problems and infections can lead to serious foot problems. Managing diabetes and maintaining a healthy lifestyle helps to keep your feet healthy. The monofilament testing was done to determine the loss of protective sensation of diabetic neuropathic feet. It was an inexpensive assessment identifying clients at risk for developing a foot ulcer.

Early detection reduced the incidence of diabetic neuropathic ulcers.20% of the clients reported difficulties with complying to care due to socioeconomic challenges. The clients were referred to social services.

Healthcare remained costly and impacted significantly on healthcare organizations due to the rising prevalence of the disease. All clients visited for follow-up checks were knowledgeable on the importance of compliance with care and ably demonstrated foot examination. Notably, there were no newly diagnosed cases during the examination and screening processes. Developing educational program for each client and their families, teaching on the importance of clinic visits, blood glucose monitoring and the primary principles of diabetic care and prevention of complications are the fundamental roles of a nurse.

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#	String	Uniqueness
1	A model managing chronic diabetic foot ulcer	Good
2	social development. DM is one of the oldest diseases known and	Good
3	insulin deficiency. The management includes lifestyle modifications,	Good
4	insulin therapy. Diabetic foot ulceration is deemed as one	Good
5	the lower limb. The main complications of diabetes are blindness,	Good
6	amputations (WHO, 2016). Annually, the government continues	Good
7	knowledge (Roy, 2013). Educational programs for clients	Good
8	blood glucose, compliance with treatment regimens are principles	Good
9	complications. The nurse role in this research focused	Good
10	daily self-care, self-foot care and examination and the right	Good
11	drug therapy. Also, it applied to other treatment planned	Good
12	therapy sessions. The extent to which patients continued and	Good
13	professionals (Farlex, 2012). Compliance with treatment can lead	Good

#	String	Uniqueness
14	such as eyes, renal, cardiovascular and other complications.	Good
15	for self-care. Self-care management involved incorporating	Good
16	evidence-based standards. Self-care management, the decisions made	Good
17	their health. Self-monitoring provided pertinent information	Good
18	assessment of therapy, the regulation of medication, diet, physical	Good
19	diabetes in St. Vincent and the Grenadines (SVG). The study	Good
20	island state. The aim of the study was to determine patients'	Good
21	self-foot care, self-care management and the awareness of	Good
22	unequivocal subset. The sampling groups were diabetic foot clients	Good
23	Hospital (MCMH). Healthcare providers shared their observations	Good
24	therapy used. Pertinent questions asked related to patients'	Good
25	self-foot care, knowledge, treatment therapy and the drug	Good
26	leg amputations. Consent obtained from every patient. Interview	Good

#	String	Uniqueness
27	care management. The 6045-Da protein human Recombinant epidermal	Good
28	treat DFU in SVG. Heberprot-P. An injection injected deep	Good
29	examine strengths, weaknesses, opportunity, and treats of the	Good
30	data obtained. In collaboration with the government of	Good
31	Heberprot-P project. The Mya Levine theory used to discuss the	Good
32	on knowledge, compliance with self-care management, self-foot	Good

100% Unique Content

#	String	Uniqueness
1	siphon (polyuria). The English adaptation coined term diabetes	Good
2	mellitus) (IDF, 2015).	Good
3	Lesser Antilles, about 34 kilometers southwest of St. Lucia	Good
4	shared between St. Vincent and Grenada. It is a rugged island	Good
5	African slaves. The Arawak Amerindians migrated from South	Good

#	String	Uniqueness
6	is committed, by providing quality cost effective nursing	Good
7	(Matricciani, 2015). Diabetes is also one of the leading	Good
8	in 2006 (Grady, 2011). Foot ulcerations are major complications	Good
9	budgetary resources. Diabetic foot ulcer (DFU) is the main reason	Good
10	were amputations. In 2001 and 2002 respectively, there was	Good
11	about 52 days. The cost of treatment amounted to $3000	Good
12	to the clinics. According to reports obtained a total of	Good
13	2009-2013 (Focus News, 2015).	Good
14	contributed to 5.6% for the cause of death in St. Vincent	Good
15	in SVG rated 9.95% of the population age 20 to 79 and ranked	Good
16	2000 the highest, a total of 153 deaths reported due to diabetes,	Good
17	of 125 people. 2000-2004 the principal cause of death was	Good
18	Plan 2007-2012). Diabetes remains the chief cause of death,	Good

#	String	Uniqueness
19	the male gender, diagnosed with the disease for over10 years.	Good
20	management of diabetes, including physical activity, dietary changes,	Good
21	medication (Small, 2012). One study revealed foot care behaviors	Good
22	(Sumalee, 2010). Hence, foot care activities in diabetic	Good
23	with diabetes. The author further affirmed self-care management	Good
24	disease (Grady, 2011). Diabetes self-management education	Good
25	their supporters. The goal of self-management education, support	Good
26	of empowerment. The American Association of Diabetes Educators	Good
27	Behaviors framework. The framework focused on healthy eating,	Good
28	with medication, problem-solving skills, reducing risks and	Good
29	professionals, to manage symptoms, treatment modalities,	Good
30	health conditions. Self-management also described as healthy	Good
31	and development, or preventive strategies performed to promote	Good

#	String	Uniqueness
32	monitor the disease, to develop and use cognitive, behavioral	Good
33	medication (Greenhalgh, 2011). Reports confirmed that patients with	Good
34	physical activities, medication and regular monitoring of glucose	Good
35	such as weight, blood pressure, and lipid profile (Colberg,	Good
36	levels of stress, anxiety, and depression by effective utilizing	Good
37	(Panagioti, 2014). These factors resulted in reduced diabetic	Good

98% Unique Content

#	String	Uniqueness
1	seek treatment, to take care and charge of their health	Good
2	(Webster's Dictionary, 2010). Knowledge referred to the theoretical	Good
3	such as facts, views, ideas, theories, and principles.	Good
4	their offices. The National studies found that health literacy	Good
5	health information. The studies further showed the obstacle	Good

#	String	Uniqueness
6	education levels. The author attested many researchers found	Good
7	elderly (Brody, 2010). Also, often seen were recurrent hospitalization,	Good
8	described knowledge. Procedural knowledge, knowing how to do	Good
9	understanding of concepts, applying rules that govern relationships,	Good
10	knowledge declared. Knowledge must be evidence-based and relevant	Good
11	and treatment. Hence, by improving patient knowledge about	Good
12	rule or order, giving in to a request or it implies to	Good
13	the other hand, compliance is the extent to which persons'	Good
14	following a diet plan, executing to lifestyle changes or agreed	Good
15	many factors. Affordability, the lack of understanding	Good
16	medication orders. These factors contributed to billions of	Good
17	by 69 percent, and the caused for thousands of premature	Good
18	billion (HIN, 2010).	Already Exists

#	String	Uniqueness
19	evaluation of the feet, the patients' history, and physical examination.	Good
20	treatment (Collins, 2014). Hence, efficient and improved communication,	Good
21	background information, general appraisal and suggestions. The tool	Good
22	such as shared, concise, focused information and fostered	Good
23	the Caribbean. The passport, a method used to enhance communication	Good
24	to medication. The component of the passport included standards	Good
25	meal planning. CCP promoted valuable, shared care and empowered	Good
26	to infection, gangrene, amputations and eventually death.	Good
27	higher (Leone, 2012). Recent studies found multiple risk	Good
28	DFU (Bortoletto, 2014). Additionally, advanced in the clients'	Good
29	as retinopathy, diabetic peripheral neuropathy, peripheral	Good
30	foot deformities, high plantar pressure and inappropriate	Good
31	quality of life. The study further demonstrated positive	Good

#	String	Uniqueness
32	such as ischemic, neuropathic or combined neuro-ischemic abnormalities	Good
33	foot pressures, foot deformities and gait instability in	Good
34	ulcers (Formosa, 2012). High plantar pressures, foot deformities	Good
35	factors (Fernando, 2014).	Good
36	care rendered. However, it was imperative to transform	Good
37	quality care (IOM, 2011a). The care delivered, customers' needs	Good
38	expert opinions, societal expectation, and the decisions	Good
39	(Alligood & Tomey, 2010). The principles offer a scientific	Good
40	the treatment. Also, managing the flight, fight, inflammatory,	Good
41	external environment. Moreover, the assessment strategy considered	Good
42	(Alligood & Tomey, 2010).	Good

95% Unique Content

#	String	Uniqueness
1	educational sessions, screening high-risk people and providing	Good
2	and medication. The main focus or change geared towards	Good
3	care providers. The support of self-management was patient	Good
4	leg amputations. Epidermal growth factor (EGF) stimulated	Good
5	the receptors. Human EGF a 6045-Da protein Recombinant	Good
6	to treat DFU. Heberprot-P can be injected deep into wounds	Good
7	(Marti-Cavajal, 2015). Findings affirmed from injecting	Good
8	wound closure. EGF injected into the ulcers matrix resulted	Good
9	patients (Berlanga, 2013). Localized injection into complex	Good
10	hastening healing, reduced recurrences and attenuated risk	Good
11	satisfaction with care. Also, a better understanding of the disease	Good
12	comply with care. Documentation associated with self-care	Good
13	island state. Would the usage of the drug Heberprot-P	Good

#	String	Uniqueness
14	management in St. Vincent and the Grenadines?	Already Exists
15	Conduct interview sessions with diabetics' clients	Good
16	Determine patients' compliance with their prescribed	Good
17	Determine diabetics' perceptions of the usage	Good
18	Estimate the percentage and the outcome of the	Good
19	drug Heberprot-P, patient compliance and the success of the	Good

100% Unique Content

#	String	Uniqueness
1	viewpoints considered, taken into account and unbiased results.	Good
2	healthcare providers. The ultimate aim focused on the desired	Good
3	with medication, self-care management, self-foot care, diet,	Good
4	needs assessment. The method used assisted in answering questions	Good
5	month period. Sixty of these patients had slated for amputation	Good

#	String	Uniqueness
6	classifying wounds. The monofilament test a method used for	Good
7	drug Heberprot-P. Hence a purposive sampling used and participants	Good
8	were selected. Health professionals such as the Foot Care	Good
9	compliance to care, their general observations made and the	Good
10	compliance to care, self-care management, self-foot care, knowledge,	Good
11	leg amputations. Some of the questions the participants were	Good
12	self-care behaviors. One of the questions asked how often you	Good
13	Kindly check the appendix for questionnaire used.	Good
14	same results. The researcher made sure that all the questions	Good
15	criterion-related. The terminologies used were precise and	Good
16	Most important, the content of the questions focused on	Good
17	focused on diabetes, specifically to self-care management, self-foot	Good
18	drug Heberprot-P, knowledge and compliance to care; hence,	Good

#	String	Uniqueness
19	to be reliable. Therefore, using the questionnaire was an	Good
20	diabetic foot ulcers. Sixty patients had slated for amputation	Good
21	in the study. Participants gathered in groups at the various	Good
22	the Grenadines. The researcher identified and introduced	Good
23	data outlined. Oral consent obtained from all of the participants.	Good
24	on knowledge, the medication used and the general management	Good
25	medical conditions. The return questionnaires were placed in	Good

100% Unique Content

#	String	Uniqueness
1	Completed: 100% Checked 0% Plagiarism 100% Unique	Good
2	10.0 11.8 11.8 Over 5 years 7 11.7 13.7 25.5- Unique	Good
3	23.3 23.3 53.3 three of the above 14 23.3 23.3 76.7- Unique	Good
4	above 14 23.3 23.3 76.7- Unique	Good

#	String	Uniqueness
5	the foot 15 25.0 25.0 40.0 Long toe nail 6 10.0 10.0 50.0-	Good
6	toe nail 6 10.0 10.0 50.0- Unique	Good
7	Heberprot-P 33 55.0 55.0 70.0- Unique	Good
8	usage 18 30.0 30.0 46.7 Two months after usage 18 30.0 30.0	Good
9	after usage 18 30.0 30.0 76.7- Unique	Good
10	monitoring 100.0% 100.0%- Unique	Good
11	care 33.3% 33.3% % within Blood sugar monitoring 100.0%	Good
12	monitoring 100.0% 100.0%- Unique	Good

95% Unique Content

#	String	Uniqueness
1	monitoring 100.0% 100.0%	Good
2	Compliance of care 31.4% 31.4%	Good
3	monitoring 100.0% 100.0%	Good

#	String	Uniqueness
4	Compliance of care 21.6% 21.6%	Good
5	monitoring 100.0% 100.0%	Good
6	Compliance of care 100.0% 100.0%	Good
7	Participants' knowledge on the importance of the	Good
8	Participants' knowledge on the importance of the	Good
9	the test 100.0% 100.0%	Good
10	Compliance of care 43.1% 43.1%	Good
11	the test 100.0% 100.0%	Good
12	Compliance of care 56.9% 56.9%	Good
13	the test 100.0% 100.0%	Good
14	Compliance of care 100.0% 100.0%	Good
15	Participants' feedback * Compliance of care Cross	Good
16	feedback 100.0% 100.0%	Good

#	String	Uniqueness
17	Compliance of care 2.0% 2.0%	Good
18	feedback 100.0% 100.0%	Good
19	Compliance of care 47.1% 47.1%	Good
20	‘feedback 100.0% 100.0%	Good
21	Compliance of care 23.5% 23.5%	Good
22	feedback 100.0% 100.0%	Good
23	Compliance of care 9.8% 9.8%	Good
24	feedback 100.0% 100.0%	Good
25	Compliance of care 17.6% 17.6%	Good
26	feedback 100.0% 100.0%	Good
27	Compliance of care 100.0% 100.0%	Good
28	Medication Type * Blood sugar monitoring Cross	Already Exists
29	Medication Type 7.7% 23.1% 38.5% 30.8% 100.0%	Good

#	String	Uniqueness
30	monitoring 14.3% 17.6% 31.3% 36.4% 25.5%	Good
31	Medication Type 28.6% 42.9% 19.0% 9.5% 100.0%	Good
32	monitoring 85.7% 52.9% 25.0% 18.2% 41.2%	Good
33	Medication Type 31.3% 43.8% 25.0% 100.0%	Good
34	monitoring 29.4% 43.8% 36.4% 31.4%	Good
35	Medication Type 100.0% 100.0%	Good
36	monitoring 9.1% 2.0%	Good
37	Medication Type 13.7% 33.3% 31.4% 21.6% 100.0%	Good
38	monitoring 100.0% 100.0% 100.0% 100.0% 100.0%	Good
39	Participants' sex * Compliance of care Cross tabulation	Good
40	Participants' sex 100.0% 100.0%	Good
41	Compliance of care 41.2% 41.2%	Good
42	Participants' sex 100.0% 100.0%	Good

#	String	Uniqueness
43	Compliance of care 58.8% 58.8%	Good
44	Participants' sex 100.0% 100.0%	Good
45	Compliance of care 100.0% 100.0%	Good
46	Compliance of care * Participants' relationship	Good
47	Participants' relationship with health care provider Total	Good
48	Compliance of care Count 1 17 13 15 5 51	Good
49	Compliance of care 2.0% 33.3% 25.5% 29.4% 9.8% 100.0%	Good
50	provider 100.0% 100.0% 100.0% 100.0% 100.0% 100.0%	Good
51	care 2.0% 33.3% 25.5% 29.4% 9.8% 100.0%	Good
52	provider 100.0% 100.0% 100.0% 100.0% 100.0% 100.0%	Good
53	Compliance of care * Treatment recommended Cross	Already Exists
54	The use of the drug Heberprot-P Amputation Refused	Good
55	Compliance of care 15.0% 55.0% 23.3% 6.7% 100.0%	Good

#	String	Uniqueness
56	recommended 100.0% 100.0% 100.0% 100.0% 100.0%	Good
57	Compliance of care 15.0% 55.0% 23.3% 6.7% 100.0%	Good
58	recommended 100.0% 100.0% 100.0% 100.0% 100.0%	Good
59	Frequency Percent Valid Percent Cumulative Percent	Already Exists
60	Participants' sex Years diagnosed Participants'	Good
61	Correlation 1 .087 -.264	Good
62	Cross-products 12.353 2.294 -64.706	Good
63	Correlation .087 1 -.033	Good
64	Cross-products 2.294 56.745 -17.255	Good
65	Correlation -.264 -.033 1	Good
66	Cross-products -64.706 -17.255 4854.745	

100% Unique Content

#	String	Uniqueness
1	Analysis/Key Areas Strengths Weaknesses Opportunity Threats	Good
2	The location of health facilities/services were	Good
3	(a) Some of the clients poorly utilized the services	Good
4	(b)Some of the clients experienced difficulties	Good
5	© Transportation not readily available to some	Good
6	(d) Incur cost due to the unavailability of Vascular	Good
7	System (HIS). (a) Avoidance of plantar pressure aided	Good
8	(b) The availability and accessibility of quality	Good
9	© The need for the organization to recruit a Vascular	Good
10	(d) Improve HIS by linking district hospitals,	Good
11	Self-care (a) The clients/patients knowledgeable	Good
12	foot-care practices. (a) Increased in self-care awareness by	Good
13	(b) Training and development of staff in the specialist	Good

#	String	Uniqueness
14	© Improved in schedule visits to homes/clinics	Good
15	(b) Unavailability of trained nursing staff in	Good
16	local pharmacies. (a) The available medication poorly-utilized	Good
17	(b) The low intelligent quotient of some patients	Good
18	© An increased used of herbal medication over prescribed	Good
19	(a) The opportunity was given to improve the awareness	Good
20	(a)The available resources not effectively utilized	Good
21	(b) The increase in the sale of herbal medicines	Good
22	(c) Over prescribed DM medication poorly utilized	Good
23	(d)Some of the patients lack finance to purchase	Good
24	twice per year. (a) Improved clients' awareness on the importance	Good
25	(b) Improved educational sessions for DM clients.	Good
26	(a) Heberprot-P described as a miracle drug for	Good

#	String	Uniqueness
27	© The drug Heberprot-P injection stimulates the	Good
28	(d) The use of Heberprot-P is associated with extracellular	Good
29	to customers. (a) The drug is not available to other pharmaceutical	Good
30	(a) Many patients complained of significant side	Good
31	(b)The severe adverse effects of the drug remained	Good
32	(c) A highly costly drug and many dosages needed	Good
33	(d) Incur significant financial burden on the clients/patient	

100% Unique Content

#	String	Uniqueness
1	Strategy checklist used to evaluate the goals of	Good
2	To attained critical care with the application	Good
3	The general assessment of patients using the nursing	Good
4	Self-management education with the focus on compliance	Good
5	Improved patients' awareness on the importance	Good
6	Knowledgeable clients who understood the importance	Good

7	More responsive clients' on maintaining their diet	**Good**
8	drug Heberprot-P. Training and development of staff to perform	**Good**
9	monofilament test, foot, and ulcer assessment, diagnosing of	**Good**
10	of foot ulcers, the clinical signs, and symptoms of neuropathic	**Good**
11	classification, the general management and the holistic	**Good**
12	To conduct consultation and follow-up care with	**Good**
13	Educational sessions with clients on the importance	**Good**
14	The importance of monitoring the blood glucose	**Good**
15	Follow-up on wound care at strategic locations.	**Good**
16	general population. The Health Promotion Department and other	**Good**
17	the Podiatrist, Dietician, Physiotherapist, and Diabetic	**Good**
18	Sensitization sessions and the used of social media	**Good**
19	Symposium and awareness meetings held for staff,	**Good**
20	patients/clients. A healthcare team approach used to assist	**Good**
21	The Diabetic Self-Efficacy Scale used to measure	**Good**
22	Key areas measured daily Average scores obtained	**Good**
23	a daily basis. 14 clients received the same score for participating	**Good**
24	A total of 9 clients never involved doing their	**Good**
25	Foot-care practice 18 people checked their feet	**Good**

100% Unique Content

#	String	Uniqueness
1	island state. The drug Heberprot-P was introduced to aid	Good
2	leg amputations. The government of St. Vincent and the Grenadines	Good
3	to manage DFU. The use of the drug along with knowledge,	Good
4	with knowledge, self-foot care, self-care management, and	Good
5	self-care management, and the roles of the nurse in the caring	Good
6	desired outcomes. The extent to which people behave coincided	Good
7	health promotion, therapeutic plan, thus the client, family,	Good
8	thus the client, family, health professionals' involvement	Good
9	and awareness. The benefits derived from education programs	Good
10	their providers. The role of a nurse is centered on a holistic	Good
11	of compliance, self-care, and supported nurses' awareness	Good
12	with diabetes. The nursing management approach focused	Good

#	String	Uniqueness
13	health care needs, patient's beliefs, life situations, and	Good
14	life situations, and conditions that moved to influence self-management.	Good
15	their 50s and 60s. Findings showed that more female with DFU	Good
16	2015-2016 period. A total of 35% male and 50% female received	Good
17	desired outcomes. A study proved that DFU were more associated	Good
18	gender (Bortoletto, 2014). Please refer to the table (I) 1,	Good
19	the table (I) 1, II and III in the results section.	Good
20	healthcare delivery. An overall 30.0% of the clients complied	Good
21	medication regime. A total of 53.3% of the clients performed	Good
22	prescribed medication, exercise, diet, and daily blood sugar checks.	Good
23	sugar checks. Three self-care activities performed daily	Good
24	performed daily by 76.7% of the clients, 98.3% two of the activities	Good
25	daily activity. The used of herbal medicine over prescribed	Good

#	String	Uniqueness
26	of the clients. Importantly, these factors contributed to	Good
27	spent yearly, an increase in the number of admissions	Good
28	premature deaths. Between 2004-2000 the principal cause of	Good
29	(Ministry of Health, Wellness and the Environment Strategic Plan	Good
30	Plan 2007-2012). Also, an increase of 4070 recorded visits	Good
31	island (Focus News, 2015). The estimated annual cost for patients	Good
32	billion (HIN, 2010). Refer to the table (I) IX cumulative	Good
33	showed that 14.3% and 7.7% of the participants performed	Good
34	their medication, 17.6% and 23.1% weekly, 31.3% and 38.5%	Good
35	31.3% and 38.5% monthly, 36.4% and 30.8% yearly. In the	Good
36	30.8% yearly. In the same way, 28.6% of the participants	Good
37	insulin while 85.7% monitored their blood sugar daily, 42.9%	Good
38	blood sugar daily, 42.9% and 52.9% weekly, 19.5% and 25% monthly,	Good

#	String	Uniqueness
39	and 25% monthly, and 9.5% and 18.2% yearly and a total of	Good
40	a total of 41.2% monitored their blood sugar. Self-management	Good
41	their blood sugar. Self-management involved healthy lifestyle	Good
42	and development, or preventive strategies performed to promote	Good
43	health (Richard, 2011). Reports confirmed that patients with	Good
44	recommended diet, physical activities, medication and regular	Good
45	control (Dilla, 2013). Refer to table XXI.	Good
46	monthly clinics, 30% every quarter, 10% every six months	Good
47	months and 11.7% yearly. Specialist visits and other checks	Good
48	a total of 16.7%, of the participants, visited quarterly,	Good
49	visited quarterly, 15% six monthly, 30% every year and 23%	Good
50	never visited. Self-management involves attending to regular	Good
51	regular checkups, compliance with physicians' advice and prescribed	Good

#	String	Uniqueness
52	medication (Greenhalgh, 2011). Additionally, reports confirmed that	Good
53	recommended diet, physical activities, medication and regular	Good
54	control (Dilla, 2013). Refer to tables (I) V and VI.	Good
55	self-care management. The results proved that 36.7% of the clients	Good
56	test; likewise, 48.3% had no knowledge about the test. The	Good
57	about the test. The participants' knowledge of the test	Good
58	results showed 43.1% and 53.1% respectively. The unavailability	Good
59	the HbA1c test. Refer to Table VIII, cross-tabulation table	Good
60	the Caribbean. This method enhances communication between	Good
61	between patients, the healthcare team, and strengthened the	Good
62	to medication. Also, the standards of care medication list,	Good
63	medication list, test results, examinations and meal planning	Good
64	the passport. The CCP promoted valuable, shared care and	Good

#	String	Uniqueness
65	patients (PAHO. 2011). The passport made up of patients'	Good
66	patient outcomes. The CCP is not in use in SVG.	Good

100% Unique Content

#	String	Uniqueness
1	foot care checks, 61.7% weekly, 68.3% monthly, 95% not often.	Good
2	and amputations, causes such as ischemic, neuropathic or	Good
3	foot pressures, foot deformities and gait instability in	Good
4	developing foot ulcers. (Formosa, 2012) Refer to the table (I) X.	Good
5	to their feet, 10% were due to long toe nail, 20% DFU was	Good
6	of the cause. The role of a nurse is paramount; hence,	Good
7	pivotal (Peterman, 2010). Many studies showed that patient	Good
8	patient education. Additionally, advanced in the clients' age,	Good
9	as retinopathy, diabetic peripheral neuropathy, peripheral	Good

#	String	Uniqueness
10	foot deformities, high plantar pressure and inappropriate	Good
11	(Waaijman, 2014). Table (I) XI provided information on some	Good
12	home remedies. A multidisciplinary and a holistic team	Good
13	to infection, gangrene, amputations and eventually death.	Good
14	higher (Leone, 2012). Recent studies found multiple risk	Good
15	DFU (Bortoletto, 2014). Table (I) XII for reference.	Good
16	used the drug 23.3% had their legs amputated and 6.7% refused	Good
17	growth, production, and separation by binding it to the receptors.	Good
18	wounds (Berlanga, 2013) and used topically (Yang, 2016). Exploratory	Good
19	(Marti-Cavajal, 2015). Findings affirmed from injecting	Good
20	wound closure. Table (I) XIV.	Good
21	months later, 18.3% three months later and 5% no improvement	Good
22	patients (Berlanga, 2013). Localized injection into complex	Good

#	String	Uniqueness
23	hastening healing, reduced recurrences and attenuated risk	Good
24	restoration process. The Levine's Conversation Model was applied	Good
25	of the clients. This model addresses four areas of care,	Good
26	the patients. Many changes have occurred. It was important	Good
27	their integrity. The caring period focused on the general	Good
28	documenting of care. These key areas were implemented to guide	Good
29	patients' output. It was critical for each client to receive	Good
30	stable vital signs, and limited body movement. Also, it was	Good
31	personal hygiene, a clean environment, and general observation	Good
32	(Current Nursing, 2010). On the other hand, the patients were	Good
33	physical healing. The conservation of personal integrity focuses	Good
34	self-awareness, and self-determination. Loved ones played	Good
35	reason for 6.7% of the clients refused to use the drug	Good

#	String	Uniqueness
36	was paramount. Patients were assisted with the necessary	Good
37	rehabilitative process. The focal point of care was to maintained	Good
38	and loved ones. Most important, clients were able to share	Good
39	with medication. The togetherness foster and provide support	Good
40	daily living, selfhood and to pursue his or her interest	Good

100% Unique Content

#	String	Uniqueness
1	communication, the execution of treatment (Collins, 2014)	Good
2	relationship. The tool helped the nurse to identify self	Good
3	approach to care, and obtained detailed information. The nurse	Good
4	well informed. Effective communication allowed the nurse	Good
5	assessment period, it enabled the nurse to perform a head to	Good
6	throughout the process, make them more aware of what was happening,	Good

#	String	Uniqueness
7	sugar levels, maintaining a healthy wound, clean dressing	Good
8	surgical care, from hospital to community nursing services,	Good
9	care rendered. It was imperative, however, to transform	Good
10	quality care (IOM, 2011a). The care delivered, customers' needs	Good
11	expert opinions, societal expectation, and the decisions	Good
12	percent revealed 91.7%. The relatives 100% were satisfied with	Good
13	using the drug. This result was due to education; improved	Good
14	satisfaction with care, a better understanding of the disease, and	Good
15	their supporters. The roles of a nurse were crucial in this	Good
16	evidenced-based practice, staff and client awareness and the knowledge	Good
17	island state, a tool that will enhance communication between	Good
18	to medication. The passport will promote valuable, shared	Good
19	self-management (PAHO. 2011). Ongoing awareness and promotion on	Good

THE MANAGEMENT OF CHRONIC DIABETIC FOOT ULCER: A NURSE PERSPECTIVES

#	String	Uniqueness
20	healthcare providers. The formulation of a diabetic foot-care	Good
21	in foot-care, to perform HbA1c checks at the district	Good
22	glucose levels. Ongoing education on self-care management	Good
23	and exercise, using the media as the chief source of communicating,	Good
24	required diet, paying for vital blood tests needed to enhance	Good
25	finance was evident. Devise policies and protocols to assist	Good
26	for the clients. The nurse was better able to explain each	Good
27	the government. The used of the drug Heberprot-P helped	Good
28	management in St. Vincent and the Grenadines.	Good

Completed: 100% Checked

95% Unique

100% Checked

The roles and responsibilities of clients in managing non-communicable diseases (NCDs) remain vital.- **Unique**

Diabetes self-management education (DSME) is an ongoing process of facilitating the knowledge, other skills necessary for self-care and incorporating the critical processes such as the needs affected goals and- **Unique**

The self-care management model was designed to help clients living with the disease.- **Unique**

The nursing process used as an assessment tool for designing the model.- **Unique**

Technology has influenced many lives, which can be motivational and allowed for more frequent contact between healthcare providers and clients, to enhanced self-care management behaviors and treatment plans.- **Unique**

Key terms: diabetes, self-care management, diabetes self-management education, compliance, lifestyle modifications- **Unique**

In spite of scientific advances and easy access to health care, the prevalence of diabetes continues to increase (Seuring, 2015).- **Unique**

Therefore, self-care management and education improved health outcomes; however, knowledge must be evidence-based and relevant to the client's condition.- **Unique**

By improving clients' knowledge about the dangers, advantages and medical procedures in support of informed decision-making is paramount.- **Unique**

Education is known as the wealth of knowledge acquired by an individual on a particular subject that provides an understanding of something or deposits of knowledge.- **Unique**

Education enhances the understanding of the condition, self-advocacy in deciding to act independently and to comply with care.- **Unique**

The overall goals of the article are to support informed decision-making, self-care behaviors, problem-solving and active collaboration with health care team to improve clinical outcomes, enhanced health status and- **Plagiarized**

Therefore, the designed model of self-care management will ably help clients living with the disease to sustain healthy day-to-day activities through lifestyle modifications, working with the healthcare team and- **Unique**

The disease is evident once the pancreas is unable to produce the adequate amount of insulin or it is not capable of using insulin, resulting in the elevation of- **Unique**

Self-care management is the decisions and behaviors of clients with chronic illnesses and their engagement in what affects their health.- **Unique**

Compliance describes the extent to which clients correctly follows medical advice such as medication or drug.- **Unique**

Lifestyle modification entails changing long-term habits, typically of eating or physical activity, adopting, maintaining and modifying behaviors for months, years, or for a lifetime.- **Unique**

Devise a take-home passport or manual on self-care. Diabetes mellitus (DM) is one of the oldest diseases known.- **Unique**

Diabetes is one of the fastest developing chronic diseases known and has affected over 300 million people worldwide Matricciant, 2015).- **Unique**T

ype 2 DM, is a chronic metabolic disorder and appears as an epidemic in some countries of the world.- **Unique**

The American Association of Diabetes Educators stressed the Seven Self-Care Behaviors framework for people living with diabetes should be skilled in and self-care behaviors to improve the quality of- **Unique**

The American Association of Diabetes Educators further forecasted seven essential self-care behaviors.- **Unique**

Completed: 100% Checked

100% Unique

100% Checked

The American Association of Diabetes Educators stressed the Seven Self-Care Behaviors framework for people living with diabetes should be skilled in and self-care behaviors to improve the quality of- **Unique**

The American Association of Diabetes Educators further forecasted seven essential self-care behaviors.- **Unique**

The capacity to lower the gap between patient needs and access to health care service are aspects of self-care management (Barlow, 2002).- **Unique**

The author affirmed self-care management and education helped in managing the condition (Grady, 2011).- **Unique**

However, the day-to-day care in diabetes is managed by the clients and their families.- **Unique**

There are many proposed measures suggested and useful for clinicians and educators managing diabetic people.- **Unique**

The seven behaviors identified, have found to be positively correlated with good glycemic control, reduction of complications and improvement in the quality of life (ADA, 2009).- **Unique**

Diabetic patients are expected to be knowledgeable and to follow a complex set of behavioral actions on a daily basis.- **Unique**

foot-care guidance and seek medical care (Goodall, 1991). The American Association of Clinical Endocrinologists accentuates the importance of patients becoming active and knowledgeable in their care (AACE, 2002).- **Unique**

The American Diabetes Association revised the standards of diabetes self-management education and findings revealed a four-fold increase in diabetic complications for people who had not received formal education about- **Unique**

Also, self-management is described as the healthy lifestyle behaviors undertaken by people for optimal growth and development, or preventive strategies performed to promote or to support health (Richard, 2011).- **Unique**

The knowledge must be evidence-based and relevant to the patients. Most important, the knowledge must enable patients to assume an essential part in disease control and treatment.- **Unique**

Studies on self-management education for adults with type-2 diabetes revealed improvement in glycemic control and observed benefits declined one to three months after the intervention ceased; these factors suggested- **Unique**

On the other hand, high-quality structured education has a philosophical effect on health outcomes and can significantly improve the quality of life.- **Unique**

Educate clients on the importance of monitoring and managing their diabetes. The ability to ably identify and to assess any problems in glycemic control and address them effectively.- **Unique**

Assess clients' general health status and to provide treatment of associated or coincidental illness, physical, mental or others.- **Unique**

Complete assessment of client: Assessment can be done at their homes, clinics, health facility or hospitals. Assessment includes physiological data, psychological, sociocultural, spiritual, and economic and lifestyle factors.- **Unique**

Obtain information from clients, relatives, next of kin, medical records, clinics, hospitals, medical practitioners and other sources to manage care.- **Unique**

Helps to find the real health problems Also, helps to set goals centered on promoting and enhancing patients' level of wellness.- **Unique**
Needs are prioritized based on the present needs affected, potential and high-risk health problems identified.- **Unique**

Completed: 100% Checked
100% Unique

100% Checked

The goals must be short-term and long-term to manage the actual and potential problems.
The goals must be specific, measurable, achievable, and realistic and time restricted.- **Unique**
The goals must be relevant and focus on a set of activities designed to improve client's actual problems and to prevent potential ones.- **Unique**
Intervention strategies are developed and communicated to the client, health care team and family to meet the unique circumstances of the client.- **Unique**
Client friendly action plan: Do it, share it and document it Goals are based on physiological and psychological needs affected.- **Unique**
Direct and indirect care should be rendered. Ongoing data collection is essential to enhance care.- **Unique**
Educational sessions are necessary and should be ongoing. Give feedback to client, medical team, and relatives.- **Unique**
Critical thinking skills helped to make the safest and most helpful choices for clients.- **Unique**
Does the plan protect the safety of the client? Is the plan based on sound nursing knowledge and developed according to scientific problem-solving approach?- **Unique**
Is the client actively involved, along with the health team and relatives in the plan of care?- **Unique**
This process helps to ensure effective planning, coordinating with other health care providers and assess care. The process focuses on ongoing data collection.- **Unique**
Facilitate evidence-informed practice and a source for improving clients' outcomes. "Work not documented means it was not done" an old nursing quote.- **Unique**
The following steps are necessary to evaluate and reevaluate care. These steps can be done at any stage during the assessment process to ascertain progress.- **Unique**
Regular evaluation is necessary it aids in determining the proper course of action to be taken identifies potential errors and ensures a smooth working process.- **Unique**
Self-management, education, and compliance: Diabetic self-management education is the process of educating DM clients on how to manage their diabetes a vital aspect of clinical management.- **Unique**
The goals of diabetic education are to optimize metabolic control, prevent acute and chronic complications, compliance and to enhance the quality of life.- **Unique**
Effective self-management strategies require clients to have a sense of ownership of managing the disease. Self-management can be fostered through timely provision of information (Frost, 2014).- **Unique**
What all diabetic clients should be educated on: Type 1 / Insulin-dependent diabetes mellitus (IDDM) or juvenile DM

Completed: 100% Checked

91% Unique

100% Checked

The pathophysiology of the disease: The cause of DM is multi-factorial and included both genetic and environmental elements that affect the beta-cell functions and tissues.- **Unique**

After eating or drinking the body breaks down sugars in the blood and converts it into glucose. The glucose travels through the bloodstream and provides the body with energy.- **Unique**

The pancreas is an organ in the abdomen between the stomach and the spine and the remaining part in the small intestine.- **Unique**

People with diabetes the pancreas is either unable to use insulin effectively or produces too little insulin or none at all.- **Unique**

The common symptoms experience is excessive thirst, frequent urination, profuse sweating and in some case generalized itching.- **Unique**

People with diabetes are prone to foot problems due to the narrowing of blood vessels in the legs and feet.- **Unique**

Poor blood flow and nerve damage increase the chance of having a foot or leg amputated.- **Unique**

It is an excellent method of determining compliance with medication, self-management and determining the risk for diabetes-related complications.- **Unique**

Insulin plays many roles in the body including the management of sugar levels in the blood.- **Unique**

This factor causes glucose to stay in the bloodstream and lead to high blood glucose or hyperglycemia.- **Unique**

On the other hand, if there is enough glucose the liver takes it and stores it as glycogen.- **Unique**

It also helps to regulate the uptake of amino acids, DNA replication, and synthesis of proteins.- **Unique**

It helps to uptake amino acids and potassium into cells that cannot take place in the absence of insulin.- **Plagiarized**

Alpha-glycosidase inhibitors: The types of oral medications are recommended based on the health status. Alpha-glucosidase is one the enzymes responsible for the breaking down carbohydrates to smaller sugar particulars.- **Unique**

Therefore, there is smaller and slower rise in the blood glucose levels following meals, throughout the day. Nutritional food groups: Macronutrients are essential nutrients that offer calories.- **Unique**

It is important for people with diabetes to understand what foods are made of, so they can better manage and control their blood glucose levels.- **Unique**

Portions and servings: Too much food from any of the group will cause weight gain and high blood glucose levels. Serving sizes vary depending on the nutrition facts labels.- **Unique**Starch and starchy vegetable group: People with diabetes need to eat food from this group to help them to meet their daily requirement for calories, macronutrients, fibers, vitamins and minerals- **Plagiarized**

Hence, it is important to group them with vegetables. On the other hand, it is essential to- **Unique**Choose foods made from whole grains due to the fiber content such as whole wheat bread, grain pasta, and cereals.- **Unique**

Tortillas vary in size, shape, color and texture; hence, it is imperative when counting calories and carbohydrates to self-manage your blood sugar levels.- **Unique**

Fruits are grouped together because the calories content come from carbohydrates and contain very little protein and no fat. Fruits are needed and are part of the meal plan.- **Unique**

Completed: 100% Checked
100% Unique

100% Checked

Vegetable group: Non-starchy vegetables are rich in vitamins and minerals. Vegetables low in calories and fats are a good source of fiber.- **Unique**
Some meat substitutes and cheese contained small amounts of carbohydrate; the main macronutrients in these foods are protein and fat.- **Unique**
Self-management of diabetes, people need to make heart-healthy choices when choosing food from this group due to the risk for increased cardiovascular complications.- **Unique**
Polyunsaturated, monounsaturated, trans and saturated fats are the chemical structure of different fats. Saturated and trans fats, studies showed the risk for increase heart disease.- **Unique**
Determining the body-mass index (BMI) is a tool used to measure the body fat based on height and weight.- **Unique**
The body weight is regulated mainly by the number of calories consumed and burnt off.- **Unique**
Too little or too much sleep, not enough physical exercise and too much alcohol consumption are contributed to weight gain. It helps to prevent or manage diabetes.- **Unique**
Sweeteners and sugar substitutes: Low calories sweeteners are called artificial sweeteners, sugar substitutes or non-nutritive sweeteners.- **Unique**
Many foods labeled sugar-free, reduced sugar or no sugar added are not necessarily sugar-free; therefore, it is important to check nutrition facts.- **Unique**
However, it is advisable to limit total added sugar intake and not to switch to sugar substitutes.- **Unique**
The effects of alcohol altered the sense of judgment causing poor food choices. Alcohol interferes with the effects of oral diabetes medication and insulin and causes hypoglycemic.- **Unique**
Alcohol can cause blood glucose levels to rise or fall depending on the amount consumed and stimulate the pancreas to make more insulin.- **Unique**
Blood glucose levels are low up to about 12 hours of alcohol intake.- **Unique**
Keep glucose or fast-acting glucose supplements with you at all times. Wear your medical identification band at all times (I am a Diabetic).- **Unique**
Scientific research has proven that possible cellular mechanisms are responsible for the decrease in B-cell function.- **Unique**
The number of risk alleles increase and worsen many aspects of the B-cell function. The reaction to insulin reduces in a relative number of risk alleles (t'Hart, 2010).- **Unique**
Despite the use of multiple oral anti-diabetes drugs, many people need insulin therapy to maintain normal levels of glycated hemoglobin (HbA1c).- **Unique**
self-mange the disease and their insulin regime (Karter, 2010).- **Unique**

Most of the times have the effect on clients such as loss of confidence, increased in emotional burden and the need for treatment compliance.- **Unique**
Safety is essential when selecting the dose of mealtime insulin because at mealtime the insulin target is achieved. There are many barriers to initiation of insulin therapy.- **Unique**
Some people felt that that insulin use indicates a greater severity of disease and failure of self-management. Hyperglycemia: Hyperglycemia is high blood glucose or blood sugar level.- **Unique**

Completed: 100% Checked
100% Unique

100% Checked

The treatment and prevention of hyperglycemia: To avoid hyperglycemia quality self-monitoring of blood glucose levels and compliance to drug therapy is essential.- **Unique**
Reassessment and restructuring of drug therapy are essential to prevent episodes of hyperglycemia. It is of great importance to consult with the medical team.- **Unique**
A meal plan will help in the process of selecting the correct food choice with the required calorie values. Regular physical activity is vital to managing diabetes.- **Unique**
The blood glucose meter gives a direct measure of the glucose concentration at the time of the test to detect hyperglycemia or hypoglycemia.- **Unique**
Urine output depends on the client's renal threshold for glucose. It can be difficult for people who are visually impaired to read the urine strips.- **Unique**
Hypoglycemia occurs due to many reasons such as in diabetic persons who take too much insulin.- **Unique**
Diabetic persons who over-exercise and insulin requirement at that time fell lower than usual. Medication-induced, alcohol abuse, liver diseases, and kidney disorders are other likely causes.- **Unique**
Low plasma glucose levels below 50mg/dl at the time of onset Symptoms go away when glucose levels return to normal.- **Unique**
Persons with a low blood sugar need to use sugar substances as soon as possible. Persons who are hungry need to eat to reduce the attack of hypoglycemia.- **Unique**
Foot care: Foot care is essential for all diabetic clients.- **Unique**
It is advisable to get your feet examine once per year and report any corns, calluses, sores, bruises, cuts, infections or foot pain.- **Unique**
Make sure you are aware of what should be done and should not be done to your feet.- **Unique**
Take care of your diabetes by working with your health care team to keep your blood glucose within a normal range.- **Unique**
Be active and plan physical activities with your health team. Wear comfortable fitting shoes with stocks at all times.- **Unique**
Protect feet from hot and cold and never use hot water bottles, heating pad or electric blanket which is likely to cause burns.- **Unique**
Successful outcomes depend on treatment adherence and the interconnectivity with health professionals. Medication, diet, exercise and lifestyle changes can only be achieved through adherence to the overall recommended regime.- **Unique**
Following a meal plan, daily physical activity, and taking of prescribed medication oral hypoglycemic or insulin, monitoring of blood glucose levels, responding to and self-treating diabetes-related problems.- **Unique**

The daily self-care regime aids in reducing the chances of developing long-term complications.- **Unique**
Examples of microvascular disease are retinopathy, neuropathy and diabetic neuropathy (kidney disease). Vincent and the Grenadines is a small island with natural vegetation.- **Unique**
High intake of daily starchy foods is one of the factors for high incidences of diabetics.- **Unique**
This self-care management model was designed for people of low socio-economic status and underdeveloped countries.- **Unique**

Checking...

95% Unique

100% Checked

Vincent and the Grenadines is a small island with natural vegetation.- **Unique**

High intake of daily starchy foods is one of the factors for high incidences of diabetics.- **Unique**

This self-care management model was designed for people of low socio-economic status and underdeveloped countries.- **Unique**

36 These tasks include gaining confidence to deal with the medical management, role management, and emotional management.- **Plagiarized**

These can be achieved through lifestyles modification 38 that addresses risk factors and promotes health by focusing on prevention, early intervention and by assessing and supporting the confidence in the- **Unique**

The needs and goals are guided by evidence-based standards. Establish a plan with the client and relatives ensuring that they receive full support.- **Unique**

Set up support programs to ensure 47 continued enhancement of self-management skills, behavioral strategies and metabolic improvement flexible for self-management interventions to the uniqueness of the person lifestyle.- **Unique**

Educate clients on the importance of autonomy and motivate them to start and value diabetes self-management behaviors.- **Unique**

Educate client on chronic illness care, choices, control, compliance, and consequences that are fundamental and clearly defined each aspect to the client.- **Unique**

Health care professional set long-term goals that the clients work toward achieving.- **Unique**

On the other hand, these self-care behaviors must be adhered to ensuring effective decision-making and maintaining a healthy lifestyle.- **Unique**

Monitoring of blood glucose level daily and HbA1c level every three to four months.- **Unique**

Compliance with care and of taking of prescribed medication. Problem-solving, seeks help and discuss any concerns with your loved ones or healthcare providers.- **Unique**

The client should be able to evaluate their efforts, identify what was learned, make the necessary changes in their behaviors, how to solve problems and to evaluate the process.- **Unique**

Shared and improved decision-making involved the client, relatives and healthcare team; providing information to promote informed decision-making throughout the lifetime.- **Unique**

Health professionals should work together with their clients identifying, enacting decision and planning based on medical evidence.- **Unique**

Also, to design and work with the necessary tools to make the decision-making process useful. The aims of the decision-making support process are to- **Unique**

Acknowledge decision-making that may be influenced by knowledge, experience, personal situation, preferences, capabilities and values or beliefs.- **Unique**

The collaborative effort improves health literacy and helps the client to read, understand, evaluate and use health information to make appropriate decisions about self-management.- **Unique**

Active involvement enhances knowledge, lessens anxiety and allows the client to feel in control of his/her care.- **Unique**

Completed: 100% Checked
100% Unique

100% Checked

Health support network: Health support network is essential, collaborative and an integrated team approach to assist clients living with diabetes to assume an active role in their care.- **Unique**
In the planning process self-management of diabetes education should be recognized and ongoing support the integral components of care.- **Unique**
It is imperative for healthcare providers and other integrating teams to define their shared vision of diabetes care to enhance the process.- **Unique**
Inform clients on the daily choices made have a greater impact on their outcomes. The consequences and rights of decision-making accrue directly on clients.- **Unique**
Listen attentively to clients, ask what their needs are and what they will like to receive.- **Unique**
Design or used the Health Information System (HIS) as a feedback method to inform healthcare teams involved in the treating and caring process of the client.- **Unique**
The linkage will connect all healthcare providers such as the dietician, foot care practitioner, medical officer, dentist, laboratory, outpatient department, district hospital/clinic and other facilities that are necessary for- **Unique**
Review and revise care plan as needed on clients' and healthcare providers' assessment and follow-up care recommended.- **Unique**
Social support network: Social support is an intricate concept which coincides with multiple social networks such as the family, community, private and public sectors.- **Unique**
However, the family plays a vital a role in the everyday instrumental tasks of diabetes care, especially in indigent and minority families.- **Unique**
By helping people to cope with various situations, making them feel better about themselves by raising their self-esteem and improving their abilities and competently performing self-management task.- **Unique**
The main goal focuses on education which helps to support behavior change and improve self-management of people living with the long-term disease.- **Unique**
Group involvement enhances learning and has effects on people with low IQ. There are many benefits achieved from social support networking such as- **Unique**
Involvement with formal groups such religious organizations and informal groups such as friends and family these social ties help to improve the general wellbeing of clients.- **Unique**

Social support network provides information and creates standards that influence and improves healthy habits. Many devices are readily available and help to improve self-management.- **Unique**
The internet and smart phone can be used for educational and motivational support. Clinical information can be downloaded or recorded such as daily self-management activities.- **Unique**
Technology can be extended to clients' communities and homes and provide individualized care and just-in-time information.- **Unique**
The content of the card is a reminder of what is to be done daily and records of clinical and medical visits, results of laboratory findings and documented care- **Unique**

Completed: 100% Checked
100% Unique

100% Checked

Page 3 Meal plan charts showing portion sizes Vegetables: non-starchy: includes broccoli, carrots, greens, peppers, and tomatoes.- **Unique**
Grains: at least half of your grains for the day should be whole grains such as wheat, rice, oats, cornmeal, barley, bread, pasta, and cereal.- **Unique**
Dairy: nonfat or low fat, milk, yogurt, and cheese.Page 5 Daily foot care: wash dry and moist feet.- **Unique**
Record daily activities such as glucose levels, medication, foot care and physical activities.
Table 2 representations of client take home card- **Unique**
in Nursing at the Texila American University (TAU). It is good to give thanks unto God for His goodness and loving kindness.- **Unique**
Thank you, Lord, for guidance, protection, knowledge and the strength you continue to bestow unto me. Indeed he is a grateful God, the beginning, and the end.- **Unique**
Self-care management remains client centered and continues to be an ongoing process by providing the client with knowledge and skills necessary for self-care.- **Unique**
These interventions aided in improving self-monitoring, knowledge, and skills. Group involvement enhanced learning and has effects on people with low IQ.- **Unique**
Health support networking also remains essential collaborative and an integrated team approach to help clients living with the disease to assume an active role in their care.- **Unique**
In the planning process, self-management education should be recognized and ongoing support the integral components of care. Many devices are readily available and help to improve self-management.- **Unique**
Health care professional should identify long-term goals that are achievable.- **Unique**
On the other hand, these self-care behaviors must be adhered to, ensure effective decision-making and maintaining a healthy lifestyle practices.- **Unique**

Completed: 100% Checked

91% Unique

100% Checked

The diabetic foot is considered one of the most devastating complications of diabetes. Diabetic foot is defined as a foot affected by ulceration.- **Unique**

Health education is a combination of learning experiences designed to help people; by increasing their knowledge and influencing their attitudes to improve well-being.- **Plagiarized**

Nurses play vital roles in achieving these goals by providing health care, educating, consulting, being transformational leaders, researching and advocating for patients.- **Unique**

The main goal of the article- to provide health services and to improve the physical, emotional, mental, socio-cultural and spiritual needs of clients.- **Unique**

Developing educational programs for each client and their families, teaching on the importance of follow-up checks, monitoring of blood glucose at a specified interval, the primary principles of diabetic- **Unique**

Therefore, by managing contributing systemic factors such as hypertension, hyperlipidemia, obesity, heart conditions or renal insufficiency is crucial.- **Unique**

The study focused on the importance of complying with self-foot care the prevention of complications and the roles of the nurse in the process.- **Unique**

Educational sessions were conducted and practical demonstrations on the importance of self-foot care. Cases were referred for further management based on the needs identified.- **Unique**

esults All clients visited for follow-up checks were knowledgeable on the importance of compliance with care and ably demonstrated foot examination.- **Unique**

Conclusion Nurses' roles remained the key factors in managing, caring, educating, advocating and helping clients in modifying their lifestyle practices. Keywords: Diabetic foot, diabetic foot ulcer, education, compliance.- **Unique**

Healthcare providers play pivotal roles in the prevention and early detection of diabetes and its complications.- **Unique**

The management of diabetic foot requires close collaboration among health teams. Compliance to treatment can lead to the increased longevity of clients.- **Unique**

The diabetic foot is considered one of the most devastating complications of diabetes. Diabetic foot is defined as a foot affected by ulceration.- **Unique**

It is important to note that, care and treatment of diabetic foot are costly worldwide. Therefore, compliance with self and foot care are essential aspects of care.- **Unique**

It also applies to other situations such as medical devices used, self-care, self-directed exercises or therapy sessions (WHO, 2003).- **Unique**

Health education is a combination of learning experiences designed to help people; by increasing their knowledge and influencing their attitudes to improve well-being (WHO, 2017).- **Plagiarized**

Nurses play vital roles in achieving these goals by providing health care, educating, consulting, transformational leadership, researching and advocating for patients.- **Unique**

The main goal of the article is to provide health services and to improve the physical, emotional, mental, socio-cultural and spiritual needs of the clients.- **Unique**

Vincent and the Grenadines diabetic foot ulcerations (DFU) contributed for most of the amputations done at the main health facility, the Milton Cato Memorial Hospital (MCMH).- **Unique**

Moreover, the average length of hospitalization for a diabetic patient with an amputation average about 52 days and the cost of treatment among to $3 000 00 Easter Caribbean dollars.- **Unique**

Weekly educational sessions and demonstrations were conducted at the Poly Clinic; one of the strategies used to educate diabetic clients on the prevention of complications, compliance with care.- **Unique**

An evaluation of the daily sessions and examination of clients complied. Actual and potential needs were identified and the relevant cases referred for further interventions.- **Unique**

94% Unique

100% Checked

To enhance patients care and services through: health promotion, prevention, and patient-centered care on managing foot-care.- **Unique**

Weekly foot examinations were done to assess for foot temperature, toes and soles pressure, and detection for sores, cuts, lacerations, callus and observation for discoloration and skin changes.- **Unique**

Complete physical assessment on all diabetic clients visited the Poly Clinic for follow-up checks were completed for the period of one month.- **Unique**

The significance of complying with self-care was discussed. Practical demonstrations were done to help clients to understand the importance of self-foot care.- **Unique**

Examination and screening-A neurological examination is the first criterion for screening and detection of foot ulcers.- **Unique**

It allows for early detection of diabetic foot problems, identification of those at risk and planning of care to reduce the risk of ulcers.- **Unique**

Good communication with the client during the process helps to identify other underlying problems. Devices including a monofilament or tuning fork aided in determining the extent of nerve damage.- **Unique**

The tuning folk assessed the sense of vibration in various parts such as the foot and toe joints.- **Unique**

It is an inexpensive assessment identifying clients at risk for developing a foot ulcer. Early detection reduces the incidence of diabetic neuropathic ulcers.- **Plagiarized**

An inability to detect the degree of force indicates that the client has loss of protective sensation in the foot.- **Unique**

Diabetic care is holistic and ensuring effective care all other areas of care is vital. Table one indicated the other areas of care necessary for managing diabetic foot ulcer.- **Unique**

Glycemic control Hb (Hemoglobin) A1c☙Check for other complications Neurological, vision, cardiac, renal, vascular < 7.5% (depending on the specific situation of the patient, e.g.- **Unique**

The best indicator of glucose control is HbA1c. It measures the average blood sugar concentration over a 90-d span of the average red blood cell in the peripheral circulation.- **Unique**

Therefore, controlling the blood glucose is vital to prevent foot ulcers.- **Unique**

Education on the basics of foot care, how to perform the physical examination and educating clients on the wearing of the right shoes were fundamental areas discussed.- **Unique**

and prevention of complications are vital roles of a nurse. Vascular examination Assessed for peripheral arterial disease the following signs may be present- **Unique**

Autonomic-reduce sweating that may result in dry and cracked skin (a port of entry for bacteria). Muscular loss-poor reflexes and atrophy of the muscles which lead to foot deformity.☙- **Unique**

Completed: 100% Checked

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Local pain Deep infection or Charcot joint pain Size Length, width, depth, and location, preferably with clinical photograph- **Unique**

Evaluate the ulcer for signs of infection, inflammation, and edema. Exudates Copious, moderate, minimal and ins some case none- **Unique**

Possible absent toes or forefoot from amputation done before. No obvious deformities. Foot deformities Clawed toes, possible high arch, and Charcot deformities – **Unique**

Ulcer site Ulcer is seen on the plantar aspect of the toes and foot- **Unique**

If present, seen at the distal eschar or necrosis Ulcer characteristics Painless ulcers, with a “punched out” appearance.- **Unique**

Foot pulses Present and often bounding with dilated and prominent veins Absent or markedly reduced Damage to nerves, circulation problems and infections can lead to serious foot problems.- **Unique**

The risk for lifetime foot ulcer could be as high as 25% (Abu-Qamar, 2014). Patients with lower limb amputation are faced with many challenges.- **Unique**

Regular foot inspections, medical checks, blood glucose monitoring, regular exercises, healthy eating habits and proper footwear are some preventative methods (Abu- Qamar, 2014).- **Unique**

Contact the healthcare team if you discover any sores, redness, cuts, blisters or bruises.- **Unique**

Dry feet and pat between toes well; the moist area is a source of infection. Moisturize skin to prevent dryness; however, do not place lotion between toes.- **Unique**

Cut nails straight across and not too short. Avoid thong sandal, flip flops, pointed and open toes.- **Unique**

The patient's role- Any laceration must be reported and treated by the healthcare provider. Patients should always remove socks and shoes and carry out a daily inspection of the feet.- **Unique**

A complete assessment should be conducted on every visit. A foot care guide should be kept at client's home.- **Unique**

Wear comfortable shoes and inspect them before placing feet.ϖ Wounds or sores should be considered critical and treat with urgent. ϖ- **Unique**

Reinforcing preventative advice and inspecting the client's feet and routine follow-up care. Healthcare provider can help the client to develop and support good foot-care practices.- **Unique**

Completed: 100% Checked

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Preventing other foot problems- Controlling the blood glucose levels reduces blood vessel and nerve damage that can lead to diabetic foot complications.- **Unique**

DFU is the most costly and devastating complication of DM. It affects about 15% of diabetic patients during their lifetime.- **Unique**

These factors are associated with gender specifically male diagnosed over 10 years with the disease, advanced age of patients, high Body Mass Index and other comorbidities such as retinopathy,- **Unique**

Reduce smoking it worsens vascular conditions by reducing blood circulation to the feet.ϖ Complying to self-foot care is the first step to avoid foot ulcer. ϖ- **Unique**

Maintain healthy lifestyle practices such as daily physical activities, healthy eating habits; reduce alcohol consumption and comply with medication and follow-up care.ϖ- **Unique**

Care can be done at home, at the district clinic, and in cases where hospitalization is recommended.- **Unique**

The client visits the district clinic daily or three to four times per week. The dressing of the ulcer is done by a healthcare provider.- **Unique**

Medications have a role in the treatment of diabetes; it depends on the complications and the etiologies of diabetic foot ulcers. Treatment requires management of systemic and local factors.- **Unique**

Therefore, by managing contributing systemic factors such as hypertension, hyperlipidemia, obesity, heart conditions or renal insufficiency is crucial.- **Unique**

Grade 1 Superficial diabetic ulcer (partial or full thickness) Grade 2 Ulcer extended to ligament, tendon, joint capsule, or deep fascia without abscess or osteomyelitis- **Plagiarized**

The evaluation and classification of DFU are essential for planning the management of care. The Wagner classification aids in the treatment plan.- **Unique**

Growth factor shortage impaired wound healing and contributed to chronic non-healing wounds and possible amputation. Epidermal growth factor (EGF) stimulated cell growth proliferation and separation by binding to its receptor.- **Unique**

Heberprot-P can be injected into wounds (Berlanga, 2013) and used topically (Yang, 2016). Vincent and the Grenadines, an initiative was taken to prevent limb amputations except in extreme cases.- **Unique**

The drug accelerates healing of deep and complex ulcers, both ischemic and neuropathic and most importantly reduces diabetic-related amputations. Repeated local infiltration of the drug enhanced healing of chronic wounds.- **Unique**

Heberprot-P the unique therapy for complicated and recalcitrant chronic wounds associated with high amputation risk.- **Unique**

Skillfully identify the affected needs and refer case where necessary.ϖ Guide and educate the client throughout the recovering process. ϖ- **Unique**

Involved the family, the healthcare team, support groups and religion organizations.ϖ Identify the actual and potential problems based on the needs affected. ϖ- **Unique**

Actively involved all members in the planning of self-care and make sure each taskϖ is realistic based on the client's needs.- **Unique**

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PAGE 5

PAGE 6

PAGE 7

PAGE 8

PAGE 9

PAGE 10

PAGE 11

PAGE 12

PAGE 13

PAGE 14

PAGE 15

PAGE 16

PAGE 17

PAGE 18

PAGE 19

PAGE 20

PAGE 21

PAGE 22

PAGE 23

PAGE 24

PAGE 25

PAGE 26

PAGE 27

PAGE 28

PAGE 29

PAGE 30

PAGE 31

PAGE 32

PAGE 33

PAGE 34

PAGE 35

PAGE 36

PAGE 37

PAGE 38

PAGE 39

PAGE 40

PAGE 41

PAGE 42

PAGE 43

PAGE 44

PAGE 45

PAGE 46

PAGE 47

PAGE 48

PAGE 49

PAGE 50

PAGE 51

PAGE 52

PAGE 53

PAGE 54

PAGE 55

PAGE 56

PAGE 57

PAGE 58

PAGE 59

PAGE 60

PAGE 61

PAGE 62

PAGE 63

PAGE 64

PAGE 65

PAGE 66

PAGE 67

PAGE 68

PAGE 69

PAGE 70

PAGE 71

PAGE 72

PAGE 73

PAGE 74

PAGE 75

PAGE 76

PAGE 77

PAGE 78

PAGE 79

PAGE 80

PAGE 81

PAGE 82

PAGE 83

PAGE 84

PAGE 85

PAGE 86

PAGE 87

PAGE 88

PAGE 89

PAGE 90

PAGE 91

PAGE 92

PAGE 93

PAGE 94

PAGE 95

PAGE 96

PAGE 97

PAGE 98

PAGE 99

PAGE 100

PAGE 101

PAGE 102

PAGE 103

PAGE 104

PAGE 105

PAGE 106

PAGE 107

PAGE 108

PAGE 109

PAGE 110

PAGE 111

PAGE 112

PAGE 113

PAGE 114

PAGE 115

PAGE 116

PAGE 117

PAGE 118

PAGE 119

PAGE 120

PAGE 121

PAGE 122

PAGE 123

PAGE 124

PAGE 125

PAGE 126

PAGE 127

PAGE 128

PAGE 129

PAGE 130

PAGE 131

PAGE 132

PAGE 133

PAGE 134

PAGE 135

PAGE 136