**POST GRADUATE DIPLOMA IN PUBLIC HEALTH**

**MODULE 7 ASSIGNMENT**

**SUBMITTED TO: AFRICA CENTRE FOR PROJECT MANAGEMENT**

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**INTRODUCTION**

Communication for the mutual and beneficial exchange of health-oriented information between service providers and beneficiaries is central to health promotion. This commonly involves conveying messages about health threats, risk reduction, treatment adherence or service attendance. The empowerment and participatory approaches to health promotion will enable beneficiaries including communities, to share information concerning their lived realities, assets and increased responsibility for control over their health destinies. To communicate effectively, the health promoter needs to understand the social norms and structures of the target audience, the appropriate language and vocabulary to use for dialogue, best approaches and methods for reaching them, and cultural sensitivity and acceptability of the health message.

**Question 1: Definition of Public Health and its history**

Clarke (2016:16) defines public health as the science and art of preventing disease, prolonging life and promoting health through the organized efforts and informed choices of society. Public health is concerned with the health of groups or populations of people rather than of individuals; it includes the promotion of health, prevention of illness, cure of ill-health and rehabilitation. It is contended that great public health achievements are responsible for 25 of the 30 years of increased life expectancy in the 20th Century, evidence of the importance of public health prevention. Insel and Roth (2004:1) add that during the twentieth century, public health achievements greatly improved the quality of life for Americans, and life expectancy rose from 47 to 77. A dramatic shift in the leading causes of death also occurred, with deaths from infectious diseases declining from over 33% of all deaths to just 2.2%. heart disease, cancer and stroke are now responsible for over 50% of all deaths among Americans.

In 1988 the Institute of Medicine published a report on the future of public health. In the report, public health was defined as ‘what we, as a society, do collectively to assure the conditions in which people can be healthy. The committee stated that the mission of public health was ‘to generate organized community effort to address the public interest in health by applying scientific and technical knowledge to prevent disease and promote health’. It was clearly noted that the mission could be accomplished by many groups, public and private, and by individuals. However, the government has a special function to see to it that vital elements are in place and that the mission is adequately addressed. To clarify the government’s role in fulfilling the mission, the report stated that assessment, policy and development and assurance are the public health core functions at all levels of government.

The federal government promotes and protects public health through its ability to tax, spend and regulate interstate commerce lading to the ability to make national policy, set standards, allocate resources, deliver services to special populations, and use it bully pulpit or position of power, to influence health activities. Ivanov and Blue (2008:30) maintain that Institute of Medicine (IOM) recommended that state level public health core responsibilities include:

1. assessment if health needs within the state based on statewide data collection
2. assurance of an adequate statutory base for health activities in the state
3. establishment of statewide health objectives, delegating power to localities as appropriate and holding the accountable
4. assurance of appropriate organized statewide effort to develop and maintain requisite personal, educational and environmental health services; provision of access to necessary services; and solution of problems inimical to health
5. guarantee f a minimum set of essential health services and
6. support of local service delivery capacity, especially when disparities in local ability to raise revenues and/ or administer programs require subsidies, technical assistance or direct action by the state to achieve adequate service levels.

The vision of public health is the healthy people in healthy community, while the mission is to promote physical and mental health and prevent disease, injury and disability. Some may see the essential services as pertaining only to governmental public health, but this limited view is likely to impede the implementation of the vision of healthy people in healthy communities. A broader view, one that IOM pictured as including all organizations participating in the support of healthy society, is needed to provide an environment that promotes and sustains health. Societal organizations have the opportunity to work together for a common goal. That is, a vibrant community that produces and supports health. Examples of these potential collaborations include schools, faith-based groups, health departments, businesses, hospitals and other providers, police, fire department, social services providers, universities, the media and governmental officials. Healthy people in an effective community make informed decisions about health in an environment that respects collaboration, diversity and the active engagement of its members. In an atmosphere that contributes to and supports health, both society and the community are likely to benefit in that citizens are able to participate fully in activities that grow the community.

**Question 2: How has technology improved communication of Public Health communication**

According to Tomaselli and Chasi (2011:78), health communication is the art and technique of informing, influencing and motivating individual, institutional and public audiences about the important health issues. The scope of health communication includes disease prevention, health promotion, health care policy and the business of health care as well as enhancement of the quality of life and health of individuals within the community. Health communication includes the study and use of communication plans and strategies to inform and influence individual and community decisions in ways that improve health. It links the domains of communication and health and is increasingly recognized as a necessary part of efforts to improve personal and public health.

Technological advances are influencing where and how nurses provide care to clients. Sophisticated equipment such as computerized intravenous (IV) infusion devises, cardiac telemetry (a device that can monitor a client’s heart rate wherever the client is located on a nursing unit), and electronic clinical information system are just a few examples changing the way healthcare is delivered. In many ways technological systems make public health professional work’s easier, but they do not replace their judgement. For example, it is service provider’s responsibility to when managing a client’s intravenous therapy to monitor the infusion to be sure it infuses on time and without complications. an electronic infusion device can provide a constant rate of infusion, but Potter and Perry (2003:30) maintain that service provider must be sure to calculate the rate correctly. This is because the devise will set off an alarm if the infusion slows, making it important for service provider to respond to the alarm and troubleshoot the problem.

In addition to that, electronic clinical information systems have replaced the traditional printed medical record. A comprehensive electronic record of client’s medical problems, treatment, diagnostic procedures, and nursing care offers a rich source of information to clinicians who provide client care. An electronic database also provides valuable information for research and quality improvement activities. For example, a nurse researcher who wishes to track a nursing staff’s progress in timely assessment of client’s pain can examine a database to review actual client assessments and the time they occurred. Documentation on clinical information system minimizes free text entries and instead allows to enter information quickly on specially designed flow sheets, pop-up screens and nursing care plans. The computer displays important data in a way that allows service providers to follow client’s progress and course easily. An electronic system does not minimize the responsibilities of the service provider for ensuring that clinical information about the client is documented accurately and completely in a timely manner. All members of the healthcare team usually are able to gain access to the electronic record; thus, information must be made accessible as soon as possible. Many hospitals have placed computers at the client’s bed-side so that the nurse can document care as soon as it is provided.

On the other hand, television and other mass media also play an important role in influencing our perceptions of health and our health behaviors in a variety of ways. A popular theory has been used to explain the effects of mass media, particularly television is called cultivation theory. According to Wright et al (2013:208), cultivation theorists argue that the reality portrayed in the mass media influences our perceptions of reality in the real world over extended period of time. In other words, cultivation theory posits that long-term repeated exposure to mass media messages shapes our understanding of the world in ways that are consistent with how reality is portrayed in the media. Cultivation theory hold that television can have a normalizing effect in terms of influencing perceptions, and televised behaviors may become perceived as acceptable or desirable over time because television is relatively inexpensive compared to other media. Television can also influence perceptions in subtle ways. For example, first-order effects refer to information about a topic that people learn by watching television, and second-order effects are more generalized perceptions about topics and the world that people learn from television.

Media technology fulfil the need for information about the world of specific interests. Given the rapid changes we have experienced in society in recent years, with the advent of diseases such as HIV and health threats due to terrorism, most people desire up-to-date news and accurate information about health-related events. The mass media help to fulfill our desire to reduce uncertainty about health issues by gathering information that will help us to make better choices about how we should respond to daily events. Some people may gratify their information-seeking needs about health by paying attention to health stories on CNN or their local television news station. For other individuals, radio, newspapers and magazines such as *Time or Men’s Health* may be more important sources of news and information than television. Many consumers are getting the majority of their health information from new media sources such as Twitter and Facebook to augment more traditional media sources.

Lastly, the mass media play a significant role in their ability to influence health behaviors. Americans are keen consumers of the mass media, and they are exposed to many different messages and images of health through media content. Wright et al conclude that because health occupies an essential part of human living, dramatic media presentations frequently depict health-related events for developing their story lines. In addition, the popular media are important source of health-related information for most Americans, even when health information comes in the form of entertainment. For example, information about health issues encountered through entertainment programs such as ‘Grey’s Anatomy’ can potentially raise awareness about health issues and risks and this information can sometimes motivate positive behavioral changes.

**Question 3: Explanation of how communication campaign in Lesotho Planned Parenthood Association was done and how effective or infective it was**

Communication is the process of transmitting messages and interpreting meaning. There are three levels of communication, each with important uses in public health.

* Intrapersonal communication is a powerful form of communication within individual. It is also referred to as self-talk, self-verbalization and inner thought. People talk to themselves by forming thoughts internally that strongly influence perception, feelings, behavior, and self-concept
* Interpersonal communication is interaction that occurs between two people or within a small group. It refers to non-verbal and verbal behavior within a social context and includes symbols and cues used to give and receive meaning (Potter & Perry: 2003:116). Because messages received may be different from messages intended, meaning must be validated, or mutually negotiated between participants. Effective interpersonal communication includes idea sharing, problem solving, expression of feelings, decision making, goal accomplishment, team building and personal growth.
* Public communication is the interaction of one individual with large groups of people. You will have opportunity to speak with groups of clients or consumers about health-related topics. Question 3 will address how public communication has been used in Lesotho Planned Parenthood Association and further discuss its effectiveness or ineffectiveness.

Determining what you want to accomplish with a health campaign is an important first step in the process of developing it. These goals also help to determine the target audience or those individuals that campaign designers attempt to influence with the campaign messages. The goal of many health campaigns is not only to raise awareness about health issue or to change individual behaviors, attitudes and beliefs, but to also enact behavioral change.

Advances in computer programming and software have enabled individuals interested in health campaigns to use computers to tailor messages to specific characteristics pf target audiences. Tailored health promotion materials refer to any combination of information and behavior change strategies intended to reach one specific person, based on characteristics that are unique to that person, related to the outcome of interest, and derived from an individual assessment. Tailored systems provide messages that are appropriate for specific individuals based upon their responses to questions provided by a computer program. Lesotho Planned Parenthood Association (LPPA) uses computer tailoring of health messages to produce materials for health campaign using communication channels available and accessible to most of nation. The channels include print media, television and radio advertisements and internet -based campaigns. In 2018, LPPA used social media platforms like Facebook and Twitter to enable young people to access comprehensive sexuality education and realize their sexual rights. The main aim was to reach 50,000 young people with sexual and reproductive and rights and comprehensive sexuality education messages. The association was also aiming to increase the number of youth twitter handle by 2,000 followers. LPPA have identified schools and urban communities to organize comprehensive sexuality education sessions using Twitter and engaged Life skills-based sexuality teachers in schools to identify students conversant with social media and access to smart phones or technology. LPPA also used hashtags (#s) on Twitter to push agendas like illegal abortions that have crippled the health sector of the country and seem to diminish adolescent girls and young women lately.

The impact has been observed in using tailored messages. Firstly, tailored messages are more likely to be personally relevant to members of the target audience since they are created using demographic, psychological and communication characteristics for specific individuals within the audience. For example, if 20 individuals out of 100 within a target audience scored high on a sensation-seeking measure prior to a campaign attempting to change risky sexual behaviors, only 20 individuals would receive a message that specifically addressed high sensation-seeking tendencies. Wright et al (2003:203) maintain that people pay more attention to personally relevant information in health campaigns, and this is an important step in changing attitudes and ultimately behavior. Thirdly, the superfluous that matches the characteristics of a particular individual is used in the message for that person. When messages attend to the specific needs of individuals, the information will be more thoughtfully processed, which is an important prerequisite for lasting attitudinal and behavioral change according to the elaboration likelihood model.

LPPA has further held campaigns that attempted to educate people about societal conditions or situations that promote health or healthcare inequities among marginalized groups in an effort to spur new legislation or grassroots efforts to improve healthcare, an area that is often referred to as health disparities in research literature. For instance, as we have seen, people from certain ethnic groups and income levels are often at greater risk for health problems because of inadequate access to healthcare due to financial reasons or discrimination. Such case is happening in Lesotho where LGBTI (Lesbians, Gays, Transgender and Intersex) community could not access healthcare because of their sexuality. They are discriminated against because of their sexual choices. Thus, LPPA campaign is the type that deals with improving social inequities in healthcare and changing societal practices that disadvantages LGBTI community on account of gender and age.

It is worth noting at this stage that changing attitudes and beliefs about health and health-related behavior can be very complex. Designing appropriate and effective messages that can lead to these goals in a health campaign requires a great deal of thought and planning. The first step in this process is to recognize that persuasion is a somewhat puzzling and often random process. However, for a message to be effective, a considerable number of events, thoughts and behaviors must occur. For instance, the individual must be:

* Exposed to message: the audience member must be exposed to the public service announcement
* Attend to the message: the audience member must be in a position to notice the message
* Comprehend the message: the audience member must be able to understand the message
* Retain message: the audience member must be able to recall the message.

Obviously, message failure at any point along these instances can result in failed behavioral outcomes. Therefore, a message campaign or a message strategy must be sure to address these issues.

**Question 4: Patient-centered care communication and how it has improved service delivery for Public Health Professionals**

Patient-centered care is about treating a person receiving healthcare with dignity and respect and involving them in all decisions about their health. Communication is one of the foundations of healthcare. Good communication is linked to improved patient satisfaction, adherence to medical recommendation and health outcomes. Today, many health care professionals believe that communication is more effective when it is patient-centered or responsive to a patient’s need, values and preferences. Communication skills needed for patient-centered care include eliciting the patient’s agenda with open ended questions, especially early on, not interrupting the patient; and engaging in focused active listening. Understanding patient’s perspective of the illness and expressing empathy are key features of patient-centered communication. Understanding the patient’s perspective entails exploring the patient’s feelings, ideas, concerns, and experience regarding the impact of the illness, as well as what the patients expects from the physician. Empathy can be expressed by naming the felling; communicating understanding, respect and support; and exploring the patient’s illness experience and emotions.

It is worth noting that provider-patient communication has seen many changes in recent years. Until relatively recently, providers and patients were both accustomed to a paternalistic approach toward healthcare where the doctor ‘knows best’ and should not be questioned. Today, healthcare providers are encouraged to focus more on their patients and their needs, while patients are taking more responsibility for their care. Wright et al, (2013:30) reiterate that communication scholars and medical researchers have become increasingly interested in provider-patient communication in the past decade. There are a number of successful outcomes that have been linked to patient-centered care communication in public health sector.

* **Satisfaction with healthcare**

Patient satisfaction appears to be one of the key outcomes associated with patient-centered care communication. Satisfaction with one’s providers may affect other outcomes such as adherence to treatment, and ultimately better physical health outcomes. Patients who are more satisfied with their provider are more likely to continue seeing him or her and they may also refer friends and family members. This, of course, is a potentially positive financial outcome of patient satisfaction for providers. Patient satisfaction with providers is largely associated with provider’s interpersonal communication skills. Wright et al assert that studies have found that satisfaction is often linked to a provider’s ability to communicate warmth, emotional support, availability, understanding and caring to the patient, and a provider’s success at achieving a balance between addressing biomedical and psychosocial concerns when communicating with patients. patients are also more satisfied with their providers when they are encouraged to express concerns, raise topics for discussion, and ask questions. In addition to that, patient satisfaction has been linked to factors such as perceptions of provider’s interpersonal skills. Conversely, patient dissatisfaction has been found to be associated with lack of interpersonal warmth or friendliness on the part of provider, waiting room time, provider failure to acknowledge patient concerns, unclear explanations of medical condition, diagnosis, and treatment an inappropriate use of medical jargon.

* **Adherence to treatment**

Successful patient-centered care communication is also related to increased patient compliance to treatments and health condition management strategies suggested by their providers. In fact, researchers consider patient-centered care communication to be one of the most important variables in terms of predicting patient adherence. Nonadherence to prescription medications has been called an ‘epidemic’ and a ‘worldwide problem of striking magnitude’. For instance, on average, 16.4% of chronic disease patients do not fill their prescriptions (Wright et al:2013:37). Medical adherence in chronic disease populations is primarily driven by perceived need for medications, perceived concerns about medications, and perceived affordability of medications. Among these three predictors, perceived need and perceived concerns are particularly strong drivers of adherence. Good patient-centered care communication often leads to more knowledgeable patients, and when patients know more about their condition, symptoms and treatment options, they are more likely to follow their doctor’s suggestions. Communication plays an important role in terms of influencing patient perceptions of provider credibility, which has been found to influence patient adherence to recommended treatments.

Physicians play an important role in educating patients and explaining complex medical information to them in ways that increase understanding. Physicians and other providers who try to communicate too much information to patients, who use too much medical jargon or do not attempt to explain what it means, or who assume the patient understands his or her medical situation run the risk of not having their patients adhere to their proposed treatment suggestions. In addition, providers who do not take time to understand aspects of the patient’s life that can inhibit adherence limit the likelihood that patients will successfully adhere to treatment of their condition. For a example, suppose a physician prescribes several different medications and physical therapy regime for an elderly patient who has just had a hip replacement, and the physician fails to ask pertinent questions about the patient’s daily life, such as the availability of family members for support, or the patient’s understanding of medications. The patient may not make it to physical therapy sessions if he or she lacks adequate family support or transportation. In terms of medications, the patient may not understand that taking two or three medications at the same time can lead to drug interaction effects such as making the patient drowsy or nauseous, and this might keep the patient from using some or all of the medications. Finally, successful patient-centered care communication has also been linked to a variety of physical and psychological health outcomes, including reduced patient anxiety, psychological distress, reduced reports of pain and symptoms, and increased ability to function normally.

**Question 5: 6 ways in which computer technology has improved service delivery in healthcare**

More and more people are using the internet to search for health information than ever before. Many people seek information about health concerns through health-related websites. Furthermore, the enmeshment of healthcare systems, globalization of media systems, convergence of media technologies, smartphone applications, text messaging and the internet as an information-gathering-tool have transformed the decision-making practices for those seeking healthcare. 6 ways in which computer technology has improved service delivery in healthcare will be discussed.

1. **Health information access**

At no point in history has access to health information been so convenient for both providers and consumers. In 2009, a survey found that 61% of USA adults had used internet for health information. Today, people can gain access to much of the same information as healthcare providers on government and research institution websites or electronic databases on the internet that are free r charge a fee, yet relative, relatively people have the education level or technical expertise to understand much of this information in the same way as providers. However, understanding health information, including gathered from the internet, influences health in a wide variety of ways. For example, according to Wright et al (2013:186), accessing and correctly using health information has an enormous influence on health-related lifestyle factors, early detection and diagnosis, coping with disease, managing symptoms, engaging in in active medical decision-making, understanding different treatment options and ultimately facing end of life challenges.

Consumers can find a variety of websites sponsored by government organizations such as the National Institutes of Health (NIH) and the Center for Disease Control (CDC), an online medical journal, and they can even pose questions and receive information from healthcare specialists on some websites. Online health information is continuously available, accessible and can be acquired anonymously, which is particularly helpful when people are dealing with sensitive health issues like diet, sexually transmitted diseases etc. access to health information via the web has led to patients bringing information they have found there to discussions with their physicians during office visits, more talk about information acquired from the internet during medical interviews and greater patient ability to discuss more specific details of diseases and conditions.

Trends in the use of online health information include increases in the amount of information people are seeking about diet and exercise, information from other people’s experiences (blogs) and online ratings of physicians and other providers.

1. **Managed care organization efforts to reach patients via internet**

Managed care organizations are increasingly using internet to provide information to patients. A central tenet of managed care is the reduction of cost of health organizations and the consumer by controlling access to health resources and through prevention efforts. The internet offers managed care organizations a cheap and convenient way to provide patients with information about lifestyle changes, diagnostic testing for diseases, and other means of preventing susceptibility to health problems that can be costly to the organization.

In addition, websites developed by these organizations often contain interactive features such as tutorials about diseases and conditions, risk factors, and diet and exercise, and they provide links to related websites. Consumers can access specific health information tailored to their needs by providing information about their lifestyle and health history, and interactive forms direct them to information based upon their input.

1. **Tailoring health messages**

Advances in computer programming and software have enabled individuals interested in health campaigns to use computers to tailor messages to specific characteristics of target audiences. Computer tailoring of health messages can be used to produce materials for health campaigns using communication channel, including print materials, television and radio advertisements and internet-based campaigns. Computers facilitate the tailoring of messages through the use of algorithms in computer programming that are used to create messages according to certain criteria designated by the researcher. Thus, a computer program can be written to create different messages depending upon whether participants in the target population are members of certain groups based on demographics, psychological characteristics, and communication behaviours, such as whether a person is male or female, belongs to a certain age group, or has scored high or low on a health self-efficacy measure.

1. **Health-related web communication and computer-mediated support groups**

The development of the internet has created possibilities for increased patient-patient communication, mostly through web communities, social networking sites like Facebook, and specialized computer-mediated support groups. Computer-mediated support groups have become more prevalent in recent years as a source of information and support for numerous health concerns as a result of the internet’s increasing popularity and its ability to connect people who have similar health issues.

It is estimated that 90 million Americans have participated in some type of computer-mediated support group and there is a growing body of evidence that these groups provide a wide variety of health benefits for users ( such as individuals with cancer, diabetes and substance abuse problems), including reduced stress, increased positive coping, increased quality of life, increased self-efficacy in terms of managing one’s health problems, reduced depression and increased physical health benefits.

1. **E-mail, wireless/satellite communication and electronic records**

The internet and other new communication technologies are transforming provider interaction and access to information in a variety of health settings, such as hospitals, clinics, pharmacies and research facilities. In the past, long-distance telephone calls, overnight letters, and creation and storage of patient records contributed to the tremendous costs of running a health organization. New communication technologies may present cheaper, more convenient and more efficient alternatives to traditional ways of communicating within health organizations.

Emails have transformed communications among providers in many important ways. Physicians and other providers can now obtain information and opinions from other key health personnel within and between organizations. The attachment feature has allowed providers to send one another detailed information about patient histories, relevant research articles about specific conditions, insurance records, and other important information that can be used to facilitate the healthcare process.

On the other hand, electronic medical records (EMR) are also revolutionizing the healthcare industry by helping to reduce costs by making records easier to store and more easily accessible, by providing greater continuity of care to patients, and by eliminating oversights that might lead to problems such as adverse drug interaction. Electronic patient records can now be easily created through standardized electronic forms and stored in web-based programs on computer servers within health organizations.

1. **Telemedicine and patients**

The advent of the personal computer, the internet and mobile/wireless technology has significantly transformed telemedicine in recent years. Tele medicine is an umbrella term that refers to the use of technologies to provide healthcare services over distances to individuals, and it includes physician-patient interaction via computer or teleconferencing as well as teleradiology, or sending a radiological image via internet, and telepathology, or transmitting microscopic images online. In addition, heart information, blood pressure and other physiological information can be monitored by providers through the internet despite large geographic distance between providers and patients. Wright et al (2013:199) provide that computers and the internet also offer the ability to have a low-cost telephone conversation (via skype technology) with a physician for a fee. Telemedicine services are extremely important in terms of providing low-cost access to healthcare for underserved individuals living in rural areas of the countries or for people who have limited mobility.

**Question 6: How has mobile phone affected the management of diabetes**

Diabetes mellitus (DM) is a chronic, manageable metabolic disease characterized by hyperglycemia due to a deficiency of either insulin secretion, insulin action or both. Clarke (2016:214) defines insulin as a protein hormone produced in the beta cells in the islets of Langerhans in the pancreas. Symptoms of high blood sugar include frequent urination, increased thirst and increased hunger. If left untreated, diabetes can cause many complications. Acute complications can include diabetic ketoacidosis, hyperosmolar hyperglycemic state or death. Serious long-term complications include cardiovascular disease, stroke, chronic kidney disease, foot ulcers and damage to eyes.

Diabetes is due to either the pancreas not producing enough insulin or the cells of the body not responding properly to the insulin produced. There are two main types of diabetes mellitus:

* Type 1 diabetes results from the pancreas’s failure to produce enough insulin due to loss of beta cells. This form was previously referred to as ‘insulin-dependent mellitus’ or ‘juvenile diabetes’
* Type 2 begins with insulin resistance, a condition in which cells fail to respond to insulin properly. As the disease progresses, a lack of insulin may also develop. This form was previously referred to as ‘non-insulin-dependent mellitus’ or adult-onset diabetes.’ The main causes of DM type 2 are multi-factored: living an unhealthy lifestyle, overweight/obesity, women who experienced gestational DM or had infants born with a high birth weight, hypertension and urbanization.

Diabetes is currently a major public health problem in developing nations. Large populous nations such as China and India are witnessing an increase in the burden of diabetes with rapid urbanization and aging of the population. Countries in the African and Middle-Eastern nations have a growing burden of diabetes. Changing to a healthy diet and increasing physical activity has the potential to prevent more new-onset diabetes. Similarly, a healthy diet, maintaining a normal weight, regular physical activity and not smoking are central to diabetes management to maintain optimal blood glucose, lipid, and blood pressure levels in order to reduce the risk of future complications, particularly cardiovascular diseases. Even in low-resource settings, there is much that can be done to detect undiagnosed cases from the community and provide care and support that will produce and sustain the desired improvements in the health of persons with diabetes. However, public health systems in most developing countries are yet to integrate effective prevention and control programs for diabetes into routine health care services. This brings into focus, the tremendous advances in telecommunication technology, which can be harnessed to improve diabetes care. In order to combat the increasing burden of diabetes and its consequences, innovative approaches are needed. The scope of cell phones as a multipurpose portable device for use by both healthcare providers and patients for diabetes care is discussed in this article.

The versatility and high levels of accessibility of mobile phone technologies provide enormous potential for novel uses to promote health globally (termed m-health the broader e-health movement). Similar to many other chronic diseases, diabetes requires multidisciplinary care and patients require education on self-care such as blood-sugar monitoring, adherence to recommendations on diet, exercise and regular foot inspection. The self-care program should equip diabetics to take responsibility for their own care and monitoring. All diabetics, their family and their friends should know and understand some of the following:

* Signs and symptoms of hypoglycaemia and how to manage it
* Signs and symptoms of hyperglycaemia and how to manage it
* Correct fingerpick glucose monitoring and documenting data
* Correct way of insulin needle and syringe disposal

A growing body of evidence suggests that diabetes-management programs need an information technology backbone in order to be effective. From a health system perspective, high quality data on disease trends, cost and quality of care are vital to developing, monitoring and evaluating diabetes prevention and control programs. Increasing the computing power of high-end cell phone, i.e smartphone, and rollout of 3G and 4G networks have a positive impact on increasing access to internet in developing countries, particularly in rural areas. This low-cost communication program is capable of addressing the data requirements of the health system and continued care for people with diabetes as well. The benefits from the application of cellphones in diabetes care falls into three domains:

* Benefits for health system: there has been much interest in suing information services to systematically collect and manage an individual’s population’s health care records in electronic form (electronic health records) in order to reduce medical errors and improve quality and promote evidence-based medicine. Wright et al, assert that these systems are resource intensive due to the huge investment required for procuring and maintaining computer hardware and networking. However, internet capable smartphones can host a limited, basic version of electronic health records in selected health facilities in developing countries at minimal cost. Such smartphone-based diabetes registries improve diabetes control programs in a number of ways. Data from these facilities will provide long-term tracking of patient data, trends in prescription/management and quality of care and surveillance data. Unlike other paper-based systems, a smartphone-based system can act as a real-time information system, providing high-quality data for planning and monitoring diabetes control programs.
* Benefits for physicians: clinical guidelines and advice alerts for physicians can be easily delivered through cellphones to stay informed about recent developments. This information could complement continuing medical education. There are several cellphone applications currently available for continuing medical education.
* Benefits for patients: Patient education and self-management are important components of good diabetes care. Simple-to-follow and always-with-you information will have the maximum influence on subjects with diabetes to make positive choices on diet, physical activity, and compliance to therapy. Cellphones can host software applications that are programmed to provide encouraging messages to remind them of adherence to medication, food intake, physical activity information and more.

**Question 7: The advantages and disadvantages of computer technology in public health**

New communication technologies have permeated virtually every area of the healthcare system in recent years, including provider-patient email exchanges, electronic records, access to laboratory results via internet, text messaging reminders and the use of phone applications that allow a patient to have quick access to pertinent health information as well as to take a picture of the prescription and text it to the pharmacy for refill. The convergence of the internet, wireless computer technology, global satellite positioning and computer tailoring of messages are just a few examples of high-tech revolution that has led to communication changes within the health delivery system. The extent to which these newer technologies will transform health communication remains to be seen, but it appears that technology will continue to be used by healthcare system in the future. The advantages and disadvantages of computer technology will be discussed in this section.

Over the last few decades, the digital revolution has fueled technological progress and innovation. It is becoming clear that mobile devices will play a growing role in that process. Smartphone penetration has surpassed that of personal computers, with estimates suggesting that usage will exceed 6 billion by 2020. With increases in smartphone usage, mobile phones applications have become a ubiquitous presence in users’ lives; most users report using at least 20 applications on their devices. Wright et al (2013:189) developed a model for on-line support group participation for people facing health concerns to help explain why some people use these groups while others do not. Internet has allowed people to find other people with similar health concerns and provides an opportunity to obtain support from a much larger network that would be possible in the face-to-face world. The internet is considered an unbounded network because, unlike the face-to-face world, online relationships are not hampered by temporal and geographical restrictions. Thus, is it possible for online support group participants to meet and obtain support from a large network of other people who come together to discuss very specific health concerns as opposed to general health issues.

While there are numerous advantages of web-based communication and electronic medical records in terms of cost savings and greater efficiency for providers and health organizations, there are disadvantages as well. Wright et al indicate that there is no single, universally accepted standard for formatting electronic health records. This may cause problems in accessing and interpreting information about patients when information is shared between organizations using different types of electronic records or systems for accessing and organizing patient data. Less is known about how the use of computers in examination room affects the interaction between providers and patients. However, it is likely that using a computer to enter patient information detracts from a direct interaction with patients both verbally and nonverbally. In recent years there have been growing concerns over privacy and confidentiality issues surrounding the use of electronic patients records. There are a number of questions relating to patient privacy associated with the use of electronic records that need to be addressed. First, during medical interviews patients often disclose a great deal of sensitive information about their lifestyle behaviors, including substance abuse problems, psychological problems, and sexual history. This information can be potentially damaging financially to the patient if it is accessed by third parties such as insurance companies, who may decide to raise insurance premiums for the patient based upon what they might perceive to be increased risk factors from information they access from his or her records. Also, the third-party access to patient information can be damaging to patients socially, particularly if a history of mental illness or HIV status of a patient is inappropriately discussed by hospital staff and this information gets back to members of his or her social network.

Wright et al (2013:195) add that there is a concern that certain information about patients, such as disease status, risk factors and lifestyles, could be sold to marketing firms for pharmaceutical companies or other health related industries, resulting in unwanted solicitations for products aimed at patients. They go further to indicate that researchers and other individuals often request access to electronic patient information, and they should be concerned with the ethical issues involved when dealing with this type of sensitive information. These and other issues present challenges for the future of electronic record use, and ethical concerns about how patient information could be used inappropriately as this technology advances need careful consideration.

However, not everyone who is concerned about a health issue seeks social support: some people choose individually based strategies for coping with stressful events, while others are more socially oriented in coping with stressful situations, such as seeking various types of social support. Many people feel that they have sufficient support from family and friends, and they may never feel the need to join on-line support group. The use of internet for provider-patient communication could potentially have a number of benefits for patients. it is believed that email exchange between providers and patients are associated with patient satisfaction, feelings of safety and quality care. The reasons for this appear to range from issues such as the asynchronous nature email might help apprehensive patients by giving them more time to compose their thoughts when asking questions or expressing concerns about their health.

**Question 8: Prevention of Sexually Transmitted Diseases**

HIV occurs when HIV in genital secretions from an infected sex partners breech the mucosal epithelium of an uninfected partner to establish an infection. Mayer and Pizer (2009:32) indicated that HIV resides in cells that populate genital and rectal tissues of HIV-infected men and women, and genital secretions can contain both cell-free HIV virions and cell-associated HIV (HIV-infected cells or cells that carry HIV virions). Semen is a mixture of secretions derived from several organs, including the testis, epididymis, seminal vesicles, prostate, Cowper’s glands and penile urethra.

A sexually transmitted disease (STD) is an infectious process spread through sexual contact; this includes oral, or anal sexual activity. According to Potter and Perry (2003:472), at present sexually transmitted diseases are epidemic, with the highest prevalence being among teens and young adults. Human Immune Virus (HIV) continues to receive wide public attention, however, sexual transmission diseases also need to be considered.

Sexually transmitted diseases (STDs) are passed from one person to another through sexual activity including vaginal, oral and anal sex. They can also be passed from one person to another through intimate physical contact, such as heavy petting, though it is not very common. The prevalent STDs include syphilis, gonorrhea, chlamydia, genital warts, the human papillomavirus (HPV) and herpes simplex virus (HSV) type 2.

Despite being largely preventable and treatable, sexually transmitted infections (STIs also known as STDs) continue to be a significant public health problem. In this question, an example on prevention of sexually transmitted diseases will be discussed.

Safe sex is a term used to describe responsible sexual behavior aimed at preventing the spread of STDs, including AIDS. Responsible sexual behavior includes knowing one’s sexual partner, being able to openly discuss sexual and drug use behaviors with the partner, and using protective devices. Mutual monogamy is a form of monogamy that exists when two partners agree to be sexually active with only one another. Being in a long-term mutually monogamous relationship reduces the risk of acquiring STDs. It is one of the most reliable ways to avoid STDs. Those who choose mutual monogamy can be tested before the sexual relationship to be certain they are not infected. This strategy for prevention of acquiring sexually transmitted infection requires that each partner remain faithful and does not engage in sexual activity with another partner.

It should be noted that mutual monogamy differs from serial monogamy which is a current monogamous relationship that has not been established in the past may not continue into the future. Serial monogamy may not result in the reduced risk of contracting a sexually transmitted infection because the past sexual exposures to infection are brought into the new relationship, even though it may be exclusive of other sexual partners. The risk of acquiring a sexually transmitted infection while in a serial monogamous relationship is the same as the risk of those who have concurrent partners. Those with a greater ability to communicate about their commitment are likely to sustain the relationship. When individuals are mutually monogamous, and are free from STIs/HIV when they enter the relationship, the risk of being infected with STI/HIV acquisition from sexual intercourse is very low. A mutually monogamous relationship lowers the risk of HIV, cervicitis, and other sexually transmitted infections. A mutual monogamous sexual relationship often includes a pledge to stay with the partner and include desire for the relationship to last, a psychological attachment and the lack of being able to find another partner. If these conditions remain priority for both, the couple is likely committed and mutually monogamous. Being in a long-term mutually monogamous relationship with a partner who has been tested and has negative STI test lowers the chance of acquiring gonorrhea. It is also effective for lowering the risk of syphilis, chlamydia and pubic lice.

In a nutshell, STD prevention research tests ways to change behaviors that place persons at risk for STD infection, while STD operational research identifies methods to translate effective programs to public health settings as rapidly as possible. Several themes conceptually unify these research areas:

* Utilization of theory-based interventions
* Utilization of knowledge of determinants and distribution of high-risk HIV/STD risk behaviors
* Identification of co-factors, such as mental health, STDs, alcohol and substance use and developmental stage as targets for interventions
* Identification of moderators and mediators of behavior change
* Utilization of similar methods to assess STD knowledge and risk behavior
* A commitment to the assessment of both behavioral and biomedical outcomes to ensure convergent validity of findings

**Conclusion**

While patient-centered communication is often described only in terms of individual clinician-patient interactions, health care organizations have the responsibility to facilitate patient-centered communication in all forms, including patient education, materials, recording interactions, organizational signage, patient forms and training providers to be better communicators. Before revealing a new diagnosis, the patient’s prior knowledge and preferences for the depth of information desired should be assessed. Shared decision making empowers patients by inviting them to consider the pros and cons of different treatment options, including no treatment. Instead of overwhelming the patient with medical information, small chunks of data should be provided using repeated cycles of the ‘ask-tell-ask’ approach. Training programs on patient-centered care communication for healthcare professionals can indeed improve communication skills. While the growth and popularity of using the internet for health information may provide consumers with up-to-date information about various aspects of disease prevention, illness, treatment, and control, there are many questions concerning the quality of health-related information that is currently online. In addition, there are many concerns about access to the internet, particularly among traditionally underserved segments of the population. In addition, many search engines (Yahoo and Google) often lack an efficient way to access specific health related websites. A keyword search for a specific disease, such as HIV/AIDS, will result in links to hundreds of sites that may vary in terms of their intended audience, information quality and specificity of information of information about the disease.

Lastly, it has been observed that cellphones offer exciting possibilities to serve as a tool for diabetes prevention and management in developing countries. Given the positive results so far from feasibility trials and the increasing uptake of mobile technologies, cellphone may improve existing practices and interventions in diabetes. However, effectiveness trials as well as evaluation of cost-effectiveness of this technology need to be carried out for providing robust evidence to scale this technology in prevention and management of diabetes in developing countries.

**Bibliography**

Clarke M. (2016). VLOK’S: Community Health. Revised 6th Edition. South Africa: Juta & Company

Insel P. & Roth W. (2004). Core Concepts in Health. 9th Edition. USA: McGraw Hill

Ivanov L. & Blue C. (2008) Public Health Nursing: Leadership, Policy and Service. USA: Delmar Cengage Learning

Lancaster J. & Stanhope M. Community and Public Health Nursing 6th Ed. USA: Mosby Company

Mayer K.H & Pizer H.F (2009: HIV Prevention: A comprehensive Approach. USA: Academic Press

Potter P & Perry A. (2013) Basic Nursing: Essential for Practice 5th Edition. USA: Mosby Inc

Tomaselli K & Chasi C. (2011) Development and Public Health Communication. South Africa: Pearson Education

Wright K., Sparks L. & Dan O’Hair H (2013). Health Communication in the 21st Century 2nd Ed. UK: John Wiley & Sons