

**KWAME NKRUMAH UNIVERSITY OF SCIENCE AND TECHNOLOGY,
KUMASI, GHANA
COLLEGE OF HEALTH SCIENCES
SCHOOL OF PUBLIC HEALTH
DEPARTMENT OF HEALTH SERVICES PLANNING AND MANAGEMENT**



**EVALUATION OF CLINICAL PREVENTIVE SERVICES IN PRIMARY
HEALTH FACILITIES WITHIN THE KUMASI METROPOLIS**

BY

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JUNE, 2019

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HEALTH**

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**A THESIS SUBMITTED TO THE DEPARTMENT OF HEALTH SERVICES
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DECLARATION

I hereby do declare that, except for the references to other people's work, which have been duly acknowledged, this piece of work is my own composition and neither in whole nor in part has this work been presented for the award of a degree in this University or elsewhere.

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ABSTRACT

Non-communicable diseases (NCDs) are increasing at an alarming rate in Ghana, with stroke and heart attack among the common causes of deaths amongst adults in the country. Already, Ghana is battling with infectious diseases such as malaria, HIV/AIDS and tuberculosis, as well as not meeting its targets in areas such as maternal and child health. Yet several projections suggest that NCDs will continue to increase, with the possibility of outstripping communicable diseases as the leading cause of morbidity and mortality in the African region if the current situation is not dealt with.

Even though there is some evidence of preventive health service provision in Ghana, the extent to which these services are streamlined and standardized is not well documented. This study set out to evaluate the state of clinical preventive services (CPS) within the Kumasi Metropolis.

The cross-sectional descriptive study was carried out in forty-six (46) primary health facilities, 21 government-owned and 25 privately-owned. In each facility, the practitioner likely to provide medical checkup services was purposively interviewed.

The findings of the study suggest that primary health facilities in the Kumasi Metropolis do not have adequate structures in place that encourage the provision of medical checkups services. Healthcare being delivered to the public is mainly curative to the neglect of preventive services. Inadequate knowledge and lack of use of evidence-based guidelines for providing medical checkup was observed in most facilities. Most providers relied mainly on their professional discretion without making reference to at least one evidence-based guideline on preventive services as a basis for providing the service. Patronage for CPS was found to be low, accounting for less than 1 % (0 – 0.83%) of all OPD attendance in all 46 facilities.

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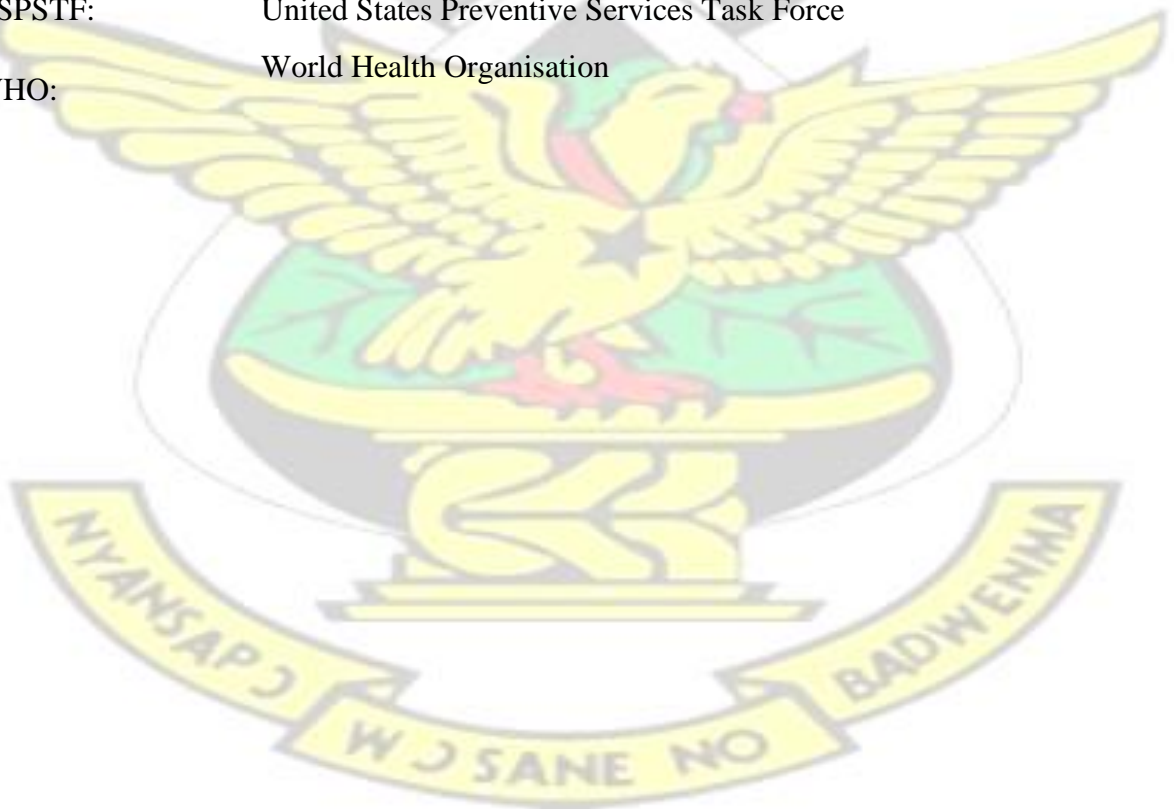
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LIST OF ABBREVIATIONS

AHA:	American Heart Association
AHRQ:	Agency for Healthcare Research and Quality
CDC:	Centre for Disease Control
CVD:	Cardiovascular Diseases
CPS:	Clinical Preventive Services
CTFPHC:	Canadian Task Force for Preventive Health Care
EPC:	Evidence-based Practice Centres
LMIC:	Low/Middle Income Countries
NCD:	Noncommunicable diseases
NCEP:	National Cholesterol Education Programme
PCI:	Percutaneous Coronary Intervention
USPSTF:	United States Preventive Services Task Force
WHO:	World Health Organisation



CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

According to the World Health Organization (WHO), approximately 40 million (70%) of the estimated 56.4 million deaths worldwide in 2015 were caused by NonCommunicable Diseases (NCDs) (World Health Organization, 2017a). Among the NCDs, Cardiovascular Diseases (CVDs) accounted for most of the deaths, representing 17.7 million deaths yearly. Cancers (8.8 million), respiratory diseases (3.9million), and diabetes (1.6 million) were the other common causes of deaths, in that order (World Health Organization, 2017a). Worldwide, CVDs are the number one cause of mortality, representing 31% of all worldwide deaths in 2015 (World Health Organization, 2017b). Among the CVDs, ischaemic heart disease and stroke are the world's leading causes of death, both responsible for 15 million deaths in 2015 only, and have consistently remained the leading causes of mortality worldwide for 15 years (2000-2015) (World Health Organization, 2017b). Out of the 17 million premature deaths (i.e. people below 70 years of age) that were attributed to NCDs in 2015, 82% occurred in low and middleincome countries, and 37% (i.e. three quarters of premature deaths) of these were caused by CVDs (World Health Organization, 2017b).

Deaths from NCDs are projected to rise due to general improvements in health and healthcare which means people live longer and the numbers and proportions of older people within populations continue to increase. In 1980, the number of people aged 60 years and above worldwide was 378 million, a number that doubled to 759 million three decades later, and is projected to rise to about threefold to 2 billion people by 2050. (United Nations, 2011). Even though the older population is growing faster than the entire population in virtually all the areas of the world, developing countries are experiencing a

higher speed of growth than developed countries, with the African population growing older faster, compared with other regions of the world, at a rate of 2.27%. (United Nations, 2011). In sub-Saharan Africa, the growth rate projected for older people for the year 2040 is faster than what has been experienced by any other region since 1950. (United Nations, 2015). Consequently, the fastest rate of increase in NCDs is expected to be happening in Africa. For example, the number of people between the ages of 20-79 who are living with diabetes in Africa is expected to increase by 98% from 12.1 million in 2010 to 23.9 million by 2030, compared with a worldwide average of 54% rise over the same period (International Diabetes Federation, 2015). Also, mortality from NCDs among people between the ages 15-59 years, is estimated to rise by 44% from 28% to 41% between 2008 and 2030 (Nikolic, Stanciole and Zaydman, 2011).

In 2008, CVDs were a major cause of mortality and also a leading cause of deaths in health facilities in Ghana, resulting in 14.5% of total deaths reported in the country compared to 13.4% deaths from malaria (Bosu, 2013). According to research by Agyei Mensah and De-Graft Aikins (2010), CVDs became the leading cause of death in Accra between 1991 and 2001 compared to 40 years earlier when they ranked between the seventh to the tenth most common cause of death in Accra. This is corroborated by research by Ofori-Asenso and Garcia (2016) who found CVDs to be the leading cause of mortality in a peri-urban district in the Eastern Region of Ghana in 2014 (Ofori-Asenso and Garcia, 2016b).

Another study in Kumasi, the second largest city in Ghana, reported that 17.9% of emergency medical admissions was as a result of CVDs, which includes heart failure and stroke (Plange-Rhule et al., 1999). A review of in-patient records at Komfo Anokye Teaching Hospital in Ghana also observed that stroke was responsible for 9.1% of adult medical admissions and 13.2% of all adults who died from a medical cause between January 2006 to December 2007 (Agyemang et al., 2012). The case fatality rate of stroke

was 5.7% at 24 hours, 32.7% at 7 days, and 43.2% at 28 days. In a 5 year (2006-2010) review of post-mortem reports at the Pathology Department of the Korle-Bu Teaching Hospital (KBTH), researchers noted that among 19,289 post-mortem cases done, approximately 22.5% were attributable to CVDs (Sanuade et al., 2014).

CVDs can be prevented through the use of population-wide strategies by reducing lifestyle risk factors such as smoking, unhealthy diet and obesity, lack of exercise and alcohol misuse (World Health Organization, 2017b). The WHO (2017) also recommends early detection and appropriate management for those with risk factors such as hypertension, hyperlipidemia and diabetes (World Health Organization, 2017b).

One of the interventions developing countries such as Ghana can take advantage of is to offer preventive health services. Presently, public health interventions such as immunization programmes, well-baby clinics, family and reproductive health programs are the most widely known and adopted preventive health practices. In some highincome countries like the USA, aside public health interventions delivered to the general population through various programmes, clinical preventive services are also offered to individuals at various clinical settings to prevent diseases and promote health.

Clinical preventive services (CPS) can be divided into screening, counseling, immunizations, and chemoprophylaxis (preventive medications) (Salinsky, 2005). Clinical preventive services are periodic health examination and risk assessment/risk reduction techniques applied by physicians and other health care providers in a clinical setting (Salinsky, 2005).

Since medical checkups can mean different things to different people, standardised guidelines are required to guide both health providers and clients in the delivery of the service. These guidelines must adhere to strict principles of evidence-based medicine,

professional ethics, cost-effectiveness, and improvement of both intermediate and overall health outcomes.

General health checks, such as an annual medical checkup for an individual or for a group, however, has been found not to result in lower rates of morbidity and mortality (Krogsbøll *et al.*, 2012). As a result, the Canadian Task Force for Preventive Health Care (CTFPHC) has suggested that preventive services must be delivered periodically, specific to the individual's needs, as against the usual annual medical checkup performed for individuals and groups (Birtwhistle *et al.*, 2017). This is in agreement with the recommendations of the U.S. Preventive Services Task Force (USPSTF) suggesting that evidence-based preventive services are delivered periodically to individuals according to their specific characteristics such as age, sex, and personal and family risk factors (USPSTF, 2014). The U.S. Preventive Services Task Force (USPSTF), with support from Agency for Healthcare Research and Quality (AHRQ) and other stakeholders, has a Congressional mandate to ensure that evidence-based guidelines are produced and made available for providing preventive services (USPSTF, 2015).

The WHO (2012) recommends preventive health care as the most cost-effective manner of controlling chronic diseases such as cancer (WHO, 2012). It has however been documented that clinical preventive services that personalise interventions based on risk assessment can considerably reduce costs (e.g. time, money, personnel) compared to a mass prevention method (Rose, 1999).

Considering the possible advantages offered by clinical preventive services for mitigating the rising burden of NCD morbidity and mortality, it is important to document how preventive medical services are being provided in Ghana's health system. This study seeks to explore the provision of clinical preventive services within the Kumasi metropolis.

1.2 Problem Statement

According to WHO (2017), 80% of premature deaths are from heart disease, stroke and diabetes and can be prevented by addressing four common preventable risk factors underlying most non-communicable diseases. These four behaviours, namely tobacco use, physical inactivity, unhealthy diet, and the harmful use of alcohol results in four key metabolic/physiological changes, which are raised blood pressure, overweight or obesity, raised blood glucose, and raised cholesterol (World Health Organization, 2017b). Low resource countries, which are affected by infectious diseases such as malaria, HIV/AIDS and TB, are disproportionately affected by NCDs with 80% of deaths occurring in low and middle-income countries (World Health Organization, 2017b). This has been termed the “double burden of disease”.

Secondary prevention requires that all possible risk factors associated with getting to a complicated state of a disease be managed in order to reduce one’s chances of getting to that end. The risk factors for stroke and heart disease include age, family history of cardiovascular disease, tobacco smoking, high blood pressure, high blood cholesterol or triglyceride levels, diabetes mellitus, lack of physical activity, obesity and stress (O’Donnell *et al.*, 2010). Ideally, all modifiable risk factors should be addressed and patients managed according to their 10-year cardiovascular risk levels (Framingham Heart Study, 2008). However, most chronic care clinics for diabetes and hypertension have become centres for drug-refills. Lack of time and the heavy workload on staff may not permit comprehensive management of these risk factors for stroke and heart attack, such as dietary counseling and support, motivation and facilitation for exercise, obesity management, stress management, and so on. This suggests that, even when the health providers have done their best under the circumstances, optimal outcomes are still not guaranteed. It also implies that even when the health services are operating at their

optimum, the numerous clients that have to be seen will not allow quality service at all times.

Tertiary prevention in developing countries is almost synonymous with palliative care. In resource-poor countries like Ghana, there are generally low availability of highly specialized services and personnel to provide specialized and rehabilitative services towards achieving tertiary prevention for patients. This situation is complicated by the fact that majority of people in these LMIC cannot afford these specialized services offered under tertiary preventive care. To plan to rely so much on tertiary prevention and curative medicine to the neglect of preventive medicine is to accept the associated opportunity and economic costs that accompany a disease, disability and death.

Emergency services in LMICs like Ghana are virtually non-existence. Yet managing thromboembolic events such as an acute stroke or an ischemic heart disease requires that interventions be implemented within hours or minutes of onset to ensure good outcomes. Jeffery L. Saver (2006), in his article, titled “Time is Brain-Quantified”, explained that patients who develop acute ischemic stroke typically are losing 1.9 million neurons each minute without treatment. In other words, in an acute cerebral ischemia, time lost is positively correlated with brain loss and close to 2 million nerve cells are lost each minute that perfusion is not restored. (Saver, 2006). It has therefore been established that reperfusion of an acute ischaemic stroke using thrombolytic agents is more beneficial when administered within 3 hours of onset of symptoms, although eligible patients can still be treated in the time period of 3 – 4.5 hours after stroke onset (Powers et al., 2018). It is again advised that health systems should set a goal of increasing their percentage of stroke patients treated within 60 minutes of presentation to hospital (door-to-needle time of 60 minutes) to at least 80% (Fonarow et al., 2014).

Similarly, in the management of acute myocardial infarction, fibrinolytics (pharmacologic reperfusion) or primary percutaneous coronary intervention (PCI mechanical reperfusion), is most useful when administered early. For instance, PCI is most useful when performed within 90 minutes. PCI, however, is not widely available in acute care hospitals even in the United States.

A study conducted by Concannon et al. (2012) reports that of the close to 5000 emergency care hospitals in the USA, only 1695 (<36%) were capable of carrying out PCI. Meanwhile, less than 10% of patients who are referred for primary PCI achieved a first door-to-balloon time of less than 90 minutes (Wang et al., 2011). Some of the causes of delay in treatment included patient transport, factors peculiar to the emergency department (ED), and delay in preparation of the laboratory for catheterization. Moreover, a skilled intervention team is expected to be available 24 hours a day. It is therefore not surprising that even developed countries have high morbidity and mortality associated with stroke and heart disease, and these diseases have remained the top two causes of death worldwide for 15 years (2000-2015). (World Health Organization, 2017b).

If these are challenges faced by even the developed nations such as the USA in acute management of stroke and heart attack, then one could assume that providing these kinds of interventions would be more challenging in resource-constrained countries like Ghana. In Ghana, emergency response systems are weak, the skilled personnel to provide interventions such as PCI are virtually nonexistent, and the facilities to provide such services are generally unavailable. The few major emergency centers, like the teaching hospitals with emergency physicians and some specialized emergency services, are consistently overwhelmed by the workload. There are also many instances where ambulances are not available even when one finally secures a slot to transfer a patient to

an emergency unit. The ambulance is either on its way to pick up a patient from another hospital; it has broken down; or it doesn't have fuel.

The issue of “time is brain” and achieving a door-to-needle time of 90 minutes cannot be topics for immediate consideration in health systems such as pertains in Ghana and other LMICs. Yet the projections are that LMICs like Ghana are going to be seeing more of NCDs. The burden of cardiovascular diseases is going to increase in the future, and there will be more strokes and heart attacks. Stroke and heart attack were among the top five causes of death in Ghana in 2012 (WHO, 2016). In addition, Ghana has the problem of communicable diseases to deal with. Ghana, being a developing country, has scarce health resources such as requisite personnel, financial support, and appropriate facilities and equipment to ensure quality and adequate secondary and tertiary preventive services.

The ineffective secondary and tertiary preventive services as a result of resource constraints, the virtually non-existent emergency services, as well as the economic and opportunity costs associated with morbidity, disability and death, make a strong case for preventive health care, especially in resource-constrained countries such as Ghana.

1.3 Rationale of the Study

WHO has established that 80% of premature deaths from heart disease, stroke and diabetes can be prevented, with common preventable risk factors underlying most noncommunicable diseases (World Health Organization, 2017b).

As the referenced local studies point out, Ghana is faced with a “double-burden of disease”, with non-communicable diseases increasing at an alarming rate, thereby compounding the problem of high prevalence of communicable diseases facing the country. This suggests that the importance of preventive services cannot be overemphasized. Clinical preventive services have been shown to be more beneficial in preventing morbidity and mortality in

a cost-effective manner compared with the annual medical checkup for individuals or groups (Rose, 1999 ; Krogsbøll *et al.*, 2012). These clinical preventive services are used largely in developed countries such as the USA as a means to preventing illnesses and diseases. There are evidence-based recommendations for providing these services such as those of USPSTF and CTFPHC, which suggest that preventive services are provided periodically in a personalized manner based on an individual's age, sex and risk assessment. Successful provision of these services will require that some structures are in place in a health system, and that the providers are abreast with current evidenced-based recommendations for delivering the services to clients.

The current study thus seeks to investigate four key issues regarding provision of medical checkup services in primary health facilities in the Kumasi metropolis. First, the study seeks to assess the structures that have been put in place in primary health facilities within the Kumasi Metropolis to encourage the provision of medical checkups. Second, the study tries to assess the health practitioners who are responsible for providing medical checkup services in the facility to determine whether their practices are based on evidence-informed guidelines. Further, the study assesses the level of patronage of periodic checkups in both private and public health facilities as well as the perception of practitioners on medical checkup.

1.4 Research Questions

The following are the research questions that guide the study:

1. What is the extent of knowledge and use of evidence-based guidelines for providing Clinical Preventive Services by health practitioners in primary health facilities within the Kumasi metropolis?
2. What structures have been put in place in the primary health facilities within the

Kumasi Metropolis to provide Clinical Preventive Services?

3. What is the level of patronage of Clinical Preventive Services in primary health facilities within the Kumasi Metropolis?
4. What are the perceptions of Health Providers towards Clinical Preventive Services in primary health facilities within the Kumasi Metropolis?

1.5 Main Objective of the Study

The main objective of the study is to evaluate Clinical Preventive Services in primary health facilities within the Kumasi Metropolis.

1.6 Specific Objectives of the Study

To achieve the main objective, the following specific objectives have been set to guide the study:

1. To assess health practitioners for their knowledge and use of evidence-based guidelines in the provision of Clinical Preventive Services;
2. To assess the structures of health facilities for providing Clinical Preventive Services;
3. To assess the level of patronage of Clinical Preventive Services in the facilities;
and
4. To assess the perception of Health Providers towards Clinical Preventive Services.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter reviews available literature on clinical preventive services. It begins with establishing the burden of disease in Ghana, which points to the need for clinical preventive services in the country. The chapter also delves into the concept of clinical preventive services and its components: screening, preventive medications, immunisations and counselling, with emphasis on screening, its benefits and limitations. An example of how evidence-based recommendations for clinical preventive services are developed was given using the activities of the US Preventive Services Task Force. The chapter also discusses the current state of health care delivery in Ghana, specifically discussing the healthcare delivery structure of Ghana, and how Ghana is fairing currently as far as control of infectious diseases, non-communicable diseases, and maternal and child mortality rates are concerned, with key references to the Ghana National Policy, National NCD Control Policy and Programmes and the 2016 Ghana Health Service annual health report. The chapter ends with a discussion on some major challenges facing Ghana's health care system, which further supports the need for predictive preventive services that stem from a partnership between individuals and health providers, such as clinical preventive services.

2.2 The Burden of Disease: a case for clinical preventive services

In Ghana, the prevalence of hypertension in adults is high, varying between 19% to 48%, with up to 70% not being on treatment, and only 0%-13% of hypertensives having their blood pressures well-controlled (Bosu, 2010). Almost half of hypertensives have target end-organ damage, indicating that these patients had lived with the disease for a long time without appropriate treatment (Addo, Smeeth and Leon, 2009). The prevalence of diabetes

in adults in Accra and Kumasi alone was reported to range from 6% to 9% (William, 2008; Hill et al., 2007).

A leading neurologist in the Komfo Anokye Teaching Hospital (KATH), the largest referral centre in the Ashanti Region, is reported to have said that 40% of stroke patients die in the facility (Citifmonline.com, 2017). In the newspaper captioned: “40% OF STROKE PATIENTS DIE; GOVERNMENT MUST ACT NOW-NEUROLOGIST”, the neurologist is reported to have disclosed this news at a public education forum organised to commemorate World Stroke Day in 2017. The neurologist specified that 40 per cent of patients with stroke in the country die eventually, with another 30 percent going back home with paralysis. He believed that people die from stroke because some essential drugs are not available, there is lack of important equipment, and the requisite health systems to manage the disease are not available. He suggested that stroke units and rehabilitation centres be established across the country to provide care to patients. He advised that people go for regular check-ups and adopt healthy lifestyles to save themselves from getting stroke.

The economic burden of NCDs is high. NCDs have the potential of making a household poor and maintaining it in poverty. According to WHO, in developing countries undergoing rapid economic transition, stroke, diabetes and heart disease alone reduce gross domestic product (GDP) by between 1% and 5% each year (Abegunde *et al.*, 2007). A study conducted in 23 LMICs, reported that US\$84 billion of economic production may have been lost due to heart disease, stroke, and diabetes alone between 2006 and 2015 (Abegunde et al., 2007).

NCDs also undermine the attainment of MDGs through biological and social pathways.

Researchers have estimated that every 10% higher mortality from NCDs is associated with a 7.6% reduction in progress toward attaining tuberculosis mortality targets, a 5.6% reduction in achieving the target for child mortality, and a 6.3% reduction in accomplishing the infant mortality targets (Stuckler, Basu and McKee, 2010).

NCDs also result in a significant psychosocial burden on sufferers and their caregivers. Complications and physical disabilities that arise from NCDs have a negative impact on the sufferer's mobility, ability to work and quality of life (Ministry of Health - Ghana, 2012). Some NCDs such as cancers and diabetes are stigmatized. Some rural folks who live with uncontrolled diabetes that make them lose weight rapidly are stigmatized as if they had HIV-AIDs (Aikins, 2006).

The financial burden of care for NCDs, especially in developing countries without universal health coverage, often has a significant toll on family livelihood and relations, and also affect the long-term treatment choices of patients living with these NCDs (Ministry of Health - Ghana, 2012). A rural-urban study conducted in Ghana on diabetes shows that many poor rural men and women with diabetes usually depend on their families for financial support (de-Graft Aikins, 2007). This sometimes worsens the financial situation of the whole family as most of these family members and breadwinners are not financially secure themselves. In most instances, this results in some patients with chronic disease being abandoned and socially isolated. The relatively high financial costs of orthodox treatments may make unorthodox and herbal treatments appear more cost effective. If such treatments are not proven, they may lead to worse health complications, and more cost, both to the family and to the health system as a whole.

Regardless of a country's developmental status, the World Health Organization advocates prevention as the most cost-effective way of controlling chronic diseases, such as cancer

and CVD (WHO, 2012). Therefore, preventive services have become an important aspect of clinical and public health practice (CDC, 1999). Clinical preventive services that personalize interventions according to risk assessment can significantly decrease costs, in terms of, for example, money, time, personnel, as against a mass prevention approach (Rose, 1999). This may be particularly important in resource limited countries, such as Ghana.

2.3 Understanding Clinical Preventive Service

Clinical preventive services are periodic health examinations and risk assessment or risk reduction techniques applied by physicians and other health care providers in a clinical setting (Salinsky, 2005). Periodic health examination, on the other hand, refers to a regular periodic general physical examination of a client by health professional, as a preventive measure, and not because they have a specific illness, injury or disease condition (Kermott et al., 2012; Bloomfield and Wilt, 2011). When periodic health examination is done in a clinical setting, it is referred to as Clinical Preventive Services. With this understanding, community outreaches, health screenings in school and preventive services for corporate organisations on their premises cannot correctly be classified as clinical preventive services. Medical checkup for admission into a school, or as a form of pre-employment assessment is not considered a clinical preventive service because the intent is not a periodic health evaluation to maintain health. Clinical preventive service interventions can be divided into screening, counseling, immunizations, and chemoprophylaxis (preventive medications) (Salinsky, 2005; USPSTF, 2014). The four main services provided in a clinical preventive service setting are further explained below.

2.3.1 Counseling

Counseling services include behavioural counseling for smoking and alcohol cessation. Others include counseling on healthful diet and appropriate exercise (Salinsky, 2005; USPSTF, 2014).

Screening and behavioral counseling interventions in primary care are recommended by the USPSTF (Task Force) to reduce alcohol misuse among adults that are 18 years or older, with a grade B rating. It has been observed by the Task Force that counseling interventions in the primary care setting can improve unhealthy alcohol consumption behaviours in adults involved in risky drinking (USPSTF, 2014). Usually, physicians incorporate some health education and counseling in their routine patient care. However, because of time-constraints in routine consultation process, such counseling and education might not be too effective. In formal clinical preventive services, counseling services are formally organized and carried out separately, by specially trained, usually non-physician health care providers, to address issues such as diet, stress, smoking cessation, alcohol misuse, nutrition or weight reduction and improved physical fitness.

2.3.2 Immunization

Depending on prevailing disease risks and prevalence, it may be recommended that children, adolescents and adults be up-to-date on some specific immunisations. These immunization schedules are incorporated into clinical preventive services to serve the individual, not necessarily a population. Such immunisations are usually different from those delivered to the general public through public health programmes such as the Expanded Program on Immunisation (EPI) given to infants and children in Ghana. Examples of such vaccines offered under clinical preventive services may include hepatitis B vaccinations and the HPV vaccines. Others include influenza vaccines and zoster vaccines.

In the USA, for instance, pneumococcal vaccines are recommended for the elderly to help prevent pneumonia (CDC, 2017). Individuals can go to a clinical preventive service provider and receive these vaccines, ensuring that they are up-to-date on all recommended immunisations. The US Center for Disease Control and Prevention has a list of recommended immunization schedules for children, adolescents and adults, which guide decision-making concerning immunisation in clinical preventive service centers (CDC, 2018).

2.3.3 Preventive medications

The USPSTF recommends that asymptomatic women aged 35 years or more without a prior diagnosis of breast cancer who are at increased risk for the disease be given the selective estrogen receptor modulators tamoxifen and raloxifene to reduce their risk of invasive breast cancer (USPSTF, 2014). Tamoxifen has been approved for this use in women aged 35 years or older, and raloxifene has been approved for this use in postmenopausal women. The usual daily doses for tamoxifen and raloxifene are 20 mg and 60 mg respectively for 5 years (USPSTF, 2014). A moderate net benefit has been observed with the use of tamoxifen and raloxifene to reduce the incidence of invasive breast cancer in women who are at increased risk for the disease (grade B rating). For the prevention of neural tube defects, women planning to get pregnant or capable of becoming pregnant are to take a daily vitamin supplement containing 0.4 to 0.8 mg (400 to 800 µg) of folic acid, at least, one month before conception and continue for the first two to three months of pregnancy. This is a USPSTF grade “A” recommendation, suggesting that there is a high certainty that the net benefit is substantial and therefore service should be provided. Other preventive medications that could be given include the use of Vitamin D and Calcium supplementation to prevent fractures due to osteoporosis in the elderly, and hormone replacement therapies given to postmenopausal women for the same reasons. The USPSTF

makes a grade “A” recommendation for aspirin to be given to men aged 45-79 years, and to women aged 55-79 years, according to their 10year cardiovascular risk of developing a myocardial infarction and a stroke respectively (USPSTF, 2014). This is also on condition that the potential benefit of prevention of myocardial infarction in these men, and stroke in these women, outweighs the potential harm of gastrointestinal bleeding.

2.3.4 Screening

“Screening is the process of identifying healthy people who may be at increased risk of a disease or condition. The screening provider then offers information, further tests and provides treatment. This is to reduce associated risks or complications” (UK National Screening Committee, 2018). Screening is also defined as *“the targeted systematic action designed to identify diseases or pre-clinical conditions in individuals who believe they are healthy; but who may in fact be at risk of a specific health impairment, and who could benefit from early treatment (or other intervention)”* (Detels et al., 2011).

2.3.4.1 Limitations of screening

Screening involves spending money and using medical resources on a majority of people who do not need treatment. Screening procedures may have some inherent risks such as stress and anxiety over test results, as well as discomfort, radiation and chemical exposure from certain procedures. Misdiagnosis, through false positives, can lead to stress and anxiety, unnecessary investigations and treatment, whilst false negatives result in a false sense of security and safety with possible delay of crucial diagnosis and necessary treatment. Screening may also result in over-diagnosis and overtreatment, the situation where knowledge and unwarranted treatments do not lead to any appreciable improvements in outcomes and quality of life.

Beyond these risks, other population-level problems with disease screening include leadtime bias, length-time bias and selection bias. These are further explained in subsequent sections. (Bonita, Beaglehole and Kjellström, 2006, p.110-114; Gordis, 2004, p.285-289)

2.3.4.2 Lead time bias

Lead time is the time between early diagnosis with screening and the time in which diagnosis would have been made from clinical manifestations. Lead time basically is an advanced notice of a disease, which is not bad in itself, although it can give a wrong impression of the efficacy of screening.

If someone whose disease was detected by screening dies at the same time as someone who was diagnosed by clinical manifestations, the *survival time since diagnosis* for the person with disease diagnosed with screening will appear longer than that for the individual diagnosed with clinical manifestations. This is an artificial addition to the survival time in the screen-detected cases. This gives a false impression that early detection of the disease through the screening test improves overall survival. Survival time in this case suggests time between knowledge of disease and time of death. It does not suggest improved survival or prolonged lifespan. In any case, the screening only succeeds in giving advanced knowledge of a disease to label someone as diseased and to increase anxiety. The patients in this case do not live longer but live for a longer time with the disease. Lead time bias only results in survival duration being overestimated as a result of earlier detection by screening than clinical manifestation (Bonita, Beaglehole and Kjellström, 2006, p.110-114; Gordis, 2004, p.285-289).

2.3.4.3 Length time bias

Length time bias is said to occur when duration of survival is overestimated owing to relative excess of cases identified that are slowly progressing. Slower-growing tumors have better prognoses than tumors with high growth rates. Slower-growing tumours have a longer pre-symptomatic or pre-clinical screen-detectable period than tumours with high growth rate. This suggests that screening is more likely to detect slower-growing tumors, which may be less deadly. Thus, screening may tend to detect cancers that would not have killed the patient or even been detected prior to death from other causes. This confers an artificial survival advantage to screen-detected cases referred to as length time bias. (Bonita, Beaglehole and Kjellström, 2006, p.110-114; Gordis, 2004, p.285-289).

2.3.4.4 Selection (volunteer) bias

In the event that a screening programme is organised, not everyone will be willing to participate. The factors that make those willing to be tested different from those who are not already introduces bias in the selection of subjects for the screening (Gordis, 2004). People who voluntarily choose to participate in screening programs are generally more concerned about their health and therefore may generally be healthier, lead healthier lifestyles and have a higher socioeconomic status compared to those who may not. They may also tend to adhere to therapy better, resulting in better health outcomes. These people who participate in screening programmes because of such characteristics may live longer because of the same characteristics and not because of the benefits of screening. It could also happen that such volunteers who participate in screening programs are aware of a family history of the disease in question and are worried, and therefore may present themselves willingly for the screening. That alone suggests that people with high risk of the disease are being selected for screening. All of these factors can lead to a bias of the apparent benefit of screening.

2.3.4.5 Over-diagnosis

Over-diagnosis is the diagnosis of a disease which will never result in symptoms or death during the expected lifetime of a patient (Welch, Black, & William, 2010). Some people would have died from some other causes than from the disease that was discovered through screening. For example, autopsy studies have shown that among elderly men who have died of other causes, a high proportion also had prostate cancer. (Etzioni et al., 2002). In other words, these men who had prostate cancer actually died with it rather than of it (Etzioni et al., 2002).

Over-diagnosis makes a screening look good at detecting diseases, even though these diseases are sometimes harmless, yet predisposes people to unnecessary treatment and risks (adverse effects) of treatment (Gordis, 2004). In over-diagnosis, a disease is diagnosed correctly, but the diagnosis is irrelevant. What makes a correct diagnosis irrelevant is when treatment for the disease is not available, not needed, or not wanted.

The issue of over-diagnosis originated mainly from cancer screening, although it is potentially applicable to the diagnosis of any disease (Welch, Black, William, 2010). In cancer screening, there is the potential harm that can result from detecting abnormalities that meet the pathologic definition of cancer (under the microscope) but will never progress to cause symptoms or death during a patient's ordinarily expected lifetime.

Over-diagnosis has physical, psychological and economic effects on the individual and society in general. Physical effects of over-diagnosis include unnecessary diagnosis and treatment. All medical interventions have adverse consequences, especially cancer treatments. Surgery, radiation and chemotherapy carry various risks of morbidity and mortality.

Psychological effects of over-diagnosis occur when an individual is simply labeled as “diseased”. For example, being labelled a “cancer patient” comes with a psychological burden which is usually associated with an increased sense of vulnerability.

Economic burden of over-diagnosis include potential increase in health insurance costs and the cost of health care in a country. There is increased financial cost to the individual, family, community and the nation at large, which was not necessary in the first place.

Figure 2.1 is a diagram showing some cascade effects of overdiagnosis.



Figure 2.1: A representation of over-diagnosis and some effects

Source: <http://wiserhealthcare.org.au.org/what-is-overdiagnosis/>

To deal with the limitations of screening and other preventive services, it is important that evidence-based approaches are developed for preventive services. These approaches will consider harms, benefits, and net benefits in making recommendations for the service. The US Preventive Services Task Force (USPSTF) is an example of an organized group that has been mandated to review available evidence on preventive services and make recommendations accordingly. Other medical associations and groups that provide

preventive service recommendations include the Canadian Taskforce of Preventive Health Care (CTFPHC), American Heart/Stroke Association (AHA/ASA),

American Diabetes Association (ADA), National Institute for Health and Care Excellence (NICE), National Cholesterol Education Program (NCEP), Joint National Committee (JNC) on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure and so on. An example of the process by which these recommendations are developed is given below by using the activities USPSTF as an illustration.

2.4 Development of Clinical Preventive Services Guidelines- an antidote to the limitations of preventive services. (An example of the US Preventive Services Task Force)

2.4.1 US Preventive Services Task Force (USPSTF)

The US Preventive Services Task Force (USPSTF) was first convened by the U.S. Public Health Service in 1984. Support for the programmes of the Task Force was transferred to Agency for Healthcare Research and Quality (AHRQ) in 1995 (USPSTF, 2015). The Task Force is an independent panel made up of members recognised nationally as experts in prevention and evidence-based medicine. The ultimate mandate of the Task Force is to improve the health of all Americans by making evidence-based recommendations on clinical preventive services and health promotion in primary care settings (USPSTF, 2015).

The Agency for Healthcare Research and Quality (AHRQ) helps the USPSTF to fulfill its mandate by providing scientific, administrative, and dissemination support to the USPSTF. AHRQ also provides AHRQ-designated Evidence-based Practice Centers (EPCs) that review and summarise evidence and other documents that assist the USPSTF in its work (USPSTF, 2015).

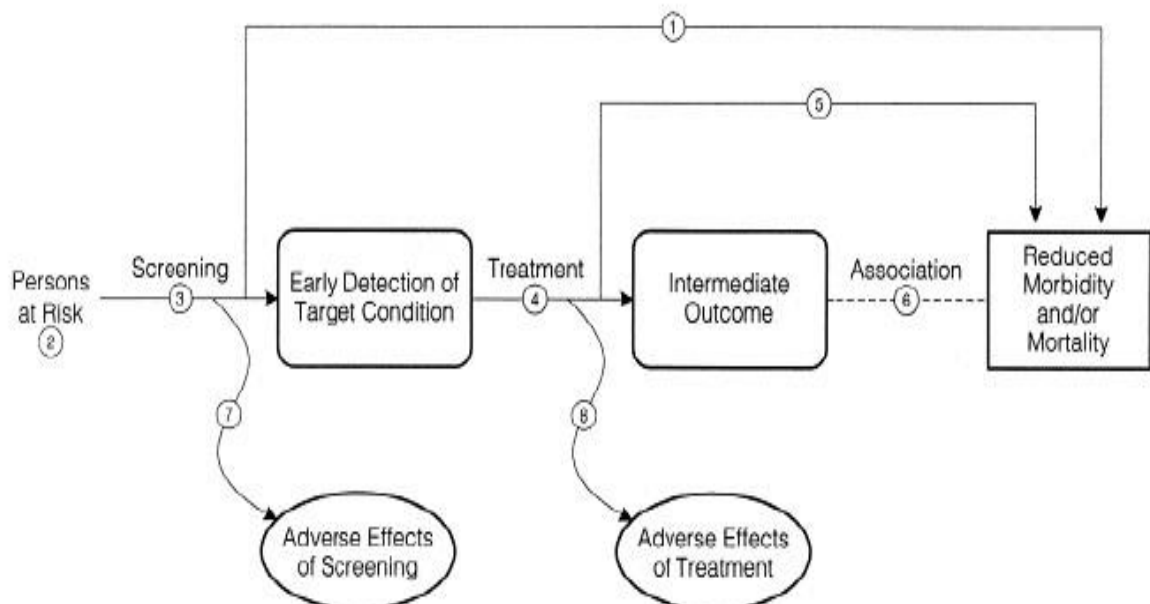
The work of the first Task Force was concluded in 1989 with the publication of the

“Guide to Clinical Preventive Services”. The second edition of the “Guide to Clinical Preventive Services” was released in December, 1996 by a second Task Force appointed in 1990 (USPSTF, 2015). Appointment of members of the third Task Force was made in 1998 for a 5-year term. The recommendations of the third Task Force were made public incrementally. Now, the recommendations of the Task Force are released both incrementally and in periodic publications in a manner similar to the “Guide to Clinical Preventive Services”(USPSTF, 2015).

2.4.2 Analytic Framework used by the Task Force

The Task Force uses an analytic framework (see figure 2.2) to relate preventive health services to health outcomes to enable recommendations to be made on these services. The analytic framework diagram has numbers corresponding to specific questions that must be answered by literature reviews on specific preventive services being considered (USPSTF, 2015; Owens et al., 2016; Krist *et al.*, 2018).

Figure 2.2: Template of Analytic Framework for a screening preventive service



(Source: USPSTF, 2015)

The numbers in the analytic framework above correspond to the following key questions:

1. Is there evidence that randomizes a cohort of persons to screening or not screening results in greater reduced morbidity and mortality than the observed harms from screening and treatment?
 2. Who are the persons at risk for the condition?
 3. What are the performance characteristics of the screening test for the condition?
 4. Does treatment of the screen detected condition result in improved intermediate outcomes?
 5. Does treatment of the screen detected condition result in reduced morbidity and mortality?
 6. Does an improvement in intermediate outcomes lead to improved health outcomes?
 7. What are the harms associated with screening and diagnostic testing for the condition?
 8. What are the harms associated with treatment of the condition?
- (USPSTF, 2015).

2.4.3 Recommendation Grades

After deciding on the certainty and magnitude of net benefit, appropriate grades are assigned for the service in the targeted population, using the scoring matrix as shown in Table 2.1. These grades are issued as A, B, C, or D, as described in Table 2.2. When evidence is insufficient to make a recommendation, the Task Force issues an “I statement.” (Petitti et al., 2009).

Table 2.1: U.S. Preventive Services Task Force Recommendation Grade Grid: Certainty of Net Benefit and Magnitude of Net Benefit

Certainty of Net Benefit	Magnitude of Net Benefit			
	Substantial	Moderate	Small	Zero/Negative

High	A	B	C	D
Moderate	B	B	C	D
Low	Insufficient			

(Source: USPSTF, 2015)

Table 2.2: How to Interpret Task Force Recommendation Grades

Grade	Definition	Suggestion for practice
A	The USPSTF recommends the service. There is high certainty that the net benefit is substantial.	Offer or provide this service.
B	The USPSTF recommends the service. There is high certainty that the net benefit is moderate or there is moderate certainty that the net benefit is moderate to substantial.	Offer or provide this service.
C	The USPSTF recommends selectively offering or providing this service to individual patients based on professional judgment and patient preferences. There is at least moderate certainty that the net benefit is small.	Offer or provide this service for selected patients depending on individual circumstances.
D	The USPSTF recommends against the service. There is moderate or high certainty that the service has no net benefit or that the harms outweigh the benefits.	Discourage the use of this service.
I Statement	The USPSTF concludes that the current evidence is insufficient to assess the balance of benefits and harms of the service. Evidence is lacking, of poor quality, or conflicting, and the balance of benefits and harms cannot be determined.	Read the Clinical Considerations section of the UPSSTF Recommendation Statement. If the service is offered, patients should understand the uncertainty about the balance of benefits and harms.

(Source: USPSTF, 2015)

2.4.4 How to use USPSTF guidelines

The letter grade linked to each recommendation reflects both the magnitude of net benefit and the strength and certainty of the evidence supporting the provision of a specific preventive service. These grades translate to practice guidance for clinicians as follows:

1. Discuss services with “A” and “B” recommendation grades with eligible patients and offer them as a priority.
2. Discourage the use of services with “D” recommendation grades unless there are unusual additional considerations.
3. Give lower priority to services with “C” recommendation grades; they need not be provided unless there are individual considerations in favor of providing the service.
4. Help patients understand the uncertainty surrounding services with “I” (insufficient evidence) statements, which reflect the conclusion that the evidence is insufficient to determine net benefit. The Clinical Considerations section of each full recommendation statement offers additional guidance (USPSTF, 2015). The Task force however admits that evidence alone is not enough to make clinical decisions about patients and that more complex considerations need to be made. (USPSTF, 2015). It is therefore suggestive that even though clinicians need to understand the evidence, decision-making processes must be individualised to the specific patient and situation. As part of its recommendations, the USPSTF offers practical considerations to guide the practitioner in making decisions in specific situations.

2.5 Structures for providing clinical preventive services

Primary care practices have a 3-fold mission to provide acute care, chronic care and preventive health services (Crabtree, Miller and Cohen, 2005). Prevention, therefore is a core component of primary care services. As stated previously, clinical preventive services comprise four main services namely screening, preventive medications, immunisations and counseling (Salinsky, 2005 ; USPSTF, 2014). Healthcare facilities or setups for providing clinical preventive services must be seen providing at least these four services. This however is usually not the case. A study aimed at understanding how clinical

preventive services are conducted in family practice offices showed that none of the practices studied consistently delivered all these four components across the board (Crabtree, Miller and Cohen, 2005). In that study, sixteen out of 18 family practice offices offered screening services more than 50% of the time, with 3 of the practices offering screening 80% of the time. Yet, counseling and immunisations were less than 50% for most practices. Similar discrepancies in preventive service delivery rates were also observed by Stange et al, with patients being up to date on 55% of screening tests offered, 24% on immunisations and 9% receiving the required counseling services (Stange *et al.*, 2000).

General health checks, such as an annual medical checkup for an individual or group has not been associated with lower morbidity and mortality rates (Krogsbøll *et al.*, 2012). In other words, a medical checkup where everything is done for everybody all at the same time, such as an annual screening event for an individual or group, has not been shown to yield the requisite result of reducing morbidity and mortality for the same group. As a result of some of these controversies surrounding the delivery of preventive services, the Canadian Task Force for Preventive Health Care (CTFPHC) has suggested that CPS must be delivered periodically, specific to the individual's needs, as against the usual annual medical checkup performed for individuals and groups (Birtwhistle *et al.*, 2017). This is in agreement with the recommendations of the USPSTF, which also suggest evidence-based preventive services delivered periodically to individuals according to their specific characteristics such as age, sex, and personal and family risk factors (USPSTF, 2014).

Based on these recommendations, specific clinical preventive services are delivered to individuals periodically according to their needs, in a clinical setting led by a health professional, preferably, a physician (USPSTF, 2014). These preventive services have evidence suggesting their benefits or otherwise. For instance, health setups for providing

clinical preventive service could have a protocol for providing CPS based mainly on the grade “A” and “B” of USTPTF recommendations.

Several studies have indicated that clients are more likely to receive recommended preventive services when the services are provided as separate periodic health evaluations than when primary preventive services are incorporated into acute and chronic care services (Stange *et al.*, 2000 ; Zapka *et al.*, 2002 ; Lafata *et al.*, 2005 ;

Boulware *et al.*, 2006 ; Fenton *et al.*, 2007 ; Pollak *et al.*, 2008 ; Ferrante *et al.*, 2010).

Therefore, to ensure that recommended, targeted preventive services are offered to every individual at high rates, the setup for providing medical checkups must be structured in such a way that it is a separate service from other services provided by the health facility.

Preventive services should therefore have a designated place, designated lead persons, and a team of diversely qualified professionals for providing the service. There should be an appointment system in place to ensure clients are followed up periodically according to the needs of the individual. The low patronage of preventive services has been associated with a lack of public awareness on prevention and preventive services (Babatunde and Ikimalo, 2009). This suggests that setups for providing preventive services must also have in place programmes for creating public and staff awareness on prevention and preventive services.

2.6 Level of patronage of preventive services

The usefulness of numerous preventive services have been well-known (Maciosek *et al.*, 2010). For instance, those who receive the recommended immunisation services are protected from many fatal diseases, whiles at the same time promoting herd immunity and breaking the transmission of infectious diseases (CDC, 2017). When cancer screening is done appropriately, early detection could lead to timely interventions and improved outcomes. (National Research Council, 2003). Likewise, when chronic diseases such as

diabetes, heart diseases, and others are detected early, promotion of healthier lifestyles and appropriate management could be put in place early in enough to prevent and delay complications whilst improving overall quality of life (Chronic Disease Prevention and Health Promotion, 2009).

Even though these benefits of preventive services are well-documented, several studies have shown that rates of delivery and uptake of preventive services are low. (Stange *et al.*, 2000 ; Nelson *et al.*, 2002; Salinsky, 2005 ; Smith, Cokkinides and Eyre, 2005;

Maciosek *et al.*, 2006). A study conducted in the US by Crabtree, Miller and Cohen (2005), showed that only 7 out of 18 family practice offices provided screening services at rates of 65% or above (Crabtree, Miller and Cohen, 2005). Even the best rates achieved for smoking cessation counseling and immunisations were 69% and 60% respectively.

Nelson and Guyer (2012) also found out that out of an average of 5.5 (range = 1-13) preventive services that patients were due for, only an average of 3 (range = 0-11) of those services were provided during the visit (Nelson and Guyer, 2012). In the same study, colorectal cancer screening (92.9%), hypertension screening (92.0%) and breast cancer screening (88.9%) were the most likely to be delivered or recommended to the patients. The services that were least likely to be delivered or recommended, however, were aspirin use counseling (18.3%), screening for vision (18.9%), and immunization for influenza (20%). Altogether, 54% of services that patients were eligible and due for were provided, and 46% were missed; 66% of vaccination services (n=458), 55% of counseling services (n=1126), and 27% of screening services (n=1078) were not delivered to patients that were eligible and due for these services. (Nelson and Guyer, 2012).

Factors influencing delivery and uptake of preventive services have been found to be linked to an interaction between physician, patient, practice and environmental factors

(Carney *et al.*, 1992 ; Carpiano *et al.*, 2003 ; Litaker *et al.*, 2005; Sussman *et al.*, 2006).

These findings agree with the medical model suggested by Jaen, Stange, and Nutting (1994) to explain the factors contributing to the poor rate of delivery of preventive services (Jaen, Stange and Nutting, 1994). In outlining how competing demands affect the provision of clinical preventive services, Jaen, Stange, and Nutting (1994) explained that a medical encounter with physicians present competing demands that contend with preventive services (Jaén, Stange and Nutting, 1994). Preventive services themselves compete with each other for the limited health resources available. The medical model proposed by Jaen, Stange, and Nutting (1994) as shown in figure 2.3, describes an interaction between physician, patient and environmental factors that contribute to the rate of delivery of preventive services.

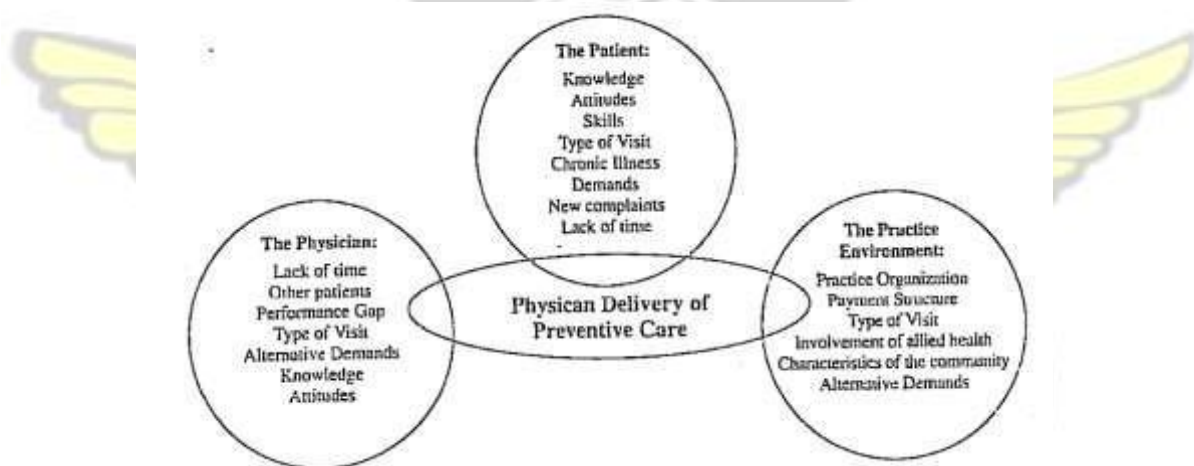


Figure 2.3: The competing demands model: interrelated factors involving patients, physicians, and the practice environment that affect the physician delivery of preventive services.

Source:(Jaen, Stange and Nutting, 1994)

Woolf and Atkins (2001) found out that most individuals still believe that they ought to patronise a health service only when they are sick (Woolf and Atkins, 2001). Such people do not see the health system as designed for any other use apart from taking care of sick people. Other reasons for low patronage of preventive services include lack of public

awareness, poor attitude towards preventive services, time constraints, and the inconvenience of accessing preventive health services at various service provision points (Babatunde and Ikimalo, 2009). Other studies have also found limited education, low income and lack of insurance coverage to be associated with lower utilisation of preventive services (Kenkel, 1994 ; Sambamoorthi and McAlpine, 2003 ; Sudano Jr and Baker, 2003). Mcmorrow, Kenney, and Goin (2014), observed an association between type of service and income level of clients and the rate of receipt of preventive services (Mcmorrow, Kenney and Goin, 2014). In terms of type of service, McMorrow and colleagues noticed that 85% of adults adhered to blood pressure screening and Pap smear recommendations, whereas just 28% of adults received a flu vaccine and just a little below 50% of the target population for colon cancer screening received the service. In relation to income level, it was more likely for adults with higher income to receive every preventive service considered in the study, than their lower-income counterparts (Mcmorrow, Kenney and Goin, 2014).

Time constraint is another major issue affecting the provision of preventive services in primary care (Yarnall *et al.*, 2003 ; Abbo *et al.*, 2008). There are several competing demands for the limited time of primary care physicians, resulting in priority being given to acute and chronic care services to the almost neglect of preventive services. One study estimates that physicians would require over 21 hours per day to address all the preventive services needs of their patients (Yarnall *et al.*, 2003). Elsewhere, patients were observed to spend an average of 26.9 minutes with physicians during a visit for clinical preventive services, with the actual times ranging between 5 to 71 minutes (Nelson and Guyer, 2012). Some of these reasons explain why delivery and uptake of preventive services are generally low.

2.7 Knowledge and practice of evidence-based preventive services

Preventive services are delivered to asymptomatic persons, majority of whom will not immediately benefit from the service, and if they do, these benefits are in the future, usually requiring many years to be realised. Yet, there are harms, including opportunity costs that could result from these preventive services. It is therefore assumed that almost all preventive services have the tendency to induce harm (Sawaya et al., 2007; USPSTF, 2015). It is also for these reasons that the USPSTF considers the magnitude of harm or benefit associated with a preventive service in making recommendations for offering that service. Therefore, evidence-based guidelines for providing preventive services could serve as a guide for practitioners to ensure that they deliver quality, relevant and safe preventive services to the public. These recommendations are usually backed by strong scientific evidence of the certainty and magnitude of net benefit, and seek to protect the public against practitioners prescribing services that are harmful or of no proven benefit. It is therefore incumbent on the practitioner providing clinical preventive services to have adequate knowledge the recommendations of at least some popularly known guidelines and medical associations for providing preventive services such as those of the USPSTF, CTFPHC, American Heart/Stroke Association (AHA/ASA), American Diabetes Association (ADA), National Institute for Health and Care Excellence (NICE), National Cholesterol Education Program (NCEP), Joint National Committee (JNC) on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure and so on, as well as the guidelines peculiar to the country or specific population that the practitioner practices. For instance, in Ghana, the MOH has a National health policy, a Noncommunicable disease control program, as well as other programs for both public and individual preventive health services (Ghana National Health Policy, 2007 ; MOH NCD Control Program, 2012).

The USPSTF follows a plan for dissemination of its guidelines to include stakeholders such as policymakers, health providers, health insurance providers and the general public (USPSTF, 2015). This approach ensures that providers know what services they ought to provide, health insurance schemes know what they ought to pay for, and consumers know what to expect from providers and the health insurance schemes.

A study conducted in Guatemala, suggested that primary care physicians lacked adequate knowledge of the recommendations of the USPSTF guidelines and that of Guatemala MOH for providing preventive services (Corral *et al.*, 2012).

Most providers also do not deliver recommended preventive services to individuals (McGlynn *et al.*, 2003). The 2009 USPSTF guidelines recommend against teaching selfbreast examination to women (Nelson *et al.*, 2009). A study conducted to assess knowledge, adherence and attitudes of family physicians and general internist toward the 2009 USPSTF guideline on breast self-examination indicated that 70% of the respondents did not adhere to the guidelines (Loh *et al.*, 2015). Only one-third of the providers surveyed indicated that they were aware of the USPSTF guidelines on breast self-examinations.

In the US, consumer knowledge about and positive attitude towards USPSTF guidelines are low (Wennberg, 2002 ; Koh and Sebelius, 2010). In a study among women in the US to assess the awareness of and accuracy of knowledge of the USPSTF guidelines for breast cancer screening, less than half of the women were aware of the updated guidelines (Kiviniemi and Hay, 2012). Among those who were aware of the guidelines, only 12% could demonstrate adequate knowledge on the current guideline for providing breast cancer screening, such as the recommended age for screening and frequency of screening.

2.8 Perception of health providers of CPS

The majority of physicians, as well as patients, agree that periodic health examinations are beneficial (Oboler *et al.*, 2002 ; Prochazka *et al.*, 2005). Physicians believe that periodic health evaluations encourage the physician-patient relationship and allow more time and opportunity for addressing clients concerns, counseling, and enhance disease detection (Prochazka *et al.*, 2005). Clients also believe that in addition to physical examination and screening tests, the encounters with physicians for periodic health examinations offer them an opportunity to discuss their health habits and risk factors (Oboler *et al.*, 2002).

Although historically, a lot of professional organisations have suggested that preventive health services be provided as part of routine medical care rather than separately as periodic health examination services, several studies have shown that clients who receive preventive services as separate periodic health examination services stand a better chance of receiving recommended preventive services, compared to their counterparts who are supposed to receive them during a medical encounter (Stange *et al.*, 2000 ; Zapka *et al.*, 2002 ; Lafata *et al.*, 2005 ; Boulware *et al.*, 2006 ; Fenton *et al.*, 2007 ; Pollak *et al.*, 2008 ; Ferrante *et al.*, 2010 ; Shires *et al.*, 2012). Also, it may not be a good idea to wait till people are very sick before offering preventive services, since the focus of that encounter is more likely to be on managing the current illness. In addition, a clinician may be swayed by the severity or otherwise of a patients complaints to provide more or too little of recommended preventive services.

Moreover, patients may come in at the late stage with little benefit for any recommended preventive services. For instance, assuming an individual was waiting till he suffers a stroke, a cancer or a heart attack before visiting the health provider for recommended preventive services, he or she might not survive these diseases after which he or she could get the opportunity to receive these recommended preventive services. Therefore, it may

be more efficient to provide clinical preventive services as a standalone service rather than have it integrated or in addition to routine medical care for acute or chronic presentations. Practitioners could, however, take advantage of patients' visit for acute or chronic care as a point of contact for enrolment into a clinical preventive service programme.

Regarding the perception of barriers to the delivery of preventive services, one study found out that most physicians (46.38%) perceived lack of time as the main challenge to delivering recommended preventive service, along with other challenges such as insufficient patient resources (31.34%), lack of interest by patients (23.45%), and low confidence of physicians and physician forgetfulness (11.83%) (Corral *et al.*, 2012). Coral *et al* (2012) again observed in their study that majority of the physicians (87.86%) believed that it is the responsibility of the Ministry of Health (MOH) of Guatemala, to implement a national program for prevention of NCDs. In addition, majority (42.29%) felt that it was the responsibility of the MOH to improve education on preventive medicine, followed by medical schools (29.71%), and the Guatemala College of Physicians and Surgeons (13.71%). Only 12% of the respondents believed that medical staff should play the major role of educating the public on preventive medicine.

Clearly, the majority of physicians did not feel that they had a major role in addressing the challenges of delivering preventive health services. Many expect the MOH and other health agencies to be at the forefront of confronting challenges in the provision of preventive services. This is generally understandable since the Ministry of Health of a country provides policy direction for the health system and has the responsibility to provide the right environment to prioritise preventive health services. Ultimately, implementers such as physicians and nurses assume the job descriptions and roles assigned to them by policy makers whilst implementing agencies basically address the stated priorities captured in health policy. What the Ministry considers as priorities in health

delivery are what will be formulated into policies that will trickle down to health providers, including physicians. If preventive health is deemed a priority, considering the health resources of the nation, the ministry of health will formulate policies that emphasise preventive health services, and provide the necessary support for the implementation of these preventive health programmes. It is therefore not surprising that the findings by Coral et al (2012) suggested that physicians expect the MOH to spearhead public education on and implementation of preventive health services. This suggests a more holistic or a system's approach to addressing challenges confronting delivery and uptake of preventive services. However, other stakeholders in health, such as health managers, physicians, nurses and other health workers are not absolved of their responsibility in encouraging the delivery and uptake of preventive services. Their contributions in enhancing the patronage of preventive health services are equally important.

2.9 Healthcare delivery in Ghana

2.9.1 Structure of healthcare delivery in Ghana

The Ministry of Health (MOH) of Ghana has the core function of formulating health policies and regulating health facilities and institutions. For instance, the MOH formulated a National Health Policy in 2007, dubbed "Creating Health through Wealth", to set a national agenda for ensuring a healthy population, a requisite for national development (National Health Policy, 2007). Under the direction of the Minister of Health, his deputies, and directors, the activities of various implementing agencies are supervised and regulated to ensure implementation of sound health policies, programs and projects that will ensure good health for the Ghanaian populace. Some of these immediate implementing agencies of the MOH include the Ghana Health Service (GHS), the faith-based institutions such as the Christian Health Association of Ghana (CHAG) and the Ahmadiya Muslim facilities, and the Teaching Hospitals. Others include Health Training institutions, and regulatory

bodies such as the Medical and Dental Council and the Health Facilities Regulatory Authority (HEFRA). The Ministry also provide oversight as to how finances assigned to the health sector by the Government of Ghana, donors and other development partners, are allocated to relevant stakeholders to see the implementation of these policies and programmes within a reasonable budget (National Health Policy, 2007).

Even though there are various implementing agencies, stakeholders and development partners of the MOH, Ghana Health Service is the largest implementing agency under the MOH, which implements national policies emphasising the expansion of primary health care services at regional, district, as well as sub-district levels (GHS 2016 Annual Report, 2017).

The Ghana Health Service (GHS) was established as a Public Service body under ACT 525 in 1996 as a requirement of the 1992 Constitution (GHS 2014 Annual Report, 2015). Administratively, the GHS is organized into three (3) levels namely National, Regional and District levels. Functionally, it is organized into five levels comprising of National, Regional, District, Sub-district and Community levels (GHS 2016 Annual Report, 2017).

At the National level, the GHS has a governing council, the chairman and members of which are appointed by the President of Ghana. The Director- General and his deputy are the Chief Executives of the Service, overseeing various directors with their directorates.

At the Regional level, the Regional Health Director works with a Regional Health Committee, a subcommittee of the GHS Council, to oversee the functioning of the finance departments, public health units, clinical divisions, regional hospitals and all other directorates and bodies under the Regional Health Directorate. Each district has a District Health Committee assisting the District Health Director to supervise various divisions at the district level, including district hospitals. The District hospitals are headed by medical

superintendents, supported by the Hospital Core Management members to ensure the day to day running of the hospital and also to see to the implementation of health policies from above. The sub-district levels are made up of Health Centers, CHPS, community health workers and community volunteers (GHS 2016 Annual Report, 2017). The Community-based Health Planning Service (CHPS) is a primary healthcare strategy adopted by the GHS to improve geographical access to health, especially in remote parts of Ghana. In 2016, there was an increase of CHPS across the country to 4,400, even though the GHS fell short of its target to increase the number of CHPS from 3,951 in 2015 to 6,000 in 2016 (GHS 2016 Annual Report, 2017).

2.9.2 The state of Health Care in Ghana

There are various health programs and interventions in place to address the problems of infectious diseases, non-communicable diseases, maternal mortality, under-five mortality, and other health problems facing the people of Ghana. Some of these efforts are expounded below.

2.9.2.1 Infectious diseases

Some progress has been made in terms of controlling infectious diseases. In 2014, 8.4 million cases of malaria were recorded at OPDs compared to 11.4 million cases in 2013, representing about 23.6% reduction in OPD malaria cases (GHS 2014 Annual Report, 2015). Admissions due to malaria also reduced from 429,940 in 2014 to 409,446 in 2015 and further declined to 379,986 in 2016 (GHS 2016 Annual Report, 2017). In addition, deaths attributable to malaria in 2015 were 2133 compared to 1264 in 2016, a reduction of about 40.9%. Out of these deaths due to malaria, 590 occurred in children-under-5 years in 2016 as against 1,037 in 2015. Case Fatality due to malaria declined from 0.51 in 2014 to 0.32 in 2016 (GHS 2016 Annual Report, 2017).

Since 2012, the proportion of malaria cases seen at the OPD that has been confirmed with testing by either microscopy or RDT have been rising, from about 39% in 2012, to 77.3% in 2016 (GHS 2016 Annual Report, 2017). As part of monitoring adherence to the Test, Treat and Track Policy, the use of Artemisinin-based Combination Therapy (ACT) has been tracked, since its introduction in 2004, in both public and private health facilities. Across the 10 regions of Ghana, the proportion of malaria cases treated at the OPD with ACT reduced slightly from about 57% in 2015 to 55% in 2016. This reduction in the use of ACTs in health facilities has been attributed to adherence to the Test, Treat, and Track policy of Malarial Control Programme (GHS 2016 Annual Report, 2017).

Some progress has also been made in the control of TB and HIV/AIDS, although there have been some challenges as well, especially in TB control. Over the years, data has shown a decline in the number of cases of TB notified (GHS 2016 Annual Report, 2017). In 2015, the number of TB cases detected was 14,999, declining to 14,632 in 2016, representing a decrease of 2.45%. The national case notification rate in 2016 was 54/100,000 population, a downward trend from previous years (GHS 2016 Annual Report, 2017). Possible reasons given included the use of complicated screening questionnaires as well as poor access to TB services. Cure rate of TB remained between the ranges of 74-75% between 2010 and 2015. About 7% of all smear positive cases that were reported at the national level died. The rate of default nevertheless reduced from 3.1 in 2012 to 2.6 in 2015. National level treatment success for TB declined from 88.0% to 87.0% (GHS 2016 Annual Report, 2017).

Antiretroviral Therapy (ART) sites increased from 204 in 2015 to 245 in 2016, whilst Prevention-of- Mother-To- Child-Transmission (PMTCT) sites also increased from 2,325 in 2015 to 2,697 in 2016 (GHS 2016 Annual Report, 2017). Still in 2016, 1,040,430 persons were tested for HIV, whilst 702,381 pregnant women received testing for HIV

with 53% of the pregnant women who tested positive given Anti-retrovirals (ARVs). There were 20,497 new clients enrolled onto treatment with ARTs whilst 74,226 PLHIV received screening for TB whilst 1,247 were given ARVs (GHS 2016 Annual Report, 2017).

Immunisations through the Expanded Programme on Immunisation (EPI) in Ghana is aimed at preventing many infectious diseases in childhood, including measles, pneumonia, TB, polio, rotavirus, yellow fever, tetanus and so on. The overall national immunization coverage achieved in 2016 was 94.6% (GHS 2016 Annual Report, 2017).

2.9.2.2 Ghana Non-communicable Disease Control Programme

Non-communicable diseases (NCDs) are diseases that are not transmitted from person to person. They are usually chronic diseases, implying that they require long duration of management and are usually characterized by slow progression. NCDs were responsible for 40 million (70%) of the estimated 56.4 million mortality globally in 2015, with about 80% of these NCD deaths occurring in low-and- middle-income countries (World Health Organization, 2017a ; World Health Organization, 2017b).

The NCD Control Programme under the Disease Control Department of Ghana Health Service, is tasked with a mandate to develop and sustain activities directed at the prevention and control of NCDs in Ghana (MOH NCD Policy, 2012). NCDs of interest to the NCD control programme in Ghana are Cardiovascular diseases, Diabetes Mellitus, Cancers, injuries, Asthma/COPD, Sickle Cell Disease and Mental Health Conditions (MOH NCD Policy, 2012).

A “National Policy for the Prevention and Control of Chronic Non-Communicable Diseases in Ghana” was developed in 2012 (MOH NCD Policy, 2012). The formulation of the NCD policy began with a workshop for Anglophone West Africa in Banjul, Gambia in 2010, which was jointly sponsored by the West African Health Organisation (WAHO)

and the WHO. The policy was to provide direction on the areas of focus for the prevention and control of NCD in Ghana (MOH NCD Policy, 2012).

One of the strategic areas of the policy include primary prevention activities directed towards the four common risk factors underlying most NCDs namely tobacco use, unhealthy diet, harmful alcohol use and physical inactivity (World Health Organization, 2017b). Others include ensuring early detection and clinical care of NCDs, strengthening health systems towards NCD prevention and control, encouraging research and development towards NCDs, and improve surveillance of NCDs and their risk factors (MOH NCD Policy, 2012).

The Programme Manager of the Ghana NCD Control program at a seminar organized for the KNUST SPH 2017/18 students, enumerated some key achievements resulting from the implementation of the policy and strategies (KNUST SPH Seminar presentation on NCD Control Programme and Policy, 2018). He mentioned the passage of a Subsidiary Legislation on Tobacco (LI 2246- Tobacco Control Legislation), the development and launching of a National Alcohol Policy, improving coverage of NHIS of some cancers beyond breast and cervical cancer, training of health professionals on NCD prevention, control, and palliative care, among others.

He however stated that there were a number of challenges hampering the smooth implementation of the nicely drawn out policies, programmes, and strategies. Notable among them were woefully inadequate financial and logistical support for the Programme. Specifically, he mentioned staffing, transport, logistics and resources for managing the secretariat, and funding as the major problems facing the unit. According to him, the staff strength at the national level of the programme, for instance, was four, including the driver.

2.9.2.3 Reproductive and child health

According to the REPORT ON TRENDS IN MATERNAL MORTALITY by WHO, UNICEF, UNFPA and the World Bank, maternal mortality ratio (MMR; maternal deaths per 100,000 live births) above 300 is categorized as „very high“ and „extremely very high“ if 1000 per 100,000 or more (WHO, 2010). The Millennium Development Goal (MDG) 5 aimed to improve maternal health by reducing MMR by 75% (three-quarters) between 1990 to 2015, and also by improving universal access to reproductive health by 2015 (UN MDG REPORT, 2015). The WHO report on *Trends in Maternal Mortality* for 1990 to 2015 indicates that Ghana's MMR declined from 634 per 100,000 live births in 1990 to 467 in 2000 and 319 in 2015 representing 49.7% reduction in 25 years (WHO, 2015). Ghana could thus not achieve the MDG 5 of reducing MMR by 75% (three quarters) by 2015, and is classified as a country with “very high” maternal mortality according to WHO standards.

Similarly, the UN Inter-agency Group for Child Mortality regards a country as being on track if its under-5 mortality (deaths of children under 5 per 1000 live births) is less than 40 or if its yearly average rate of reduction of under-5 deaths for the period of 1990– 2008 is 4% or more (You *et al.*, 2015). The Millennium Development Goal 4 gave a target of reducing under-5 mortality by two-thirds between 1990 and 2015 (UN MDG REPORT, 2015).

Although under-5 mortality rate in Ghana saw an improvement from 122 per 1,000 live births in 1990 to 82 per 1,000 live births in 2012 and 55 per 1000 live births in 2015, these achievements were still short of the MDG target of 40 per 1,000 live births (GHANA MDG REPORT, 2015)

2.9.3 Some challenges facing health care delivery in Ghana

Healthcare delivery in Ghana is faced with numerous challenges, a major one which is inadequate health financing from various stakeholders, including the Government of Ghana (GOG) (MOH, 2015). As a result, most health policies, strategies and programs to address already known health problems are partially or poorly implemented. The government of Ghana's expenditure on health in 2009 was 4.9% of Gross Domestic Product (GDP) and 5.2% in 2012 (WHO, 2013 ; MOH, 2015). These efforts fall short of the promise made by governments at the Abuja Declaration to commit 15% of their GDP to health (WHO, 2013 ; MOH, 2015). Obviously, this insufficient budgetary allocation to healthcare by GOG could not address the country's rising healthcare needs. (Schieber *et al.*, 2012). The National Health Insurance Scheme (NHIS) is not doing any better as a result of this low fiscal capacity and commitment of GOG to health. The total revenue accrued by the NHIS in 2012 was GH 773.83 million (US\$191.779 million) with total expenditures amounting to GH 788.32 million (US\$195.371 million), indicating a net loss of GH 14.49 million (US\$ 3.59 million) (National Health Insurance Authority, 2012).

Financial mismanagement in the health system also contributes to the lack of funds required to address health needs in the country (Pillinger, 2011). Even when funds are made available from sponsors, mismanagement of the funds and corruption by healthcare managers and other users may severely impact the achievement of healthcare objectives and outcomes. This situation can result in an artificial shortage of funds to meet healthcare needs when there is actually no shortage Pillinger (2011) again estimated that up to 36% of healthcare allocations are lost as a result of financial misappropriations and inefficiencies (Pillinger, 2011). These losses could be enough to pay the salaries of 23,000 nurses if they were not lost to misappropriation and mismanagement (Pillinger, 2011).

Another challenge faced by the healthcare system of Ghana is shortage of healthcare personnel. In 2013, the doctor-to-patient ratio was 1:10,000 and 1:9,043 in 2014, while the midwife-to-patient ratio was 1:1,400 and 1:1374 in 2013 and 2014 respectively (GHS 2014 ANNUAL REPORT, 2015). The situation is even compounded by the problem of inequitable distribution of these staff across the regions of Ghana. According to the Ghana Health Service 2016 Annual Report, at the end of December 2016, apart from health trainees, the total number of health workforce in all ten regions stood at 102,019. However, Ashanti and Greater Accra Regions had the highest proportion of health workers accounting for about 40% of the total health workforce. Greater Accra region had 19% of the health workforce, followed by Ashanti Region (18%), with Eastern region being the third highest with 9.5%. Upper West and Upper East Regions had the least percentage of the health workforce (GHS 2016 Annual Report, 2017).

Aside the inadequate and inequitable distribution of human resource, the rate of infrastructural investment and expansion is not commensurate with population growth and advancement in healthcare standards (Schieber *et al.*, 2012). Some chronic manifestations of these are the long queues at OPDs, crowded inpatient wards and the „no bed“ syndrome.

There are generally inadequate medical equipment and logistics to meet the needs of the enormous number of patients who access healthcare. There is also the problems of communication and transportation affecting healthcare delivery. There are not enough ambulances to transport patients to emergency centers. Chronically, the major emergency centers are congested and emergency cases must join a queue to be transferred to the emergency centers only when empty beds and spaces are available. This lack of adequate health infrastructure, logistics and equipment affect the rural areas the most, which are also victims of the maldistribution of the health workforce in the country. Consequently, the increased pressure on the limited resources, be it human resource, infrastructure, logistics

and equipment, has resulted in numerous patients being deprived of access to appropriate health care (Quartey, 2009).

It may not be surprising if predictive preventive health services are neither the priority of policy makers nor beneficiaries of the health system due to the many problems enumerated above. However, healthcare premised on disease management instead of prevention is ultimately expensive and unsustainable. Therefore, in spite of all the problems of the Ghanaian health system enumerated, preventive health services as a major component of primary health care is appropriate. In the long run, properly set up preventive health services ensure that individuals and government agencies take responsibility in ensuring health. It also brings economic benefit by way of reducing the financial and economic burden of disease.

CHAPTER THREE

METHODOLOGY

3.1 Introduction

This chapter discusses the study area, defines the population, research design, the sample size and sampling techniques, the instruments for the data collection, validation, and data collection procedure.

3.2 Profile of Study Area

The study is set in Kumasi, the second largest city of Ghana, with a land area of approximately 150 square kilometers in size. Politically, Kumasi is divided into ten sub metropolitan areas, namely Manhyia, Tafo, Suame, Asokwa, Oforikrom, Asawase, Bantama, Kwadaso, Nhyiaeso and Subin. For health administration, the Metropolis is divided into five Sub-metros: Asokwa, Bantama, Manhyia North, Manhyia South and Subin. (KMHD, 2018).

The Kumasi Metropolis, which forms 36.2% of the population of Ashanti Region shares boundaries with 2 Municipalities and 4 Districts (Kwabre East and West, Asokore Mampong, Ejisu, Atwima Nwabiagya and Atwima Kwanwoma) (National Population and Housing Census, 2010).

3.3 Population

In terms of population, it is the largest of the 30 districts in the Ashanti Region. It has an estimated 2010 population of 2,063,701. There are 209 communities in Kumasi. Kumasi is a cosmopolitan city with trading being the main occupation of most of the inhabitants (National Population and Housing Census, 2010).

3.4 Vegetation/Climate

The climate is typically wet equatorial with the major rainy season running from late February to early July and the minor from mid-September to early November. The dry season is at its peak in the months of December and January to March. The vegetation can be described as mostly semi-deciduous forest with several valuable trees (National Population and Housing Census, 2010).

3.5 Occupation

The major occupation of the inhabitants are trading and farming. The Central Market (The largest open air market in the ECOWAS Sub-Region), Adum business area (the central business area), Suame and Asafo Magazine (trading in automobile spare parts); and Kaase/Asokwa Industrial Area and Anloga timber products markets are the main trading centres. There are other satellite trading centres located in the various sub metros.

The communities at the outskirts of Kumasi also are involved in farming activities (National Population and Housing Census, 2010).

3.6 Transportation

Almost all the major roads within the metropolis are tarred. Kumasi also has an Airport.

The major means of transportation is by public vehicles (Taxis and “trotro”) (National Population and Housing Census, 2010).

3.7 Economic characteristics

Two-thirds of the adult population aged 15 years and above are economically active, out of which a total of 769,381, representing 91% are employed in one enterprise or the other.

Unemployment rate in the Metropolis is approximately 8.6% according to the 2010 Population and Housing Census (National Population and Housing Census, 2010).

3.8 Education

About 9.1 % of the population that are 3 years and above have never been to school, while 40.5 % are currently enrolled in some school with 50.3 % having ever attended some school. There are more females who have never attended school (104,256) compared to males (41,999). Among males, 5.5 % have never been to school, 43.2 % are now in school and 51.5 % have been to school in the past, whereas amongst females, a relatively higher percentage (12.4%) have never been to school. Thirty-eight percent of females are now in school and 49.6 % are have ever attended in the past (National Population and Housing Census, 2010).

3.9 Health services

The Metropolitan Health Services are organized in 5 sub-metro health districts, namely Asokwa, Bantama, Manhyia North, South and Subin. The Komfo Anokye Teaching Hospital (KATH), the second largest hospital in Ghana is located in the Subin Health Sub-metro, and serves as the major referral hospital for the middle and northern parts of Ghana. Each health sub-metro has at least one government (GHS) hospital (National

Population and Housing Census, 2010).

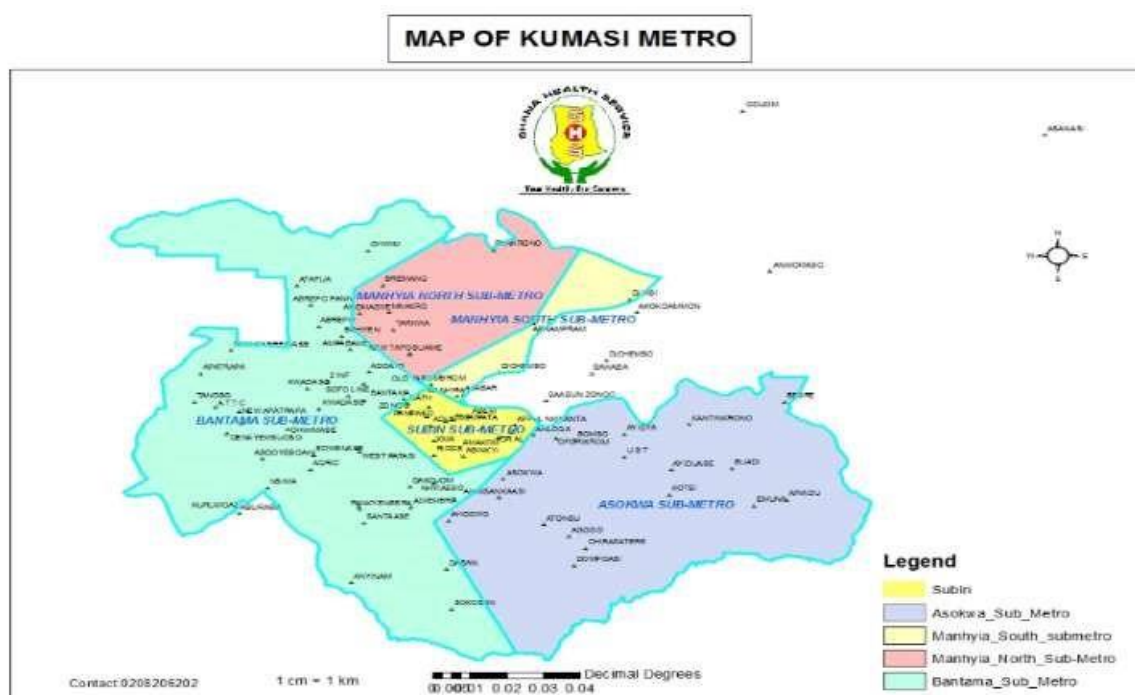


Figure 3.1: Map of Kumasi Health Sub-Metros

Source: Kumasi Metropolitan health Directorate, 2018

Table 3.1: Public hospitals, public clinics, public health centers, private hospitals, and private clinics (private health centers not included)

	Asokwa	Bantama	Manhyia South	Manhyia North	Subin	Total
Government Hospital (GHS Teaching Hospital)	1	1	1	1	2	6
Government Clinic/Health Centers (GHS)	2	2	2	0	1	7
Quasi-Govt	1	0	0	0	4	5
CHAG	2	2	0	2	1	7
Private Hospital	9	20	4	8	1	42
Private Clinic	10	9	11	7	10	47
Total Health Facilities	25	34	18	18	19	114

Source: Kumasi Metropolitan Health Directorate, 2018

3.10 Research design

The study employed a cross-sectional descriptive survey of primary Hospitals, Clinics and Government Health Centers in the Kumasi Metropolis, with collection of both numerical and qualitative data from respondents.

3.11 Selection of health facilities

Health facilities offering orthodox medical services were eligible for sampling into this study. Out of a total 114 such facilities, 25 are public-owned whilst the remainder (89) are privately-owned facilities. The public facilities were made up of 5 Government hospitals (GHS), the Komfo Anokye Teaching Hospital, 1 Government clinic (GHS), 6 Government Health Centers, 7 CHAG facilities and 5 Quasi-government facilities (see Table 3.2). There were 42 private hospitals and 47 private clinics.

Twenty-one (21) out of 25 public-owned facilities were included in the study. Two CHAG facilities (Wesley Methodist Cathedral Clinic and Methodist Clinic) were not included because they were relatively small facilities created by these churches with limited range of services to operate as infirmaries and give first aids, probably to their members. Two Quasi-government facilities (Central Prisons Clinic and Police Regional Clinic) were also excluded because they cater to specific groups which are not representative of the general population.

Twenty-five (25) private health facilities were purposively selected to match the 21 public facilities to arrive at a total of 46 health facilities selected for the study. Oversampling of the private facilities was done because there were a lot more private than public facilities. Five (5) private facilities were selected from each of the 5 health administrative sub-metros. Three private hospitals and 2 private clinics were selected from each of the five health sub-metros according to the OPD size of the health facility. The researcher had

foreknowledge of the annual OPD attendance of the health facilities from data received from the Kumasi Health Directorate on the OPD sizes of all health facilities in the Kumasi Metropolis for the year 2017. Three of the largest hospitals with comparable sizes, and two of the largest clinics with comparable sizes were selected from each health sub-metro. An exception was in the Subin Health District, where there were just two hospital. These two hospitals, and additional 3 clinics, were selected according to the size of their OPD attendance (see Table 3.3)

The size of the OPD attendance was used to select the private facilities with the assumption that facilities with larger OPD attendance are probably attending to a lot more clients and hence may offer more comprehensive services that may include medical checkups, as compared with those with smaller OPD attendance. Also, facilities that are actively attending to a lot of clients may be more likely than those serving fewer clients to have the requisite study participants to interview, in the persons of health managers, doctors, and physician assistants, and other designated personnel in-charge. It was therefore less likely that the researcher would visit a facility and would not have respondents to interview. It is for similar reasons that private health centers were eliminated. Private health centers may not match their public counterparts in terms of OPD attendance and availability of requisite health personnel to participate in the study. Moreover, there are still a lot more private hospitals and clinics to select from to match their public counterparts.

Table 3.2: List of public facilities in the Kumasi Metropolis

	ASOKWA	BANTAMA	MANHYIA NORTH	MANHYIA SOUTH	SUBIN
GOV,T HOSPITAL	PH1	PH2	PH3	PH4	1. PH5 2. PH6
GOV'T CLINIC/HEALTH CENTERS (GHS)	1. HC1 2. HC2	3. HC3 4. HC4	Nil	1. HC5 2. HC6	HC7
CHAG FACILITIES	1. CH1 2. CH2	3. CH3 4. CH4	5. CH5 6. CH6	Nil	CH7

QUASI- GOVERNMENT	Q1	Nil	Nil	Nil	1. Q2 2. Q3 3. Q4 4. Q5
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Source: Kumasi Metropolitan health Directorate, 2018

Table 3.3: Private facilities in the Kumasi metropolis selected for the study

	PRIVATE HOSPITAL	ANNUAL OPD ATT(2017)	PRIVATE CLINIC	ANNUAL OPD ATT (2017)
ASOKWA	PRH A1	21,196	PRC A1	5,519
	PRH A2	13156	PRC A2	904
	PRH A3	2367		
BANTAMA	PRH B1	9,173	PRC B1	5355
	PRH B2	5,817	PRC B2	6428
	PRH B3	50,829		
MANHYIA NORTH	PRH MN1	5,907	PRC MN1	5, 841
	PRH MN2	13, 772	PRC MN2	1688
	PRH MN3	17, 238		
MANHYIA SOUTH	PRH MS1	7,270	PRC MS1	2,160
	PRH MS2	6,000	PRC MS2	3,246
	PRH MS3	12,471		
SUBIN	PRH S1	22,213	PRC S1	8221
	PRH S2	11,339	PRC S2	1200
			PRC S3	1435

Source: Kumasi Metropolitan health Directorate, 2018

3.12 Respondent sampling technique

One Doctor, Physician Assistant, or Nurse-prescriber at the general OPD who is the most likely health practitioner to perform medical checkup in the selected 46 health facilities was purposively selected as a respondent. Information on the most likely person to provide medical checkup in the facility was obtained from the facility manager or the medical director. In situations where the facility had only one prescriber, that prescriber was deemed the most qualified person to act as a respondent, regardless of qualifications. For instance, some government health centers had Nurse-prescribers in-charge of the facility handling the general OPDs. Further information, especially those concerning the health facility that could not be answered by the respondents, were sought from other sources such as the records department or from health service managers.

3.13 Data collection instrument

An interviewer-administered semi-structured questionnaire was used to collect both close-ended questions and open-ended ones. A pre-test survey was carried out in selected health facilities to assist in the design of the data collection instruments, and also to evaluate their validity. Hospital records were used to verify the answers where necessary.

3.14 Data collection process

The data collection instrument was designed to collect data mainly on the structure of health facilities for providing medical checkups, how the practitioners provide the service, the level of patronage of the service, and the perception of the providers towards medical checkups. The respondents included personnel with adequate knowledge of the operations of the facility, and also those in charge of providing medical checkup in the facility.

In order to ensure that the respondents had easier understanding of some of the technical terms used in the questionnaire, an interviewer-administered approach was used. This was to allow the researcher to explain some technical terms to the respondents to ensure that desired and correct responses were obtained. In situations where the respondents were too busy at the time to answer the questionnaire, the researcher left the questionnaire with them to answer at their own free time since they were all literate. On collection, however, the responses were triangulated through a process of feedback with the respondent to ensure each question was understood and answered accordingly.

3.15 Data analysis

All analyses were tailored towards achieving the set research objectives. Responses to closed questions, which were to be analysed for descriptive statistics were entered into a pre-formatted data entry form (Microsoft Excel) and the data exported into STATA for further analysis. Responses to open-ended questions were transcribed into Microsoft Word and manually analysed for patterns and themes. Fisher's exact test was used to ascertain an association between some selected categorical variables.

3.16 Ethical Considerations

Approval was obtained from Committee on Human Research, Publication and Ethics (CHRPE) before starting the study. A written approval was also obtained from the Kumasi Metropolitan Health Directorate before undertaking the study. In order to address the concern most organisations have about the privacy of internal data and information, the justification and aims of the study was carefully explained to facility managers and respondents. Issues of confidentiality and anonymity were addressed by explaining how personal and organizationally identifying data would not be included in the final piece of

work. Additionally, it was made clear that participation was fully voluntary and participants were free to withdraw their consent at any point up to the final write up.

3.17 Funding

The research was self-funded.

3.18 Limitations of the study

A limitation of the study was that the level of patronage of medical checkup in most health facilities could not be verified from hospital records because most of the health facilities lacked appropriate and easily traceable records on medical checkup. The researcher had to rely on estimations from respondents. The researcher believes that the level of patronage of medical checkup in the facilities identified in the study is an overestimation.



CHAPTER FOUR

RESULTS

4.1 Introduction

The findings for the study are presented in this chapter. All 46 questionnaires administered merited inclusion for the analysis as all were responded to and eligible for the study. The presentation of the findings is in tables and figures that are preceded by a narration. It is organized by the demographic characteristics of the respondents, associated factors of that could influence medical preventive services.

4.2 Background characteristics of facilities and practitioners

Table 4.1 below shows a detailed description of the background characteristics of the respondents and the selected health facilities. A total of 46 respondents were included in the study. Half of the respondents were medical officers 23 (50.0%), 15 (32.61%) were physician assistants, 5 (10.87%) were specialists, while 3 (6.52%) were nurses. The 3 nurses were the main in-charges and Prescribers handling 3 Ghana Health Service health centres. Most of the physician assistants were in the private hospitals and clinics. The medical officers and specialists were mainly from the government hospitals, quasi facilities and the CHAG facilities. The 5 specialists included 4 Family Physicians and 1 Internist. In all, about 61% of the respondents were medical doctors and 32.6% were physician assistants.

More than half 34 (73.91%) had practiced for at least 10 years. Eight (17.39%) had 1120 years of practice, 2 (4.35%) had practiced for 21 – 30 years, with 1 (2.17%) representing those who had practiced for 31 – 40 years and above 41 years respectively.

Fifteen (32.61%) of the facilities included in the study were private hospitals. The private clinics accounted for 10 (21.74%), whereas Ghana Health Service (GHS) was represented

by 7 (15.22%) clinic/health centres and 5 (10.87%) hospitals respectively. Five (10.87%) were CHAG facilities, 3 (6.52%) were quasi facilities, while only 1 (2.17%) Teaching Hospital (Poly clinic) was included in the study.

Thirty-five (76.09%) of the facilities had a monthly OPD attendance of 2000 and below, and 11 (23.91%) had theirs at 2001 and above. The 5 Ghana Health Service hospitals had an average monthly OPD attendance more than 2000, as well as 1 CHAG facility, 1 QUASI hospital, the polyclinic of 1 teaching hospital and 3 private facilities. The facilities with an average monthly OPD attendance of not more than 2000, represented mainly, the Ghana Health Service clinic/health centres, private clinics and private hospitals.

Table 4.1: Background characteristics of practitioners and facilities

Variable	Frequency (46)	Percentage (%)
Professional qualification		
- Physician assistant	15	32.61 50.00
- Medical officer	23	10.87
- Specialist	5	6.52
- Nurses	3	
Years of practice		
- Up to 10 years	34	73.91
- 11 – 20 years	8	17.39
- 21 – 30 years	2	4.35 2.17
- 31 – 40 years	1	2.17
- 41 and above	1	
Type of facility		
- Teaching hospital poly clinic	1	2.17
- Hospital (GHS)	5	10.87 15.22
- Clinic/Health Centre (GHS)	7	10.87
- CHAG	5	6.52
- QUASI	3	32.61
- Private Hospital	15	21.74
- Private clinic	10	
Monthly OPD attendance		
- 2000 and below	35	76.09
- 2001 and above	11	23.91

Source: Field Data, 2018

4.3 Assessing practitioners' knowledge and use of CPS guidelines

Table 4.2 below shows a detailed description of assessment of the practitioners' knowledge and practice of clinical preventive services. None of the respondents consulted

a known recommended evidence-based guideline in selecting services to be provided for the clients. Thirty-nine respondents (84.78%) relied mainly on their professional discretion in choosing clinical preventive services. Seventy-one percent (71.43%) of practitioners in the Public health facilities and 96% of those in the private facilities said they relied mainly on their professional discretion as basis for choosing list of items for clients for providing CPS without admitting to the use of any named evidence-based guideline. One respondent admitted to rely mainly on what the patient prefers, and 6 of the respondents used facility's protocol regardless of whether its validity is known or not. The research revealed that close to 90% (89.1%) of the respondents had never heard of the term "Clinical Preventive Service", which is a technical term used to describe primary preventive services to individuals in a clinical setting.

Among the 5 (10.87%) respondents who were aware of the term "CPS", 2 (40%) respondents mentioned none of the components correctly; 2 (40%) of also mentioned screening only, while 1 (20%) identified screening and immunization as components of CPS. None of the 5 respondents who have ever heard of the term "CPS" was able to mention at least three out of the four clinical preventive services correctly.

When participants were asked to mention any recommended CPS guideline, more than 90% of the respondents could not mention at least one correctly. Only 4 (8.70) respondents mentioned at least one correctly. Ninety percent (90.48%) of those in the public facilities and 92% of those in the private facilities could not mention correctly at least one evidence-based guideline that has made recommendations for providing medical checkup.

Forty (86.96%) of the respondents had not heard of USPSTF guideline for providing CPS. Three (6.52%) of the respondents had heard of it but have never seen it. Two (4.35%) of the respondents had seen it but had never read it. One (2.17%) respondent had, however,

read the guideline. When usage of USPSTF for CPS was assessed, it was discovered that 45 (97.83%) of respondents had never consulted the USPSTF guideline for providing CPS. Only 1 (2.17%) respondent was found to have used the USPSTF guideline for providing CPS but not often. None of the respondents was able to explain any of the five USPSTF grades correctly.

Table 4.2: Practitioners knowledge and use of CPS guidelines

Variable	Private	Public	All facilities n=46(%)
Decision on medical checkup list			
- Patients preference only	0 (0.00)	1 (4.76)	1 (2.17)
- Professional discretion only	24 (96.00)	15 (71.43)	39 (84.78)
- Hospital protocol with unknown validity	1 (4.00)	5 (23.81)	6 (13.04)
- Known evidence-based guidelines other than USPSTF	0 (0.00)	0 (0.00)	0 (0.00)
- USPSTF recommendations	0 (0.00)	0 (0.00)	0 (0.00)
Awareness of the term CPS			
- Yes	2 (8.00)	3 (14.29)	5 (10.87)
- No	23 (92.00)	18 (85.71)	41 (89.13)
Mention of four components of CPS			
- None mentioned correctly	0 (0.00)	2 (33.33)	2 (40.00)
- Screening only	2 (100.00)	0 (0.00)	2 (40.00)
- screening and immunization	0 (0.00)	1 (33.33)	1 (20.00)
Mention of Evidence-based guidelines or recommendation			
- at least one mentioned correctly	2 (8.00)	2 (9.52)	4 (8.70)
- none mentioned correctly	23 (92.00)	19 (90.48)	42 (91.30)
Familiarity with USPSTF guidelines			
- never heard of it	23 (92.00)	17 (80.95)	40 (86.96)
- Heard of it but never seen it	1 (4.00)	2 (9.52)	3 (6.52)
- Seen it but never read it	1 (4.00)	1 (4.76)	2 (4.35)
- Have read it	0 (0.00)	1 (4.76)	1 (2.17)
Ever used USPSTF			
- Never	25 (100.00)	20 (95.24)	45 (97.83)
- Seldom	0 (0.00)	1 (4.76)	1 (2.17)
Explanation of USPSTF grading system			
- All five grades explained	0 (0.00)	0 (0.00)	0 (0.00)
- Any four	0 (0.00)	0 (0.00)	0 (0.00)
- Any three	0 (0.00)	0 (0.00)	0 (0.00)
- Any two or one	0 (0.00)	0 (0.00)	0 (0.00)
- None explained	0 (0.00)	0 (0.00)	0 (0.00)
	25 (100.00)	21 (100.00)	46 (100.00)

Source: Field Data, 2018

4.4 Assessing facility's structures for providing clinical preventive services There were 35 health facilities that had more than one consulting room/office. At least, one of these consulting rooms could be known to be designated for providing medical checkup, be it shared with other services or not. Eleven (11) of the facilities, especially the government health centres had only one consulting room, and therefore this question was not applicable to them. Out of the 35 facilities with more than one consulting room, 33 (94%) had no one designated place for providing medical checkup. Medical checkup was done in any consulting room available. Eighty-six percent (85.71) of public facilities and 100% of private facilities with more than one consulting rooms provided medical checkup in no designated room in particular. One public facility had a consulting room for medical checkup but was shared for providing other services, while 1 other public facility had a designated room for providing medical checkup only.

Seventeen (36.96%) of the facilities saw more of individual healthy clients walking into the facility; 16 (34.78%) attended more to organised groups and performed more of community outreaches; 13 (28.26%) saw more of people coming for pre-employment assessment and assessment as a requirement to a school.

None of the facilities provided all four clinical preventive services, namely, screening, preventive medications, office immunisations and counseling services. Thirty-seven health facilities had more than one health person likely to be designated to provide medical checkups. Nine facilities had one such person and therefore could not be assessed on whether the facility took an initiative to designate a person for medical checkup or not. Out of the 37 facilities, 6 (13.04%) had providers that were known to be in charge of providing medical checkup; 31(67.39%) had no such designated people, in which case any provider available could be made to provide the service.

None of the facilities had at least three health personnel making a team for providing CPS. Two categories of health staff made up of a Physician/PA and a nurse usually formed the team providing medical check-up. Most of these nurses assisting the physician/PA are not designated mainly for providing medical checkup. Eighty percent (80%) of the respondents admitted that any nurse available could be called upon to assist in providing the service. Five facilities had mostly the physician or physician assistant alone providing medical checkups, while in 3 facilities, the health personnel providing medical checkup services were nurse prescribers. One facility had separate record for medical check-up; most of the facilities (73.91%) had the records mixed with other/OPD records but were easily retrievable; 23.91% of the respondents indicated that the records were scattered and not easily retrievable; 1 respondent said they had no known traceable record for medical checkup.

One-time visit was the commonest type recorded by most providers (91.30%), as shown in table 4.3. One-time visit was 90.48% for public facilities and 92% for private facilities. Eleven of the 46 providers did not give appointments for a next visit. Out of the 35 providers who said they gave appointments for a next visit, only 1 of them issued appointment cards. Thirty-four (73.91%) of the providers gave verbal appointments without issuing appointment cards. Eighty percent of the facilities did not have a protocol or structured form for providing medical checkup. Forty-one (89.13%) of the facilities did not have a programme in place to create awareness among staff on medical checkup services delivered within the health facilities to the public.

Awareness creation for the public on medical checkup services could encourage patronage among the general population. Twenty-six percent (n=12) of the facilities had programmes outside the facility to educate the public on medical checkup services within their facilities; 6.52% (n=3) of facilities engage mainly in awareness creation within the facility; 67.39%

(n=31) had no formal programme for awareness creation among the general population on medical checkup services within their facilities. Forty-four (95.65%) the respondents declared that neither they nor their colleagues had received any extra training on how to perform medical checkup.

Table 4.3: Facility structures for providing clinical preventive services

Variable	Private	Public	All facilities N=46 (%)
Designated place for medical checkup			
- Any consulting room	21 (84.00)	12 (57.14)	33 (71.74)
- Designated room but shared	0 (0.00)	1 (4.67)	1 (2.17)
- Designated room not shared	0 (0.00)	1 (4.67)	1 (2.17)
- One consulting room(N/A)	4 (16.00)	7 (33.33)	11 (23.91)
Type of medical checkup done mostly in facility			
- Individual healthy subjects coming to facility	14 (56.00)	3 (14.29)	17 (36.96)
- Organized groups	5 (20.00)	11 (52.38)	16 (34.78)
- Individual Pre-employment/pre-admission to school	6 (24.00)	7 (33.33)	13 (28.26)
Components of your CPS			
- Screening only	13 (52.00)	5 (23.81)	18 (39.13)
- Screening, Counseling services	5 (20.00)	11 (52.38)	16 (34.78)
- Screening and immunization services other than provided by EPI	1 (4.00)	0 (0.00)	1 (2.17)
- Screening, immunization services other than provided by EPI, counseling services	6 (24.00)	4 (19.05)	10 (21.74)
- Screening, Preventive medication, counseling services	0 (0.00)	1 (4.76)	1 (2.17)
Designated personnel			
- Yes	2 (8.00)	4 (19.05)	6 (13.04)
- No	19 (16.00)	12 (57.14)	31 (67.39)
- One person (N/A)	4 (16.00)	5 (23.81)	9 (19.57)
Medical personnel likely to perform medical checkup			
- Medical doctor	15 (60.00)	14 (66.67)	29 (63.04)
- Physician assistant	10 (40.00)	4 (14.29)	14 (30.43)
- Nurse	0 (0.00)	3 (14.29)	3 (6.52)
Team approach for medical checkup			
- Physician/PA, designated nurse, Trained counsellor, Dietician	0 (0.00)	0 (0.00)	0 (0.00)
- Physician/PA, designated nurse, Trained counsellor or Dietician	0 (0.00)	0 (0.00)	0 (0.00)
- Physician/PA, designated nurse	0 (0.00)	1 (4.76)	1 (2.17)
- Physician/PA, any nurse,	22 (88.00)	15 (71.43)	37 (80.43)
- Physician/PA only	3 (12.00)	2 (9.52)	5 (10.87)
- Nurse only	0 (0.00)	3 (14.29)	3 (6.52)
Record-keeping for medical check-up clients			
- Separate records for medical checkup only	0 (0.00)	1 (4.76)	1 (2.17)
- Mixed with other records but easily retrievable	17 (68.00)	17 (80.95)	34 (73.91)
- Scattered records not easily retrievable - No records	8 (32.00)	3 (14.29)	11 (23.91)
	0 (0.00)	0 (0.00)	0 (0.00)

Frequency of visits			
- Clients-specific periodic appointments	1 (4.00)	0 (0.00)	1 (2.17)
- Client-specific annual checkups	1 (4.00)	0 (0.00)	1 (2.17)
- Group annual checkups	0 (0.00)	2 (9.52)	2 (4.35)
- One-time visits	23 (92.00)	19 (90.48)	42 (91.30)

Source: Field Data, 2018

Table 4.3 - Facility structures for providing clinical preventive services (continued)

Variable	Private	Public	All facilities N=46 (%)
Issuing of appointment cards			
- Issued to clients	0 (0.00)	1 (4.76)	1 (2.17)
- Verbal appointments without appointment cards issued	20 (80.00)	14 (66.67)	34 (73.91)
- No appointments given	5 (20.00)	6 (28.57)	11 (23.91)
Follow-up reminders when appointments are close			
- Clients are reminded	0 (0.00)	2 (12.50)	2 (19.57)
- Clients are not reminded	19 (0.00)	14 (87.50)	33 (94.29)
Presence of facility protocol/form for medical checkup			
- Yes	2 (8.00)	7 (33.33)	9 (19.57)
- No	23 (92.00)	14 (66.67)	37 (80.43)
Validity of facility protocol			
- Based on USPSTF recommendations	0 (0.00)	0 (0.00)	0 (0.00)
- Based on other known evidence-based guidelines	0 (0.00)	2 (28.57)	2 (22.22)
- No known evidence-based guideline mentioned	2 (100.00)	5 (71.43)	7 (77.78)
Publicity for staff on medical checkup services in facility			
- Formal awareness creation for all staff	2 (8.00)	2 (9.52)	4 (8.78)
- Formal awareness creation for clinical staff only	0 (0.00)	1 (4.76)	1 (2.17)
- Formal awareness creation for providers of medical checkup only	0 (0.00)	0 (0.00)	0 (0.00)
- No formal awareness creation done	23 (92.00)	18 (85.71)	41 (89.13)
Publicity for the public on medical checkup			
- Formal publicity outside facility	4 (16.00)	8 (38.10)	12 (26.09)
- Formal publicity within the facility	1 (16.00)	2 (9.52)	3 (6.52)
- No formal program for publicity available	20 (80.00)	11 (52.38)	31 (67.39)
Extra formal training for providers			
- Yes	0 (0.00)	2 (9.52)	2 (4.35)
- No	25 (100.00)	19 (90.48)	44 (95.65)

Source: Field Data, 2018

4.5 Level of patronage of clinical preventive services in the facility

Twenty four percent of the respondents performed medical checkup in the past 1 week; 30% in the past 1 month; 13% in the past 2 months; 26% in the past 3 months; 7% in the past 6 months and above. Seventy-eight percent (78%) of the practitioners personally

served not more than 4 healthy clients coming for medical checkup in the facility over the past 6 months; 22% saw 5 or more clients coming for medical checkup in the facility over the previous 6 months. Seventy-four percent (74%) of respondents from private facilities and 71% of those in public facilities had not personally served more than 4 healthy clients coming for medical checkup in their facilities over the past 6 months. At the level of the health facility, 96% of private facilities and 90.47% of public facilities saw not more 10 healthy clients, who had no disease condition, coming for medical checkup only in their facilities over the previous 6 months period. Altogether, 93.48% of the health facilities attended to not more than 10 healthy clients over the previous 6 months period coming for a medical checkup only. The level of patronage of CPS was calculated as the percentage of OPD attendance over 6 months attributable to the number of healthy clients seen in the facility for medical checkup over the same 6 months period.

The percentage of OPD attendance attributable to CPS was less than 0.5% for 93.48% (n=43) of the facilities. 6.52% (n=3) of the facilities had theirs at 0.50% and above. The maximum percentage of OPD attendance attributable to CPS was 0.83%. In general, therefore, the percentage of OPD attendance attributable to CPS for the 46 health facilities was less than 1%, with more than 90% below 0.5%.

Table 4.4: Level of patronage of clinical preventive services in the facility

Variable	Private	Public	All facilities (n=46)
Last time CPS was performed			
- Past 1 week	4 (16.00)	7 (33.33)	11 (23.91)
- Past 1 month	7 (28.00)	7 (33.33)	14 (30.43)
- Past 2 months	3 (12.00)	3 (14.29)	6 (13.04)
- Past 3 months	9 (36.00)	3 (14.29)	12 (26.09)
- 6 months and above	2 (8.00)	1 (4.76)	3 (6.52)
Individual healthy client's provider served in past 6 months			
- up to 4 clients	21 (74.00)	15 (71.43)	36 (78.26)
- 5 clients and above	4 (26.00)	6 (28.57)	10 (21.74)

Individual healthy clients facility served in past 6 months			
- up to 5 clients	14 (56.00)	7 (33.33)	21 (45.65)
- 6 – 10 clients	10 (40.00)	12 (57.14)	22 (47.83)
- 11 – 15 clients	1 (4.00)	1 (4.76)	2 (4.35)
- 16 - 20 clients	0 (0.00)	1 (4.76)	1 (2.17)
Percentage of OPD attendance attributable to CPS			
- less than 0.50%	23 (92.00)	20 (95.24)	43 (93.48)
- 0.50% and above	2 (8.00)	1 (4.76)	3 (6.52)

Source: Field Data, 2018

4.6 Perception of health providers towards clinical preventive services

Table 4.5 shows the perception of health practitioners towards the provision of clinical preventive services. All the 46 respondents (100%) believe that medical checkups are beneficial; 43 (93%) strongly agree and 3 (7%) agree that medical checkup is beneficial. Forty-five (98%) of the respondents believe that health providers should prioritise medical checkup, with 36 (78%) strongly agreeing. One respondent was undecided on the issue. All the respondents (100%) want medical checkup services incorporated as a routine practice in all primary care health facilities, but the majority (74%) strongly think so.

Concerning the respondents' preferred place for performing medical checkup, the majority of the respondents (61%) prefer medical checkups be performed within the health facility than outside the facility. Three (7%) respondents want medical checkups performed more in private facilities than public facilities; 7(15%) of the respondents were undecided; 18 (39%) disagreed; and 18 (39%) strongly disagreed that medical checkups should be performed more in private facilities than in public facilities. In all, 36 (78%) of the respondents do not believe that medical checkups should be performed more in private facilities than in public facilities. Thirty-nine (85%) respondents want medical checkup services provided as a separate service on its own, while 7 (15%) respondents want the service incorporated into acute and chronic care services. Thirtyfour (74%) of the respondents want NHIS to pay for medical checkup services; 6 respondents were

undecided; and another 6 respondents did not think so. Forty-one (89%) respondents believe Ghana should have its own guidelines for providing medical checkups; 3 respondents were undecided; and 2 disagree.

Table 4.5: Perception of health providers towards medical checkup

Variable	Private	Public	All facilities – n=46 (%)
Medical checkup is beneficial			
- Agree	2 (8.00)	1(4.76)	3 (6.52)
- Strongly agree	23 (92.00)	20 (95.24)	43 (93.48)
Health providers should prioritise medical checkup			
- Neutral	1 (4.00)	0 (0.00)	1 (2.17)
- Agree	6 (24.00)	3 (14.29)	9 (19.57)
- Strongly agree	18 (72.00)	18 (85.71)	36 (78.26)
Medical checkup should be incorporated as a routine practice in all primary health care facilities			
- Agree	8 (32.00)	4 (19.05)	12 (26.09)
- Strongly agree	17 (68.00)	17 (80.95)	34 (73.91)
Medical checkup should be performed mostly within health facilities			
- Strongly disagree	0 (0.00)	1 (4.76)	1 (2.17)
- Disagree	7 (28.00)	7 (33.33)	14 (30.43)
- Neutral	1 (4.00)	0 (0.00)	1 (2.17)
- Agree	14 (56.00)	7 (33.33)	21 (54.65)
- Strongly agree	3 (12.00)	6 (28.57)	9 (19.57)
Medical checkup should be performed mostly outside health facilities			
- Strongly disagree	0 (0.00)	2 (9.52)	2 (4.35)
- Disagree	5 (20.00)	2 (9.52)	7 (15.22)
- Neutral	4 (16.00)	4 (19.05)	8 (17.39)
- Agree	12 (48.00)	9 (42.86)	21 (45.65)
- Strongly agree	4 (16.00)	4 (19.05)	8 (17.39)
Preferred place for medical check up			
- Within the health facility	17 (68.00)	11 (52.38)	28 (60.87)
- Outside the health facility	8 (32.00)	10 (47.62)	18 (39.13)
Medical checkup should be done more in private facilities than in public facilities			
- Strongly disagree			
- Disagree	7 (28.00)	11 (52.38)	18 (39.13)
- Neutral	12 (48.00)	6 (28.57)	18 (39.13)
- Agree	5 (20.00)	2 (9.52)	7 (15.22)
	1 (4.00)	2 (9.52)	3 (6.52)

Recommendation for medical checkup			
- Separate service for healthy clients	18 (72.00)	21 (100.00)	39 (84.78)
- Incorporate into acute/chronic care service	7 (28.00)	0 (0.00)	7 (15.22)
NHIS should pay for medical checkup			
- Disagree	4 (16.00)	2 (9.52)	6 (13.04)
- Neutral	5 (20.00)	1 (4.76)	6 (13.04)
- Agree	12 (48.00)	5 (23.81)	17 (36.96)
- Strongly agree	4 (16.00)	13 (61.30)	17 (36.96)
Should Ghana adopt its own guidelines for medical checkup?			
- Disagree	2 (8.00)	0 (0.00)	2 (4.35)
- Neutral	3 (12.00)	0 (0.00)	3 (6.52)
- Agree	12 (48.00)	8 (38.10)	20 (43.48)
- Strongly agree	8 (32.00)	13 (61.90)	21 (45.65)

Source: Field Data, 2018

4.6.1 Respondent's reasons why medical checkups should be performed mainly within the health facility

- It is cumbersome transporting a team of requisite staff to perform medical checkups outside the facility.
- In the facility, health providers can attend to sick people and also perform medical checkups as and when clients become available. When health providers are taken outside the facility to provide medical checkups, there could be shortage of staff in the facilities to attend to sick people.
- Privacy and confidentiality are ensured in taking history, performing physical examinations, disclosing diagnosis, counseling patient, and so on
- Facilities, equipment, logistics, and laboratory and radiological services are readily available in a health facility to enable thorough examination and investigations to be done to facilitate diagnosis of ailments

4.6.2 Respondent's reasons why medical checkup should be performed mainly outside the health facility

- People who are not sick will be hard to get into the facility to perform medical checkup because they wouldn't see the need and also because healthy clients might perceive health facilities as places where they take care of only sick people.
- The workload and congestion in health facilities will not be compounded
- Most healthy clients will not be willing to spare some time off their busy schedules to join long queues in the facility when they are not sick.
- More people will be reached in the community
- The atmosphere in health facilities could be frightening for some people. People may have white-coat hypertension, for instance, and may be wrongly diagnosed as hypertensive.

4.6.3 Respondent's reasons why private facilities should not be preferred to public facilities in the provision of medical checkup

- Client can assess both public and private facilities equally for medical checkup as long as the facilities and the requisite personnel are available to serve them.
- It also depends on what is available or accessible to clients. In some localities, private facilities are not available and vice versa.
- Cost of care could be higher in private facilities than in public facilities since they are mainly profit-oriented and this could discourage the patronage of medical checkups in general, as there could be a general perception created that the services are expensive.
- A lot more people visit the government facilities where they are available and readily accessible.

4.6.4 Respondent's reasons why private facilities should be preferred to public facilities in the provision of medical checkup

- The customer service is usually better in private facilities than public facilities, suggesting that clients could be made to feel more comfortable in private facilities than in public facilities
- Clients are less likely to be turned away or labeled as “too known” for wanting to have a checkup in a private facility than in the public facilities
- The workload in public facilities could be discouraging for healthy clients who will not be willing to join long queues just for a medical checkup

4.6.5 Respondent's perspective of provider challenges for providing medical checkup

- Most health facilities have not created the structures, system or the environment to encourage the provision and receipt of medical checkup services
- Lack of trained staff with adequate knowledge on clinical preventive services and guidelines to provide quality service
- Some facilities and their human resource are already overwhelmed with the workload of provision of acute and chronic care services
- Poor public awareness and health literacy resulting in low patronage of the service
- Clients beliefs, religions, traditions, and the patronage of unorthodox over orthodox health care also resulting in low patronage of the service
- Lack of adequate facilities, equipment, laboratory and radiological services for providing a wide range of the required services.
- Non-compliance of clients with follow-up and appointments resulting in one-time visits in most of the cases.

- Clients cannot afford a full range of recommended services and therefore the provider is forced to prioritize.
- Client refusing certain investigations such as for HIV testing.
- Appreciation of non-clinical Administrators of preventive services who might be more concerned about its financial implications.
- Some organisations specify that they don't want private providers performing medical checkup for their clients
- Client perceive health facilities as attending to sick people only

4.6.6 Respondent's perspective of client's challenges for receiving medical checkup

- Availability of qualified health personnel and quality service
- Inability to afford a full range of medical checkup services
- The health facilities and health personnel create the impression as if they take care of only sick people, making healthy clients feel unwelcomed or uncomfortable to come to them for a checkup only. Healthy clients who come to a health facility to perform medical checkup may be labeled as "too known" and this could discourage the patronage of the service. Some healthy clients fear they could be turned away with the excuse that they are not sick and they were impeding serious work.
- Some people do not know where to receive medical checkup services and might conclude that the services are not available
- Lack of time to join long queues in health facilities when they are not sick
- Inadequate human resource, facilities, equipment, laboratory and radiological services to provide a full range of required services for clients
- Lack of adequate public awareness and health illiteracy on the need for medical checkups and where to receive the service
- Fear and anxiety of diagnosis

- Religious and traditional beliefs about disease and its causation
- Workload on providers might not allow enough time for adequate education and counseling of clients
- Sometimes there are delays in receiving laboratory results and information on client's findings. This could lead to unnecessary anxieties.
- There is no proper system in place for follow-up
- Sometimes the clients are not close to health facilities and health personnel
- Medical checkup services require taking a thorough history, performing physical exams, and requesting for a range of laboratory or radiological investigations. The process could be cumbersome and time-consuming for clients, especially the busy ones.

4.7 Measures of Associations

4.7.1 Influence of OPD attendance on level of patronage of CPS

From table 4.6, there was no significant association between the size of OPD attendance and level of patronage of CPS (p-value = 1.00).

Table 4.6: Influence of OPD attendance on level of patronage of CPS

Variable	Level of patronage of CPS		p-value
	Up to 0.50%	0.50 % and above	
Monthly OPD attendance			
- 2000 and below	32 (74.42)	3 (100.00)	1.00
- 2001 and more	11 (25.58)	0 (0.00)	

Source: Field Data, 2018

4.7.2 Influence of type of facility on level of patronage of CPS

Table 4.7 shows that, type of facility in terms of whether it is a Public or a Private facility has no significant influence on the level of patronage of CPS in health facilities in the Kumasi Metropolis (p-value = 1.00).

Table 4.7: Influence of type of facility on level of patronage of CPS

Variable	Level of patronage		p-value
	Up to 0.50%	0.50% and above	
Type of facility			
- Private	23 (53.49)	2 (66.67)	1.00
- Public	20 (46.51)	1 (33.33)	

Source: Field Data, 2018

4.7.3 Relationship between professional qualification and awareness of the term CPS

There was no significant association between being a Doctor or a Non-Doctor Prescriber (Physician Assistant or Nurse Prescriber) and awareness of the term CPS, as shown in table 4.8 (p-value = 0.14).

Table 4.8: Relationship between professional qualification and awareness of the term CPS

Variable	Awareness of the term CPS		p-value
	Yes	No	
Professional qualification			
- Doctor	5 (100.00)	23 (56.10)	0.14
- Non-doctor (PA and Nurse Prescriber)	0 (0.00)	18 (43.90)	

Source: Field Data, 2018

4.7.4 Relationship between professional qualification and mention of at least one evidence-based guidelines for providing CPS

From Table 4.9, professional qualification in terms of being a Doctor, a Physician Assistant or a Nurse Prescriber, had no significant influence on the ability to mention the name of at least one evidence-based guideline or recommendation for providing CPS (pvalue = 0.14).

Table 4.9: Relationship between professional qualification and mention of at least one evidence-based guidelines for providing CPS

Variable	Evidence based guidelines		p-value
	At least one mention correctly	Couldn't mention at least one correctly	

- Doctor	4 (100.00)	24 (57.14)	0.14
- Non- Doctor (PA and Nurse Prescriber)	0 (0.00)	18 (42.86)	

Source: Field Data, 2018

4.7.5 Relationship between professional qualification and familiarity with USPSTF guidelines

As shown in table 4.10, professional qualification in terms of being a Doctor or Nondoctor did not influence significantly how familiar the respondent was with the USPSTF guidelines (p-value = 0.22).

Table 4.10: Relationship between professional qualification and familiarity with USPSTF guidelines

Variable	Familiarity with USPSTF guidelines				p-value
	Never heard of it	Heard of it but never seen it	See it but never read it	Have read it	
- Doctor	22 (55.00)	3 (100.00)	2 (100.00)	1 (100.00)	0.22
- Non- Doctor (PA and Nurse Prescriber)	18 (45.00)	0 (0.00)	0 (0.00)	0 (0.00)	

Source: Field Data, 2018

4.7.6 Relationship between professional qualification and the method of selection of list of CPS provided for clients

There was no significant association between professional qualification (Doctor or NonDoctor) and the use of a named evidence-based guideline as basis for providing CPS, as shown in table 4.11(p-value – 0.621).

Table 4.11: Relationship between professional qualification and the method of selection of list of CPS provided for clients

Variable	Professional qualification		P-value
	Doctor	Non-Doctor (PA and Nurse Prescriber)	

- Patient's preference only	0 (0.00)	1 (5.56)	0.62
- Professional discretion only	24 (85.71)	15 (83.33)	
- Hospital Protocol with a unknown validity	4 (14.29)	2 (11.11)	
- Known evidence-based guidelines other than USPSTF	0 (0.00)	0 (0.00)	
- USPSTF recommendations	0 (0.00)	0 (0.00)	

Source: Field Data, 2018

CHAPTER FIVE DISCUSSIONS

5.1 Introduction

This chapter discusses the results of the study. The discussion is done according to the research objectives. The main purpose of the study was to evaluate Clinical Preventive Services (CPS) in primary health facilities in the Kumasi metropolis. The specific objectives were to assess the structures of the health facilities for providing CPS, to assess the knowledge and practice of health practitioners of CPS, to assess the level of patronage of CPS in the facilities, and to assess the perception of the providers of CPS. In all, forty-six primary health facilities (21 public facilities and 25 private facilities) were selected.

5.2 Practitioners' knowledge and use of CPS guidelines

There are various evidence-based guidelines and medical associations that make recommendations on preventive services. Examples include USPSTF, CTFPHC, American Heart/Stroke Association (AHA/ASA), American Diabetes Association (ADA), National Institute for Health and Care Excellence (NICE), National Cholesterol Education Program (NCEP), Joint National Committee (JNC) on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure, Ghana NCD Control Programme and so on. Practitioners were supposed to demonstrate their familiarity with one or more of these recommendations as their guide for providing medical checkup for their clients. Findings from the study suggest that practitioners lacked adequate knowledge on evidence-

based guidelines for providing medical checkup. Majority (91.30%) of the respondents could not mention any evidence-based guideline they rely on for providing medical check-up. Many (93.48%) also have never seen the USPSTF guidelines. This finding is consistent with a study conducted among internal medicine physicians on their knowledge of evidence-based guidelines for providing CPS, which also showed limited knowledge among the physicians (Corral et al., 2012).

The limited knowledge on evidence-based recommendations on preventive services expectedly translated into the practice of the service, with 87% of the respondents indicating that they rely more on their professional discretion and client's suggestions in choosing preventive services to be provided for client without mentioning any guideline they use. This again is consistent with some studies suggesting that most providers do not deliver recommended preventive services to individuals. (McGlynn *et al.*, 2003 ; Loh *et al.*, 2015). The 2009 guidelines of the USPSTF does not support teaching self-breast examination to women. (Nelson *et al.*, 2009). Findings from a study to assess knowledge, adherence and attitudes of family physicians and general internist concerning the 2009 USPSTF guideline on breast self-examination showed that 70% of the respondents did not comply with the guidelines. (Loh *et al.*, 2015). Only one-third of the respondents specified that they were aware of the USPSTF guidelines on breast selfexaminations. This is against the expectation that physicians should recommend preventive services that are supported by the evidence available, encouraging those practices that have been proven to benefit the patient, and discouraging those practices that are proven to be harmful or where the evidence is inconclusive. The lack of adequate knowledge and the resultant low use of evidence-based guidelines for providing preventive services suggest that clients are not receiving the best of health care when it comes to medical check-up.

Possible reasons for the inadequate knowledge and use of preventive service guidelines might be that providers are more oriented towards curative health than preventive health care. If they were probably asked to mention some standard treatment guidelines for managing diabetes mellitus, hypertension, stroke, heart failure and other medical conditions, that may not have been an issue as compared with mentioning guidelines for providing preventive services, since the bulk of medical training is towards providing treatment for already established diseases. This then suggests a bigger problem beyond the practitioners, since they are not the ones at the forefront of designing curricula for medical training and do not provide the policy direction for medical practice in the country. This explanation is supported by the findings from a study where majority of physicians (87.68%) suggested that the Ministry of Health should be at the forefront of formulating and ensuring the implementation of national preventive health programs, including education on preventive medicine. (Corral *et al.*, 2012).

There was no significant associations between professional qualification (Doctor and non-Doctor) and knowledge of CPS guideline (p-value = 0.14), as shown in table 4.9. Not surprisingly also, no significant association was found between professional qualification and the use of evidence-based guideline as basis for providing CPS either (p-value = 0.62), as shown in table 4.11. The implication is that those at the forefront of providing medical checkup for clients are not consulting current evidence much, and are not likely to provide quality preventive services to their clients. Since also, the problem exists across all the health professional divides interviewed, it might require a more holistic approach adopted by the health system and policy makers, which are beyond these health professionals. These health professionals are probably not coming across these guidelines in their curricula of training. They might also not come across these guidelines in their line of work because probably their job descriptions do not require them to go after knowledge of this

kind. It must be emphasised that if there is a general consensus that medical checkups are beneficial when done right, then health providers must be equipped with the requisite knowledge to provide quality service to their clients always.

5.3 Facility structures for providing CPS

Many studies have shown that it is more likely for clients to receive recommended preventive services when the services are delivered as separate periodic health evaluations than when primary preventive services are combined with acute and chronic care services. (Stange *et al.*, 2000 ; Zapka *et al.*, 2002 ; Lafata *et al.*, 2005 ; Boulware *et al.*, 2006 ; Fenton *et al.*, 2007 ; Pollak *et al.*, 2008 ; Ferrante *et al.*, 2010). Therefore, to ensure that recommended preventive services are delivered to every individual at high rates, setup for providing medical checkups must be structured in a manner that makes it a separate service from other services provided by the health facility. Preventive services should therefore have designated places, designated lead persons, and designated teams known to be assigned for providing the service. This however was not the picture observed in the study. Most (94%) of the facilities had no designated places for providing medical checkup. For such facilities, medical checkup was provided in any available consulting room as and when the opportunity for a medical checkup presents itself. It was obvious for most of these facilities that their physical structures were small, and they couldn't afford to designate a separate room for medical checkup only. Some facilities also had only one consulting room and such facilities cannot have any other room for providing medical checkup only. An obvious reason to the researcher why most of the facilities did not have separate and designated rooms for providing medical checkup was therefore a lack of adequate infrastructure. The same however could not be said about larger facilities such as some major public and private hospitals, which had a relatively larger infrastructure with several rooms, some of which could have been labelled as places designated for providing

clinical preventive services. For such facilities, a possible reason for not assigning places to medical checkup could be lack of will, commitment or interest of the health providers and health service managers towards medical checkup.

Even for facilities with more than one primary care provider at the OPD, (84%) of them had no designated persons for providing medical checkup. In such situations, any health provider available at the general OPD in the capacity of a primary care provider automatically qualifies as a provider of medical checkup. This situation of lack of designated personnel for medical checkup could also partly explain why this study found most of the providers lacking the requisite knowledge of evidence-based guideline for providing medical checkup. A person designated for providing medical checkup may be more likely to receive some extra training on or inform himself or herself of evidencebased guideline for providing the service and is therefore more likely to use these guidelines. A health provider performing his normal medical consultations yet sees a client coming for a medical checkup once in a while could not be adequately motivated to seek knowledge on current guidelines for providing medical checkup as compared to one designated for the service. A lack of adequate staff could be a reason most of these facilities do not have designated persons and teams assigned mainly for medical checkup. Some facilities such as the government health centres and private clinics had only one person such as a physician assistant or a doctor handling the whole facility at any point in time. Such people are obviously put on duty to treat sick people and not for the purpose of performing medical checkup. Such physicians and health providers are not put on duty to expect medical checkup clients, especially where medical checkup is not part of the programme or plan of the health system or facility that put them there. Medical checkups in such circumstances are performed as and when a client presents an opportunity to the provider. This situation aligns with the observation of Jaén, Stange and Nutting (1994) that clinical preventive

services compete with acute and chronic care services, which of course are priorities in such situations (Jaén, Stange and Nutting, 1994).

At this point, the researcher would however like to emphasise that even though there is a genuine reason of inadequate staffing to explain the lack of designated persons and teams for providing medical checkups, the fact still remains that appropriate structures for providing clinical preventive services in most health facilities in the Kumasi metropolis are lacking.

Majority (98%) of the facilities also did not have separate records for medical checkup services. The records were largely mixed with OPD records or scattered and were not easily retrievable. These same facilities had records of chronic care services such as for diabetes mellitus and hypertensive patients, and gave them appointment cards to remind them of their next visits. This demonstrated a lack of seriousness towards follow up on medical checkup clients. This was consistent with other findings in this study where most (91.30%) of the medical checkup visits were one-time visits whereby a client came for medical checkup once but never came back for a second appointment. This contradicts the recommendations of the Canadian Task Force for Preventive Health Care (CTFPHC) that medical checkup appointments should be client-specific periodic appointments (Birtwhistle et al., 2017). Medical checkup shouldn't have been one-time events as observed in most of these facilities. Even an annual checkup is no longer recommended, according to the CTFPHC, as compared to these client-specific periodic appointments. (Birtwhistle et al., 2017).

Only very few facilities (20%) had protocols for providing medical checkup. For these facilities also, most (78%) of them could not confirm the validity of these protocols in terms of whether it was based on a known evidence-based guideline or not. This could

demonstrate a lack of awareness of the fact that there are evidence-based guidelines available whose recommendations must be considered in designing these protocols. Or probably also, no one is paying a particular attention to the validity of the contents of these protocols as against updated evidence-based recommendations for providing preventive services.

Studies have indicated that lack of awareness of preventive services is one of the barriers that negatively affect the delivery and uptake of preventive services. (Babatunde and Ikimalo, 2009). This notwithstanding, this study indicates that 89% of the facilities had no programme for creating awareness among staff and 67% had no laid out plans for creating public awareness on prevention and preventive services.

This again explains the negative attitude and lack of orientation of the health system and health providers towards medical checkup. In one study however, most (42.29%) of the physicians interviewed believed that it was the responsibility of the MOH to improve education on preventive medicine, then medical schools (29.71%), and then the College of Physicians and Surgeons, (13.71%). Only 12% of the participants indicated that medical staff should play the major role of educating the public on preventive medicine. (Corral *et al.*, 2012). Probably what most of these physicians were suggesting was a holistic approach to ensuring there is increased delivery and uptake of preventive services, spearheaded by policy makers and major stakeholders in health who will ensure that policies on preventive services are formulated and implemented in an entire health system. Leaving it to the discretion of health facilities, health managers, and clinical staff, probably might be a disorganized approach to addressing the major issue of finding ways and means to encourage provider delivery and public uptake of preventive services.

5.4 Level of patronage

Even though the benefits of preventive services are well-established (Maciosek *et al.*, 2010), several studies have indicated that rates of delivery and uptake of preventive services are low. (Stange *et al.*, 2000 ; Nelson *et al.*, 2002; Salinsky, 2005 ; Smith, Cokkinides and Eyre, 2005; Maciosek *et al.*, 2006 ;). In this study also, the percentage of OPD attendance attributable to CPS was less than 0.5% for 93.48% (n=43) of the facilities. Only 6.52% (n=3) of the facilities had theirs at 0.50% and above. The maximum percentage of OPD attendance attributable to CPS was 0.83%. In general, therefore, the percentage of OPD attendance attributable to CPS for the 46 health facilities was less than 1%, with more than 90% below 0.5%. Similar findings were observed by the Ethiopian Ministry of Health with household health service utilization study conducted indicating that only 0.63% of out-patient health service users received medical check-ups or preventive health care (Ethiopia Ministry of Health, 2014). This suggests that the trend of health service utilization and provision is mainly oriented towards curative health to the large neglect of preventive health services. Studies have shown that only half of recommended preventive services are received by Americans (McGlynn *et al.*, 2003; Ogden, Richards and Shenson, 2012).

This situation of low patronage of preventive services suggests that most people will probably use a health facility only after they had suffered a medical condition, such as a stroke or a heart attack, even though they had risk factors that could have been managed to avert these conditions. Respondents were asked some of their perceived and experiential challenges for providing medical checkup that could account for the low patronage. One of such challenges, according to the respondents, was lack of facility structures for providing medical checkup, which was blamed on inadequate health care resources or a lack of commitment of health care policy makers and stakeholders towards medical

checkup. When the health system and health facilities are not designed to accommodate medical checkup right from the top, those at the implementing level usually do not do something different. The respondents also mentioned increased workload from curative services on the few health staff available, as one of the challenges, resulting in a lack of interest in taking on the extra load of taking care of clients who are not sick. Others mentioned included a lack of awareness or health literacy among the general public concerning medical checkup, and therefore discouraging its patronage. Respondents also believed that clients may have the challenge of meeting the cost of preventive health services and may not be able to afford a full range of medical checkup services.

Respondents were also asked to state some challenges that might influence client's uptake of medical checkup services. On the side of the clients, the respondents mentioned that they might not want to join long queues at a health facility just for a medical checkup. They might also not be prepared to spend their scarce financial resources on their healthy self when there are other competing demands for their finances. Some people also just cannot afford medical checkup services or laboratory investigations that are not covered by a health insurance. Others are also scared of the attitude of staff who possibly might tag them "too known". There are clients who probably also are not certain if health providers will be willing to provide the service and might also not be certain where to receive the service. There are therefore both health provider and client factors that could affect the level of patronage of medical checkup services.

Most of the reasons cited by the respondents as provider and client factors influencing the provision and utilization respectively, of clinical preventive services, have been documented in many studies. These factors have been described as an interaction between physician, patient, practice and environmental factors. (Jaén *et al.*, 1994 ;

Carney *et al.*, 1992 ; Carpiano *et al.*, 2003 ; Litaker *et al.*, 2005; Sussman *et al.*, 2006).

Most of these factors were suggested in the competing demand medical model designed by Jaén, Stange and Nutting (1994), as shown in figure 2.3 above, explaining the various factors that influence the delivery of preventive services (Jaén, Stange and Nutting, 1994)).

Time limitation is a key factor influencing the provision of preventive services in primary care. (Yarnall *et al.*, 2003 ; Abbo *et al.*, 2008). Most individuals also still believe that the health facility is a place for sick people and if you are not sick, you have no business visiting a health facility. (Woolf and Atkins, 2001). A lack of public awareness, poor attitude towards preventive services, time constraints, and the inconvenience of accessing preventive health services at various service provision points have also been implicated in the factors contributing to the provision and utilisation of preventive services.(Babatunde and Ikimalo, 2009). Other studies have also observed limited education, low income and lack of insurance coverage to be associated with lower rates of use of preventive services. (Kenkel, 1994 ; Sambamoorthi and McAlpine, 2003 ; Sudano Jr and Baker, 2003). Mcmorrow et al (2014) also found an association between type of preventive service and income level of clients and the rate of receipt of preventive services. (Mcmorrow, Kenney and Goin, 2014). Generally, this study and other studies have found low levels of delivery and uptake of preventive services with several factors to explain why. These findings tell us there is still more work to be done to improve the situation.

The general OPD is usually the first point of contact for undifferentiated medical conditions and serves as the primary care aspect of a health facility. Stable patients desiring to receive a medical checkup are more likely to visit a general OPD consulting room than report to any other part of the facility for the service. The size or the inflow of the general OPD in primary care facilities could give an idea about the number of clients that patronise primary care services in that facility. It could have been the case that the more people that

patronise primary care services at a facility, the more likely it is for some of such visits to be for the purpose of medical checkup. Conversely, a small OPD size could be linked to low patronage of medical checkup services. This is not what was observed in the study. The inflow of the health facilities studied had not necessarily translated into the number of clients that received medical checkup in the facilities. The size of the facility in terms of the general OPD attendance has not been found in this study to significantly influence the level of delivery and uptake of medical checkup services ($p\text{-value} = 1.00$), as shown in table 4.6.

It could also be speculated that the type of facility, in terms of whether it is a private or a public facility could influence the provision of medical checkups. Public hospitals are perceived to offer affordable services than private ones since they are usually not established with the intention of making a lot of profit as compared with their private counterparts. As a result, a lot more patients visit public hospitals than private ones in most developed nations like Ghana. This implies there could be a lot more pressure and workload on public hospitals to provide more curative care than preventive care when compared with their private counterparts. Private hospitals could therefore have a lot more time and space to provide medical checkups. Moreover also, private hospitals can benefit from the business aspect of reaching out to people to perform medical checkup, even when they do not have a lot of the sick coming to these facilities to bring them the money they need to keep a business running. Public hospitals might not be interested in the business aspect of performing medical checkups since they are already making a lot of money from taking care of sick people. Moreover also, most public facilities, such as the government (GHS) facilities, basically implement policies from above, and could not be designing systems for performing medical checkups when it is not a policy direction or a priority from, let's say the MOH. Private facility managers, however, do not have too much of

such bureaucracies to overcome in implementing decisions such as designing a system for performing medical checkup. Private facilities therefore stand a better chance of providing medical checkup than public ones. This study however did not find any significant difference in public and private facilities in terms of delivery and uptake of medical checkup ($p\text{-value} = 1.00$), as shown by table 4.7. This further supports the idea that the low rate of delivery and uptake of preventive services in our health facilities are more of systemic issues than resulting from a lack orientation of individual health facilities or practitioners towards medical checkup.

5.5 Perception of respondents towards medical checkup

Knowing the perception of the respondents towards medical checkup was necessary to appreciate the reason behind the extent of provision of medical checkup in health facilities.

Knowledge of the attitude of providers could help explain some of the findings likely to be observed in the study. For instance if providers do not believe in medical checkup and probably do not deem it beneficial, it could have a significant toll on the rate of delivery of the service across health facilities, and consequently also, rate of uptake by the public will be low.

The perception of respondents in this study about medical checkup was however rather a positive one. All the 46 respondents (100%) indicated that medical checkups were beneficial; 43 (93%) strongly agreed and 3 (7%) agreed that medical checkup is beneficial. This suggests that the low patronage of medical checkup observed in the health facilities is not as a result of providers thinking that it will not be beneficial to clients. Forty-five (98%) of the respondents believe that health providers should prioritise medical checkup; only 1 respondent was undecided on this issue. This suggests that most providers want medical checkup prioritised. These findings in the study are supported by other studies where majority of physicians and patients agree that medical checkups are beneficial.

(Oboler *et al.*, 2002 ; Prochazka *et al.*, 2005). According to Prochazka *et al.* (2005), reasons given by some physicians why they agree that periodic health evaluations are beneficial are that they enhance a relationship between the physician and patients, allow more time and opportunity for addressing clients' fears, allow more time for counseling, and also enhance disease detection. (Prochazka *et al.*, 2005). From the perspective of clients, Oboler *et al.* (2002) found out that they believed that in addition to physical examination and screening tests, the encounters with physicians for periodic health examinations offer them the chance to discuss their health habits and risk factors. (Oboler *et al.*, 2002).

All the respondents (100%) in the study wanted medical checkup incorporated as a routine service in all primary care facilities. Most (85%) of them also wanted medical checkup services provided as a separate service on its own, rather than being incorporated into acute and chronic care services. This recommendation of the majority of respondents that medical checkup services be delivered as separate services is supported by the findings of several studies showing that clients who receive preventive services as separate periodic health evaluations stood a better chance of receiving recommended preventive services, when compared to their counterparts who were expected to receive them during a medical encounter for an acute or chronic care services. (Stange *et al.*, 2000 ; Zapka *et al.*, 2002 ; Lafata *et al.*, 2005 ; Boulware *et al.*, 2006 ; Fenton *et al.*, 2007 ; Pollak *et al.*, 2008 ; Ferrante *et al.*, 2010 ; Shires *et al.*, 2012). When preventive services are incorporated into acute and chronic care services, in the face of limited time, and inadequate human and other resources, it makes sense that curative health should be given the priority. Moreover, some diseases such as a heart attack or a haemorrhagic stroke are so fatal that patients might not survive to receive the recommended preventive services for which they are due.

The general picture of health providers coming to a consensus on the benefits of medical checkup, with suggestions to see an increase in its delivery and uptake, such as

incorporating it in all primary care facilities and making it a separate service from a medical encounter, suggest that the low patronage of preventive services observed in this study was more of a health system failure than stemming from a poor perception and attitude of health providers towards medical checkup.



CHAPTER SIX

CONCLUSIONS AND RECOMMENDATION

6.1 Introduction

The following conclusions and recommendations were made based on the findings of the study and in accordance with the objectives of the study.

6.2 Conclusion

6.2.1 Practitioners knowledge and use of CPS guidelines

The findings of the study suggested that majority of the respondents lacked adequate knowledge of CPS and CPS guidelines. Only few also used hospital protocols with unconfirmed validity. None of the respondents could explain correctly any of the five grades of the USPSTF recommendations. Not surprisingly also, as a result of the inadequate knowledge of CPS and CPS guidelines, just a handful of the respondents admitted to the use of recommendations of a known guideline. From the study, the practitioners generally use their professional discretion for providing medical checkups without making reference to a known evidence-based guidelines they use as basis for providing medical checkups.

6.2.2 Facility structures for providing CPS

From the studies, most of the facilities did not have a designated place, teams, and protocols for providing medical checkups. Majority of the facilities had no separate records for medical checkup and follow-up on clients was generally poor with one-time visits being what was mostly observed. There were also no proper programmes in place for creating awareness on medical checkup services for staff and the public.

6.2.3 Level of patronage of Clinical preventive services

The level of patronage of medical checkup in the health facilities was generally low. Seventy-eight percent (78%) of the respondents personally attended to not greater than 4 healthy clients visiting the facility for medical checkup only over the past 6 months. Overall, 93.48% of the health facilities saw not more than 10 healthy clients over the previous 6 months period coming for a medical checkup only. The percentage of OPD attendance attributable to medical checkup was less than 1% for all facilities, with the highest being 0.83% with 93% (n=43) of the facilities below 0.5%. Only 3 out of the 46 facilities have the percentage of OPD attendance attributable to medical checkup more than 0.5%.

6.2.4 Perception of providers of CPS

The general perception of the providers suggested that they were in support of medical checkup services. All the respondents believed that medical checkup was beneficial. Again, all the respondents wanted medical checkup incorporated as a routine service in all primary care facilities. Forty-five out of the 46 respondents wanted medical checkup prioritised by health providers. Most of the providers believed that medical checkups should be done equally in both private and public facilities and would prefer it being done within the facility to outside the health facility.

The respondents, however, admitted that both health providers and clients face some challenges regarding medical checkups. Some include low public awareness and patronage of medical checkup services; affordability of service; workload from acute and chronic care; lack of adequate logistics and facilities to provide a full range of required services; and inadequate attention by stakeholders in health for medical checkups in general, which has resulted in inadequate structures and measures that have been put in place to encourage the provision of medical checkup services.

6.3 Recommendations

Considering the challenges enumerated by respondents as associated with the provision and receipt of medical checkup services, and the findings of this study, the following measures have been suggested to improve patronage of medical checkup services:

1. Medical checkups must become a national health agenda. The MOH and its stakeholders must be directly involved in designing policies and guidelines for medical checkup in all primary care facilities and must supervise their implementation.
2. All primary care facilities should have a team in place for providing medical checkup made up of physicians or physician assistants, nurses and health staff trained in counseling on healthful diet, smoking cessation, alcohol misuse, and appropriate exercise.
3. Just as there is a standard treatment guideline, there should also be a standard guideline for providing medical checkup designed by an expert panel represented by diverse specialties who will provide proof of the best evidence available for prevention of diseases in their field. All health facilities must develop a structure for providing medical checkup based on these guidelines. These guidelines must borrow from the expertise of already available guidelines and medical associations such as the USPSTF, CTFPHC, AHA, NCEP, U.S CDC, Ghana National health policy, and Ghana National NCD control program.
4. The issue of affordability of medical checkup must be thoroughly looked at through various stakeholder engagements, involving the NHIS, private health insurance schemes, the MOH, GHS, health service managements, and other health

stakeholders to reduce the influence of cost as a contributor to the patronage of medical checkup service to the barest minimum.

5. Publicity on medical checkup and medical checkup services must be intensified.

Programs must be in place to continually create awareness among health providers and the general public on medical checkup and medical checkup services.



REFERENCES

- Abbo, E. D. *et al.* (2008) „The increasing number of clinical items addressed during the time of adult primary care visits“, *Journal of General Internal Medicine*. Springer, 23(12), p. 2058.
- Abegunde, D. O. *et al.* (2007) „The burden and costs of chronic diseases in low-income and middle-income countries“, *The Lancet*. Elsevier, 370(9603), pp. 1929–1938.
- Addo, J., Smeeth, L. and Leon, D. A. (2009) „Socioeconomic position and hypertension: A study of urban civil servants in Ghana“, *Journal of Epidemiology and Community Health*, 63(8), pp. 646–650. doi: 10.1136/jech.2008.081828.
- Agyemang, C. *et al.* (2012) „Stroke in Ashanti region of Ghana.“, *Ghana medical journal*, 46(2 Suppl), pp. 12–7. doi: 10.4314/gmj.v46i2.
- Aikins, A. de. Graft (2006) „Reframing applied disease stigma research: a multilevel analysis of diabetes stigma in Ghana“, *Journal of community & applied social psychology*. Wiley Online Library, 16(6), pp. 426–441.
- Babatunde, S. and Ikimalo, J. (2009) „Uptake of cervical cancer screening: awareness, willingness and practice among antenatal clinic attendees in Port Harcourt, Nigeria“, *Port Harcourt Medical Journal*. College of Health Sciences, University of Port Harcourt, 4(2).
- Birtwhistle, R. *et al.* (2017) „Periodic preventive health visits: a more appropriate approach to delivering preventive services: From the Canadian Task Force on Preventive Health Care.“, *Canadian family physician Medecin de famille canadien*, 63(11), pp. 824–826. Available at: <http://www.ncbi.nlm.nih.gov/pubmed/29138150><http://www.pubmedcentral.nih.gov/articlerender.fcgi?artid=PMC5685441>.
- Bloomfield, H. E. and Wilt, T. J. (2011) „Evidence brief: role of the annual comprehensive physical examination in the asymptomatic adult“, in *VA Evidence-based Synthesis Program Evidence Briefs [Internet]*. Department of Veterans Affairs (US).
- Bonita, R., Beaglehole, R. and Kjellström, T. (2006) *Basic epidemiology*. World Health Organization.
- Bosu, W. K. (2010) „Epidemic of hypertension in Ghana: A systematic review“, *BMC Public Health*. doi: 10.1186/1471-2458-10-418.
- Bosu, W. K. (2013) „Accelerating the control and prevention of non-communicable diseases in Ghana: The Key Issues“, *Postgraduate Medical Journal of Ghana*, 2(1).
- Boulware, L. E. *et al.* (2006) „Value of the periodic health evaluation“, *Evidence report/technology assessment*. Various, 136, pp. 1–134.

Carney, P. A. *et al.* (1992) „Tools, teamwork, and tenacity: an office system for cancer prevention“, *Journal of Family Practice*. Quadrant Healthcom, Inc., 35(4), pp. 388–395.

Carpiano, R. M. *et al.* (2003) „Tools, teamwork, and tenacity: an examination of family practice office system influences on preventive service delivery“, *Preventive medicine*. Elsevier, 36(2), pp. 131–140.

CDC (2018) *VACCINES*. Available at: (www.cdc.gov/vaccines/recs/schedules/default.htm.) (Accessed: 21 August 2018).

CDC (2017) *pneumococcal vaccine*. Available at: https://www.cdc.gov/pneumococcal/vaccination.html (Accessed: 21 August 2018).

Chronic Disease Prevention and Health Promotion (2009) „The Power of Prevention public health challenge of the 21 st century“. Available at: http://www.cdc.gov/chronicdisease/pdf/2009-power-of-prevention.pdf.

Corral, J. E. *et al.* (2012) „Clinical Preventive Services in Guatemala: A Cross-Sectional Survey of Internal Medicine Physicians“, *PLoS ONE*, 7(10). doi: 10.1371/journal.pone.0048640.

Crabtree, B. F., Miller, W. L. and Cohen, D. J. (2005) „Delivery of Clinical Preventive Services in Family Medicine Offices“, *Annals Of Family Medicine*, pp. 430–435. doi: 10.1370/afm.345.

de-Graft Aikins, A. (2007) „Ghana’s neglected chronic disease epidemic: a developmental challenge.“, *Ghana medical journal*, 41(4), pp. 154–9. Available at: http://www.ncbi.nlm.nih.gov/pubmed/18464903%5Chttp://www.pubmedcentral.nih.gov/articlerender.fcgi?artid=PMC2350116.

Detels, R. *et al.* (2011) *Oxford textbook of public health*. Oxford University Press.

Ethiopia Ministry of Health (2014) „Household Health Service Utilization and Expenditure Survey“, *Ethiopia’s Fifth National Health Accounts 2010/2011*, (11).

Etzioni, R. *et al.* (2002) „Overdiagnosis due to prostate-specific antigen screening: lessons from US prostate cancer incidence trends“, *Journal of the National Cancer Institute*. Oxford University Press, 94(13), pp. 981–990.

Fenton, J. J. *et al.* (2007) „Delivery of cancer screening: how important is the preventive health examination?“, *Archives of internal medicine*. American Medical Association, 167(6), pp. 580–585.

Ferrante, J. M. *et al.* (2010) „Principles of the patient-centered medical home and preventive services delivery“, *Annals of Family Medicine*, 8(2), pp. 108–116. doi: 10.1370/afm.1080.

- Fonarow, G. C. *et al.* (2014) „Door-to-needle times for tissue plasminogen activator administration and clinical outcomes in acute ischemic stroke before and after a quality improvement initiative“, *Jama*. American Medical Association, 311(16), pp. 1632–1640.
- Framingham Heart Study (2008) „Framingham Risk Score Cardiovascular Risk Scoring systems Issues Raised by Cardiovascular Risk Prediction“.
- Gordis, L. (2004) *Epidemiology*. 3rd edn. Elsevier Saunders.
- Ghana Health Service Annual Report (2015) „GHANA HEALTH SERVICE 2014 ANNUAL REPORT“, (July).
- Ghana Health Service Annual Report (2017) „GHANA HEALTH SERVICE 2016 ANNUAL REPORT“, (June).
- Ghana Millenium Development Goals Report (2015) *GHANA MILLENIUM DEVELOPMENT GOALS 2015 REPORT*.
- Hill, A. G. *et al.* (2007) „Health of urban Ghanaian women as identified by the Women’s Health Study of Accra“, *International Journal of Gynecology & Obstetrics*. Wiley Online Library, 99(2), pp. 150–156.
- International Diabetes Federation (2015) *Idf Diabetes Atlas*, *Idf Diabetes Atlas*. doi: 2930229-80-2.
- Jaén, C. R., Stange, K. C. and Nutting, P. A. (1994) „Competing demands of primary care: a model for the delivery of clinical preventive services.“, *The Journal of family practice*, 38(2), pp. 166–71. Available at: <http://www.ncbi.nlm.nih.gov/pubmed/8308509>.
- Kenkel, D. S. (1994) „The demand for preventive medical care“, *Applied Economics*. Routledge, 26(4), pp. 313–325. doi: 10.1080/00036849400000078.
- Kermott, C. A. *et al.* (2012) „The diagnostic yield of the first episode of a periodic health evaluation: a descriptive epidemiology study“, *BMC health services research*. BioMed Central, 12(1), p. 137.
- Kiviniemi, M. T. and Hay, J. L. (2012) „Awareness of the 2009 US Preventive Services Task Force recommended changes in mammography screening guidelines, accuracy of awareness, sources of knowledge about recommendations, and attitudes about updated screening guidelines in women ages 40-49 and 50“, *BMC Public Health*. BMC Public Health, 12(1), p. 1. doi: 10.1186/1471-2458-12-899.
- Koh, H. K. and Sebelius, K. G. (2010) „Promoting prevention through the affordable care act“, *New England Journal of Medicine*. Mass Medical Soc, 363(14), pp. 1296–1299.

- Krist, A. H. *et al.* (2018) „Update on the methods of the US Preventive Services Task Force: methods for understanding certainty and net benefit when making recommendations“, *American journal of preventive medicine*. Elsevier, 54(1), pp. S11–S18.
- Krogsbøll, L. T. *et al.* (2012) „General health checks in adults for reducing morbidity and mortality from disease: Cochrane systematic review and meta-analysis“, *BMJ (Online)*, 345(7884), pp. 1–13. doi: 10.1136/bmj.e7191.
- Lafata, J. E. *et al.* (2005) „Colorectal carcinoma screening procedure use among primary care patients“, *Cancer*. Wiley Online Library, 104(7), pp. 1356–1361.
- Litaker, D. *et al.* (2005) „Physicians“ attitudes and preventive care delivery: insights from the DOPC study“, *Preventive medicine*. Elsevier, 40(5), pp. 556–563.
- Loh, K. P. *et al.* (2015) „Healthcare professionals“ perceptions and knowledge of the USPSTF guidelines on breast self-examination“, *Southern Medical Journal*, 108(8), pp. 459–462. doi: 10.14423/SMJ.00000000000000318.
- Maciosek, M. V. *et al.* (2006) „Priorities Among Effective Clinical Preventive Services. Results of a Systematic Review and Analysis“, *American Journal of Preventive Medicine*, 31(1), pp. 52–61. doi: 10.1016/j.amepre.2006.03.012.
- Maciosek, M. V. *et al.* (2010) „Greater use of preventive services in U.S. health care could save lives at little or no cost.“, *Health affairs (Project Hope)*, 29(9), pp. 1656–60. doi: 10.1377/hlthaff.2008.0701.
- McGlynn, E. A. *et al.* (2003) „The quality of health care delivered to adults in the United States“, *New England journal of medicine*. Mass Medical Soc, 348(26), pp. 2635–2645.
- McMorrow, S., Kenney, G. M. and Goin, D. (2014) „Determinants of Receipt of Recommended Preventive Services : Implications for the Affordable Care Act“, 104(12), pp. 2392–2399. doi: 10.2105/AJPH.2013.301569.
- Ministry of Health- Ghana (2012) „National Policy for the Prevention and Control of Chronic Non-Communicable Diseases in Ghana“, (August), pp. 1–27. Available at: [http://www.iccp-portal.org/sites/default/files/plans/national_policy_for_the_prevention_and_control_of_chronic_non-communicable_diseases_in_ghana\(1\).pdf](http://www.iccp-portal.org/sites/default/files/plans/national_policy_for_the_prevention_and_control_of_chronic_non-communicable_diseases_in_ghana(1).pdf).
- MOH (2015) „Current Health Financing Issues in the Health Sector“, (May), p. 17.
- National Health Insurance Authority (2012) „Annual Report“.
- National Health Policy (2007) „Creating Wealth through Health“.

- National Research Council (2003) *Fulfilling the potential of cancer prevention and early detection*. National Academies Press.
- Nelson, D. E. *et al.* (2002) „State trends in health risk factors and receipt of clinical preventive services among US adults during the 1990s“, *Jama*. American Medical Association, 287(20), pp. 2659–2667.
- Nelson, E. E. and Guyer, A. E. (2012) „NIH Public Access“, 1(3), pp. 233–245. doi: 10.1016/j.dcn.2011.01.002.The.
- Nelson, H. D. *et al.* (2009) „Screening for breast cancer: an update for the US Preventive Services Task Force“, *Annals of internal medicine*. Am Coll Physicians, 151(10), pp. 727–737.
- Nikolic, I. A., Stanciole, A. E. and Zaydman, M. (2011) „Chronic emergency: why NCDs matter“. World Bank, Washington, DC.
- O'Donnell, M. J. *et al.* (2010) „Risk factors for ischaemic and intracerebral haemorrhagic stroke in 22 countries (the INTERSTROKE study): a case-control study“, *The Lancet*. Elsevier, 376(9735), pp. 112–123.
- Oboler, S. K. *et al.* (2002) „Public expectations and attitudes for annual physical examinations and testing“, *Annals of internal medicine*. Am Coll Physicians, 136(9), pp. 652–659.
- Ogden, L. L., Richards, C. L. and Shenson, D. (2012) „Clinical preventive services for older adults: The interface between personal health care and public health services“, *American Journal of Public Health*, 102(3), pp. 419–425. doi: 10.2105/AJPH.2011.300353.
- Petitti, D. B. *et al.* (2009) „Update on the methods of the US Preventive Services Task Force: insufficient evidence“, *Annals of internal medicine*. Am Coll Physicians, 150(3), pp. 199–205.
- Pillinger, J. (2011) „By Dr Jane Pillinger June 2011“, (June).
- Plange-Rhule, J. *et al.* (1999) „Hypertension and renal failure in Kumasi, Ghana“, *Journal of human hypertension*. Nature Publishing Group, 13(1), p. 37.
- Pollak, K. I. *et al.* (2008) „Estimated time spent on preventive services by primary care physicians“, *BMC Health Services Research*. BioMed Central, 8(1), p. 245.
- Powers, W. J. *et al.* (2018) „2018 Guidelines for the Early Management of Patients With Acute Ischemic Stroke: A Guideline for Healthcare Professionals From the American Heart Association/American Stroke Association“, *Stroke*, 49(3), pp. e46–e110. doi: 10.1161/STR.0000000000000158.

- Prochazka, A. V. *et al.* (2005) „Support of evidence-based guidelines for the annual physical examination: a survey of primary care providers“, *Archives of internal medicine*. American Medical Association, 165(12), pp. 1347–1352.
- Quartey, P. (2009) *Migration in Ghana: a country profile 2009*. International Organization for Migration.
- Salinsky, E. (2005) „Clinical preventive services: when is the juice worth the squeeze?“, *NHPP issue brief/ National Health Policy Forum, George Washington University*, (806), pp. 1–30. Available at: <http://www.scopus.com/inward/record.url?eid=2-s2.0-24144481520&partnerID=40&md5=989538f0f5cb560ff27d8d21be34095d>.
- Sambamoorthi, U. and McAlpine, D. D. (2003) „Racial, ethnic, socioeconomic, and access disparities in the use of preventive services among women“, *Preventive medicine*. Elsevier, 37(5), pp. 475–484.
- Sanuade, O. A. *et al.* (2014) „Patterns of cardiovascular disease mortality in Ghana: A 5 year review of autopsy cases at Korle-Bu teaching hospital“, *Ethnicity and Disease*, 24(1), pp. 55–59.
- Saver, J. L. (2006) „Time is brain - Quantified“, *Stroke*, 37(1), pp. 263–266. doi: 10.1161/01.STR.0000196957.55928.ab.
- Sawaya, G. F. *et al.* (2007) „Update on the methods of the US Preventive Services Task Force: estimating certainty and magnitude of net benefit“, *Annals of Internal Medicine*. Am Coll Physicians, 147(12), pp. 871–875.
- Schieber, G. *et al.* (2012) *Health Financing in Ghana*. doi: 10.1596/978-0-8213-9566-0.
- Shires, D. A. *et al.* (2012) „Prioritization of evidence-based preventive health services during periodic health examinations“, *American journal of preventive medicine*. Elsevier, 42(2), pp. 164–173.
- Smith, R. A., Cokkinides, V. and Eyre, H. J. (2005) „American Cancer Society guidelines for the early detection of cancer, 2005“, *CA: a cancer journal for clinicians*. Wiley Online Library, 55(1), pp. 31–44.
- Stange, K. C. *et al.* (2000) „Direct observation of rates of preventive service delivery in community family practice“, *Preventive medicine*. Elsevier, 31(2), pp. 167–176.
- Stuckler, D., Basu, S. and McKee, M. (2010) „Drivers of inequality in Millennium Development Goal progress: a statistical analysis“, *PLoS medicine*. Public Library of Science, 7(3), p. e1000241.
- Sudano Jr, J. J. and Baker, D. W. (2003) „Intermittent lack of health insurance coverage and use of preventive services“, *American Journal of Public Health*. American Public Health Association, 93(1), pp. 130–137.

- Sussman, A. L. *et al.* (2006) „The art and complexity of primary care clinicians“ preventive counseling decisions: obesity as a case study“, *The Annals of Family Medicine*. *Annals Family Med*, 4(4), pp. 327–333.
- UK National Screening Committee, (2018) *NHS population screening explained*. Available at: <https://www.gov.uk/guidance/nhs-population-screening-explained> (Accessed: 21 August 2018).
- UN Millennium Development Goals Report (2015) „The Millennium Development Goals Report 2015“.
- United Nations (2011) „Current Status of the Social Situation, Well-Being, Participation in Development and Rights of Older Persons Worldwide“, *New York*, pp. 1–54. doi: 10.4135/9781412952446.n605.
- United Nations, (2015) „World Population Ageing“.
- USPSTF (2014) *Guide to Clinical Preventive Services*. Available at: www.USPreventiveServicesTaskForce.org.
- USPSTF (2015) *Procedure manual*. Available at: <https://www.uspreventiveservicestaskforce.org/Page/Name/procedure-manual>.
- Wang, T. Y. *et al.* (2011) „Door-to-balloon times for patients with ST-segment elevation myocardial infarction requiring interhospital transfer for primary percutaneous coronary intervention: a report from the national cardiovascular data registry“, *American heart journal*. Elsevier, 161(1), pp. 76–83.
- Wennberg, J. E. (2002) „Unwarranted variations in healthcare delivery: implications for academic medical centres“, *BMJ: British Medical Journal*. BMJ Publishing Group, 325(7370), p. 961.
- WHO (2013) „STATE OF HEALTH FINANCING IN THE AFRICAN REGION Harmonization for Health in Africa High-Level Taskforce on Innovative International Financing for Health Systems“, (January), pp. 1–25. Available at: <http://www.afro.who.int/sites/default/files/2017-06/state-of-health-financingafro.pdf>.
- WHO (2015) „Trends in Maternal Mortality : 1990 to 2015“.
- World Health Organization (2010) „Trends in maternal mortality: 1990 to 2008. Estimates developed by WHO, UNICEF, UNFPA and The World Bank“, *Trends in maternal mortality: 1990 to 2008. Estimates developed by WHO, UNICEF, UNFPA and The World Bank*. World Health Organization.
- WHO (2016) „Ghana: Life Expectancy“, *Ghana: WHO statistical profile*, pp. 1–3. Available at: <http://www.who.int/countries/gha/en/>.

Woolf, S. H. and Atkins, D. (2001) „The evolving role of prevention in health careContributions of the US Preventive Services Task Force“, *American Journal of Preventive Medicine*. [New York, NY]: Oxford University Press,[c1985-, 20(3), pp. 13–20.

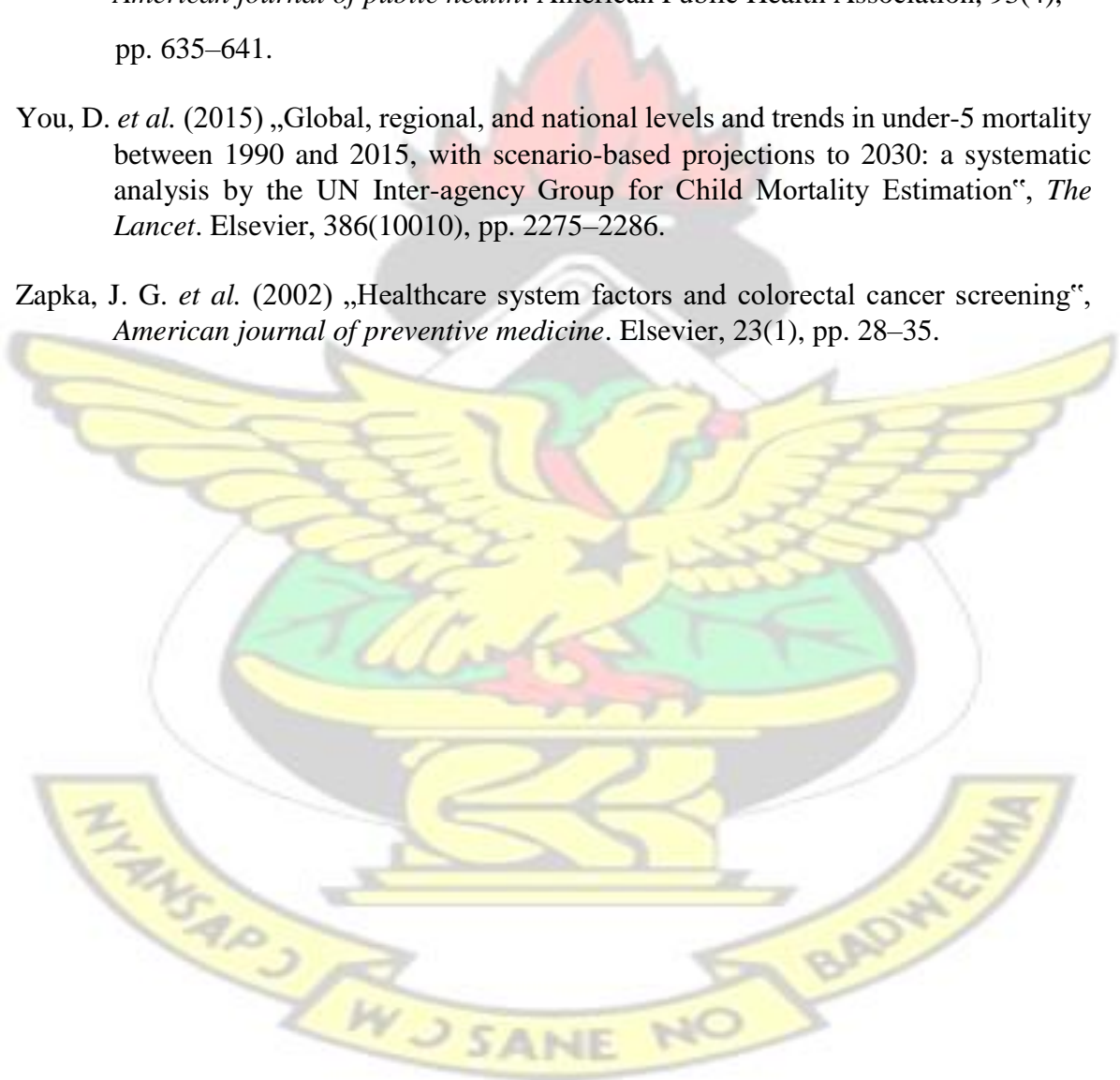
World Health Organization (2017a) *The Top 10 Causes of Death*, Media Centre. Available at: <http://www.who.int/mediacentre/factsheets/fs310/en/>.

World Health Organization (2017b) *WHO Cardiovascular diseases (CVDs) Fact sheet*, Who. Available at: Cardiovascular diseases (CVDs).

Yarnall, K. S. H. *et al.* (2003) „Primary care: is there enough time for prevention?“, *American journal of public health*. American Public Health Association, 93(4), pp. 635–641.

You, D. *et al.* (2015) „Global, regional, and national levels and trends in under-5 mortality between 1990 and 2015, with scenario-based projections to 2030: a systematic analysis by the UN Inter-agency Group for Child Mortality Estimation“, *The Lancet*. Elsevier, 386(10010), pp. 2275–2286.

Zapka, J. G. *et al.* (2002) „Healthcare system factors and colorectal cancer screening“, *American journal of preventive medicine*. Elsevier, 23(1), pp. 28–35.



APPENDIX

QUESTIONNAIRE

**TO BE ANSWERED BY HEALTH PROVIDER MOST LIKELY TO PERFORM
MEDICAL CHECKUP (INFORMATION UNKNOWN TO HIM TO BE SOUGHT
FROM OTHER APPROPRIATE SOURCES IN THE FACILITY)**

**TOPIC: EVALUATION OF CLINICAL PREVENTIVE SERVICES (CPS) IN
PRIMARY HEALTH FACILITIES IN THE KUMASI METROPOLIS**

The data of these questionnaires are being collected by Dr Abraham Amponsah, a postgraduate student pursuing a MPH in Health Services Planning and Management in the School of Public Health, K.N.U.S.T, Kumasi, as a fulfilment of an academic requirement. This is not a project of the government, political party, or a commercial entity. The identity of the facility, participants and all information given here will be kept confidential. Thank you for your cooperation.

NB- Medical Checkup/CPS in this case refers to health evaluation for healthy clients only. It doesn't include patients who are assessing health service because they are sick or have a disease and are therefore being seen as part of chronic care or acute care services. Categories may include healthy clients walking into a facility, organized groups such as in the community, schools, churches, corporate organizations, etc. Also includes individual pre-employment assessment and assessment meant as a requirement for admission to a school, etc.

SECTION A: BIOGRAPHICAL INFORMATION

1. Please indicate your age

2. Indicate how many years you have been practicing **Answer**

3. Indicate your professional qualification

3.1	Physician Assistant	
3.2	Medical officer	
3.3	Specialist/Consultant	
3.4	Other (indicate).....	

Answer

4. Indicate the type of health facility

4.1	Hospital (GHS)	
4.2	Clinic(GHS)	
4.3	Health center (GHS)	
4.4	CHAG	
4.5	QUASI	
4.6	Private Hospital	
4.7	Private Clinic	

5. What is your current staff strength?

6. Indicate the number of the following staffs working in your facility where applicable. **Answer**

6.1	Senior Specialist	
6.2	Specialists	
6.3	Senior/ Principal Medical officer	
6.4	Medical Officers	
6.5	House Officers	
6.6	Physician Assistants	
6.7	Nurses	

7. What is your average monthly OPD attendance in the past 6 months?

SECTION B: ASSESSING PRACTITIONER’S KNOWLEDGE AND USE OF CPS GUIDELINES

8. What do you rely on most to decide on the list of services to be provided in a medical checkup for a healthy client? **Answer**

8.1	Patient’s preference/suggestion only	
8.2	Professional discretion only	
8.3	Hospital protocol/structured form not known to be based on a known evidence-based guideline	
8.4	Recommendations of a named recognized evidencebased guideline other than the USPSTF	
8.5	Guided by USPSTF recommendations	

9. Have you ever heard of the term “Clinical Preventive Services (CPS)”?

Answer

9.1	Yes	
9.2	No	

10. If yes, what are the main components of a CPS

.....

11. Mention any evidence-based recommended guideline for providing medical checkup you are aware of.

Answer

11.1	At least one recommended guideline mentioned correctly	
11.2	Couldn’t mention correctly at least one recommended guideline	

12. How familiar are you with the USPSTF guideline for providing CPS

Answer

12.1	I have never heard of it	
12.2	Heard of it but have never seen it	
12.3	Seen it but have never read it	
12.4	have read it	

13. If you have read it, how often do you consult the USPSTF guidelines as a basis for providing CPS for any of your clients?

Answer

13.1	Never	
13.2	Seldom	
13.3	Often	
13.4	Always	

14. Explain the USPSTF grading system (A, B, C, D, and I), for providing medical checkups

Answer

14.1	Explanation of all five grades	
14.2	Explanation of any four	
14.3	Explanation of any three	
14.4	Explanation of any two or one	
14.5	Could not explain any one of the grades	

SECTION C: ASSESSING FACILITY STRUCTURES PUT IN PLACE FOR PROVIDING CLINICAL PREVENTIVE SERVICES

15. Where in this facility are healthy clients most likely to receive medical checkup services? Choose one answer only

15.1	Any consulting room	Answer
15.2	A designated consulting room but shared for other services	

15.3	A designated consulting room/office for medical checkups only	
15.4	Other (indicate)	

16.

17. In the past, what categories of people has your facility provided medical checkup for the most? Choose one answer only

Answer

16.1	Individual healthy subjects coming to the facility	
16.2	Organized groups (Schools, Corporate clients, Religious groups, Community outreaches, etc)	
16.3	Individual Pre-employment assessment/Requirement for admission to a school	
16.4	Other (indicate)	

18. State the components of your clinical preventive services with examples?
You may choose more than one answer

Answer

17.1	Screening	
17.2	Immunization services other than that provided by EPI	
17.3	Preventive medications (chemoprophylaxis)	
17.4	Counseling services	
17.5	Other (indicate)	

19. Do you have health personnel(s) known to be designated for providing CPS?

Answer

18.1	Yes	
18.2	No	

20. Who is the main health personnel in charge of providing medical checkup services for your healthy clients within this facility? Choose one answer only

Answer

19.1	Medical doctor	
19.2	Physician Assistant	
19.3	Nurse	
19.4	Other designated health workers (indicate.....)	

21. Indicate which of the following staffs are more likely to be directly involved in providing medical checkups in the facility. Choose one answer only

Answer

20.1	Physician/Physician Assistant, Designated Nurse, Trained Counsellor, Dietician	
20.2	Physician/Physician Assistant, Designated Nurse, Dietician or Trained Counsellor	
20.3	Physician/Physician Assistant, Designated Nurse	
20.4	Physician/Physician Assistant, any Nurse	
20.5	Physician/Physician Assistant only	

22. How do you keep records on medical check-up clients? **Answer**

21.1	Separate book/records for medical checkup clients only	
21.2	Mixed with OPD/other records but easily retrievable	
21.3	Scattered Records not easily retrievable	
21.4	No records	
21.5	Other (indicate)	

23. Indicate which has been the most likely frequencies of visit within the past five years?

Answer

22.1	Client-specific periodic appointments	
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22.2	Client- specific annual checkups	
22.3	Group annual checkups	
22.4	One-time visits	
22.5	Other (indicate.....)	

24. Which has been the usual occurrence with follow-up on appointments? Choose one answer only

		Answer
23.1	Clients are given appointment cards	
23.2	Clients are informed verbally about their next appointment date but no appointment cards are given	
23.3	Clients are not given an appointment date for a next visit (clients decide when to come back)	

25. Indicate which is more likely,

		Answer
24.1	Clients are reminded when their appointment dates are getting close	
24.2	Clients are not reminded when their appointment dates are getting close	

26. If yes, how are clients reminded when their appointment dates are close? You may choose more than one answer

		Answer
25.1	Telephone calls	
25.2	Text message	
25.3	Email	
25.4	Other (indicate.....)	

27. Does your facility have a written down protocol or a structured form for providing medical checkup?

Answer

26.1	Yes	
26.2	No	

28. How valid is the hospital protocol/structured form for providing medical checkup? Skip if you answered “No” in question 19.

Answer

27.1	Based on USPSTF recommendations	
27.2	At least one other known evidence-based recommendation mentioned	
27.3	No known evidence-based recommendation mentioned	

29. What measures have been put in place to create awareness among staff on CPS

Answer

28.1	Formal meeting/presentation and awareness creation for all staff	
28.2	Formal presentation at clinical meeting for all clinicians	
28.3	Formal presentation for only providers of service	
28.4	No formal presentation	

30. What measures have been put in place to create awareness among the general public on CPS. Indicate which is most likely/has been most likely

Answer

29.1	Programs for public education/awareness creation outside facility	
29.2	Programs for public education/awareness creation within the facility	
29.3	No program in place for creating awareness	

Answer

31. Have you and other designated colleagues received any extra formal training to perform medical checkups apart from your professional training?

Answer

30.1	Yes	
30.2	No	

32. If yes, describe the training they had received

.....

.....

.....

.....

SECTION D: LEVEL OF PATRONAGE OF MEDICAL CHECKUP IN THE FACILITY

33. When last did you perform medical checkup for an individual healthy client walking into the facility?

Answer

32.1	Past 1 week	
32.2	Past 1 month	
32.3	Past 2 months	
32.4	Past 3 months	
32.5	6 months and above	

34. How many individual healthy clients have you attended to coming for medical checkup in the past 6 months? Indicate number

35. How many individual healthy clients have walked into the facility for medical checkup in the past 6 months? Indicate number

36. In the past 6 months, how will you estimate the percentage of OPD attendance attributable to medical checkup? Write down percentage

SECTION E: PERCEPTION OF HEALTH PROVIDERS TOWARDS CLINICAL PREVENTIVE SERVICES

1. Medical checkups are beneficial.

Answer

1.1	Strongly disagree	
1.2	Disagree	
1.3	Neutral/ undecided	
1.4	Agree	
1.5	Strongly agree	

2. Health providers should prioritize medical checkup?

Answer

2.1	Strongly disagree	
2.2	Disagree	
2.2	Neutral/undecided	
2.3	Agree	
2.4	Strongly agree	

3. Medical checkup should be incorporated as a routine practice in all primary care health facilities?

Answer

3.1	Strongly disagree	
3.2	Disagree	
3.3	Neutral/undecided	
3.4	Agree	
3.5	Strongly agree	

4. Medical checkup should be performed mostly within the health facility

Answer

4.1	Strongly disagree	
4.2	Disagree	
4.3	Neutral/undecided	
4.4	Agree	
4.5	Strongly agree	

5. Medical checkup should be performed mostly outside the health facility such as in the community, schools, churches, corporate organizations, etc

Answer

5.1	Strongly disagree	
5.2	Disagree	
5.3	Neutral/undecided	
5.4	Agree	
5.5	Strongly agree	

6. Choose your most preferred place for doing medical checkup for healthy clients

Answer

6.1	Within the health facility	
6.2	Outside the health facility such as in in the community, schools, churches, corporate organizations, etc	

7. Explain your answer in question 6,

.....

8. Medical checkup for healthy clients should be done mostly by private health facilities as against Government/public health facilities

Answer

8.1	Strongly disagree	
8.2	Disagree	
8.3	Neutral/undecided	
8.4	Agree	
8.5	Strongly agree	

9. Explain your answer in question 8,

.....

 10. List any challenges providers encounter or you perceive are likely to encounter in relation to providing medical checkups in their services?

.....

11. List any challenges clients encounter or you perceive are likely to encounter in relation to accessing medical checkup services by providers?

.....

12. How will you recommend that medical checkup be performed for the clients most?
 Choose one answer only

		Answer
12.1	Separate service for healthy clients in the health facility	
12.2	Incorporated into acute/chronic care services	
12.3	Other (indicate.....?)	

13. NHIS should pay for most recommended medical checkup services

		Answer
13.1	Strongly disagree	
13.2	Disagree	
13.3	Neutral/undecided	
13.4	Agree	
13.5	Strongly agree	

14. Ghana should develop its own guidelines for providing medical checkup (clinical preventive services)

		Answer
14.1	Strongly disagree	
14.2	Disagree	
14.3	Neutral/undecided	

14.4	Agree	
14.5	Strongly agree	

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