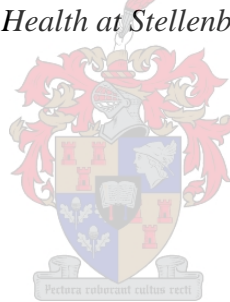


Barriers and facilitators to the use of the mental health information system in Ghana: A qualitative study amongst users at the Accra Psychiatric Hospital

Lily Naa Ayorkor Kpobi

*Thesis presented in fulfilment of the requirements for the Degree of Master of Philosophy in
Public Mental Health at Stellenbosch University*



Supervisor: Prof. Leslie Swartz

December 2015

DECLARATION

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ABSTRACT

One of the most successful modes of record-keeping and data collection is the use of health management information systems, where patient information and management plans are uniformly entered into a database to streamline the information and for ease of further patient management. For mental healthcare, a mental health information system (MHIS) has been found most successful. A properly established and operational MHIS is crucial in developing equitable and appropriate mental health care systems. Despite the obvious benefits of having a well-structured MHIS, its existence does not guarantee efficient use. There are a number of potential problems which may arise in the implementation of the MHIS, especially in poorly-resourced contexts. All of these problems may result in poor quality data being generated through the system, thereby compromising the use and efficiency of the MHIS. Staff motivation to provide accurate data for entry will also be affected. Until 2010, the system of keeping patient records and information in the Accra Psychiatric Hospital was old and outdated. In light of this and other factors, the Mental Health and Poverty Project (MHaPP) undertook a complete reforming of the mental health information systems in three psychiatric hospitals in Ghana in 2010. Although much was written on the implementation of the information systems, little is known about the current state of the system in Ghana four years after it was implemented. In view of this the present study sought to explore the experiences of users at the Accra Psychiatric Hospital in using the new MHIS, and to ascertain what their perceptions are of areas for improvement in the current system. A mixed methods approach was adopted. First, an audit was undertaken of usage of the MHIS. Second, participants' knowledge of the system and its use, as well as the influence of institutional processes on work were explored through the use of observations and semi-structured in-depth interviews. Data was analyzed using an interpretative phenomenological approach. Participants in the study were in three categories: prescriber, administrator, and records clerk. The final sample consisted of seven prescribers, one administrator and one records clerk. Participants reported increased workload, inadequate logistic support and staff shortages as the barriers to the effective use of the MHIS. Recommendations for improving the system included revising the form and migrating to a fully computerized system. These are discussed with reference to both micro and macro level institutional structures.

Keywords: mental health information system, barriers and facilitators, recordkeeping

OPSOMMING

Een van die mees suksesvolste metodes van rekordhouding en data-insameling is die gebruik van gesondheidsbestuur inligtingstelsels, waar pasiënt inligting en bestuursplanne eenvormig ingevoer word in 'n databasis om die inligting te vereenvoudig en vir die gemak van verdere pasiënt bestuur. Vir geestelike gesondheidsorg, word 'n geestesgesondheid inligtingstelsel (GGIS) as meer suksesvol beskou. 'n Goed gevestigde en operasionele GGIS is van kardinale belang in die ontwikkeling van billike en gepaste geestesgesondheidsorg stelsels. Ten spyte van die ooglopende voordele van 'n goed-gestruktureerde GGIS, sal bloot sy bestaan nie noodwendig doeltreffende gebruik waarborg nie. Daar is 'n aantal potensiële probleme wat mag ontstaan in die implementering van die GGIS, veral in swak toegeruste kontekste. Al hierdie probleme kan lei daartoe dat swak gehalte data gegenereer word deur die stelsel en daardeur die gebruik en doeltreffendheid van die GGIS affekteer. Personeel motivering om toepaslike data in te voer, sal ook geraak word. Tot en met 2010 was die sisteem vir die behoud van pasiënt rekords en inligting in die Accra Psigiatriese Hospitaal verouderd. In die lig van hierdie en ander faktore, het die Mental Health and Povert Project (MHaPP) onderneem om 'n volledige hervorming van die geestesgesondheid inligtingstelsels in drie psigiatriese hospitale in Ghana in 2010 te voltooi. Hoewel baie geskryf is oor die implementering van die inligtingstelsels, is min bekend oor die huidige toestand van die stelsel in Ghana vier jaar nadat dit geïmplementeer is. In die lig hiervan het die huidige studie gepoog om die ervarings van gebruikers van die nuwe GGIS by die Accra Psigiatriese Hospitaal te ondersoek, en om te bepaal wat hul persepsies is van areas vir verbetering in die huidige stelsel. 'n Gemengdemetodebenadering word gevolg. Eerstens, was 'n oudit onderneem oor die gebruik van die GGIS. Tweedens, is deelnemers se kennis van die stelsel en die gebruik daarvan, asook die invloed van institusionele prosesse op werk ondersoek deur gebruik te maak van waarnemings en semi-gestruktureerde in-diepte onderhoude. Data is geanaliseer deur gebruik te maak van 'n interpreterende fenomenologiese benadering. Deelnemers aan die studie was in drie kategorieë: voorskrywer, administrateur, en rekords klerk. Die finale steekproef het bestaan uit sewe voorskrywers, een administrateur en een rekords klerk. Deelnemers het verhoogde werkklas, onvoldoende logistieke ondersteuning en personeeltekorte as hindernisse tot die effektiewe gebruik van die GGIS rapporteer. Aanbevelings vir die verbetering van die stelsel het ingesluit die hersiening van die vorm en migrasie na 'n volle gerekenariseerde

stelsel. Hierdie aanbevelings word bespreek met verwysing na beide mikro- en makrovlak institusionele strukture.

Trefwoorde: geestesgesondheid inligtingstelsel, hindernisse en fasiliteerders, rekordhouding

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“Bless the Lord, O my soul, and all that is within me bless His holy name! Bless the Lord, O my soul, and forget not all His benefits” – Psalm 103: 1 & 2

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CHAPTER ONE

INTRODUCTION

1.1 Introduction

According to the World Health Organization (WHO, 2011) an estimated 450 million individuals around the world suffer from a diagnosable mental disorder. It is further estimated that mental health makes up approximately 10.4% of the global burden of disease, with that number anticipated to increase to 15% by the year 2020 (GBD, 2010). Despite these projections, spending on mental health still remains low, with an estimated 28% of countries having no specific budget for mental health; of the number that do have a mental health budget, an estimated 37% spend less than 1% of their health budget on mental health (WHO, 2011).

This situation is particularly striking in developing countries. In Ghana, for instance, it is estimated that of the over two million individuals reported to be suffering from mental illness, 95% of these do not have access to mental health services (Ofori-Atta, Read & Ulzen, 2010; WHO, 2011).

Information on specific disorders, their prevalence and their outcomes within specific contexts is key in policymaking and planning. In order for an accurate picture to be drawn of the mental health situation in any country, and indeed around the world, record-keeping and data collection must be accurate (Ofori-Atta et al., 2010). However in many low-income countries, data and records are often insufficient, due, in part, to outdated and inadequate record-keeping processes.

One of the most successful modes of record-keeping and data collection is the use of health management information systems, where patient information and management plans are uniformly entered into a database to streamline the information and for ease of further patient

management. For mental healthcare, a mental health information system (MHIS) has been found to be very successful. The WHO describes a mental health information system (MHIS) as a means to collect, process, and analyse information about mental health needs and services, and to present the data in an understandable and accessible form to stakeholders – including service providers, service users, policy-makers, and the general population (WHO, 2005).

According to their guidelines on Mental Health Information Systems (as part of the Mental Health Policy and Service Guidance Package) the WHO (2005) states that “a mental health information system is a system for action: it should exist not simply for the purpose of gathering data, but also for enabling well-informed decision-making in all aspects of the mental health system” (p. 13). The MHIS should therefore affect planning, budgeting and evaluation at all levels of health care.

A properly established and operational MHIS is crucial in developing equitable and appropriate mental health care systems in a contemporary context (Hussein, Adeyi, Bryant, & Cara, 1993). When such a system is in place, policy-makers and planners have a tangible resource for specific and targeted intervention as well as evaluation of services (Gater, Bahgat & Loza, 2009). Mental health professionals are also able to identify trends in presenting complaints, and this can inform service delivery and practice. Thus, an MHIS facilitates the provision of evidence-based services and can contribute to equity and accuracy of care. For the general population, information obtained from the system is a good way of knowing what kinds of services are available to them (WHO, 2005).

Regarding the design of a mental health information system, Glover (2000) suggested that in developing an information framework, data on the groups/categories of people to receive the care, together with their specific disorders and treatment programmes must be readily

available. The system should also be able to identify gaps in care delivery such as being able to highlight medications and treatments which have been found helpful in the past. It can also highlight areas where more professionals are needed for optimal care to be provided. Such information creates a bigger picture on the mental health situation in a hospital, region or country.

A mental health information system is therefore a useful tool for patient management and monitoring. Important information such as age of onset, previous medical history, and treatment programmes or plans can be kept in a centralized, uniform manner which is beneficial for long-term management. Patient records could contain information ranging from biographical and social data to psychological and medical treatments that have been used (Glover, 2000). This allows for continued care even when clinicians or healthcare facilities change. Use of this system would then simply require entering of patient data onto the central system based on specified indicators. Such data can then be accessed whenever further treatment is required or can be used to generate epidemiological reports by administrators and policymakers.

Despite the obvious benefits of having a well-structured MHIS, its existence does not guarantee efficient use. There are a number of potential problems which may arise in the implementation of the MHIS, especially in poorly-resourced contexts. These may include:

1. **Staff workload:** Due to the shortage of mental healthcare staff in many hospitals in low and middle-income countries, physicians are expected to provide the data, but often cannot make the time to do it (Robey & Lee, 1990). The heavy workload often results in overworked staff who are either unable to fill out the paperwork on each patient, or who do so haphazardly.

2. **Inadequate resources:** In order to have a properly functional system, extra time and resources are required of service providers, to be trained, collect data, and then to access, understand and act on the results – resources which are often inadequate or unavailable. Investment in the development and installation of the relevant IT and communications software and hardware (Ndetei & Jenkins, 2009) is often insufficient.
3. **Lack of information:** Situations also exist where staff are not given reasons or explanations of why the data are being collected and what the data will be used for. Data collection is therefore not a priority to them especially in light of their heavy workload. Further, there is often no commitment to entering complete and valid information.
4. **Lack of training:** There are also cases where inadequate or no training is given on the correct procedures to record data (Ndetei & Jenkins, 2009). The human resources needed to sustain an MHIS require extensive and appropriate training. Ideally, they must include the technical staff to develop and run the system for data entry, processing, analysis, reporting and quality control (Gater et al., 2009).
5. **Reports of findings:** Another source of difficulties is when findings are reported in a way that is inaccessible or not useful to those who could potentially use them. In order for appropriate use of the MHIS to be achieved, reports of findings must be meaningful and available to potential and/or actual users.
6. **Information use:** Another potential problem is that information may be available but not used. At the management level, extensive training is needed on how to use the processed information and to generate appropriate and relevant questions (Finau, 1994).
7. **Meaning of categories:** A further potential problem lies in the categories or indicators of the collected data. If the staff who enter the data do not find the specified indicators

meaningful, the quality of data obtained would also be affected. This can also be the case when the categories appear to be repetitive for each visit.

8. **User interface:** Correct usage of a system affects the type and/or quality of data that is obtained. If the MHIS is very technical and difficult to use, then commitment to make good use of the system is also low. This is another potential problem – any MHIS should be user-friendly and not time-consuming. The user interface should be simple enough for the healthcare workers to use (and not necessarily require advanced technical knowledge to operate), and ideally should be as short as possible.

All of these problems may result in poor quality data being generated through the system, thereby compromising the use and efficiency of the MHIS (Gater et al., 2009). Staff motivation to provide appropriate data for entry will also be affected (or non-existent). When no information policy exists in the organization, and there is inadequate regulation by management, this can lead to eventual problems in service provision and policy.

1.2 Rationale for the present study

Until 2010, the system of keeping patient records and information in the Accra Psychiatric Hospital (where the current study was situated) was old and outdated. Patient information was kept mostly in paper-based folders which had the potential of being misplaced or mishandled. In addition, it was found that different diagnostic systems were used by different physicians in managing patients (Ofori-Atta et al., 2010), resulting in a lack of standardized information. These all presented challenges in generating information for policy development and advocacy.

In light of this and other factors, a research programme consortium funded by the UK Department for International Development (DfID), as part of their efforts at intervening to

improve mental health in poverty contexts in Ghana, Uganda, South Africa and Zambia, undertook a complete overhaul of the mental health information system in three psychiatric hospitals in Ghana in 2010. The research consortium (called the Mental Health and Poverty Project, MHaPP), implemented the new system through the provision of logistic equipment and support to successfully run the information system. It also undertook the training of physicians, medical assistants, and clerks on the various indicators including a uniform system of diagnosis, among others (MHaPP final report, 2010).

As a result of this intervention, the three major psychiatric hospitals in Ghana use a more modern, semi-computerized MHIS to aid in patient management and care. Although much has been written on the implementation of the information systems, little is known about the current state of the system in Ghana three years after it was implemented. It is important for studies to be carried out to demonstrate the optimal implementation of the system, or to ascertain the barriers that prevent the effective use and outcome of the system. It is important to determine factors which facilitate or impede the proper use of the new information system.

When good information is obtained through an efficient system, policy makers, clinicians and relevant NGOs will be able to assess the realistic mental health needs in the country and the current state of service provision. In view of this, as a first step towards understanding practices surrounding the use of the current MHIS in mental health in Ghana, the present study sought to explore the experiences of users at the Accra Psychiatric Hospital in using the new mental health information system, and to ascertain their perceptions of areas for improvement in the current system.

CHAPTER TWO

LITERATURE REVIEW

This chapter provides a selective review of relevant studies which have been carried out on mental health information systems. First, the importance of health information systems in general is discussed. Then studies which discuss mental health information systems specifically are explored. Following this, studies which have outlined the processes of implementing and evaluating systems are reviewed. Finally, this is further narrowed down to discuss the process of implementing mental health systems in poorly-resourced areas. The chapter concludes with a discussion of theoretical basis of the study, discussing specifically Institutional Ethnography and Interpretative Phenomenology as the underlying theories of interest.

2.1 Information systems are important in healthcare

Information has been described as the ‘lifeblood’ of healthcare, with an efficient health information system serving as the circulatory system in patient care (Blumenthal, 2010). Health information technology is a blend of tools used in the care of patients. These tools may include, among other things, the implementation of a health information system specifically designed to manage patient information and to facilitate better delivery of patient care (Jamal, McKenzie & Clark, 2009).

Literature on health information technology/systems has documented and shown that a properly designed and implemented information system is an exceptionally useful tool for reducing errors in care delivery and improving overall quality of care through adherence to clinical guidelines (Bates, Leape & Cullen, 1998; Follen et al., 2007; Woosley & Khan, 2012). In a WHO (2005) survey, over 80% of non-OECD member countries indicated that they considered a health information management system to be very useful and necessary. On the administrative

front, a good health information system should serve functions such as less paperwork to be filed (thereby reducing costs), as well as ideally a reduction in the workload of health professionals (Hillestad et al., 2005; Schoen et al., 2006).

In a systematic review of health information systems literature by Jamal et al. (2009), 14 out of the 17 studies reviewed for assessing the impact of a health management information system on the performance of clinicians (and thus quality of care) revealed positive improvements in adherence to clinical guidelines and evidence-based interventions following institutions' implementation of their respective information systems. These improvements were particularly high in the domain of preventive healthcare. Other areas of improvement that have been identified include a reduction in prescription and medication errors, as well as an increase in the use of more modern treatment methods thereby reducing redundant and inappropriate methods (Black, Car, Pagliari, Anandan, & Creswell, 2011; Chaudhry et al., 2006). These benefits have also been found in other studies (e.g. Benin et al., 2005; Cibulskis & Hiawalyer, 2002; Finau, 1994; Hayrinena, Sarantoa, & Nykanenb, 2007; Heeks, 2006; WHO, 2005; Woosley & Khan, 2012).

Cibulskis and Hiawalyer (2002) for instance reported that information on the health needs and access to available services in Papua New Guinea was thought to be crucial to service providers for a number of reasons. In the first place, such information was thought to play a prospective role in helping healthcare workers to match available resources to client needs. In addition, it was also thought to play a role in retrospectively evaluating services and service decisions in the monitoring of progress. Summary reports that were made based on the data generated through the system served as sources of information to policymakers and other relevant stakeholders. Such information as what services were available and how people could

access such care could then be made available to the public. Finally, it could also be the basis for advocacy and marketing of health programmes (Cibulskis & Hiawalyer, 2002; Haux, 2006; Luo, 2006).

Studies in a range of countries have also reported the usefulness of an efficient health information management system. In a study of three categories of Dutch health care settings, Zwaanswijk, Verheij, Wiesman and Friele (2011), found that health care workers within these settings, when interviewed, reported that having a fully functional electronic patient database greatly improved work. In all the settings, respondents reported that they thought electronic information exchange could improve the efficiency of patient care and the speed of communication between professionals. In other words, when requests for laboratory work and referrals can be uploaded and processed almost immediately, time can be saved. This also saves resources when data processing is electronic rather than entirely paper-based. Similarly, Sukums et al. (2014) reported positive attitudes and general acceptance of the importance of health information systems by health workers in parts of Ghana and Tanzania.

Efficiency of care can thus be improved when information is exchanged electronically. Other providers would have the most current data on patients, which removes time- and resource-wasting duplications, and is of particular help when patients are unable to provide such information themselves (Kramer et al., 2007; Roth et al., 2009; Taylor et al., 2005). Medications or treatment programmes that patients are currently on can also be outlined. This benefit was reported across health care settings (i.e. acute care, diabetes care and ambulatory mental health care settings; Zwaanswijk et al., 2011).

Despite the benefits of having a good information management system within the healthcare setting, some studies have also discussed limitations that may exist to ensuring

efficient and accurate use of the system. Jamal et al. (2009) suggested that a real limitation to establishing an information system was in terms of cost. Setting up an information management system was found to involve significant capital. The availability of funds to ensure that the system is set up properly could be a stumbling block for institutions that could not afford it. It also required training of records and medical staff to ensure proper records were kept, as well as to ensure proper maintenance and upkeep of the system. These difficulties may result in an inefficient system remaining in place.

Further, Gupta and Murtaza (2009) also reported that for many medical facilities in the developed world, the problem had shifted from cost- and management-related ones to standardization and consistency in data collection and recordkeeping. They found that many medical facilities had not one comprehensive system, but rather a number of smaller – and different – systems for different departments, thereby hindering smooth sharing of information even within the same facility (Schoen et al., 2006). In the health system they studied, the pharmacy had a particular system in use, which was often different from that of the laboratory, which further differed from what was in use by nurses. They therefore recommended that all of these smaller systems be streamlined and standardized in order to ensure uniform and consistent patient care delivery and best practice monitoring (Gupta & Murtaza, 2009).

2.1.1 Mental health information systems are specific but necessary

As discussed, the benefits of having a uniform and centralized system of patient record-keeping and standard management practices cannot be overemphasized in healthcare. This is no different for mental healthcare. Mental health information systems are a specific type of health information management system whose focus is mental health disorders and services within

specific contexts. In other words, a MHIS collects, processes, analyzes and disseminates information on the mental health needs of a particular population.

Despite a MHIS being capital-intensive initially, it may be of use, particularly for a low-income country, to ensure appropriate, evidence-based, and equitable distribution of scarce resources (Hussein et al., 1993). When stigma and discrimination exist around a disorder, it is easy to ignore the magnitude of the needs of people who suffer from it, and to believe that if it is not talked about, then it is not so serious. The need for a health information system in mental health is therefore particularly pertinent given the associated stigma surrounding mental illness. When data can be accumulated about the various conditions, the types of services available and the outcomes of patients with particular disorders, then mental health can gradually cease to be a taboo topic among stakeholders and policymakers (Ofori-Atta et al., 2010). That is, if credible data on the benefits of specific medications and/or treatment services are available, and evidence exists which shows positive outcomes for patients, efforts to scale up provision for mental health services may be increased. Such improvement in basic areas like infrastructure can then begin to influence perceptions of mental healthcare and in turn may change attitudes towards people living with mental illness. This may not be a straightforward process; however lobbying can begin when real data are available as evidence.

Bird et al. (2010), in assessing governments' priority of mental health in four African countries (Ghana, South Africa, Uganda and Zambia), reported that stakeholders in these countries believed that having concrete evidence from a reliable and accurate information system was necessary in order to advocate for better services. It was also believed to be the way in which to increase the priority of mental health in Africa. In other words, with adequate

information from the system, mental health could be shown to be a legitimate (and serious) problem (Bird et al., 2010).

However, a common problem with mental health information systems has been such systems' generalizability – not only to other disciplines within health but even within mental health itself. Jamal et al. (2009) suggested that the inability to generalize data from the system was a significant limitation to its use. Data which are recorded in a MHIS pertain to individual patient management and care. Although trends can be shown to exist with such information, and greater monitoring can be achieved through the system, the obtained data are limited to the particular patient and it may be a challenge to meaningfully aggregate disparate data. There is also the potential for unrealistic expectations for what a MHIS can do. The system is merely a tool to support healthcare delivery; it does not cure diseases or treat illness, nor can it plan services without the intervention and interpretation of data on the part of policy makers who understand the system and who also understand treatment models for mental disorders.

2.2 Implementing and evaluating mental health information systems

The process of implementing a mental health information system is intricate and time-consuming. Implementation of a new system would require an analysis or evaluation of the existing modes of record-keeping to identify gaps and unmet needs. It would also require the development of an appropriate and user-friendly system which suits the needs of both the target population and the workers (WHO, 2005). Decisions would therefore have to be made whether to collect population- or facility-based data depending on existing needs (Kustner, Varo & Gonzalez, 2002). Given the above-stated problem of generalizability of an MHIS, data collected are often facility-based (Follen et al., 2007). Implementation would then involves training of

staff and supervisors in using the new system (Gladwin, Dixon & Wilson, 2003). All of these should ideally be done together with stakeholders (Odhiambo-Otieno, 2005).

Given the above considerations, many possible challenges can crop up when mental health information systems are being implemented. Razi, Emmert, Austin, Tarn and Islam (2011) outlined several possible challenges, chief among which was the presence or absence of appropriate information management policies within the institutions regardless of mode of delivery of information. Such policies will determine to a certain extent the degree to which structured and consistent data gathering and recordkeeping will be adhered to within those organizations. When the institution follows strict policies on information management, the processes of patient care, management and follow-up will be more structured and standardized, thereby strengthening the information output of the institution.

A further challenge identified in the implementation of a mental health information system was the lack of technical know-how on the use of the data. When the information is gathered but there is inadequate knowledge on the processing of the data, the necessary information will be isolated and runs the risk of becoming redundant. Generating appropriate reports to advise policy and service change requires knowledge of the current situation as well as the current requirements within the field. Expertise in legal and financial aspects of implementing and maintaining the system must also be considered. It is only with such expertise that maximum benefits of the system can be extracted (Razi et al., 2011).

In addition to the above, security and communication were also found necessary to be factored into the implementation process (Jha, DesRoches, Kralovec & Joshi, 2010). The system must be designed such that it can securely hold patient data, but allows for some level of communication between healthcare providers, as well as for monitoring and evaluation of

clinical care delivery. These factors are essential in the implementation process and may require extensive training and supervision – all of which come at a price (Gulbinat, et al., 2008; Jha et al., 2010; Razi et al., 2011).

If the process is not adequately handled, data which are collected may be of poor quality and/or may be duplicated. According to the WHO guidelines on MHIS, this is often due to staff being overloaded with data. They recommend simplifying the forms and data collection process to include only items which are absolutely necessary as well as sharpening policy and regulation around data collection (Bourn & Davies, 1996; WHO, 2005).

Ndetei and Jenkins (2009) identified another common barrier to efficiency in the data processing of the MHIS. This barrier was at the level of data processing. Instances were found to exist where data were immediately processed at the national level. This may then be of no use for local levels especially where there is no feedback system from the national level back to the local (Ndetei & Jenkins, 2009). In such a situation, data may be extracted from local contexts, a process requiring considerable efforts in such contexts, but with no information benefits for those collecting the data. Further reports showed that in some instances, data may have been collected correctly, but remained unanalyzed or were analyzed incorrectly, rendering the data collection futile (Gater et al., 2009; Steinfeld et al., 2006; WHO, 2005).

Apart from training the organizational staff to enter and retrieve data through the system, an efficient MHIS also requires personnel to setup and monitor the hardware and software requirements of the system (WHO, 2005). All the components of the system need to be in good working order, otherwise the information that is generated through the system may be unreliable. At least initially, constant diagnostic checks were recommended to monitor the new information management system (Gulbinat et al., 2008; Jha et al., 2010; Razi et al., 2011).

Setting up and monitoring a mental health information system is in essence no different from setting up and monitoring a paper-based health information system – it has the same (or similar) attendant strengths and weaknesses. Gulbinat et al. (2008) however emphasized the need for this process to be context-specific and therefore likely to vary from community to community and country to country. Unlike general medical conditions, the mental health situation and needs of specific communities and/or specific countries would vary more widely due to the varying prevalence rates, severities and disabilities which require different treatment models. Therefore any process of implementing an information system for mental health in particular cannot be successful unless the context is taken into consideration.

Inasmuch as they agreed with the above assertion, Ndetei and Jenkins (2009) believed that it was possible to develop a core framework of useful information which may be applied at the individual, district and national levels within most contexts. At the individual level, data such as socio-demographic information, diagnoses, chronicity, family history, and hospital attendance or admission information could be captured. These could then be collated for district-level data and widened eventually to the national level. Ndetei and Jenkins were therefore of the view that the individual patient-level data constituted the core building block of an MHIS. These data must be valid, reliable, and comprehensive enough to make the desired impact on service delivery and policies – regardless of the context.

Even though ensuring that the system is set up properly and that the type of data collected is appropriate, attention must also be paid to the human resource aspect of implementing a new mental health system (Gater et al., 2009; Razi et al., 2011). When a system has been successfully implemented, several potential problems may still occur when the system is not running efficiently at all levels (Gater et al., 2009; WHO, 2005). In terms of human resources, users of

the system, including administrators, prescribers and nurses, all need to change their workflow processes.

Halford, Obstfelder and Lotherington (2010) in their review of literature on patient records, discussed how introducing electronic recordkeeping could be hailed as innovative in its introducing of new and more efficient tasks, new distributions of labour to clerks rather than healthcare professionals alone as well as the development of new modes of communication between professionals. However, they reported that there was a paucity of research focussing on the *people* involved in these new processes. Some studies (e.g. Hartswood, Rouncefield & Slack, 2003; Moser & Law, 2006) do discuss the new tasks that people perform (in terms of how the work changes), but not necessarily the subjective experience of the new system. In other words, attention must be paid to how changing the system at work shapes and changes the meaning of the work for healthcare staff (Halford et al., 2010) and the influence this has on professional relations and the meaningfulness of the work to the staff (Nicolini, 2007). Greenhalgh, Potts, Wong, Bark and Swinglehurst (2009) suggested that special care be taken when integrating new patient record forms within the old systems (particularly electronic systems), utilizing input from workers and technicians alike in the implementation of the new system, given that human interaction is still needed to make any system work properly.

This suggests that introducing a new information system could be met with resistance. There may be challenges to effective implementation if the system disrupts established existing work flow processes for healthcare professionals (Hindmarsh & Pilnick, 2002; Oudshoorn, 2008). These processes may be accompanied by the understandings, conscious or otherwise, that existing work protocols work and are the best or the only way to manage data, especially where such protocols are well established and part of the fabric of the organization. Existing protocols

may provide meaning in the work to those who use and have used them over time. When a loss of the meaningfulness of work presents itself, the disruption may in turn disrupt productivity and work output (Greenhalgh et al., 2009). This may occur chiefly when the process of designing and implementing a new system in an organization does not involve the input of those who have operated differently in the past but will now be required to implement and maintain the new system.

When users of the information system do not feel a part of the change, they may be hesitant in accepting the new work processes that are required for the MHIS to be successful (Gopfert, 2013). This hesitation may not necessarily be as a result of active resistance to a new system which they had no part in developing – although this is certainly possible – but the resistance may be a reflection of their difficulty in grasping how to properly work the new system, as well as a lack of understanding of why the new system is necessary (Halford et al., 2010). If innovation is not properly managed, furthermore, personnel who have worked in an old system may feel that their existing skills, often built up over years of organizational experience and history, are denigrated along with old systems themselves, and that their historical (and potentially future) positive contributions to the organization may be ignored or disavowed (Aarons, 2004).

This difficulty can be mitigated by continued training – through all levels of implementation and evaluation. It would also involve training in the process of capturing, recording and retrieving the information. Also required is constant feedback on data which is collected with avenues made for suggestions to be made by the actual users of the MHIS on ways that the new system could be improved to facilitate their work and their sense of ownership of the work process (Oudshoorn, 2008). Such involvement of the end users can aid in making

them more willing and able to learn and change their process of data capture, storage and retrieval.

2.2.1 Implementing mental health systems in poorly-resourced countries

Apart from the challenges that are experienced generally in implementing a mental health information system, the literature shows that many low and middle-income countries experience challenges which are unique to their socio-economic and cultural contexts, and have therefore struggled to implement and maintain their information systems (e.g. Flisher et al., 2007; Odhiambo-Otieno, 2005; Omar et al., 2010). These challenges are somewhat different from those experienced in developed countries, where primary concerns may revolve around patient privacy and other attendant legal issues (Adjorlolo, 2013; WHO, 2010).

Ndetei and Jenkins (2009) outlined challenges and opportunities that they found to be present in implementing a mental health information system in developing countries. They reported that the scarcity in human resources, training and resources for the technological aspect of an information system were significant problems in developing countries. Electronic systems were expensive to set up and maintain, requiring electricity which was sometimes unavailable. Inadequate human resources also affected the type of data collected, its storage and its accessibility (Lanre & Makanjuola, 2009; Pal, Mbarika, Datta, Cobb-Payton & McCoy, 2005; Xue & Liang, 2007).

Another identified barrier was the issue of classification. Given that the two major classification systems were used by different countries – the International Classification of Diseases, tenth revision (ICD-10) was used in most European countries, and the fourth text revision of the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV-TR) in North America – questions were raised on which system would work best for data entry in countries

which had not formally adopted a uniform mode of disease classification (specifically for mental health disorders).

This could potentially create problems as healthcare workers in low- and middle-income countries were often trained in different countries, thereby acquiring skills in one diagnostic system over the other. Further, given that classification systems undergo constant revision, this problem was compounded whenever a new revision was made (Gulbinat et al., 2008). It was therefore necessary for such factors to be taken into consideration when a new MHIS was being developed for these countries. Work also needed to begin to develop policies and standard practices in low and middle income countries in order to streamline practice and recordkeeping.

Even though implementing a MHIS in low and middle income countries is challenging, it has been argued to have benefits, as has been discussed, and therefore various creative and innovative methods need to be adopted to ensure that some level of implementation is achieved. Ofori-Atta et al. (2010), in their situation analysis of mental health services in Ghana found that the country fell far below the WHO's recommended principles of organization of services, much like most low-income countries in Africa. These authors note the lack of awareness in countries like Ghana of mental health issues.

However, without credible information on the mental health needs present in the country, it was difficult to advocate for policy and resources geared towards programmes educating the public about such issues. One of their recommendations was therefore that a standardized and comprehensive MHIS be set up to provide evidence for improving services in Ghana (Ofori-Atta et al., 2010). This led to the implementation of a new MHIS in the country's three psychiatric hospitals to scale up the collection of data about mental illness and services in Ghana. This system was intended to be a temporary, semi-computerized one incorporating both the paper-

based (old) methods of recordkeeping, and introducing a computerized mode of data entry and analysis.

2.3 Mobile phone technology and mental health information systems

Despite the previously stated potential resource barriers to the successful use of computerized recordkeeping methods, many opportunities exist for the implementation of MHIS to suit the specific contexts and needs of various countries. Ndeti and Jenkins (2009) have made recommendations for the use of what they term ‘unconventional’ methods such as mobile phone technology (called mHealth), in addition to the paper-and-pencil methods already in use, in order to facilitate data collection and access (Jenkins, et al., 2011). Although mHealth is not the focus of this thesis, it has been found to have many applications in increasing adherence and patient follow-up. Using mobile technology may serve as a means of improving MHIS, and is therefore worth mentioning here.

The Global Observatory for eHealth (GOe) of the World Health Organization has defined mobile health (or mHealth) as:

Medical and public health practice supported by mobile devices, such as mobile phones, patient monitoring devices, personal digital assistants (PDAs), and other wireless devices. mHealth involves the use and capitalization on a mobile phone’s core utility of voice and short messaging service (SMS) as well as more complex functionalities and applications including general packet radio service (GPRS), third and fourth generation mobile telecommunications (3G and 4G systems), global positioning system (GPS), and Bluetooth technology. (WHO, 2011, p. 6)

With the mobile phone revolution sweeping over most developing countries in the last decade, this provides a uniquely placed resource for scaling up mental health care at the

community level (Luxton et al., 2011). Mobile phone use would enable improved patient monitoring (Anhoj & Moldrup, 2004; Cho, Lee, Lim, Kwon, & Yoon, 2009; Shapiro et al., 2008), and may be used for initial case finding and diagnostics (Frean, 2007; Piek et al., 2006; Zimic et al., 2009).

The use of mobile technology was therefore strongly recommended by the WHO in their second global survey on eHealth (WHO, 2011). Results from this survey suggested that various initiatives could be developed to promote mHealth and facilitate patient care and management (WHO, 2011), particularly in poorly resourced areas. Indeed, King et al. (2014) in their report of the personal experiences of workers who use various electronic data capture devices (particularly mobile phones) in rural Malawi found that shorter turnaround time, enhanced monitoring and consistency were highlighted as benefits by many of their participants.

Such initiatives can be valuable for mental health in Ghana. Opportunities exist in the large number of community-based mental health workers already in place and being used for case finding and patient follow-up. However, there is still a faction of patients who fall through the cracks as a result of limited resources, personnel and support services. One way to overcome this challenge is through the use of mobile phone technology.

Community health workers who are already in use within communities could therefore be given password-protected access to a central database to input patient data using a mobile phone technology; laboratory and medication information could also be entered and maintained on a uniform database, which will facilitate access for further management of the patient (Ndetei & Jenkins, 2009; Ndetei, Khasakhala, Kingori, Oginga, & Raja, 2008). It would also minimize the follow up loss of patients when they return to their communities (Blaya, Fraser & Holt, 2009).

2.4. Summary

The literature reviewed above suggests that developing and using a structured and uniform health information system (specifically in mental health) can lead not only to increased access to health care, but can also lead to improved patient follow-up, treatment compliance and overall health outcomes. This information system need not only be computer based but can be expanded to make use of mobile phone technology. Care must be taken, though to ensure that users and stakeholders are brought on board from the implementation stage, and that privacy and confidentiality are strictly ensured.

Given the importance of the success of any implemented information system in healthcare, it is also necessary that evaluations are carried out from time to time to assess whether or not it is playing the role it is meant to play. The current study therefore sought to explore the current mental health information system in one of the three psychiatric hospitals in which it was developed, to investigate what barriers and facilitators existed to its effective use. In order to achieve this, users of the system were interviewed to examine their experiences with the new system. These were built around an institutional ethnographic framework, together with an interpretative phenomenological method of analysis.

2.5 Theoretical framework

In order to properly explore the use of the MHIS at the Accra Psychiatric Hospital, this study was situated within specific theories to serve as a guide. The current study was therefore broadly ethnographic – specifically using an Institutional Ethnography approach – but also had a partly phenomenological basis in its approach. These theories are reviewed below.

2.5.1 Institutional ethnography

Institutional ethnography (IE) is a research method that explores social interaction as made up of the actions of people in their everyday life settings. IE was developed by Canadian sociologist Dorothy Smith (1987) initially as a form of feminist sociology. It looks at how people are socially organized to accomplish daily activities and how those routines are established and maintained. In undertaking IE research, textual and discursive dimensions of social life are explored as a means of understanding social connections (Eastwood & Devault 2001). The IE approach believes that people's knowledge and experiences affect their everyday activities, and is therefore important for understanding social interaction (Rankin & Campbell, 2009).

However, in institutional ethnography, the individual experience is not considered in isolation. By studying social interaction, IE implies also examining those individuals' activities and behaviours within institutions, combining everyday life and professional practice, among others (Smith, 2002). Rankin and Campbell (2009) illustrated this concept with reference to the social embeddedness of a diabetic single working mother whose activities depend not only on her actions but also on the work of others in her social setting such as health care workers, baby-sitters, etc. This woman's social world can be observed and described ethnographically through the activities of all these other people (Rankin & Campbell, 2009).

In IE research, observations are used to determine how people's activities are linked and connected. In this way, one informant's knowledge and experiences are not the sole basis for conclusions. IE allows for the exploration of broader social organizations and interactions (Rankin & Campbell, 2009; Smith, 2002). In IE research, "institution" refers to the interrelations in people's lives, not merely another word for organization or establishment (Smith, 2002). For example, in a study to determine the experiences of nurses working in restructured hospitals,

ethnographic descriptions of the nurses' work processes drew a picture of the institutional connections that existed within the hospital. These helped to determine nurses' competence within the new system (Rankin & Campbell, 2009). In this sense then, the institution was the new work flow processes that the nurses were required to use, and not merely the hospital.

Institutional ethnography has been used effectively in research in the social sciences, education, human services and policy research. Its use of texts and records (or documents), and the analysis of how individuals use them in their work, facilitates the examination of institutions and their practices.

Based on this theory, the current study explored the actual use of the MHIS by staff at the psychiatric hospital, partly through an audit of archived online records. Given that the system was relatively new (compared with the one which was in use previously) the archival audit explored the different levels of users within the new system. This study also looked at how the new system affected the work of hospital administrators in generating reports within the hospital.

However, the IE approach by itself was not adequate for the needs of this study. Although institutional ethnography explains individuals' relations within a social context, it does not quite consider each individual's lived experiences as an end in itself (Eastwood & Devault, 2001). Hence, the specific experiences of prescribers and hospital administrators in using the new system could not be obtained from the archived records or from observations alone. In view of this, a phenomenological basis was also considered as a theoretical framework for this study to fill in this gap.

2.5.2 Phenomenology

Phenomenology within psychology seeks to explain lived experience from the point of view of the individual. According to Giles (2002) phenomenology is "the study of personal

experience and subjective perceptions of phenomena” (p. 208). It seeks an in-depth understanding of subjective everyday human experience rather than objective views about a phenomenon (Giorgi & Giorgi, 2003). It therefore aims to provide understanding of the phenomena as an end in itself, rather than a means to an end (Smith & Osborn, 2003). Further, it is context-specific, in that it explores experience within a particular setting and closely analyzes conscious interaction within that context (Giles, 2002; Kvale, 1996; Willig, 2001) thereby enhancing knowledge on the dynamics within specific settings from the individuals’ points of view.

One of the first early proponents of phenomenology was Husserl in the early 20th century with his theory of Transcendental Phenomenology. Husserl (cited in Willig, 2001) suggested that phenomena be described through a series of steps to ‘transcend’ presumptions in order to determine the characteristics which make the phenomena unique (Moustakes, 1994). Although Transcendental Phenomenology had its roots in philosophy, social science researchers like van Kaam (cited in Durr, 2008) used its methodology within psychology with much success. Willig (2001) has suggested that this method of research was appealing to psychologists due to the widely-held belief that human experience was essentially subjective.

Phenomenology has undergone many transformations through the years. A more contemporary approach to using phenomenological methods is Jonathan Smith’s (1994, 1999) Interpretative Phenomenological Analysis (IPA). IPA examines subjective human experience from the individual’s perspective. It however acknowledges that in analyzing individual experiences, the researcher makes assumptions and meaning of the situation based on their own world view. The researcher can therefore only make an *interpretation* of the individual’s

experience based on his experience, background and understanding of the situation (Willig, 2001).

In using IPA, detailed reports of experiences and perspectives are used and how these are perceived by the individual can be fully explored (Smith, 1994; Smith et al., 1999; Willig, 2001, Giorgi & Giorgi, 2003). According to Shaw (2001), in IPA the focus is on the fact that each person's experience is unique; therefore the meaning attached to the experience is different for each person. Using IPA made it possible to explore prescribers' perceptions of their use of the new information system as employees. It also allowed the analysis of the administrator's perception on his use of the system to generate reports and information.

In doing an IPA analysis, a "double hermeneutic" situation is often inadvertently established. As has been outlined above, the experiences related by participants is subject to their own interpretations. However, in trying to establish a close an account of the situation as possible, another layer of interpretation is often unintentionally imposed on the accounts – the researcher's. Despite efforts to remain objective, the researcher's background, experiences and preconceptions may play a role in the eventual interpretation of the information, as he cannot relate the experience directly. In other words, as the participants attempt to understand their own world, the researcher also attempts to understand theirs.

IPA is beneficial because it is flexible and exploratory in its approach. With this approach, subjects more or less determine the direction of the discussion/interview; in this way, information that the researcher had not considered is often uncovered and new themes can usually be developed along those lines.

Phenomenology was used as a framework for this study because it examines a description of the 'lived experiences' of people and their social worlds in order to understand the *meaning*

they have attached to the experience (Durr, 2008). The subjective nature of its explorations and the role that the individual's perspective plays in understanding a situation was key in choosing this approach.

Therefore, both an Institutional Ethnography, and an Interpretative Phenomenology were drawn upon for this study. These theories were combined because, in isolation, they were limited in terms of their strengths within the specific contexts, and at the two levels of analyses. The integrated approach therefore served better to provide a holistic picture on the use of the new mental health information system at the Accra Psychiatric Hospital.

CHAPTER THREE

METHODOLOGY

This chapter outlines the methods used in this research. It begins with a discussion of the research setting, after which it outlines the aims and objectives which led to developing the research questions. The instruments and data collection guides are then outlined, followed by a description of the study participants.

3.1 Research setting

The current research was set in the Accra Psychiatric Hospital which is located in Adabraka, a suburb in the centre of Ghana's capital city, Accra. Given the relevance of historical factors for the analysis of data in the chapter which follow, a brief history of the hospital is given here, by way of background.

3.1.1 A brief historical introduction to the Accra Psychiatric Hospital

The Accra Psychiatric Hospital (APH) was built by the colonial British government as an asylum for individuals suffering from mental ill-health. This was partly due to the fact that people with a mental illness in the very early days of colonial rule did not receive Western medical care. Before British colonization and the introduction of these scientific methods, mental illness was treated within communities through the use of various herbs, as well as a number of 'spiritual' rituals by priests who were often regarded as the 'spiritual heads' of communities (Osei, 2006).

However, on 4th February 1888, a Legislative Instrument (LI) was issued by then-governor, Sir Edward Griffiths to convert the old High Court of Victoria Borg (present-day

Accra Central) into a prison; it was also to be used as an asylum in an attempt to get individuals with a mental illness off the streets and for them to be in the state's custody. For years, no medical treatment was given to the inmates and no real distinction was made between the requirements of the people living with a mental illness, and those of the criminal. By 1904, the prison was over-crowded so plans were made for a new facility to be built at Adabraka (which was on the outskirts of Accra at the time) to serve as a hospital for people who were termed 'lunatics'. The new facility was therefore referred to as the 'Lunatic Asylum'. This is the site of the present-day Accra Psychiatric Hospital.

The 'Lunatic Asylum' was commissioned in 1906 to accommodate 200 patients. The hospital consisted initially of four wards: Female, Male, General and Criminal wards. Patients who were detained there were cared for by untrained attendants, with periodic visits from a physician until a physician was assigned to them specifically by the British government in 1929. The next 30 years saw the 'Lunatic Asylum' undergo major modifications and extensions which were instrumental in transforming it from an asylum into a hospital (Forster, 1962).

With the appointment of the first sub-Saharan African psychiatrist to head the hospital in 1951, further improvements and reformations resulted in the hospital transforming from a purely custodial into a healing environment which catered to both physical and mental illness. The current Accra Psychiatric Hospital has a bed capacity of 600 ("Historical background," n.d.), and clinical problems handled, in both training and practice include a range of neuropsychiatric disorders, mood disorders illnesses, schizophrenia, epilepsy, alcohol and substance abuse, among others. Being the first of only three public psychiatric hospitals in Ghana, the Accra Psychiatric Hospital treats the largest number of psychiatric cases per year in the country ("Historical background," n.d.).

3.1.2 Recordkeeping in APH

As discussed in the literature review, a situation analysis of mental health care in Ghana in 2008 (Ofori-Atta et al., 2010) revealed that policy, legislation and services were still inadequate for mental health. One of the major problems discussed was a weak mental health information system (MHIS). The system which existed at the time (in 2008) collected information on only 4 categories of illness (psychoses, neuroses, epilepsy, and substance use disorders) and made up less than 1% of data collected through the health service. The situation analysis also revealed that these diagnoses were not standard and therefore could not provide credible information on the mental health needs and services in the country.

Records that were kept by the three psychiatric hospitals were paper-based and largely involved writing patients' background information, diagnoses and treatment plans in folders which were stored in the doctors' consulting rooms and a central records room. Records staff kept daily (paper-based) records of number of patients seen, diagnoses and prescribed treatments at each consulting room. These data were then collated at set periods (i.e. weekly, monthly, quarterly, etc.) to generate reports for the hospital administrative processes and beyond. This process had largely remained unchanged throughout the years.

As a follow up to the situation analysis, a research programme consortium (called The Mental Health and Poverty Project or MHaPP), funded by the British government, in collaboration with the Ghana Health Service, sought to improve recordkeeping and data collection in mental health in Ghana. Work was done to improve the MHIS in the three psychiatric hospitals in the country, setting up a semi-computerized information system.

Four years after its implementation, an evaluation of the system and users' experiences in working with the new system is yet to be carried out to assess whether the MHIS is fulfilling its

purpose of providing evidence for the scaling up of mental health services in Ghana, as well as improving patient care and monitoring.

3.2 Aim and objectives

For the present study, the main aim was to examine the use of the current MHIS by physicians at the Accra Psychiatric Hospital, Ghana, and to explore its use. To achieve this aim, the objectives of the proposed study were:

1. First, to explore the current actual use of the system through record reviews
2. Secondly, to explore the specific advantages and challenges experienced by users at the Accra Psychiatric Hospital, Ghana in using the mental health information system (MHIS)
3. Third, to explore the users' perceptions of areas for improvement in the current system

3.3 Research questions

Given the above objectives, the research question was to determine what users' experiences had been in using the new MHIS that was installed at the Accra Psychiatric Hospital and how this new system had affected their work. This question was broken down into sub-questions which were formulated as follows:

1. To what extent do physicians at the Accra Psychiatric Hospital use the MHIS in monitoring patient information and management?
2. Do the rates and patterns of use differ between physicians and medical assistants?
3. What are the barriers to their use of the system?
4. To what extent do physicians and medical assistants know and understand the need and usefulness of an efficient MHIS?
5. What facilitates their use of the MHIS?

6. How do they think the current MHIS can be improved to facilitate better use?

To effectively answer these questions and achieve the stated objectives, the study was situated within a qualitative interpretative design.

3.4 Research design

For this study, a mixed methods approach was adopted. First, an audit was undertaken of usage of the MHIS. Second, a qualitative approach was employed in obtaining the experiences of users of the MHIS. Specifically, it focused on their knowledge of the system and its use, as well as the influence of the institutional processes on work (Brewer, 2003). The phenomenological interpretative aspect of the research also explored the meaning/essence of the work to the participants with regards to the new MHIS.

To obtain such information, individual, in-depth interviews were conducted among staff of the Accra Psychiatric Hospital. This was to elicit rich, deep information from them without the restrictions of quantitative methods (Denzin & Lincoln, 2005). Interviews were conducted with a semi-structured guide; the guide was semi-structured to ensure uniformity of questions, but without placing too many restrictions on the answers, thereby allowing them to express their own opinions and views. However, before the interviews were collected, an audit was performed of online patient data on the MHIS. This was to assist in determining patterns of use among the various categories of users, i.e. doctors, medical assistants and nurses, as well as the records clerk and hospital administrator. In addition to the audit, the process of recordkeeping and data capture was observed prior to the interviews. This involved observing what happened to a patient's MHIS form from the consulting room to the records department where it is entered onto the database.

3.5 Instruments/materials

3.5.1 Archival audit checklist

A checklist was developed to audit archived online records within the MHIS (see Appendix C). Records of at least one-year duration were sampled for the audit. The checklist included data quality indicators such as frequency of system use for each prescriber (compared with number of hospital visits of patients recorded in consulting room registers), accuracy of entered details, adherence to a uniform diagnostic system (compared with patient folders), accurate capture of detailed information on the number of admissions and length of stay of each patient, and information on patients' treatment programme.

3.5.2 Demographic questionnaire

A demographic questionnaire was developed to gather information pertaining to the participants' characteristics such as age, gender, level of education, employment status (i.e. doctor/psychiatrist, medical assistant, clerk or administrator) and the number of years employed at the hospital.

3.5.3 Semi-structured interview schedule

To fully explore the subjective experiences of users of the mental health information system, a semi-structured interview schedule was used (see Appendix B). Semi-structured interviews are a useful way of exploring individuals' views on issues, allowing for more flexible probing and later analysis (Brewer, 2003). For this study, three sets of interview guides were developed for the three major categories of users: the prescribers, the records clerk, and the hospital administrator. Prescribers is the term often used to refer collectively to psychiatrists and

medical assistants; for this study, the term ‘prescribers’ as used, included nurses who often were the ones to fill in the MHIS form.

The prescriber guide focused mainly on how use of the new form had affected work, how often they used the form, their difficulties with the new form, and what they think could be used to improve the new system. The interview guide for the hospital administrator asked questions on how the new system is being used, in terms of generating reports and analyses, and whether or not the work has been made easier or harder. It also explored challenges with the new system, and what areas they felt needed to be changed/improved. Finally, the records clerk was asked about the perceived ease of data entry and processing with the new system, and the extent to which workload had changed with the introduction of the new system.

All interviews were recorded with a digital audio tape recorder to ensure accuracy of transcription and analysis with prior consent from the participants.

3.6 Participants

Participants in the study were in three categories: prescriber, administrator, and records clerk. Generally, the term ‘prescriber’ is used at the Accra Psychiatric Hospital to refer to doctors and medical/physician assistants in Psychiatry (MAPs) at the hospital – loosely, these are basically those who prescribe medications for patients. The term was expanded to include consulting room nurses for this study; this was because preliminary observations revealed that for most consulting rooms, the nurses filled out the forms before the patient saw the doctor or MAP. The doctors simply filled in the diagnosis, the change in medication and/or need for admission (if necessary) and in some cases the review date. It was therefore observed that most of the change in work processes fell to the consulting room nurses.

However, before this was observed, two doctors and two MAPs had already been interviewed; many of the doctors and MAPs were reluctant to be interviewed, often citing limited time and heavy workload. Attempts were therefore made to recruit their consulting room nurses, who were seen using the new forms.

As a result, the final sample of prescribers interviewed consisted of two specialist psychiatrists, two medical/physician assistants and three consulting room nurses. At the time of data collection, there were 6 psychiatrists employed by the hospital, 4 residents in training, and 6 medical/physician assistants; taking scheduling into consideration, there are, on average, 9 active consulting rooms at any point in time. The seven participants were therefore purposively sampled from these consulting rooms based on the following criteria:

- a) They must be employed by the hospital at the time of interviewing
- b) They must have been at the hospital before the new system was introduced
- c) If they are shown to have a record of previous use of the system (from the audit)

In addition to the prescribers, one hospital administrator and one entry clerk were also interviewed to explore administrative factors in the use of the mental health information system at the hospital. Although every consulting room has a records clerk who works with the nurse, the hospital employs four data clerks; one of these was interviewed for the study based on availability and willingness to participate. The doctors were one male and one female; the MAPs were all male, and the nurses were all female. The records clerk and the administrator were both male. The ages of the prescribers ranged from 32 to 54 years with a mean age of 39.6 years.

Obtaining participants for the research proved quite challenging; this was especially surprising due to the small number of clinical staff present, but also because of their familiarity with the researcher. The prospect of being recorded proved problematic for many of the

participants. Despite assurances of confidentiality and/or completely foregoing the recording, many were reluctant to be a part of the study.

3.7 Procedure

The data collection was done in three steps. Prior to the start of data collection however, clearance was obtained from the Research Ethics Committee of Stellenbosch University (see Appendix E), as well as the Ethical Review Board of the Ghana Health Service in Ghana (see Appendix F). Once all ethical requirements had been met, permission was obtained from the hospital administration to begin phase one of the study (the archival audit; see Appendix G for institutional permission letter).

The review of archived data presented some challenges due to the backlog of work (forms) that had yet to be entered, therefore initial plans of reviewing records which went back at most six months were revised to one year, in order to obtain enough online data. A further challenge was partial records; some of the online records were also found to be partially entered – with explanations from the entry clerks that they could not make out the doctors' handwriting. This was particularly the case for sections on diagnoses. It is worth noting though that during the latter stages of data collection, three undergraduate Psychology students who were doing a vacation internship were assigned to records department one day a week to assist in data entry. Hence the backlog of data to be entered was cut down to a few months by the time the data collection ended.

Phase two of the study involved interviewing participants who had used the new system (from the archive review) in patient management. Suitable participants were approached in order to be recruited into the study. As stated above, not all of the participants who were initially approached agreed to be interviewed. Further, observations revealed that the new forms were

mostly filled in by the nurses and records persons in the various consulting rooms. The proposed sample was therefore expanded to include these nurses.

In phase three of the study (which was the interviews of the administrator and clerk), no major challenges were experienced with the records clerk as one readily accepted to be interviewed. Similarly, the hospital administrator readily accepted to be interviewed however, considering his busy schedule obtaining an appointment took a bit of time.

Generally, the interview process began with an introduction to the research and information about the research is given. Written and verbal consent was obtained from each participant, both to participate and to record the session.

All interviews were conducted in English and recorded using a tape recorder. They were conducted in the consulting rooms of the various prescribers, and the private office of the administrator. The data entry clerk was interviewed in a consulting room which was empty at the time. The average time for the interviews was 35 minutes; all interviews were conducted by the researcher herself.

3.8 Ethical considerations

This study was approved by the Research Ethics Committee of Stellenbosch University (Appendix E). In addition, clearance was obtained from the Ethics Review Committee of the Ghana Health Service (Appendix F) before any data collection was begun. Finally, written permission was sought from the management of the hospital to collect data there (Appendix G). For each participant that was interviewed, verbal and written consent was obtained beforehand (see Appendix D). Given the small number of professionals, written consent was also obtained for any portions of their interviews to be quoted.

Confidentiality was reiterated and participants were assured that their identity would be held anonymous and any information obtained would be treated with the utmost confidentiality. It was further explained that all transcribed interviews would have no names in order to protect the privacy of the participants. Data which was collected was also password-protected to keep them safe.

Each participant was informed of their rights as a research participant and reminded that they could drop out at any time without negative consequences. They were also reminded that it was their right not to answer specific questions if they felt uncomfortable about them, and that no harm would come to them as a result of their participation in the study. It was further explained to them that there would be no monetary compensation for participation and no other form of inducement to participate.

3.9 Data analysis

3.9.1 Archival audit

The online records were analyzed using frequency tabulations. For each record and for each user, a summary of the number of times the form was filled in for 20 patients was compared with records in their consulting room registers. Frequencies were also calculated for the number of times the prescriber had adhered to the standard diagnostic system, and how often accurate details had been captured on the number of admissions and length of stay of each patient. Records were purposively sampled from each prescriber's records for this audit. Results are presented in Table 1 in the results chapter.

3.9.2 Qualitative data

Throughout the data collection process, constant reflection was done based not only on the participants' reports, but also observations, impressions and connections that were noted. All

interview data was transcribed in English by the researcher and coded using the ATLAS.ti software.

The analysis was based on an ethnographic and an interpretative phenomenological approach (Smith, 1996) as it seeks to understand the meaning of an experience to those connected to a particular phenomenon (Henning, 2004). To begin, an inductive process was employed by thoroughly reading and re-reading through all transcripts and attempting to make sense of the information in smaller, more meaningful sections. These were then coded and further grouped to tease out the main ideas that were expressed by the participants. This facilitated the identification of themes from the data (Brewer, 2003). The subsequent themes were then linked to extracts from the transcripts in order to highlight the experiences of the MHIS users. This was in an attempt to describe the meaning they had attached to their use of the new system. The themes were then related and compared with previous research to explore the extent to which they are similar or differ from other studies. These results are also discussed in chapter four.

CHAPTER FOUR

RESULTS

4.1 Introduction

This chapter presents the results of the present study in two stages. Stage 1 analyzes the audit of online records which was performed. Using an Interpretative Phenomenological Analysis framework, stage two analyzes participant interviews to identify the essence of users' experiences with the new MHIS. The discussed themes will centre on recordkeeping in the hospital (looking at the participants' perceived functions of both systems as well as their experiences in actual use of the new system), their perceived barriers to effective use of the MHIS, and suggestions for improvement/the way forward.

Conducting this research had its fair share of challenges, some of which were perhaps less difficult because of my familiarity with the research setting and many of the participants. On the other hand, at times I could not help feeling that some participants hesitated to be a part of the study due to their familiarity with me. I have been associated with that hospital for approximately 10 years – first as a volunteer in the children's ward, then as a clinical psychology intern, and more recently as a tutor for medical students during their psychiatry rotation. As a result, there are many staff there whom I am familiar with and to whom I am also familiar – even if not personally or just by sight. This likely helped me by facilitating my observations of processes that went on when a patient was with the nurses (before the patient saw the doctor); this was because there was rarely any discomfort when I was there as I was a familiar face to many of them.

During the later stages of the data collection this familiarity was probably the reason I was told about some participants' reasons for hesitating to participate in the study. As one nurse

put it, they would simply have given me excuses until I got tired of coming to them. They could not be sure how confidential their interviews would be, because they knew I was friendly with other staff in the hospital, including some of the management. Those who eventually agreed to participate insisted that we do so away from their regular consulting room or in one case, we do the interview late in the day when there were not many people around.

These experiences were vivid for me and spoke of the kind of relations that existed within the hospital, with regards to management and perceived sanctions, etc. But more strongly, it spoke to me about the ramifications of presenting my findings to them. I could not help but be convinced that any such presentation could be considered a betrayal on my part. This fear was partly confirmed when these nurses did not show up for a respondent validation session.

On balance, I believe that despite the challenges, my being familiar (both to the hospital setting and to the participants), was advantageous to the research as it allowed for a better level of transparency. I therefore believe that the results reflect the participants' own views and experiences, and the interpretations made are not influenced by my own views.

4.2 Archival audit summary

Table 1

Summary of Archival Audit per Prescriber

Prescriber Code	Correct no. of visits recorded (compared with consulting room register)		Correct patient details entered (/20)		Correct diagnostic system used (/20)		Correct recording of no. of admissions (/20)		Correct recording of duration of each stay (/20)		Correct treatment/management programme recorded (/20)	
	YES	NO	YES	NO	YES	NO	YES	NO	YES	NO	YES	NO
DrA	16	4	15	5	18	2	10	10	0	20	20	0
DrB	14	6	17	3	10	10	11	9	0	20	18	2
DrC	17	3	18	2	15	5	18	2	0	20	19	1
MAA	16	4	18	2	11	9	7	13	0	20	19	1
MAB	13	7	13	7	9	11	6	14	0	20	15	5
MAC	8	12	10	10	8	12	9	11	0	20	14	6

Phase 1 of the study involved undertaking an audit of archived online records of patients. This audit was done for records which dated back at most one year. On average, the details of patients' background and history were entered correctly compared with information available in their folders, with all prescribers entering patient information correctly more than 50% of the time (see Table 1).

Psychiatrists however recorded higher number of correct details entered (approximately 75% of psychiatrists' records).

Similarly, consulting room registers tallied with online records of visits for approximately 70% of the time. Again, psychiatrists' consulting room registers tallied more with online records than medical assistants.

A similar trend was found for correct use of the new diagnostic system (i.e. ICD-10). Again, psychiatrists were found to use the ICD-10 diagnostic classification correctly more often than the Medical Assistants (an average of 75% as opposed to an average of 55%).

Further, with the exception of one psychiatrist, all prescribers were found to have left the number of admissions section blank in more than 55% of cases. The psychiatrist who consistently entered this information did so correctly in 18 out of 20 cases.

Upon finding that online records were all blank for the duration of each patient's stay, it was realized that this was no longer on the MHIS form which is currently used in the hospital. Therefore, all sampled records did not have a history of the duration of each patient's stay. This finding is discussed further later.

Finally, all prescribers had correctly entered the treatment/management programme that their patients were on for more than 70% of cases. With the exception of two Medical Assistants, all other prescribers correctly entered treatment programmes for over 90% of patients.

4.3 Analysis of interview data

4.3.1 Recordkeeping in the hospital

In order to get information on the background of recordkeeping at APH, some questions were asked as part of the interviews to understand what the process of recordkeeping was like at the hospital. At the time of interview, records were kept using both paper-based and a semi-

computerized method. The paper-based methods included the patient folder (which contained information on the patient's demographic background, doctors' and nurses' notes, medications, and sometimes results of laboratory work performed) and consulting room registers (where records of the patients seen at each consulting room each day were kept); there were also records of ward activity kept by the nurses, including books to record admission and discharge/absconding. The pharmacy and laboratory departments also kept paper-based records of their activities, both in registers and within the patients' folders. With the introduction of the new MHIS, additional forms with summaries of patient information and treatment are filled out at the consulting rooms and later entered into a computer at the records department. This process constitutes the semi-computerized aspect of recordkeeping at the Accra Psychiatric Hospital. The MHIS records therefore start off on paper, before being sent for entry into the database. These electronic records have not replaced the paper records. Further, from the observations made, it appears that a form is to be filled for a patient at every visit, and these data are repeated each time.

Each consulting room within the hospital has a staff member from the records department assigned to it for the creation and management of patient records. Both old and new patients are therefore processed by these staff members (called 'recorders') before being seen by nurses and doctors/medical assistants. The recorders' principal function is managing patient folders; this involves creating folders for new patients, retrieving folders for returning patients, and storage of folders when the patient has been attended to. It is also the recorders' responsibility to fill out the necessary demographic data in the MHIS form (see Appendix A for sample MHIS form). This form is then completed by the prescriber or nurse with details of the diagnosis and/or

medications after the patient has been seen. The form is then sent to the records department for entry into the computer database.

As has been discussed previously, the idea of a new MHIS was to improve the process of keeping patient records and information (Ofori-Atta et al., 2010). The staff at the records department reported that they received this news with excitement, as they anticipated that the current process of ferreting patient records from a large stack of folders would be reduced to the click of a button. One recorder put it this way:

“...initially when the system came – that is, the new system – all the Records staff were happy, that now we were going to change the system of record keeping to a better one...our statistics and everything will be easier!...”

They therefore eagerly accepted the semi-computerized model as they were assured it would be temporary. They anticipated the implementation of a fully computerized system of patient recordkeeping within a few years, which would involve direct entry of information onto the database and would do away with the paper-based system. However, since the introduction of the new system, four years have passed with the temporary, semi-computerized system still in use together with the old paper-based system. This double system appears to have led to an increase in workload for the recorders:

“...since 2009 up to now we are still using the two [systems] which was supposed to be temporary, so gradually people became fed up with it. They are tired and overworked and now the way people were willing to work with this new system has come down...”

The recorders therefore have to fill out patient forms but also have to keep daily paper-based consulting room registers and statistics. One consequence of this delay in migrating to the fully computerized system appears to be a reluctance in using the new system where recorders are not filling out the forms for the MHIS at all, citing work overload as their reason:

“...as it took a longer period, people became tired and fed up with it, so sometimes they don't fill the forms and when you talk to them you can see that people are tired, because we can't be doing this double one forever – the old and then the new one in addition – it is too much...”

These sentiments were shared by the other healthcare workers who felt the frustration of the dual system of recordkeeping. One consulting room nurse stated:

“...honestly I don't think it does us any good! It has just made our work harder! All that paper that is wasted, we don't use it for anything! Well some of the Records people say that when they are doing their statistics, it is easier because everything is supposed to be online, but as for us, I'm not sure it has improved anything”

Similarly, a doctor empathized with the records and nursing staff who had to work with the dual system, recognizing that their workload had increased:

“... [the dual system] makes it quite cumbersome for the records people... I know they have complained a number of times that it is too long... the way the system is right now, it is just doing the same paper work and then just putting it into a computer... that is simply doing double the work you would do with only the old method...”

However, the views of the administration of the hospital were slightly different. Considering the supposed excitement shown by the staff of the records department when the new system was to be implemented, the hospital administration reported that they expected better results from the

recorders. The administration complained that the recordkeeping had not improved since the MHIS was introduced. As the medical director put it:

“... we have been using the MHIS somewhat, but frankly I don't think it is being used well and therefore is not giving accurate results... certainly not as well as it should be used... sometimes you take a patient's folder and you realize that the form is at the back... and sometimes it is in the folder but it is empty! And apart from the consulting rooms, the other units and departments like the pharmacy rarely fill out any information on the form...”

He believed that the enthusiasm that was expected from the recorders was lacking and suggested that many of the problems he had had with data from the MHIS had come as a result of work that was done haphazardly. He put it this way:

“...they [the records staff] were the ones we were expecting to do better... instead, that is where most of the garbage is coming from... they often provide us with data which are not realistic... considering the backlog of unentered data...when you ask for reports, they give you data as though it is real time data and when you question further, you realize that they estimated the information to get those results and it is usually based on their manual data...or so they say”

It therefore appears as though the records staff continue to use the manual system of recordkeeping and data analysis, and perhaps do the MHIS data entry as an 'extra' process. They appear to work with the hand-written information to carry out their analyses with the MHIS data entered almost as an addendum. This could however not be verified from any of the records staff.

They insisted that they used both systems, and only fell on the hand-written records when the MHIS was inadequate. This in itself speaks to the disconnect when it comes to shifting from the paper-based system to the MHIS. A telling remark by one of the staff shows how deep the sentiments go:

“... I will say that the old system is more effective than the new one! If one needs information, we can't rely solely on the new system because it is not as effective. The old system is more effective than the new one because people are fed up with having to do both of them, so some of the forms are not being entered correctly or even, at times, not at all. But with the old system, every single case and every patient who is seen is recorded in the booklets...”

4.3.2 Perceived barriers

In addition to finding out how the participants view the recordkeeping process in the hospital, questions were also asked about the barriers they perceived in the use of the new MHIS. Generally, participants agreed that the new system would work well in an ideal situation, but in its current state using it was cumbersome. Some of the participants reported an increase in their workload since the new system was introduced. One record clerk put it this way:

“...in fact the work is now double work. And this makes our work very difficult...initially when [the new system] came in 2009, I was able to finish with my [paperwork] and close by about 2 o'clock if I came early...there was no one to enter [the data] when it goes back to the records department. So I have to sit down for another two to three hours [to enter the data]before closing and going home...I become very very tired, yes, so the work has become double”

Another participant put it simply:

“...in fact, the workload....hmmmmmmm (sighs)...it is very difficult,”

In the Ghanaian context, use of the drawn-out expression ‘hmmmmmmm’ signifies exasperation and frustration about situations; it suggests dissatisfaction when something has remained the same despite some attempts to change it. The participant’s use of this expression is therefore quite telling. But their apparent resignation with the current situation also suggests interesting dynamics with authority. The general consensus was that using the MHIS was simply extra work, and yet most of the staff made some efforts (albeit perfunctory) to fill out the information once in a while. There did not appear to be any sense of ownership of the work process. This was not the case for only the nurses and recorders; a prescriber also reported their difficulty with the new MHIS:

“...now the work is more because...the time we spent on one patient is more...we have to fill out the information on the form after each patient...this takes time away from what we could have spent with another patient, and because of the number of patients that come each day...the patients wait longer and we end up spending longer hours at work each day...”

This statement seems to suggest the problem is unsolvable or hopeless from the recorder’s perspective. It offers a hint of a sense of acceptance since the problem is from an authority figure and thus they have no control over the situation. The medical director empathized with this view and suggested that the current MHIS form be reviewed:

“...the idea is a good one but there are problems....the form is much too long, so when you are filling one for each patient, you end up spending almost twice as long with each

patient...and you end up repeating a whole lot of information over and over again, which should not be necessary...meanwhile you have other patients waiting to be seen..."

Another challenge reported was to do with insufficient staff to do data entry. This was reported to contribute to the heavy workload, although one participant admitted that there were periods in the year when they had volunteers and recently-graduated students who were sometimes assigned to the hospital as part of their National Service.

National Service is a mandatory year of work undertaken by students who complete tertiary education in any one of the country's public Universities. These students are assigned to various public sector organizations depending on their course of study. On a few occasions some of these students have been assigned to assist with work at the records department. They, together with periodic volunteers often work on the backlog of data to be entered into the system. This helped to ease the backlog:

"...we have a lot of backlog, even when [National Service staff] are around... we have only three computers – it used to be less in the beginning – but now we have only three computers, but we have 9 active OPDs – 9 of them! – and I know that one consulting room can see...close to 30 or 40 cases some days...so just imagine for all the 9 and look at the number of patients...at the end of the day, all the forms would be collected and sent to Records, then those working on the data entry – on just three machines – will sit down and begin the input..."

The clerk went further to explain how the backlog affected their work:

“...we are not able to finish working on it before the end of the day, so they will pile up until the next day and the next day, additional ones will be coming and...this makes the work even more difficult. Yes, so always, we do have a backlog, but when the National Service personnel come, it reduces, it really reduces but... then it builds up again...”

The presence of this backlog was what caused the medical director's concerns when monthly reports were sent to him, considering the number of months that had yet to be entered. This underlies his belief that the system could work better if better work was done by the staff.

A further barrier was noted in the process of the data collection. The information that is collected via a form at each consulting room and this is what is entered onto the computers after each visit. This process can be time-consuming, considering the length and nature of the form that has to be filled. A few participants described the process of filling out the forms for each patient:

“...the nature of the [new] system is such that, if a patient should come today, see the doctor, and medications are given to them, then they go home and take the medicine and maybe there is a problem with the medication, maybe the patient is reacting to the drug, in some way or something of that sort. That patient will have to come back to see the doctor, and each time the patient comes to see the doctor, we have to fill out a whole new form for them...”

Participants also reported that the manner in which the forms were filled by some prescribers was a problem in using the new system. For instance, one participant reported difficulty in deciphering the handwriting of the prescribers:

“...the only problem we face with the prescribers is the handwriting...when they write, at times whoever is entering the data finds it difficult to see whatever they have written, so it delays the process...the person will try to strain the eyes, and strain to see what has been written...if he can't make it out, whoever is entering the data will have to leave his work, go back to the prescriber or nurse who wrote the form to try to find out what it is that the doctor has written before coming to enter it; and this delays the process. And if for each form, you have to wait, go and see the prescriber to make sense of his handwriting, the delay is stretched even more...”

This presents real practical problems in the data entry process and often leads to those forms being shuffled to the bottom of the stack for later attention. In many instances, these forms are simply forgotten about.

Further, some forms were found to be half-filled, some were found not to correspond with codes that had been set within the system, sometimes using a different classification system (with regards to diagnoses). One nurse also related her difficulties in getting correct information from some patients. These also made the data collection difficult.

“...some of the patients, you know the nature of patients here, at times they don't respond, if they should come and their condition is worsened they may give you wrong information; others would not respond at all...”

This remark is also very telling about the direction of their frustrations. The idea that the patient should fit the system and not the other way around is perhaps a convenient outlet for the frustration of doing extra work. Given the general attitude of bowing to authority, even grudgingly, this statement perhaps reflects how much easier it is for them to place the blame elsewhere.

4.3.3 Suggested solutions and improvements

Apart from discussions about the barriers or challenges experienced with the system, questions were also asked about the way forward. For the most part, the participants believed that the new MHIS was a good initiative, but felt that it was not being utilized properly. Various suggestions were made for the improvement of the current MHIS.

One of the main solutions suggested was the changing over from the temporary semi-computerized system to a fully electronic record-keeping system. As a records clerk suggested:

“...we should do away with the old system if we’re using a computerized system...but then we should use [the new system] fully! ...we shouldn’t have both systems...so if we want to focus on only the new system, then we should go fully computerized and stop this double work business...”

This sentiment was expressed not only by the recorders. Prescribers and nurses also related their opinions about the current dual system of records:

“...as it stands now, I will say that the old system is more effective than the new one! If one needs information, we can't rely solely on the new system because it is not as effective. The old system is more effective than the new one because people are fed up with having to do both of them...” (Consulting room nurse)

“...I think we should work to computerize it, like I have been saying. And I mean fully computerize it. So that it is more efficient. If everything is put on the system, then the form that needs to be filled everyday at the consulting room can be shorter and contain only the essential aspects for each visit...” (Prescriber)

Other suggested improvements had to do with staff and logistic needs in the hospital.

Participants believed that the system could work well if more staff were dedicated to recordkeeping and if more computers were provided for data entry to be facilitated:

“...if we really want to go by this system, then we need more computers and more staff to assist. We need more computers to work on it better so that we do away with the old system of using plenty papers...” (Consulting room nurse)

“...the big problem is that we don't have enough staff to do the data entry, that is why there is always a backlog...but even if we get all the staff we need we are still going to need more computers in order to be able to enter the information quickly...” (Records clerk)

“...I think that the records department needs more computers, because I know that sometimes they get people to help out...like volunteers... who are ready to work but then

they don't always have computers available, so the people will just be hanging around..." (Prescriber)

"...apart from the computers, they also need constant power...with this so-called energy crisis it is even worse, almost every day the light goes off! And the generator does not always work properly you see...sometimes you can really see their frustration..."

(Consulting room nurse)

Further suggestions for improvement involved changes to the data capture process, particularly the form. Some participants were of the view that the system should be designed so as to capture patient details as an electronic folder which could be updated with each visit. Therefore suggestions were made to generate individual reference numbers for each patient at the first visit (which would correspond with their folder number), then to develop another form for review visits which would be used to update the patients information within the database. This call for a shorter form for patient reviews was expressed by almost all participants:

"...with the forms, I would say, I would be very happy, if we design two forms – one for new cases and one for old cases coming on review. The current form we are using, to me, it would be good for the new cases...if the person is coming for the first time, we can use this for the person...if the person is coming for review, then all this information since we have already captured it...we need not go through all of it again. We only need the name, the folder number, the new diagnosis and the medications given and the name of the prescriber who saw them. Then it will be very fast..." (Records clerk)

“...if everything is put on the system, then the form that needs to be filled everyday at the consulting room can be shorter and contain only the essential aspects for each visit.

Otherwise it makes the work very cumbersome to do...” (Prescriber)

“...I think that the first time the patient comes in, they can fill in the form at the Reception... [when] the folder is issued. So if they fill the form there, then put it into the folder, when the patient comes, the doctor only has to write the diagnosis and medication, and then it can be sent to Records...” (Consulting room nurse)

“...there should be a way that we can make it much simpler to fill at the consulting room...and not too many details should be on the form...if we want to capture all those details like pharmacy details, laboratory details, etc., we will never get holistic data because doing that is simply too cumbersome...the MHIS form should contain only vital, pertinent information for returning patients...that will be more realistic for our setting...” (Medical Director)

“...if it is a review case, we should only have to enter the folder number, name of the patient and then the new diagnosis and medication, that is much more simple to do! That way the information can be entered as an update and not the same every single time the person comes for review. Because as it is now, if the patient comes in today, we have to fill it, then if they should come in tomorrow for any reason, we fill the same form all over again! That is just useless!” (Consulting room nurse)

“...it is very long, and some of the items I don't know what they need it for; like the religion of the person, what do they need it for? Are they trying to see whether Christians

have more psychiatric illness than Muslims? Or vice versa? Me, I don't know why they will have to ask that information..." (Consulting room nurse)

The frustration was quite evident from the participants about using the system (especially the form) in its current state. It also appeared that a few of the participants did not fully appreciate the need for some of the data captured on the form. Above all else, the length of the form was found to be problematic and many called for a second form to be developed for the return patients.

CHAPTER FIVE DISCUSSION

5.1 Introduction

This chapter integrates the literature review with the findings of the present study. It discusses the research findings which were analyzed using IE and IPA to understand the nature of the users' experience with the new MHIS. The findings will be presented in relation to the earlier reviewed literature but emphasizing the specific context of the Accra Psychiatric Hospital.

5.2 Recordkeeping in the Accra Psychiatric Hospital

The methods of recordkeeping at the Accra Psychiatric Hospital (APH) have largely been paper-based since the former 'lunatic asylum' evolved into a health care facility. This paper-based process was however revised recently and a semi-computerized system of recordkeeping was introduced at the hospital, as has previously been discussed.

In this study, the participants all agreed that the paper-based records system was not ideal and believed that the idea of the new MHIS was good in principle, although the primary reason cited was to ease workload. None of the participants cited increased adherence to modern treatment methods, fewer prescription errors and improved clinician communication as potential benefits of the MHIS as previous studies have suggested (Black et al., 2011; Chaudhry et al., 2006). The primary reason for this was most likely the fact that clinicians were not filling out the forms themselves and did not view the MHIS as having much to do with their work. This was revealed in the audit of online records. The general idea was that the role of the MHIS was envisaged to ease recordkeeping difficulties within the hospital. This appears to be the understanding that the participants took away from the information sessions which were held during the implementation of the MHIS. However, all participants reported an anticipation of

easier recordkeeping with the new system, which they claim has not actually occurred. There is therefore little acceptance of the new MHIS among the staff of the hospital as they report they have not found it useful.

According to participants from administration as well as from the records department, periodic reports are generated from the system; however the clinical participants did not report knowledge of such reports. This could perhaps explain the apparent lack of interest in the function of the MHIS by the participants – if it is simply a routine (and added) work process for which they did not receive feedback, then it should not be surprising that there is not much vested interest in making it work optimally.

All of this seems to suggest an awareness of problems with procedure within the hospital (at least in terms of recordkeeping), and yet there exists among the clinical and records staff an unwillingness or perhaps inability to speak out about this issue. Staff at the hospital seemed to be going through the motions of ‘using’ the new MHIS without actually believing in its usefulness. This was a bit different from what the literature reported. Previously reviewed studies (e.g. Roth et al., 2009; Zwaanzwijk et al., 2011) suggested that health workers generally agreed that a properly structured MHIS resulted in better clinical communication and therefore a willingness to work with a new system. In the case of the present study setting, the health workers did not appear to believe so.

The lack of enthusiasm for working with the new MHIS seems to stem largely from the manner in which it was introduced. None of the participants recalled being told during their training that it was to be useful for adherence, and improved clinician communication and patient management – all of them reported being told the MHIS was to improve recordkeeping at the hospital and indeed they believed it would do so if it was made fully computerized. All the

participants agreed that the extra workload was not necessarily a result of the system per se, but rather a result of the current temporary semi-computerized nature of the current system; they believed that if the double work was to go away and the MHIS to function properly, then it needed to evolve fully. Perhaps then the level of acceptance and the willingness to use it (properly) would increase. As things stand now, there remains a limited sense of ownership of the work of keeping records among all the categories of staff interviewed.

In order to have a properly set up MHIS, adequate resources needed to be put in place from the beginning. Resources for the training of personnel who would collect the data, those who would enter the data and those who would monitor and maintain the system were needed. This training was reportedly done by the team of investigators from the Mental Health and Poverty Project (whose work led to the development of the new MHIS); however the staff apparently did not gain a clear understanding of the merits of this new system. Two computers were also provided to aid in the data entry process; however these were soon found to be inadequate for the quantity of data that needed to be entered. The challenges confronting the upkeep of the MHIS were therefore listed as revolving around inadequate staff, inadequate computers and an unclear knowledge of the potential benefits of the system as a whole.

As has been discussed earlier, the data collected suggested that the use of the MHIS was at best perfunctory and although the cited reasons for this have been mainly about the nature of the system, other factors certainly play a role in this situation. As in many organizations, the patient is often reduced to a record which moves from one level of care to another (DeVault & McCoy, 2001). These processing interchanges reflect the ideological basis of the organization, and patient experiences can potentially disappear within these documents (Griffith & Smith, 1995). In the same way, the experiences of the staff can disappear in such social relations.

This appears to be the case at the Accra Psychiatric Hospital. The current MHIS has become reduced to a discourse where the experiences, opinions and needs of the staff do not reflect in the processes. In the ideal setting, the records should be able to coordinate staff behaviour in addition to communicating information on the patients. It may be the case though that the MHIS may be experienced in part as a further layer of bureaucracy in an already bureaucratized system, where the flow of information in the system is not perceived to benefit staff and patients. The idea of having an electronic patient record system looks good on paper and could serve as another method of control within organizations; however cultural understandings of authority and power inform the direction of its success. In his work on bureaucracy in contemporary Pakistan, Hull (2012a) suggests that bureaucratic processes established during colonial times continue to be enacted currently; it would be interesting to explore how participants in the mental health system in Ghana regard and enact record keeping systems in general, even where computerized systems are not in use. My finding that participants go through the motions of using a system they find unhelpful and burdensome may be related to a more general attitude towards bureaucratic aspects of their work.

The use of the MHIS currently may be a reflection of a multi-layered system where the staff follow directives half-heartedly because the management are not themselves convinced of the utility of the system as it is currently. Yet the flawed system remains, with periodic talk of scaling it up. If this is the case, the burden of responsibility for the current situation certainly does not rest on the staff alone.

5.3 Perceived barriers

Another aspect of the study was to explore participants' perceived barriers to the effective use of the MHIS at the Accra Psychiatric Hospital. Despite these perceived barriers

there was a general willingness to work with the new system, even some enthusiasm about it if the challenges could be overcome. These challenges could be viewed as organizational level challenges and individual or practical level challenges (and indeed could go a step higher as broader national or governmental challenges). Figure 1 below summarizes the different levels of challenges:

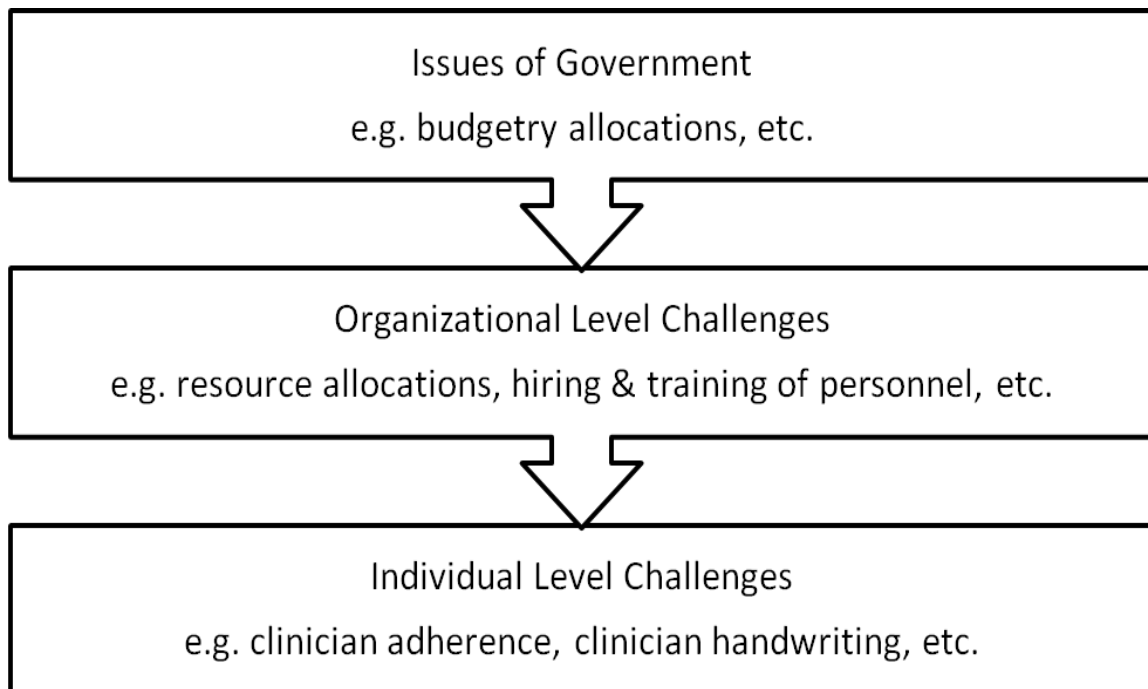


Figure 1. Multiple levels of challenges existing with the MHIS

At the organizational level, one barrier that was related most often was the increased workload due to filling out information on the MHIS. Given that the data are filled in on paper and then transferred onto a database, the records staff have to do double the work they would normally do. This is because the current nature of the MHIS form that is filled in requires them to repeat all information each time a patient comes to the hospital for a session. This obviously should not be the case as the whole idea of an electronic system is to enter the data once and then

update as and when needed (Bates et al., 1998; Follen et al., 2007; Jamal et al., 2009). It is therefore ironic that a system which was designed with the aim of cutting back on workload has resulted instead in increased workload for some of the categories of users. This has led to frustration and in some cases an unwillingness to do the work properly.

However it also speaks to the administration and monitoring of work at the hospital which appears to be less than ideal. Despite the shortfalls of the system and the resulting workload, staff should not be able to simply choose to not fill out the forms or to enter the data without repercussions. And yet, from observations and admission by some participants they do not. This suggests that the management and the administration of the hospital may need to take a more proactive role in ensuring adherence to the required system.

This is a complex issue, however, and layered. On the one hand, it does appear that there may be a lack of accountability when required work is not done, and this is a management and compliance issue. On the other hand, it may be extremely challenging to expect staff who are very busy to comply with a system which may feel like burdensome, meaningless, extra work. It was not clear from the data to what extent managers understood the frustrations of staff with the MHIS, but if they had a sense of this they may have been choosing not to police an unpopular system. It is also not clear, relative to other work, how much the MHIS was valued by managers and administrators and it could be that they were prioritizing managing tasks they saw as more valuable.

An example of a practical challenge which was highlighted by the current study related to the manner in which data for the MHIS was collected and this largely translated to illegible clinician handwriting. As reported by Suomi (2006) when the handwriting of a clinician or other healthcare professional is illegible, it can render the information unintelligible to other

professionals. This was no different in the present study despite the fact that clinicians did not fill out most of the forms; most aspects of the form which the nurses filled were simple check boxes to be ticked. However the clinicians were required to write out diagnoses, prescriptions, and any other treatment that was required. These caused the problems of data entry as the forms with illegible handwritings were shuffled to the back and often never got entered.

In addition to the illegible handwriting, a further practical issue identified at the data entry points was with regards to incomplete data. Some of the forms were half-filled or sometimes more than one box was checked or sometimes the diagnoses did not comply with the agreed-upon standard – all of which limited the usefulness of the data. Data such as these were therefore not entered onto the database. Again, all of this speaks to the absence of a sense of ownership of the work process, and perhaps a lack of drive to get the work done meticulously.

5.4 Suggested improvements

With each of the barriers which were discussed with participants, suggestions were made on how to improve the system. One of the most prominent of these suggestions was a migration to a fully electronic information system. This is not surprising given that one of the reasons for implementing the new MHIS was not only to improve clinical work, but also to be able to generate data on disorders and available services among others (Ofori-Atta et al., 2010). This is difficult to accomplish with a purely paper-based information system, although not impossible. The fact that most of the participants suggested this solution to their barriers may perhaps be an indication that they do in fact recognize the benefits of having a proper MHIS; however they believed that the system which was set up in their hospital was targeted at streamlining the work

of the records department. On the other hand, this assertion may simply be a means of avoiding extra work, given the increased workload resulting through the current system.

All the participants also advocated for the fully electronic version to be implemented as a way of cutting back the extra workload. They suggested that if the MHIS were fully computerized, they would not have to enter all the data on every visit but would simply have to update the records of each patient. In making this suggestion, the consensus was generally that the staff would gladly do their work (properly) if the new temporary MHIS could be made 'whole'. Their responses suggest a belief that the current state of the system was to blame for the state of their work output. This might be the case to a large extent but completely discounts the role of the staff behind the system, and how their conscientiousness can result in fairly good information being generated. It also does not take into consideration the impact that monitoring and accountability could make on data input and output.

Barring the fully electronic MHIS being implemented, other suggestions for improvement of the current state of affairs had to do with increasing the number of staff at the records department and the number of computers dedicated to data entry, although they acknowledged that there may be limited funds available at the moment to make this suggestion a reality. However the understanding got from the administration was that the staff of the records department needed to do their work properly in order to make a credible case for increased logistic support. Given the current attitude to work there currently, there was no guarantee that things would be different if more staff were brought on board and if more computers were purchased for their use.

The final suggestion made was to do with the data capture process. All the participants suggested that the form which is used to obtain information from patients needs modification.

For one thing, they found the form too long and were not convinced that all of the portions were relevant for recordkeeping. For another, they suggested that the form be further shortened for those patients who were returning. Therefore there would be one form for new patients and another one for review cases. This suggestion was echoed by all participants and appears to have already been taken into consideration as steps were being taken to revise the form; at the time of finishing up this present study, a team of professionals had been put together to review the MHIS form and make recommendations for revisions.

5.5 Conclusions

Although the new MHIS which was introduced at the Accra Psychiatric Hospital has been in use for some years, it does not appear to be working as well as it could for the purposes for which it was established. The reasons for this appear to be related to a number of factors including inadequate training and involvement of relevant participants when the system was being implemented, insufficient staff and logistic support, challenges in the data capture and data entry processes, and a general low work motivation. All of these factors may speak to organizational process errors, but may also be viewed in the larger context of power and the proper use of authority. The participants refusing to fill out the forms and the absence of consequences for not doing so imply a much deeper dynamic existing, not only in terms of the MHIS but also with regard to healthcare in general. Users of the system do not find it useful but are expected to continue to use it.

It is possible that at the level of policy makers there may be an investment in a system which, being computer-based, appears to 'modernize' mental health care, but does not do so in its current form. The issues at stake here are at one level those of practicalities, but there may be

underlying questions about power dynamics and attitudes, and about experiences of and participation in surveillance. Surveillance, properly applied, is essential to continuity of health care. The experience of being watched and monitored (and both staff and patients are monitored and watched through record keeping systems), however, may be experienced as oppressive and undermining. In this context, those required to participate in systems in which they themselves are monitored may subtly resist this monitoring through passive resistance – the production of a form of compliance which renders data burdensome and relatively meaningless.

In some ways, the state of the MHIS currently, also relates to the place of mental health in the national health agenda. The introduction of a new information system came as a result of work which was not government-funded; the situation analysis of mental health and the implementation of the MHIS were done as part of a larger multi-country project. The government therefore spent very little in implementing the new information system including the initial provision of logistic support. And yet, the needed added infrastructure and manpower have not been made available and this has contributed to the apparent overwhelming workload. This highlights the extent to which mental health is brushed aside in the broader national picture. Perhaps, the fact that there is a MHIS on paper is enough. However the reality that it is not working presents various challenges which would have to be addressed and the fact that this has not been done after four years is clearly an indication that it is not a pressing issue.

However, what did become clear was that the staff of the hospital did want a better information system than the paper-based system offered and subsequently one that was better than what was offered by the semi-computerized MHIS. Maybe this was merely as a means to do less work; but the reality is that since nurses are spending so much time filling out MHIS forms, there is less time for actual patient care and therefore perhaps inadequate care (Swartz & Kilian,

2014). It then stands to reason that reducing the heavy burden of record keeping from the nurses could play a role in improved care. This would mean ensuring that records clerks and clinicians do their part in the process. It would also mean that more personnel would have to be employed to assist in the work. But perhaps most importantly, it would also allow for the MHIS to function optimally – by collecting, processing and disseminating data appropriately, enhancing clinician communication, and reducing errors. This can only be achieved when changes are made at all levels of the hierarchy.

All the participants reported their excitement and enthusiasm about a new system being introduced but according to them this excitement soon waned when the new MHIS simply became an extra workload. Therefore if work is done to improve the MHIS into a more user friendly system, many of the problems may be resolved. This is not to say that there is no responsibility on the part of the workers to attempt proper work output despite less than ideal circumstances as some of the ‘errors’ in the MHIS forms are purely out of negligence; it means that the management also has a responsibility to ensure a work environment that allows for good work to be produced. The current work environment may be a key reason why staff are able to get away with substandard work seemingly without consequences.

If the recommendations of the participants are taken into consideration and the improvements are made to the system at all levels, the MHIS has the potential of becoming a useful tool in making a case for the scaling up of mental health services in Ghana. With further education and user involvement the other benefits of the MHIS such as improved adherence and clinician communication, easier patient management and follow-up and reduced prescription errors, can all be realized at the hospital. Involving all stakeholders in this process can help to ensure better compliance; however implementing policies at the organizational and the national

level which cover work processes and output will also go a long way to improve adherence. The health service has taken a step in the right direction by assembling a team to begin work to revise the mental health information system data-capture form and it is hoped that this would bring some positive changes. This ideally needs to be followed by a migration to a more electronic system, but also (perhaps most importantly) several information and educational sessions for the staff at the hospitals, and participation by system users in refinements to the design of the system.

5.6 Limitations of the current study and implications for future research

Although some important data were found in this study, there were still a number of limitations which may have had an impact on the results. One of the major limitations was at the data collection stage. Many staff at the hospital were reluctant to participate in the study. The few that agreed to take part were mostly unwilling to do so during regular working hours and some of them refused to be recorded. The reason they cited for this suspicion was past experience with journalists and researchers whose only objective (in their opinion) was to paint them in a bad light. This made the data collection process lengthier than anticipated and may have influenced how openly the participants spoke during interviews. It certainly influenced their participation in respondent validation, as most of them simply did not show up.

Another limitation was the fact that this study was conducted at only one hospital. Given that the MHIS was introduced in the three psychiatric hospitals in the country, a more representative picture of the current state of affairs of the MHIS would have been obtained if users from the other two hospitals were included in the study. Due to time and logistic constraints, that was not possible but would definitely be a direction for future research. The

problem of participation would also have been reduced if the other two hospitals had been included; for one because there is a wider population to sample from, but also because there would not have been the familiarity between participants and researcher.

Certainly, there is still a lot of information which needs to be obtained regarding mental health systems in Ghana. Although it is clear from the data that the current system needs to be improved, its utility is not in question. Therefore with improvement, this system can be extended to other parts of the country. Improving the MHIS would require data (Nutley, Gnassou, Traore, Bosso & Mullen, 2014) and a clearer picture will be obtained if the data are representative.

Considering the widespread use of community mental health workers, there is the need for mental health to feature on the health information dashboards in the districts. This is also worth exploring through the use of creative technology and innovations (Blaya, Fraser & Holt, 2010).

The dynamics of power and authority within healthcare institutions at various levels in Ghana should also be explored in more detail. The bureaucracy often found in work within the public sector affects the type and quality of work done. These dynamics need to be explored and analyzed in order to determine workable solutions to the real difficulties experienced within organizations.

Mental health cannot be ignored and the introduction and use of a good MHIS in the psychiatric hospitals and subsequently across the country will be a step in the right direction in ensuring that the needed attention is given.

REFERENCES

- Aarons, G. A. (2004). Mental health provider attitudes towards adoption of evidence-based practice: The evidence-based practice attitude scale (EBPAS). *Mental Health Services Research, 6*(2), 61–75. Retrieved from <http://link.springer.com/journal/11020/6/2/page/>
- Adjorlolo, S. (2013). *Readiness assessment framework for implementing electronic patient records in Ghana: A case of University of Ghana Hospital* (Unpublished master's thesis). University of Tromso, Norway.
- Anhoj, J., & Moldrup, C. (2004). Feasibility of collecting diary data from asthma patients through mobile phones and SMS: Response rate analysis and focus group evaluation from a pilot study. *Journal of Medical Internet Research, 6*(4), 42–48. doi: 10.2196/jmir.6.4.e42
- Bates, A. Leape, L. L., & Cullen, D. J. (1998). Preventing medical accidents: Is 'systems analysis' the answer? *American Journal of Law and Medicine, 27*(2), 145–148. Retrieved from <http://www.aslme.org/BackIssuesAndArticles?journalAJLM&year=1998>
- Benin, A. L., Vitkauskas, G., Thornquist, E., Shapiro, E. D., Concato, J., Aslan, M., . . . Brown, T. (2005). Validity of using an electronic medical record for assessing quality of care in an outpatient setting. *Medical Care, 43*, 691–698. doi: 10.1097/01.mlr.00001671858.8e
- Bird, P., Omar, M., Doku, V., Lund, C., Nsereko, J.R., Mwanza, J., & MHaPP (2010). Increasing the priority of mental health in Africa: Findings from qualitative research in Ghana, South Africa, Uganda and Zambia. *Health Policy Plan, 26*(5), 357–365. doi: 10.1093/heapol/czq078

- Black, A. D., Car, J., Pagliari, C., Anandan, C., Cresswell, K., Bokun, T., . . . Sheikh, A. (2011). The impact of ehealth on the quality and safety of health care: A systematic overview. *PLoS Medicine*, 8(1), 1–16. doi: 10.1371/journal.pmed.1000387
- Blaya, J., Fraser, H. S. F., & Holt, B. (2010). Ehealth technologies show promise in developing countries. *Health Affairs*, 29(2), 244–251. doi: 10.1377/hlthaff.2009.0894
- Blumenthal, D. (2010). Information Technology comes to medicine. *New England Journal of Medicine*, 356, 742–754. doi: 10.1056/NEJMhpr066212
- Bourn, M., & Davies, C.A. (1996). A prodigious information systems failure. *Topics in Health Information Management*, 17(2), 34–44. Retrieved from <http://www.link.springer.com/journal/13755>
- Brown, J. S., & Duguid, P. (1996, May). The social life of documents. *First Monday*, 1(1). Retrieved from <http://firstmonday.org/issues/issue1/documents/index.html>
- Chan, K. S., Fowles, J. B., & Weiner, J. P. (2010). Electronic health records and the reliability and validity of quality measures: A review of the literature. *Medical Care*, 67, 503–510. doi: 10.1177/1077558709359007
- Chaudhry, B., Wang J., Wu S., Maglione, M., Mojica, W., Roth, E., . . . Shekelle, P. G. (2006). A systematic review of the impact of health information technology on quality, efficiency, and costs of medical care. *Annals of Internal Medicine*, 144(10), 742–752. doi: 10.7326/0003-4819-144-10-200605160-00125

- Cho, J. H., Lee, H., Lim, D. J., Kwon, H. S., & Yoon, K. H. (2009). Mobile communication using a mobile phone with a glucometer for glucose control in Type 2 patients with diabetes: as effective as an internet-based glucose monitoring system. *Journal of Telemedicine and Telecare*, *15*(2), 77–82. doi: 10.1258/jtt.2008.080412
- Cibulskis, R. E., & Hiawalyer, G. (2002). Information systems for health sector monitoring in Papua New Guinea. *Bulletin of the World Health Organization*, *80*(9), 752–758. doi: 10.1590/S0042-96862000900013
- DeVault, M. L., & McCoy, L. (2001). Institutional Ethnography: Using interviews to investigate ruling relations. In J. F. Gubrium & J. A. Holstein (Eds.), *Handbook of Interview Research* (pp. 751–776). Thousand Oaks, CA: Sage. doi: 10.4135/9781412973588.d43
- De Veer, A. J. E., & Francke, A. L. (2010). Attitudes of nursing staff towards electronic patient records: A questionnaire survey. *Journal of Nursing Studies*, *47*, 846–854. doi: 10.1186/1472-6963-11-256
- Doku, V., Ofori-Atta, A., Akpalu, B. Osei A., Ae-Ngibise K., Awenva D., . . . Read, U. (2008) *A situation analysis of mental health policy development and implementation in Ghana*. Retrieved from http://www.dfid.gov.uk/R4D/PDF/Outputs/MentalHealth_RPC/MHPB16.pdf
- Durr, E. (2008). *A phenomenological inquiry into the lived experience of low sexual desire in women: Implications for clinical practice*. (Unpublished master's thesis). Stellenbosch University, South Africa.

- Edwards, K., Chiweda, D., Oyinka, A., McKay, C., & Wiles, D. (2011). Assessing the value of electronic records. *Nursing Times*, *107*(40), 12–14. Retrieved from <http://www.nursingtimes.net/Journals/2011/10/07/z/u/w/Pr-Res-records-NEW.pdf>
- Finau, S.A. (1994). National health information systems in the Pacific Islands: In search of a future. *Health Policy and Planning*, *9*(2), 161–169. doi: 10.1093/heapol/9.2.161
- Flisher, A. J., Lund C., Funk M., Banda M., Bhana A., Doku V., . . . Green A. (2007). Mental health policy development and implementation in four African countries. *Journal of Health Psychology*, *12*, 505–516. doi: 10.1177/1359105307076237
- Follen, M., Castaneda, R., Mikelson, M., Johnson, D., Wilson, A., & Higuchi, K. (2007). Implementing health information technology to improve process of health care delivery: A case study. *Disease Management*, *10*(4), 208–215. doi: 10.1089/dis.2007.104706
- Forster, E. B. (1962). A historical survey of psychiatric practice in Ghana. *Ghana Medical Journal*, *1*(1), 25–29. Retrieved from <http://www.ugms.edu.gh/.../10-ghana-medical-journal-archives?/11520/1962-1977>
- Frean, J. (2007). Microscopic images transmitted by mobile camera phone. *Transactions of the Royal Society of Tropical Medicine & Hygiene*, *101*, 1053. doi: 10.1016/j.trstmh.2007.06.008
- Freeman, R. (2006). The work the document does: Research, policy, and equity in health. *Journal of Health Politics, Policy and Law*, *31*(1), 102–118. doi: 10.1215/03616878-31-1-51

- Gater, R., Bahgat, F., & Loza, N. (Eds.). (2009). Mental health information systems [Special section]. *Journal of Pakistan Psychiatric Society*, 6(2), 52. Retrieved from http://www.jpps.com.pk/display_articles.asp?d=224&p=art/
- Gladwin, J., Dixon, R. A. & Wilson, T. D. (2003). Implementing a new health management information system in Uganda. *Health Policy and Planning*, 18(2), 214–224. doi: 10.1093/heapol/czg026
- Glover, G. (2000). A comprehensive clinical database for mental health care in England. *Social Psychiatry and Psychiatric Epidemiology*, 35(11), 523–529. doi: 10.1007/s001270050275
- Greenhalgh, T., Potts, H. W. W., Wong, G., Bark, P., & Swinglehurst, D. (2009). Tensions and paradoxes in electronic patient record research: A systematic literature review using the meta-narrative method. *The Milbank Quarterly*, 87(4), 729–788. doi: 10.1111/j.1468-0009.2009.00578.x
- Greenhalgh, T., & Russell, J. (2010). Why do evaluations of ehealth programs fail?: An alternative set of guiding principles. *PLoS Medicine*, 7(11), 1–5. doi: 10.1371/journal.pmed.1000360
- Gulbinat W., Amaddeo F., Ito H., Medina-Mora E., Mubbashar M., Ndeti D., & Plovnick R. (2008, May). *Statistics and information systems*. Background paper presented at the Conference on Public Health Aspects of Diagnosis and Classification, Arlington, VA. Retrieved from <http://erepository.uonbi.ac.ke/handle/11295/26430>

- Halford, S., Obstfelder, A., & Lotherington, A. (2010). Changing the record: The inter-professional, subjective and embodied effects of electronic patient records. *New Technology, Work and Employment*, 25(3), 210–222. doi: 10.1111/j.1468-005X.2010.00249.x
- Harrison, J. P., & Palacio, C. (2006). The role of clinical information systems in healthcare quality improvement. *The Health Care Manager*, 25(3), 206–212. doi: 10.1097/00126450-200607000-00003
- Hartswood, M., Procter, R., Rouncefield, M., & Slack, R. (2003). Making a case in medical work: Implications for the electronic medical records. *Computer Supported Cooperative Work*, 12(3), 241–266. doi: 10.1023/A:1025055829026
- Haux, R. (2006). Health information systems—past, present, future. *International Journal of Medical Informatics*, 75(3), 268–281. doi: 10.1016/j.ijmedinf.2005.08.002
- Hayrinena, K., Sarantoa, K., & Nykanenb, P. (2007). Definition, structure, content, use and impacts of electronic health records: A review of the research literature. *International Journal Of Medical Informatics*, 77(5), 291–304. doi:10.1016/j.ijmedinf.2007.09.001
- Heeks, R. (2006). Health information systems: failure, success and improvisation. *International Journal Of Medical Informatics*, 75(2), 125–137. doi: 10.1016/j.ijmedinf.2005.07.024
- Hillestad, R., Bigelow, J., Bower, A., Girosi, F. Meili, R., Scoville, R., & Taylor, R. (2005). Can electronic medical record systems transform health care?: Potential benefits, savings and costs. *Health Affairs*, 24, 1103–1117. doi: 10.1377/hlthaff.24.5.1103

- Hindmarsh, J., & Pilnick, L. (2002). *Workplace studies: Recovering work practice and informing system design*. Cambridge: Cambridge University Press. doi: 10.1017/CBO9780511628122
- Historical background of Accra Psychiatric Hospital*. (n.d.). Retrieved from <http://www.accrap psychiatric hospital.org/pages/about-us.php>
- Hull, M. S. (2012a). Documents and bureaucracy. *The Annual Review of Anthropology*, 41, 251–267. doi: 10.1146/annurev.anthro.012809.104953
- Hull, M. S. (2012b). *Government of paper: The materiality of bureaucracy in urban Pakistan*. Berkeley, CA: University of California Press.
- Hunter, S. (2008). Living documents: A feminist psychosocial approach to the relational politics of policy documentation. *Critical Social Policy*, 28, 506–530. doi: 10.1177/0261018308095300
- Hussein, K., Adeyi, O., Bryant, J., & Cara, N. (1993). Developing a primary healthcare management information system that supports the pursuit of equity, effectiveness and affordability. *Social Science and Medicine*, 36(5), 585–596. doi: 10.1016/0277-9536(93)90055-9
- Hysong, S. J., Esquive, A., Sittig, D. F., Paul, L. A., & Espadas, D. (2011). Towards successful coordination of electronic health record based-referrals: A qualitative analysis. *Implementation Science*, 6, 84. doi: 10.1186/1748-5908-6-84

- Jacob, K.S., Sharan, P. & Mirza, I. (2007). Mental health systems in countries: Where are we now? *Lancet*, 370, 1061–1077. doi: 10.1016/S0140-6736(07)61241-0
- Jamal, A., McKenzie, K., & Clark, M. (2009). The impact of health information technology on the quality of medical and healthcare: A systematic review. *Health Information Management Journal*, 38(3), 26–38. Retrieved from http://himaa.org.au/members/journal/HIMJ382009/Jamaletal_ImpactofHItechnology.pdf
- Jha, A. K., DesRoches, C. M., Campbell, E.G., Donelan, K., Rao, S. R., Ferris, T. G., . . . Blumenthal, D. (2009). Use of electronic health records in U.S. hospitals. *New England Journal of Medicine*, 360, 1628–1638. doi: 10.1056/NEJMsa0900592
- Konstantinidis, G., Anastassopoulos, G. C., Karakos, A. S., Anagnostou, E., & Danielides, V. (2012). A user-centred, object-oriented methodology for developing health information systems: A clinical information system example, *Journal of Medical Systems*, 36(2), 437–450. doi: 10.1007/s10916-010-9488-x
- Kramer, J. S., Hopkins P. J., Rosendale, J. C., Garrelts, J. C., Hale, L. S., Nester, T. M., . . . Haneke, R. D. (2007). Implementation of an electronic system for medication reconciliation. *American Journal of Health-system Pharmacy*, 64(4), 404–422. doi: 10.2146/ajhp060506
- Lanre, A. O., & Makanjuola, A. T. (2009). Knowledge and perception of ehealth and telemedicine among professionals in LAUTECH teaching hospital, Osogbo, Nigeria. *International Journal of Health Research*, 2(1), 51–58. doi: 10.4314/ijhr.v2i1.55388

- Luo, J. (2006). Electronic medical records. *Primary Psychiatry*, 13, 20–23. Retrieved from <http://primarypsychiatry.com/electronic-medical-records/>
- Luxton, D. D., McCann, R. A., Bush, N. E., Mishkind, M. C., & Reger, G. M. (2011). mHealth for mental health: Integrating smartphone technology in behavioural healthcare. *Professional Psychology: Research and Practice*, 42, 505–512. doi: 10.1037/a0024485
- Mental Health and Poverty Project. (2010). *Report on a new mental health information system for Ghana*. Retrieved from <http://www.health.uct.ac.za/user/health/research/groupings/mhapp/impactcasestudies/Ghana.pdf>
- Miller, R. H., & Sim, I. (2004). Physicians' use of electronic medical records: Barriers and solutions. *Health Affairs*, 23(2), 116–126. doi: 10.1377/hltaff.23.2.116
- Moser, I., & Law, J. (2006). Fluids or flows? Information and qualculation in medical practice. *Information Technology and People*, 19(1), 55–73. doi: 10.1108/09593840610649961
- Ndetei, D. M., & Jenkins, R. (2009). The implementation of mental health information systems in developing countries: Challenges and opportunities. *Epidemiology and Social Psychiatry*, 18(1), 12–16. Retrieved from https://sbs.uonbi.ac.ke/ndetei/files/the_implementation_of_mental_health_information_systems.pdf
- Ndetei D. M., Khasakhala L. I., Kingori J., Oginga A., & Raja S. (2008). *The complementary role of traditional and faith healers and potential liaisons with western-style mental health services in Kenya*. Retrieved from <http://www.utsouthwestern.edu/psychiatryandfreedom>

- Nicolini, D. (2007). Stretching out and expanding work practices in time and space: The case of telemedicine. *Human Relations*, *60*, 889–920. doi: 10.1177/001872670707080080
- Nutley, T., Gnassou, L., Traore, M., Bosso, A. E., & Mullen, S. (2014). Moving data off the shelf and into action: An intervention to improve data-informed decision-making in Cote d'Ivoire. *Global Health Action*, *7*, 25035. doi: 10.3402/gha.v7.25035
- Odhiambo-Otieno, G. W. (2005a). Evaluation criteria for district health management information systems: Lessons from the Ministry of Health, Kenya. *International Journal of Medical Informatics*, *74*(1), 31–38. doi: 10.1016/j.ijmedinf.2004.09.003
- Odhiambo-Otieno, G. W. (2005b) Evaluation of existing district health management information systems: A case study of the district health systems in Kenya. *International Journal of Medical Informatics*, *74*(9), 733–744. doi: 10.1016/j.ijmedinf.2005.05.007
- Ofori-Atta, A., Lund, C., Mirzoev, T., & Omar, M. (2010). *Mental health information system in Ghana* (Mental Health and Poverty Project Annual Report 2008/9). Retrieved from http://www.dfid.gov.uk/R4D/PDF/Outputs/MentalHealth_RPC/MHPB16.pdf.
- Ofori-Atta, A., Read, U., & Lund, C. (2010). A situation analysis of mental health services and legislation in Ghana: Challenges for transformation. *African Journal of Psychiatry*, *13*(2), 99–108. doi: 10.4314/ajpsy.v13i2.54353
- Omar, M., Green, A., Bird, P., Mirzoev, T., Flisher, A. J., Kigozi, F., . . . Mental health and poverty research programme consortium. (2010). Mental health policy process: A comparative study of Ghana, South Africa, Uganda and Zambia. *International Journal of Mental Health Systems*, *4*, 24. doi: 10.1186/1752-4458-4-24

- Osei, A. (2006, June 1). Accra Psychiatric Hospital is 100. *The Daily Graphic Newspaper*, p.9.
- Oudshoorn, N. (2008). Diagnosis at a distance: The invisible work of patients and health care professionals in cardiac telemonitoring technology. *Sociology of Health & Illness*, 30(2), 272–288. doi: 10.1111/j.1467-9566.2007.01032.x
- Pal, M., Cobb-Payton, F., Datta, P., & McCoy, S. (2005). Telemedicine diffusion in a developing country: The case of India. *IEEE Transactions on Information Technology in Biomedicine*, 9(1), 59–65. doi: 10.1109/TITB.2004.842410
- Piette, J. D., Lun, K. C., Moura, L. A., Fraser, H. S. F., Michael, P. N., Powell, J. & Khoja, S. R. (2012). Impacts of ehealth on the outcomes of care in low-and middle-income countries: Where do we go from here? *Policy & Practice*, 90, 365–372 doi: 10.2471/BLT.11.099069
- Rankin, J. M., & Campbell, M. (2009). Institutional ethnography, nursing work and hospital reform: IE's cautionary analysis. *Social Research*, 10(2). Retrieved from <http://www.qualitative-research.net/index.php/fqs/article/view/1258/2720>
- Robey, J. M., & Lee, S. H. (1990). Information system development in support of national health programme monitoring and evaluation: The case of the Philippines. *World Health Statistics Quarterly*, 43, 37–46. Retrieved from <https://extranet.who.int/iris/restricted/handle/10665/49559>
- Roth, C. P., Lim, Y., Pevnick, J. M., Asch, S. M., & McGlynn, E. A. (2009). The challenge of measuring quality of care from the electronic health record. *American Journal of Medical Quality*, 24, 385–393. doi: 10.1177/1062860609336627

- Schoen, C., Osborn, R., Huynh, P. T., Doty, M., Peugh, J., & Zapert, K. (2006). On the front lines of care: Primary care doctors' office systems, experiences, and views in seven countries. *Health Affairs*, *25*, 555–571. doi: 10.1377/hlthaff.25.w555
- Smith, D. E. (2002). Institutional ethnography. In T. Mays (Ed.). *Qualitative research in action: An international guide to issues in practice*. London, UK: Sage.
- Smith, D. E. (2005). *Institutional ethnography: A sociology for the people*. Walnut Creek, CA: Alta Mira.
- Smith, J. A. (1996). Beyond the divide between cognition and discourse: Using interpretative phenomenological analysis in health psychology. *Psychology & Health*, *11*(3), 261–271. doi: 10.1080/08870449608400256
- Smith, J. A. (2004). Reflecting on the development of interpretative phenomenological analysis and its contribution to qualitative research in psychology. *Qualitative Research in Psychology*, *1*(1), 39–54. doi: 10.1191/1478088704qp004oa
- Steinfeld, B. I., Ekorenrud, B., Gillett, C., Quirk, M., & Eytan, T. (2006). EMRs bring all of healthcare together: Confidentiality and care coordination issues affect how behavioural healthcare interfaces with primary care in an electronic medical record. *Behavioural Healthcare*, *26*, 12–18. Retrieved from <http://www.behavioral.net/article/emrs-bring-all-healthcare-together>
- Sukums, F., Mensah, N., Mpembeni, R., Kaltschmidt, J., Haefeli, W. E., & Blank, A. (2014). Health workers' knowledge of and attitudes towards computer applications in rural African health facilities. *Global Health Action*, *7*, 24534. doi: 10.2402/gha.v7.24534

- Swartz, L., & Kilian, S. (2014). The invisibility of informal interpreting in mental health care in South Africa: Notes towards a contextual understanding. *Culture, Medicine & Psychiatry*, 38(4), 700–711. doi: 10.1007/s11013-014-9394-7
- Taylor, R., Bower, A., Girosi, F., Bigelow, J., Fonkych, K., & Hillestad, R. (2005). Promoting health information technology: Is there a case for more aggressive government action? *Health Affairs*, 24, 1234–1245. doi:10.1377/hlthaff.24.5.1234
- Walby, K. (2013). Institutional ethnography and data analysis: Making sense of data dialogues. *International Journal of Social Research Methodology*, 16(2), 141–154. doi: 10.1080/13645579.2012.661207
- Willig, C. (1999). *Applied discourse analysis*. Buckingham, UK: Open University.
- World Health Organization. (2003a). *Mental health policy and service guidance package: Organization of services for mental health*. Geneva: Author.
- World Health Organization. (2003b). *Mental health policy and service guidance package: Quality improvement for mental health*. Geneva: Author.
- World Health Organization. (2005). *Mental health policy and service guidance package: Mental health information systems*. Geneva: Author.
- World Health Organization. (2011). *Mental health atlas*. Geneva: Author.
- Xue, Y., & Liang, H. (2007). Analysis of telemedicine diffusion: The case of China. *IEEE Transactions on Information Technology in Biomedicine*, 11(2), 231–233. doi: 10.1109/TITB.2006.879600

Zwaanswijk, M., Verheij, R. A., Floris, J. W., & Frielel, R. D. (2011). Benefits and problems of electronic information exchange as perceived by health care professionals: An interview study. *BioMedCentral Health Services Research*, *11*, 256. doi: 10.1186/1472-6963-11-256

Zimic, M., Coronel, J., Gilman, R. H., Luna, C. G., Curioso, W. H., & Moore, D. A. (2009). Can the power of mobile phones be used to improve tuberculosis diagnosis in developing countries? *Transactions of the Royal Society of Tropical Medicine and Hygiene*, *103*, 638–640. doi: 10.1016/j.trstmh.2008.10.015

APPENDIX A – SAMPLE MHIS FORM

MHIS REGISTRATION FORM-GHANA HEALTH SERVICE

1. Psychiatric Institution: <input type="checkbox"/> Accra <input type="checkbox"/> Pantang <input type="checkbox"/> Ankaful <input type="checkbox"/> Other specify.....		2. Date: / /		3. No. of visits :		4. Folder No. :	
PATIENT PERSONAL DATA							
5. Title: Mr. <input type="checkbox"/> Mrs. <input type="checkbox"/> Miss <input type="checkbox"/> Dr. <input type="checkbox"/> Other <input type="checkbox"/>		6. Patient's Surname:		7. Other names:		8. Legal status Voluntary <input type="checkbox"/> Emergency <input type="checkbox"/> Forensic case <input type="checkbox"/> Vagrant/Pauper <input type="checkbox"/>	
9. Marital status (circle one) : Single / Mar / Div / Sep / Widow / minor		10. Age:		11. Date of Birth : / /		12. Gender: <input type="checkbox"/> M <input type="checkbox"/> F	
14. Res. Address:		15. City/Town:		16. Region : <input type="checkbox"/> Ashanti <input type="checkbox"/> Brong Ahafo <input type="checkbox"/> Central <input type="checkbox"/> Eastern <input type="checkbox"/> Greater Accra <input type="checkbox"/> Northern <input type="checkbox"/> Upper East <input type="checkbox"/> Upper West <input type="checkbox"/> Volta <input type="checkbox"/> Western			
17. Phone number:		18. Of Ghanaian nationality? <input type="checkbox"/> Yes <input type="checkbox"/> No		19. Ethnicity: <input type="checkbox"/> Akans <input type="checkbox"/> Ga Adangbe <input type="checkbox"/> Nzema <input type="checkbox"/> Ewe <input type="checkbox"/> Guans <input type="checkbox"/> Sisala <input type="checkbox"/> Kasem <input type="checkbox"/> Dabgani Dagaare <input type="checkbox"/> other			
20. Religion: <input type="checkbox"/> Christianity <input type="checkbox"/> Islam <input type="checkbox"/> Traditional Religion <input type="checkbox"/> Atheism <input type="checkbox"/> other		21. Employment Status: <input type="checkbox"/> Employed <input type="checkbox"/> Not employed <input type="checkbox"/> Student <input type="checkbox"/> Retired <input type="checkbox"/> Housewife		22. Type of work: <input type="checkbox"/> Professional <input type="checkbox"/> Office worker <input type="checkbox"/> Artisan <input type="checkbox"/> Vocational <input type="checkbox"/> Unskilled <input type="checkbox"/> N/A		23. Employer Address and phone number(if applicable):	
25. Referred to clinic by : <input type="checkbox"/> Health professional <input type="checkbox"/> Family <input type="checkbox"/> Friend <input type="checkbox"/> School/work <input type="checkbox"/> Other		26. Where were you last treated? <input type="checkbox"/> hospital <input type="checkbox"/> district unit <input type="checkbox"/> CPN <input type="checkbox"/> Traditional/Faith healer		24. Educational Level: <input type="checkbox"/> primary <input type="checkbox"/> JHS/Middle <input type="checkbox"/> Voc/Technical <input type="checkbox"/> SHS <input type="checkbox"/> Tertiary <input type="checkbox"/> None			
				27. Any family member with history of mental illness?: <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Can't remember			
28. DIAGNOSIS							
i. Principal Diagnosis :				i. ICD CODE			
ii. Additional Diagnosis :				ii. ICD CODE			
iii. Additional Diagnosis :				iii. ICD CODE			
iv. Additional Diagnosis:				iv. ICD CODE			
vi. Physical Disease (specify)				vi. N/A			

*Not to be taken outside the hospital Please turn over.....>

29. SERVICES USED / TO BE USED			
<input type="checkbox"/> Psychiatry OPD <input type="checkbox"/> Admission <input type="checkbox"/> Pharmacy <input type="checkbox"/> Psychology <input type="checkbox"/> OT <input type="checkbox"/> Laboratory <input type="checkbox"/> Social welfare <input type="checkbox"/> Other			
30. CLINICIAN'S NAME:			
31. PRESCRIPTIONS		32. Medicines Available?	
Antipsychotic:		<input type="checkbox"/> Yes <input type="checkbox"/> NO <input type="checkbox"/> NA	
Antidepressant:		<input type="checkbox"/> Yes <input type="checkbox"/> NO <input type="checkbox"/> NA	
Mood stabilizer:		<input type="checkbox"/> Yes <input type="checkbox"/> NO <input type="checkbox"/> NA	
Antianxiety:		<input type="checkbox"/> Yes <input type="checkbox"/> NO <input type="checkbox"/> NA	
Anticonvulsant:		<input type="checkbox"/> Yes <input type="checkbox"/> NO <input type="checkbox"/> NA	
Anticholinergic:		<input type="checkbox"/> Yes <input type="checkbox"/> NO <input type="checkbox"/> NA	
Physical:		<input type="checkbox"/> Yes <input type="checkbox"/> NO <input type="checkbox"/> NA	
33A. FINAL DIAGNOSIS:			33B. ICD CODES
I.			
II.			
III.			
34. PATIENT ADMITTED? <input type="checkbox"/> YES <input type="checkbox"/> NO		35. TYPE OF PATIENT EXIT (Outcome) ? <input type="checkbox"/> Discharged <input type="checkbox"/> Absconded <input type="checkbox"/> Death <input type="checkbox"/> Continuing consultation <input type="checkbox"/> Transferred	
		36. DATE OF DISCHARGE/EXIT: / /	
37. NAME OF WARD MANAGER:		38. NAME OF SUPERV. CLINICIAN:	

*Not to be taken outside the hospital

APPENDIX B – INTERVIEW GUIDE

As was explained to you when you were recruited for this study, I am going to ask you a series of questions related to your use of the new information system at the hospital. Please feel free to answer the questions I ask in any way that you feel (there are no right or wrong answers; all that is important is for you to tell me what your experience has been). Remember that you are free to not answer questions that make you uncomfortable, and you can indicate to me anytime during the interview if you would like to stop altogether. You can also ask me any questions that you have in mind (either now – before we start, or at the end of the interview).

Are you ready? /Can we begin now? / Do you have any questions for me now?

Demographic Information:

A. Could you tell me a little bit about your background?

1. Gender: _____
2. Level of education: _____
3. Employment status: doctor/psychiatrist medical assistant clerk administrator
4. Number of years at the hospital: _____
5. Number of times system has been used in last six months (from archival audit): _____

B. (For prescribers) From taking a look at patient information in the records department, I found that you had used the new patient registration form on previous occasions.

1. How has this new form affected your work (prompts: has it been easier, harder, etc.)?
2. How often do you use this form?
 - a) Do you use it with all your patients (inpatients, outpatients)?
3. How does your workload appear to have been affected by using the new system (more cumbersome, easier, etc.)?
4. Do you have any difficulty with any area of the form?
 - a) What are the specific areas you have difficulty with?
5. Apart from difficulty in filling out the form, do you have challenges in other areas of the new information system?
6. Are you aware of the benefits of this new system (were you informed/educated)?
 - a) What were you told were the benefits of the system?

- b) Do you see those benefits in your work?
 - c) Do you agree/understand why it is necessary?
7. What has been good about the new system/form?
 - a) Do you think it serves the needs of your patients?
 8. What improvements, if any, do you think can be made to the form?
 - a) Do you think it should still be used (should it be completely removed)?
- C. (for admin) Two years ago, a new information system was introduced in this hospital to facilitate patient management and record-keeping in general.
1. In what ways is the information from the new system being used in your department?
 - a) Have you generated reports/analyses from the system?
 - b) Has the generation of results been easier/harder?
 2. How has this new form affected your work (prompts: has it been easier, harder, etc.)?
 - a) In what ways has it been helpful (in managing logistics, budgets, patient care, etc.)?
 3. Do you now have access to data that you did not have previously?
 4. Do you have any difficulty with any area of the system?
 - a) What are the specific areas you have difficulty with?
 5. What has been good about the new system?
 - a) Do you think it serves the needs of your department?
 6. What improvements, if any, do you think can be made to the data that is generated from the system?
 7. Do you think it should still be used (should it be completely removed)?

D. (For Records Clerks) Two years ago, a new information system was introduced in this hospital to facilitate patient record-keeping in general.

1. How easy is the processing of data which comes in for the new system?
 - a) How large is the backlog of data entry?
 - b) Are the forms being filled out accurately?
 - c) Are you experiencing problems in interpreting the information filled out in the forms?
2. Is data processing faster (or slower) with the new system?
 - a) Does the semi-computerized nature of the system facilitate your processing?
3. How can this process be improved?
4. What has been good about the new system?
 - a) Do you think it serves the needs of your department?
5. What improvements, if any, do you think can be made to the data that is generated from the system?
6. Do you think it should still be used (should it be completely removed)?

Neutral prompts to tease out more information:

1. Could you please say a bit more on
2. I did not understand when you said..... Could you please explain further
3. I shall return to this question in a little while.....
4. What did you mean by

APPENDIX C – ARCHIVAL AUDIT CHECKLIST

PRESCRIBER INITIALS _____		
RECORD NO./ID _____		
	YES	NO
Correct patient details entered (compared with folder)?		
Correct diagnostic system used (ICD- 10)?		
Correct recording of no. of admissions?		
Correct recording of duration of each stay?		
Correct treatment/management programme recorded?		

APPENDIX D – PARTICIPANT CONSENT FORM



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STELLENBOSCH UNIVERSITY CONSENT TO PARTICIPATE IN RESEARCH

Title of Research: Barriers and Facilitators to the use of the Mental Health Information System in Ghana: a Qualitative Study amongst Users at the Accra Psychiatric Hospital

You are asked to participate in a research study conducted by Ms. Lily Kpobi, from the Department of Psychology at Stellenbosch University. The results of this study will be used for a student research thesis for an MPhil degree. They will also be communicated to you at the hospital through workshops and seminars. You were selected as a possible participant in this study because you have been shown to have used the information system on previous occasions as a prescriber/entry clerk/administrator.

1. PURPOSE OF THE STUDY

The purpose of the study is to examine your use of the current Mental Health Information System which was developed in your hospital recently, and to explore what challenges you have encountered in its use. In addition, it seeks to explore what aspects of the new system you have found helpful in your work at the hospital

2. PROCEDURES

If you volunteer to participate in this study, we would ask to interview you at your convenience. Your participation only requires that your interviews are tape-recorded. These interviews will be audio records, and will be transcribed approximately within a month. The interview is anticipated to last for approximately 30 to 45 minutes.

3. POTENTIAL RISKS AND DISCOMFORTS

We do not anticipate that any harm will come to you as a result of this process and the questions that you will be asked will be made available to you beforehand.

4. POTENTIAL BENEFITS TO SUBJECTS AND/OR TO SOCIETY

You may not benefit directly from this research however we believe that your comments and contributions can help in improving work at the hospital.

5. PAYMENT FOR PARTICIPATION

There is no monetary reward for your participation in this study

6. CONFIDENTIALITY

Any information that is obtained in connection with this study and that can be identified with you will remain confidential and will be disclosed only with your permission or as required by law. Your identity as

a participant will be held anonymous, thus all transcribed interviews will have no names. All tape recordings, interactions and data transcriptions will be kept under lock and key with the researcher having sole access. Computer files will be password protected to keep them safe.

After the recorded interviews are transcribed, you will be given the chance to validate your responses before they are further analyzed. Although we are required to keep the records for two years, it will be kept in a secure place under lock and key, with only researcher access, after which they will be erased. The tapes will not be used for educational purposes.

The information we obtain from you will be analyzed and presented as results in a student research report. The research report will be taken to Stellenbosch University for examination. In the student research report, we will not disclose any information that can be used to identify you.

We have also planned to publish the results of this research. To protect your identity, we will not include any information that can be used to identify you.

7. PARTICIPATION AND WITHDRAWAL

You can choose whether to be in this study or not. If you volunteer to be in this study, you may withdraw at any time without consequences of any kind. You may also refuse to answer any questions you don't want to answer and still remain in the study. The investigator may however withdraw you from this research if circumstances arise which warrant doing so

8. IDENTIFICATION OF INVESTIGATORS

If you have any questions or concerns about the research, please feel free to contact

Ms. Lily Kpobi (Principal Investigator)

Phone number: +233 24 488-3854 or +233 302 665 102 (for emergencies)

Email address: 18131468@sun.ac.za or lily.kpobi@gmail.com

OR

Prof. Leslie Swartz (Supervisor)

Phone number: +2721-808-3461

Email address: lswartz@sun.ac.za

9. RIGHTS OF RESEARCH SUBJECTS

You may withdraw your consent at any time and discontinue participation without penalty. You are not waiving any legal claims, rights or remedies because of your participation in this research study. If you have questions regarding your rights as a research subject, contact Ms Maléne Fouché [mfouche@sun.ac.za; 021 808 4622] at the Division for Research Development.

SIGNATURE OF RESEARCH SUBJECT OR LEGAL REPRESENTATIVE

The information above was described to me by the researcher in English and I am in command of this language or it was satisfactorily translated to me. I was given the opportunity to ask questions and these questions were answered to my satisfaction.

I hereby consent voluntarily to participate in this study I have been given a copy of this form.

Name of Subject/Participant

Signature of Subject

Date**SIGNATURE OF INVESTIGATOR**

I declare that I explained the information given in this document to _____ [*name of the subject/participant*]. [*He/she*] was encouraged and given ample time to ask me any questions. This conversation was conducted in English and no translator was used.

Signature of Investigator

Date

APPENDIX E – GHS ERC APPROVAL

GHANA HEALTH SERVICE ETHICAL REVIEW COMMITTEE

*In case of reply the
number and date of this
Letter should be quoted*



Research & Development Division
Ghana Health Service
P.O. Box MB 190
Accra
Tel: +233-302-681100
Fax: +233-302-685422

My Ref.: GHS-ERC: 3
Your Ref. No.

28th July, 2013

Ms. Lily N. A. Kpobi
Stellenbosch University
Department of Psychology
Stellenbosch
South Africa

ETHICAL APPROVAL – ID NO: GHS-ERC: 07/07/2013

The Ghana Health Service Ethics Review Committee has reviewed and given approval for the implementation of your study protocol titled:

“Barriers and Facilitators to the Use of the Mental Health Information System in Ghana: A Qualitative Study amongst Users at the Accra Psychiatric Hospital”

This approval requires that you inform the Ethical Review Committee (ERC) when the study begins, and provide Mid-term reports of the study to the ERC for continuous review. The ERC may observe or cause to be observed procedures and records of the study during and after implementation.

Please note that any modification without ERC approval is rendered invalid.

You are also required to report all serious adverse events related to this study to the ERC within seven days verbally and fourteen days in writing.

You are requested to submit a final report on the study to assure the ERC that the project was implemented as per approved protocol. You are also to inform the ERC and your sponsor before any publication of the research findings is undertaken.

Please always quote the protocol identification number in all future correspondence in relation to this approved protocol.

SIGNED

DR. CYNTHIA BANNERMAN
(GHS-ERC VICE-CHAIRPERSON)

Cc: The Director, Research & Development Division, Ghana Health Service, Accra

APPENDIX F – STELLENBOSCH UNIVERSITY REC APPROVAL

UNIVERSITEIT- STELLENBOSCH-UNIVERSITY
jou kennisvennoot • your knowledge partner

**Approval Notice
New Application**

02-Jul-2013
Kpobi, Lily LNA

Proposal #: HS919/2013

Title: Barriers and Facilitators to the use of the Mental Health Information System in Ghana: a Qualitative Study amongst Users at the Accra Psychiatric Hospital

Dear Ms Lily Kpobi,

Your **New Application** received on **06-May-2013**, was reviewed by members of the **Research Ethics Committee: Human Research (Humanities)** via Expedited review procedures on **25-Jun-2013** and was approved.
Please note the following information about your approved research proposal:

Proposal Approval Period: **02-Jul-2013 -01-Jul-2014**

Please take note of the general Investigator Responsibilities attached to this letter. You may commence with your research after complying fully with these guidelines.

Please remember to use your **proposal number** (HS919/2013) on any documents or correspondence with the REC concerning your research proposal.

Please note that the REC has the prerogative and authority to ask further questions, seek additional information, require further modifications, or monitor the conduct of your research and the consent process.

Also note that a progress report should be submitted to the Committee before the approval period has expired if a continuation is required. The Committee will then consider the continuation of the project for a further year (if necessary).

This committee abides by the ethical norms and principles for research, established by the Declaration of Helsinki and the Guidelines for Ethical Research: Principles Structures and Processes 2004 (Department of Health). Annually a number of projects may be selected randomly for an external audit.

National Health Research Ethics Committee (NHREC) registration number REC-050411-032.

We wish you the best as you conduct your research.

If you have any questions or need further help, please contact the REC office at 0218839027.

Included Documents:

REC letter
Revised informed consent
DESC form
Revised research proposal
Questionnaire
REC Application form
REC response letter
Informed Consent
Research proposal

Sincerely,

Susara Oberholzer
REC Coordinator
Research Ethics Committee: Human Research (Humanities)

APPENDIX G – INSTITUTIONAL PERMISSION LETTER

In case of reply the number and the date of this letter should be quoted.

My Ref.: MHA/APH/G-1

Your Ref. No:



PSYCHIATRIC HOSPITAL
Mental Health Authority
P. O. BOX 1305,
ACCRA. GHANA.


12th August, 2013

The Head,
Department of Psychology,
Stellenbosch University,
South Africa.

**PERMISSION FOR DATA COLLECTION BY MS. LILY KPOBI, MPhil,
PUBLIC MENTAL HEALTH**

Permission is given to Ms. Lily Kpobi to carry out data collection at our hospital for her MPhil in Public Mental Health. This study on mental health information system will eventually help our mental health system.

Thank you.


Dr. Akwasi Osei
Medical Director