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Evaluation of existing District Health Management Information Systems
A case study of the District Health Systems in Kenya

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Summary
Introduction: This paper discusses some of the issues and challenges of implementing appropriate and coordinated District Health Management Information System (DHMIS) in environments dependent on external support especially when insufficient attention has been given to the sustainability of systems. It also discusses fundamental issues which affect the usability of DHMIS to support District Health System (DHS), including meeting user needs and user education in the use of information for management; and the need for integration of data from all health-providing and related organizations in the district.
Methods: This descriptive cross-sectional study was carried out in three DHSs in Kenya. Data was collected through use of questionnaires, focus group discussions and review of relevant literature, reports and operational manuals of the studied DHMISs.
Results: Key personnel at the DHS level were not involved in the development and implementation of the established systems. The DHMISs were fragmented to the extent that their information products were bypassing the very levels they were created to serve. None of the DHMISs was computerized. Key resources for DHMIS operation were inadequate. The adequacy of personnel was 47%, working space 40%, storage space 34%, stationery 20%, 73% of DHMIS staff were not trained, management support was 13%. Information produced was 30% accurate, 19% complete, 26% timely, 72% relevant; the level of confidentiality and use of information at the point of collection stood at 32% and 22% respectively and information security at 48%. Basic DHMIS equipment for information processing was not available. This inhibited effective and efficient provision of information services.

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Conclusions: An effective DHMIS is essential for DHS planning, implementation, monitoring and evaluation activities. Without accurate, timely, relevant and complete information the existing information systems are not capable of facilitating the DHS managers in their day-today operational management. The existing DHMISs were found not supportive of the DHS managers' strategic and operational management functions. Consequently DHMISs were found to be plagued by numerous designs, operational, resources and managerial problems. There is an urgent need to explore the possibilities of computerizing the existing manual systems to take advantage of the potential uses of microcomputers for DHMIS operations within the DHS. Information system designers must also address issues of cooperative partnership in information activities, systems compatibility and sustainability.

1. Introduction

Health Management Information Systems (HMISs) are important support tools in the management of health care services delivery [1]. In 1983, the Government of Kenya (GoK), decentralized the Ministry of Health's (MoH) decision-making process to the districts [2]. This was in line with World Health Organization (WHO) resolution calling on all WHO member states to strengthen District Health Systems (DHS) [3]. For this decentralization to be effective, there was a need to establish information systems to support the DHS managers in their planning, implementation and evaluation functions. The establishment of effective Health Information Systems to support decision-making by district health personnel was an essential component of the DHS [4]. The GoK recognized that without an effective and appropriate information system, the MoH's capacity to cope with its planning and management needs would be severely compromised [5].

These information systems were to provide the DHS managers who were members of District Health Management Team (DHMT) and District Health Management Board (DHMB) with the information they require. The DHMT members including among others the District Medical Officer of Health (DMOH) as Chairman, the District Health Administrative Officer (DHAO), the District Public Health Nurse (DPHN), the District Public Health Officer (DPHO,) and the Medical Records Officer, were responsible for among other things, developing a strategy for the district health service, monitoring the health problems that occurred in the district, and coordinating the activities of all health care providers in the district. The DHMB on the other hand, which consisted of the area DMOH, local community and Non-Governmental Organization (NGO) representatives, among others, played an advisory role in relation to DHMT and worked with DHMT to coordinate and monitor the implementation of government and non-government health programs in the district [5]. The DHMIS was to provide both the DHMT and DHMB with accurate, reliable and up-to-date information for the management of the DHS.

Following this decentralization, Health Information Systems (HISs) at the district level in Kenya have undergone fundamental changes that have resulted in the introduction of different types of information systems. A quick survey of Kenya's MoH reveals that it operates different versions of District Health Management Information Systems (DHMISs) at the DHS level [5]. The first DHMIS was introduced in Murang'a DHS in 1988 and was funded by UNICEF. This system introduced a total of 26 data collection forms, 11 of which were for collecting health service data and 15 for collecting administrative/management data [6].

Subsequent to the introduction of the Murang'a DHMIS, the following DHSs introduced various versions of DHMISs: Kitui, Embu, Baringo, Nakuru, Nyandarua, Nyamira, Kisumu, Kwale, Uasin Gishu, Bungoma and Mombasa [5]. Reasons advanced for the introduction of these systems were: (a) health facilities collected information haphazardly and irregularly; (b) information collected was incomplete and unreliable with limited analysis and use at the point of collection; (c) too much data was collected rendering analysis impossible. The objective of this system was to facilitate the use of selected existing information to support operational decision-making and planning. Relevant information compiled at the District HIS Office was to be extracted, processed and made available regularly to the DHMT and DHMB for action planning, supervision and impact assessment [6]. These systems operated along side with the routine HISs which are operational in all DHSs in Kenya.

All these systems within the DHSs in Kenya are characterized by a lack of integration, and are disjointed and widely dispersed, with no effective central co-ordination to ensure that the information which they contain is readily available to those