**A Formal Framework for Deployable Mobile Healthcare Applications**  
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**Abstract**  
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**ABSTRACT**  
Background: Health care delivery in any typical hospital or health care center across African countries is usually cumbersome with enormous paper work, waste of life, time and resources, long queues, and ineffective treatment procedures [1]. The use of mobile technology devices such as Personal Digital Assistants, Cell phone, Tablet PCs etc for health care delivery promise a revolution in modern health care. Thus, designing and deploying mobile applications with clinical and administrative functionalities at health care centers would reduce medical errors by enabling access to updated patient's information [2,3]. Easy access to information at the point-of-care via handheld devices could bring about substantial life and cost savings and help to address the high mortality rate of more than one in six prevalent in Sub-Sahara Africa [1,4].   
  
  
Objectives: The objectives of this paper are: (1) to provide a framework for the design of Operations support in e-Health based systems; (2) to provide a robust architecture which ensures easy administration of patient care; (3) to implement a prototype to demonstrate how mobile application can improve health care delivery in a health care setting   
  
Methods: We used Object Constraints Language and Unified modeling language to formalize the requirements gathered by interview process. The Client application is developed with Wireless Markup Language. The Server application is developed in java language and provides access to MS Access database. The server receives patient electronic records via an API that returns diagnosis and treatments information in the form of XML document.   
  
Results: The application has been tested with openwave v7 simulator, which emulates the Wireless Application Protocol, gateway on a (3-tier) client-server architecture separated by a mobile network The applications shall be eventually deployed at the Covenant University Health Center, Nigeria.   
  
Conclusion: The formal framework provided in this paper, could serve as a specification document for mobile health care application development and deployment. Furthermore, since the mobile phone coverage in most part of Africa is developing at appreciable rate [5], the application could be deployed on the National Health Care Networks or existing mobile infrastructures to address the shortage of specialist in rural areas.  
  
  
  
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