

Detecting Counterfeit Drugs through Mobile Authentication Service (MAS): Users' Challenges in Edo South Senatorial District

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Abstract: NAFDAC on February 2, 2010, launched 'Mobile Authentication Service' (MAS). This cutting edge technology enables a consumer to determine whether a drug is fake or genuine through a mobile phone before purchase. Despite robust commitment of substantial resources to the design, development and implementation of this technology, empirical observation shows that most consumers were not using the services. This research work therefore examines the challenges and factors responsible for the low uptake and utilization of the MAS technology in Edo State. Both qualitative and exploratory approach was used in the study in 4 Local Government Areas (LGA) of Edo South Senatorial District. 5 Pharmacies/Chemists facilities were chosen in each LGA out of which 5 consumers each were interviewed. In-depth interview with Pharmacists/Patent Medicine Vendors in the selected out-fits and senior officers in NAFDAC and Pharmaceutical Council of Nigeria, was carried out. While on average only about 61 percent have heard about MAS, majority of those interviewed agreed that delay in text message delivery is a major constrain. When information about MAS is equitably disseminated and network providers enhance their services for timely delivery of text messages, apathy would be reduce and millions of Nigerians can access quality drugs.

Keywords: Counterfeit Drugs, Health, Mobile Authentication, NAFDAC, Nigeria

I. Introduction

The United Nations (UN) acknowledged health for all as a fundamental human right and governments all over the world have consider it as a right for the health status of its citizens to improve (Ozumba, 2014). Onokerhoraye (1998) once noted that good health make up an important aspect of social-economic development since it is a major component of the quality of life as well as a precondition for high levels productivity. A healthy population is an economic asset since the assured supply of a strong and healthy labour force is an essential factor in development.

Over the years efforts have been made to introduce good health care delivery system in Nigeria including the provision of quality, efficacious and affordable Pharmaceutical drugs. In 1995, a National Health Summit was organized. Participants which included health experts, leaders, policy makers, health providers, health planners and administrators, and representatives of health-related sectors examined the factors that had militated against improvement in Nigeria's national health status and tried to chart a course of remedial action that would take Nigerians into the 21st Century and beyond in good health. The recommendations that emerge from the Summit and other subsequent activities called for the need to take a critical look at the National Health Policy with a view to effecting those changes that would accelerate health development in Nigeria. In view of this, the Nigeria's National Health Policy has witnessed different reviews, recognized the need to address disease burdens and other health problems that significantly contribute to poor health status of Nigerians in order to attain the national goal of achieving health for all Nigerians. The Nigerian government through the Federal ministry of Health (FMOH) therefore, put in place intervention programmes and policies to meet these needs. That led to the establishment of National Agency for Food and Drug Administration and Control (NAFDAC) on January 1, 1994 as a parastatal of the federal ministry of health.

NAFDAC among its numerous approaches geared towards eradication of fake drugs, on February 2, 2010, launched what is called Mobile Authentication Service (MAS). This cutting edge technology enables a consumer to determine whether a drug is fake or genuine through a mobile phone by typing a unique digit number hidden under a scratch off panel that comes with the pack of every Mobile Authentication Service (MAS)-enabled drug product and sending as SMS to a code number and in a few seconds the consumer receives an SMS confirming whether the drug has been approved by NAFDAC or not. This MAS technology allows individuals with mobile phones to check whether a drug is fake or original without direct contact with the manufacturer. NAFDAC introduced the MAS technology in response to the increasing rate of fake drugs sold in Nigeria as many lives have been lost and many were still endangered by the influx of fake drugs in the country.

II. Statement of the Problem

NAFDAC in its determination to rid the country of counterfeit drugs signed a memorandum of understanding (MoU) with telecommunications providers on the use of Mobile Authentication Service (MAS) by customers to authenticate their medications at the point of purchase. The SMS is free and buyers or consumers do not have to pay any fee for using this facility through their mobile phones either at the point of purchase or do they have to register to access this service.

However, despite robust policies and commitment of substantial resources to the design, development and implementation of this technology put in place to help eradicate counterfeit drugs, many Nigerians are not using the services. From empirical observation, majority of buyers/consumers that purchase drugs do not bother to check whether the drugs they purchase have this authentication scratch off panel in them. Even when some eventually purchase drugs with the scratch off panel they do not bother to actually scratch and authenticate the drugs before payment is made. This has posed a serious challenge to NAFDAC in its struggle to rid the country of distributed counterfeit drugs and food products in Nigeria. It is also a challenge to meeting the national health policy objective of strengthening the national health system such that it will be able to provide effective, efficient, quality, accessible and affordable health services that will improve the health status of Nigerians.

It was therefore imperative that the reasons for **non-usage** of this all-important technology that would help to save lives, by consumers/buyers who purchase and utilized Pharmaceutical drugs be investigated.

III. Objectives

The study seeks to examine the challenges and factors responsible for the low uptake and utilization of the MAS technology with a view to contributing to a body of evidence that will help to strengthen the utilization of MAS among Nigerians in detecting whether a drug is approved by NAFDAC or not at the point of purchase.

IV. Review of Literatures

UNODC report (2009), noted that most of the fake pharmaceutical products, which appear to be genuine but contain little or no active ingredient, were imported, particularly from South and East Asia, while some are from the local pharmaceutical industries. The degree of international trade in counterfeit and intentionally adulterated medicines is something shocking. The struggle to eradicate fake and counterfeit drugs has been on for years. According to Gogo and Garmire (2009), industrialised nations have a range of technologies at their disposal, such as 2D bar code reader and Radio Frequency Identification (RFID) Readers for detecting counterfeiting. An RFID drug pedigree tracking system has been tested in the United State to be very effective in the mass-surveillance of genuine drugs as they filter through the supply chain, from legitimate manufacturers to consumers ((McPhillips, 2006). Danis et al, (2011) noted that the value of mobile phones for large-scale public health programming has been demonstrated by “Text to Change” campaigns for HIV awareness in Uganda and that SMS is an excellent opportunity to integrate health messaging into daily use of mobile technology with specific reference to identifying counterfeit medicine before making purchases.

Making drugs available to the people and ensuring they are rationally used is a priority for every nation. However, most nations confront a host of problems in their efforts to ensure the availability and rational use of safe and effective drugs (WHO, 1996). The Nigeria government recognizes the right to health, embraces the role of government in protecting this right, and has committed itself to eradicating fake drugs as one of the ways to safeguarding it. This apparently leads to the formulation and adoption of the National Drug Policy in 1990. One of the objectives of the policy was to ensure that all drugs in the national drug distribution system were safe, efficacious, effective and of good quality. In the course of its operation, NAFDAC (an agency saddled with the responsibility to control the circulation, importation, exportation, manufacture, advertisement, contend against the distribution and sale of fake products and counterfeit drugs in Nigeria, among other things) discovered that many fake drugs like fake Paracetamol, fake hypertensive drugs, etc. were smuggled into the country.

Akunyili (2004) stated that more challenges of fighting the drug counterfeiting in Nigeria comes from unscrupulous drug dealers who sometimes have the backing of lawmakers and politicians making the stipulated drug laws standard unattainable. Chiwendu (2008), in his view, asserted that NAFDAC is unable to effectively fight against fake drugs in Nigeria even with their intense efforts in doing so because of lack of adequate and continues support of the government as well as other stakeholders who are expected to join force with NAFDAC in the fight such as the customs, police and the judiciary. According to Erhun, et al. (2001), many organizations have organized at least national symposium/seminars on counterfeit drugs in the past years. These organisations include (i) Pharmaceutical Society of Nigeria, (ii) Nigeria Association of General Practice Pharmacists (iii) Nigeria Association of Industrial Pharmacists and (iv) Pharmaceutical Manufacturers Group of the Manufacturers Association of Nigeria (PMG/MAN). NAFDAC has also deployed several Information and Communications Technologies to drive its regulatory processes. These include an established web presence where activities and information on the agency are available on the website, a corporate portal which allows for in-house sharing of information and collaboration, a Laboratory Information Management System (LIMS) to support quality laboratory procedure and data processes, as well as E-clearance portal which allows for online electronic clearance of goods at the ports. In addition in November 2011 NAFDAC launched the Automated Product Administration and Monitoring Solution (NAPAMS). All these efforts were geared towards eradicating counterfeit drugs in Nigeria.

On March 7th, 2014, top level officials in the Nigerian health sector were called together to attend what was called a “Presidential Summit on Universal Health Coverage (UHC)”. The summit adopted “The 2014 Declaration”, a 23-point statement which recommends greater commitment of all tiers of government to improving UHC and the institution of mandatory health insurance. The 2014 declaration also charged all levels of government in the country to increase budgetary allocation to health and define a standard benefits package of essential health services that addresses priority health care needs of Nigerians. These show that Nigeria government is committed to improving her health system. By examining the challenges faced by consumers which is responsible for the low uptake or utilization of the drug authentication service put in place by NAFDAC, we will therefore be able to chart a partway for effective delivery of the MAS technology.

V. Methodology

Both qualitative and exploratory approach was used in the study. The research was carried out in 4 Local Government Areas (LGA) of Edo South Senatorial District of Edo State, Nigeria, using a random number sampling for the selection. In each of the 4 selected LGAs for the study, 5 Pharmacies/Chemists facilities were chosen in which 5 consumers each were interviewed. In-depth interview with Pharmacists/Patent Medicine Vendors in the selected out-fits, senior officers in NAFDAC and Pharmaceutical Council of Nigeria was also carried out.

VI. Results and Discussion

a. Background of Interview Respondents

Of those who responded to interviews during data collection 52% were male and 48% were female ranging from ages 15 to 55 years. Also, 54% were married, 45% were unmarried and 1% was windowed. Majority of those interviewed have attained secondary education and they constitute about 48% of the population while those who have attained at least primary and tertiary educations were 13% and 28% respectively.

b. Users' Awareness of Mobile Authentication Service in Edo State

It was observed that about sixty one percent on the average, of those interviewed, have heard of MAS. Figure 1 below shows the variations in awareness level of respondents in local government areas where the research was conducted.

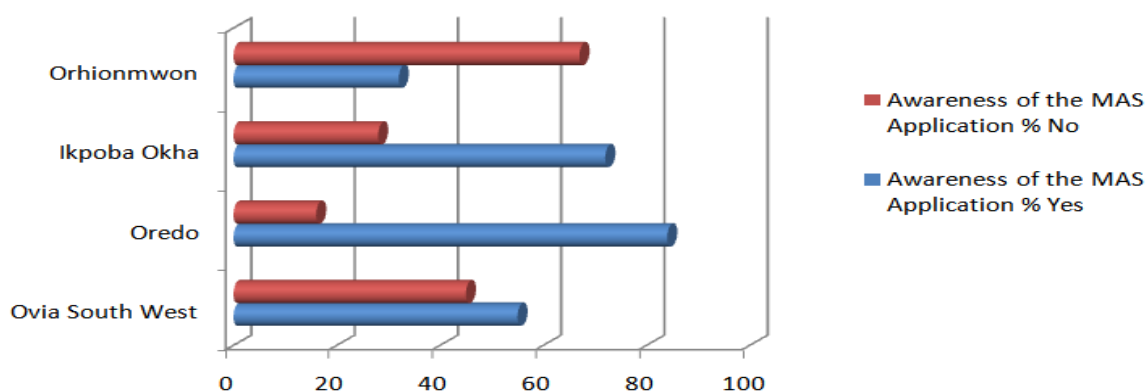


Fig. 1: Awareness Level of Availability of MAS

Ikpoba Okha and Oredo LGAs are urban LGAs while Orhionmwon and Ovia South West LGAs are rural LGAs. The figure above indicates that awareness of MAS was higher among populations in urban areas compared to their rural counterpart. This goes to show that those in the urban communities had more access to information about MAS when compare to those residing in the rural communities. These equally pose a challenge to NAFDAC's effort to reduce and minimized the sales and distribution of fake and counterfeit drug especially at the rural level.

c. Key Challenges Identified by Users of MAS Application

Below is an extract of the challenges identified by interview respondents who have used the MAS service. In this case only the comments of those who have used the mobile authentication service were captured.

"The service is free, but sometimes the reply may take a lot of time".

"I face the challenge of having the time to do it, or knowing how to do it".

"Most drugs do not carry the MAS application. Secondly some customers buy drugs on retail which prevents them from seeing the package."

"I always scratch and send whenever I buy drug but my challenge I always face is bad network and late response from the producers".

"Sometimes the network does not deliver the message while at other times no reply is sent or it is delayed".

"Yes, there is delay in service delivery in checking the authenticity of the drug you want to buy".

"The complaint I have is that it's only powerful drugs that carry the label".

“Others around me who have used this method also testify that it is a very good means of knowing a genuine drug in other for one not to purchase a wrong drug that will have a negative effect. But the only problem they also faced was that whenever they send the scratched pin the confirmation was not sent instantly. So you have to wait for some minutes”.

“I have faced the problem of network. Sometimes the SMS is not delivered on time”.

“Yes, I heard about an old lady who have made used of it, she decided to use it that once and unfortunately found out that the drugs was fake, she tried her possible best through a court case and she won”.

“Some people confirmed that they can confirm the authenticity of the drugs they have tried with the method, but I insist that most of the commonly used drugs by our people cannot be authenticated e.g. paracetamol, tetracycline, amoxicillin, chloroquine e. t. c.”.

“It is not found in common drugs”.

“I have seen a situation whereby genuine drugs are confirmed fake by the authentication machine. It took the intervention of the company to correct the mistake”.

“The challenge I face is that after scratching and sending the pins I will have to wait for the confirmation message, this always take much time and also what was not supposed to happen would have already happened before one will send and receive the confirmation message”.

The comments above from respondents can be summarized thus:

- **Response time of text message delivery is slow.** In some cases consumers noticed that bad networks may prevent text messages from sending. This has overtime inhibits repeat use of the MAS technology.
- **Most drugs do not carry the label.** This again has created apathy on the part of users to want to know if the particular product they are buying has the scratch-off label.
- **Conflicting messages upon delivery.** There have been cases were a drug which a text message delivered to be fake was actually confirmed or investigated to be genuine. This also could inhibit repeat use of the MAS application.
- **Consumers who buy in retail** are not able to scratch and text as the labels is often times removed while unpacking for retail sales.

The findings of this research revealed that awareness level of the general public about MAS is low. This is more visible in rural communities were access to media information is low compared to those in the urban communities. The research also revealed that there is no formalized programme for educating the public about the use of MAS. Many therefore wonder if the MAS service is as efficient and reliable as it is claimed to be.

VII. Conclusions and Recommendations

This research has assessed the use of Mobile Authentication Service (MAS) for detecting counterfeit drugs in Edo south senatorial district of Edo sate. Although the information used in the study was collected only from four Local Government Areas (LGAs) namely; Ovia South West, Oredo, Orhionmwon and Ipkoba Okha LGAs, the findings of the study may not be different from the remaining three LGAs of the said senatorial districts and Edo state in Nigeria. However, for the purpose of evidence to policy influence, the author of this research is of the view that a further research be carried out in the remaining fourteen LGAs of the state before a generalization is made. It is also clear that lack of specialized programme of information dissemination and awareness creation to enlighten the general population about MASS has created a gap between consumers and NAFDAC's goal to eradicate fake and counterfeit drugs in circulation. There is therefore a strong relationship between customer's awareness and the use of MAS technology for checking counterfeit drugs.

The mobile network operator (proxy server) responsible for receiving and alerting users of the authenticity of the medicine product they purchase is an abysmal. Almost all the respondents made reference to failure of message delivery. The interview with NAFDAC boss, Edo region, reveals that the major complain arising from the implementation of MAS technology is delay in message delivery after scratching texting to the specialized code inscribe on the drug. He also related that no effort, to the best of his knowledge, is being made to resolve the challenge. If this continues, it therefore means that implementation of MAS, will eventually fade out.

Based on the findings of this research and with the objective of contributing to a body of evidence to strengthen the utilization of MAS application, the following key recommendations have been made.

- NAFDAC should strengthen its awareness creation mechanism to sensitize the public about the use of this all-important tool for detecting counterfeit drugs. Posters should be printed and distributed free of charge to Pharmacies and Chemist stores with clear indication of the use of **MAS**
- NAFDAC should strengthen its collaborations with other stakeholders and utilized traditional media to enlighten the public about **MAS** and its benefits. If possible all NAFDAC zones should be mobilized to develop localized advertisement content for the interest of the majority of the people in the environment from which they operate.
- Efforts should be made by NAFDAC to ensure that all manufacturers key into the application of MAS, register with the appropriate authority and label their drugs. Again, Charges on the part of manufacturers to use MAS should be subsidized as low as possible to reduce high cost of production which can in turn increase out of pocket expenditure for consumers.
- NAFDAC and its responsible directorate should as a matter of urgency investigate the challenges of the network provider(s) responsible for handling the text messages or the MAS application. The failure of message delivery is highly unacceptable.

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Reference

- [1]. Akunyili, D. (2004) The fight against fake drugs by NAFDAC in Nigeria, Health Course.
- [2]. Chinwendu, O. (2008) The fight against fake drugs by NAFDAC in Nigeria. Health Course.
Danis C. M., Ellis J.B, Kellogg W. A. et al (2011) Mobile phones for health education in the developing world SMS as a user interface. ACM DEV (10).
- [3]. Erhun, W. O., Babalola, O. O. and Erhun, M.O. (2001) Drug Regulation and Control in Nigeria: The Challenge of Counterfeit Drugs. *A Journal of Health and Population in Developing Countries*. 4(2):23-34
- [4]. Federal Ministry of Health (2010) National Strategic Health Development Plan 2010 –2015
Gogo A., Garmire, E. (2009) Text messaging to Authenticate Products through Matching Hidden Codes. Proceedings of the International Multi-conference on Computer Science and Information Technology (5):353-359.
- [5]. McPhillips, T. (2006) Presentation at the FDA Anti-Counterfeit Drug Initiative Workshop Public Meeting. Accessible online (www.fdagov/oc/meetings/rfid/McPhillips.ppt.)
- [6]. Onokerhoraye A. G. (1998) Social Service in Nigeria an Introduction, Kanan Paul International, London. (13)
- [7]. Ozumba, L. N. (2014) Multi-sectorial Assessment of Policy Implementation in the Nigerian Socio-political System *Journal of Good Governance and Sustainable Development in Africa*, 2(1):113-122.
- [8]. UNODC (2009) Report of Transnational Trafficking and the Rule of Law in West Africa: a Threat Assessment: Accessed and retrieved April 14, 2015
From:<http://www.unodc.org/unodc/en/frontpage/2009/July/fake-medicines-pose-health-risk-in-west-africa.html>.
- [9]. WHO 1996: Report of the situation of counterfeit medicines based on data collection tool regions for Africa and eastern Mediterranean: <http://www.who.int/medicines/services/expertcommittees/pharmprep/WHO-ACM-3IMPACTSurveyDataCollectionToolReport.pdf>. Accessed April 3rd, 2015.