Original Article

Direct access versus physician's pre-authorized laboratory testing: The experience at a clinical laboratory in South-South, Nigeria

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Abstract

Background: The traditional health-care model in this country places the physician (or appropriate ordering provider) in control of determining what diagnostic and therapeutic monitoring (including laboratory tests) is to be performed on a patient. A paradigm shift in the way medical care is provided has been observed; with a change in the delivery of health-care moving from physicians into the hands of the patients. One manifestation of this has been direct access testing (DAT) for laboratory services defined as patient (as opposed to physician) initiated testing of human specimens. Appropriateness of tests ordered and reliable interpretation of test results are some of the concerns associated with DAT.

Aim: To determine the comparative evaluation of DAT compared to physicians' pre-authorised laboratory testing at a clinical laboratory.

Methods: All laboratory requisition orders made to the Pathology Department at Bayelsa Diagnostic Centre, Yenagoa, Bayelsa State within a 2-year period were evaluated.

Results: A total of 15,755 requisition orders were analysed. The prevalence of DAT was 21.2% compared to 78.8% of physicians pre-authorised laboratory tests. Nine out of the ten most frequently ordered investigations: full blood count, electrolyte, urea and creatinine, microscopy, culture and sensitivity, microscopic diagnosis of malaria parasite, (urinalysis, Widal test, lipid profile, liver function test and erythrocyte sedimentation rate were pre-dominantly physicians' pre-authorised requisition orders. Fasting blood glucose was the only investigation that had a higher prevalence from DAT. More than half (1753 [52.5%]) of the self-referred patients did not present with clinical history while majority (10,087 [81.2%]) with laboratory tests pre-authorised by physicians presented with clinical details.

Conclusion: This study highlights that laboratory test pre-authorised by physicians still remains the traditional healthcare model in South-south Nigeria.

Keywords: Direct access testing, laboratory testing, pathology, pre-authorised, selfreferred

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INTRODUCTION

Direct to consumer laboratory testing also known as direct access testing (DAT); consumer ordered test; patient-directed test, self-ordering, direct to consumer and consumer self-orders permits consumers to order laboratory tests directly from a laboratory without prior consultation with a physician or a physicians' request for testing. [1,2]

The health-care consumer has been described as the driving force for change in healthcare. Currently, health-care consumer has been reported as 'empowered, educated, demanding, and critical of the healthcare system and providers'. Placing the control of testing in the hands of the consumer may equate to more empowerment and responsibility given to each individual. [3] With greater empowerment, the consumer is more likely to increase his attention to his condition and become more responsible for managing his care. [1,2]

With the growing population in Nigeria, there is a high possibility of health-care consumers gaining access to considerable medical information. This may increase the desire for consumers to become more involved in their own healthcare; however, difficulty in distinguishing credible health information from information that is not trustworthy are some of the limitations that may be experienced.

The general public was introduced to the concept of being directly involved in their own laboratory testing as early as the 1950's with the availability of over-the-counter urine and glucose test. [4] These Patients are encouraged to closely monitor their glycaemic status as the number of individuals with diabetes continues to increase in an attempt to decrease the incidence of complications. [5] With diabetes mellitus leading the way, an expansion of over-the-counter testing technology, and a movement for more empowerment of consumers to take responsibility for their own healthcare, has created a major paradigm shift in healthcare, moving from a physician focus to a consumer focus. [4,6] One manifestation of this has been DAT for laboratory services. [1,4]

Publications have suggested a redesign of the health system to include the patient as the source of control; unfettered access for patients to their own medical information and clinical knowledge, and evidence-based decision-making. [7]

Increase in the use of DAT is motivated by direct marketing of laboratory testing to consumers (including web-based solicitation), consumer privacy concerns, convenience, cost savings, and consumer self-empowerment in managing their health. [3]

Consumer follow-up results, appropriateness of tests ordered, reliable interpretation of test results and generation of a false security if tests are 'normal' or of panic if tests are 'abnormal' are some of the uneasiness associated with DAT.[4] Studies have shown that some of the frequently ordered tests through DAT includes: HIV antibody status, ABO/Rh blood typing, complete blood count, liver function tests (LFTs), lipid profile and prostrate specific antigen. [8]

There are certain issues to put into consideration in the development of a DAT program, some of which includes: advice from legal counsel,; consumer-friendly reports,; communication of programme availability to the primary care provider community,; health department reporting protocols and limitation of the testing menu because some tests are deemed inappropriate for self-ordering. [4,9]

The conventional health-care model in Nigeria places the physician in control of determining what diagnostic and therapeutic monitoring (including laboratory tests) are to be performed on a patient.

There are limited studies assessing the prevalence of DAT compared to physicians' authorised laboratory testing in Nigeria. Knowledge gained from this work may be used as

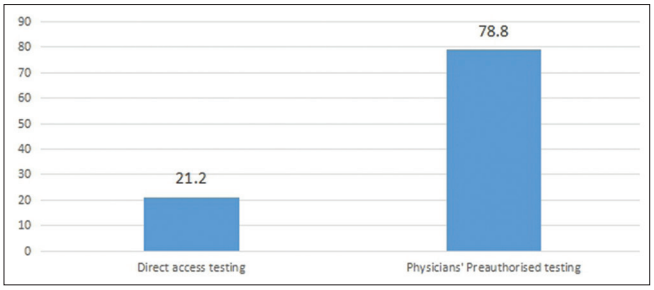

Figure 1: Prevalence of requisition for laboratory testing

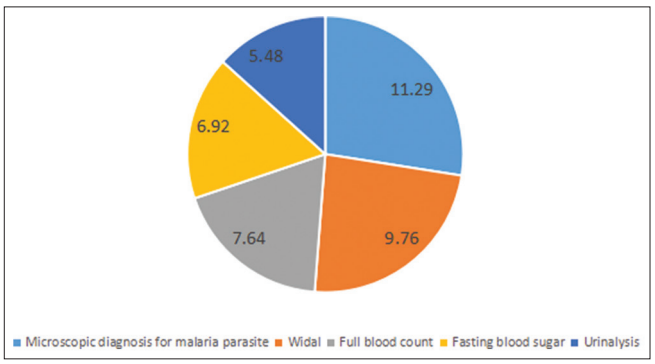

Figure 2: Frequently requested investigation by direct access testing

Table 1: Ten most frequently requested investigations

Procedure	Self-referred	Percentage of self-referred	Doctor referred	Percentage of self-referred	Total for the period
FBC (CBC) - (blood)	351	24.3	1095	75.7	1446
E/U/C	223	17.4	1060	83.9	1283
Microscopy, culture and sensitivity	476	41.8	663	58.2%	1139
MP - (blood)	411	43.5	533	56.5	944
Urinalysis	175	22.3	611	77.7	786
FBG	388	52.6	350	47.4	738
Widal test - (serum)	311	47.5	344	52.5	655
Lipid profile (total cholesterol/HDL/triglycerides/LDL	127	20.5	492	79.5	619
LFT (AST, ALT, ALP, TP, albumin, TB)	107	20.1	426	79.9	533
ESR	75	19.8	303	80.2	378
Total			8521		

E/U/C: Electrolyte, urea and creatinine, ALP: Alkaline phosphatase, FBG: Fasting blood glucose, MP: Malarial parasite, LFT: Liver function tests, AST: Aspartate aminotransferase, ALT: Alanine aminotransferase, TB: Tuberculosis, TP: Total Proteins, HDL: High-density lipoproteins, LDL: Low-density lipoproteins, ESR: Erythrocyte sedimentation rate

Table 2: Input of clinical details

Parameter	Clinical history, *n* (%)	Without clinical history, *n* (%)
Direct access testing	47.5	52.5
Physician preauthorised testing	81.2	18.8

a framework for developing policies guiding DAT within the country.

The aim of this study is to determine the comparative evaluation of DAT compared to physicians' pre-authorised laboratory testing at Bayelsa Diagnostic Centre (BDC), Yenagoa, Bayelsa State. Specific objectives include: To determine the prevalence of DAT at BDC, Yenagoa; to ascertain the prevalence of physicians' pre-authorised laboratory testing at BDC; to determine the parallel assessment of the prevalence of DAT to physicians pre-authorised laboratory testing at BDC; to determine the frequency of the number of requisition orders with completed clinical information for DAT orders compared to physicians' pre-authorised test at BDC and to assess the most frequently requested test from DAT at BDC.

METHODS

The study was carried out at BDC, a clinical laboratory located at Bayelsa State, South-South Nigeria, that receives requisition orders from within the state and other regions of the country.

This is a retrospective cross-sectional descriptive study.

The study was approved by the Bayelsa State Health Research Ethics Committee.

All laboratory requisition orders made to Pathology Department: comprising Haematology, Immunology, Chemical pathology, and Medical Microbiology at BDC, Yenagoa, Bayelsa State within a 2-year period (September 2016 to September 2018) were examined consecutively. Requisitions made to the Anatomical Pathology unit were excluded from this study.

Requisition orders were retrieved from the laboratory information system, which has the database of all requisition orders made to the BDC.

Requisition orders were exported from the laboratory information system to Microsoft Excel worksheet (Microsoft excel 2016). This information was further sorted and filtered using the following parameters: type of referral (patient/physician-directed), clinical details and the name of requested investigation.

Basic statistics on the Microsoft Excel software programme were used for data analysis.

RESULTS

A total of 15,755 requisition orders were analysed. The prevalence of DAT was 21.2% compared to 78.8% of physicians pre-authorised laboratory tests as shown in figure 1. The ten most frequently requested investigations were full blood count, electrolyte, urea and creatinine (E/U/C), microscopy, culture and sensitivity (M/C/S), microscopic diagnosis of malaria parasite (MP), urinalysis, fasting blood glucose (FBG), Widal test (serum), lipid profile, LFT and erythrocyte sedimentation rate (ESR) as illustrated in table 1. The total number of requisition orders for these ten investigations during the period of the study was 8521. Nine of these requisition orders: E/U/C (83.9%), ESR (80.2%), LFT (79.9%), lipid profile (79.5%), urinalysis (77.7%), FBC (75.7%), M/C/S (58.2%), MP (56.5%) and Widal tests (52.5%) out of the total number of each investigations were predominantly physicians' pre-authorised tests

compared to one: FBG (52.6%) that was DAT. More than half (1753 [52.5%]) of the self-referred patients did not present with clinical history as shown in table 2 while majority (10,087 [81.2%]) with laboratory tests pre-authorised by physicians presented with clinical details. Microscopic diagnosis for malaria parasites was the most requested investigation through DAT. Other requested investigations in descending order are: widal test, full blood count, fasting blood sugar and urinalysis as shown in figure 2.

DISCUSSION

This study shows that physicians authorised requisition orders still remains customary in the southern part of Nigeria. It may be that majority of the residents within this region do not perceive any inadequacy in the safety and delivery of quality health-care system under the current practice. A report on state policies on direct-access testing showed that though half of the states in the United States of America allowed for patient authorisation of laboratory testing, very few laboratories provided laboratory testing without a physicians' referral as observed in this study. [10]

Self-monitoring of blood glucose is advocated as a valuable aid in the management of diabetes and has been reported as the genesis of DAT.[4] This study showed that most of the requisition orders for FBG test were DAT further reflecting the awareness of the significance of this test to healthcare.

Some of the commonly requested investigations listed in this study, such as lipid profile, FBG, LFT and complete blood count are in consonance with findings in the literature. [4,10] Time savings as well as low-cost alternative to monitoring their own health may be the reasons for these similarities.

Furthermore, more than half of the patient-directed requisition orders did not indicate clinical details. The stipulation of clinical details aids in the interpretation of the appropriateness of the investigation. Therefore, the absence of this parameter in the majority of the patient-directed form may highlight some of the limitations of DAT. A study done by Adegoke *et al.* showed that 95.7% and 92.2% of the study participants filled in the names of the requesting physicians and the clinical details, respectively. Another survey reported an absence of clinical details and requesting physicians in 25% and 38% of requisition forms. These findings are similar to discoveries in this study. [11,12] It has been emphasised that incomplete laboratory data could significantly impact the success and cost of the overall treatment. [13]

In addition, we observed that microscopic test for malaria was the most frequently requested test and this may reflect the knowledge of the people on the high prevalence of the disease in the region at reported in the literature. [14,15]

Limitation of the study

The study was carried out in one state in the South-South region of the country. There may be a need to carry out this study in other states within the South-South region to substantiate our findings from this study. Furthermore, it may be beneficial in future study to confirm the accuracy of the clinical details provided from direct access requisition orders.

CONCLUSION

Physician authorised laboratory testing still remains the traditional healthcare model in South-South Nigeria. The findings from this study may serve as a guide to assess the prevalence of DAT within the South-South region of the country.

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Conflicts of interest

There are no conflicts of interest.

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