

## Laboratory-Accounting (PART 1)

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### Introduction

#### What you do in Laboratory-Accounting

There are two stages in organizing the Laboratory Accounts for any year. The first is to record your activities the correct way and the second is to compile the final accounts for the records.

#### STAGE 1

**Keeping Record: 1. These are kept with the aid of some books of account.**

(a) The Cash Analysis Book. As the name suggests, it records your financial transactions showing how much you started with, and how much cash you have at the end of the year. As an example, if you started a Laboratory business with N1,000; bought some equipment for N100; renovated the rented site with the help of hired labour and paid N200; bought test kits for N50; paid rent of N50 and tests done produced some cash worth N500; in a very simple form the Cash Analysis Book will record the above transactions as shown below.

Cash Analysis Book as at 31<sup>st</sup> December, 2010-

<b>RECEIPTS</b>		<b>PAYMENT</b>	
Particulars	N	Particulars	N
Opening Account.	1,000	Equipment	100
MP & MF done	500	Labour	200
		Preg. Test kits.	50
		Rent	50
			<hr/>
			400
	<hr/>	Balance...	<hr/>
	1,500		1,100
	<hr/>		<hr/>
			1,500

On the left record, total receipts is N1,500. It is important that you look at your Laboratory business as an entity. The Laboratory received from your pocket an initial amount of N1,000 and also money realized from Malaria Parasite and Microfilaria tests is N500. On the payment side the items are straight forward except for the balance of N1, 100. Putting this figure on the payments side is a question of style, but, as you can see, the two columns balance (show the same totals). This record states-that if you have handled your business well you should have in your safe N1,100. If the amount is different from what you have in you safe then your recording may be wrong or most likely the handling of your cash was inefficient. That is the Cash Analysis Book in its simplest FORM. In actual situations the Laboratory carryout different tests or enterprises, i.e., different kinds of activities, which earn money. The Scientist or Technologist may wish to separate the expenditures and receipts according to these activities. For example, amount realized from tests may be divided into the different branches like hematology/blood group serology, microbiology/ Parasitology, Chemistry, chemical pathology,

biology, biochemistry, histopathology, Physics, etc. Also these payments and receipts would normally not be made in bulk as suggested by our simple examples. Payments for wages may be made monthly; amount realized from retainer-ship with hospitals may be weekly. The essence of keeping this kind of book is that payment and receipt are recorded as and when they arise. A more realistic Cash Analysis Book is shown below and is based on a better example which will be used in rest of the monograph.

An Example. – Scientist Udejah started a laboratory business in 2010 with a capital of N10,000. She then bought land worth N1,000, second hand reagent rack/ stand worth N200, test kits for N500, and equipment worth N2,000. During the year She paid laborers a total of N1,440 (two laborers N720 per annum). He also bought a motor car on credit. He paid an initial amount of N2,000 and will pay the remaining N2,000 the next year. Interest was charged at 3 per cent. Because the motor car was bought from a government corporation. At the end of the year he carried out pregnancy tests worth N2,000 and was left with some test kits which he estimated to be worth N500. N500 of total sales (tests done) was on credit and at the end of the year the money had not been received. He also had reagents worth N700 and the number of other accessories in the laboratory was valued at N1,800.

### Cash Analysis Book: Receipts

Date	Particulars	Test-Kits	Reagents	Total	Year
		N	N		N
Jan.1	Initial Capital	---	---		10,000
Dec.1	FBS for 50pupils @N14	700	---		700
	Widal test	---	1,500		1,500
		700	1,500		12,200

The receipts and payments have been separated into different columns to help the Laboratory owner/ Scientist see more clearly what his operations look like.

### CASH ANALYSIS BOOK – PAYMENTS

Date	Particulars	Fixed Asset	Equip ment	kits &etc	Statio-nary	Plant /gen.	Wages	Other Expense	Total
	Year	₦	₦	₦	₦	₦	₦	₦	₦
January 1	Land	-	—	—	—	—	—	—	4,000
	Purchased from Chief Nweze								
31	Microscopes	-	1,000	—	—	—	—	—	1,000
February 10	Gloves....	-	—	—	200	—	—	—	200
	Autoclave 1st								
	Payment....	-	2,000	—	—	—	—	—	2,000
15	Petrol...	-	—	—	—	500	—	—	500
	Preg.kits	-	—	2,000	—	—	—	—	2,000
January to	Wages at 120								2,000
December 31	a month	-	—	—	—	—	1,440	—	1,440
December 31	Interest on autoclave Credit	-	—	—	—	—	—	60	60
		4,000	3,000	2,000	200	500	1,440	60	11,200
									1,000
									12,200

The advantages of this type of details will be discussed in part II. Let us continue with our simple illustration. You can see that if you extract totals columns only from the above cash analysis, you will get exactly the simple cash analysis which we did earlier on. Try it for yourself.

**Other Records:** Laboratory business involves more than just the movement of money in and out of the business. During the year, goods may be purchased or tests done on credit; some of the money realized are therefore gotten by knowing the value of the debts owed to us and the amount we owe to creditors. We must also put a value to any stock left at the end of the year. Therefore the next set of records to be kept will be directed at finding the value of:

- i. Creditors
  - ii. Debtors
  - iii.
    - a) Closing Stock, (i.e., MP/MF Kits, retainership and any other diagnosis done in the laboratory). Separate books may be kept for each item but the records are usually kept in the ledger.
    - b) The Ledger is a specially designed book of accounts which can be purchased in any good bookshop. In our example, it will have accounts for the three items mentioned above and also accounts for Owner Capital, Land, Buildings and Equipment.
- i. Creditor Account. In our example we purchased only one item on credit so that it is easy to ascertain the balance owing at the end of the year.

**Creditors Account**

Date	Particulars	N
Feb.10	Autoclave	4,000
	Less Payments	2,000
	Balance	<u>2,000</u>

If we bought from different customers goods on credit, we may have to keep records of our dealings with each one of them. The individual balance with each customer will be totaled at the end of the year to give the value of what we owed to all creditors.

- ii. Debtors Account. Here again the Derivation of amount owed to us is easy because of the simplicity of the example used.

<b>Debtors Accounts</b>		
Date	Particulars	N
Dec. 1	Tests done on Chief Nebo's family	2,000
	Less Payment Received	1,500
	Balance	<u>500</u>

As with creditors where goods are sold on credit to more than one customer separate accounts will be kept for each debtor.

- iii. Closing stock will be arrived at as part of the accounts of the tests done in the laboratory. This involves taking an inventory of tests done and kits used.

Most Scientists or technologists are used to this kind of work and will not find it difficult to put a value of the stock left in their laboratory at the end of the year. What we emphasize is that for each test kit, for example, HIV, Grouping and pregnancy, keep a record of opening Stock, sales and Closing Stock. In our example we shall have accounts for:

<b>(a) HIV</b>		<b>Year</b>			
<b>Opening Valuation</b>		<b>Sales</b>		<b>Closing Valuation</b>	
No.	Value	No.	Value	No.	Value
	N		N		N
--	--	3,000	2,000	750	500

<b>(b) Pregnancy</b>		<b>Year</b>			
<b>Opening Valuation</b>		<b>Sales</b>		<b>Closing Valuation</b>	
No.	Value	No.	Value	No.	Value
	N		N		N
120	2,000	50	700	130	1,800

(iv) Land and buildings. The account should show the value of land and buildings covered by the laboratory at the end of each year. Starting with initial purchases, any additions should be recorded and any sales deducted from the account.

#### Land and buildings

<b>Date</b>	<b>Particulars</b>	<b>Size</b>	<b>Value</b>
January 1	Land purchased From Nweze	40 Acres	4,000

iv. **Equipment Account:** The value of equipment usually falls at the end of the year because of usage. The fall in value is called depreciation. In our example, we have left out the problem of depreciation because our first objective is to help you understand the basic principles of laboratory accounts (it will, however, be

discussed later). Like the land and Buildings, we should add any additional purchases to the account and deduct any sales.

### Equipment Account

Date	Particulars	Value (₦)
January 31	Microscopes and slides	1,000
February 10	Autoclave	<u>4,000</u>
	<b>Total</b>	<b><u>5,000</u></b>

Notice that we have put down the total value of the autoclave instead of the amount which we actually paid (i.e. the first installment of N2,000).

- v. Capital Account: capital account shows the laboratory scientists stake in the business.

This comprises the initial amount introduced, plus any profit made or minus any loss made during the year. For the year, the capital account according to our example will not be complete because we have to work out the profit or loss. We will show a complete account later. The above completes the records we shall keep according to our standing example. Before we move to the second stage of laboratory Book-keeping, let us take stock of what we have been able to do so far.

- (1) We have a record of our cash transactions, i.e we have recorded total payments and receipts made in cash.
- (2) We know how much we still owe our customers and how much they owe us.



- (3) We have records of the value of test kits left in our laboratory, the value of our land and buildings and the value of our equipment.

## STAGE II

### Compiling the Final Accounts

The final accounts are made up of the laboratory trading and profit and loss account and the balance sheet.

- (a) **The trading and profit and loss account:** If any trader knows how much stock he started with, the value of sales he achieved, the expenses involved in the sale and administration of the whole business, and the value of the closing balance, then he will be able to tell the profit which he has made during the trading period. This is demonstrated below. The account is based on our standing example.

Trading Profit and Loss Account for the Year Ended 31<sup>st</sup> December, 1974

<b>Opening Valuation</b>		<b>Receipts</b>	
Grouping	2,000	Pregnancy	2,000
Pregnancy	--	Grouping	700
Total	2,000	Total	2,700
<b>Expenses</b>		<b>Closing Valuation</b>	
Wages	1,440		
MP Kits	200	Grouping	1,800
HIV	500	Pregnancy	500
Interest	60		
<b>Total Expenditure</b>	<u>2,200</u>	<b>Total</b>	<u>2,300</u>
	<u>5,000</u>		<u>5,000</u>

The profit is N800

Remember that the Cash Analysis Book showed a balance of N1,000, that was just difference between the two amounts arising, it included initial capital introduced into the business, and did not take into consideration the value of closing stock.

- (b) **The balance Sheet:** The Balance Sheet is a statement of the Assets and Liabilities of the business at a specific point in time usually the last day of the accounting year. Liabilities are things which the laboratory business is obliged to pay or a kind of debt owed by the laboratory as a business entity. The assets are things of value which the laboratory can regard as belonging to it. The balance sheet from our example will be as follows:

Balance Sheet as at 31<sup>st</sup> December, 2010

<b>Liabilities</b>		<b>Assets</b>	
Creditors	2,000	Cash	1,000
Debtors			500
Owners Equity:		Closing stock:	
Initial Capital	10,000	Pregnancy	} 2,300
Add Profit	800	HIV	
	10,800	Equipment	5,000
	-----	Land and Buildings	<u>4,000</u>
<b>Total</b>	<b><u>12,800</u></b>		<b><u>12,800</u></b>

### More Explanations

We defined Assets as things of value. In the Balance Sheet, Cash of N1,000 is obviously of value since it can purchase things worth at least N1,000. Debtors showed a balance of N500 and it is believed, in this example, that the debt can be collected if need be. The closing stock has been valued at N2,300, i.e., N1,800 of HIV Kits and N500 of Pregnancy

kits- it is also believed that these can fetch N2,300 if sold as at 31-12-74. Land and buildings usually depreciate in value but here we assume they remain at the same value. The equipment is worth N5,000 and the amount we owe on the microscope has been allowed for on the liabilities side. Creditors imply a liability because we have to pay our debts. "Owner's equity" is also a liability because the business as an entity owes the owner the initial amount he deposited into the business as well as any profit, which may occur from the year's transactions. In the example, the owner's Equity is N10,800 and represents the value of the Laboratory. Another way of arriving at the Net Worth (Owner's Equity or Owner's Capital) is: deduct from the total Asset of N12,800 that amount which belongs to outsiders, i.e., Creditors of N2,000, Leaving us with a value of N10,800 you can now see why we did not bother to reduce the equipment Account by the amount owing to the Ministry of Health.

- c) Laboratory Accounting and Banking Services. We termed this section a simple illustration because we excluded from our standing example any factor which is likely to confuse our readers. It is indeed impossible to conduct a modern business without being involved in Banking, if you do not operate a Bank Account many of your customers will.

### **Opening the Bank Account**

There are various types of accounts you can open in a Bank, but for the purpose of running your laboratory business you should ask that a "Current Account" be opened for you. The Bank will normally ask you to fill a pair of forms on which you will state the title of your account, the address from which the business is operated and also give an example of your usual signature (specimen signature). Your name and a postscript should be a good title.

## **Example**

Chief Dr. Mrs. Ndidi Udeajah: Business Account.

Before these forms are accepted back you will need to be introduced by either a customer of the Bank who also has a current account or someone else who is well known to the Bank and is very reliable. When these has been done, the Bank will issue you with a paying-in Book and provided you make some deposit (i.e., pay in some amount), you will also be issued with a Cheque book. In some places the Bank may give you a number also, so that the full title of your account should be.

**Account No. 367.**

**Chief Dr Mrs. Ndidi Udeajah: Business Account.**

Operating your Account: The Bank Manager or one of his senior staff will normally explain to you, how to operate your account but we give a very brief introduction below because of the effect it will have on your laboratory accounting. Your account will be operated with the help of the two books mentioned above. All credits to (payment into) your account will be made with the Paying-in Book which contains duplicate or triplicate forms allowing you to retain copies of all your credits. All withdrawals' (Amount taken out) from your account will be made by cheques. When you sign a cheque, the person whom you have paid will claim the money from the Bank by going to the Bank offices to get cash for it or by paying the cheque into his own Bank Account. In the course of carrying out tests for people or organization like the Army or Police, you will receive some of the payment in the form of cheques which you will claim the same way.

Every month the Bank will send you a "Statement of Account" this statement shows details of the withdrawals and credits passing through your account and also the balance.

Other Services:

- i. Any money deposited in your Bank is safe.
- ii. The Banks do provide references for their customers especially where the financial standing of a Scientist or technologist is in question.
- iii. Where the Scientist buys equipment on credit, the Bank can undertake to pay the installments on the appropriate dates provided that there is sufficient amount in the Scientist's Bank Account. This is called "Standing Orders" or "Standing Instructions".
- iv. The Bank can dispatch money on your behalf to any place in the world by Bank Transfer.
- v. For the traveling Scientist, the Bank will provide you with "Travelers Cheque" which will enable you to obtain money from any Bank in the towns or villages visited.
- vi. For Credit-Worth Scientists, the Banks will be prepared to provide overdraft or loan, on reasonable terms. The Scientist should realize that Banks are not charitable organizations and are only interested in lending to Scientists whose businesses are financially strong.

The above do not cover all services which can be provided by a Bank. They do, however, help to show some of the benefits, which a Scientist will enjoy if he runs his business through a bank Account.

**Effect on your Laboratory Accounts:**

- a. **Your records:** if all your financial transactions are handled through the bank, the initial deposit (capital) introduced into business appears in your Cash balance at the end of the year is not the closing Bank Balance. The amount does not change.

If, however, you feel that there are some transactions which are too small to be passed (usually small payments) you may keep an additional record

– petty Cash. There is a special book for that called the Petty Cash Book. The payments side of the Cash Analysis Book will contain an additional column-Petty Cash. Every month a lump petty transaction and these are entered in the C.A.B. and a correct record of the detailed expenses kept in the petty Cash Book. In both cases you must see that the balance shown in the Cash Analysis Book agrees with that shown in the Bank Statement every month. They may not agree because some of the cheques issued to customers may not have passed through your Bank Account. Your accounting job will be to find the explanation for any difference between the two balances.

- b. Your Final Accounts: Your Bank Balance does not appear on the Trading Profit and Loss account but will appear on our Balance sheet as an asset.

The advantage of learning laboratory accounting is that it can help you carry on laboratory practice on modern lines, and profitably too.

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**Biographic Note: Amos Nworie** is a seasoned Medical Laboratory Scientist and currently the Head of the Department of Medical Laboratory Sciences of the Ebonyi State University Abakaliki. His research interest is in Molecular Genetics and Cell Biology.

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