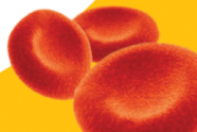


Costing of common laboratory tests



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Costing of Common Laboratory Tests

CBC Costing

<https://sehgalpathlab.com/>

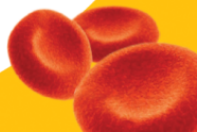
<http://bit.ly/SehgalPathLab>



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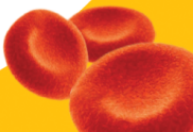
COSTING of Laboratory Tests

- **Why** do we need costing ?
- **How** do I calculate costs ?
- **What** Questions should I ask to arrive at costs?

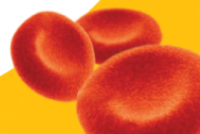


Why do we need costing ?

- To assign a price to a test.
- Factor in increase in input costs in future
- Calculate potential profit
- Decide discounted package pricing to know how much discount the lab can give without running in a loss.



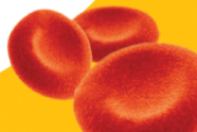
How do I calculate costs ?



Cost - Types

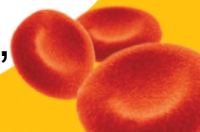
- **Fixed costs**
 - Rent or EMI on property, Infrastructure costs, Property tax, EMI on instrument purchase, AMC/CMC, Controls, IT spending
- **Fixed costs with variable riders**
 - Salary, Staff expenses, Electricity, Accreditation
- **Variable Costs**
 - Direct - Reagents , Sample or Instrument Accessories, Pipette tips, syringes , tubes, cups
 - Indirect - Stationery, conveyance, sample pickup logistics, Visits

Fixed costs is usually a larger portion of costs

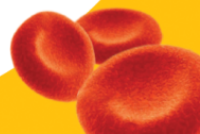


How to Price a test

- **Fixed + Variable costs**
 - Usually not feasible
 - Very difficult to do for each test
- Compare the price charged by neighbouring lab and or the market leader
- Always remember and look for Hidden costs
 - Expired reagents, Repeats, Breakdown costs



What Questions should I ask ?



Cost - Types

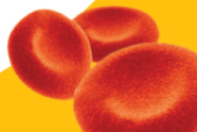
- Fixed costs
 - **Rent or EMI on property**, Infrastructure costs, Property tax, EMI on **instrument purchase**, AMC/CMC, Controls, IT spending

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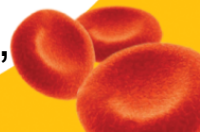
Real Estate : Buy vs rent

- **Buy - Advantages**
 - Sense of pride
 - Appreciation not more than 6 – 10 % CAGR
- **Buy – Disadvantages**
 - High Fixed Cost – Loan / EMI
 - Limited scope for Expansion
 - Funds get locked up
- **Rent – advantages**
 - Lower costs
 - Possibility to grow any time
 - Best possible location can be selected
- **Rent – Disadvantages**
 - Long term arrangements may be difficult
 - Cost of renovation go waste when place is changed



Instrument Costs- Reagent Rental vs Purchase

- Rental advantages
 - Low cost of ownership
 - Capital not required
 - CMC/AMC not required
 - It is to the company's advantage to keep the machine running.
- Rental disadvantages
 - Workload assurance
- Purchase advantages
 - Possible lower cost of reagents
 - No workload commitment

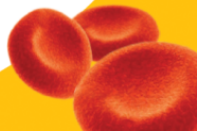


Cost - Types

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- Fixed costs with variable riders
 - Salary, Staff expenses, Electricity, Accreditation

- Variable Costs
 - Direct - Reagents , Sample or Instrument Accessories, Pipette tips, syringes , tubes, cups
 - Indirect - Stationery, conveyance, sample pickup logistics, Visits

Fixed costs is usually a larger portion of costs



What Questions should I ask ?

2) PERSONNEL:

a) Category required

Number

Man-time per test (Min)

(inclusive of preparation, running of the test & reporting of the test)

b) Consultants time /test (From preparation to reporting stage)

EQUIPMENT:

Name of Major Equipment/s used

Asset number/s

List of Tests performed in this Machine/equipment.

INCUBATION/PREPARATION REQUIRED?

If yes,

Equipment Required

1)

2)

Reagents Required, if any?

1)

2)

CONSUMABLES:

Direct

Name of the Kit used

Kit Cost (kindly attach the quotation/invoice with Vetted price)

No. of tests per kit

Effective tests per kit

Shelf life of the kit

Expected No. of tests per month

Controls Frequency :

With every sample

Per batch

Per week

Per Day

Calibration Frequency :

With every sample

Per batch

Per week

Per Month

Once with every new kit

Indirect:

Items required :

1)

2)

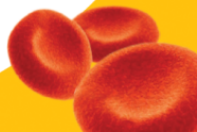
FIXED Costs- SMALL vs. MEDIUM Sized Lab

SMALL LAB WITH A WORKLOAD OF 50 PATIENTS

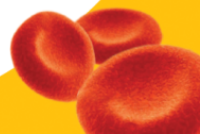
Fixed costs			
Rent	50000	per month @ 250 per sq ft	
Property tax	1000	per month	
CMC/AMC			
Cell counter	2000	per month	
semi Auto	2000	per month	
Fully auto	7000	per month	
Staff salary	60000	12,000 per person for 5 persons	
Pathologist	0		
ELECTRICITY	3000		
Total	125000	per month	
Total FIXED COSTS	5000	per day	
Patient workload	50	per day	
Fixed cost	100	per patient per day	

MEDIUM SIZE LAB WITH A WORKLOAD OF 100 PATIENTS

Fixed costs			
Rent	70000	per month @ 400 per sq ft	
Property tax	2000	per month	
CMC/AMC			
Cell counter	3000	per month	
semi Auto	2000	per month	
Fully auto	8000	per month	
Immunoassay	10000	per month	
Staff salary	100000	12,500 per person for 8 persons	
Pathologist	100000		
ELECTRICITY	5000		
Total FIXED COSTS	300000	per month	
	12000	per day	
Patient workload	100	per day	
Fixed cost	120	per patient per day	

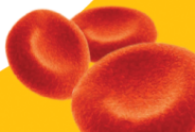


CBC – Cost per Test



CBC – Cost per patient

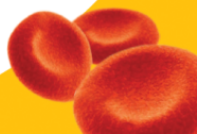
1) Fixed Cost	100 Rs		
2) Variable Costs			
a) Indirect Costs	45		
	Sample collection	10	
	Report printing	2	
	Slide making and staining	2	
	Microscopy & Report Review	25	Pathologist (1250 per day for 50 cases)
	Analyser cost	6	Rs. 4.5 lac every 5 years (50 samples a day , 1250 per month, 15000 per year , 75000 per 5 years)
b) Direct Reagent Costs	???		
Total cost (1+a+b)	???		



5 Part Analyser Sales Pitch

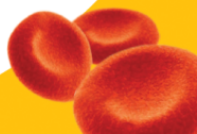
Sales Representative to a Pathologist

- Most advanced CBC machine in the country
- Great after sales service
- Cheapest cost per cycle – Less than 25 Rs
- Only 7 Rs more than your existing cost of 3 part !
- Why waste your time in seeing slides ?
- I will give you free startup reagents
- Diwali buy back offer – extra 20000 off !
- SALE OFFER – BUY BUY BUY !



Direct Reagent Costs (Biochemistry)

Reagents	Pack Size (ml)	Price (Rs.)	Per ml Cost (Rs)	Price per test(Rs)
Glucose Kit (4 tests per ml)	100 ml	2000	20	5



Direct Reagent Costs (CBC)

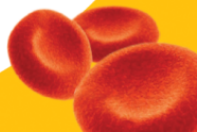
Cost per test (dependent on number of tests per day) -

- Cost per Cycle
- Start up Cost
- Shut Down Costs

Control Costs – Material cost and Running Cost

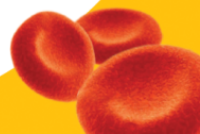
Calibration Costs -Material cost and Running Cost

Machine Cleaning Reagent Costs



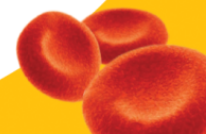
CBC Reagents -5 part Analyser

Reagents	Pack Size (ml)	Price (Rs.)	Per ml Cost (Rs)
Cell Pack DCL	20000.00	3484.00	0.17
Lysercell WDF	5000.00	16594.00	3.32
Fluorocell WDF	84.00	32463.00	386.46
Sulfolyser	3000.00	22766.00	7.59
Cell Pack DFL	3000.00	21573.00	7.19
Fluorocell RET	24.00	38325.00	1596.88
Cell Clean**	50.00	7383.00	147.66



Reagent Consumption per Cycle

	Reagent Consumption Per Cycle (ml)			
	Start Up	Shut Down	Sample Analysis CBC+DIFF Mode (ML)	Sample Analysis CBC+DIFF+RET Mode(ML)
Cell Pack DCL	187.00	15.00	33.00	46.00
Lysercell WDF	9.00	0.00	2.00	3.00
Fluorocell WDF	0.06	0.00	0.02	0.02
Sulfolyser	1.50	0.00	0.50	0.50
Cell Pack DFL	6.00	0.00	0.00	2.00
Fluorocell RET	0.06	0.00	0.00	0.02
Cell Clean**	0.00	0.00	0.00	0.00
Total	203.62	15.00	35.52	51.54

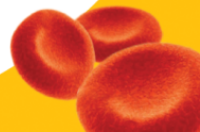


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Sulfolyser	1.50	0.00	0.50	0.50
Cell Pack DFL	6.00	0.00	0.00	2.00
Fluorocell RET	0.06	0.00	0.00	0.02
Cell Clean**	0.00	0.00	0.00	0.00
Total	203.62	15.00	35.52	51.54

	Reagent Cost Per Cycle (Rs.)			
	Start Up	Shut Down	Sample Analysis (CBC+DIFF)	Sample Analysis (CBC+ DIFFF+RET)
Cell Pack DCL	32.58	2.61	5.75	8.01
Lysercell WDF	29.87	0.00	6.64	9.96
Fluorocell WDF	23.19	0.00	7.73	7.73
Sulfolyser	11.38	0.00	3.79	3.79
Cell Pack DFL	43.15	0.00	0.00	14.38
Fluorocell RET	95.81	0.00	0.00	31.94
Cell Clean**	0.00	0.00	0.00	0.00
Total	235.97 Rs	2.61 Rs	23.91 Rs	75.81 Rs



COST PER TEST vs. COST PER CYCLE

	Reagent Cost Per Cycle (Rs.)			
	Start Up	Shut Down	Sample Analysis (CBC+DIFF)	Sample Analysis (CBC+ DIFFF+RET)
Total	235.97 Rs	2.61 Rs	23.91 Rs	75.81 Rs

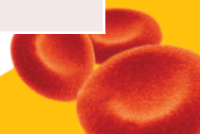
	CBC+DIFF	CBC+DIFF+RET	Total
No of Samples	43.00	7.00	50.00

$$\text{COST PER TEST} = \frac{\text{START UP COST} + \text{SHUTDOWN COSTS} + (\text{COST PER CYCLE} \times \text{NO OF SAMPLES})}{\text{NUMBER OF SAMPLES}}$$

									+ GST
Cost Per Test (CBC+DIFF)	=	235.97	+	2.61	+	1028.12	=	29.46 Rs	33 Rs
				43.00					
Cost Per Test (CBC+DIFF+RET)	=	235.97	+	2.61	+	530.69	=	109.90	123 Rs
				7.00					

Control and Calibration Costs

CONTROL COST			
Cost of Control VIAL	7200.00	Rs PER VIAL ALL INCLUSIVE	
SHELF LIFE 1 MONTH - 25 WORKING DAYS	25.00	WORKING DAYS	
NO OF SAMPLES PER MONTH	1250.00	25 DAYS X NO OF SAMPLES PER DAY (50)	
TOTAL COS OF RUNNING CONTROLS	3077.10	COST PER CYCLE (cbc diff ret mode) X NO OF WORKING DAYS	One level control , once a day
TOTAL CONTROL COST PER MONTH	10277.10	REAGENT COST + RUNNING COST	
CONTROL COST PER CBC SAMPLE	8.22	TOTAL COST per month / NO OF SAMPLES per month	
CALIBRATION COST			
COST OF CALIBRATOR REAGENT	24000.00	RS PER CALIBRATOR FOR 5 PART CBC MACHINE	
CALIBRATION CYCLE	1.00	ONCE A YEAR	
NO OF SAMPLES IN A YEAR	15000.00	12 X NO OF SAMPLES PER MONTH	BACKGROUND - 3 CYCLES, 11 PRECISION RUNS, 5 CAL FACTOR ADJUSTMENTS , 6 CALIBRATOR AS SAMPLE RUNS
RUNNING OF CALIBRATOR COST	3077.10	APPROXIMATE 25 RUNS X COST PER CYCLE	
TOTAL CALIBRATION COST	27077.10	REAGENT COST + RUNNING COST	
CALIBRATION COST PER CBC SAMPLE	1.81	TOTAL COST / NO OF SAMPLES PER YEAR	

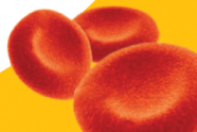


Cleaning Cycle

- Commercial Cell Clean or Lab grade Bleach solution

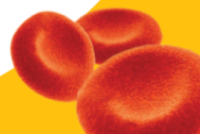
Reagents	Pack Size (ml)	Price (Rs.)	Per ml Cost (Rs)
Cell Clean**	50.00	7383.00	147.66

Cleaning cost XNI350	Working days	Avg no of samples/day	Total samples	Cost per sample	Cost plus tax
1 bottle – 50 ml lasts 5 months					
2.5 ML PER run	125.00	50.00	6250.00	1.18	1.32
MINIMUM ONCE A WEEK					



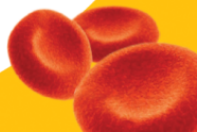
CBC Direct Reagent Costing

Final Costing of CBC reagents	CBC DIFF (GST included)	CBC DIFF Retic (GST Included)
Cost per Test	32.99	123.08
Cleaning cost	1.32	1.32
Control Cost	8.22	8.22
Calibration Cost	1.81	1.81
Total	44.34	134.43
Wastage and Repeats 15%	6.65	20.17
Realistic CBC direct reagent costs	51	155



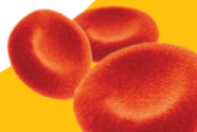
CBC – Cost per patient

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	Microscopy & Report Review	25	Pathologist (1250 per day for 50 cases)
	Analyser cost	6	Rs. 4.5 lac every 5 years (50 samples a day , 1250 per month, 15000 per year , 75000 per 5 years)
b) Direct Reagent Costs	51		
Total cost (1+a+b)	196		



Take Home points

- Cost per test = Fixed + Variable Costs
- Fixed Costs per patient = Fixed costs /No of patients
- Cost of reagent and Controls is negligible for most tests.
- The owner forgets to pay himself
- Rental arrangements for instrument decreases costs
- Rental property decreases costs (10 – 30% of EMI)
- Doing more tests with the same infrastructure decreases costs
- Increase in no of patient decreases fixed cost per patient



Thank You



Thank You

Costing of Common Laboratory Tests

CBC Costing

<https://sehgalpathlab.com/>

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