IMA EDUCATIONAL Case Journal | Case Study

ima® The Association of Accountants and Financial Professionals in Business

ISSN 1940-204X

Realizing the Dream: Decision-Making in Action

Afua A. B. Agyekum
Ghana Institute of Management and Public Administration and Morgan State University

Nathan K. Austin, Ph.D.
Morgan State University

Phyllis Y. Keys, Ph.D., CMA, CFM
Morgan State University

BACKGROUND

GEO Medical Laboratory (an actual company whose name has been changed for this case) is a business that provides services at affordable prices to people in need of quality medical laboratory tests and scans. The company is located in Kokomlemle, a suburb of Accra, Ghana. In the first three years of its existence, the company sold medical equipment to hospitals and clinics. Eventually, the company's focus switched to providing laboratory services and, more recently, ultrasonography services. Today, GEO Medical Laboratory provides about 30 different laboratory services. More than half of the laboratory services requested by clients are tests for sexually transmitted infections, while pelvic and obstetric scans are the most often demanded scan services. In addition to its chief executive officer, the company has four employees: two ultrasonographers, one laboratory technician, and one administrative assistant. On average, they attend to about 300 patients per month, with approximately 40% requesting laboratory services and the rest needing scan services.

Wallas Akorful, the CEO of GEO Medical Laboratory, works alongside his employees, providing laboratory services. As is common with many of his enterprising classmates, Wallas holds two undergraduate degrees—a bachelor's degree in medical laboratory science from the University of Ghana and a bachelor's degree in entrepreneurship from the Ghana Institute of Management and Public Administration. Upon graduation, he followed up with an internship at the Korle Bu Teaching Hospital and worked there as a laboratory technician for several years. He had dreamed of setting up a medical laboratory from the first moments of his National Service duty at a teaching hospital in Accra but had been hesitant to take on the risks associated with this entrepreneurial venture until after his mother became ill and was close to death five years ago.

If it were not for his own training and experiences in the hospital, there is no telling what might have happened in his mother's case. The first laboratory results did not confirm the clinical findings of his mother's medical doctor, so Wallas had asked for further tests to be taken at other facilities. Because his mother was too weak to travel the 100 kilometers for the second test, he decided to visit her and take samples for himself. He took two samples, sent one to a private laboratory, and ran tests on the other sample at his workplace. The results from these last two tests were the same and quite different from the initial results. In addition, the new results correlated with the clinical findings of the doctor. Wallas realized from this incident that basic laboratory services were the key to quality healthcare. After this experience, he felt the need to take up the risk to serve humanity and save lives by setting up a laboratory facility that would provide reliable and quality medical tests at affordable prices.

Right after his mother's situation, he started his own entrepreneurial venture by selling medical equipment and putting aside most of the funds toward the dream of owning his own lab. Two years ago, Wallas had heard about some mismanagement at Manna Healthcare, a local family planning and reproductive health care facility, which led to the closing of the laboratory services there. He was

able to garner an agreement with Manna Healthcare that allowed him to operate his laboratory on the premises. The agreement required GEO to pay 40% of all its earnings from laboratory services to Manna Healthcare in exchange for rent, utilities, and janitorial services. Furthermore, Manna Healthcare agreed to refer its patients with laboratory service needs to GEO. So, using the funds saved from his earlier work experiences, Wallas purchased laboratory equipment, computers, and furniture to open his own facility on Manna Healthcare's premises. Last year, he noticed that Manna Healthcare was outsourcing its ultrascan services, so he had added equipment and specialized technicians that allowed him to offer scan services in addition to the lab services. The addition of the scan services now required GEO to pay 40% of all its earnings from both scan and laboratory services to Manna Healthcare. Table 1 contains information about the initial investment in equipment.

More recently, however, Wallas has been concerned about the number of clients who are using his services. For some reason, the managers of Manna Healthcare are not keeping to their part of the agreement to supply him with clients. The number of clients has declined drastically. He suspects that someone at the health facility is directing patients to other laboratories where they have relatives or friends with the same tribal affiliation. As such, revenue that is generated can barely meet the operational cost of the laboratory.

LABORATORY INTAKE

Patients visit Manna Healthcare where a health assistant in the reception area takes their vital information. The health assistant gives the patient a clinical request for service, referring them to GEO Medical Laboratory when the patient needs laboratory tests, scans, or both. In the area of the facility that belongs to GEO, an administrative assistant takes the clinical request, calculates the cost of services for the patient, and writes the total on the request form. The administrative assistant then sends the patient to Manna Healthcare's cashier to make a payment, after which the patient returns for the required test.

All of the clients' payments go directly to Manna Healthcare, which reimburses GEO for its portion of the revenues at the end of the month. From the revenues, Wallas must pay the operating costs of the laboratory and scan services, including the salaries paid to workers and the cost of consumables used in providing services. Based on historical usage of scans and lab services, Wallas estimates that the average price for scans is GHS$36 (US$9) and the average for lab services is GHS$45 ($11.25).

OPERATIONAL COSTS

The operational costs for GEO Medical Laboratory include costs for consumables in three areas. Some of these consumables are used for both laboratory and scan services; these include A4 sheets of paper for printing reports, toners, envelopes, and medical gloves. There are also consumables where usage increases with the number of patients, such as thermal print paper, chemical substances (called reagents) for running lab tests, medical gloves, and syringes. Within this group of consumables, some are used solely for laboratory services. Examples are test kits, test tubes, cotton swabs, alcohol, and bandages (or plaster, the common name for bandages in Ghana). Other consumables, such as gel, are used solely for scan services. See Table 2 for a list of consumables used in Wallas' laboratory.

Owners of businesses similar to GEO Medical Laboratory and operating in the area where Manna Healthcare is situated pay an average rent of GHS$500 (US$125), utilities of approximately GHS$400 (US$100), and janitorial services that average GHS$60 (US$15) each month. Due to the revenue sharing agreement, Wallas avoids these specific costs each month. He is obligated, however, to pay his workers regardless of the level of activity in the business; and, on average, their compensation totals the equivalent of GHS$2,488.80 (US$622.20) each month, including the GHS$800 (US$200) that Wallas takes in his role as lab technician. Ultrasonographers receive commission at a rate of 6% for each client they service. See Table 3 for details on the compensation paid by GEO Medical Laboratory.

GEO Medical Laboratory sometimes encounters operational challenges that result from the provision of both the laboratory and scan services. One of such challenges concerns the use of consumables that serve both the laboratory and scan services. Wallas indicates that "When we have shortages, for example on gloves, because maybe we have not been able to purchase as a result of logistic or monetary constraints, my decision is that we use what we have for the lab service because they are in danger of coming into contact with blood and other body fluids." He further suggests that, even though the ultrasonographers wear gloves when they are in full supply, the technicians' potential for coming into contact with bodily fluids is minimal. Thus, gloves are only used as an extra precaution. Wallas often forgoes his salary when there are a shortage of clients or when there are cost constraints due to high inflation in Ghana.

NEW OPPORTUNITIES

Wallas married a young woman, Ama, from his native area of Winneba three years ago, and their son will soon be one year old. His wife had been very supportive of his dream to make the business a success but was worried about the fact that he had yet to recover his initial investment of GHS$100,000 (US$25,000), consisting of all his savings from the 10 years of traditional work he did with the government and private hospitals, sales of medical equipment, and his private consultancy for other medical laboratories. Just last week, Wallas told Ama, "At the moment, I am still on the path to recovering my investment in the company, but it is much better than before we added the scan services. If we had just continued with lab services, it would have been very difficult. When I did the calculations, it would have been best to close up or find a new location with an increased need for lab services. But with the scan services, business has picked up." To improve the situation further, Wallas has been thinking of advertising the company by visiting nearby health facilities and schools to inform them of the various services his company provides. Negotiating is a common practice in the entrepreneur's region of Ghana. That means that the final cost of consumables can be very erratic, and the change across periods can be quite drastic. Table 4 contains a list of services provided by GEO Medical Laboratory.

Soon after speaking with his wife, Wallas received a call from an old classmate asking if he were in a position to provide health screening for students at a high school. The classmate explained that her company wanted to subcontract the order from the high school and indicated that he had readily come to mind. He got a call three days later from Aban, the manager of his classmate's company, requesting a discussion about the contract. He recounted the outcome to his wife that evening:

Aban: "I have heard a lot about you and your competence, and I believe you can help us."

Wallas: "I am honored. Thank you. What kind of screening service is involved?"

Aban: "The headmaster wants health screening to test the blood groups of students, their sickle cell status, eye screenings, and pregnancy tests for the girls."

Wallas: "We provide almost all those services. The only service we do not provide is eye screening. That is not a problem. I can get an optician to do that. But that will come with an additional charge."

Aban: "This is a very good project, but the funding we have available is not much. We are prepared to pay GHS$12 (US$3) per student. There are 150 girls and 122 boys in all."

Wallas: "Boss, that amount is very inadequate. The normal charge per student for these services would be much higher. Besides, I will need to get an optician to undertake the eye screening. So kindly reconsider and increase the amount. I will need some time to assess the offer and determine the costs we will incur."

Aban: "No problem. I will await your response. But be quick, because we are hard pressed for time."

His wife was worried after hearing about the conversation and asked Wallas what he intended to do about the offer. He indicated that right after the classmate's call, he had called a couple of optician friends to find out their availability and interest in the contract as well as how much it would cost for the eye screening test. One of them was enthusiastic about it and offered to help for a flat fee of GHS$500 (US$125). Ama sighed deeply and asked that Wallas think through the offer carefully, as she was skeptical about its profitability. The total cost of consumables and the breakdown of expected costs per student by gender for the health screening offer are provided in Table 5.

The following morning, Wallas arrived early at work before any of his employees. When the employees arrived, they observed that Wallas looked disturbed and seemed to be in deep thought about a pressing issue. Unwilling to interrupt his thoughts, they discussed among themselves what might be wrong with him. After about an hour, Wallas paced up and down the corridor and finally broke the silence. He told the employees about the offer and his dilemma in accepting and indicated that he wanted their opinion to make the final decision. This conversation transpired:

Laboratory technician: "How soon do they want the screening?"

Wallas: "The man said they are hard pressed for time. So, if we agree to it, then I am thinking we will take a day to go to the school and take the samples and spend about a week to analyze before giving them the results."

Laboratory Technician: "Do you think just five of us can take the samples in a day?"

Wallas: "If all of us have to go, we will have to close this facility, and I don't want to do that. So I am thinking that just three of us will go, and the ultrasonographers would stay here to take care of patients. We will have to get other volunteers to help us."

Laboratory technician: "Will that not add to our cost?"

Wallas: "It will. I estimate that the cost of logistics, transportation, fuel, and payments made to volunteers will cost us about GHS$400 (US$100)."

Laboratory technician: "We are going to spend money. Looking at how much it is going to cost us, I do not think it is worth it."

Administrative assistant: "At least we are going to gain experience from it, so let us give it a try."

Wallas: "This is our first project, and I want to see how it will go in terms of the logistics and the experience that we will gain from doing it. If we can determine our shortcomings, we will be able to correct those shortcomings before offering health services for other schools. Perhaps we can consider it as our social responsibility. I do not know what we should do. Let us all think about it."

CASE QUESTIONS

1. Identify and compute the various types of cost for the company according to cost behavior. Determine the monthly fixed and variable costs for scan and lab services that the company incurs.
2. Assume that GEO Medical Laboratory only provides scan services, and determine the breakeven in terms of units and sales. If the only services that GEO Medical Laboratory offers are lab services, determine the number of patients that the company would need to help in order to break even, as well as the break-even amount. Assume that the salary of the administrative assistant is evenly distributed between the two services and the usage of furniture and fittings, computer, and printer are equally shared. What does your answer imply?
3. Determine the cost structure of GEO Medical Laboratory. Is the company highly or lowly leveraged?
4. Assuming a multiproduct situation, how many patients and how much total revenue does GEO Medical Laboratory need to break even in a month?
5. How many patients must GEO Medical Laboratory attend to in a month if it wants to make a profit of US$3,000? How many of these patients should be scheduled for lab services and how many for scan services?
6. Determine the amount of revenue that the company needs to generate in a month to earn an operating profit of US$3,000. How much of this revenue will be generated from lab and scan services, respectively?
7. Based on quantitative calculations, should Wallas accept the school's offer? Why or why not?
8. Besides profitability, what other motives might influence Wallas' decision about the offer from the local school? Discuss how such offers might benefit (or harm) GEO Medical Laboratory.
9. Give Wallas at least three specific recommendations to increase revenue or to reduce the costs for his company. Which of these three recommendations do you think is the best for Wallas right now and why? Be clear about why this recommendation is preferred.

Table 1. Wallas' Initial Investment

Item	Cost	Depreciation Rate	Useful Life
Computer and Printer	GHS$ 2,160 (US$ 540)	33.33%	3 years
Furniture and Fittings	GHS$ 5,040 (US$ 1,260)	20.00%	5 years
Laboratory Equipment	GHS$ 56,800 (US$ 14,200)	20.00%	5 years
Scan Equipment	GHS$ 36,000 (US$ 9,000)	20.00%	5 years
Total Investment	**GHS$ 100,000 (US$ 25,000)**	–	–

Table 2. Consumables Used By GEO Medical Laboratory

Item	Cost	Service That Uses Item
A4 paper	GHS$ 20.00 (US$ 5.00) per month	Both
Alcohol	GHS$ 10.00 (US$ 2.50) per month	Lab
Bandages	GHS$ 30.00 (US$ 7.50) per month	Lab
Cotton	GHS$ 10.00 (US$ 2.50) per month	Lab
Envelopes	GHS$ 24.00 (US$ 6.00) per month	Both
Gel	GHS$ 5.00 (US$ 1.25) per patient	Scan
Gloves	GHS$ 120.00 (US$ 30.00) per month	Both
Reagents	GHS$ 5.00 (US$ 1.25) per patient	Lab
Syringes	GHS$ 0.50 (US$ 0.125) per patient	Lab
Test kits	GHS$ 5.00 (US$ 1.25) per patient	Lab
Test tubes	GHS$ 1.25 (US$ 0.31) per patient	Lab
Thermal print paper	GHS$ 10.00 (US$ 2.50) per patient	Scan
Tissues	GHS$ 20.00 (US$ 5.00) per month	Both
Toners	GHS$ 200.00 (US$ 50.00) per quarter	Both

The monthly totals figures in this table are based on a sales mix of 180 patients for scan services and 120 patients for laboratory services. The variable cost reflects the total volume of 300 patients.

Table 3. Compensation Paid By GEO Medical Laboratory

Employee (# in category)	Type of Compensation	Average Monthly Compensation
Administrative assistant (1)	Salary	GHS$ 500.00 (US$ 125.00) per employee
Lab technicians (2)	Salary	GHS$ 800.00 (US$ 200.00) per employee
Ultrasonographers (2)	Commission	GHS$ 388.80 (US$ 97.20) per month
Total Compensation Payments		**GHS$ 2,488.80 (US$ 622.20) per month**

Table 4. Services Offered By GEO Medical Laboratory

Scans	Price per scan
Abdominal, breast, or urological	GHS$ 50.00 (US$ 12.50)
Obstetrics or pelvic	GHS$ 30.00 (US$ 7.50)
Testicular	GHS$ 60.00 (US$ 15.00)
Thrombosis	GHS$ 80.00 (US$ 20.00)

Laboratory services	Price per lab
Antenatal profile	GHS$ 160.00 (US$ 40.00)
Blood sugar, malaria, or typhoid tests	GHS$ 20.00 (US$ 5.00)
Chlamydia or gonorrhea tests	GHS$ 40.00 (US$ 10.00)
Cultures	GHS$ 50.00 (US$ 12.50)
Cytomegalovirus, rubella, or toxoplasma test	GHS$ 30.00 (US$ 7.50)
Full blood count	GHS$ 20.00 (US$ 5.00)
Hemoglobin level, urine routine exam, or stool routine exam	GHS$ 10.00 (US$ 2.50)
Hepatitis B or C, HIV, or syphilis tests	GHS$ 20.00 (US$ 5.00)
Hepatitis B viral load or HIVV viral load	GHS$ 450.00 (US$ 112.50)
Herpes test	GHS$ 60.00 (US$ 15.00)
Kidney function or lipid tests	GHS$ 60.00 (US$ 15.00)
Liver function or cardiac function tests	GHS$ 70.00 (US$ 17.50)
Male or female reproductive hormone test	GHS$ 360.00 (US$ 90.00)
Pap smear	GHS$ 120.00 (US$ 30.00)
Sexually transmitted infections profile	GHS$ 300.00 (US$ 75.00)
Stool occult blood test or stool test for *Helicobactor pylori*	GHS$ 40.00 (US$ 10.00)

We estimate that the average price for scans is GHS$36.00 (US$9.00) and the average for lab services is GHS$45.00 (US$11.25) using past information.

Table 5. Breakdown of Cost per Male and Female Students

Special order testing for 122 male and 150 female students at GHS$ 8.00 (US$ 2.00) each

Item	Cost for Male Students	Cost for Female Students	Total cost
Blood grouping reagents and sickle cell	GHS$ 610.0 (US$ 152.50)	GHS$ 750.00 (US$ 187.50)	GHS$ 1,360.00 (US$ 340.00)
Gloves	GHS$ 48.80 (US$ 12.20)	GHS$ 60.00 (US$ 15.00)	GHS$ 108.80 (US$ 27.20)
Optician	GHS$ 224.26 (US$ 56.07)	GHS$ 275.74 (US$ 68.94)	GHS$ 500.00 (US$ 125.00)
Other consumables	GHS$ 263.52 (US$ 65.88)	GHS$ 324.00 (US$ 81.00)	GHS$ 587.52 (US$ 146.88)
Pregnancy test kits	–	GHS$ 750.00 (US$ 187.50)	GHS$ 750.00 (US$ 187.50)
Transportation and logistics	GHS$ 179.41 (US$ 44.85)	GHS$ 220.59 (US$ 55.15)	GHS$ 400.00 (US$ 100.00)
Total costs	**GHS$ 1,326.00 (US$ 331.50)**	**GHS$ 2,380.32 (US$ 595.08)**	**GHS$ 3,706.32 (US$ 926.58)**

ABOUT IMA® (INSTITUTE OF MANAGEMENT ACCOUNTANTS)

IMA®, the association of accountants and financial professionals in business, is one of the largest and most respected associations focused exclusively on advancing the management accounting profession. Globally, IMA supports the profession through research, the CMA® (Certified Management Accountant) program, continuing education, networking and advocacy of the highest ethical business practices. IMA has a global network of more than 85,000 members in 140 countries and 300 professional and student chapters. Headquartered in Montvale, N.J., USA, IMA provides localized services through its four global regions: The Americas, Asia/Pacific, Europe, and Middle East/India. For more information about IMA, please visit www.imanet.org.