



Medicine Updates
Faculty of medicine
April 2021, volume 5, issue 5

<https://muj.journals.ekb.egdean@med.psu.edu.eg>
vice_dean_postgraduate@med.psu.edu.eg
DOI: 10.21608/muj.2021.65373.1047

ISSN : 2682-2741

Submitted: 72/2/2021

Accepted : 4/3/2021

Pages:117-126

" COVID-19 ISOLATION HOSPITAL IN PORT-SAID"

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Abstract

Background: In late December 2019 a new (novel) coronavirus was identified in China causing severe respiratory disease including pneumonia. It was originally named Novel Coronavirus and The World Health Organization (WHO) advised the following language associated with the virus. The virus causing the infection has been named - severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2)

SARS-CoV-2 is spreading between people globally and can be seen on the WHO situation reports dashboard which is updated daily (1)

Aim of the Study: Establishing an isolation hospital for patients infected with the emerging coronavirus, Covid 19, to relieve pressure on the rest of hospitals and provide the highest health care for patients

Methodology: SWOT analysis, TOWS analysis, Brain Storming, Feasibility study, Budgeting of the project, Legal study, and establishment of : risk management plan, financing plan .

Conclusion: To open new isolated hospital you should have advantages and more services over your surrounded competitors . Study SWOT analysis is important to supply unique healthcare services. It is mandatory to plan for the Budgeting of the project to include losses and maximize profits.

Key words: COVID_19 , Isolated Hospital , Healthcare , patient

Introduction: COVID-19, the disease caused by severe acute respiratory syndrome

Corona virus 2 (SARA-CoV-2), emerged in China in 2019 and quickly transmitted throughout the world, leading to the most severe pandemic since influenza ravaged the world in 1918. Causing massive morbidity and mortality, COVID-19 manifested predominantly as respiratory illness easily spread by asymptomatic and pre-symptomatic infected individuals. This pre-symptomatic and asymptomatic spread, coupled with a long incubation period (up to 14 days), made successful containment and mitigation particularly challenging.

COVID-19 disproportionately affected individuals aged 65 and older and people of color, especially in the first few months of the pandemic, and state and federal government entities were focused on "flattening the curve" to prevent infected individuals from overwhelming healthcare settings, as intensive care beds and ventilators were in finite supply. Efforts to flatten the curve resulted in total or near-total shutdown of daily activities in the world. Within the first five months, COVID-19 sickened nearly 50 million people worldwide (10 million in the United States) and killed 1.3 million individuals (240,000 in the United States).

As a result, an isolation healthcare facility for COVID-19 patients is a mandatory issue in the present time to separate sick people with contagious COVID-19 disease from people who are not sick.

Until the implementation of COVID-19 approved vaccine in the vaccination schedule for population and healthcare workers, it is a must to have isolation hospitals for COVID-19 patients for cohorting (grouping patients infected with the same infectious agent together to confine their care to one area), prevent contact with susceptible patients, and further limit opportunities for transmission.

Aim Of the work: Establishing an isolation hospital for patients infected with the emerging coronavirus, Covid 19, to relieve pressure on the rest of hospitals and provide the highest health care for patients.

Methodology

ETOP, SWOT, TOWS

Organizations conduct a Strength, Weakness, Opportunities, and Threats (SWOT) analysis to determine strength, weakness, opportunities, and threats that face the organization. Healthcare quality professionals and Infection Preventionists (IPs) use the SWOT analysis procedure to investigate public health issues and improve healthcare outcomes. We can perform SWOT analysis to list factors that affect disease prevention across a population as following:

Strengths Public health efforts Improved data with mandatory reporting of disease trends and outbreaks Vaccination programs	Weaknesses Infrastructure (personnel) Workforce Health information technology
Opportunities Preparing for health threats Eliminate health disparities Disease surveillance Improved laboratory testing and epidemiological findings	Threats Rising healthcare costs Continued health challenges such as tobacco use, poor diet, environmental and bioterrorism concerns

Brainstorming is a group creativity technique by which efforts are made to find a conclusion for a specific problem by gathering a list of ideas spontaneously contributed by its members. For converting weakness to strengths and threats into opportunities we can use brainstorming and collecting data about the project from the internet and other available resources are important to for the analysis of the current situation and define strength, weakness, opportunities, and threats that face the project.

TOWS Analysis is an extension of the SWOT Analysis framework that identifies your Strengths, Weaknesses, Opportunities and Threats but then goes further in looking to matchup the Strengths with Opportunities and the Threats with Weaknesses.

Adding the relationship between the internal and external factors makes TOWS a much more useful matrix than a standalone SWOT and an obvious next step.

A well thought out TOWS can not only provide details of SWOT, but also some data to make a decision about the overall direction.

TOWS Analysis

INTERNAL FACTORS			
EXTERNAL FACTORS		Strengths (S)	Weaknesses (W)
	Opportunities (O)	Strengths/ Opportunities (SO)	Weaknesses/ Opportunities (WO)
	Threats (T)	Strengths/ Threats (ST)	Weaknesses/ Threats (WT)

While no preparation is required for a TOWS beyond some knowledge of the internal and external environment you operate in, it is helpful to have knowledge of:

- Current customer relationships.
- Good and bad case studies of sales and service.
- Latest news in your industry.
- Any competitive activity.
- Positive and negative employee feedback.

Our target customers are COVID-19 confirmed and suspected patients and their contacts.

In addition to COVID-19 patients, providing the service for other patients complaining from respiratory diseases is an under consideration issue.

When we take a look about market and as a result for the current situation, a lot of already established health institution hospitals are converted into isolation hospitals, the governorate established new hospitals for the same target, and at least it becomes mandatory that hospitals must have an isolation room. That is means that we have many competitors in the market who are providing the same service we look to provide.

Results

Budgeting of project

1. The land needed for the project is 4200 square meters with an estimated price of about 2 millionEL
- 2.The building consist of 3 floors the ground floor is 2000 square meters and includes the laboratory wing , radiology , emergency , mortuary , kitchen , laundry and sterilization

The first floor is the same area as the ground floor and includes 10 residence rooms with a capacity of 20patients , 2 intensive care unit with a capacity of 14 beds and 2 pharmacies

The second floor consist operations suite consisting of 3 operating rooms and a recovery room , one intensive care unit with a capacity 7 beds and kids wing includes 9 beds this building costs 20 million LE

Table(1): Furniture required for hospital furnishings and the cost of each type and total

Furniture	Unite price	No of unites	total
Bedside cabinets	10200	50	510
fridges	8870	20	177400
Laundry carts	3600	6	21600
Jazamuha of operation	2500	1	2500
Medical cabinets	4675	10	4675
cupboards			
Bed sheets	105	105	21000
computers	10488	20	209760
Air conditions	15930	10	159300
Screens	2700	100	270000
Office conference tables	2200	3	6600
Printer hp	1995	20	39900
Corners fans	815	50	40750
Faxs	3480	2	6960
Copy machine	21500	3	64500
Waiting chairs	1993	20	39840

bench			
pillows	145	100	14500
cardbardbeds	1525	20	30500
stoves	3650	10	36500
Washing machines	7400	3	22.200
receiver	290	10	2900
Shannon wood	2045	20	40900
Revolving stools	935e	20	18700
Seats	5338	3	16000

Wood desks	2339	50	116950
Safe iron	7340	3	22000
curtains	940	100	94000
Kitchen	5500	2	5500
Lecture hall	4200	2	8400
Footie seats	3000	100	300
			2328.610 LE

Table(2):

Alist of the necessary machines,their prices and the total.

machine	cost	number	Total
Digital ray device	18654	1	18654
Lab analyzer	350000	1	350000
Blood chemistry analyzer	350000	1	350000
Automated chemical apparatus	770000	1	770000
A respirator	81810	20	1636200
Blood pressure monitor	242	10	2420
Glucose analyzer device	200	10	2000
Moisturizing oxygen regulator	520	50	26000
Cylinder oxygen regulator	342	50	17000
EKG machine	5310	10	53100
Nebulizer device	1300	10	13000
monitor	44737	30	1342200
Cardiac shock machine	56360	3	169000
Sick viewing station	37719	3	377000
Lotion pump	11500	3	34500
X ray device	614790	1	614790
CT device	4281886	1	4281886
IV pole saline	150	50	7500

stands			
Examination table	1000	5	5000
Patient bed	3205	30	96000
Stretcher trolley	891	10	8910
Chair trolley	1700	10	17000
ICU bed	10278	25	250000
Crash trolley	15429	10	154290
Doctor chair	3300	10	33000
Dirty Linen	750	5	3750
 bedside screens	300	5	1500
Total			14464165 LE

Table(3):list of equipment, their prices and total

Generator	200000	1	
Oxygen tank	400000	1	
Cars	1095000	3	
total			1695000

Table (4):total project budget

<u>(1) Capital:</u>		
<u>A- Fixed assets:</u>		
1- Land of the project.	2000000	
2- Buildings.	20000000	
3- Machines.	14464165	
4- Furniture.	2328610	
5- Equipment	600000	
6- cars	1095000	Total =40487775
<u>B- Current assets:</u>		
1- Money.	5000000	Total=10000000
2- Stocks.	5000000	
Total assets		= 50487775
Current/Capital=		=10000000/50487775= .198
Money/Capital=		= 5000000/50487775=.099

(2) Expenses:

A-fixed cost:

Table(5): salaries(fixed cost/month)

<i>fixed costs</i>		
CATEGORY	NUMBER	SALARY
DOCTORS		
Specialist	44	25000
s Icu	6	50000
doctors		
NURSES	100	6000
PHARMACIST	35	10000
CHIMISTS	12	5000
EMPLOYEES	100	3000
WORKERS	100	3000
REDADI TECH	12	4000
COMMITTEE		
S_	55	10000
ADMINISTRATIVE		
TOTAL	376	3.124.000 LE

Table (6): B- Current cost:

Current cost

SERVICE	COST
ELECTRICITYR	50000
WATER	10000
MAINTINANCE	100000
OXYGEN GAS	600000
SOLAR	10000
TELEPHONE	5000
COST OF MARKTING	25000 0
TRANSPORT ATION	50000
_MANAGEMENT SERVICE	
TOTAL	1030000LE

Total cost/Unit service = $65036220 / 12500 = 5202.9$
Fixed cost/Unit service = $3124000 / 12500 = 249.9$
Current cost/Unit service = $1030000 / 12500 = 82.4$

The expected profits

- Profit before tax = $206115000 - 65036220 = 141078780$ LE
- Profit after tax = 80% profit before tax. = 112863024 LE
- Profit/Revenues = $11283024 / 206115000 = .0547$
- Profit/Capital = $112863024 / 50487775 = 2.235$
- Profit/Fixed assets = $112863024 / 40487775 = 2.788$
- Profit/Current assets = $112863024 / 10000000 = 11.286$

Table (7): Cash flow over 12 months

Hospital's Cash Flow Analysis (Part 1)						
	Januar y	Februar y	March	April	May	June
Cash at Start of Month	5000000	2260864 0	3788978 0	4880747 0	5762306 0	6239860 0
Cash Coming in						
Inpatient accommodation revnues	1635000 0	1515000 0	1185000 0	1050000 0	750000 0	525000 0
Outpatient clinic revenues	600000	480000	390000	330000	240000	240000
Radiology department revenues	1500000	120000 0	975000	825000	600000	600000
Laboratories department revenues	4050000	324000 0	2482500	2077500	132000 0	132000 0
External pharmacy revenues	900000	720000	540000	360000	300000	300000
Total Cash in	2340000 0	2079000 0	1623750 0	1409250 0	996000 0	771000 0
Cash Going Out						
Wages	3124000	312400 0	3124000	3124000	312400 0	312400 0
Cost of services	100000	100000	100000	100000	100000	100000
Utilities and energy costs	1000000	800000	700000	700000	700000	700000
Maintenace costs	120000	100000	100000	100000	100000	100000
Administrative expenses	75000	60000	60000	60000	50000	50000
Insurance	1000000	100000 0	1000000	1000000	100000 0	100000 0
Phone	10000	10000	10000	10000	10000	10000
Transport	3000	3000	3000	3000	3000	3000
Taxes	359360	311860	222810	179910	97460	52460
Total Cash Out	5791360	550886 0	5319810	5276910	518446 0	513946 0
Balance	1760864 0	1528114 0	1091769 0	8815590	477554 0	257054 0
Cash at End of Month	2260864 0	3788978 0	4880747 0	5762306 0	6239860 0	6496914 0

Hospital's Cash Flow Analysis (Part 2)						
	July	August	September	October	November	December
Cash at Start of Month	6496914 0	6682428 0	7565457 0	8658696 0	1045699 00	1658121 15
Cash Coming in						
Inpatient accommodation revenues	5250000	1050000 0	1185000 0	1635000 0	1815000 0	1815000 0
Outpatient clinic revenues	180000	330000	390000	600000	720000	720000
Radiology department revenues	450000	825000	975000	1500000	180000 0	180000 0
Laboratories department revenues	915000	207750 0	2482500	4050000	486000 0	486000 0
External pharmacy revenues	180000	360000	540000	900000	108000 0	108000 0
Total Cash in	6975000	1409250 0	1623750 0	2340000 0	2661000 0	2661000 0
Cash Going Out						
Wages	3124000	312400 0	3124000	3124000	312400 0	312400 0
Cost of services	100000	100000	100000	100000	100000	100000
Utilities and energy costs	700000	700000	700000	800000	100000 0	100000 0
Maintenace costs	100000	100000	100000	110000	120000	120000
Administrative expenses	45000	45000	45000	50000	75000	75000
Insurance	1000000	100000 0	1000000	1000000	100000 0	100000 0
Phone	10000	10000	10000	10000	10000	10000
Transport	3000	3000	3000	3000	3000	3000
Taxes	37860	180210	223110	220060	423560	423560
Total Cash Out	5119860	526221 0	5305110	5417060	585556 0	585556 0
Balance	1855140	883029 0	1093239 0	1798294 0	2075444 0	2075444 0
Cash at End of Month	6682428 0	7565457 0	8658696 0	1045699 00	1658121 15	1865665 55

Net profit distribution:

- 1- Reverse in bank = 7203333 LE
- 2- Investment in other non-medical projects (hotels, companies, etc..) =7203333LE
- 3- Distribution with owners, shares, and healthcare workers = 7203333LE

10. The Feasibility of the project

Capital	First year 5000000 LE	Second year 7203333L E	Third year 10000000LE	Summation 222023333LE
Profit	First year 11283024LE	Second year 162550758LE	Third year 22566048LE	Summation 196399830LE

Legal and other obligatory studies

Legal regulations that will regulate establishment of and work in COVID-19 isolation healthcare facility are not different from legal and federal regulations that regulate other healthcare facilities. In Egypt, we follow the Ministry of Health and Population instructions and laws in the instruction of healthcare facilities and in monitoring and auditing work in each facility. In addition, we directed our COVID-19 isolation healthcare facility to be TJC accredited which means that we will follow TJC guidelines to have the accreditation and to be reaccredited.

The environmental study shows that medical wastes from COVID-19 isolation healthcare facility are not different than wastes from other healthcare facilities. Currently, there is no evidence to suggest that the facility wastes need any additional disinfection. Routine procedures from handling and processing of medical wastes are adequate.

Risk management

Risk	Goal	Objective	Activity	Team	KPI	Timeline
Infection and disease spread	Insure the health and safety of our patients, visitors, employees, and our communities	Identify the infectious hazards.	Only essential workers to work at the facility. Those not in customer-facing roles, such as administrative staff, should work from home if at all possible.	All members in the hospital	% of employees trained in safety	From 1/1/2021 to 1/4/2021
			Clinically extremely vulnerable individuals shall remain shielded in accordance with their medical advice			
		Evaluate, remove or reduce the risks.	Maintain social distancing in the workplace wherever possible			
			Regulating use of high traffic areas including corridors, lifts and staircases to maintain social distancing			
			Providing hand washing facilities, or			

		Review and update the safety risk assessment regularly.	<p>hand sanitizer where not possible, at entry and exit points</p> <p>infection control policies used are to be reviewed to ensure they remain valid</p> <p>Putting teams into shifts to restrict the number of workers interacting with each other</p>		Incidents reported	
			<p>Using safe outside areas for breaks</p> <p>Opening windows and doors frequently to encourage ventilation, where possible</p>		Prevention costs	
		Identify people at risk	<p>Wedging doors open, where appropriate, to reduce touch points.</p> <p>Provide healthcare providers with appropriate disposal protective personal equipment (PPE) for their job, for example, gloves and face masks.</p>			

		Recording, prepare an emergency plan and provide training	Display posters in staff and waiting areas to remind workers and visitors of the health, safety and infection control procedures in place at work		patients ' satisfacti on	
			providing COVID-19 workplace safety training to all employees that is consistent with guidelines			

Conclusion

Study SWOT analysis for isolated hospital is very important to supply unique health care services. It is mandatory to plan for the Budgeting of The Project to include losses and maximise profits. Estimation of political study , legal study , environmental study and social study are essential establishment of new isolated hospital . Catastrophe plan is procedures have been established to respond to any external emergency and the expected risks Such as a severe change in weather conditions such as fixpenses on a credit card to take advantage of additional payment cycle time and rebates or rewards From previous positive months of cash flow as maintaining positive cash flow is important to maintain success for long period of time. positive cash flow is a suitable indication of present financial situation. Negotiation to postpone obligations and negotiate payment terms as setting invoice payment terms with customers so they know when to pay us and agreeing to our vendors payment terms so we know when to pay them and so adjusting these types of payment terms to improve cash flow customer payment terms ,decrease the number of days customers have to pay us.) Risk management plan for natural disaster &man-made disaster (fires ,terrorist attack and work place violence and rumors and malevolence from competitors)

References

1. <https://icmanaesthesiacovid-19.org/background>
2. <https://www.hse.gov.uk/guidance/index.htm>

Recommendations:

Social study of the current situation views that the project is mandatory for COVID-19 pandemic and as illustrated before the isolation healthcare facility can be used as a respiratory diseases hospital or as a chest hospital.

As COVID-19 is the current catastrophe we our plan to face it

ACKNOWLEDGEMENT

First of all, we are greatly indebted in all our work and our success to our **Merciful Allah**. We would like to express our cordial love and loyal thanks to

Prof. Dr. Heba Youssef Vice Dean for Post- graduated studies and researches and Prof.

Dr. and head of Forensic Medicine and Clinical Toxicology Faculty of Medicine Port-Said University for her kind encouragement, valuable guidance, supervision, sincere help and faithful guidance during this work.

Great thanks to **Healthcare workers all over the world and the Egyptian healthcare workers "The white army"** for their great and willing efforts in managing the COVID-19 pandemic, all love and respect.