



Temporary COVID-19 Initial Screening Facilities (Triage Tents)

Proposal for a Pilot Facility provided by Sudanese American Physician Associations
(SAPA)

Version 1
June 1, 2020

Disclosure:

This proposal represents a working progress document and is constantly updated. For UpToDate format, please contact correspondences listed in this proposal. SAPA is Committed to share updates with any interested entities. SAPA highly recommend consulting with the Federal Ministry of Health in Sudan before proceeding with implementing this project.

ACKNOWLEDGEMENT

This work was made possible by those to work tirelessly to help their loved ones in Sudan

The Sudanese American Physicians Association (SAPA) would like to specially acknowledge the contribution from Khartoum Ministry of Health (KMOH) and from the group of the Sudanese engineers who designed and implement the pilot project, and the management Alshaab hospital for their help and dedication

Contents

ACKNOWLEDGEMENT.....	2
Executive Summary.....	4
Introduction.....	5
Project Objectives.....	5
Clinical Operation and Workflow:	6
Clinical information workflow and hand off	8
PROJECT PARAMETERS.....	9
PROPOSED LOCATION.....	9
PROPOSED CONSTRUCTION STRATEGY.....	9
Tent building.....	9
Electrical Works	9
Mechanical Works.....	9
CODES & OPERATIONAL REQUIREMENTS.....	10
COST.....	10
TIMELINE.....	10
Appendix 1: Triage facility outlines.....	11
Appendix 3: Project proposed funding	15
Appendix 4: Acceptance check list.....	16
Appendix 5: suggested overall patient workflow though the hospital	17
COVID-19 TRIAGE FROM	18
CORRESPONDENCES.....	19

Executive Summary

During Corona Virus (COVID-19) pandemic it is crucial to effectively maintain the workflow of the healthcare system for both COVID-19 and non-COVID-19 patients. Ensuring normal and adequate healthcare operation is vital for saving lives by providing timely intervention for life threatening conditions.

Ensuring healthcare workers are protected, maintaining non COVID-19 hospital infection free during the pandemic is vital to ensure continuity and healthcare centers operations. This can be achieved by applying effective and well controlled patients' screening process before entering emergency room and outpatient clinics.

SAPA (Sudanese American Physician Associations) is leading initiative to design portable, cost effective prototype screening facility that will ensure health workers and patients are protection. This prototype design can easily be replicated throughout Sudan. SAPA will work with partners to ensure design is completed and implemented in selected centers. SAPA will provide comprehensive details for Federal ministry of Health (FMOH) and other organizations that can be followed for centers across Sudan.

Introduction

There have been certain times in history, where events were recognized to have changed the world. The year 2020 will always be remembered for the event that redefined the world. The event is of course the outbreak of the novel corona virus and the subsequent life changing pandemic. Otherwise known as COVID-19, the corona virus has taken just a couple of weeks to grasp the attention of the whole world.

Sudan is not exempted from these matters of the moment. Sudanese American Medical Association (SPAP) worked closely with Federal Ministry of Health (FMOH) in Sudan, who is leading the national fight against the virus. This collaboration yielded many projects some were successfully executed and others still in progress.

The devastating effect of COVID-19 on the individual and system level lead to significant increase in morbidity and possibly mortality from none COVID-19 illnesses. This can be attributed in part to the ambiguous nature of COVID-19 and lack of feasible mechanism to identify those low risk of COVID-19 and needed routine medical care without the risk of contracting COVID illness.

Triaging system is a vital procedure to limit the spread of COVID-19 by identify those with high risk and separate them to be treated in a designated setting. SAPA with collaboration with KMOH is proposing this pilot triage system (Triage Tents) with the objective to allow health care providers to provide care for confirmed and suspected COVID-19 and at the same time identify those with low risk that needs routine or urgent none COVID-19 care.

Project Objectives

The project mission statement can be summarized as:

“To proactively mitigate the negative consequences of the COVID-19 pandemic that threaten the provision of health care services during the next eight months in Sudan”

The objectives include:

- Screen individuals and determine those exhibiting COVID-19 symptoms before entering the ER department.
- Protect healthcare worker in none COVID-19 areas
- Ensure emergency department (ER) can continue to address all other non COVID-19 cases
- Produce a blueprint to implement the triaging system as quick as possible and with minimal inconvenience to existing operations
- Reduce and mitigate risks of outbreak of virus within hospital
- Set standards for future management of pandemics
- Prepare to expand service to other medical facilities

Clinical Operation and Workflow:

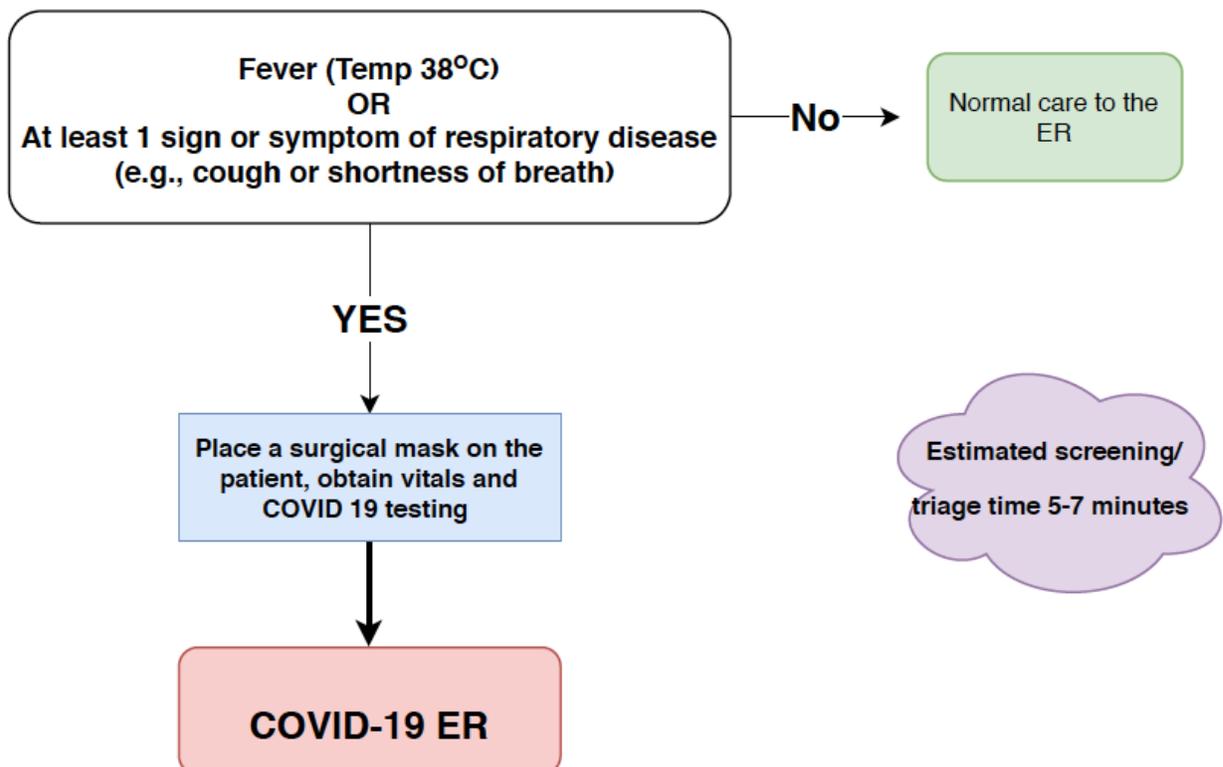
Identifying and classifying those with high risk for COVID-19 through a standardized triaging process is essential to the clinical operation for healthcare facilities. The temporary screening facilities (triage tents) are **NOT ER** and the screening process should be quick and efficient. If possible, a facemask should be given to all patients with respiratory symptoms as soon as they get to the facility if they do not already have one. If facemasks are not available, provide paper tissues or request the patient to cover their nose and mouth with a scarf, or T-shirt during the entire triage process. A homemade mask with cloth can also be used as source control. NO co-patients should be allowed beyond the triage facility.

The following steps should be followed for ALL patient going through the triaging process:

1. Follow algorithm 1 (figure1) for all patients

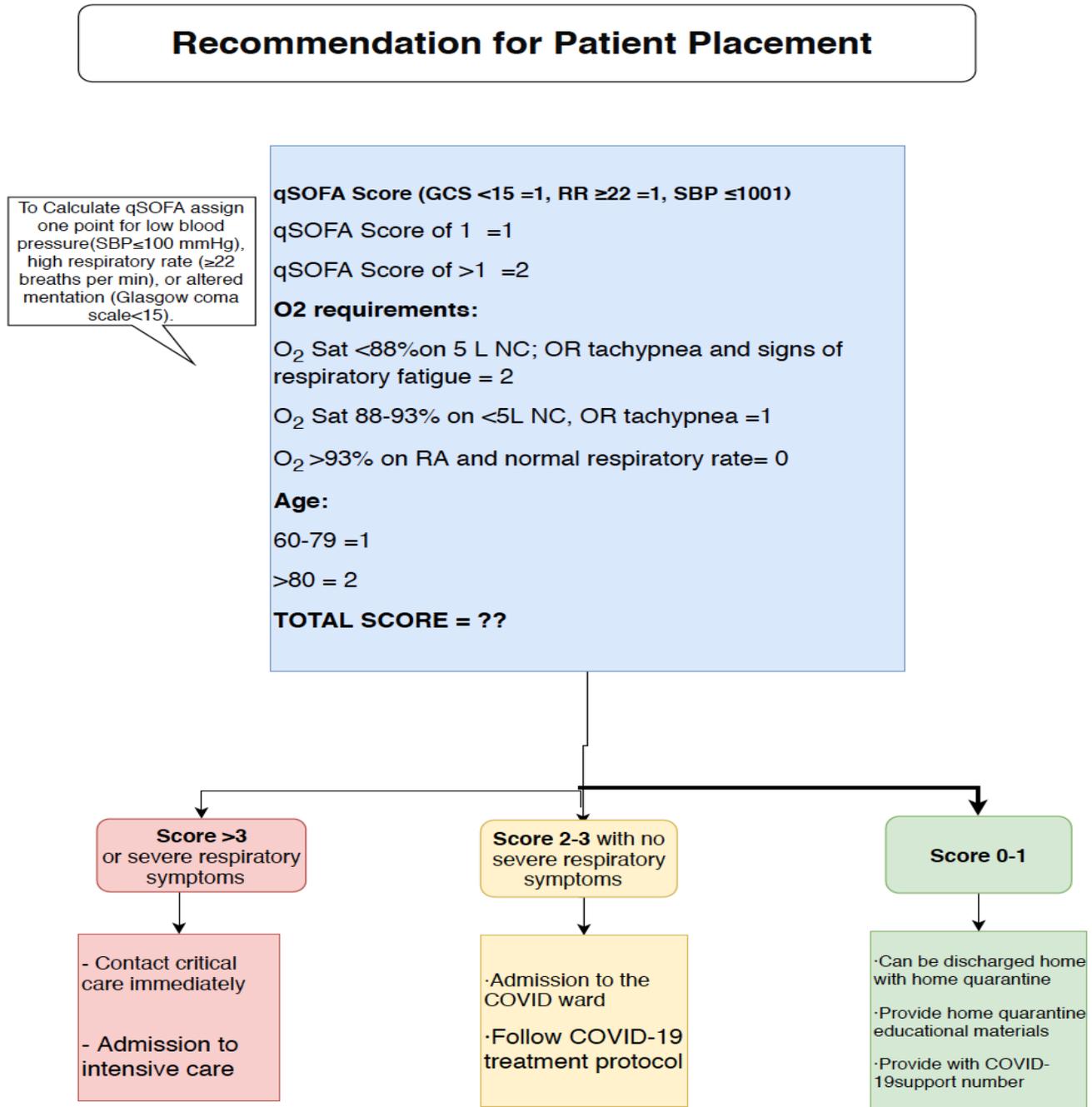
Figure 1: initial triaging

COVID 19 Triage Algorithm



- If possible, use the patient allocation score tool to help ER provider quickly with the patient severity of illness, this step is OPTIONAL (Figure 2)

Figure 2: recommendation for patient allocation



Derived from recently published Wuhan studies (Huang C. I Lancet 2020; Wang D. JAMA 2020; Zhou F. Lancet 2020), NHPCO, MDCalc, CDC and UK NICE guidelines. We will update this as more data are available.

Clinical information workflow and hand off

Data collected from patients in the triage process is valuable clinically and to the hand off process between the triage and the ER. This information is protected by law and suboptimal process can lead to breach of patient confidentiality. Due to the lack of secured electronic medical records, the use of paper form can be efficient and informative. Each form will have:

1. Basic demographics
2. Checklist for common comorbidities
3. Triage decision
4. Testing information (if any)
5. Allocation score

Due to the rapid nature of the triaging process, only information needed for the triaging decision should be collected, each form will be dated and assigned a serial number. This form will be part of the patient medical records. (Appendix 6)

PROJECT PARAMETERS

PROPOSED LOCATION

For this pilot study, the initial triage tent will be implemented outside the ER facility at Al Shaab hospital in Khartoum city. For future facilities the location and placement of the tent must consider:

- Available space within the existing facility. (external or internal option)
- Disturbance to existing patient flow (the tent will be the main workflow as above)
- Balance between main hospital entrance and internal buildings
- Proximity to ER building (need to have short distance to minimize the waiting for transport to ER)
- Proximity to existing utility services
- Ground conditions
- Operational, safety and environmental concerns

PROPOSED CONSTRUCTION STRATEGY

The objectives of the project have mandated that the integration of pre-screening facility into existing medical providers and institutions should be considered as a top priority. Thus, the implementation will be fast-tracked and might be regarded as deviating from good practice.

Below are the specifications used to construct the pilot facility: (See appendix 2 model Photos & Installation Guide (Reference Drawings):

Tent building

1. Surveying, excavation & floor leveling works and site borders
2. Steel Structure: 30x30x1.5 mm Black Steel, painted with alshoroq paint, Color code (optional), Provide and install PVC sheet for roof as per attached specs. With woven fabric bottom layer, Provide and install PVC sheet for walls and partitions with all opening and accessories as per attached drawing and engineer approval (Figure3)
3. Provide and lay anti-static vinyl flooring from local market as per engineer approval (samples requested)

Electrical Works

4. Provide and install Lamp LED 50 WATT. With all accessories (switches, cables, wires and conducting, Etc.)
5. Provide & install 13 Amp. sockets with all accessories

Mechanical Works

6. Provide and install Water cooler 6000 BTU ABSAL brand including steel frame, electrical works, water supply and commissioning
7. Transportation: physical mobilization and demobilization to the site including equipment and manpower of the contractor to start the work

CODES & OPERATIONAL REQUIREMENTS

All codes of the state of Khartoum related to buildings and local Safety and environmental codes should be followed, Management of facilities planning to implement the project should consider the following

1. Ensure social distancing one patient at a time is permitted in COVID-19 visual screening area (Triage 0 area).
2. Temporary COVID-19 initial screening facilities is intended to be used for 6 months period during COVID-19 outbreak
3. Temporary COVID-19 initial screening facilities shall withstand rain, wind, heat. However, it shall not be occupied and used during heavy rain and heavy wind. Facility shall be visually inspected after rain. Any visual damage or instability to be reported for healthcare center management
4. COVID-19 initial screening facilities shall not be used as waiting or resting area
5. Healthcare/hospital management are responsible to implement social distancing regulations and measures to minimize COVID19 transmission
6. COVID-19 screening facility shall only be used by trained dedicated staff equipped with the required PPE based on KMOH guidelines
7. Healthcare management shall ensure all entrance are closed except one entrance leading to COVID-19 screening facility
8. Healthcare center management is responsible for providing required waiting area ensuring social distancing measure for successful COVID-19 screening for all patients

COST

The first level budget for the construction of the pilot project is based on the minimal scope of works (appendix 3) submitted and approved by SAPA exclusions to this include:

- Furniture and equipment
- All utility connection requirements
- Emergency power
- External landscape
- Staff changing facilities
- Operational costs
- Demobilization and dismantling costs
- Project soft costs such as fees, surveys, approval costs, taxes etc..

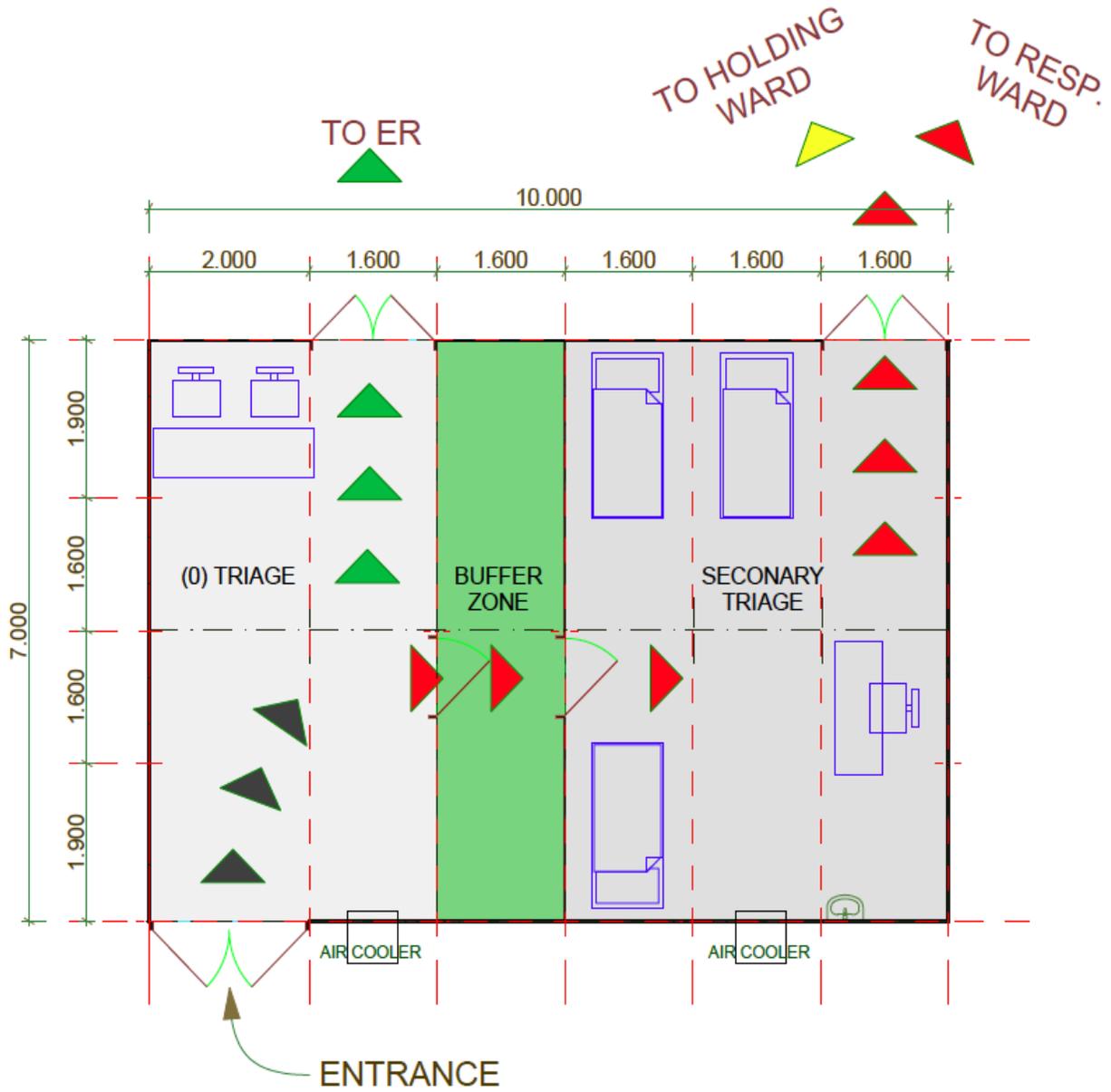
At the moment the pilot project is funded by the SAPA. SAPA will fund future units based on fund availability and welcome any funding aid. The fund estimate provided in this blueprint is approximate and based on the US dollar value at time.

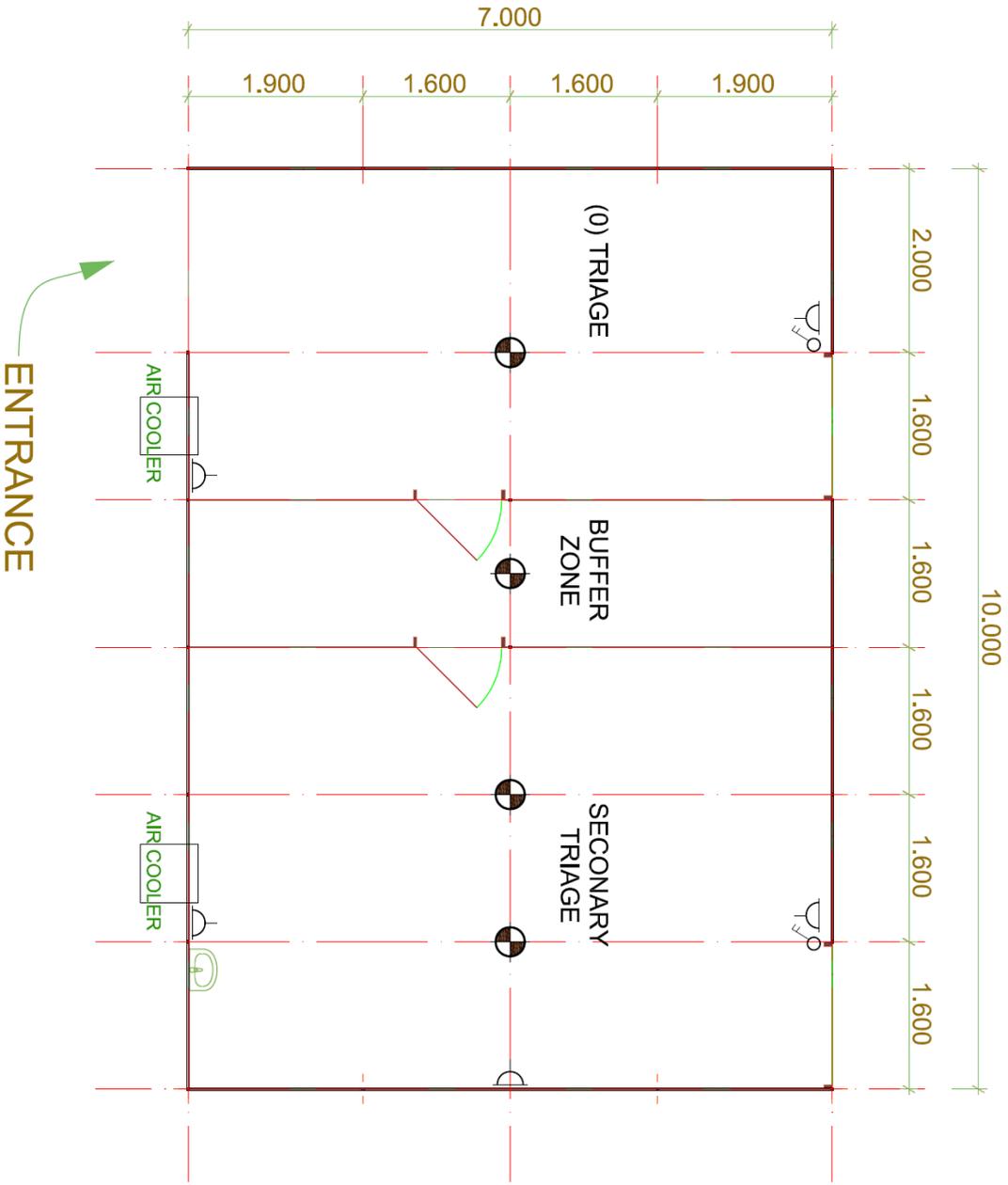
TIMELINE

The project construction timeline should not exceed two weeks

The triage screening facility is a temporary facility and thus is envisaged to be operational for a period of 6 to 12 months, after which the facility is to be dismantled.

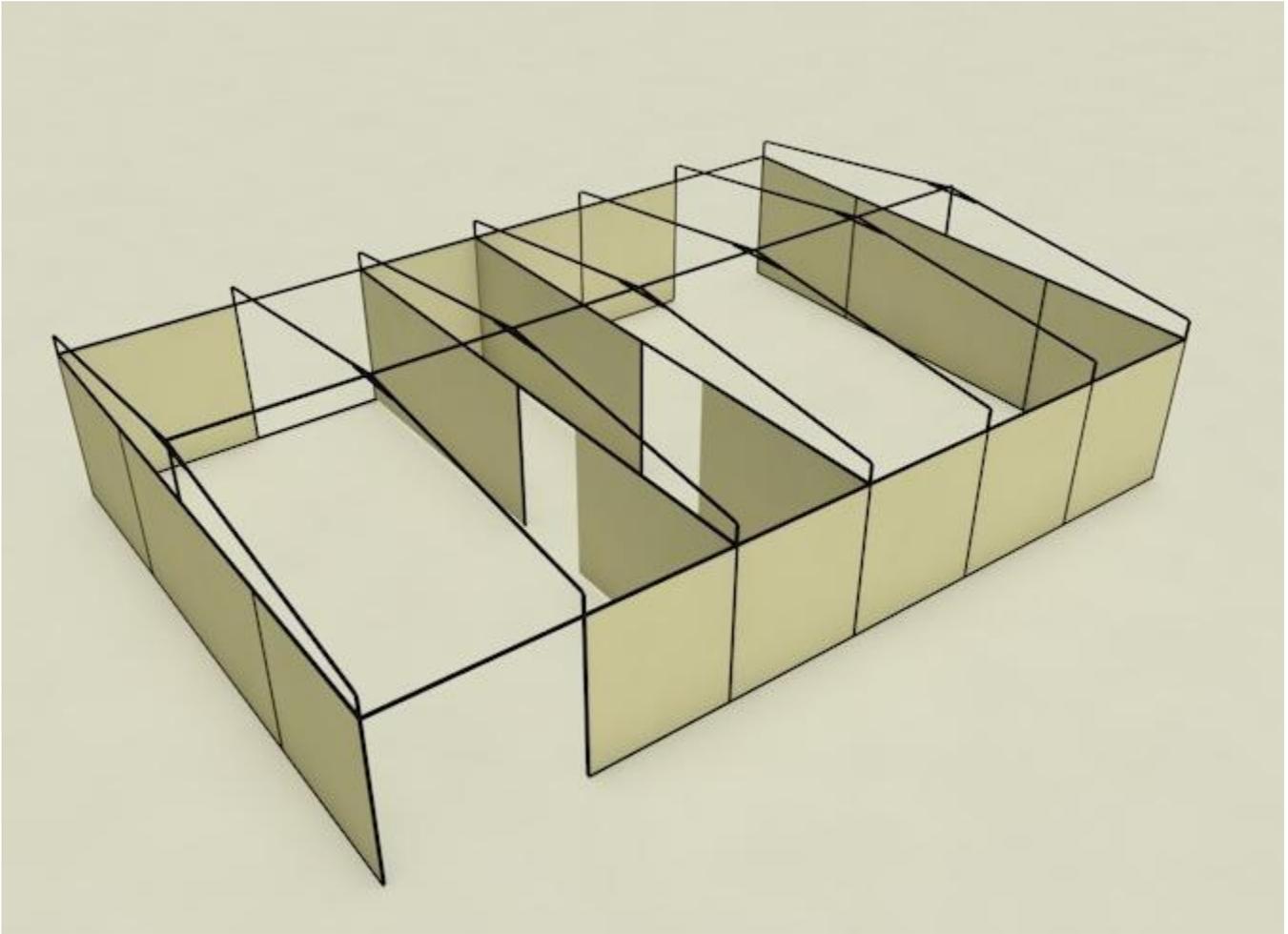
Appendix 1: Triage facility outlines





LEGEND:

Item	Description
	Ceiling Lamp
	Two Way Switch
	One Way Switch
	13AMP. Socket Outlet
	Air Cooler



Appendix 2: Model Photos & Installation Guide (Ref Drawings-4photos)

PHOTO 1:



PHOTO 2:



PHOTO 3:



PHOTO 4:



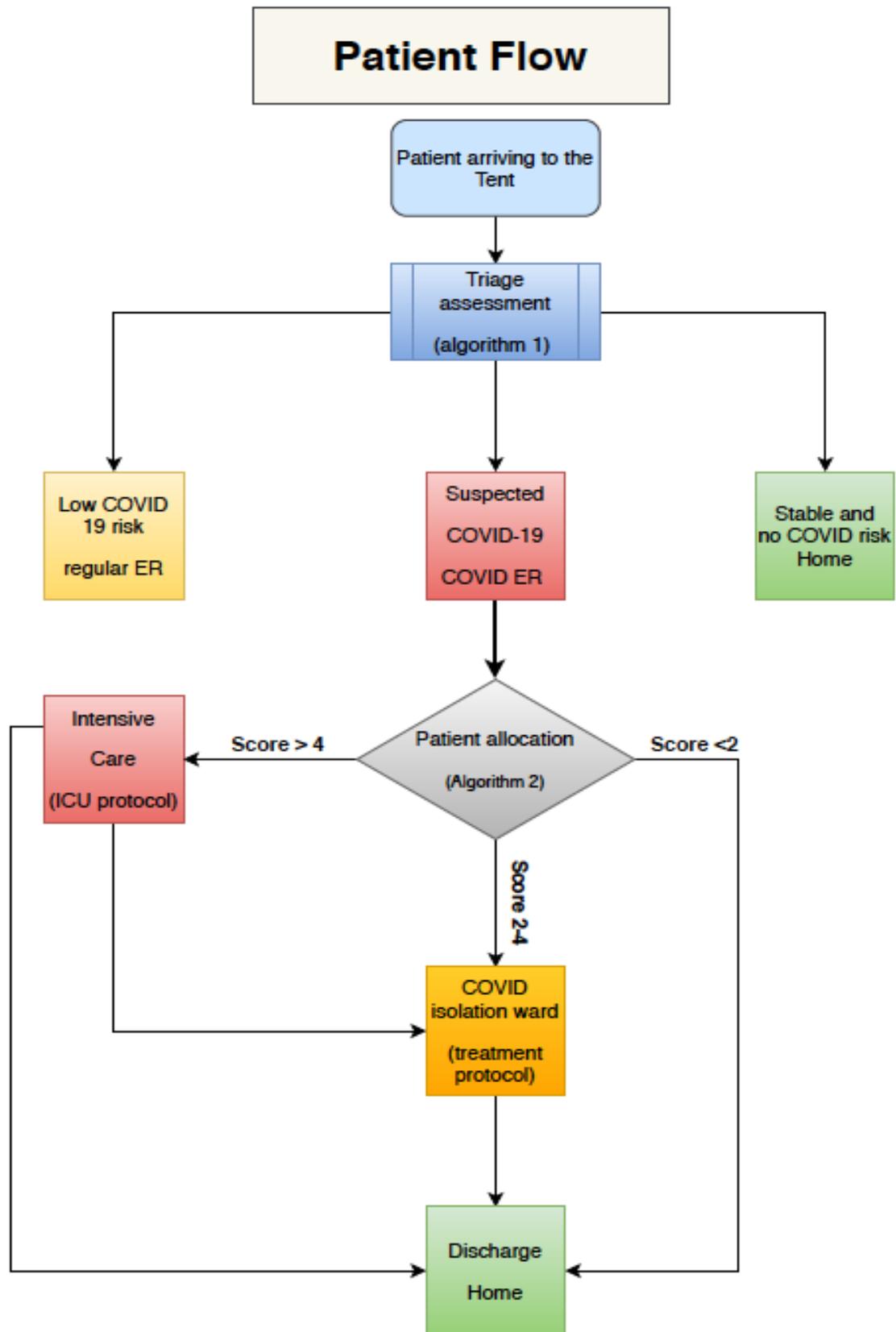
Appendix 3: Project proposed funding

ID	Description	Unit	QTY	Unit Rate (SDG)	Total (SDG)
1	This item is for physical mobilization and demobilization to the site including equipment and manpower of the contractor to start the work	Job	1.0	5,000.0	5,000.0
2	Surveying, excavation & floor leveling works and site borders	Job	1.0	1,500.0	1,500.0
3	Triage Building				
4	Steel Structure: 30x30x1.5 mm Black Steel, painted with alshoroq paint, Color code (.). Provide and install PVC sheet for roof as per attached specs. With woven fabric bottom layer, Provide and install PVC sheet for walls and partitions with all opening and accessories as per attached drawing and engineer approval. AS OF THE DRAWINGS ATTACHED	M ²	60.0	5,000.0	300,000.0
5	Provide and lay anti-static vinyl flooring from local market as per engineer approval (samples requested)	M ²	60.0	215.0	12,900.0
6	Electrical Works				
7	Provide and install Lamp LED 50 WATT. With all accessories (switches, cables, wires and conducting, Etc.)	unit	6.0	2,200.0	13,200.0
8	Provide & install 13 Amp. sockets with all accessories	Unit	3.0	500.0	1,500.0
9	Mechanical Works				
10	Provide and install Water cooler 6000 BTU ABSAL brand including steel frame, electrical works, water supply and commissioning.	Unit	3.0	40,900.0	122,700.0
*	Grand Total (SDG)				456,800.00

Appendix 4: Acceptance check list

ID	Work Description	Accept	Reject	Rejected with remarks
1	System commissioning	<input checked="" type="checkbox"/>		
2	Tent commissioning	<input checked="" type="checkbox"/>		
3	Steel frame	<input checked="" type="checkbox"/>		
4	PVC sheets	<input checked="" type="checkbox"/>		
5	PVC flooring	<input checked="" type="checkbox"/>		
6	Doors and windows	<input checked="" type="checkbox"/>		
7	Electrical equipment installations	<input checked="" type="checkbox"/>		
8	Electrical cabling and labels	<input checked="" type="checkbox"/>		
9	Electrical commissioning	<input checked="" type="checkbox"/>		
10	Stand by power supply	<input checked="" type="checkbox"/>		
11	Water supply procedure	<input checked="" type="checkbox"/>		
12	Plumbing works installations	<input checked="" type="checkbox"/>		
13	Waste water and drainage water management	<input checked="" type="checkbox"/>		
14	Others if any	<u>N/A</u>		

Appendix 5: suggested overall patient workflow though the hospital



COVID-19 TRIAGE FROM

Name:

Age:

Gender:

- Male
- Female

Medical comorbidities:

- Pre-existing pulmonary disease
- Chronic kidney
- Diabetes with A1c > 7.6%
- History of hypertension
- History of cardiovascular disease
- History of transplant or other immunosuppression
- All patients with HIV (regardless of CD4 count)

TRIAGE SCORE:

qSOFA Score

- GCS < 15 = 1
- RR > 22 = 1
- Systolic blood pressure < 100 = 1
- qSOFA 1 = 1
- qSOFA > 1 = 2

O2 requirements:

- O2 Sat < 88% on 5 L O2 by nasal canula or tachypnea and signs of Respiratory Fatigue = 2.
- O2 Sat 88 - 93% on < 5 L O2 by nasal canula or tachypnea w/o signs of Respiratory Fatigue = 1.
- O2 Sat 93% on room air and normal respiratory rate = 0

Age:

- 60-79 = 1
- > 80 = 2

TOTAL SCORE

- 0-1
- 2-3
- > 3

Testing information:

- Tested for COVID-19
- Not tested for COVID-19

CORRESPONDENCES

All correspondences or queries regarding the project are to be addressed to:

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