
IFMBE
Clinical Engineering Division
2020 CED
WEBINAR SERIES
PRESENTS:
COVID-19 INTERNATIONAL WEBINARS - EMRO REGION
HEALTH TECHNOLOGY CHALLENGES AND LEARNINGS FROM THE COVID19 CRISIS IN EMRO
WHEN:
JULY 22TH, 2020
AT 3:00 PM
BEIRUT TIME (GMT+3)
FREE REGISTRATION:
HTTPS://BIT.LY/2OZPB7B
MOHSEN GEORGE KHALAF
MD, MINISTRY OF HEALTH HT CONSULTANT EGYPT
TAZEEN SAEED BUKHARI
MS, MOH HT CONSULTANT & CE LEADER, PAKISTAN
YASSIN ABD EL SAMAD
PHD, HT RESEARCHER IN SAUDI ARABIA
MOHAMMED YOUNUS FAROOQUI
MS, MBA, HT MANAGER, UAE
BASSAM TABSHOURI
HT CONSULTANT & CE DIRECTOR AUBMC (BEIRUT), LEBANON
HUGUES GAERTNER
MS, HT ADVISOR, REPRESENTING MÉDECINS SANS FRONTIÈRES'S WORK IN YEMEN
MODERATOR:
RIAD FARAH
CHTM, MEDICAL ENGINEERING MANAGER AT SAINT GEORGE HOSPITAL UNIVERSITY MEDICAL CENTER
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Introduction to *HT & Clinical Engineering*: Definitions

- **Health Technology (HT)[1]:** Defined by the World Health Organization (WHO) as the "application of organized knowledge and skills in the form of (medical) devices, medicines, vaccines, procedures, and systems developed to solve a health problem and improve quality of lives". [CED focuses on devices and related clinical procedures & systems.] See WHO/WHA 60.29 (2007).
- **Clinical Engineer (CE)[2]:** The WHO noted in 2018 that it is critical that "trained and qualified medical engineering professionals are required to design, evaluate, regulate, maintain and manage medical devices, and train on their safe use in health systems around the world. **This role is referred to as clinical engineering (CE),** biomedical engineering (BE), and/or health-care technology management (HTM) dependent on regional terminology."
- **Innovative Health Technologies[3]:**
  - Innovative technologies serve to fill existing gaps in the availability of health technologies to vulnerable populations through the provision of new solutions to health problems, the adaptation of existing technologies to a particular setting or for a new use, and the combination of technologies to address several health issues at once. WHO has been working, along with experts, its Collaborating Centres and Member States, to raise awareness on innovative technologies.
  - Appropriate, affordable and good quality medical devices are indispensable in healthcare services. They serve for the prevention, diagnosis and treatment of diseases. In the context of the Global Strategy and Plan of Action on Public Health Innovation and Intellectual Property, the WHO with support from the EU developed two (Innovation) project reports on medical devices access through local production. [See additional links available at website.]
  - The global need for access to effective, innovative, and affordable medical devices is a critical component of the United Nations Sustainable Development Goals, to ensure healthy lives and promote well-being for all at all ages. Medical devices, assistive technologies, and eHealth are essential tools for the attainment of the WHO goal of 3 billion lives saved as stated in the 13th General Programme of Work. Lack of access to quality, affordable medical devices is most apparent in low – and middle – income countries and contributes to global health inequalities. [See additional links available at website.]

[1]https://www.who.int/medical_devices/definitions/en/ [2]https://www.who.int/medical_devices/support/en/ [3]https://www.who.int/medical_devices/innovation/en/

CE-HTM Leadership Principles

These principles need to be learned by all CE-HTM practitioners to advance their careers.

1. **Innovation culture,** eg, create an Innovation culture in all we do; encourage and practice lifelong learning
2. **People-centric,** eg, selfless service to team & others, empathetic, compassionate; priority of patient safety & personalized care
3. **Teamwork & goals driven,** eg, direct teams collaboratively toward shared goals
4. **Adaptive decision-making,** eg, timely analysis and prioritization to resolve challenges
5. **Evidence-based,** eg, scientific use of data, collected systematically, multi-centric, producing unbiased high-quality information
6. **Clinical use of technology,** eg, understand HT applications from both perspectives
7. **'Systems of Systems'-focused,** eg, using our unique SoS perspective to improve healthcare delivery
8. **Communication skills,** eg, understand, articulate clearly, and address various stakeholder needs in a timely manner
9. **Humble,** eg, people value humility and appreciate the respect a leader shows by asking for their input; willing to admit our errors
10. **Integrity & ethics-driven,** eg, observing a code of ethics such as that published by ACCE, which includes recognizing and avoiding activities that create conflicts of interest; see Appendix for ACCE Code of Ethics
11. **Soft Skills,** In our health worker and patient interactions, demonstrate the following: (1) positive greeting, (2) respectful listening, (3) obtain clarity, (4) manage expectations, (5) initiate collaboration, (6) solution driven, and (7) express gratitude
12. **Investing Deeply,** in one another's lives; strong lasting friendships among colleagues where we pray for and encourage one another through good times and bad. The impact of these investments on each other's professional outcomes cannot ever be well understood or measured.

References: 1-10 from CED leaders; 11 from AAMI, see https://www.aami.org/productspublications/articledetail.aspx?ItemNumber=10501); 12 from Dr. Sharma

Disclaimer & Conflict of Interest

Disclaimer

- The opinions shared by these non-WHO presenters are their own individual experiences relevant to the topics and or are those from their organizations.

Conflict of Interest

- Presenters will identify any possible conflicts of interest with organizations noted in their presentations.
- When specific companies are noted, typically they will be … part of a group of different companies who can provide a relevant product for the topic under discussion. They will be seen as examples only … and not as promotion of any specific company and product.

IFMBE CED COURSES / WEBINARS

https://ced.ifmbe.org/resources/courses/gurupcategs.html

Course Categories

6 Courses

2020 Clinical Engineering Leadership Competencies Webinars

2020 Clinical Engineering Leadership Competencies Webinars

2 Courses

International Clinical Engineering Webinars

International CE Webinars

World Health Organization | IFMBE Clinical Engineering Division

WHO & CED ARE PARTNERING TO HOST A SERIES OF COVID-19 CRITICAL TOPIC

Find here the recording & all materials for the past webinars:

https://ced.ifmbe.org/blog/who-ced-covid19-townhalls.html

Clinical Engineering Experiences related to the COVID-19 Pandemic.

Mohsen George Khalaf, MD
Technical Advisor to Universal Health Insurance Authority, Egypt
Former Vice President of Health Insurance Organization, Egypt
Lecturer of Health Financing, Arab Academy of Science & Technology
General & Laparoscopic Surgery Consultant

Biography

Mohsen George Khalaf, Medical Doctor, Technical Advisor to Universal Health Insurance Authority & the Spokesperson, Egypt. Former Vice President of Health Insurance Organization (HIO) in Egypt from January 2014 to December 2018. Before which, He was the Chief Medical Officer of HIO for a previous three years. He has several areas of experience in addition to Health Insurance systems, as Training and Education, Quality in health care, Patient Safety and Health financing. He studied management at American University, Harvard School of Public Health, George Mason University, Indian Institute of management, Flagship Program by World Bank Institute and National Institute of Public Health of Japan. He is General & laparoscopic Surgery Consultant, Nasr City Insurance Hospital in Cairo, member of the General Surgery Scientific Council of the Egyptian Fellowship Board and Head of training committee of the Arab Board of Health Specializations and member of its scientific council. He's also a member of the European Pathway Association, the Editorial Board of the International Journal of Care Pathway, the Advisory Board of the Journal of the Arab Board of Health Specializations, The Egyptian group for Surgical Science & Research (EGSSR) of the Egyptian Society of Surgeons, and WHO Health Financing Technical Network Main Community. Lecturer of Healthcare Financing & Health Insurance in the Arab Academy of Science, Technology & Marine Transport.

Top THREE Lessons Learned

- **First lesson:** Change in everything around us & rearrangement of priorities
- **Second lesson**: The hidden potentials of the distance learning as well as the tele health are NOW quite tangible and dominated the business.
- **Third lesson**: The resilient health system is of crucial importance.

Top THREE Challenges we are facing

- **First challenge**: shortage of Healthcare workforce.
- **Second challenge**: Uncertainty of lines of treatment of COVID 19.
- **Third challenge**: Non-COVID 19 emergency cases and non-emergency medical conditions don’t find a place to receive their needed care.
- **Fourth challenge**: is the financial constraints.

THANK YOU!

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Pakistan- Covid-19

Biography

HT Consultant, WHO Pakistan, July 2020

Consultant member expert committee on medical devices
Government of Pakistan
Nov 2012 – Present · 7 yrs 9 mos
Islamabad

Medical Equipment Planner
Saleem Memorial Trust Hospital, Nishat Chunian Group
Apr 2017 – May 2020 · 3 yrs 2 mos
Lahore

Hospital Equipment Planning , Procurement, Commissioning and Maintenance .

Biomedical Consultant
The World Bank
Sep 2016 – Dec 2016 · 4 mos
Lahore, Pakistan

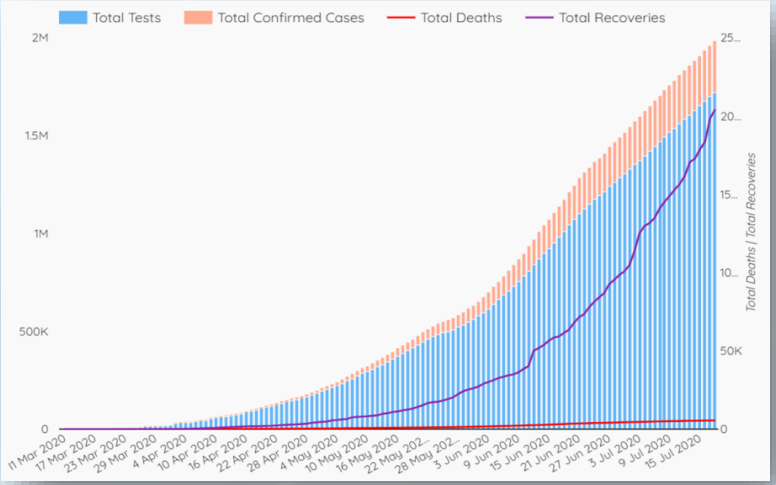
Biomedical Consultant
Chief Minister's Special Monitoring Unit, Government of Punjab, Pakistan
Mar 2016 – Apr 2016 · 2 mos
Lahore, Pakistan

Biomedical Consultant
Technical Resource Facility (DFID)
Apr 2015 – Aug 2015 · 5 mos

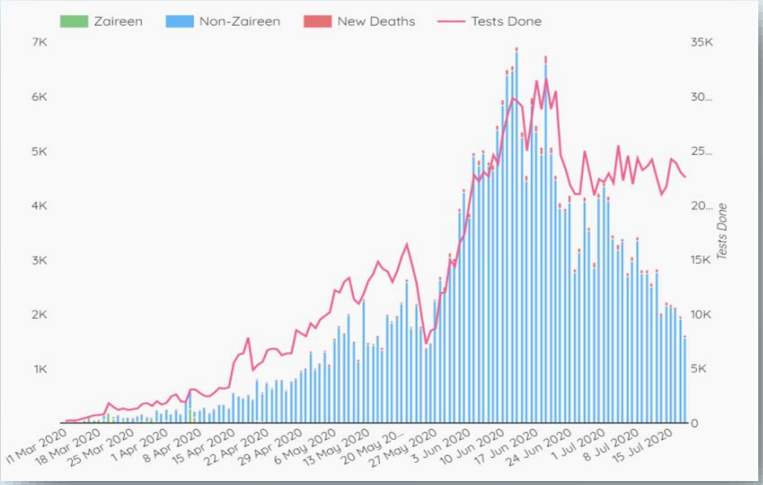
Tazeen Saeed Bukhari, MS
IFMBE CED Collaborator

Statistics

Covid-19 Overview



New Cases per Day



- Total Number of designated COVID Facilities: 204
- First Case: 11th March 2020
- Total Number of Confirmed Cases: 265,083
- Total Number of Active Cases: 53,652
- Total Number of Death: 5,568

Challenges

- Shortage of HDU facilities - Critical Cases
- All medical equipment is Imported - Shortage of PPEs, Ventilators, Respiratory devices, Cylinders, Pulse Oximeters
- Shortage of Trained Clinical Engineers
- No conclusive facility wise inventory- Difficult to collect data on equipment

Interventions

- Local production of PPEs- *Suits, Masks, Goggles, Hand Sanitizers etc.*
- R&D on Ventilators and Resuscitation devices - *in the process of getting them registered with the regulatory body (DRAP)*
- Various private organizations' led initiatives to train engineers and repair nonfunctional devices - *300 ventilators repaired till date*
- With the help of WHO, a focused survey is being conducted throughout the country to get a facility wise data of equipment and trained personnel

CASE STUDY

Shaukat Khanum Memorial Cancer Hospital & Research Centre (SKMCH&RC)

Lahore,

Pakistan

Shaukat Khanum Memorial Cancer Hospital & Research Centre (SKMCH&RC)

Presenter: Danial Fouz
Sr. Biomedical Engineer,
Biomedical Engineering Department,
Shaukat Khanum Memorial Cancer Hospital and Research Centre

Shaukat Khanum Memorial Cancer Hospital & Research Centre (SKMCH&RC)

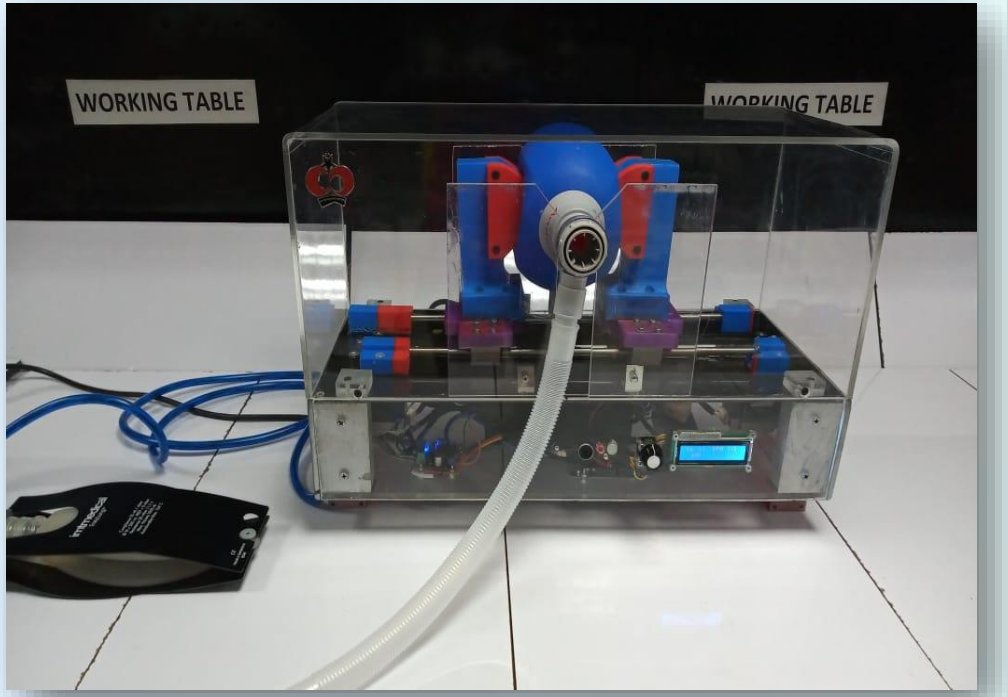
- Not-for-profit, State-of-the-art Tertiary Care Cancer Hospital
- Total number of Beds: 195
- Capacity enhancements for COVID: 8 Triage & Assessment beds, 35 ICU and 25 Inpatient Beds
- Average daily visits for Assessment & Screening: 250
- Hospital has been divided into zones to help staff and patients identify between affected and safe zones

Challenges

- Maintaining a **smooth supply chain** of medical devices and their spare parts.
- **Availability of enough staff** to ensure provision of core services without compromising quality.
- Ensuring **maintenance of our standard response times to complaints** - badly affected because of the personal protective protocols that have been enforced in the hospital for staff and patient safety.

Lessons Learnt

- **Capability Testing in terms of O2 supply**
  - Availability of O2 at various flow rates, maintaining pressure at all time.
  - Availability of backup oxygen (including refilling of main tanks as well as portable cylinders of all sizes).
- **Management of Resources**
  - The need of investing in R&D on regular basis to equip ourselves for designing and developing some intermediary equipment for such emergencies.
  - Availability of equipment to manage emergent needs of our existing patients, as well as to provide care to additional patients as a result of the pandemic or any other unforeseen emergency.
- **Ensuring provision of core services with reduced number of staff.**



Links

- http://covid.gov.pk/stats/pakistan
- https://shaukatkhanum.org.pk/

- Presenter : Danial Fouz- Sr. Engineer Biomedical Engineering Department, Shaukat Khanum Memorial Cancer Hospital and research Centre, Lahore Pakistan
- Email: biomed2@skm.org.pk

- Presenter : Tazeen Saeed Bukhari, Consultant WHO Pakistan
- Email: tazeen.bukhari89@gmail.com

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Special Health Technology / Clinical Engineering COVID19 Event for WHO EMRO Countries

Yassin Abdelsamad, PhD

Key Health Technology Learnings and Challenges during the COVID19 Crisis in EMRO

Key Health Technology Learnings from the COVID19 Crisis in EMRO

1. Technology could help, a success story from Saudi Arabia.
2. CE roles during the COVID19 are highly appreciated around the world.

Technology could help, a success story from Saudi Arabia

- Cochlear Implantation (CI) is a popular surgery to treat individuals with profound sensorineural hearing loss.
- The CI system consists of two parts, an internal implantable device, and an external device.
- CI patients have to visit their Clinics on a monthly basis, for one year at least, to follow up and program their devices.
- This continuous programming is required to re-adjust and improve the hearing and speech levels for the patients.

Yassin Abdelsamad, Ph.D

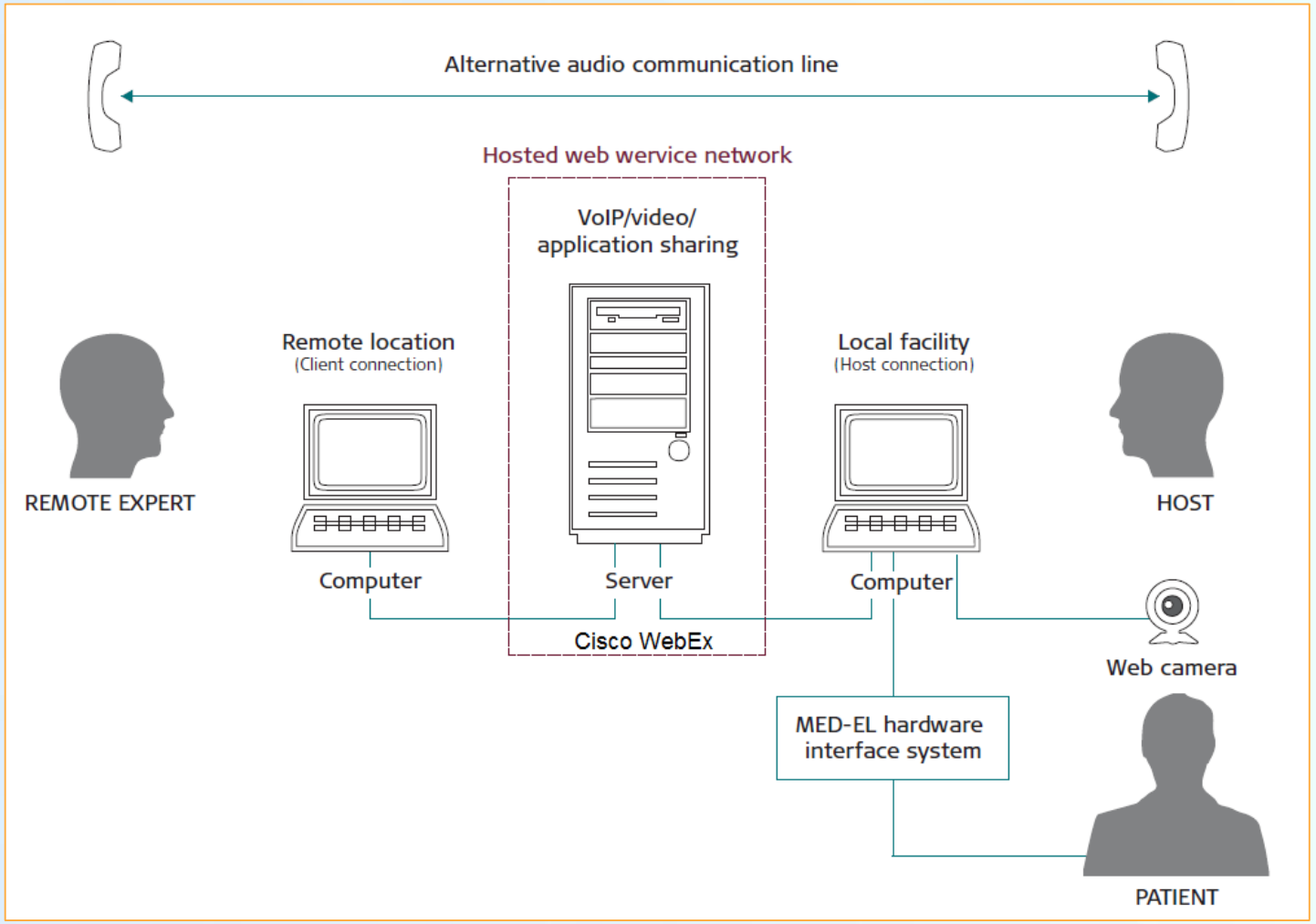
- Research Supervisor,SA at MED-EL.
- Ph.D. degree in Biomedical Engineering, Faculty of Engineering, Cairo University.
- Collaborator member, IFMBE-CED.
- HTM Researcher.

Technology could help, a success story from Saudi Arabia

- The programming session is done by audiologists or trained CEs.
- The impact of COVID19 has been far-reaching on CI patients.
- Those patients are facing many difficulties to visit their clinics for follow up and programming their audio processors.
- So, many patients will be kept with insufficient hearing levels and others will not have the chance to activate their devices.

Technology could help, a success story from Saudi Arabia

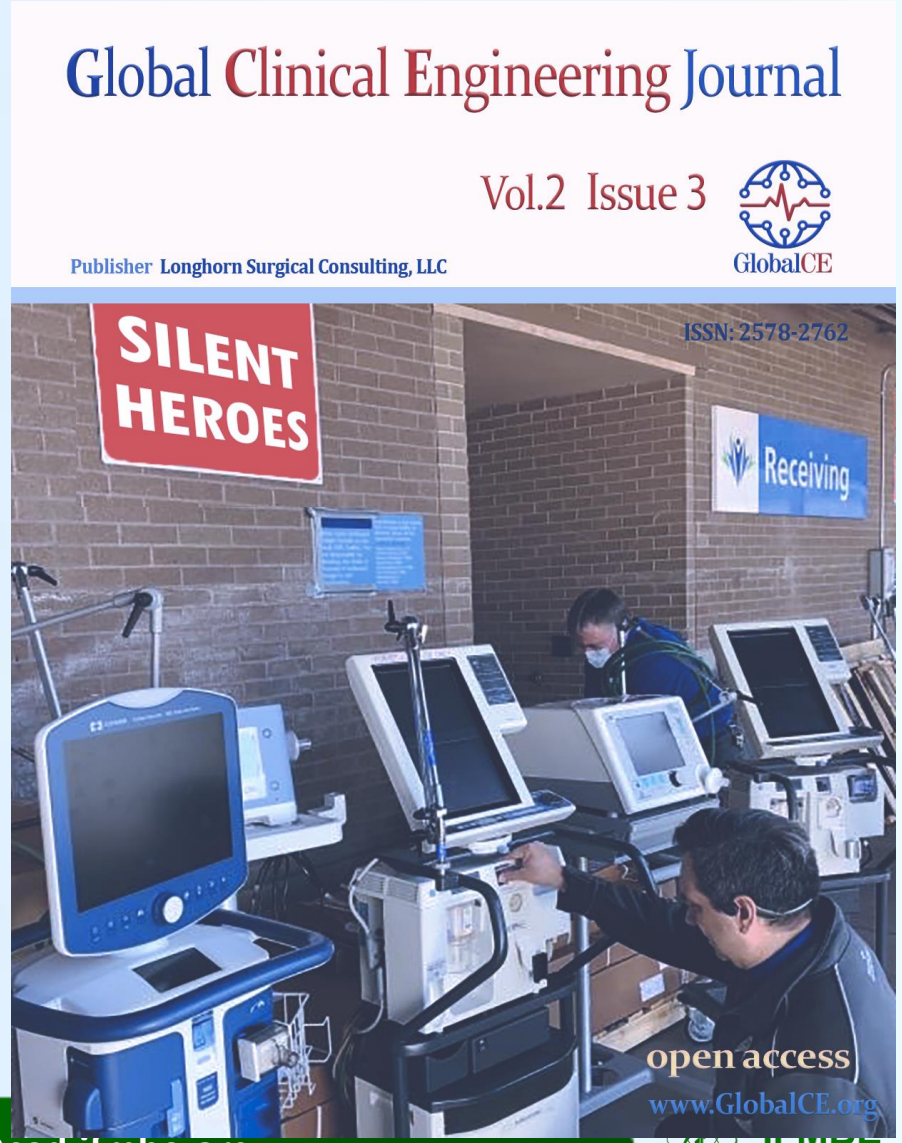
- CEs came with an interesting idea to do the programming for the patients remotely.
- All patients now are having their programming sessions remotely.



CE roles during the COVID-19 are highly appreciated

CE Professionals are silent heroes

- The Global Clinical Engineering Journal dedicated the front-page cover to recognizing all CE professionals.
- It referred to the CE efforts to maximize the availability of proper technology and ensure that care providers have what they depend on to help their patients.
- It also referred to the CEs' support in selecting the appropriate and safe technology.



CE roles during the COVID-19 are highly appreciated

The Critical Roles of Clinical Engineers During the COVID-19 Outbreak

- Design and manufacture respiratory equipment.
- Provide personal protective equipment (PPE).
- Support in building temporary hospitals.
- Ensure clinical equipment is available, and functioning.
- Ensure clinical equipment management is up to par.
- Ensure the availability of alternative equipment.
- Serve as vital links in coordinating supply chains of life-saving medical technology.
- Solve problems, from gas pipelines to manufacturing delays.

Key Health Technology Challenges from the COVID19 Crisis in EMRO

1. CEs have rare publications on COVID-19 despite their great efforts.
2. More efforts should be done toward having dynamic plans for disaster situations.

Rare publications showing great CE efforts

- Umberto Nocco, Italian Clinical Engineer Experience During Covid-19, J global clinical engineering, special issue 3, 2020.
  1. Machine availability plus space inside the hospitals (e.g., ICU beds).
  2. Organizational issues.
  3. Acquisition problems for devices.

- Şahada et al. Role of Biomedical Engineering During COVID-19 Pandemic, *Natural & Applied Sciences Journal Vol. 3 (1) 2020 3.*
  - Review Article for the AI applications during the pandemic

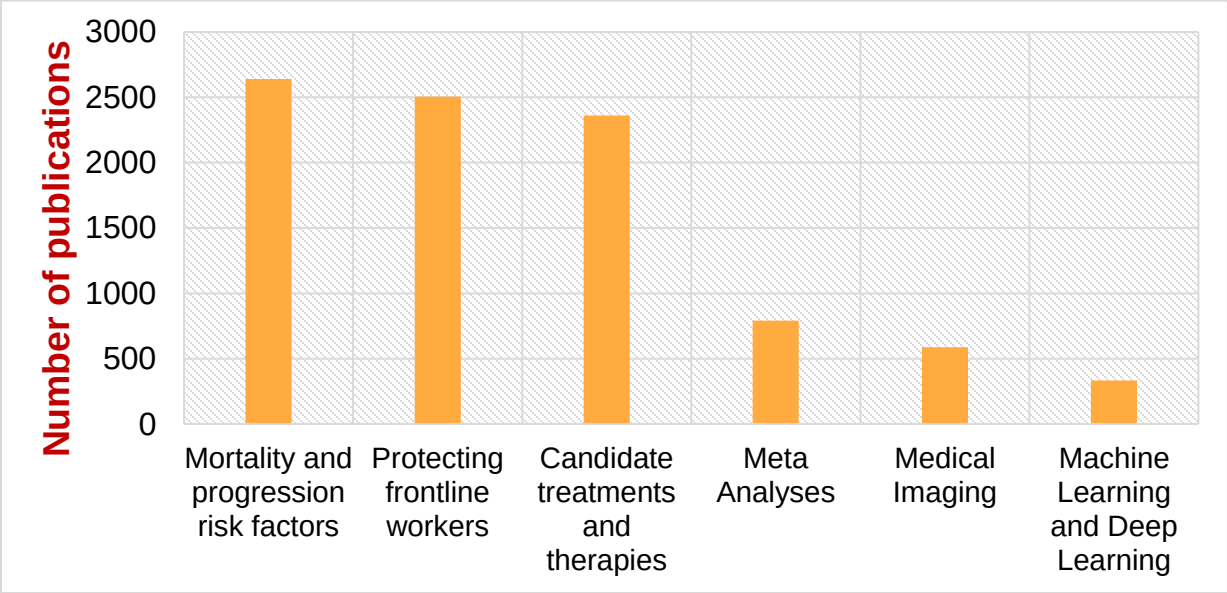
- More resources from IFMBE CED and WHO in the ppt

COVID-19 Publications

- **Publications in (RG)**

ResearchGate

More than 65,000 publications



Showing all research in all subject areas:

All · (66720)
Meta-analyses · (852)
Machine Learning and Deep Learning · (367)
Mobility and Location data · (148)
Transmission routes · (421)
Epidemiological surveillance reports · (21)
Epidemiological models · (569)
Control and exit strategies · (4482)
SARS · (3764)
MERS · (618)
Protecting frontline workers · (2682)
Psychological impact · (877)
Social and Economic Impact · (2416)
Case reports · (220)
Medical Imaging · (612)
Mortality and progression risk factors · (2856)
Laboratory screening · (1002)
Clinical pathology · (993)
Candidate treatments and therapies · (2508)
In-silico drug screening and development · (238)
Virology and Immunology · (772)
Pathogenesis · (1997)
Vaccine design · (936)

Efforts should be done toward having dyanamic plans for disaster situation

- Be ready for the Disaster/Emergency situations.
- Revisit the relevant guidelines to increase bed availability.
- We should propose more dynamic models for the Healthcare facility design, and medical equipment lists.

THANK YOU!

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Presented by

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Medical Equipment Planning- Health Technology Management-Facility Planning

1. Hospital utility services not adequate to cope with increased demand for equipment and additional ventilators especially MGPS, CSSD and HVAC systems.

- Rapid increase in equipment and conversion of patient rooms to isolation rooms and high dependency units, put a strain on the utility infrastructure.
- Especially MGPS; rapid modification to the plant room and additional support via. cylinder banks. Fortunately gas supplies were not disrupted and fully geared to cope with the additional demand.
- Conversion of several patient rooms to negative pressure isolation rooms added additional load to the HVAC system, alternate system sanitizing exhausted air and recirculation helped to a certain extant but was not accepted by regulatory authorities. Onset of summer did not help. Additional split units had to be installed in several rooms.
- CSSD department was overloaded with additional needs to reprocess material such as Masks, because of supply chain disruptions. Availability of UV-C disinfecting system was helpful to some extent. All these aspects exposed that disaster preparedness for hospitals is required beyond emergency rooms.

2. Training for end users on new equipment-assorted models and variety of accessories.

- Several new equipment were acquired bypassing the asset management and standardization procedures.
- This resulted in a wide variety of equipment for the same functions (especially ventilators) with different operating systems, alarms and accessories.
- Rotation duties of clinical staff (Alternate day duties) and staff shortages aggravated the system.
- Attaching quick use guides to the equipment posed an additional infection risk.
- BMETs had to be available in the patient areas at all time to assist the clinical teams.

3. Rescheduling planned maintenance and access to equipment for service.

- Planned maintenance service to several equipment had to be rescheduled on deferred basis.
- Risk profile of several equipment had to be revaluated to reschedule planned maintenance.
- This was additional work in addition to the deluge of works supporting procurement with new equipment acquisitions, acceptance testing of new equipment, staff training & support and compliance with the enhanced infection control measures.
- Support staff from parts store, documentation had to be roped in to cope with the additional demands of work.
- Respective suppliers cooperated in scheduling staggered deliveries even off hours and on weekends.

1. **When equipment are procured, dependency on building utilities has be assessed well not only for routine use but also in case of emergencies.**

- For example ventilators with built in compressed air turbines and oxygen concentrators will be desirable.
- This is likely to increase the asset, inventory and maintenance cost.
- The number of such equipment must be aligned with the disaster preparedness policies of the hospital facilities.

2. Several hospital utility systems need to be made modular and switchable depending on the consumption loads.

- So that rapid increase in demands can be coped with while minimizing idle capacity.
- It will take new approach to designing the utility services, rather than linear redundancy models that are in place at several installations.
- For example CSSD departments may have several equipment for sterilization in addition to autoclaves, of varying capacities so that the numbers that are put to use will depend on the volume of work in the department.
- The implications for BMETs resulting from such strategies will be significant. For instance planned maintenance will be more meaningful and effective if done on use time basis or MTBF basis rather than fixed period basis as is the normal practice.
- An alternate strategy for groups that operate several healthcare facilities is to have a pool of equipment on mobile systems that can be quickly deployed to sites where demands goes up owing to unplanned events such as the current epidemic.

3. Drastic changes need to be effected the way user experience and interface of the equipment is designed.

- Manufacturers, driven by the need to differentiate their products, strive to be as different from competing brands as possible.
- This puts a huge burden on the BMETs and clinical users to learn every time a new model is acquired.
- Several key aspects of user experience and interface need to be standardized.
- So that the learning curve of clinical users is short.
- Models from consumer electronic, mobile computing and telecommunication device industries can be emulated, wherein several differentiators exist in terms of features yet the user aspects are more or less standard and quickly learned.

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Consultant:

- Medical Equipment Planning & Procurement
- Facility Planning
- Health Technology Management
- Mobile Healthcare Program Development
- Medical Equipment Design
- Training – Health Technology Management

Member board of studies Biomedical Engineering- Osmania University, India

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Lebanese HealthCare Management Association
Health Technology Management & Advancement

Bassam Tabshouri

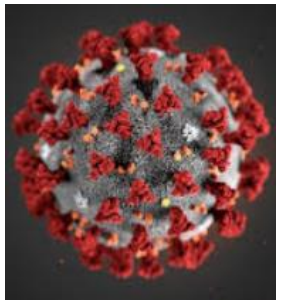
July 22, 2020

Key Health Technology

Challenges and Learnings from the

COVID19 Crisis in EMRO

International Federation for Medical and Biological Engineering
IFMBE



https://www.lb-hma.org

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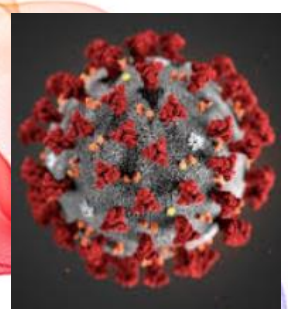
Health Technology Management & Advancement

International Federation for Medical and Biological Engineering
IFMBE

Outline:

1. Quick Background about HTMA
2. Challenges and Learnings AUBMC
3. Challenges and Learnings LHMA



HTMA

Our Host LHMA

Background:

HTMA is a committee of the

Lebanese Healthcare Management Association

LHMA was founded in 2002

1. Non-Governmental, non-profit Association
2. Not affiliated and not involved to any political party or activity
3. Can open branches in Lebanon and abroad

•Jul. 2016: Mandate & goals developed
•Mar. 2017: First activity in AUB

Lebanese HealthCare Management Association
Health Technology Management & Advancement

HTMA
Our Host LHMA

International Federation for Medical and Biological Engineering
IFMBE

Goals of LHMA

Connect professionals to lead initiatives

for advancing population health,

healthcare management & technology innovation

through

education, collaborations, consultations,

conferences, research, publications & focus groups

HTMA
Goals & Objectives

VISION

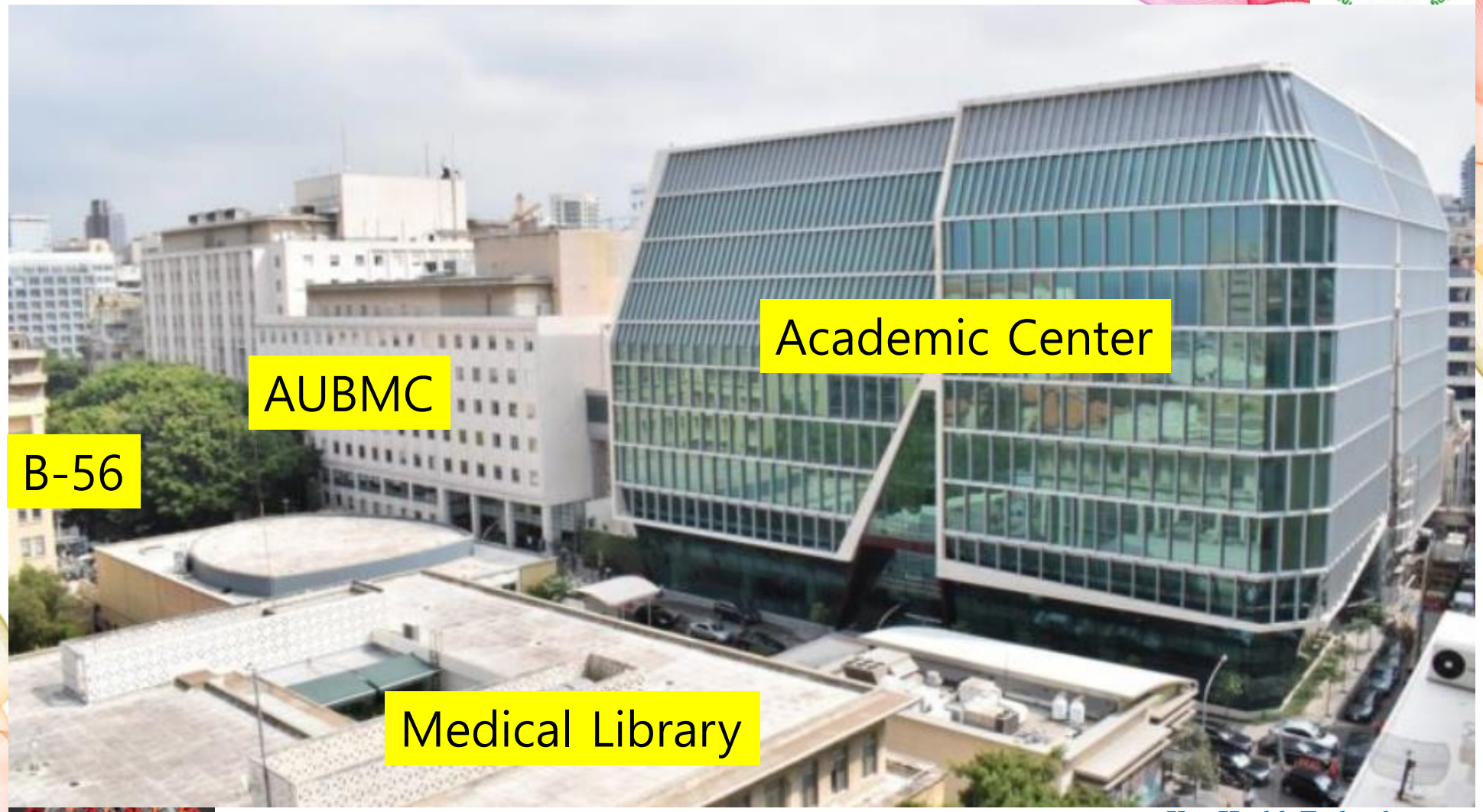
Lead ***innovative*** healthcare technology management, assessment and advancement of solutions and initiatives

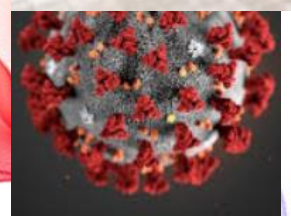
for safe quality healthcare, education and research through the ***development*** of professionals, standards, systems, and technologies

in ***Lebanon and the MENA region and globally***

Lebanese HealthCare Management Association
Health Technology Management & Advancement

AUBMC Experience:

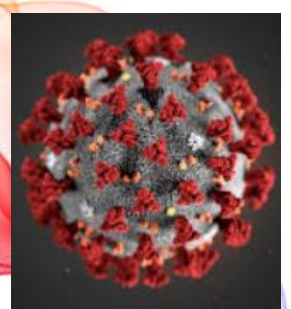




Lebanese HealthCare Management Association
Health Technology Management & Advancement

AUBMC Experience:

COVID-19 Center



https://www.lb-hma.org

Key Health Technology
Challenges and Learnings
from the
COVID19 Crisis
in EMRO

Lebanese HealthCare Management Association
Health Technology Management & Advancement

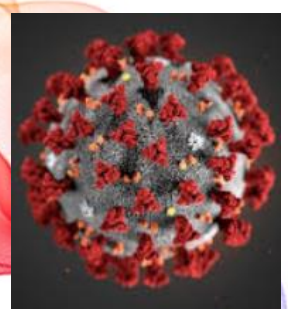
AUBMC Experience:

1. Need to set up a COVID center in 10 days and to relocate others departments

2. Needed high coordination of different teams Plant Engineering, Clinical engineering, IT, etc.

3. Training staff on working in a COVID environment and handling COVID patients. Simulations sessions

4. Availing equipment for the COVID Center



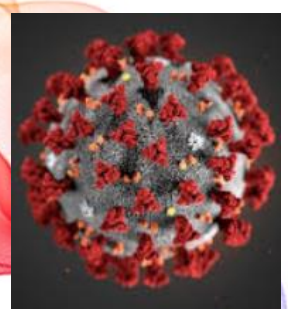
AUBMC Experience:

5. Staff was asked to work from home & to be on shift basis

6. Revamp some built in–house ventilators for emergency use

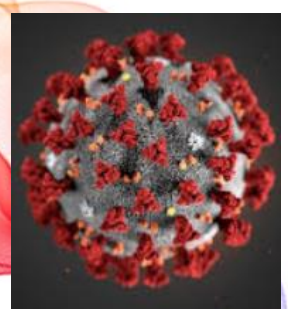
7. Due to EPIC, workflows and platforms for COVID patients had to be developed as well as for telemedicine consultations

8. Team morale and safety have been a challenge in the midst also of layoffs in the institutions



Lebanese HealthCare Management Association
Health Technology Management & Advancement

LHMA Experience:



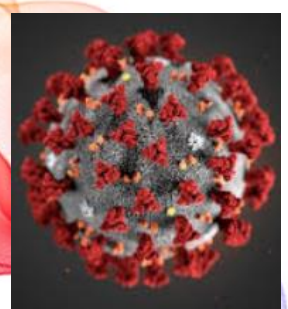
https://www.lb-hma.org

Key Health Technology
Challenges and Learnings
from the
COVID19 Crisis
in EMRO

Lebanese HealthCare Management Association
Health Technology Management & Advancement

LHMA Experience:

International Federation for Medical and Biological Engineering
IFMBE



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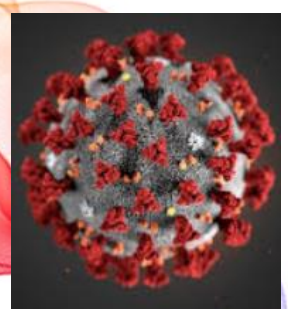
LHMA Experience:

Online Meetings to set the Lebanese Standards

- Oxygen Systems
- Masks, Face Shields, and N95 Respirators (Masks)
- Ventilators
- CPAP, BIPAP
- Pulse Oximetry

Advice & support for local industry

Advice & support to our colleagues in other institutions



Outline:

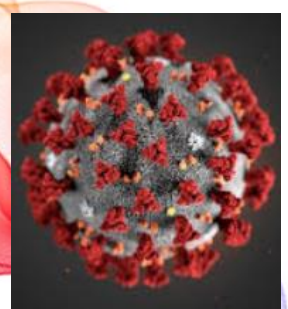
Lessons Learned

a. Monitor daily more than once what is going on internationally and locally and adjust your plans and safety measures (IFMBE)

b. Get out of the box and innovate to cover the shortage

c. Share your info, knowledge and expertise within and outside your institution

d. Positive attitude and resilience are a must



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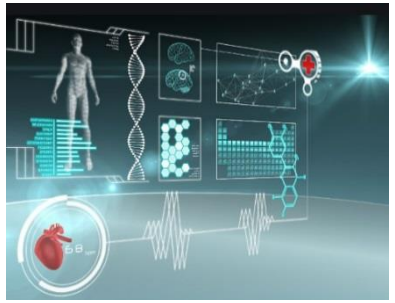
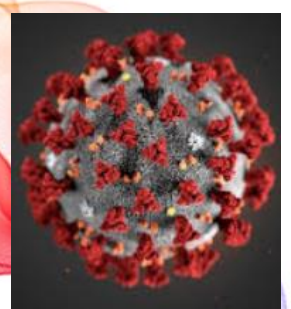
Final Message

The challenges in our country and region due to instability & lack of human resources



are a call for us to put extra innovative efforts

Together we can make a difference



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Key Health Technology
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MSF COVID-19 Intervention
YEMEN

msf.org/yemen

CORONAVIRUS COVID-19 PANDEMIC

As COVID-19 spreads, fear drives people away from hospitals in Yemen

PRESS RELEASE 9 JUL 2020

YEMEN

Behind the conflict in Yemen

MSF STORYMAPS. 25 JUN 2020

CORONAVIRUS COVID-19 PANDEMIC

"COVID-19 has made the health system's collapse complete" in Yemen

PROJECT UPDATE 10 JUN 2020

CORONAVIRUS COVID-19 PANDEMIC

"We have a lot of people that die quickly" of COVID-19 in Yemen

PROJECT UPDATE 2 JUN 2020

YEMEN

Catastrophe unfolding in Aden's only COVID-19 treatment centre

PRESS RELEASE 21 MAY 2020

YEMEN

Authorities in Yemen must do all they can to facilitate COVID-19 response

PRESS RELEASE 10 APR 2020

January 2020 April July

Biography

- Biomedical and Cold Chain advisor for MSF (Doctor Without Borders) HQ based in Barcelona, Spain
- Member of the Administrative Council of the NGO called Humatem, France
- Recently Collaborator of the IFMBE/CED organization.

MEDECINS SANS FRONTIERES

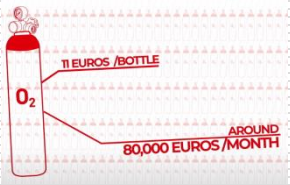
Biomed challenge:
Oxygen access

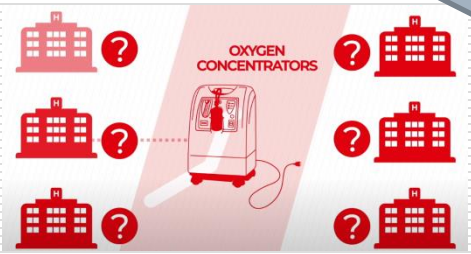
COVID-19: Dealing with Oxygen Supply Challenges

Doctors Without Borders / MSF-USA 189 views • 2 weeks ago

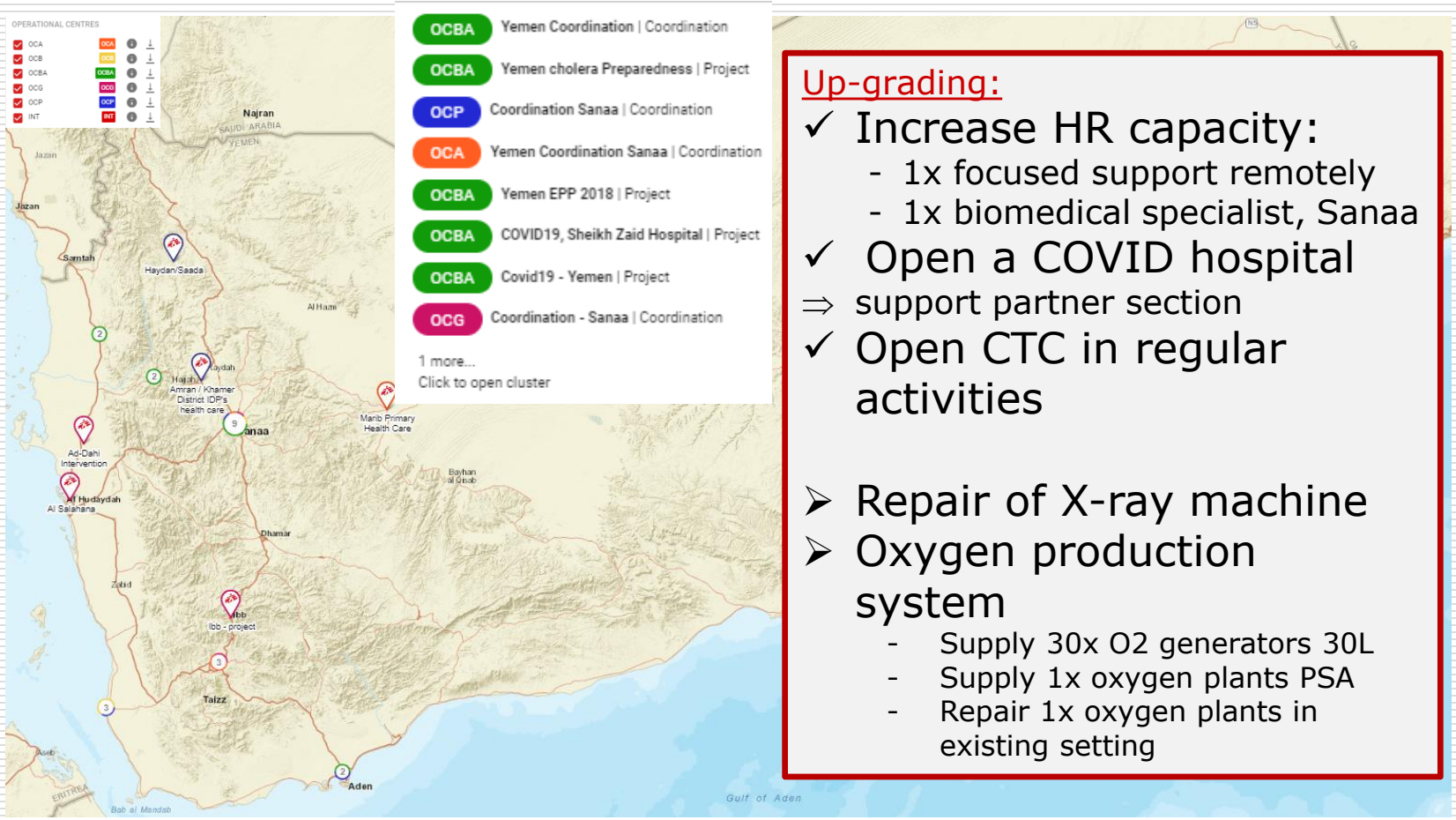
Patients who are seriously ill with COVID-19 cannot be treated without oxygen, but providing enough oxygen to meet the needs ...

40 beds





Biomed projects:
Increase MSF intervention activities.



Up-grading:

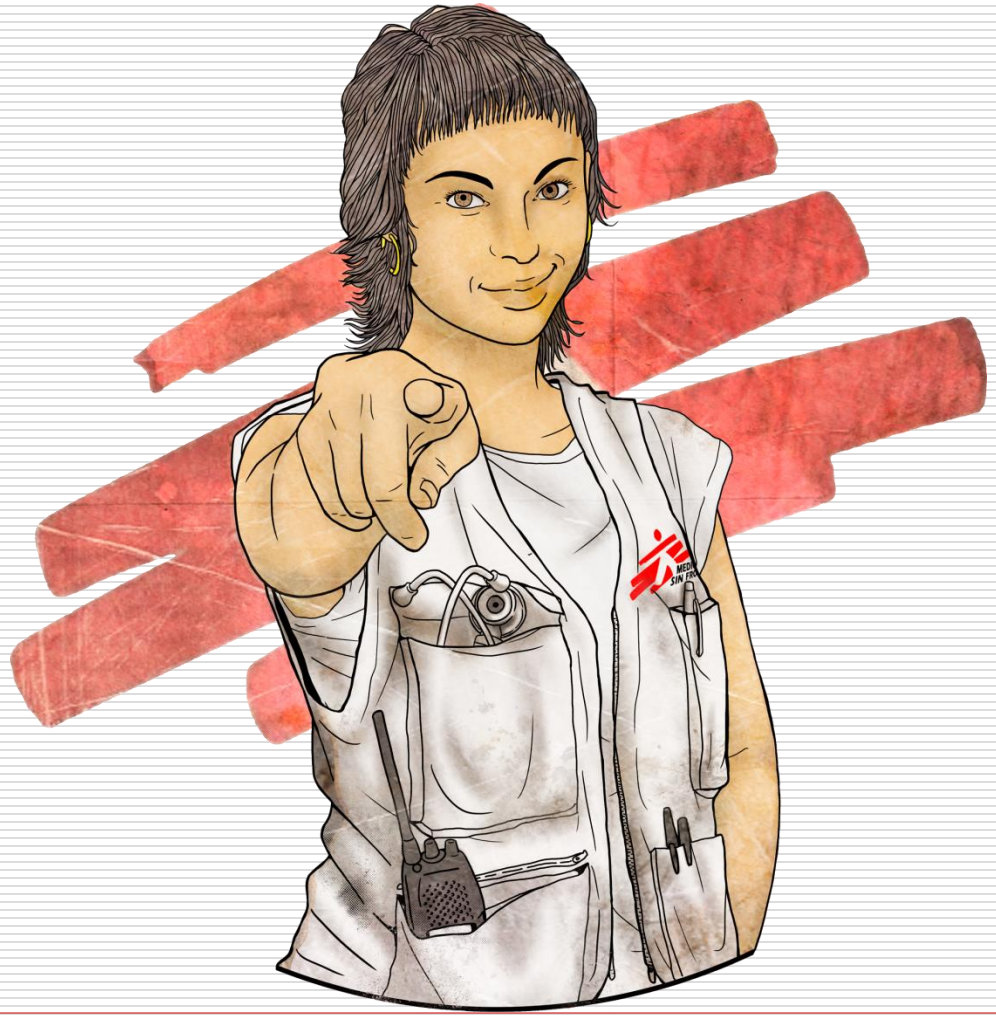
- ✓ Increase HR capacity:
  - 1x focused support remotely
  - 1x biomedical specialist, Sanaa
- ✓ Open a COVID hospital

⇒ support partner section

- ✓ Open CTC in regular activities

- ➢ Repair of X-ray machine
- ➢ Oxygen production system
  - Supply 30x O2 generators 30L
  - Supply 1x oxygen plants PSA
  - Repair 1x oxygen plants in existing setting

We need you



To **share the message**

and

seek for support

MEDECINS SANS FRONTIERES

Q&A from participants

Collected from Chat and Q&A Functions on Zoom during the presentation

https://ced.ifmbe.org/

IFMBE Clinical Engineering Division (CED)

Together …

Thank you!

… We Can Make It Better … Everywhere