ABSTRACT BOOK

EMPHNET Regional COVID-19 Operational Research Symposium

COVID-19 in the Eastern Mediterranean Region: Epidemiology, Impact, and Lessons Learned

April 7 and 8, 2021
3pm-6pm Jordan Local Time (UTC+3)

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EMPHNET REGIONAL COVID-19 OPERATIONAL RESEARCH SYMPOSIUM

OVERVIEW

The Eastern Mediterranean Public Health Network (EMPHNET) is launching its Regional COVID-19 Operational Research Symposium, with sessions set to shed light on the latest scientific findings from the region regarding the COVID-19 pandemic.

Held between April 7 and April 8, 2021 on the online platform ZOOM, this two-day event will serve as an ideal space for Field Epidemiology Training Program (FETP) graduates, and residents, as well as public health professionals to share their experiences dealing with critical issues at the forefront of public health. It will also showcase the scientifically grounded work of FETP residents and graduates, as well as other public health professionals who have chosen to share their achievements, research findings, and field investigations with a wide participation base.

The symposium's main objective is to showcase COVID-19 related work from the region, whether in the form of scientific articles, research, or case studies. Its sessions will also help increase the visibility of the FETPs' fieldwork as well as the work of other public health professionals in the Eastern Mediterranean Region (EMR). Moreover, we believe that through the event's diverse agenda, participants will be able to exchange knowledge and experiences, while engaging in discussions that may lead to the elevation of COVID-19 research in the region.

THEME

Holding the theme "COVID-19 in the Eastern Mediterranean Region: Epidemiology, Impact, and Lessons Learned", the symposium offers participants the opportunity to share work that the COVID-19 pandemic has made more noticeable due to the high risk it poses to health workers across the globe. The lessons learned from this pandemic are hardearned, invaluable, and worth sharing. They define the experience that ought to guide the public health community towards success in similar future situations.

CONFERENCE AGENDA

The symposium will host two Keynote speakers (one per day), followed by presentations focusing on the work of FETP residents and graduates, and other Public Health professionals. Presenters include teams of public health experts and FETP graduates and residents from different countries across the EMR including Afghanistan, Egypt, Iran, Iraq, Jordan, Kuwait, Morocco, Oman, Pakistan, Palestine, Saudi Arabia, Sudan, Tunisia, and Yemen. The abstracts presented at the symposium will cover a wide range of topics including the epidemiology of COVID-19, interventions at national and subnational levels, the work of Rapid Response Teams (RRTs), COVID-19 Case Studies, the impact of COVID-19 on communicable and non-communicable diseases, and health promotion during the COVID-19 pandemic, amongst other pressing topics. And, in order to allow for the most diverse knowledge exchange experience, participation in the symposium will be open for regional and international experts working in public health and other related fields.

Chairperson of the Board of Directors Letter

Excellencies, Distinguished Delegates, Ladies, and Gentlemen,

It gives me great pleasure to extend to you all a very warm welcome to EMPHNET's Regional COVID-19 Operational Research Symposium. On behalf of the FETP Board of Directors, representing the Field Epidemiology Training programs (FETPs) of the Eastern Mediterranean Region (EMR), I can attest that this symposium would not have been made a reality without the diligent efforts of my colleagues at EMPHNET, so to everyone contributing to the organization of this event, I extend my sincere thanks and appreciation to you all.

I am confident that this two-day event will provide us with an opportune time to renew our commitments to improving health status in the EMR. Furthermore, it will provide us with a unique golden opportunity to bring to the forefront the latest findings of operational research pertaining to COVID-19 in our region.

The COVID-19 pandemic has indeed challenged global health systems, and our region's health systems are no exception. Furthermore, a region like ours is characterized by socio-political unrest, humanitarian crises, natural disasters, and emergencies, all of which add extra challenges that interfere with the provision and quality of healthcare services during a pandemic.

Holding the theme "COVID-19 in the Eastern Mediterranean Region: Epidemiology, Impact, and Lessons Learned", this symposium offers an unmatched occasion for participants to share work that the COVID-19 pandemic has made more noticeable from our region. Due to the high risk the pandemic poses to health workers across the globe, the lessons learned from it are hard-earned, invaluable, and worth sharing. Bringing together the region's FETP residents, graduates, and other health professionals in this virtual space will help us define the experience that ought to guide the public health community towards success in similar future situations, while the fruitful discussions and informative presentations that we will witness and partake in will bring us one step closer to resolving similar health challenges we could face in the future.

I can say with confidence that public health service, practice, and professionals in the EMR will benefit greatly from this symposium as we come together to share both accomplishments and challenges that unite us in moving towards excellence in public health and better health service for our communities and people.

I hope you all have an informative experience at the symposium.

Dr. Sahar Elshourbagy,
Chairperson of the FETP Board of Directors

Executive Director Letter

Dear Colleagues,

It gives me great pleasure to extend to you a very warm welcome on behalf of EMPHNET and to express how grateful we are to having you join us in this virtual Regional COVID-19 Operational Research Symposium.

For this symposium, we received 84 abstracts, out of which 20 were accepted. These accepted abstracts were developed by FETP residents, graduates, and public health pro-fessionals from Afghanistan, Egypt, Iran, Iraq, Jordon, Kuwait, Morocco, Oman, Pakistan, Saudi Arabia, Sudan, Tunisia, Yemen, and other countries in the EMR.

The agenda for the symposium, which is being held under the theme "**COVID-19 in the Eastern Mediterranean Region: Epidemiology, Impact, and Lessons Learned**", covers a wide range of topics. All these topics are related to different areas of COVID-19 opera-tional research developments from the region.

Sessions will focus on the epidemiology of COVID-19, COVID-19 surveillance and case test-ing, the work of rapid response teams, the impact of COVID-19 on non-communicable disease, COVID-19 case studies, lessons learned, and more.

We believe that exploring new ideas and approaches to address public health challenges brought to us is essential, and we are aware that regardless of what we do on the national level, be it research or response, more can be done through collaboration. This need has become more apparent as the world continues to respond to the pandemic. Thus, we hope that this two-day event will be the prelude to more fruitful collaborations to come. We must join in an action-oriented effort to respond to the challenges that delay develop-ment; especially when considering the unprecedented political unrest and instability that left millions of people at risk of disease exposure or suffering. The experience sharing and discussions provided by events like this one are the way forward to achieving this goal. Finally, I would like to emphasize that this two-day event presents a great opportunity for you to reach a large number of participants from the public health community, and to draw attention to new methodologies, and receive recognition.

So, I leave you with best wishes from EMPHNET for both a productive and successful symposium, and a fruitful informative experience to come.

Dr. Mohannad Al Nsour,
Executive Director, EMPHNET

A Note of Sincere Thanks and Appreciation

Dear Moderators,

We would sincerely like to thank you for taking on a moderating role during our COVID-19 Operational Research Symposium, and thus contributing to the conference's success. All of your hard work has paid off, and as a result, we can confidently say that our sessions will run smoothly and efficiently.

The end result is a fruitful symposium experience for all participants, and this is on account of the time and effort you put into your contribution.

Yours Sincerely,
The Scientific Committee of the Symposium

A Note of Sincere Thanks and Appreciation

Dear Participants,

Thank you for attending the First EMPHNET Regional COVID-19 Operational Research Symposium taking place between April 7 and April 8, 2021. We would also like to take this opportunity to thank all participants who contributed positively to the event by sharing their thoughts, practices, and insights, and thus added to the symposium's success.

The sessions and the discussions that will be made during this event will shed light on the most recent COVID-19 scientific findings from the region. We hope that these can be the building blocks to sustainable outcomes that will, in turn, strengthen public health systems in the region.

This Symposium recognizes the research conducted by Field Epidemiology Training Programs (FETPs) as well as other public health professionals who contributed to their countries' pandemic response efforts. It also creates opportunities for dialogue that could enhance COVID-19 operational research in the region. We received a total of 84 abstracts from the region, out of which we had accepted 20 to be presented in the sessions of this event. Together, the abstracts presented cover different areas of COVID-19 operational research conducted in our region. We are confident that in these presentations there is valuable knowledge to be gained from all participants.

Going forwards, we hope to strengthen knowledge exchange and networking tools, as well as establish a hub for researchers to enhance and further encourage operational research in the region.

We would like to reiterate our gratitude for your participation and interest, this made our sessions highly interesting, informative, and beneficial, and finally, we sincerely hope that this Symposium provides a fruitful experience for all participants.

Yours Sincerely,
The Scientific Committee of the Symposium

A Note of Sincere Thanks and Appreciation

Dear Abstract Review Committee Members,

The EMPHNET Regional COVID-19 Operational Research Symposium Organizing Committee would like to express its gratitude for your tireless efforts during the review process of the abstracts submitted for our event.

All the hours of your hard work have paid off and, as a result, we are proud to have all submitted 84 abstracts carefully reviewed within a tight schedule.

This allowed for the successful and timely accomplishment of this tremendous task. Therefore, you are the reason we should be proud of making this effort happen on time. We, once again, would like to express our sincerest gratitude towards you for such a commendable job.

Yours Sincerely,
The Organizing Committee of the Symposium

Scientific Committee

- Dr. Yousef Khader
- Dr. Abdelwahed Al-Serouri
- Dr. Faris Lami
- Dr. Elfatih Malik
- Dr. Khawaja Mir Islam Saeed
- Dr. Haitham Bashir
- Dr. Mirwais Amiri

Organizing Committee

- Ms. Dana Shalabi
- Dr. Yousef Khader
- Dr. Haitham Bashir
- Dr. Mirwais Amiri
- Mr. Haitham Nazzal
- Mr. Mohammad Asad
- Ms. Haneen Adwan
- Ms. Leen Khalil
- Ms. Banan Obaidat

EMPHNET Regional COVID-19 Operational Research Symposium Agenda

I. Symposium Details			
Venue	Zoom		
Date	Day One April 7,2021	Time	3:00 pm - 6:00 pm Jordan Local Time (UTC+3)

II. Agenda Items	
Time	Agenda Item
3:00 - 3:05 pm	**Opening Ceremony:** Welcoming Remarks Dr. Mohannad Al Nsour Executive Director, EMPHNET
3:05 - 3:15 pm	**Movie:** FETPs and Their Journey Through COVID-19
3:15 - 3:35 pm	**Keynote Speaker:** Dr. Ronald L. Moolenaar MD, MPH Associate Director for Science, Division of Global Health Protection, CGH, CDC
3:35 - 3:45 pm	**Q&A Session** Moderated by Dr Faris Lami
	Session One **Descriptive Studies** **Session Moderator: Prof. Salim Adib**
3:45 - 3:55 pm	**Abstract** "Descriptive Epidemiology of Coronavirus Disease 2019 in Afghanistan" Dr. Marzia Mohmand, FETP Graduate, Afghanistan
3:55 - 4:05 pm	**Abstract** "Sex-Based Variations in Clinical Manifestations, Co-morbidities, and Outcome of COVID-19 Patients in Baghdad, Iraq, 2020" Dr. Nameer Ali, FETP Resident, Iraq
4:05 - 4:15 pm	**Abstract** "The First Cluster of COVID-19 Cases in the Sultanate of Oman in Muttrah District, 2020" Asim Al-Manji, FETP Resident, Saudi Arabia
4:15 - 4:25 pm	**Abstract** "Public Health Workers' Knowledge, Attitude, and Practice regarding COVID-19: The impact of Field Epidemiology Training Program in the Eastern Mediterranean Region" Dr. Salma Afifui, FETP Residnet, Egypt
4:25 - 4:35 pm	**Abstract** "Risk Factors of COVID-19 Critical Outcomes in the Eastern Mediterranean Region: A Multi-country Retrospective Study" Dr. Faris Lami, Public Health Expert, Iraq
4:35 - 4:50 pm	**Discussion of the First Session Abstracts** Prof. Salim Adib

	Session Two Impact and Consequences of COVID-19 Session Moderator: Dr. Refaat Hanna
4:50 - 5:00 pm	**Abstract** "The Late Sequelae of COVID 19 among Recovered Patients, Baghdad, Iraq, 2020" Dr. Shahd Ramzi, FETP Resident, Iraq
5:00 - 5:10 pm	**Abstract** "Contribution of COVID-19 Pandemic on Neonatal, Perinatal Mortality, Preterm Birth Rate and Birth Weight Trends in Jordan" Dr. Eman Badran, Jordan
5:10 - 5:20 pm	**Abstract** "Impact of COVID-19 on Essential Immunization (EI) regarding Vaccine Preventable Diseases District DG Khan, Punjab, Pakistan-2020" Dr. Fawad Khurshid, FETP Graduate, Pakistan
5:20 - 5:30 pm	**Abstract** "Mental Health Impacts of COVID-19 on Healthcare Workers in the Eastern Mediterranean Region: A Multi-Country Study" Dr. Yasser Ghaleb, FETP Resident Advisor, Yemen
5:30 - 5:40 pm	**Abstract** "Early Impact of the COVID-19 Pandemic on Routine Childhood Immunization Coverage Rates in Kasserine district, Tunisia, February to April 2020" Dr. Mhamdi Dalel, FETP Graduate, Tunisia
5:40 - 5:55 pm	**Discussion of the Second Session Abstracts** Dr. Refaat Hanna
5:55 - 6:00 pm	**Closure of Day One and Announcement of Day Two** Dr. Mohannad Al Nsour

I. Symposium Details

Venue	Zoom		
Date	Day Two April 8,2021	Time	3:00 pm - 6:00 pm Jordan Local Time (UTC+3)

II. Agenda Items

Time	Agenda Item
3:00 - 3:05 pm	**Welcome to Day Two and Summary of the Day's Agenda** Dr. Mohannad Al Nsour
3:05 - 3:25 pm	**Keynote Speaker:** Dr. Arash Rashidian, Director, Information, Evidence and Research World Health Organization (WHO), Eastern Mediterranean Regional Office
3:25 - 3:35 pm	**Q&A Session** Moderated by Dr Faris Lami
	Session Three **Methodology, Modelling, and the Study of Comorbidities** **Session Moderator: Dr. Maria Consorcia Quizon**
3:35 - 3:45 pm	**Abstract** "The Impact of Comorbidities on COVID -19 Severity and Mortality in Egypt" Dr. Shereen Elghazaly, FETP Graduate, Egypt
3:45 - 3:55 pm	**Abstract** "A Comparison of Different Approaches to Estimate Initial Reproduction Number of SARS-CoV-2 in the Islamic Republic of Iran" Dr. Nayereh Esmaeilzadeh, Iran
3:55 - 4:05 pm	**Abstract** "The Pattern of Comorbidities among COVID-19 Patients and their Impact on the Outcome in Babel Governorate, Iraq, 2020" Dr. Alaa Hussein, FETP Resident, Iraq
4:05 - 4:15 pm	**Abstract** "Between Herd Immunity and Suppression: A Modelling Study Assessing Alternative Policy Responses to COVID 19 in Jordan" Dr. Yousef Zawaneh, Public Health Professional, Jordan
4:15 - 4:25 pm	**Abstract** "Using a Stochastic Continuous-Time Markov Chain Model to Examine Alternative Timing and Duration of the COVID-19 Lockdown in Kuwait: What Can be Done Now?" Dr. Mustafa AlZoughool, Kuwait
4:25 - 4:40 pm	**Discussion of the Third Session Abstracts** Dr. Maria Consorcia Quizon

	Session Four **Within the Communities and Health Systems** **Session Moderator: Dr. Carl Reddy**
4:40 - 4:50 pm	**Abstract** "Screening for SARS-CoV-2 Infection in Schools in Morocco" Dr. Mouad Merabet, FETP Graduate, Morocco
4:50 - 5:00 pm	**Abstract** "Continuity of Primary Care for Patients with Chronic Diseases during the Lockdown due to COVID-19: Health Care Professionals' Perspective" Dr. Hicham ElMouaddib, Morocco
5:00 - 5:10 pm	**Abstract** "Stigma Against COVID-19 Patients in Palestine: A Cross-Sectional Study" Dr. Rawan Kafri, Public Health Professional, Palestine
5:10 - 5:20 pm	**Abstract** "School Cluster of Coronavirus Disease-19 (COVID-19), Super Spreader Index Case Eastern Province: Qatif, Saudi Arabia 2020" Dr. Zainab Alnass, FETP Graduate, Saudi Arabia
5:20 - 5:30 pm	**Abstract** "Response to COVID19 Pandemic in Dental Care Settings in Khartoum State, Sudan: Interventions, Challenges and the Way Forward, August 2020" Dr. Arwa Omer Musa, Sudan
5:30 - 5:45 pm	**Discussion of the Fourth Session Abstracts** Dr. Carl Reddy
	Closing Ceremony

5:45 - 5:55 pm	• **Tribute video for Prof. El-Fatih Z. El-Samani**
	
	• **Recognitions**
	
	  Prof. El-Fatih Z. El-Samani
	
	  Best Abstract Award at the EMPHNET Regional COVID-19 Operational Research Symposium
	
	  Dr. Yousef Khader, Head of Scientific Committee
	
	• **Closing remarks**
	
	  Dr. Mohannad Al Nsour

5:55 - 6:00 pm	**Additional time**

Abstract Code: 2021-EOH-656
Presenter Name: Dr. Marzia Mohmand
Country: Afghanistan
Presenter Email: marzia.afetp@gmail.com
Author: Wahid Amiri, Marzia Mohmand
Title: Descriptive Epidemiology of Coronavirus Disease 2019 in Afghanistan

Background: On 31 December 2019, the Coronavirus Disease 2019 (COVID-19) emerged in China and soon spread globally including across Afghanistan.

Purpose: The aim of this study was to review and describe the epidemiological characteristics of COVID-19 in the country.

Methodology: A descriptive epidemiological study was conducted to describe the cases and deaths due to COVID-19 according to time, location, and demographic characteristics. Data were extracted from the District Health Information Software 2 (DHIS2) databases developed by the Ministry of Public Health between February 24, 2020, and February 02, 2021.

Results: The first suspected case of COVID-19 was imported from Iran to Herat province in Western Afghanistan and was laboratory-confirmed on 24 February 2020 in Kabul. On 22 March 2020, the first official death due to COVID-19 was announced in Balkh province. Within approximately one year, a total of 55,174 cases including 2,406 deaths from COVID-19 were officially reported. A total of 254,562 samples were tested by PCR and 21.6% were identified as positive for COVID-19. Kabul, Herat, Balkh, Nangarhar, and Kandahar had the highest number of cases among 34 provinces. The average age of infected individuals was 40 years (range: 1-119 years). Almost 67% of COVID-19 cases and 72.7% of deaths occurred among males. The majority of cases (46.7%) were among the age group of 20-40 years. The majority (78.7%) of COVID-19-related deaths occurred in those aged 50 years and older. A total of 4,269 (7.7%) healthcare workers were infected of whom 88 (3.7%) died.

Conclusions: Higher morbidity was recorded in the young population while increased rates of mortality were reported in older groups. Males were more infected and died than females. Data quality and scope should be strengthened, and further epidemiological studies are required.

Keywords: Afghanistan; COVID-19; Pandemic; Descriptive; Epidemiology.

Abstract Code: 2021-EOH-616
Presenter Name: Dr. Nameer Ali
Country: Iraq
Presenter Email: nameer.kareem1300a@comed.uobaghdad.edu.iq
Author: Nameer Ali, Faris Lami, Munir Talib Salman
Title: Sex-based Variations in Clinical Manifestations, Co-morbidities, and Outcome of COVID-19 Patients in Baghdad, Iraq, 2020

Background: Although it was reported that higher percentage of the confirmed COVID-19 cases were males. the differences between male and female in clinical manifestations, comorbidities, severity, and outcome remains an area of active investigation.

Purpose: To compare the clinical features, comorbidities, severity, and outcome between male and female COVID-19 patients, Baghdad, Iraq, 2020.

Methodology: A records-based cross-sectional study was conducted through extracting sociodemographic, clinical manifestations, severity, and outcome data from the records of COVID- 19 patients admitted to two COVID-19 hospitals in Baghdad, Iraq during June through August 2020.

Results: The total number of patients was 2,111; males were 1,175 (55.7%). The mean patients' age was 49.6 (±16.4) years with no significant difference between males and females (P=0.240). Respiratory symptoms, sore throat and gastrointestinal manifestations were significantly more common among females (90.5%; P= .034), (14.0%; P=.022), and (11.5%; P=.002), respectively. Males had significantly higher "other" manifestations (5.6%; P=0.024). No significant difference was noted for fever, nasal congestion, conjunctival congestion, headache, and musculoskeletal manifestations (P>0.05). Generally, female patients had a significantly higher proportion of comorbidities compared to males (42.7% vs 36.0%; P=0.002). The proportion of severe cases among males was 28.7% compared to 27.8% among females (P>0.05). Also, the critical cases were seen in 22.3% of male compared to 20.9% of female (P>0.05). The mean time taken from diagnosis till outcome was 11.4±6.9 days; it was significantly longer in females (P=.034) while the mean time taken for hospital stay was 7.0±5.1 days with no significant difference between males and females (P=0.476). The overall case fatality ratio was 14.8% (313/2,111); it was higher in males (16.1%) than females (13.2%) (P= .202).

Conclusions: The gender affects the clinical course and outcome of COVID-19 patients. Male patients may need more attention considering the higher case fatality ratio.

Keywords: COVID-19; Iraq; Gender, case fatality ratio, comorbidity.

Abstract Code: 2021-EOH-643
Presenter Name: Dr. Asim Al-Manji
Country: Oman
Presenter Email: asalminji@gmail.com
Author: Asim Al-Manji, Khalid AlGhaali
Title: The First Cluster of COVID-19 Cases in the Sultanate of Oman in Muttrah District, 2020

Background: In Oman, the first cluster of COVID-19 cases was reported in Muttrah District, Muscat Province on 15 March 2020. Mutrah, with a population of 269,507 (76% expatriates), has a major seaport and an old traditional market. Both of these represent opportunities for COVID-19 importation and spread.

Purpose: We describe the epidemiologic and clinical features and interventions for the first COVID-19 cases confirmed in Muttrah between 15th March-15th July 2020.

Methodology: We identified cases from health centers and outreach teams. Demographic, clinical, and epidemiological data are collected by using a specific form and entered into the e-notification system "Tarasud". Diagnosis was confirmed through RT-PCR on nasopharyngeal or oropharyngeal swabs processed in the Regional laboratory.

Results: We identified 8,400 cases and 51 fatalities (case fatality rate= 0.61%) from 15 March to 15 July 2020. The mean age was 37 (±9.4) years; 85.6% were males. The most common symptoms were fever (48%), cough (34%), and sore throat (24%). A total of 17,202 tests were performed with a 48.8% positivity rate. 77.5% of cases were non-Omani workers in the local market and seaport. These patients had low socioeconomic levels and often lived-in crowded housing. The majority of the patients were Indians (35%) and Bengalis (33%). Community education, lockdowns, mass testing, and isolation of confirmed cases were applied to control the outbreak.

Conclusions: Most of the early cases occurred among male migrants who worked at the old market or the seaport. They lived and worked in crowded conditions, with contact with travelers, which may have contributed to the spread of COVID-19 in Oman. Initially, they had lower accessibility to health care and awareness messaging due to financial and lingual problems. The large-scale implemented interventions have slowed the disease spread but could have been optimized by tailoring to the highest risk groups.

Keywords: SARS-CoV-2, COVID-19, pandemics, disease outbreaks, Muscat and Oman.

Abstract Code: 2021-OTH-608

Presenter Name: Dr. Sahar Samy

Country: Egypt

Presenter Email: sahar_mohp@yahoo.com

Author: Sahar Samy, Faris Lami, Hiba Abdulrahman Rashak, Mohannad Al Nsour, Alaa Eid, Salma Afifi, Maisa Elfadul, Yasser Ghaleb, Yousef Khader, Hajer Letaief, Nissaf Ben Alaya, Hashaam Akhtar, Aamer Ikram, Abdelaziz Barkia, Reema Adam, Khwaja Mir Islam Saeed, Sami S. Almudarra, Mohamed Hassany, Hana Ahmad Taha, Hanaa Abu El Sood, Fazal Ul-Ulrahman, Falah Abdul-kader Saaed, Mohammed Sameer Hlaiwah.

Title: Public Health Workers' Knowledge, Attitude, and Practice regarding COVID-19: The impact of Field Epidemiology Training Program in the Eastern Mediterranean Region.

Background: There is a growing need for public health (PH) professionals skilled in preventing and responding to disease epidemics worldwide to combat the surge of emerging and re-emerging infectious diseases. The recent COVID-19 pandemic demands urgent evaluation of the public health agencies and FETPs' response to COVID-19 pandemic to improve public health capacity at country, regional and global level. The role of PH workers in ten Eastern Mediterranean countries through assessment of their knowledge, attitude, and practice in response to the pandemic.

Purpose: To evaluate the effectiveness of the FETP in enhancing PH capacity through comparing performance of the public health workers (PHWs) who attended FETPs to those who did not, to identify strengths and gaps in the training and share lessons learned from the current pandemic with other countries.

Methodology: Multi-country cross-sectional survey was conducted among PHWs who participated in the COVID-19 pandemic in ten countries at the EMR. Online questionnaire that included demographic information, knowledge, attitude, and practice regarding COVID-19 pandemic was distributed among HCWs. Scoring system was used to quantify the answers, bivariate and Multivariate analysis performed to compare FETP-trained with non-FETP trained PHWs.

Results: Overall, 1,337 PHWs participated, with 835(62.4%) <40 years of age, and 851(63.6%) males. Of them, 423(31.6%) had FETP, including 189(44.7%) had an advanced level, 155(36.6%) intermediate and 79(18.7%) basic level training. Compared to non-FETP trained, FETP trained were older, having higher knowledge, attitude, and practice scores.
PHWs participation was low in infection control, and PH laboratories. KAP mean scores for intermediate level attendees are comparable to advanced level.

Conclusions: FETP-trained PHWs are having better KAP than non-FETP PHWs. Expanding the intermediate level, maintaining the Rapid Response training, and introducing the laboratory component are recommended to maximize the benefit from FETP. Infection control, antimicrobial resistance and coordination are areas where training should include.

Keywords: knowledge, attitude, practice, COVID-19, Field Epidemiology Training Program.

Abstract Code: 2021-OTH-610
Presenter Name: Dr. Faris Lami
Country: Iraq
Presenter Email: farislami@gmail.com
Author: Faris Lami, Maisa Elfadul, Hiba Abdulrahman Rashak, Mohannad Al Nsour, Hashaam Akhtar, Yousef S. Khader, Ahmed Mohamud Hussein, Mariam Naciri, Sahar Samy, Yasser Ghaleb, Hana Ahmad Taha, Alaa Hussein Aljanabe, Nameer Abdulkareem Ali, Raheem Hussein Zayer, Aamer Ikram, Fazal ur Rahman, Muhammad Mujeeb, Reema Adam, Abdirizak Yusuf Ahmed, Salma Afifi.
Title: Risk Factors of COVID-19 Critical Outcomes in the Eastern Mediterranean Region: A Multi-country Retrospective Study

Background: The establishment of empirical evidence in the Eastern Mediterranean Region (EMR) necessitates the implementation of wide-scale studies to describe the demographic, clinical features, and severity profile ofCOVID-19 patients.

Purpose: This study aimed to assess the patterns of COVID-19 severity and mortality in seven countries and to determine the risk factors of COVID-19 severity and mortality.

Methodology: This multi-country study was based on a retrospective review of medical records of hospitalized patients confirmed to have COVID-19. This study included data from Iraq, Pakistan, Sudan, Somalia, Morocco, Egypt, and Yemen. All demographic and clinical data were extracted from hospital records (paper files) by trained data collectors.

Results: A total of 4,141 patients were included in this study from seven countries. Comorbidities were reported by nearly half of the patients, with hypertension (HTN) (24.7%) and diabetes (22.7%) being the most common. Older age, diabetes mellitus, hypertension, and heart diseases were significantly associated with COVID-19 severity and mortality. Ever smoking and renal diseases were significantly associated with severity but not mortality, while male gender, respiratory diseases, and malignancy were significantly associated with mortality but not severity.

Conclusion: The study confirmed the role of comorbidities and demographic features on the severity and mortality of COVID-19. Understanding the contributing factors ensures attentive care and informs clinical management of patients with poorer prognosis in the early stages of diseases.

Keywords: Critical outcomes; COVID-19; severity; mortality.

Abstract Code: 2021-OTH-624
Presenter Name: Dr. Shahd Ramzi
Country: Iraq
Presenter Email: shahed.Raed1300a@comed.uobaghdad.edu.iq
Author: Shahd Ramzi, Israa Tariq, Faris Lami
Title: The Late Sequelae of COVID 19 among Recovered Patients, Baghdad, Iraq, 2020

Background: Typically, people recover from COVID-19 after 2 to 6 weeks. Increasing reports from around the world demonstrated that some patients who recovered from COVID-19 infection may continue suffering from certain manifestations. These persistent symptoms pose new challenges to patients, healthcare providers, and public health practitioners.

Purpose: To identify the types, the proportion, and the risk factors of late sequalae manifestations among a sample of COVID-19 patients who recovered from the acute infection for at least two months, Baghdad, Iraq, 2020.

Methodology: This cross-sectional study was conducted in Al-Rusafa Directorate of Health, Baghdad. Three Primary Healthcare Centers were selected using a systematic cluster random sample. All the registered COVID-19 patients in the catchment area of these centers were reviewed, and those who recovered from COVID-19 infection for a minimum of two months were considered eligible. The patients were contacted by telephone to have their approval to be part of the study. A questionnaire was used to gather demographic and data concerning the late sequelae manifestations and filled through the telephone interview.

Results: Among 350 illegible patients, 229 patients responded (response rate 65.4%). The late sequelae manifestations were reported by 25% of respondents. The most frequent manifestations were headache (25.1%), fatigability (22.6%), sleep problems (19.2%), concentration deficit (18.8%), cough (18.0%), loss of smell (17.6%), memory deficit (15.9%), loss of taste (14.6%), fainting (13.4%), chest pain (9.2%), hearing deficit (8.4%), and tremor (5.4%). Reporting complications was significantly higher in older patients, comorbidities, patients treated at the hospital, and patients who needed ICU admission or oxygen therapy (P<0.05). There was no significant association between reporting late sequalae manifestations and gender, educational level, or smoking status (P>0.05).

Conclusion: The late sequelae manifestation after recovering from COVID-19 is not uncommon. A close, long-term follow-up after recovery should be considered particularly for high-risk patients.

Keywords: COVID-19, Late sequelae, Iraq, Risk Factors.

Abstract Code: 2021-OTH-685
Presenter Name: Dr. Eman Badran
Country: Jordan
Presenter Email: rulamdarwish1@gmail.com
Author: Eman Badran, Farah AlSaadi, Leen Abu Yousef, Mira Al Jaberi, Mohammad Al Masri, Noor, Al-Badineh, Rama Al Masri, Rula M. Darwish, Yousef Khader.
Title: Contribution of COVID-19 Pandemic on Neonatal, Perinatal Mortality, Preterm Birth Rate and Birth Weight Trends in Jordan

Background: The alarming spread of the SARS-Cov-2 virus worldwide has sent the world into disarray. With lockdown, increasing awareness to hand hygiene, wearing masks, maintaining social distancing, changes in everyday lifestyle and inaccessibility of antenatal care during the COVID-19 pandemic, neonatal mortality, preterm birth, and low birth weight rates are expected to be affected.

Purpose: The aim is to take advantage of this unique situation and find any alteration in the neonatal mortality, preterm and low birth weight rates which can further be applied in other studies to determine the underlying causes.

Methodology: The neonatal mortality, gestational age of preterm births and low birth weights trends will be collected from five pilot hospitals in Jordan over the set period during the COVID-19 pandemic then compared to the trends before the start of lockdown. Data was retrieved from J-SANDS (Jordan still births and Neonatal deaths surveillance and Auditing system). All births as well as maternal demographic data, from June 2019 till December 2020, were included in the study.

Results: Babies registered in the set period of the study were 31,106, with 15,311 (49.2%) before the COVID-19 lockdown and 15,795 (50.8%) during the COVID-19. The odds of extremely preterm, very preterm, moderate to late preterm, rates of stillbirth, neonatal mortality and perinatal mortality during COVID-19 was not significantly different from the odds before COVID-19.

Conclusions: There is no evidence to support that COVID-19 has an impact on pregnancy outcomes. Further in-depth studies are needed to determine the effect of COVID-19 on maternal and child health.

Keywords: COVID-19, Extremely low birth weight, Lockdown, Neonates.

Abstract Code: 2021-EOH-663
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Title: Impact of COVID-19 on Essential Immunization (EI) regarding Vaccine Preventable Diseases District DG Khan, Punjab, Pakistan-2020

Background: EPI schedule immunizes children for 10 diseases namely Tuberculosis, Polio, Diphtheria, Pertussis, Tetanus, Hepatitis B, Meningitis, Pneumonia, Diarrhea and Measles starting from birth till 23 months of age. District DG Khan is located in Southern Punjab having low essential immunization because of geography, mountainous terrain and multiple factors.

Purpose: This study was carried out to assess the impact of COVID-19 on Essential Immunization status of children in Dera Ghazi Khan and to formulate recommendations for strengthening Essential Immunization during the COVID-19 pandemic.

Methodology: A Descriptive study was conducted during the month of January-2021 at District Health authority office Dera Ghazi Khan. Data was collected for 2019 and 2020 month wise. Comparison analysis was done antigen and month wise for 2019 and 2020 to see the impact of COVID-19 on Essential Immunization.

Results: Essential Immunization activities were affected badly during the first three months of the start of the pandemic. Penta-1 coverage during March 2019 was 95% and it was 56% in March 2020. Penta-1 coverage during April 2019 was 95% and it was 3% in April 2020. Penta-1 coverage during May 2019 was 97% and it was 81% in May 2020. Measles-1 coverage during March 2019 was 94% and it was 68% in March 2020. Measles-1 coverage during April 2019 was 97% and it was 86% in April 2020. Measles-1 coverage during May 2019 was 100% and it was 83% in May 2020. Similarly, all antigens coverage remained low during the first three months of pandemic.

Conclusions: Major reason for low coverage was the community fear and parents were refusal for vaccination because of COVID-19. Outreach sessions for immunization need to be carried out on regular basis by following the COVID-19 SOPs. Social mobilization activities for parent's awareness about vaccination like community awareness sessions for building community trust are recommended.

Keywords: Essential Immunization, COVID-19, Dera Ghazi Khan, Punjab.

Abstract Code: 2021-NCD-632
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Title: Mental Health Impacts of COVID-19 on Healthcare Workers in the Eastern Mediterranean Region: A multi-country study

Background: Healthcare workers (HCWs) fighting against COVID-19 pandemic are under incredible pressure, which puts them at risk of developing mental health problems.

Purpose: This study aimed to determine the prevalence of depression, anxiety, and stress among HCWs responding to COVID-19 and its associated factors.

Methodology: A multi-country cross-sectional study was conducted during July-August 2020 among HCWs responding to COVID-19 in nine Eastern Mediterranean Region (EMR) countries. Data were collected using online questionnaire administered using KoBo Toolbox. Mental problems were assessed using Depression, Anxiety, and Stress Scale (DASS-21).

Results: A total of 1,448 HCWs from nine EMR countries participated in this study. About 51.2% were female and 52.7% aged ≤ 30 years. Of all HCWs, 57.5% had depression, 42.0% had stress, and 59.1% had anxiety. Considering the severity, 19.2%, 16.1%, 26.6% of patients had severe to extremely severe depression, stress, and anxiety, respectively. Depression, stress, anxiety and distress scores were significantly associated with participants' residency, having children, preexisting psychiatric illness, and being isolated for COVID-19. Furthermore, females, those working in teaching hospitals, and specialists had significantly higher depression and stress scores. Married status, current smoking, diabetes mellitus, having a friend who died with COVID-19, and high COVID-19 worry scores were significantly associated with higher distress scores.

Conclusions: Mental problems are prevalent among HCWs responding to COVID-19 in EMR. Therefore, special interventions to promote mental well-being among HCWs responding to COVID-19 need to be immediately implemented.

Keywords: COVID- 19, depression, stress, anxiety, distressed, associated factors.

Abstract Code: 2021-EOH-679
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Title: Early Impact of the COVID-19 Pandemic on Routine Childhood Immunization Coverage Rates in Kasserine District, Tunisia, February to April 2020

Background: The COVID-19 pandemic is impacting national and international public health. Routine childhood immunization may be adversely affected by COVID-19 mitigation measures, especially confinement.

Purpose: We aimed to investigate whether the corona virus disease pandemic has had any effects on pediatric vaccination rates in Kasserine district, west center of Tunisia.

Methodology: We conducted a retrospective study in Kasserine district using the vaccination databases in health care services. The vaccination statue of all children who were scheduled for vaccination at 6 months was estimated and comparison of the immunization rates was performed.

Results: During February and March 2020, there were respectively drops in vaccination coverage of 23% and 33% compared to the same months in 2018 and 2019 before improving in April 2020 (15%).

Conclusions: Thanks to early detection of declining immunization coverage, urgent catch-up door-to-door campaign and sensitizing parents to respect the vaccination schedule were implemented to achieve significant and sustainable vaccination rates.

Keywords: vacination-rate-covid19-surveillance.

Abstract Code: 2021-EOH-603
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Title: The Impact of Comorbidities on COVID -19 Severity and Mortality in Egypt

Background: Older population and people of any age with underlying certain comorbidities such as diabetes mellitus, cardiovascular, lung disease, kidney disease, liver disease and cancer are at higher risk of severe disease course and death if they become infected with COVID-19. Identifying risky group and risk factors for COVID-19 severity and mortality is important for guiding efficient and appropriate prevention and management of patients with COVID-19.

Purpose: This study aims at describing demographics and epidemiologic characteristics of confirmed COVID-19 cases in Egypt and determine the impact of different comorbidities on patients' outcomes.

Methodology: Data of all confirmed COVID-19 patients admitted to 408 governmental hospitals allover Egypt February-May 2020 were collected retrospectively from the National Egyptian Disease Surveillance System. Cases were confirmed using RT-PCR.

Results: Overall, 28,415 patients (55.0% males, 45.0% females) were identified. Their median age was 44 years. Of those, 743(2.6%) were admitted to ICU, 408(1.4%) required ventilator and 1,045(3.7%) died. Of 21,617(76.1%) patients with completed data, 4,687(21.7%) had comorbidities. Overall, 11.8% had diabetes, 5.3% cardiovascular disease and 4.3% chronic obstructive pulmonary disease. Those with one comorbidity were more likely to die (OR = 2.83), admitted to ICU (OR = 6.36) and need a ventilator (OR = 5.95) compared to patients with no comorbidities. Having multiple comorbidities increased risk of mortality (OR = 3.53), ICU admission (OR = 8.62), and requiring ventilator (OR = 9.06).

Conclusions: COVID-19 Patients with comorbidities had a higher risk of disease severity and mortality. Multiple comorbidities further increase the risk to a higher extent. All necessary precautions should be taken for patients with comorbidities to avoid COVID-19 infection to prevent the worst prognosis.

Keywords: COVID-19, comorbidities, mortality, severe outcome, public health surveillance.

Abstract Code: 2021-EOH-612
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Title: A Comparison of Different Approaches to Estimate Initial Reproduction Number of SARS-CoV-2 in the Islamic Republic of Iran

Background: The Basic Reproduction Number (R0) is an epidemic threshold parameter that indicates the magnitude of disease transmission and thus allows suggestion for the planning of control measures.

Purpose: Our aim for this study was to compare different approaches for estimating R0 in the early stage of the outbreak of SARS-CoV-2 and discern the best-fitted model.

Methodology: The dataset used in this investigation were derived from cumulative laboratory-confirmed covid-19 cases from 26th February to 30th May 2020, in Iran. We used the "R0" package in R software version 3.6.3. The methods used in this package included the exponential growth rate (EG), the maximum likelihood (ML), the time-dependent reproduction numbers (TD), the attack rate (AR), and The Sequential Bayesian model (SB). We used gamma distribution (mean 4.41 ±3.17 days) for Serial Interval (SI) distribution. The best-fitted method was selected according to the lowest root mean square error (RMSE) value.

Results: We obtained the following estimated R0 [95% confidence interval]: 1.55 [1.54; 1.55], using the EG method, 1.46 [1.45; 1.46] using ML method, 1.31 [1.30; 1.32] from the TD method and lastly, 1.40 [1.39; 1.41] from the SB method. Additionally, the EG and ML methods showed an overestimation of R0 and the SB method had under-fitting in the estimation of R0. The AR method estimated R0 was equal to one. The TD method had the lowest RMSE value.

Conclusion: The simulated and actual R0 of TD showed that this method had a good fit for actual data and the lowest RMSE. Therefore, we found the TD method to be the most appropriate method with the best performance in estimating actual R0 values.

Keywords: COVID-19, Initial Reproduction Number, Exponential growth rate, Maximum likelihood, Attack rate, Sequential Bayesian model, Time-dependent reproduction number.

Title: The Pattern of Comorbidities among COVID-19 Patients and their Impact on the Outcome in Babel Governorate, Iraq, 2020

Background: The presence of comorbidity poses a major clinical challenge in the care and treatment of COVID-19 patients.

Purpose: To evaluate the effects of common comorbidities on the severity, outcome, and length of stay in the hospital of COVID-19 patients, Babel Governorate, Iraq, 2020.

Methodology: All the laboratory confirmed cases in the two COVID-19 hospitals in Babel governorates during March through September 2020 were included. A form was developed to compile sociodemographic data, clinical presentation and severity, comorbidities, and other characteristics.

Results: The total number of patients was 2,574; 1,581 (61.4%) were males. The mean age was 48.7 (±16.4) years. The severe cases were 1,212 (47.1%), and critical cases were 489 (19.0%). The patients with no comorbidity were 1,543 (59.9%); 536 (20.9%) had one comorbidity were, and 495 (19.2%) had two or more comorbidities. The most prevalent comorbidity was Diabetes Mellitus (25.0%), followed by hypertension (23.4%). The proportion of the severe/critical cases were 84.0% among the patients with comorbidity compared to 54.1% among the patients free from comorbid illnesses (P<0.001). Around 12% of patients with comorbidity had a mean hospitalization time >2 weeks compared to 8.0% among the patients with no comorbidity (P<0.001). The case fatality ratio was 26.4% among patients with comorbidities compared to 10.6% among the patients free from comorbidity (P<0.001).

Conclusions: Comorbid illnesses are a significant predictor of serious in hospital course and fatal outcome of COVID-19 patients. Those patients must undertake vigilant preventive measures and should have the priority to get the COVID-19 vaccine.

Keywords: Comorbidities, COVID-19, Iraq, Hypertension, Diabetes. 2020.

Abstract Code: 2021-OTH-647
Presenter Name: Dr. Yousef Zawaneh
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Title: Between Herd Immunity and Suppression: A Modelling Study Assessing Alternative Policy Responses to COVID 19 in Jordan.

Background: After the WHO announcement of the novel coronavirus disease (COVID-19) as a pandemic, the Jordanian health authorities adopted a strict disease suppression strategy that left a severe economic impact.

Purpose: This research aims to estimate mortality and health resource utilization in the case of an uncontrolled COVID-19 outbreak among the Jordanian population and to compare alternative health interventions based on their cost-effectiveness.

Methodology: The mortality and health resource utilization of an uncontrolled COVID-19 outbreak was estimated based on the age and geographical distribution of the Jordanian population. A cost-effectiveness analysis (CEA) compared alternative policy responses to COVID-19 in terms of productivity loss (societal perspective) and direct costs (health provider perspective), presented as incremental cost-effectiveness ratio (ICER) per life-years saved (LYS).

Results: In Jordan, the estimated COVID-19 infection fatality rate is 0.49%. An uncontrolled outbreak infecting 10% of the Jordanian population results in a total of 5,214 deaths, 7,867 intensive care, and 17,798 general ward admissions. The CEA showed that the cost-effective strategy from a health provider perspective is mitigation without quarantine (ICER: -997 JOD per LYS), and from a societal perspective is mitigation with quarantine (ICER; 414,420 JOD per LYS). The extreme suppression strategy was the least cost-effective from both perspectives and associated with an incremental cost of 3,663 million JOD from the societal perspective.

Conclusions: The current policy of extreme suppression of COVID-19 in Jordan needs to be revised and a more nuanced approach should be adopted to limit the mortality of an outbreak with an acceptable detriment on the country's economy and budget.

Keywords: COVID-19, Jordan, Cost-effectiveness, Modelling, Herd immunity.

Title: Using a Stochastic Continuous-Time Markov Chain Model to Examine Alternative Timing and Duration of the COVID-19 Lockdown in Kuwait: What Can be Done Now?

Background: Kuwait had its first COVID-19 in late February, and until October 6, 2020 it recorded 108,268 cases and 632 deaths. Despite implementing one of the strictest control measures-including a three-week complete lockdown, there was no sign of a declining epidemic curve.

Purpose: The objective of the current analyses is to determine, hypothetically, the optimal timing and duration of a full lockdown in Kuwait that would result in controlling new infections and lead to a substantial reduction in case hospitalizations.

Methodology: The analysis was conducted using a stochastic Continuous-Time Markov Chain (CTMC), eight state model that depicts the disease transmission and spread of SARS-CoV 2. Transmission of infection occurs between individuals through social contacts at home, in schools, at work, and during other communal activities.

Results: The model shows that a lockdown 10 days before the epidemic peak for 90 days is optimal, but a more realistic duration of 45 days can achieve about a 45% reduction in both new infections and case hospitalizations. In the view of the forthcoming waves of the COVID-19 pandemic anticipated in Kuwait using a correctly timed and sufficiently long lockdown represents a workable management strategy that encompasses the most stringent form of social distancing with the ability to significantly reduce transmissions and hospitalizations.

Conclusion: During the first wave of this pandemic, the major negative economic consequences resulting from implementing a country-wide lockdown raised the concept of "lockdown fatigue", and the possibility of replacing this with local lockdown. Based on the current results, a timely implementation of a full lockdown at local/regional scale that can be "switched on and off" and moved from one region to another depending on how the peak is progressing in each region could substantially reduce the outbreak in these "hotspots".

Keywords: Kuwait, COVID-19, stochastic model, lockdown timing, lockdown duration, actual incidence, hospitalization.

Abstract Code: 2021-HIV/STI-676
Presenter Name: Dr. Mouad Merabet
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Title: Screening for SARS-CoV-2 Infection in Schools in Morocco

Background: The evolution of the epidemiological situation of SARS-CoV-2 in Morocco was marked by community transmission with a maximum reproduction rate of 1.70 and a peak recorded during the week of 11/15/2020. People under the age of 18 were hardly affected. New variants of SARS-CoV-2, characterized by high transmissibility among young people, was detected in several countries.

Purpose: To estimate the circulation of SARS-CoV-2 and to describe the variants circulating among students in Morocco.

Methodology: Cross-sectional study with a descriptive aim. Between January 11 and 22, 2021, 31,611 public and private school children in six regions (Casablanca Settat, Rabat Sale Kenitra, Tanger Tetouan Al Hoceima, Fes Meknes, Marrakech Safi, and Souss Massa) were screening for SARS-CoV-2. Sociodemographic and clinical data were collected via a questionnaire. RT-PCR was used on nasopharyngeal swabs and positive samples were sent to the National Institute of Hygiene for sequencing. Data analysis was done by Epi-info 7.

Results: Among 31,611 students tested, 767 were positive for SARS-CoV-2. The positivity rate was 2.4% ranging from 4.8% to 0.7% depending on the region and significantly correlated ($r = 0.96$; $p\text{-value} = 0.003$) with those recorded in the community. The average age of positive students was 15.8 years + SD = 1.9. The sex ratio F / M was 1.2. Chains of transmission were established for 77.5% of cases, of which 21.2% belonged to 25 clusters (three to seven cases per class). Three positive cases had contact with people returning from abroad during the 14 days preceding the study, no new variants were detected.

Conclusion: Children and adolescents have a role in the spread of the virus, the significance of which remains to be defined. Strengthening prevention measures in schools would reduce transmission among students. The non-detection of new variants suggests that their circulation is still limited, however, rigorous surveillance is required.

Keywords: Screening; SARS-CoV-2; schools; Morocco.

Abstract Code: 2021-FWBD-653
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Title: Continuity of Primary Care for Patients with Chronic Diseases during the Lockdown due to COVID-19: Health Care Professionals' Perspective

Background: Continuity of care is the extent to which a range of distinct health care service is seen by patients as consistent. The COVID-19 pandemic was marked by disruption during the lockdown and the state of health emergency. Continuity of primary care (PC) is essential for monitoring chronic diseases.

Purpose: The objective was to describe continuity of care from the PC professionals' perspective for patients with chronic diseases at the Marrakech prefecture during the lockdown linked to COVID-19.

Methodology: A mixed study was conducted from May 2 to 23, 2020. The data was collected using an online questionnaire and individual interviews with PC professionals (doctors and nurses) in the public and private sectors. The analysis was descriptive, univariate and bivariate. The thematic analysis of the interviews was carried out using NVivo V10.

Results: A total of 107 responses were obtained and 10 semi-structured interviews were conducted. The scores for 5 of the 6 dimensions of continuity were ≤3. These dimensions struggled to materialize more in the public than in the private sector (a) giving advice to patients (88.6% vs. 11.4%, p = 0.040), (b) showing interest (94.3% vs. 5.7%, p <0.001), (c) answering questions (95.8% vs. 4.2%, p <0.001), (d) maintaining confidentiality (97.2% vs. 2.8%, p <0.001) and (e) delivering the expected aid (90.1% vs. 9.9%, p <0.001). The results of the verbatim analysis revealed the impact on the same dimensions.

Conclusion: Continuity of care for patients with chronic diseases was compromised during the lockdown, especially in the public sector. An overhaul in the reorganization of the PC system is necessary after the pandemic.

Keywords: Primary care, continuity of care, chronic diseases, perspective, health care professionals, Marrakech, Morocco.

Abstract Code: 2021-EOH-642
Presenter Name: Dr. Rawan Kafri
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Title: Stigma Against COVID-19 Patients in Palestine: A Cross-Sectional Study

Background: Historically, there has been stigma towards individuals with highly infectious disease such as tuberculosis. Following the outbreak of COVID-19 in 2020, many research studies primarily focused on the epidemiology of the virus, while few examined the social stigma and associated psychological effects of COVID-19 on patients and their families.

Purpose: This study was carried out to examine stigma faced by Palestinian COVID-19 patients and their families to inform national policy decisions.

Methodology: The study is a cross-sectional study among 93 patients (77 from the West Bank and 16 from the Gaza Strip) who recovered from COVID-19, were discharged from isolation centers, and finished home quarantine. Data collection was carried out in July 2020 using Telephone Assisted Computer Interviewing. The inclusion criteria included recovered patients and the parents of recovered patients under 16 years of age. An abbreviated modified Berger's stigma scale was used to assess stigma.

Results: While 46% of respondents felt that people feared them once they knew they were infected with COVID-19, 42% felt empathy and support from the community. Around 23% were blamed for becoming infected, accused of not taking proper precautions and following guidelines. After recovery, 43% of study participants reported a decrease

in stigma, while almost one-third (33%) of the interviewed patients reported that stigma increased or continued as is. Over half of respondents, (51%; 28/57) reported losing their jobs due to their infection. Additionally, 51% of the recovered patients reported that their families faced stigma, and around 53% indicated that their families faced avoidance from the community due to their infection with COVID-19.

Conclusion: Our findings suggest that stigma is prevalent among recovered COVID-19 patients. Public health and health care providers should prioritize efforts to combat stigma and prejudice aimed at those who have been infected with COVID-19 and their families.

Keywords: COVID-19, Pandemic, Stigma, Palestine.

Title: School Cluster of Coronavirus Disease-19 (COVID-19), Super Spreader Index Case Eastern Province: Qatif, Saudi Arabia 2020

Background: Acute respiratory syndrome coronavirus-2 (SARS-COV-2) is the causative agent of a potentially fatal disease. At the end of December 2019, the virus was first detected in China -Wuhan city. Since then, it started to spread to other world countries.
On the second of March 2020, the first case of novel coronavirus (COVID-19) was reported in Saudi Arabia. Subsequently, more cases were discovered. On 15th March 2020, the first case of COVID -19 in a schoolgirl was reported to Qatif preventive medicine department. An investigation was initiated, contact tracing followed to identify secondary cases and prevent transmission.

Purpose: To find the secondary attack rate within the school classroom, and to begin the preventive measure.

Methodology: Based on the surveillance case definition by the Saudi Center for Disease Control and Prevention (SCDC), the confirmed case of COVID-19 was defined by a positive result on a reverse-transcriptase - polymerase-chain-reaction (RT-PCR) assay of a specimen collected on a nasopharyngeal swab. All confirmed cases were interviewed. Using designed data collection form. The data included socio-demographic information, self-reported clinical history, history of travel and contacts during the period of communicability. A nasopharyngeal swab is required from all close contacts. All samples were sent to National Health Lab (NHL) for diagnostic testing (RT- PCR).

Results: A total of 28 student samples, nine came to be positive. The secondary attack rate in the classroom is 32%. From the total 10 confirmed cases, only 30% were giving the history of symptoms at the time of diagnosis. Their symptoms started 17 days post the last date of exposure to the index case.

Conclusion: The pre-symptomatic and asymptomatic infection of COVID-19 can be a source to transmit the virus. The potential transmission of infection in the closed environment "as school" may be similar or more aggressive than close contact transmission. Therefore, control measures should be strictly adhered to.

Keywords: school cluster, secondary cases, COVID-19.

Background: The new pandemic of COVID-19 disease has created extreme challenges for both dental and medical practices in all sectors whether public, private, or educational. There is a dearth of knowledge about the experience of low middle-income countries and their approaches to sustain dental services during the COVID-19 pandemic. Although many Interventions have been suggested to ensure the continuum of dental services, yet limited evidence is currently available on the impact of such interventions on improving service delivery.

Purpose: The aim of this study was to document the experience of Sudan response to COVID-19 within the dental care setting through highlighting health care interventions along with challenges associated with implementation.
Methodology: The study followed the operational research methodology where all interventions in dental care have been identified then bottle necks and practical solutions have been suggested. The study employed the phenomenology approach and data collected through key informants' interviews followed by document review for the interventions report.

Results: The study documented all the six interventions implemented by the Oral Health Department at the Khartoum State Ministry of Health during wave one COVID-19 Pandemic. The interventions included: Provision of infection control supplies for dental hospitals, Closure of private clinics and dental centers, Establishing a protocol for emergency hospitals, Facilitating the delivery of emergency dental services, Online dental consultations center, and Reviewing and updating clinical protocols for reopening of private sectors. The challenges encountered during implementation of these interventions were reported following the health system building blocks framework.

Conclusion: Dental care settings in Khartoum have managed to provide affordable sustainable emergency services during the COVID-19 pandemic, but still many challenges related to governance, human resources for Health and logistics were encountered which undermine safe service delivery.

Keywords: Dental Care, Service Delivery, Covid-19 Pandemic.

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