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MALAYSIAN ASSOCIATION OF EPIDEMIOLOGY

BEJ

# 1ST NATIONAL EPIDEMIOLOGY CONFERENCE 2021

## Epidemiology in the Time of COVID-19

## PROGRAMME & ABSTRACTS BOOK

29th - 30th November 2021

CONFERENCE WEBSITE : https://www.epidmalaysia.org/conference

# PROGRAMME AND ABSTRACTS

## 1st NATIONAL EPIDEMIOLOGY CONFERENCE

***Epidemiology in the Time of COVID-19***

**Date: 29th – 30th NOVEMBER 2021**

**Platform: Zoom Video Conferencing**

*Organised by:*

MALAYSIAN ASSOCIATION OF EPIDEMIOLOGY

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# FOREWORD

## By The President of Malaysian Association of Epidemiology (MAE)

***Assalamualaikum and Salam Sejahtera***

On behalf of the Malaysian Association of Epidemiology (MAE), I am really honoured and delighted to welcome all participants to the 1st National Epidemiology Conference 2021 (NEC 2021).

Established in November 2019, MAE is devoted to (1) assist in enhancing human capital and career development among public health professionals, particularly in the field of epidemiology; (2) create networking among public health professionals as well as smart partnership with other health agencies; (3) serve the community by assisting the government in promoting the health of individuals and communities; and last but not least, to promote public health profession, particularly in epidemiology among health personnel.

In conjunction with those objectives, the 1st NEC 2021 organized by MAE focuses on sharing the knowledge and experience from the epidemiological perspective in managing the COVID-19. All expertise, both local and international will be gathered to address the challenges facing by public health, in order to develop sustainable strategies in managing COVID-19 itself, as well as other diseases and outbreaks during this pandemic.

I would like to thank the organizing committee for their dedication in ensuring the success of this conference. May you have a successful and fruitful event, and we hope you will enjoy the conference.

Thank you.

**Associate Professor Dr. Mohd Rohaizat Hassan**
President of Malaysian Association of Epidemiology (MAE)

# FOREWORD

## By The Chairman of 1st National Epidemiology Conference (NEC) 2021

***Assalamualaikum and Salam Sejahtera***

On behalf of the organizing committee, I am really honoured and delighted to welcome all delegates to the 1st National Epidemiology Conference 2021 (NEC 2021) organized by the Malaysian Association of Epidemiology. Our theme this year is: **"Epidemiology in the time of COVID-19"**.

The expectation that COVID-19 will become endemic essentially defines the ongoing existence of SARS-CoV-2 virus despite the end of the pandemic. The transition is made optimistic, supported by sufficient evidence on effective immune protection through successive vaccination programme and from natural infection that resulted in less transmission as well as markedly reduced cases of COVID-19 related hospitalization and death. However, worth to note that the heterogenous responses to COVID-19 displayed across the world, makes it difficult to anticipate what the timeline will be for the transition into endemicity.

Different countries will enter an endemic phase at own pace, depending on variable host, environmental, and virus factors including vaccination rates. Overall, as of 1st November 2021, Malaysia has recorded 74.9% of the total population were fully vaccinated. The fast vaccine coverage strategies showed remarkable improvement in the reduction of ICU utilisation to 59.3% (as of 1st November 2021) and the usage of ventilators as low as 39.6% throughout the country. The effort resembled public health commitment put forth by many, to observe stable trend of COVID-19 transmission in the population.

While substantial epidemiological studies on COVID-19 were published, experts predict on two endpoints for the COVID-19 pandemic which is the transition toward normalcy and herd immunity. The gradual transition to normalize aspects of social and economic life, with adherence to public health measures may help the people to resume pre pandemic activities. Collective efforts by various stakeholders and public health authorities are required to ensure strict compliance to the standard operating procedure (SOP) during COVID-19.

Meanwhile, as community herd immunity was put priority in many countries, this is only to be challenged with vaccine hesitancy that hamper the progress of the wide vaccination level rates. The scenario called for urgent sharing of information by allied researchers to learn more about the differences among individual attitudes towards vaccine, the social tolerance for vaccination incentives and vaccine mandates across all workplaces. Some of the developed

countries reaching overall herd immunity had illustrated the ability to resume toward normalcy despite waves of Delta variant transmission, which a similar situation witnessed in our country to date.

Certainly, together with the transition of pandemic to endemic COVID-19, the focus of our public health issues is divergent, calling for analysis of high burden diseases greatly impacted by the COVID-19 pandemic. Through the 1st National Epidemiology Conference 2021, the organising committee has taken the first leap to its milestone bringing together all field experts to openly discuss the issues and challenges on epidemiology in the time of COVID-19. Against the background of the new norm, it is hoped that the conference will provide insights on the importance of public health information and the way forward post COVID-19 pandemic era.

I would like to thank the organising committee for their dedication in ensuring the success of this conference. May you have a successful and fruitful event, and we hope you will enjoy the conference.

**Associate Professor Dr. Azmawati Mohammed Nawi**
Chairman of 1st National Epidemiology Conference (NEC) 2021

# THEME

## *Epidemiology in the Time of COVID-19*

# OBJECTIVES

- **Empowering public health practitioners to collaborate, innovate and shape the future of epidemiology and public health landscape**
- **Creating a platform for researchers, students, academicians and practioners to present and exchange innovative ideas and application of epidemiology and public health practices**
- **Support and nurture the next generation of public health epidemiologists**

# ORGANISING COMMITTEE

## Advisor

Associate Professor Dr. Mohd Rohaizat Hassan (Universiti Kebangsaan Malaysia)

## Chairman

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# TENTATIVE PROGRAMME CONFERENCE DAY 1:

**Date: 29th November 2021 (Monday)**
**Time: 08.00am to 5.00pm**
**Platform: Zoom Video Conferencing**

| TIME | PROGRAMME |
|---|---|
| **08.00am – 09.00am** | **REGISTRATION** |
| **09.15am – 09.40am** | **OPENING CEREMONY**<br><br>**National Anthem Negaraku**<br><br>**Prayer/Du'a Recitation**<br><br>**Welcome Note & Officiate by:**<br>**The President of Malaysian Association of Epidemiology (MAE)**<br><br>***Associate Professor Dr. Mohd Rohaizat Hassan***<br>*Head, Department of Community Health, Faculty of Medicine, Universiti Kebangsaan Malaysia*<br><br>**Launching of Conference (MAE Montage Show)** |
| **09.45am – 10.45am** | **PLENARY SESSION 1**<br><br>**Title: Scenario of COVID-19 in Singapore**<br><br>***Speaker: Associate Professor Dr. Ooi Peng Lim, Steven***<br>*Senior Consultant, National Centre for Infectious Diseases & Field Epidemiology Training Programme Director, NUS School of Public Health Member, TEPHINET Advisory Board*<br><br>*Chairperson: Dr. Thilaka Chinnayah*<br>*Public Health Medicine Specialist, Ketua Sektor (PPKA), Khas C, Bahagian Kawalan Penyakit (Sektor Tibi/Kusta), Kementerian Kesihatan Malaysia* |
| **10.45am – 10.55am** | **BREAK** |

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|---|---|
| **11.00am – 12.00pm** | **SYMPOSIUM 1**<br><br>*Chairperson: Associate Professor Dr. Mohd Rohaizat Hassan*<br>*Head, Department of Community Health, Faculty of Medicine, Universiti Kebangsaan Malaysia* |
| **11.00am – 11.30am** | **SYMPOSIUM 1-1:**<br><br>**Title: Public Health Strategies and Challenges during COVID-19 Pandemic**<br><br>***Speaker: Dato' Indera Dr. Sha'ari Ngadiman***<br>*Director, Selangor State Health Department, Malaysia & Senior Consultant Public Health Physician and Communicable Disease Epidemiologist* |
| **11.30am – 12.00pm** | **SYMPOSIUM 1-2:**<br><br>**Title: COVID-19 Preparedness at International Entry Point: Sharing Experiences on Health Screening from Kuala Lumpur International Airport**<br><br>***Speaker: Dr. Harishah Talib***<br>*Public Health Medicine Specialist & Health Officer of Kuala Lumpur International Airport (KLIA, Malaysia)* |
| **12.00pm-12.45pm** | **e-POSTER PRESENTATION** |
| **12.45pm-14.00pm** | **LUNCH BREAK** |
| **14.00pm-15.15pm** | **SCIENTIFIC PAPER ORAL PRESENTATION SESSION 1 & SESSION 2 (CONCURRENT)** |
| | **SCIENTIFIC PAPER ORAL PRESENTATION SESSION 1: (EPIDEMIOLOGY OF COMMUNICABLE DISEASES)**<br><br>*Moderator: Dr. Zahir Izuan Azhar*<br>*Breakout Room: A* |
| | **SCIENTIFIC PAPER ORAL PRESENTATION SESSION 2: (EPIDEMIOLOGY OF NON-COMMUNICABLE DISEASES)**<br><br>*Moderator: Associate Professor Dr. Jeffery Stephen*<br>*Breakout Room: B* |

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| **15.15pm-15.30pm** | **BREAK** |
| **15.30pm-1645pm** | **SCIENTIFIC PAPER ORAL PRESENTATION SESSION 3 & SESSION 4 (CONCURRENT)** |
| | **SCIENTIFIC PAPER ORAL PRESENTATION SESSION 3: (EPIDEMIOLOGY OF COMMUNICABLE DISEASES)**<br><br>*Moderator: Dr. Lim Mei Ching*<br>*Breakout Room: A* |
| | **SCIENTIFIC PAPER ORAL PRESENTATION SESSION 4: (EPIDEMIOLOGY OF NON-COMMUNICABLE DISEASES)**<br><br>*Moderator: Dr. Hazeqa Mohamed Salleh*<br>*Breakout Room: B* |
| **1645pm** | **END** |

# TENTATIVE PROGRAMME CONFERENCE DAY 2:

**Date: 30th November 2021 (Tuesday)**
**Time: 08.00am to 12.00pm**
**Platform: Zoom Video Conferencing**

| TIME | PROGRAMME |
|---|---|
| **09.00am – 10.00am** | **PLENARY SESSION 2**<br><br>**Title: Epidemiology in the Time of COVID-19**<br><br>***Speaker: Professor Datu Dr. Andrew Kiyu***<br>*Consultant Epidemiologist, Community Medicine and Public Health Department, Faculty of Medicine and Health Sciences, University Malaysia Sarawak*<br><br>*Chairperson: Professor Dr. Mohammad Safree Jeffree*<br>*Public Health Medicine Specialist, Public Health Medicine Department & The Dean of Faculty of Medicine and Health Sciences, University Malaysia Sabah* |
| **10.00am – 10.15am** | **BREAK** |
| **10.15am – 11.40am** | **SYMPOSIUM 2**<br><br>*Chairperson: Dr. Raja Mohd Azim Raja Haron*<br>*Batang Padang District Health Office, Perak* |
| **10.15am – 11.10am** | **SYMPOSIUM 2-1:**<br><br>**Title: Poliomyelitis Outbreak, Malaysia – Sabah Outbreak Response**<br><br>***Speaker: Dr. Muhammad Jikal***<br>*Public Health Medicine Specialist & Senior Principle Assistant Director for Communicable Disease Control, Communicable Disease Control Division, Sabah State Health Department, Sabah* |

| | |
|---|---|
| **11.10am – 11.40am** | **SYMPOSIUM 2-2:**<br><br>**Title: Resilient in Mental Health Services during Pandemic**<br><br>***Speaker: Professor Dr. Marhani Midin***<br>*Consultant Psychiatrist, Faculty of Medicine, Universiti Kebangsaan Malaysia* |
| **11.40am – 12.30pm** | **CLOSING CEREMONY**<br><br>**Closing Note by:**<br>**The Chairman of 1st National Epidemiology Conference (NEC)**<br><br>***Associate Professor Dr. Azmawati Mohammed Nawi***<br>*Department of Community Health, Faculty of Medicine, Universiti Kebangsaan Malaysia*<br><br>**Oral & Poster Winners Announcement** |
| **12.30pm** | **END**<br>**See You Again at 2nd National Epidemiology Conference (NEC)** |

# LIST OF SPEAKERS

## SCIENTIFIC PAPER ORAL PRESENTATION SESSION 1: (EPIDEMIOLOGY OF COMMUNICABLE DISEASES)

Date: 29th November 2021 (Monday)
Time: 14.00pm – 15.15pm
Breakout Room: A
Moderator: Dr. Zahir Izuan Azhar

## SCIENTIFIC PAPER ORAL PRESENTATION SESSION 2: (EPIDEMIOLOGY OF NON-COMMUNICABLE DISEASES)

Date: 29th November 2021 (Monday)
Time: 14.00pm – 15.15pm
Breakout Room: B
Moderator: Associate Professor Dr. Jeffery Stephen

## SCIENTIFIC PAPER ORAL PRESENTATION SESSION 3: (EPIDEMIOLOGY OF COMMUNICABLE DISEASES)

Date: 29th November 2021 (Monday)
Time: 15.30pm – 16.45pm
Breakout Room: A
Moderator: Dr. Lim Mei Ching

## SCIENTIFIC PAPER ORAL PRESENTATION SESSION 4: (EPIDEMIOLOGY OF NON-COMMUNICABLE DISEASES)

Date: 29th November 2021 (Monday)
Time: 15.30pm – 16.45pm
Breakout Room: B
Moderator: Dr. Hazeqa Mohamed Salleh

# LIST OF SCIENTIFIC PAPER e-POSTER PRESENTATION

# LIST OF JUDGES FOR SCIENTIFIC PAPER ORAL & e-POSTER PRESENTATION

| |
|---|
| **1. Associate Professor Dr. Syed Sharizman Syed Abdul Rahim (Universiti Malaysia Sabah)** |
| **2. Dr. Shaharom Nor Azian Che Mat Din (Johor State Health Department)** |
| **3. Associate Professor Dr. Azmawati Mohammed Nawi (Universiti Kebangsaan Malaysia)** |
| **4. Associate Professor Dr. Saraswathi Bina Rai (AIMST University)** |
| **5. Professor Dr. Rasitasam@Razitasham Safii (Universiti Malaysia Sarawak)** |
| **6. Mr. Karunagaran M Arumugam (Institut Latihan Kementerian Kesihatan Malaysia Sultan Azlan Shah)** |
| **7. Associate Professor Dr. Kamarul Imran Musa (Universiti Sains Malaysia)** |
| **8. Dr. Chen Xin Wee (Universiti Teknologi MARA)** |
| **9. Dr. Thilaka Chinnayah (Ministry of Health Malaysia, Putrajaya)** |
| **10. Mrs. Liza@Al-Baqiyah Amri (Bahagian Kejururawatan, Ministry of Health Malaysia, Putrajaya)** |

# ABSTRACTS:

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BORNEO EPIDEMIOLOGY JOURNAL | BEJ

CONFERENCE PLENARY 1

# Scenario of COVID-19 in Singapore

Associate Professor Dr. Ooi Peng Lim, Steven*

## Abstract

Pandemics represent a true test that brings together much of the good work being done at the forefront of emerging diseases surveillance, outbreak investigation, community engagement and health protection. Hence, the introduction of Covid-19 into Singapore played a critical role in focusing our attention on global health security, and abilities to detect and respond to disease threats.

When the present pandemic unfolded, public health had to take into account both lives and livelihoods in the community. The government attempted in stages to reopen the economy and make society more resilient, and Covid-19 began to wax and wane. The delta virus variant posed a particularly difficult challenge to infection prevention and control, and many painful lessons were learned.

Unwelcome events as they are, outbreaks occurred from time to time and represented natural experiments which afforded opportunities for us to derive valuable information about health threats. Outbreak investigation and response became a crucial element in pandemic preparedness and control of these threats.

Overall, the key to safeguarding public health remains to sustainably combine vaccination strategy, testing and tracing with community hygiene measures and safe distancing into an effective system that works for each situation. With comprehensive management measures that have been put in place, we are cautiously optimistic at turning the corner.

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*Senior Consultant, National Centre for Infectious Diseases & Field Epidemiology Training Programme Director, NUS School of Public Health Member, TEPHINET Advisory Board*

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CONFERENCE PLENARY 2

# Epidemiology in the Time of COVID-19

Professor Datu Dr. Andrew Kiyu*

## Abstract

Epidemiology is said to be the basic science of public health. A simple definition of epidemiology is the study of the "distribution and determinants" of diseases or disorders within groups of people and the development of knowledge on how to prevent and control them. The Covid-19 pandemic has been described as a ''once-in-a-hundred-years event''. The pandemic presents us with two equally important responsibilities: solve the immediate problem and keep it from happening again. Managing epidemics (and pandemics) is, of course, the bread and butter of field epidemiologists. We seek to alter one or more components in the epidemiologic triad—acting on pathogens, people, or places.

To me, the major contributions of epidemiology and epidemiologists in managing the Covid-19 pandemic are (a) the sequencing of SARS-Cov2 genome which enabled the development of Covid-19 vaccines, (b) Covid-19 epidemic modelling and the associated flattening of the epidemiologic curve, (c) the Find, Test, Trace, Isolate and Support (FTTIS) strategy, (d) demonstrating the effectiveness of the non-pharmaceutical interventions, (e) speeding up Covid-19 vaccine trials, and (f) elucidating the mechanisms of Covid-19 transmission. Of course, those achievements would not have been possible by the science of epidemiology alone but with major contributions from other sciences such as big data, immunology, vaccinology, virology, and many more. If, at all, there were anything that we have under-utilised, I would think that it is social network analysis of the contacts of cases.

This pandemic is occurring in the age of social media, which has proven to be both a boon and a bane. The challenges that epidemiology and its practitioners faced during this pandemic include (a) the non-enforceability of the Internal Health Regulations 2005, (b) infodemic, (c) lay epidemiology, (d) trust deficit, and (e) geopolitics. As epidemiologists, we have direct roles in managing the epidemic in the community. Our indirect roles include giving advice on policy and various guidelines, for instance, in the development of the various Standard Operating Procedures (SOPs). While carrying out our responsibilities as advisors, we have to figure out how to 'influence without authority'. I believe we should provide advice on a strictly scientific and basis. It is up to the policymakers to modify those advice based on the political, economic, social, technical, ethical and legal (PESTEL) considerations.

The Covid-19 pandemic has shown that epidemiology is a vital and impactful science and that epidemiologists are vital and impactful scientists and professionals.

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CONFERENCE SYMPOSIUM 1-1

# Public Health Strategies and Challenges during COVID-19 Pandemic

Dato' Indera Dr. Sha'ari Ngadiman*

## Abstract

**Introduction:** Malaysia has been hit by the Covid-19 pandemic as early as January 2019 when imported cases were detected in Johor but then being treated in Sungai Buluh Hospital. Malaysia National Influenza Pandemic Preparedness Plan (NIPPP) which was developed in 2006 as the guidance for action and intervention. This NIPPP containing comprehensive response to the influenza pandemic, covering preparedness, testing, containing of the disease and essentials.
Since then, Public Health community in Malaysia have geared towards preventing and containing the pandemic together with reducing morbidity and mortality.
**Strategies:** With "flattening the curve" as the main objective, several key strategies have been put in place to drive our Public Health resources in managing this pandemic. There are four areas, ie public health interventions, medical interventions, resource mobilisation (equipments, essentials and staffing including financing) and effective communication. They are numbers of activities being carried out such as testing, implementation of quarantine initiative, isolating of positive cases and contact tracing, together with public health and social measures initiatives. The strategies/activities however need another four vital elements to ensure their success i.e the four 'P's: perseverance, political will, policy and participation.
**Challenges:** There were many challenges we faced throughout the process. Among the biggest challenges were: limited resources (men, money and materials) particularly during surge of cases, the need to re-align local health care system to accommodate covid-19 patients' treatment and management, big data management, and also pandemic fatigue among health care workers that often being overlooked. Those challenges were pro-actively addressed and managed accordingly to our capacity at hands.
**Conclusion:** Managing pandemic as big as Covid-19 can be very challenging to any healthcare system even in a wealthy country. However, with correct Public Health strategies, this pandemic can be prevented from continuously overwhelming our healthcare system

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CONFERENCE SYMPOSIUM 1-2

# COVID-19 Preparedness at International Entry Point: Sharing Experiences on Health Screening from Kuala Lumpur International Airport

Dr. Harishah Talib*

## Abstract

The entry screening of COVID-19 for inbound passenger at international airport is a vital process as part of public health measure to prevent disease transmission at international border.

COVID-19 entry screening at Kuala Lumpur International Airport (KLIA) begun in the end of 2019, and the execution has evolved depending on guidelines issued by Ministry of Health Malaysia. The primary screening includes observation of sick travellers, reviewing pre-departure rt-PCR test result, temperature screening and self-administered questionnaire on sign and symptoms of COVID-19, while the secondary screening encompass rt-PCR or RTK-Ag tests on arrival. Passengers suspected or confirmed cases of COVID-19 would be referred for further treatments. Meanwhile the rest of passengers are rendered for either home quarantine or quarantine at quarantine centre. Primary screening possessed limitation as it depends on the individual's credibility for self-declaration. A total of 11,000 to 22,368 passengers were screened per months in 2020-2021.

The most challenging procedure was during the course of arrangement and training of staff involved especially during amid changing of new policy. Among the remarkable achievement was seen during transformation from manual to digitalisation of information sharing of passengers' details between KLIA Health office and all districts, states and national Crisis Preparedness and Respond Centre (CPRC). This information sharing has fastened the process of locating person under surveillance and follow-up. This digital process of screening has improved and eased the flow; however, stability of the systems is much crucial. Collaboration with other agencies in the airport make the process seamless and has ensured none of the passenger missed out the screening. With this long evolved COVID-19 screening challenge in placed at KLIA, Malaysia will be more prepared in future coming pandemic.

**Keywords:** International Border, Screening, Points of Entry, Airport, Public Health Measure, PHEIC

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CONFERENCE SYMPOSIUM 2-1

# Poliomyelitis Outbreak, Malaysia – Sabah Outbreak Response

Dr. Muhammad Jikal*

## Abstract

In December 2019, the confirmation of Malaysia's first polio case in 27 years became a major concern after sequencing of an isolate by VIDRL Australia reported detection of Circulating Vaccine Derived Polio Virus Type 1 (cVDPV1). Subsequently, three more cVDPV1 cases were reported in Sabah state through the Acute Flaccid Paralysis (AFP) surveillance of Acute Flaccid Paralysis (AFP) cases. What was once thought to be an eradicated disease in the country has now re-emerged in Sabah. Rapid vaccination response was immediately carried out in the affected locality targeting children who missed their routine vaccination. Soon after, a State-wide Polio Immunisation Campaign called Kempen Imunisasi Polio Sabah (KIPS) was launched on 27 Disember December 2019, initially targeting children under the age of 5 years but later expanded to all children below 13 years. These children had little to no intestinal immunity following the switch from oral polio vaccine (OPV) to Inactivated Polio Vaccine (IPV) under the National Immunisation Programme in 2008. The surveillance of Acute flaccid paralysis (AFP) surveillance and Polio environmental surveillance of poliovirus are the key strategies and is a sensitive measures for detecting potential cases of poliomyelitis and presence of poliovirus in circulation. In March 2020, WHO declared COVID-19 a pandemic and this has greatly affected the vaccination campaign. Among the issues and challenges faced were the complexities and uncertainties of COVID-19 pandemic. Activities had to be adapted to adhere to the Covid-19 Standard Operating Procedures (SOP) to prevent risk of COVID-19 transmission. Despite all the restrictions including the enforcement of Movement Control Order (MCO), Ministry of Health through Sabah State Health Department, managed to successfully conduct the Supplementary Immunization Activities (SIA) campaign in manners beyond expectation and ended the active campaign in October 2020. The overall vaccination coverage was more than 90% for bOPV and mOPV2 vaccines in all the rounds and was commendable despite having to vaccinate children in a Covid-19 environment. The success of the campaign was made possible through full commitment of staff and volunteers, as well as hard work, innovative and creative strategies.

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CONFERENCE SYMPOSIUM 2-2

# Resilient in Mental Health Services during Pandemic

Professor Dr. Marhani Midin*

## Abstract

The COVID-19 pandemic has disrupted mental health services in most countries worldwide. As the virus threatened the safety of people and all attention in the healthcare system was shifted to focus on the highly infectious life-threatening SARS-CoV-2 virus, mental health services had faced significant disruption, putting patients with mental illnesses at risk for relapse and other complications. Additionally, a new mental health need had emerged in the population from the direct psychological and social consequences of the pandemic itself. The pandemic has required the mental healthcare system to strategize services to meet the increasing mental health needs while adapting to the challenges posed by the pandemic in service delivery. In formulating for the right response strategies, three main principles need to be adhered: (i) Maximizing delivery of essential services, (ii) mitigating physical and mental health impacts on service users and (iii) minimizing risk of COVID-19 infection between healthcare providers and service users. Important response strategies needed include (i) stratification of mental health-COVID-19 risk in planning for service delivery, (ii) modification of service delivery to maintain essential mental health services while ensuring safety, (iii) utilisation of digital technology as an important tool of service delivery, (iv) empowerment of larger human resources to meet the new mental health needs from the impact of the pandemic, (v) coordination of services to ensure efficient service delivery, and (vi) seizing the opportunity in making mental health an important agenda for better budget and human resources. The adversity arising from the COVID-19 pandemic has taught us unconventional ways and means to rise above the challenge for better mental health.

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CONFERENCE ORAL PRESENTATION: OP A1

# Risk Perception, Knowledge, Attitude and Practice of Dengue Fever in Seremban: Population Study in 2021

Mohd 'Ammar Ihsan Ahmad Zamzuri [1,2], Ahmad Farid Nazmi Abdul Halim[1], Muhammad Su'aidi Abd Ghaffar [2], Mohd Nazrin Jamhari [1], Intan Kartina A Karim [1], Muhamad Hazizi Muhamad Hasani [2], Noor Khalili Mohd Ali [2], Mohammad Faid Abd. Rashid [3], Rahmat Dapari [4], Rozita Hod [1], Mohd Rohaizat Hassan [1]*

## Abstract

**Introduction:** Controlling dengue epidemic is not an easy task due to limited resources to fund extensive activity in response to dengue outbreak such as space spraying, larvaciding, and active case detection. Hence, community mobilisation is probably the best solution. However, baseline data regarding risk perception of the community towards dengue infection that could determine the attitude and practice for dengue prevention is not readily available. Therefore, this study will embark on measuring the community perceived dengue risk and its associated factor in Seremban district.
**Methods:** We conducted a cross-sectional study using a validated questionnaire (Risk Perception, Attitude and Practice Questionnaire). Pilot testing was done to assess the soundness of the tool prior to population survey. Written consents were obtained for inclusion into the study.
**Results:** 279 respondents took part in this study in which 38 respondents involved in the pilot testing. The questionnaire showed good reliability with Cronbach alpha value of > 0.6 and adequate Rasch indices. 49% (n=118) of the respondents have a high level of dengue risk perception while two third (n=149) have a good knowledge on dengue. Three sources of information are via social media (n=173), television or radio (n=164), and internet source (n=159). The significant predictors for high dengue perceived risk were age, level of attitude, and type of house.
**Conclusion:** There is moderate proportion of Seremban population with high level dengue risk perception. Therefore, application of validated behavioural theory such as Health Belief Model in developing the content for health promotion and health education activity is recommended.
**Keywords:** Dengue, Risk perception, Predictors, Seremban

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CONFERENCE ORAL PRESENTATION: OP A2

# Risk Perception towards COVID-19 Infection among Healthcare Workers in Hulu Langat District Health Office

Sharifah Maziah Syed Shamsuddin*, Ummi Ainaa Selamat, Muhammad Sufi Mohd Pauze, Muhammad Irfan Mohd Sallehhudin, Shahidatul Munirah Zaidun, Aniz Nor Sofia Mohamed, Hafizan Abd Hadi, Abdullah Husam A.Shukor

## Abstract

**Introduction:** Covid-19 cases among healthcare workers (HCWs) are still being reported in Malaysia and limited study was conducted to assess the risk perception among HCWs. Therefore, this study was designed to determine risk perception towards Covid-19 infection among HCWs in Hulu Langat District Health Office (HLDHO).
**Methods:** A cross-sectional study was conducted among HCWs using self-administered questionnaire from 21 September - 2 October 2021. The respondents' risk perception was assessed by 8-item perceived risk scale questionnaire. Data was analysed using the Statistical Package for Social Sciences version 26. Descriptive statistics was computed.
**Results:** A total of 169 HCWs were recruited. Majority were female 134 (79.3%), support group 1 (Grade 17- 40) 112 (66.3%) and working at government health clinics 139 (82.2%). The mean (SD) age of respondents are 35.33 (6.42) years and years of working experience 11.06 (5.99). The mean (SD) score for the perceived risk of Covid-19 death 2.79 (1.04), having serious Covid-19 infection illness 3.02 (0.99), perceived ability to avoid Covid-19 infection 3.30 (0.82), getting Covid-19 infection 3.50 (0.99), worry family members or friends being infected by Covid-19 3.67 (0.94) and rate Malaysian to contract the Covid-19 infection 3.96 (0.83). As for the severity and vulnerability score of Covid-19 infection still the highest compared to other types of communicable diseases.
**Conclusion:** In conclusion, the mean (SD) score for perceived risk towards Covid-19 infection for each component range between 2.79 (1.04) to 3.96 (0.83). Further analysis should be conducted to determine factors affecting risk perception towards Covid-19 infection among HCWs.
**Keywords:** Perceived risk, Hulu Langat, severity of Covid-19 infection, vulnerability, Covid-19, healthcare workers

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# Geographic Distribution of COVID-19 Deaths in Selangor and Factors Associated with Brought-In-Dead (BID) Cases

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## Abstract

**Introduction:** Researches have established the relationship between older age and presence of comorbidities to poorer clinical outcomes in patients diagnosed with COVID-19. However, studies on factors associated with non-hospital COVID-19 deaths, or brought-in dead (BID) cases, are limited. This study explored the spatial distribution of COVID-19 deaths, and investigated the factors associated with BID in Selangor.

**Methods:** This was an observational descriptive study that analysed data of deaths due to COVID-19 in Selangor between 25 March 2020 to 7 October 2021. Geographical information system (GIS)-based spatial analysis was used to map the distribution and hotspots of COVID-19 deaths in Selangor. Chi-square test used to examine the associations between sociodemographic, geographic variables, and BID. Logistic regression was performed to investigate potential explanatory variables for BID.

**Results:** GIS-based maps detected COVID-19 death hotspots in Klang, and BID hotspots in Petaling and Hulu Langat. Being of Non-Malaysian nationality (OR=4.60, CI= 4.03–5.24), linked to a COVID-19 cluster (OR=1.99, CI=1.30–3.04), living further away from the hospital (OR=1.01, CI=1.01– 1.07), and residing in a densely populated area (OR=1.88, CI= 1.20–2.94) were associated with an increased likelihood of BID. Whereas, being 51 years old and above was found to decrease the odds of BID (OR=0.60, CI=0.45–0.79).

**Conclusion:** Combination of spatial and non-spatial analyses provides an objective approach to evaluate COVID-19 death hotspot areas, identify districts with clusters of BID, and evaluate its potential predictors. Such information can guide public health authorities to establish preventive strategies to reduce the occurrence of COVID-19 BID cases.

**Keywords:** GIS, death, spatial analysis, logistic regression, pandemic

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# Perception, Contributing Factors and Experiences of Non-Government Organizations (NGOs) during COVID-19 Pandemic in Sabah, Malaysia: A Qualitative Study

Mei Ching Lim, Fredie Robinson*, Ahmad Hazim Mohammad, Ahmad Syukri Radzran, Hazeqa Salleh, Mohamad Hafiz Mukhsam, Muhamad Hanif Deris, Nornazirah Ahmad Kamarudin

## Abstract

**Introduction:** Non-governmental organizations (NGOs) play critical roles in strengthening and empowering community engagement as part of their commitment to the society. The swift humanitarian aids and contributions by the NGOs during the COVID-19 pandemic were commendable. This study aimed to determine the perception of COVID-19 among the volunteers from the various NGOs, identify the factors that encouraged the act of volunteerism, recognize the challenges faced and suggest recommendations that could improve these activities in the future.
**Methods:** 17 participants were recruited using snowball sampling. Focus group discussions were conducted through a semi-structured in-depth interview using open-ended questions. The recorded audio was transcribed verbatim and analyzed using Colaizzi's method. Relevant sentences were extracted and re-quoted in generic codes. Sub-coding themes were then created after constructing and validating meanings of the codes, before main theme was finalized.
**Results:** The participants were from 11 NGOs in Sabah, each playing different roles in their respective NGOs. Analysis of the data reveals interesting subthemes which include COVID-19 and public, morale factors in delivering services, steps taken by NGOs during pandemic and NGO's aspiration in the future. These subthemes eventually lead the researchers to the main theme which was the experiences of NGOs in COVID-19 pandemic.
**Conclusion:** This study helped to discover in-depth details of the perception, contributing factors and experiences of NGOs during pandemic. It also highlighted the importance of collaboration and coordination among NGOs themselves and also with Government agencies, in order to facilitate systematic planning and distribution of humanitarian aids in the future.
**Keywords:** COVID-19, experiences, morale factor, NGO, perception

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# The Epidemiology of COVID-19 and Tuberculosis (TB) Infection in Malaysia, 2021

Wan Muhammad Zainol Zakaria*, Mohd Ihsani Mahmood, Thilaka Chinnayah

## Abstract

**Introduction:** Crushing demands of COVID-19 pandemic have strained healthcare capacity and resulted in collateral damage to other communicable diseases. This is well reflected in tuberculosis (TB) notification in Malaysia which has shown a 10% reduction (n= 26,352) in 2020 compared to 2019 (n= 23,644). Analysis was done to describe the epidemiological characteristic of COVID-19 and TB infections in Malaysia.

**Methods:** A cross-sectional study was conducted among patients who had been diagnosed with COVID-19 from January 2020 to August 2021 with a history of TB infection from 2015 till July 2021. The data on TB and COVID-19 were collected and analysed from National TB Information System and eCOVID reporting system respectively.

**Results:** The percentage of COVID-19 patients with history of TB infection was 3.4% (n=5536) out of 163,815 TB cases reported from January 2015 to July 2021. Epidemiological week 31 reported the highest number (n=518; 9.4%) and most of them are from Selangor (n=1735; 31.3%). The median age of patients were 38 years old (range: 26 to 54 years). Age-specific rate for adults and elderly recorded the highest numbers with the rate of 22 and 21 per 100,000 population respectively. Cases among male were 61.9% and immigrants were 5.3%. Ninety-eight percent cases were reported among low socio-economic group (B-40). The highest number of COVID-19 cases (n=919; 16.6%) were among TB patients diagnosed recently in the year 2019.

**Conclusion:** Adult & elderly age group, male gender and Malaysian citizen from B-40 category described to have highest number COVID-19 with TB infection. Recent infection with TB is found to be a risk factor for COVID-19. Routine screening for TB is recommended among COVID-19 cases especially among B-40 group.

**Keywords:** Tuberculosis, COVID-19, Adult, Elderly, B-40 Categories

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# The Risk Factors for Severe COVID-19 among Tuberculosis Patient in Malaysia, 2021

Wan Muhammad Zainol Zakaria*, Mohd Ihsani Mahmood, Thilaka Chinnayah

## Abstract

**Introduction:** Tuberculosis (TB) is one of the top infectious diseases in Malaysia. There are similarities between both TB and COVID-19 infection as both diseases mainly affect the respiratory system of the human body. It is very important to identify the risk factors for severe COVID-19 among TB patients so that we can improvise the outcome of both diseases.
**Methods:** A cross-sectional study was conducted among the patient who had been diagnosed with COVID-19 from January 2020 to August 2021 with a history of TB infection from 2015 till July 2021 in Malaysia. The data on TB and COVID-19 were collected from National TB Information System and eCOVID reporting system respectively. Severe COVID-19 cases were defined as cases that requires ICU care or ventilation support.
**Results:** The percentage of severe COVID-19 patients with history of TB infection was 4.8% (n=263/5536). The mean age for people to get severe COVID-19 with history of TB was 57 years old (±17.7). Male recorded higher percentage (70%) compared to female (30%). Multivariate analysis showed that the TB cases among the elderly age group >71 years old were 25 times higher risk to get severe COVID-19 compared to the age group <31 years old. Malay is the predominance ethnicity to get severe COVID-19 compared to non-Malays. The presence of comorbidities such as Diabetes Mellitus (DM) was recorded about 2 times higher to get severe COVID-19 as well as hypertension with the odds of 5 times.
**Conclusion:** Malay ethnicity, elderly age, with DM or hypertension was found to be the high-risk individuals among TB patients to develop severe COVID-19. It is recommended for an early hospitalization for better COVID-19 care for such TB patients with above identified risk.
**Keywords:** Tuberculosis, COVID-19, risk factors, elderly, DM and Hypertension

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CONFERENCE ORAL PRESENTATION: OP B1

# Perceived Satisfaction and Factors Associated with Urban Quality of Life among Residents in Kuching City, Sarawak

Mohd Faizal Abdul Rahman*, Razitasham Safii, Md Mizanur Rahman

## Abstract

**Introduction:** Kuching city was invited to participate in the Healthy Cities Programme by World Health Organisation (WHO) in 1994. Since then, Kuching City has undergone many interventions by local authorities to materialize the initiatives. This study aimed to determine the residents' perception of their urban quality of life and its relationship with the objective and subjective domains of urban quality of life.

**Methods:** An online survey was conducted among 260 residents of Kuching City. The survey assessed their perceived satisfaction with the urban quality of life. Subsequently, the objective domains were measured in terms of physicals and activities indicators and the perception of the physical, economic, and social environment were measured as the subjective domains. Finally, the correlation between both domains was calculated.

**Results:** The respondents' mean (SD) age was 40.5 (12.2) years with female dominance. About 70.2% of the respondents were satisfied with their urban quality of life. Analysis revealed that the assessment of the subjective domains (mean percentage score =71.6%) was higher than the objective domain (mean percentage score = 63.4%). Besides, the activities indicators showed a significant correlation with the perception of the physical (r = .148), economic (r = .199), and social (r = .277) environment compared to the physical indicators.

**Conclusion:** The majority of the respondents were satisfied with their urban quality of life. However, this study did not generalize urban life. Nevertheless, this study can provide baseline information to evaluate and formulate healthy city initiatives to correspond to the residents' needs.

**Keywords:** quality of life, healthy city, perceived satisfaction, Kuching

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# Gestation Related Optimal Weight Malaysia (GROW-My), A Customised Antenatal Chart for the Malaysia Population

Muhammad Za'im Sahul Hameed[1]*, Rosnah Sutan[1], Shuhaila Ahmad[2], Zaleha Abdullah Mahdy[2], Rahana Abd Rahman[2], Aida Hani Mohd Kalok[2], Nor Azlin Mohamed Ismail[2]

## Abstract

**Introduction:** Small for gestational age (SGA) is a known risk for poor fetal outcomes. This study aims to create a customized antenatal growth chart named as Gestation Related Optimal Weight-Malaysia (GROW-My) for Malaysian population with collaboration from perinatal Institute.
**Methods:** GROW-My chart was developed based on maternal physiological factors (maternal age, gestational age, height, weight, parity and ethnicity) constructed using University Kebangsaan Malaysia Medical Centre obstetric database. A follow through study of 500 cases was conducted from May 2019 to Mac 2020 comparing GROW-My against non-customized population-based growth chart with regards to the diagnosis of SGA. Antenatal mother with gestational age of 24 weeks and above were recruited till delivery and at each visit, the symphysial fundal health (SFH) plotted on the GROW-My chart and with ultrasound estimated optimal weight if was done on the visit.
**Results:** There were 46 out of 423 SGA cases detected using GROW-My whereas only 23 cases were screened as SGA based on current hospital practice using population chart generated by ultrasound machine. The GROW-My sensitivity was 52.2%, high specificity (91.5%), positive predictive value was 26.09% and high negative predictive value (97.08%). Study found that by using GROW-My to diagnose SGA is predicted by preeclampsia, BMI, low birth weight and premature birth [Y = 0.1 (PE) + 0.124 (BMI) + 0.574 (LBW) – 0.198 (prematurity]).
**Conclusion:** GROW-My was found to better screen pregnancies for SGA as it is less likely to misdiagnose constitutionally small fetus as it takes in maternal factors into account when determining the individual growth rate of the fetus.
**Keywords:** Birthweight, customized chart, fetal growth, SGA, perinatal

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# Cultural Factors Associated with Risk of Maternal Mortality: A Systematic Review

Elliza Mansor[1,2]*, Norliza Ahmad[1], Nor Afiah Mohd. Zulkefli[1], Halimatus Sakdiah Minhat[1]

## Abstract

**Introduction:** Maternal mortality remains alarmingly high globally, particularly in developing countries, highlighting the gap between rich and poor. Among many factors that contribute to the risk of maternal mortality, cultural factors are essential and challenging to address due to their complexity and broad definition. Thus, this systematic review aims to identify cultural factors that are associated with maternal mortality.

**Methods:** Four databases: Scopus, PubMed, Scopus, EBSCOhost Medline and OVID, were searched from April 26 to May 17, 2021, for all studies that measured the association between at least one cultural factor and maternal mortality. Search terms were based on the Population, Exposure, Comparison, and Outcome (PECO) system, and the review was conducted following the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) checklist.

**Results:** From 4676 articles, 20 studies were included in this review. We identified three broad groups of factors: cultural identity (ethnicity, caste and tribe, and regional or continent-origin of mothers); cultural values (mothers' religion and traditional beliefs); and cultural practices (preference for traditional birth attendants, traditional medicine or herbal use, and female genital mutilation practices) closely contributed to the risk of maternal death.

**Conclusion:** This review discovered that cultural identity is vital in endangering pregnant mothers, with ethnicity as the crucial factor globally. In developing countries, factors under cultural values and practices substantially impact maternal mortality. We recommend incorporating cultural factors identified in this review as foundations of development in prevention programmes to reduce maternal mortality.

**Keywords:** Culture, maternal mortality, maternal health, ethnicity

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# The Effectiveness of Obesity Intervention Programmes: A Systematic Review of Experimental Studies

Zaleha Md Isa, Maisarah Ghazali*

## Abstract

**Introduction:** Obesity is a current important worldwide public health problem. Obesity interventions are often evaluated as a whole, as opposed to the specific elements that comprised of the interventions, which hinders effective implementation and dissemination of evidence-based approaches to reduce obesity. This systematic review aims to identify effective interventions and intervention elements in the management of obesity and to identify priorities for further intervention development and research.
**Methods:** We searched the scientific database of PubMed for potentially eligible articles. Our initial literature search using selected keywords resulted in 727 hits. After the selection process, we included 12 articles that reported either body weight or body mass index (BMI) changes as an outcome of obesity intervention programmes.
**Results:** All included studies showed reduction of body weight and/or BMI among intervention groups and post-intervention for non-control group studies. The intervention elements include nutritional advice and modification, physical activities, health volunteers among the community members, online platform such as web-based approach or smartphone apps, behavioural skills, and psychosocial support.
**Conclusion:** The current evidence from included studies is inadequate to draw firm conclusions about intervention types or approaches that are more effective than others. More research is needed to extend the body of evidence.
**Keywords:** obesity, intervention, programmes, health services, experimental studies

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# The Impact of COVID-19 Pandemic on Diabetic Patients in Hulu Terengganu District, Terengganu in Year 2019 and 2020: A Descriptive Study

Madiihah Mohamad Nasriff[1]*, Reshma Abdul Kalam[1], Muhammad Izwan Syafiq Zakaria[1], Goh Soo Ning[1], Mohd Anuar Abd Rahman[2], Kasemani Embong[2]

## Abstract

**Introduction:** Well-controlled diabetes will give rise to better prognosis and chance of survival during COVID-19 pandemic. This study aimed to determine the impact of pandemic COVID-19 on diabetic patients in Hulu Terengganu District, Terengganu.

**Methods:** A descriptive cross-sectional study was conducted from 1st January 2019 till 31st December 2020 in Hulu Terengganu District. The data was analysed from The National Diabetes Registry which was collected on daily basis from all the health facilities under jurisdiction of Hulu Terengganu District Health Office. Well-controlled HbA1c is defined as HbA1c ⩽6.5 %. Inclusion criteria was all registered type 2 diabetes patients during year 2019 and 2020. Exclusion criteria were type 1 diabetes patients and patients aged ⩽ 18 years old.

**Results:** A decline of 2.2% for the category of diabetes patient with HbA1c ⩽6.5% was observed over year 2019 (33.1%) and 2020 (30.9%). Those with abnormal low-density lipoprotein (LDL) had risen from 1864 patients (56%) in year 2019 to 2007 patients (58.6%) the next year. An increase of diabetic patients with stage 3 and stage 4 chronic kidney disease from 1018 patients (30.6%) in year 2019 to 1204 patients (35.2%) year 2020 showed worsening of diabetes complications among these patients.

**Conclusion:** In summary, increase of patients with uncontrolled diabetes and complications observed over year 2020 than previous year. Healthy lifestyle must become a new norm for all diabetic patients to minimize the risk of complications from uncontrolled diabetes and to achieve better outcome during COVID-19 pandemic.

**Keywords:** diabetes, COVID-19, HbA1c, complication

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# Trends in Dietary Intake among Malaysian Adolescents from 2012 to 2016: An Outcome from the Malaysian Health and Adolescents Longitudinal Research Team Study (MyHeART study)

Vanitha Krishnan[1]*, Hazreen Abdul Majid[1,2], Rafdzah Ahmad Zaki[1,3], Azmi Mohamed Nahar[4], Muhammad Yazid Jalaludin[5,6]

## Abstract

**Introduction:** Adolescents are facing a series of nutritional challenges which are not only affecting their growth and development but also their livelihood as adults. This is a vulnerable period in the human life cycle for the development of nutritional deficiencies particularly anaemia which has been neglected by public health program. The aim of this study is to determine the trend of dietary intake among Malaysian adolescents from 13 to 17 years old.

**Methods:** This is a secondary analysis of data from MyHeART adolescent cohort. The 7-day historical assessment of habitual food intakes was conducted by qualified dietitians who were facilitated by flipcharts and household measurement tools. Nutritionist Pro™Diet Analysis software was used to analyze the dietary records. Generalized estimating equation (GEE) was constructed to evaluate the trend of total energy, protein and iron intake over the 5 years period.

**Results:** The percentage of adolescents who did not meet RNI for iron continued to increase progressively from 2012 to 2016 [26.6% (95%CI:21.1,32.9), 63.9% (95%CI:56.4,70.8), 77.8% (95% CI:71.3,83.2)] with p-value <0.0001. It was more significant among the females whose prevalence of not meeting RNI for iron intake increased drastically [22.4%(95%CI:17.3,28.5), 86.6% (95%CI: 79.5,91.4), 93.8% (95% CI: 88.2,96.9)] with p-value <0.0001. More than 80% of the adolescents did not meet RNI for total energy intake over the 5 years. Generally, the trend of dietary intake showed that majority of the adolescents did not meet the RNI for total energy and iron intake daily throughout the 5-years period.

**Conclusion:** Thus, the planning and implementation of a structured and specific intervention is recommended to overcome this nutritional inequality in adolescent age group.

**Keywords:** Anaemia, adolescent, haemoglobin, Mentzer Index, iron deficiency anaemia, nutritional status

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# The Successful Experience of COVID-19 Immunization Program in Hulu Terengganu District, Terengganu

Nur Fauzani Md Arshad[1]*, Siti Zarina Jahan[1], Mariana Muhammad[1], Goh Soo Ning[1], Mohd Anuar Abd Rahman[2], Kasemani Embong[2]

## Abstract

**Introduction:** The COVID-19 immunization program in Hulu Terengganu Malaysia had started since 3rd May 2021. Apart from general health promotion, inter-agencies collaboration was done to increase vaccination rate among special population. This study aimed to determine the characteristics of COVID-19 vaccinees in different population of Hulu Terengganu District, Terengganu.
**Methods:** A cross-sectional study was conducted from 3rd May 2021 until 21 October 2021. Data was collected on daily basis from Vaccine Appointment System (MyVas) and Vaksinanakku web-based system.
**Results:** The percentage of usage of different vaccines were PFIZER (50.5%), SINOVAC (46.2%), ASTRAZENECA (2.4%) and CANSINO (0.9%). Single dose vaccine was preferred for PATI, PADI and aborigine populations. A total of 51,040 (90.2%) of adults had completed their COVID-19 immunization. Age group of 18-29 years old had the highest achievement of 15,276 (35.5%) being completed immunization. For teenagers aged 12-17 years old, 85.9% had completed their vaccination. The percentage of completed vaccination for special groups, for example person with special needs (OKU), elderly, pregnant mothers, aborigines (adults and teenagers) and non-Malaysian citizens were 492 (51.6%), 7515 (92.9%), 713 (94.6%), 180 (48%), 178 (54.4%), 38 (79.2%) and 303 (100%) respectively.
**Conclusion:** Inter-agencies collaboration, support and endless health promotional activities were the key factors in successful achievement of COVID-19 immunisation program in Hulu Terengganu District.
**Keywords:** COVID-19, Immunization, Hulu Terengganu

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CONFERENCE ORAL PRESENTATION: OP C2

# Epidemiology of COVID-19 Cases in Hulu Terengganu District, Terengganu from 2020 until 2021

Reshma Abdul Kalam[1]*, Muhammad Izwan Syafiq Zakaria[1], Madiihah Mohd Nasriff[1], Azirudin Shahrin Ismail[1], Norlidayati Md Razak [1], Goh Soo Ning[1], Mohd Anuar Abd Rahman[2], Kasemani Embong[2]

## Abstract

**Introduction:** COVID -19 pandemic was first recognized in Malaysia on 25th January 2020 and Hulu Terengganu District was green zone until the first case was detected on 11th December 2020. This study aimed to determine trend of COVID-19 cases in Hulu Terengganu District, Terengganu from 2020-2021.

**Methods:** A descriptive cross-sectional study was conducted from 11th December 2020 until 15th October 2021. Data utilized was all the COVID-19 positive cases collected on daily basis from E-notification, an online electronics system.

**Results:** A total of 3,804 cases of COVID-19 were reported in Hulu Terengganu District over the study period and the highest locality was Kuala Berang. Epid week 45 had showed the highest cases. The incidence rate was 411 per 100 000 population for Hulu Terengganu District. Among these cases, 31.72% was from the age group of 31 to 50 years old, 79.98% of them had comorbidities, 65.89% was close contact with a confirmed case of COVID-19 and 64.22% remained asymptomatic (Category 1). The epidemiological trend showed that the first wave of COVID-19 outbreak was well-contained during the period of May 2021 until June 2021, where the epidemiology curve was bell-shaped. Starting 17th July 2021 to 15th October 2021, disease trend propagated due to multiple factors.

**Conclusions:** From the study, most cases are asymptomatic and from young to middle age group which may increase the risk of infection in the community. Therefore, it is important to adhere to strict Standard Operating Procedure (SOP) of New Norm and to complete vaccination.

**Keywords:** COVID-19, epidemiology, Hulu Terengganu, propagated, asymptomatic

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CONFERENCE ORAL PRESENTATION: OP C3

# COVID-19 Cluster in School: A Study on Epidemiology and Clinical Manifestations among Cases from Rengas Cluster in Perak, Malaysia

Syahrizal Abdul Halim*, Nor Azila Muhd Aris, Muhammad Zikri Fadzil, Husna Maizura Ahmad Mahir

## Abstract

**Introduction:** A COVID-19 cluster named as Rengas Cluster was declared on 6th November 2020 after nine students from a boarding school in Padang Rengas, Perak were diagnosed as positive COVID-19. Risk assessment was conducted and Targeted Enhanced Movement Control Order (TEMCO) was enforced at the school to contain the viral transmission. An investigation was carried out to analyse epidemiological data, clinical manifestations among cases and effect of TEMCO on this cluster.

**Methods:** A retrospective cross-sectional study was conducted from 2nd August 2021 until 3rd September 2021 using data that was obtained from Kuala Kangsar District Health Office Crisis Preparedness and Response Centre (CPRC) Surveillance System through e-COVID notification system. The variables used in this current study include socio-demographic and clinical characteristics that include age group, gender, occupation, co-morbidities, symptoms and signs.

**Results:** There were 132 cases out of 324 exposed populations whereby most cases were students (87.9%) and aged between 11 to 20 years old (84.8%). More than half of cases were female (57.6%) with only one case had existing co-morbidity. Majority of cases were asymptomatic (64.4%). Those symptomatic mainly presented with cough (66%) and the strongest significant positive correlation were observed between anosmia and ageusia ($r = 0.807$, $n = 47$, $p < 0.001$). There was no significant association between age group and development of symptoms [$\chi 2$ (6, N = 132) = 6.014, $p > 0.05$]. An abrupt decline in number of cases was observed following TEMCO enforcement.

**Conclusion:** COVID-19 cases in Rengas Cluster were mostly among young students, asymptomatic and mildly symptomatic. This cluster was timely and effectively controlled by TEMCO enforcement which contributed towards early diagnosis, isolation and treatment for more effective control and preventive measures.

**Keywords:** COVID-19, Cluster, Clinical Manifestation, School, TEMCO

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# Factors Associated with Hospitalization among COVID-19 Home Quarantine Patients in Melaka Tengah District, Melaka, Malaysia

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## Abstract

**Introduction:** COVID-19 emerged as a major public health outbreak in late 2019. Initially, Malaysia adopted a policy of hospitalizing of all cases. However, since the establishment of the COVID-19 Assessment Centre (CAC), cases were staged in terms of the severity. The mild cases were allowed for home quarantine. The high-risk cases were hospitalized for further management. Study on factors associated with hospitalization among home quarantined patients will assist healthcare providers to anticipate proactively, in order to reduce morbidity and mortality. This study aimed to determine the incidence rate of hospitalization among home quarantined patients and its associated factors.
**Methods:** A case-control study design was conducted from 16th August until 30th September 2021 involving newly diagnosed COVID-19 patients under the CAC Melaka Tengah monitoring. A case was defined as home quarantined patients whom later required hospitalization, while a control was defined as home quarantined patients throughout the period. Analysis using Chi-square and Multiple Logistic Regression were done to determine the significant associated factors.
**Results:** There were 13,748 COVID-19 patients; with 8,237 were home quarantined and 82 patients later being hospitalized (incidence rate of 1.0%). Among the hospitalized, 30.5% were aged 60 and above, 39.0% with comorbidity, 70.7% were symptomatic, and 40.2% were fully vaccinated. From the analysis, the only significant factor associated with hospitalization was increasing age (p=0.003).
**Conclusion:** There were home quarantined patients that required hospitalization later, especially the elderly patients. Thus, the CAC team should given priority for hospital admission to these cases instead of home quarantine order.
**Keywords:** Covid-19, Hospitalization, Associated factors, Case-control

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# Matang Cluster - The Biggest Coronavirus Disease (COVID-19) Cluster in Hulu Terengganu District, Terengganu

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## Abstract

**Introduction:** Kampung Matang is a traditional Malay village in Hulu Terengganu District. The villagers were mainly Malay, closely knitted to each other and stayed in big families. This factor contributed to the rise of COVID-19 cases which resulted to the biggest cluster after Aidilfitri celebration in 2021, Matang Cluster.

**Methods:** A retrospective cohort study was conducted to determine the characteristics of COVID-19 cases, epidemiological link and to describe the experience of COVID-19 containment in Kampung Matang, Hulu Terengganu District from 26th May until 14th July 2021.

**Results:** A total of 146 individuals were diagnosed with COVID-19 in Kampung Matang. Majority of them were in the age group of 21 to 40 years old (35.6%) and were males (53.3%). One quarter of the cases had comorbidities, 31.1% were workers in various fields and all of them were not yet vaccinated at the time of the cluster. Matang Cluster lasted for 47 days and 2082 of close contacts were being screened. The possible source of infection may be from interstate travel of index case, who travelled from red zone to green zone and consequently spread to 6 generations.

**Conclusion:** Immediate contact tracing, inter-agencies collaboration and active case detection were the key factors in containment of Matang Cluster.

**Keywords:** COVID-19, Matang cluster, Hulu Terengganu, close contact

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# The Performance of Rapid Antigen Tests as Complementary Diagnostic Testing among Institutional Outbreaks in Kelantan, Malaysia

Hazlienor Mohd Hatta[1]*, Nik Mohd Hafiz Mohd Fuzi[1], Suhaiza Sulaiman[2], Abdul Haris Mohamad[3], Zaini Husin[4]

## Abstract

**Introduction:** Prompt detection is crucial in containing the COVID-19 outbreaks. Rapid antigen tests (Ag-RDTs) are easily accessible, affordable, and produce rapid results, as an alternative to the gold-standard RT-PCR tests. This study assessed the diagnostic performance of Ag-RDTs for COVID-19 outbreaks in institutional setting in Kelantan.

**Methods:** A total of 303 individuals from five institutional outbreaks with nasopharyngeal specimens taken for concordance testing of Ag-RDTs and RT-PCR were identified from the state's database and analyzed. The diagnostic performance of Ag-RDTs were evaluated with RT-PCR as the reference standard and according to cycle threshold (Ct). The predictive values were calculated using the pre-test prevalence for each cluster.

**Results:** There was moderate agreement between Ag-RDTs and RT-PCR ($\kappa$ = 0.603; 95% CI: 0.520,0.686; P<0.001). The overall accuracy Ag-RDTs was 81.2% (95% CI: 76.4%,85.5%), specificity of 97.9% (95% CI: 94.1%,99.6%), sensitivity of 63.3% (95% CI: 55.3%,70.8%), while positive and negative predictive value was 96.6% (95% CI: 90.2%,98.9%) and 74.1% (95% CI: 70.0%,77.9%) respectively. The median Ct was lower in 100 (33.0%) true positive cases compared to 58 (19.1%) false negative cases (20.3 vs 31.4, P<0.001). The sensitivity was higher (P<0.001) in those with high viral load (Ct value <25.0) and as the prevalence increased (r= 0.808, P=0.038).

**Conclusion:** The Ag-RDTs performed well for diagnostic testing of COVID-19 among institutional outbreaks with higher viral load and disease prevalence. Cases tested negative by Ag-RDTs had low viral load and may require confirmation by RT-PCR. In low prevalence settings, given its lower sensitivity, RT-PCR is the preferred diagnostic test.

**Keywords:** COVID-19 outbreaks, Rapid Antigen Test, diagnostic performance

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CONFERENCE ORAL PRESENTATION: OP D1

# Cancer Screening Uptake and Associated Factors among Type 2 Diabetes Mellitus (T2DM) Patients in An Urban Primary Clinic in Klang District, Malaysia

Azmawati Mohammed Nawi[1], Noor Azreen Masdor[1]*, Faridah Kusnin[2], Nor Fadhilah Mohd Razib[2]

## Abstract

**Introduction:** The cancer screening uptake was still low among T2DM patients. This study investigates cancer screening uptake and the factors associated with low cancer screening among T2DM in an urban primary health clinic in Klang district, Malaysia.

**Methods:** A cross-sectional study was conducted in May 2021 on T2DM respondents in a primary care clinic using an online, self-administered questionnaire consisted of sociodemographic, socioeconomic, clinical, cancer risk, cancer awareness, social support, and source of information. The descriptive, bivariable and multivariable analysis was conducted using SPSS version 25.

**Results:** Among the 101 respondents, 33.7% had cancer screening. Significantly, T2DM males (OR=68.396, 95% CI: 7.015,666.894; p<0.001), not working group (OR: 4.966, 95% CI: 1.501,16.427; p= 0.009) did not screen for cancer. An increase of one CAM score will reduce 9% odds not screened for cancer (OR: 0.911,95%CI: 0.831,0.998; p= 0.045). Smoking status was not significant in bivariable analysis; however, it was significant in multivariable analysis for not screening for cancer in non-smoker group (OR: 16.116, 95% CI: 1.655, 156.968; p=0.017).

**Conclusion:** Low cancer awareness was observed among T2DM patients, especially in the male, non-worker, and non-smoker groups. Therefore, the government should enhance cancer awareness and the importance of cancer screening in a specific targeted group of diabetes patients.

**Keywords:** Diabetes mellitus type 2, cancer screening, male, uptake, awareness

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CONFERENCE ORAL PRESENTATION: OP D2

# A Systematic Review on the Associated Determinants in Colorectal Cancer Spatial Clustering Studies

Sharifah Saffinas Syed Soffian[1], Azmawati Mohammed Nawi[1]*, Rozita Hod[1], Huan-Keat Chan[2], Muhammad Radzi Abu Hassan[2]

## Abstract

**Introduction:** The growing incidence of colorectal cancer (CRC) in certain geographical area above the other showed the tendency to cluster. The review aimed to identify and examine available evidence on CRC incidence clustering patterns, in relation to the associated determinants.

**Methods:** Articles were systematically searched from four databases, Scopus, Web of Science, PubMed, and EBSCOHost. The approach for identification of the final articles follows PRISMA guidelines. Selected full-text articles were published between 2016 and 2021 of English language and spatial studies focusing on CRC cluster identification. Articles of systematic review, conference proceeding, book chapter and reports were excluded.

**Results:** Of the final 12 articles, information on the associated factors pertaining to CRC cluster were extracted. The identified factors were further classified into ecology (health care accessibility, urbanicity, dirty streets, tree coverage), biology (age, sex, ethnicity, obesity, daily consumption of milk and fruit), and social determinants (median household income level, smoking status, health cost, employment status, housing violations).

**Conclusion:** Spatial studies linking ecological factors and CRC cluster is lacking. Future research to explore the potential interaction between the ecology, biology and social determinants are warranted to provide more insights to the understanding of population-based CRC cluster pattern.

**Keywords:** colorectal cancer, risk factors, cluster, geographical information system, ecobiosocial

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# Machine Learning Models in Prediabetes Screening: A Systematic Review

Muhammad Hilmi Mahmud, Puteri Sofia Nadira Megat Kamaruddin, Nor Rumaizah Mohd Nordin, Sharifah Saffinas Syed Soffian, Mazni Baharom, Azmawati Mohammed Nawi*

## Abstract

**Introduction:** Previous studies demonstrated improved machine learning (ML) algorithms screening and diabetes prediction. This review aims to outline the relative performance accuracies in predicting pre-diabetes conditions with different types of ML algorithms.

**Methods:** Preferred Reporting Items for Systematic reviews and Meta-Analyses was utilised and selected databases include Web of Science, Scopus, PubMed, Ovid and EBSCOhost. Thorough identification, screening and inclusion process included five articles and they were ranked in quality through the Prediction Model Study Risk Of Bias Assessment Tool.

**Results:** Selected articles were published in 2014-2021. Sample size was 570-24 331 subjects. Three studies (South Korea, United States of America (USA) and Japan) suggest applicability of the screening score prediction model in clinical settings related to personalised risk assessment and targeted interventions, with suitable predictors. The respective area under the curve (AUC) are; South Korea: 0.768 Artifical Neural Network and 0.761 Support Vector Machine; USA: 0.72 Reverse Engineering and Forward Simulation; Japan: 0.75-0.78 Xgboost (XGB) models, outperform the logistic regression model. A Chinese study is only applicable in hospital setting, using tongue image datasets via Genetic Algorithm_Extreme Gradient Boosting (GA_XGBT) with AUC: 0.93 (colour and texture), 0.816 (deep feature) and 0.914 (fusion features). A Qatari study reported AUC: 0.81 (deep learning, gradient boosting machine, XGB and random forest).

**Conclusion:** The heterogeneity of population used and validation issues may affect generalisation. Future studies should address these concerns for the advocacy among health care providers in clinical practice as well as sharing data and expertise for development and validation of pre-diabetic prediction models.

**Keywords:** Prediabetes, Machine learning models, Prediction model, Screening tool, Risk

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# Hepatocellular Carcinoma Risk Stratification in Type-2 Diabetes Using Supervised Machine Learning Classification Models

Noor Atika Azit[1], Shahnorbanun Sahran[2], Azmawati Mohammed Nawi[1]*

## Abstract

**Introduction:** Hepatocellular carcinoma (HCC) is increasingly prevalent among type-2 diabetes (T2D) but poor prognosis due to late detection. Amid the COVID-19 pandemic, machine learning (ML) may aid clinicians in early detection for survival benefit. This study aims to construct and choose the best ML classification models for predicting HCC risk in T2D patients.

**Methods:** A 1:1 case-control study was conducted utilising electronic medical records from two hepatobiliary referral hospitals. Significant predictors were selected using Multiple logistic regression analysis. Supervised ML classification models such as supports vector machine (SVM), logistic regression (LR), artificial neural network (ANN), chi-square automatic interaction detection (CHAID) algorithms, and their ensembles were evaluated for their diagnostic and discriminative performances using SPSS Modeler version 18.0.

**Results:** 424 subjects were split into two groups: 60% training (n=248) and 40% testing (n=176). The significant predictors; race/ethnicity, viral hepatitis, abdominal pain/discomfort, weight loss, statins, alcohol consumption, fatty liver, reduced platelet, elevated alkaline phosphatase, and alanine transaminase level were included in the models. The accuracy and area under ROC curve (AUC) of ensemble models were 85.8% and 0.917, respectively, SVM 85.2% and 0.914, LR model 84.7% and 0.925, ANN model 83.5% and 0.905, and CHAID 78.4 % and 0.862. The performances of all models differed significantly (Cochran's Q-test, p-value =0.001), but not between the ensembled and SVM model (McNemar test, p-value =0.687).

**Conclusion:** The SVM model was chosen for its simplicity, high accuracy and AUC. This model is a potential tool for HCC risk stratification in diabetes primary care.

**Keywords:** hepatocellular carcinoma, diabetes, risk prediction, machine learning, support vector machine, model performance, classification model

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# Traditional Herbal Medicine as Adjunctive Therapy for Colorectal Cancer: A Scoping Review

Siti Rohani Nurumal, Nur Suhada Ramli, Zulkefley Mohammad, Shamsul Azhar Shah*

## Abstract

**Introduction:** In treating colorectal cancer, there are various treatment modalities that lie within the spectrum of conventional medicine to complementary and alternative medicine (CAM). In the current era, there are increasing evidence on the effectiveness of CAM. This review aims to perform a scoping review of the effectiveness of traditional and herbal medicine as adjunctive therapy for colorectal cancer (CRC) patients in clinical settings.

**Methods:** Four search engines (Medline, Web of Science, Cochrane Library, and Scopus) were systematically searched from the period of 2010 until 13 November 2020. All clinical trials involving the use of traditional herbal medicine (THM) with or without other treatment such as – conventional chemotherapy, placebo or other types of treatment were included.

**Results:** Five clinical trials involving CRC patients ranges from 89 to 565. The THM in the study was Catalpol, Daikenchuto, Aidi injection, Simo decoction (SMD) and Goshajinkigan. The positive outcomes were seen on the reduction of CRC tumour marker (by Catalpol), improved gastrointestinal (GI) function following GI surgery (by Daikenchuto and SMD), better disease control rate and quality of life score (by a combination of Aidi injection and chemotherapy); and reduction in the incidence of Oxaliplatin-induced peripheral neurotoxicity (Goshajinkigan).

**Conclusion:** All studies showed better adverse effects outcomes in THM intervention groups; however, evidence pointing towards positive directions of THMs for CRC patients are still lacking. In consequence, researchers and clinicians are encouraged to conduct further research in this field that can enable more evidence on the efficacy and safety of THM in clinical settings.

**Keywords:** Traditional and Herbal Medicine, Colorectal Cancer, Catalpol, Daikenchuto, Aidi, SMD, Goshajinkigan

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CONFERENCE ORAL PRESENTATION: OP D6

# Neonatal Morbidity Patterns and Admission Outcomes at A Tertiary Care Hospital in Pakistan: A Descriptive Study

Muhammad Parial Shahani [1]*, Mohd Rizal Abdul Manaf[1], Azimatun Noor Aizuddin[1], Zainab Shahani[2]

## Abstract

**Introduction:** The most common causes of neonatal mortality are sepsis 34%, prematurity 28% and birth asphyxia 24% in developing countries. The span of first 28 days of a neonate is highly important period of life since more than 2/3 of the infant deaths in Pakistan occur during the first month. Study was conducted at a tertiary care hospital in Pakistan to determine the neonatal mortality and ascertain the disease patterns at neonatal ward in a tertiary care hospital.

**Methods:** A hospital based cross sectional study was conducted at Shaikh Zaid Children Hospital Larkana. There were 2175 patients registered using the CPDR (Complete Patient Data Record) at neonatal ward. All the neonates admitted to the neonatal ward from 1st January 2020 to 31st Dec 2020 were included in the study.

**Results:** We recorded "birth weight", "gender", "cause of admission" at the ward and "admission outcome". The mean birth weight was 2.35kg, with the lowest birth weight of 0.9kg and the highest being 4.8kg (SD ±0.8 and SE ±0.01, CI 0.025). 1250 (57.5%) were discharged after improvement, 506 (23.2%) admitted neonates could not survive, 106 (4.9%) neonates were discharged on request (DOR), 287 (13.2%) left against medical advice LAMA and remaining 26 (1.2%) were referred to other hospitals. The most common presenting complaint and cause of admission was HIE grade 1, followed by Sepsis, 418 (19.2%), 380(17.4%), respectively.

**Conclusion:** The "Hypoxic Ischemic Encephalopathy Grade I" was the most common morbidity pattern in our study, the mortality rate was very high; indicators of birth weight were also poor. There is a great need for improvement of antenatal care in mothers to improve neonatal wellbeing.

**Keywords:** Neonatal Mortality, Neonatal Morbidity, Low Birth Weight, Newborn, Pakistan

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CONFERENCE POSTER PRESENTATION: PP 01

# Factors Associated with COVID-19 Infection in Melaka: One Year Experience from March 2020 till March 2021

Ahmad Badruridzwanullah Zun*, Marleena Baizura Akbar, Zulraini Jusof, Rusdi Abd Rahman, Ismail Ali

## Abstract

**Introduction:** Pandemic COVID-19 was declared since 11 March 2020 by World Health Organization (WHO). In Malaysia, the first COVID-19 infection was detected on 25th January 2020 and in Melaka, the first case was detected on 13th March 2020 from an imported transmission. Hence, this study aims to determine the factors associated with COVID-19 infection in Melaka from March 2020 to March 2021.

**Methods:** This study was a cross sectional study conducted using secondary data collection from a Department of Health Melaka masterlist of COVID-19 screening using polymerase chain reaction (PCR) testing. Simple random sampling was applied to select the samples. Multiple logistic regression was conducted to determine the factors associated with COVID-19 infection.

**Results:** A total of 498 samples were selected for this study. 84.9% of the samples were adult, 60.0% were male, 85.3% were Malaysian citizen and about 60.0% samples were from Melaka Tengah District. Only 2.4% samples have symptoms, 13.7% individuals were related to COVID-19 cluster and 55.6% of samples were from close contact with positive COVID-19 case. The total attack rate for COVID-19 infection was 13.7%. Only four factors were significantly associated with COVID-19 infection which were non-Malaysian (Adj OR: 0.163, 95% CI: 0.13-0.49, p value <0.001), cluster related screening (Adj OR: 6.788, 95% CI: 4.44-16.17, p value<0.001), close contact screening (Adj OR: 0.028, 95% CI: 0.25-0.82, p value<0.001) and Melaka Tengah District (Adj OR: 4.180, 95% CI: 0.56-0.98, p value: 0.006).

**Conclusion:** The COVID-19 infection in Melaka was influenced by the contact patterns, environmental factors and nationality of that population. Activities in large numbers should be reduced and swift contact tracing is crucial in preventing widespread COVID-19 transmission.

**Keywords:** COVID-19 infection, Melaka, COVID-19 cluster, close contact

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# Risk Factors for Mortality among COVID-19 Patients in Besut District, Terengganu State of Malaysia

Hafizuddin Awang[1]*, Effah Leiylena Yaacob[1], Arfizah Ahmad Daud[1], Normahizan Ahmad[1], Muhammad Solehuddin Ishak[1], Nur Almas Alias[1], Nor Hafizah Ghazali[1], Nur Farihin Ismail[1], Mohd Adli Abd Khalim[2], Saidah Adilah Mohamed Yusof[2], Siti Fatimah Samsury[2], Mohd Anuar Abd Rahman[3], Kasemani Embong[3]

## Abstract

**Introduction:** COVID-19 mortality is a public health issue in Malaysia and its contributing factors need to be addressed thoroughly. This study aimed to determine the risk factors for COVID-19 mortality in Terengganu state, Malaysia.
**Methods:** A 1:5 case-control study between deceased and survived groups among COVID-19 patients was conducted in Besut district, Terengganu state from 1st October 2020 until 16th September 2021 based on retrospective record review. The inclusion criteria for cases were individuals with laboratory RT-PCR confirmed positive test for COVID-19 and died during COVID-19 care period. Descriptive statistics, simple and multiple logistic regression analyses were employed for statistical analysis.
**Results:** There were 6464 COVID-19 cases in Besut district during the studied period. The proportion of COVID-19 mortality was 0.84%. Among the deceased group, majority of them were male (51.9%), symptomatic (87.0%), unvaccinated (94.4%); had COVID-19 of category 5 (31.5%) and comorbidity (81.5%). Multiple logistic regression revealed older age, category 4 COVID-19, category 5 COVID-19, symptomatic, cases with comorbidity and unvaccinated cases as the significant associated factors for COVID-19 mortality with adjusted odds ratio (AOR) of 1.07 (95%CI: 1.01, 1.10), p<0.001; AOR 92.61 (95%CI: 7.07, 1212.02), p=0.001; AOR 274.97 (95%CI: 25.27, 2991.74), p<0.001; AOR 8.83 (95%CI: 3.21, 24.28), p<0.001; AOR 46.72 (95%CI: 15.29, 142.70), p<0.001; and AOR 16.94 (95%CI: 6.34, 121.22), p=0.001, respectively.
**Conclusion:** Advanced age, severe form of COVID-19, symptomatic cases, cases with comorbidity and unvaccinated cases were the risk factors for COVID-19 mortality. Emphasis should be given to these factors to ensure timely control and treatment strategies.
**Keywords:** COVID-19, Mortality, Risk factors, Vaccine, Malaysia

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# Situational Analysis of COVID-19 among Healthcare Workers in Terengganu

Hafizuddin Awang[1]*, Noriah Mahmud[2], Mazura Zali[2], Norhayati Nik[2], Tuan Himi Nazra Tuan Ibrahim[2], Azmani Wahab[2], Norafidah Abdul Rashid[2], Hasnan Arwit[2], Mohd Anuar Abd Rahman[2], Kasemani Embong[2]

## Abstract

**Introduction:** In Terengganu, healthcare workers (HCW) are facing similar risk of exposure to COVID-19 as other settings in Malaysia and globally. This study aimed to describe the current situation of COVID-19 among HCW in Terengganu state.

**Methods:** A descriptive study was conducted in Terengganu state of Malaysia among healthcare workers based on retrospective record review. The inclusion criteria were HCW working in Terengganu's public healthcare facilities with laboratory reverse transcription polymerase chain reaction (RT-PCR) confirmed positive test for COVID-19 and notified to Terengganu State Health Department from 1st March 2020 until 30th September 2021. Descriptive statistics were employed for statistical analysis.

**Results:** As of 30th September 2021, there were 919 HCW infected with COVID-19. The mean (±SD) of samples' age and RT-PCR cycle threshold (CT) value was 36 (±7) and 24.87 (±7.86), respectively. Majority of infected HCW in Terengganu were female (74.5%), from job category of nurses (38.7%) followed by medical doctors (19.6%), not directly involved in COVID-19 cases management (72.3%), symptomatic (61.2%), diagnosed as Category 2 COVID-19 (52.4%) followed by Category 1 COVID-19 (47.2%), and had no comorbidity (91.0%).

**Conclusion:** COVID-19 commonly involved personnel related to clinical work (doctors and nurses). Screening and diagnosis of COVID-19 among HCW was early as depicted by relatively low mean RT-PCR CT value and therefore averted progression to severe COVID-19 stages (Category 4 and Category 5).

**Keywords:** COVID-19, Healthcare workers, Situational analysis, CT-value, Malaysia

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CONFERENCE POSTER PRESENTATION: PP 04

# Knowledge and Perception: Factors Affecting the Effectiveness of COMBI's Health Education Activities between June to December 2019 in Kuala Lumpur and Putrajaya

Nazrie Saini[1]*, Hajira Ramli[1], Lilis Suriani Razali[1], Abu Bakar Rahman[2]

## Abstract

**Introduction:** COMBI is a set of methods used as a strategy to ensure communication and mobilization among communities in order to control and prevent dengue. The aim of this study is to identify factors that influence the level of knowledge and perception among the community in COMBI and non-COMBI localities.

**Methods:** A total of 477 volunteer aged 18 and above with ability to read and write are identified which consist of COMBI and non-COMBI members near Kuala Lumpur & Putrajaya. This was a cross sectional survey with multi-stage stratified random sampling conducted in 2019.

**Results:** Analysis shows that the level of knowledge by both localities was high at 25 (11.8%) and 34 (12.8%). Level of perception towards gaining of information relating to dengue was both positive at 120 (56.6%) and 138 (52.1%). Chi-square test showed that there was significant difference between both localities with monthly income (Chi-Square= 16.79, df=5, p=0.05) and working status (Chi-Square= 11.04, df=4, p=0.26). Regression analysis was utilized to predict the retention of 212 respondents from COMBI and 265 respondents from non-COMBI localities. The dichotomous independent variables were used to predict whether knowledge and perception affect the effectiveness of health education activities. The Binary logistic regression indicates that working status OR= 5.515 (95% CI 1.69 – 18.05) and monthly income OR= 3.021 (95% CI 1.19 – 7.67) were significantly important determinant of having high knowledge towards dengue. Monthly income OR= 0.304 (95% CI 0.163 – 0.57) and property status OR= 0.412 (95% CI 0.196 – 0.867) are more likely to have positive perception compared to no income group and tenants. While working status OR= 0.258 (95% CI, 0.092 – 0.73) is less likely to have positive perception compared to the students.

**Conclusion:** Demographic elements are seen to be crucial factors contributing to the effectiveness of the delivery of information through health education activities.

**Keywords:** COMBI, Knowledge, Perception, Health education

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# Impact of the COVID-19 Pandemic on Medical and Non-Medical Students in AIMST University, May 2021

Ang Li Ming*, Saw Sen Yee, Keerthana Elanggovan, Cheryl Pang Yi Wei, Saraswathi Bina Rai

## Abstract

**Introduction:** COVID-19 has impacted people worldwide in many ways and our aim was to find out the different impacts of COVID-19 pandemic (mental, academic and finance) on medical and non-medical students in AIMST University.

**Method:** We carried out a cross-sectional study using a pre-validated GOOGLE form with 15 questions for mental health (modified DASS-21 questionnaire), ten and eight questions each for academic and financial assessment respectively. Internal consistency using Cronbach's alpha was 0.929, 0.735 and 0.755. Data was analysed using SPSS v23, categorical data was presented in frequencies and percentages. Bivariate analysis using t-test or chi-square were used to compare the difference between medical and non-medical students. The study period was in May 2021.

**Results:** The total respondents are 208, mostly female (66.3%). Mean mental health score for medical students (mean = 38.3, SD = 12.9) was higher than non-medical students (mean = 37.3, SD = 11.6). There was no significant difference between the two groups, t=0.6, p=.551 in their mental health score. In the academic assessment, there was a significant difference amongst non-medical students who had poor contact with lecturers ($x^2$ =10.73, p=0.030), unconducive home environment ($x^2$ =4.38, p=0.036) and have significantly more distraction from family members ($x^2$ =4.87, p=0.027). Financially non-medical students struggled more to pay for food expenses ($x^2$ =12.92, p<0.001).

**Conclusion:** COVID-19 has impacted all students in this University, but has affected non-medical students more than medical students both academically and financially. In terms of mental health, it has affected all equally. We recommend that these issues are addressed urgently by university to help the students.

**Keywords:** COVID-19, impact, university students, mental health

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# Factors Associated with COVID-19 Mortality at Setiu District, Terengganu State of Malaysia in 2021

Erwan Ershad Ahmad Khan[1]*, Mohd Hanief Ahmad[2], Kamarul Azhar Mohamed[2], Muhammad Hanif Shaari[2], Kasemani Embong[3]

## Abstract

**Introduction:** COVID-19 infections had been reported to cause mortality especially among the high-risk group. This study aimed to determine the factors associated with COVID-19 mortality at Setiu district, Terengganu state of Malaysia in 2021.

**Methods:** A case-control study that utilized secondary data from line listing of COVID-19 patients at Setiu district from January 2021 to September 2021 was conducted. For both cases and controls, only samples aged 18 years old and above were included in the study. Patients under home surveillance orders and were not admitted to hospitals or treatment centres, brought in dead cases and incomplete data of 20% or more were excluded from this study. A total of 126 samples that fulfilled the study criteria were selected for this study. Simple random sampling was done. Multiple logistic regression analysis was done to determine factors associated with COVID-19 mortality using SPSS version 26.

**Results:** Among the mortality cases, majority were aged ⩾ 60 years old (66.7%), female (61.1%), had comorbidity (83.3%), incomplete vaccination (83.3%) and were admitted at tertiary hospital (55.6%). Factors associated with COVID-19 mortality were presence of comorbidity (AdjOR: 14.40, 95% CI: 2.26, 91.79) and incomplete vaccination (AdjOR: 4.51, 95% CI:1.01, 20.16).

**Conclusion:** COVID-19 patients with comorbidity and incomplete vaccination must be more closely monitored as they are more likely to succumb to death. Explicit preventive measures against COVID-19 mortality and its determinants must be implemented by the stakeholders so that patients' survival can be improved.

**Keywords:** COVID-19, mortality, Setiu, incomplete vaccination

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# COVID-19 Mortality and Factors Associated with Brought-in-Dead in August 2021 in Penang, Malaysia

Mohamad Afiq Amsyar*, Gunenthira Rao, Rozaini Mat Shah, Kalavathy Tangga Muthu, Amin Harun, Rafidah Md Noor

## Abstract

**Introduction:** COVID-19 associated mortality in Malaysia showed increasing trend with cumulative death tally of 9184 deaths as of 1st August 2021. Of concern is that there has also been an increase in the number of COVID-19 brought-in-dead (BID) in community. Unknown comorbidities and late health seeking behaviour are among the factors associated with occurrence of BID in the community. This study aims to describe sociodemographic distribution of COVID-19 mortality and factors of COVID-19 BID in Penang.

**Methods:** Data on COVID-19 death in Penang from 1st August 2021 until 31st August 2021 including the demographic information, onset of symptoms, comorbidities and COVID-19 vaccination status were gathered from Penang COVID-19 registry at State Health Department of Pulau Pinang. COVID-19 BID was defined as any death cases due to COVID-19 infection that had no sign of life upon arrival of professional medical assistance. Factors of COVID-19 BID were analysed using multiple logistic regression.

**Results:** In total, 40 663 COVID-19 cases and 421 deaths or 1.04% (95%CI: 0.93,1.03) case fatality rate were recorded during the study period. 320 (76%) deaths categorized as in-patient death and remaining 101 (24%) were BID. Multiple logistic regression revealed non-Malaysian, no known comorbidities, and late health-seeking behaviour (HSB) upon onset of disease were significant factors associated with COVID-19 BID with an Adjusted Odds Ratio (AOR) of 2.49 (95%CI: 1.13,5.51; p=0.024), 2.98 (95%CI:1.71,5.2; p<0.001) and 1.26 (95%CI: 1.15,1.37; p<0.001) respectively.

**Conclusion:** About 1 in 4 COVID-19 deaths in Penang was categorized as BID with non-Malaysian, individual with no known comorbidities and late HSB as the significant associated factors. Expanding COVID-19 surveillance and awareness programs to this population will help in reducing occurrence of BID and better patient management during pandemic period.

**Keywords:** COVID-19, Mortality, Brought in Dead (BID), Case-Fatality Rate

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# COVID-19 Find, Test, Trace, Isolate and Support (FTTIS) Strategy in Penang, Malaysia

Gunenthira Rao[1]*, Anu Suria[2], Mohamad Afiq Amsyar[1], Kalahvathy[1]

## Abstract

**Introduction:** Find, Test, Trace, Isolate and Support (FTTIS) is a system recommended by the World Health Organisation (WHO) to reduce COVID-19 incidence. Threshold set by the WHO for screening is 5% positivity rate. Penang state government with the coordination of various agency have adopted such system called ''Penang Saring COVID-19''. The objective of this programme is to find and test individuals at risk of Covid-19 in Penang.
**Methods:** Free targeted community screening using Rapid Test Kit (RTK) Antigen were offered to public in all the 40-state assembly in Penang between 5 July to 24 August 2021. Screening date and time were fixed earlier based on identified hotspot areas. Public registered for screening via a specially created application and results were notified through the application.
**Results:** In total 40,000 people were screened in which 36249(90.6%) were locals and 3751(9.4%) were foreigners. A total of 2639 was found to be positive making the COVID-19 positivity rate 6.6%. Among them, 2488 (94.3%) were Malaysian while remaining 151 (5.5%) were foreigners. Adults aged 21 to 30 years (25%), male (61%), asymptomatic persons (63%) and e-hailing workers (2%) were identified as high-risk group to get COVID-19. There were 969 (37%) individuals who were symptomatic during the screening with predominant symptoms of cough (33.7%), sore throat (30.5%) and fever (27.4%).
**Conclusion:** This programme allows us to identify infected individual earlier and helps in tracing and quarantining of their contact. The government through its relevant agencies should come with enhanced FTTIS programme as prevention and control of COVID-19.
**Keywords:** COVID-19, Test, Trace, Isolate, Penang

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# Burnout among Public Service Doctors in Kota Kinabalu during COVID-19 Pandemic in March 2020

Ahmad Hazim Mohammad*, Shamsul Bahari Shamsudin, Nornazirah Ahmad Kamarudin

## Abstract

**Introduction:** Globally, doctors are at risk of experiencing burnout due to various of factors thus may result in significant negative impact on health services especially at the time of Covid-19 pandemic. The aim of this study is to investigate the prevalence of burnout among government medical officers in Kota Kinabalu and its associated factors at the beginning of the COVID-19 pandemic.

**Methods:** A cross sectional study involving a total of 201 doctors working in all government hospitals and health clinics in Kota Kinabalu was conducted in March 2020. Burnout assessment was done using Copenhagen Burnout Inventory (CBI) which were administered online through Google form.

**Results:** Prevalence of personal-related burnout and work-related burnout were 61.2% and 48.8% respectively while client-related burnout was 39.8%. Medical-based (OR=3.643, 95% CI: 1.218, 10.896) and surgical-based (OR=4.286, 95% CI: 1.179, 15.572) doctors were more likely to experience personal-related burnout compared to primary health care medical officers. Doctors with less than 5 years working experiences are more likely to experience personal-related (OR=13.860, 95% CI: 6.178, 31.249) and client-related (OR=6.104, 95% CI: 3.281, 11.370) burnout compared to the more experienced doctors. Meanwhile there were no significant association between prevalence of burnout and other predictors.

**Conclusion:** Prevalence of burnout among doctors in Kota Kinabalu are relatively high and this will affect the health services provided for the people at the time of COVID-19 pandemic. It is important to promote healthy working environment to reduce the risk of burnout.

**Keywords:** Burnout, doctors, Copenhagen Burnout Inventory (CBI), COVID-19, pandemic

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CONFERENCE POSTER PRESENTATION: PP 10

# Fear of Missing Out (FoMO) and Its Associated Factors during COVID-19 Pandemic among Undergraduate Medical Students at A Public University in Selangor, Malaysia

Noor Adillah Dawad*, Zahir Izuan Azhar

## Abstract

**Introduction:** Fear of Missing Out (FoMO) is defined as the desire to persistently relate with what others are doing. FoMO is an important psychological construct which is prevalent among those who are engaged with social media and have significant relationships with psychological well-being which can lead to poor mental health. This study aims to determine factors associated with FoMO among Universiti Teknologi Mara medical students during the COVID-19 pandemic and to identify the predictors of FoMO.

**Methods:** This is a cross-sectional study conducted among Year 1 to Year 5 medical students. Data collection was from 22nd April 2021 to 13th May 2021 using self-administered validated questionnaires which consist of descriptive questionnaires, Social Media Use Integration Scale and Fear of Missing Out survey. The inclusion criteria were medical students from Year 1 to Year 5 registered in the 2020/2021 academic session, able to understand English and staying at their current residence for at least 3 months. The exclusion criteria were students with underlying psychiatric illnesses.

**Results:** There were a total of 362 respondents. The top three social media engagement were WhatsApp (37.3%), Twitter (22.4%) and YouTube (21.5%). Most respondents (24.6%) use social media for 2.1 until 3 hours per day. The mean score for social media use integration was 37.0±7.53 (total marks = 60) and 22.3±7.24 (total marks = 50) for FoMO. There were no significant differences in the mean level of FoMO between those who stay at home and hostel during the COVID-19 pandemic (P= 0.262). The predictors of FoMO were male (P= 0.001) and social media use integration (P= < 0.001).

**Conclusion:** Male students and higher integration of social media resulted in higher FoMO. Health promotion and health education regarding FoMO should be targeted to male students and effects of excessive usage of social media should be highlighted.

**Keywords:** FoMO, social media engagement, social media use integration, university students

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# "Please Hear Our Plight!": An Exploratory Qualitative Study among Transgender Women (TW) and Men Who Have Sex with Men (MSM) in Kuala Lumpur and Kota Kinabalu, Sabah

Mohamad Zaidan Zulkepli*, Zaikiah Mohd Zin, Abu Bakar Rahman, Manimaran Krishnan, Sheikh Shafizal Sheikh Ilman, Nadia Hani Jahaya, Albeny Joslyn Panting, Nurashma Juatan

## Abstract

**Introduction:** Transgender women (TW) and men who have sex with men (MSM) are more likely to experience social isolation and family rejection. They may also be more vulnerable to HIV and other sexually transmitted diseases (STI), necessitating access to HIV and STI testing facilities. TW and MSM are still stigmatised and discriminated against in their families and in the public domain. When seeking health care, they may be stigmatised by health care providers, which may lead to refusal of care. Thus, the goal of this study is to explore the TW and MSM's perceptions and experiences with regard to the support they require in health and medical services.
**Methods:** Semi-structured interviews were conducted in Kuala Lumpur and Kota Kinabalu, Sabah, Malaysia, between March and June 2019. The eligible participants were selected using purposive method. There were 56 in-depth interview sessions in total (36 interviews with MSM and 20 interviews with TW). Thematic analysis was used to review the transcribed interviews in Malay and English.
**Results:** Based on the thematic analysis, three main themes related to the aspects of support received and required by TW and MSM were identified: physical support (sub-theme include equipment, financial, services: health screening, blood test etc), psycho-social support (sub-theme include family, friend and organization), and compliance (sub-theme - encouragement of treatment).
**Conclusion:** The findings highlight the importance of the support needed by the TW and MSM to reduce stigma and discrimination. This aspect of support can also facilitate these groups gain access to facilities and health needs.
**Keywords:** Support, Transwomen, MSM, Care, Stigma

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# Barriers in Health Information Seeking Behaviour among Rural Communities in Sarawak: A Qualitative Study

Albeny Joslyn Panting*, Mohamad Safar Hasim, Mohd Tajudin Md Ninggal

## Abstract

**Introduction:** The importance of health information is being driven by individuals' increasing need for health information as well as their inability to adequately utilise health information. The process through which people discover and manage information concerning their health, and health-protective behaviours is known as health information-seeking behaviour. However, barriers in health information seeking, have an impact on the accessibility, and availability of health information. Thus, individual healthcare may suffer the consequences of a lack of access to health information. Understanding these capabilities may be able to help in bridging the gap. Therefore, this study explores the information barriers that impede rural Sarawak communities from seeking health information.

**Methods:** Purposive sampling was employed to identify eligible adult informants (n=18) between January and February 2021 in Kota Padawan and Lubok Antu, Sarawak. A maximum variation sample was utilised to select the eligible informants and to discover diverse themes throughout a diverse sample. Malaysian adults aged 18 and above and residing in the two locations (Kota Padawan and Lubok Antu) meet the inclusion criteria. Validated interview guides were used to conduct in-depth interviews. The data was analysed using the ATLAS.ti 9 Windows software tool following the framework analysis (Extended Model of Health Information Seeking Behaviour). The Medical Research and Ethics Committee of Malaysia's Ministry of Health granted ethical approval.

**Results:** An in-depth interview among 18 informants revealed five major themes of health information seeking barriers: i) a lack of ICT skills, ii) illiteracy among older persons, iii) perceived low self-esteem, iv) dependence on opinion leaders for health information, and v) difficulties in selecting the proper health information.

**Conclusion:** Individuals' increasing information needs for up-to-date and health-related information have increased health information availability. However, several barriers have hampered and continue to be among the most significant barriers in accessing health information, such as a lack of ICT skills, illiteracy, and perceived low self-esteem, as well as over-reliance on opinion leaders and difficulties in choosing health information. Thus, further research is needed to investigate strategies to improve people's ability to obtain health information.

**Keywords:** Community, Behaviour, Barriers, Information-seeking, Rural

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# Health Seeking Behaviour among Individuals with Acute Respiratory Infection in Besut District, Terengganu State of Malaysia during COVID-19 Pandemic

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## Abstract

**Introduction:** One of the important public health responses towards COVID-19 pandemic was ensuring individuals with symptoms of Acute Respiratory Illness (ARI) sought early treatment at health facilities and underwent COVID-19 testing. The aim of this study is to describe their characteristics and determine the duration taken to attend health facilities from onset of symptoms.
**Methods:** A 1:1 case-control study between Antigen Rapid Test Kit (RTK-Ag) reactive and RTK-Ag non-reactive groups was conducted in Besut district, Terengganu state from 1st January 2021 until 30th September 2021, based on retrospective record review. The inclusion criteria for cases were individuals with ARI symptoms and laboratory RTK-Ag reactive for COVID-19. Descriptive statistics, Kaplan-Meier Survival Analysis and Log-Rank test according to COVID-19 clinical staging were used for statistical analysis.
**Results:** There were 11,761 individuals with ARI symptoms attending health facilities in Besut during the study period. The proportion of RTK-Ag reactive cases was 60.7%. Among the RTK-Ag reactive group, majority were female (55.4%), mean (SD) age were 38.8 (13.4) years, not working (46.9%), had no known medical illness (83.5%), with mild symptoms (94.0%), and attended government clinics (70.0%). Ninety seven percent of RTK-Ag reactive individuals became confirmed cases for COVID-19 via laboratory RT-PCR test. The time taken for 50% of symptomatic individuals to come for RTK-Ag sampling at health facilities were 2.0 (95% CI: 1.89, 2.11) days. There was a significant difference of median time between mild and severe COVID-19 clinical staging (p-value = 0.014) in attending health facilities for RTK-Ag sampling. Mild COVID-19 clinical stage had shorter duration to attend health facilities.
**Conclusion:** The short median time to attend health facilities and undergo COVID-19 testing among symptomatic individuals in Besut district reflects good health seeking behaviour. Ensuring the continuance of this behaviour is essential as the nation is entering the mitigation phase of the COVID-19 pandemic.
**Keywords:** COVID-19, RTK-Ag testing, health seeking behaviour, acute respiratory infection, health facilities

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# Mass Screening for COVID-19 in the Community in Timur Laut District, Penang from May-June 2021

Kalahvathy Tangga Muthu*, Gunenthira Rao, AM Azizah, Tan Hooi Shyuan, Rozaini Mat Shah[1] and Afiq Amsyar

## Abstract

**Introduction:** In the 1st two weeks of May 2021, the incident rate for COVID-19 in Timur Laut was 181.06 over 100,000 population and highest in Penang. A cluster named Cluster Jalan Veterinari was declared on 21st May 2021 after a couple died due to COVID-19. It involved low-medium cost apartments with 1083 units and an estimated 6000 residents. This study aimed for targeted mass screening in the community to contain the spreading of COVID-19.
**Methods:** Mass screening using Reverse transcription polymerase chain reaction (RT-PCR) was conducted from 18th May 2021 to 13th June 2021. Other than symptomatic patients, 1 sample was taken from all the houses in the same rows with the confirmed COVID-19 positive cases followed by 1 row above and 1 row lower than the positive patient's house. Samples were preferably taken from the high-risk group of those above 55 years with comorbid or children aged below 12 years and if none random samples represent these units.
**Results:** A total of 459 residents screened, 89 (19.38%) were positive and 370 (80.61%) negative. Out of 89 positive cases, 86 (96.6%) were locals and 3 (3.45%) foreigners. From 156 high-risk group aged between 60 to 85 years screened and tested negative, 153 were given COVID-19 vaccination.
**Conclusion:** From this cluster, 89 positive cases and 2 deaths among the elderly high risk group were reported. Emphasis should be given to high-risk groups and symptomatic COVID-19 residents to facilitate timely detection of COVID-19 cases and avert the transmission in the community.
**Keywords:** Mass Screening, Covid-19, Community, Penang

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# Analysis of COVID-19 Clusters Reported in Wilayah Persekutuan Kuala Lumpur and Putrajaya (WPKL & P) from 25th January 2020 till 9th October 2021

Nurrifhan Husna Hamzah*, Rosvinder Singh

## Abstract

**Introduction:** COVID-19 is a novel infectious disease that was declared as a pandemic since March 2020. More than 240 million cases have been reported globally. In Malaysia, a total of 2,332,221 cases have been recorded till epidemiological week 40, 2021 and 5,580 COVID-19 clusters have been reported with 463 of these clusters reported in WPKL & P alone. This analysis aims to report the trend and characteristics of COVID-19 clusters in WPKL & P from 25th January 2020 till 9th October 2021.

**Methods:** A descriptive analysis was performed on the data from national registry at Crisis Preparedness and Response Centre (CPRC) and the state COVID-19 cluster registry from Kuala Lumpur and Putrajaya State Health Department dated from 25th January 2020 till 9th October 2021. We included all clusters that were reported by the WPKL & P state health department, while clusters reported by other states were excluded. Workplace clusters refers to 2 or more COVID-19 cases with an epid-link within 14 days identified at any types of areas where people work.

**Results:** A total of 463 clusters were reported in WPKL & P till 9th October 2021. These clusters were responsible for a total of 40,185 COVID-19 cases. About 70% of the total clusters were reported as workplace clusters contributing to more than 26,000 or 65% cases of COVID-19.

**Conclusion:** Transmission of COVID-19 infection remains high in workplaces, in WPKL & P. Therefore, better standard operating procedures (SOPs) and stricter measures need to be implemented in workplaces to halt the transmission.

**Keywords:** COVID-19, workplace, Kuala Lumpur, Putrajaya

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# Characteristics of COVID-19 Brought-In-Dead Cases in Wilayah Persekutuan Kuala Lumpur & Putrajaya (WPKL & P)

Siti Hajar Rosli*, Jonathan Emanuel Yabai, Rosvinder Singh

## Abstract

**Introduction:** Coronavirus disease 2019 (COVID-19) is a pandemic that has spread rapidly around the world, resulting in a high mortality rate. Globally more than 240 million cases have been reported till mid-October 2021 with over 4.9 million deaths. Malaysia has recorded more than 240,000 cases with 28,138 deaths, among which 5422 were brought-in dead (BID). Approximately 9.6% of BID cases were reported in WPKL & P. This study aims to determine the characteristics of COVID-19 BID cases in WPKL & P and its associated factors.

**Methods:** The COVID-19 death cases were obtained from the national and state COVID-19 death registry at the Crisis Preparedness and Response Centre (CPRC) and WPKL & P health department from 21st March 2020 until 5th October 2021. Multiple logistic regression was used to analysed the associated factors for COVID-19 BID cases.

**Results:** A total of 2,315 COVID-19 deaths cases were reported, with 74.5% inpatient deaths and 25.5% BID cases. The BID cases were significantly associated with age, ethnicity, nationality, types of cases, presence of symptoms, and comorbidities. A logistic regression analysis showed that non-Malaysian (ARR: 3.72, 95% CI: 2.88-4.81), sporadic cases (ARR: 2.06, 95% CI: 1.16-3.68), without comorbidities (ARR: 3.13, 95% CI: 2.45-3.99), and symptomatic cases (ARR: 0.05, 95% CI: 0.03-0.07) were factors significantly associated with COVID-19 BID cases.

**Conclusion:** Factors such as foreign nationality, a sporadic case, asymptomatic and without comorbidities among COVID-19 cases have higher chances of being BID. Therefore, it is imperative to have a mechanism in ensuring a closer monitoring of such cases undergoing home isolation in WPKL & P.

**Keywords:** COVID-19, coronavirus, brought-in-dead, Kuala Lumpur and Putrajaya

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# Dengue - An Epidemic in the Time of A Pandemic in Wilayah Persekutuan Kuala Lumpur and Putrajaya (WPKL&P)

Harpreeta Kaur*, Rosvinder Singh

## Abstract

**Introduction:** As a response measure to interrupt the transmission of COVID-19, the wave of lockdowns in 2020 and 2021 present a unique opportunity to observe how changes in human contact rates, disease control and surveillance affect dengue virus transmission in a global natural experiment. This study aims to compare the epidemiological trend of Dengue Fever in WPKL & P in the pre-pandemic and pandemic era.

**Methods:** A trend analysis was conducted on weekly reported cases of Dengue Fever and COVID-19 in WPKL & P between 2017 to 2021. Data on dengue was retrieved from E-Denggi and the State Health Vector Department while COVID-19 data was retrieved from the State CPRC COVID-19 registry.

**Results:** In the last 5-years, the highest number of dengue cases reported per annum was seen in the year 2019. There was a declining trend of cases reported in the following years with a decrease of 31.6% and 73% respectively in 2020 and 2021 as compared to 2019. A 5-year trend showed a consistent seasonal peak of cases. Most cases were males from the 18-59 years age group in both phases. Bukit Bintang parliament constituency recorded an increasing incidence rate. Impact of lockdown on dengue deaths remain variable as mortality rates showed a declining trend in the 5-year study period.

**Conclusion:** Dengue continues to be a burden in WPKL & P amidst COVID-19. More studies detailing the impacts of human mobility and lockdowns on transmission of both infectious diseases are important in the post pandemic recovery period.

**Keywords:** Dengue, COVID-19, Kuala Lumpur and Putrajaya

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# Characteristics of COVID-19 Cases in Kuala Lumpur and Putrajaya (WPKL & P) during the 3rd Wave

Nurul Farhana MA*, Lai CY, Siti Hajar R, Rosvinder Singh, Nur Anis Wahidah B

## Abstract

**Introduction:** COVID-19 pandemic in Malaysia entered its third wave on 8th September 2020 following sudden increase of cases observed in all states with a highly transmissible circulating virus strain. This posed a tough challenge in managing the pandemic as compared to the previous two waves. A review of COVID-19 reported cases during the surge in mid-June was done which aimed to determine the epidemiological description, and factors associated with COVID-19 infections in WPKL & P.

**Methods:** A descriptive analysis was conducted among COVID-19 positive cases reported between Epid Week 24 to 39 using daily data from the state COVID-19 registry. The analysis was conducted using SPSS version 25.

**Results:** A total of 108,389 positive cases were reported between 14 June to 3 October 2021. In WPKL & P, Kepong district reported most cases (26.8%) while Titiwangsa reported the most COVID-19 deaths (27.4%). Based on the observations, Malaysians accounted for majority of cases (78.4%) with 62,212 of them were male (57.4%). Most cases were among those aged between 25 to 59 years old (62.5%), with at least 1 symptom (59.4%). Close contact screening reported 48.3% of positive cases followed by sporadic cases (36.7%). From the cases 66,921 had available data for vaccination which showed 43% of cases were among the unvaccinated.

**Conclusion:** In conclusion, COVID-19 pandemic continues to pose a threat to the population of WPKL&P. Therefore, good continuous cooperation between stakeholders, government agencies and the public are essential in carrying out the prevention and control activities of COVID-19 effectively.

**Keywords:** COVID-19, Characteristics, Third wave, Kuala Lumpur, Putrajaya

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# Age, Sex, Vaccination Status and Its Relationship with COVID-19 Mortality among Indigenous People (Orang Asli) in Batang Padang District, Perak, Malaysia

Ahmad Akmal Ahmad Nizam[1]*, Ruhana Sk Abdul Razak[2], Nadrah Arfizah Arifin[1], Raja Mohd Azim Raja Haron[1]

## Abstract

**Introduction:** The occurrence of COVID-19 pandemic has greatly impacted worldwide population including Malaysia, not to spare indigenous group namely Orang Asli (OA). This descriptive study aims to explore COVID-19 cases among OA in Batang Padang district and the associations between age, sex and vaccination status with the mortality occurrence among them.

**Methods:** Registration records of COVID-19 cases among OA in Batang Padang district dated from 1st January 2021 to 21st October 2021 were retrieved from the official registry. The variables comprised of demographic data, epidemiological and clinical investigation were verified for completion. Statistical analysis was performed by using SPSS Software (v.26) for descriptive analysis and bivariate analysis for categorical data.

**Results:** Among the 2,877 COVID-19 cases included, the mean age was 27.9 years (SD ±18.5), 57.7% were female and 2,749 (95.6%) had either incomplete vaccination or not received it. The COVID-19 mortality rate was 1.9% among OA which was higher than general Malaysian population. Patients with age ⩾60 years were found to have higher odd for mortality than younger age group, OR: 18.7 (95% CI: 10.7 – 32.6). Patients with incomplete vaccination status was not significantly associated with the increased risk of mortality compared to its counterpart (p=0.73).

**Conclusion:** Elderly OA with COVID-19 infection has higher mortality similar like general population. Further emphasize on early detection of COVID-19 among elderly OA to prevent mortality is important. Nonetheless, effort to deal with vaccination acceptance and its completion along with general public health advise to avoid transmission remained as essential COVID-19 preventive measures.

**Keywords:** Orang Asli, COVID-19, mortality, vaccination

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# Brought in Death COVID-19 Cases in Melaka from January to August 2021: A Descriptive Study

Intan Azura Mohd Din[1]*, Hazlinda Hamzah[2], Azlina Abu[1], Rusdi Rahman[3]

## Abstract

**Introduction:** The number of COVID-19 deaths at homes or categorized as "brought-in-death" (BID) COVID-19 rose from 136 in 2020 to 534 from January 2021 to July 2021 in Malaysia. This study identifies the main factors that cause BID COVID-19 in Melaka.

**Methods:** Brought in Death (BID) COVID-19 in this study refers to a case of death outside a health facility (i.e., a hospital) and brought to the Forensic Department of a hospital with the cause of death is due to COVID-19 infection. We conducted a descriptive study using secondary data from the BID COVID-19 report involving cases from January 2021- August 2021 in Melaka.

**Results:** The BID COVID-19 trend increased from May 2021 (9.6%) to July 2021 (14.4%) in Melaka. Most affected were those aged between 41-60 years old (37.5%), Malaysians (93.7%), and had at least one comorbidity (71.3%). About 74% of cases were not diagnosed with COVID-19 before they died due to either never or late seeking treatment despite having symptoms (50.8%), failing to detect the infection (28.8%), or dying while waiting for result or appointment for testing (20.4%). 66% had early symptoms, but only 20% sought treatment within seven days before they died.

**Conclusion:** Failure to seek an early treatment resulted in BID COVID-19 in Melaka. Further analysis should be done to look for the contributing factors. Walk-in to COVID-19 Assessment Centre (CAC) has been started to ensure cases can get immediate assessment without any delay. Health education and community engagement to improve health-seeking behaviour are ongoing.

**Keywords:** 2019 coronavirus disease (COVID-19), Brought in death (BID), risk factors, Melaka

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# Characteristics of Tuberculosis Patients with Diabetes Mellitus Comorbidity in Kuala Nerus: A Descriptive Study

Mohd Hamdi Irsyad Mohd Azam*, Darisah Lah, Aizuniza Abdullah, Marhamah Mohamad, Aisya Azlin Che Arok, Usha Gunasegaran

## Abstract

**Introduction:** Diabetes Mellitus comorbidity is one of the known risk factors for tuberculosis (TB). The frequency of diabetes has risen in Malaysia, from 11.6% in 2006 to 17.5% in 2015. In Malaysia, 30% of tuberculosis patients also have diabetes. The study's goal is to define the profile of TB patients in Kuala Nerus with Diabetes Mellitus comorbidity.

**Methods:** This is a descriptive cross-sectional study using data from Malaysian National Tuberculosis Information System (MyTB) under Kuala Nerus district. All patients who were diagnosed as TB with underlying Diabetes Mellitus from 1st January 2016 until 31st December 2020 were included. The variables for this study include socio-demographic and clinical characteristics of the patients.

**Results:** A total of 123 TB patients were involved in the study. It is about 32.1% of total TB cases in Kuala Nerus. Whereby, 62.6% of the cases are male. All of them are Malaysians with 98.4% cases are Malay. Only 5.6% cases were detected by active case detection. Around 67.7% cases were active smoker. There are 78.8% cases who succeeded treatment and 16.3% cases died during the treatment. At about 0.8% cases were HIV positive. Approximately, 45.5% cases both are with minimal and moderately advanced and chest x-ray findings. Cumulatively, 73.2% cases are pulmonary TB smear positive.

**Conclusion:** Patients with Diabetes Mellitus remains to be one of the high-risk groups for TB infection in Kuala Nerus. Further study and analysis need to be done to see the associations from the findings of this study.

**Keywords:** Tuberculosis, Diabetes Mellitus, High-risk group, Kuala Nerus

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# Evaluation RTK Antigen and RT-PCR (NAATs) for COVID-19 Testing in Pulau Pinang: Concordance Analysis

Mohamad Afiq Amsyar*, Rozaini Mat Shah, Kalavathy Tangga Muthu, Gunenthira Rao, Rafidah Md Noor

## Abstract

**Introduction:** Point - of - care antigen and molecular tests to detect current infection could increase access for early confirmation of cases and expediate public health management decisions. Proper interpretation of antigen test is important for identification of infected people when used for COVID-19 screening. This study aimed to evaluate concordance between Rapid Test Kit – Antigen (RTK-Ag) and the Reverse Transcriptase – Polymerase Chain Reaction (RT-PCR) in the diagnosis of the COVID-19 infection.

**Methods:** Sample randomly collected among close contacts, symptomatic individuals, or surveillance activities at district health offices in Pulau Pinang sent for RTK-Ag testing and RT-PCR for COVID-19 between 26 September to 9 October 2021. Bivariate analysis between results of the different tests was carried out by comparing frequencies and chi-square tests. Sensitivity, specificity, positive and negative predictive values were calculated for test accuracy. Agreement between RTK-Ag and RT-PCR was estimated with kappa coefficient for test precision.

**Results:** 550 samples recruited in the study, 169 samples RTK-Ag positive and 123 confirmed by RT-PCR lead to sensitivity of 72.8% (95%CI;65.4,79.3). Specificity report shows that, in people who did not have COVID-19, RTK-Ag correctly ruled out 99.2% infection (95%CI;97.7,98.8). RTK-Ag for COVID-19 shows 97.6% (95%CI 92.9,99.2) positive predictive value (PPV) and 89.2% (95%CI 88.3,93.3) negative predictive value (NPV). The level of agreement between the RTK-Ag and RT-PCR test is substantial, Cohen's Kappa=0.775 (95%CI;0.6,0.9, $p<0.001$).

**Conclusion:** Study shows sensitivity of the RTK-Ag 72.8% with good specificity, PPV and NPV suggesting it's ability as confirmatory testing can be considered under specific clinical criteria. Antigen tests may vary in accuracy and precision based on symptoms, Cyclical-Threshold (CT) value, sampling technique and kit manufacturer, should be included in future analysis for better reliability and precision.

**Keywords:** COVID-19, RTK-Antigen, RT-PCR, Concordance Test

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# Spatial Temporal Distribution of Hand, Foot and Mouth Disease in Melaka State from the Year 2014 to 2018

Azlina Abu[1]*, Nadiatul Syima Shahid[2], Hashimah Hassan[1], Ayu Zeity Bukhori[1]

## Abstract

**Introduction:** In Melaka, cases of Hand, Foot and Mouth Disease (HFMD) among children has been on the rise since 2012. The relationship between HFMD cases and meteorological factors like temperature, relative humidity and rainfall has also not been explored and studied in detail in Malaysia generally and Melaka specifically. Spatial and temporal distribution are familiar methods to describe and determine the factors that contribute to the disease transmission.

**Methods:** Data on HFMD cases were obtained from Melaka Health State Department while meteorological data on temperatures, humidity and rainfall were obtained from the Department of Meteorology Malaysia. The correlation coefficients between HFMD cases and the meteorological data were analyzed using Spearman Correlation Test. Spatial and temporal distribution of HFMD cases was analyzed using GIS Tool Arcmap 10.3 in this study to determine the source and identify contributing factors of the disease transmission.

**Results:** A total of 7,550 HFMD cases was reported and shows a cyclic peak every two years. In 2018, Melaka reported the highest incidence rate in 5 years which involves a majority of children aged 0 to 4 years old with 30.76 incidence rate (75.8%), incidence rate of 368.02 in male compared to 276.30 in female and urban areas being predominant. The meteorological results are poor correlation among temperature (r= -0.023), humidity (r=0.168) and rainfall (r=0.050). Hotspots were found in two main groups in Melaka Tengah and Alor Gajah districts, with only sporadic hotspots in other provinces. More than half of the cases were in Melaka Tengah district because it has the highest population compared to the other districts with urbanization and major crowd attraction.

**Conclusion:** Cooperation and communication by all parties involved should persist by identifying common interest. This includes raising the level of awareness and take precautionary measures especially those high risk to the infection. GIS software should be made available and staffs should be trained to use it. There is a need to intensify surveillance, prevention and control activities in order to visualize epidemiological data in terms of spread and clustering as well as on-going trend.

**Keywords:** Hand, Foot and Mouth Disease (HFMD), spatial distribution pattern, temporal distribution pattern, Geographical Information Systems (GIS), meteorological factors

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# Preliminary Results of Implementation Lean Principle in Management of COVID-19 Positive Patients at Hulu Langat District Health Office from 2nd March 2020 to 20th October 2021

Aniz Nor Sofia Mohamed*, Sharifah Maziah Syed Shamsuddin, Abdullah Husam A.Shukor, Hafizan Abd Hadi, Ahmad Faisal Abdul Halim, Zuraifah Ismenyah, Muhammad Nazir Hassan

## Abstract

**Introduction:** Lean management has been shown to improve quality of health care system. However, limited studies have been conducted related to process in Crisis Preparedness and Response Centre (CPRC) management. Since CPRC was opened in 2nd March 2020, notifications COVID-19 positive cases increased from 20 cases per day to 1000 cases per day which caused delay in investigations of positive cases and identification of close contacts. Therefore, this study was done to identify any improvements in duration notification to investigation process of COVID-19 positive cases.

**Methods:** A cross-sectional study was conducted from 2nd March 2020 to 20th October 2021 which used secondary data extracted from Communicable Disease Control Information System (CDCIS) e-Notifikasi system and was divided into pre-lean and post-lean. Interventions such as engagement with private health practitioners; government hospitals and law enforcement were applied. Data were analyzed using SPSS version 25.

**Results:** Out of 134,034 confirmed cases, 12,326 were used as pre-lean and 121,708 as post-lean. Mean (SD) of notification and verification process was 63.6 (2.85) hours and 87.1 (8.31) hours respectively pre-lean ($p<0.05$). After intervention, mean (SD) of notification and verification decreased to 1.62 (5.26) hours and 1.50 (6.47) hours respectively. It showed reduction of duration notification and verification process of COVID-19 positive cases by 38.9% and 58.6%. Mean (SD) of diagnosis to investigation COVID-19 positive cases within 76.5 (7.70) hours as compared pre-lean 113.4 (9.31) hours.

**Conclusion:** Lean management showed an improved investigation process of COVID-19 from the time of diagnosis as compared to pre-lean implementation. Further analysis should be conducted to determine the factors associated with the lean process.

**Keywords:** lean healthcare, COVID-19, Hulu Langat, CPRC

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# COVID-19 Construction Site Cluster Management Under the Titiwangsa District Health Office in June 2021: A Descriptive Study

Fatimah Zahra Norman*, Abdul Halim Abdul Rahim, Vanitha Krishnan, Fuad Hashim, Mazni Fathinah Nabilah Mazlan, Natasha Devi A/P Devan

## Abstract

**Introduction:** Titiwangsa District Health Office (DHO) that includes Setiawangsa, Wangsu Maju and Titiwangsa Parliament has recorded a sum of 49 499 cases till November 2021 and almost quarter of the COVID-19 cases are related to the construction site cluster. Within this cluster, there exist many foreign workers that were identified as COVID-19 positive and the Henna Residence construction site was named as one of the Titiwangsa construction sites that recorded a high number of COVID-19 cases dated from 16th of June 2021. This report aims to describe how COVID-19 cases were controlled and why multi-agency collaboration is important in handling cases related to construction site.
**Methods:** A risk assessment was conducted to investigate the COVID-19 cluster which included the data on the Titiwangsa DHO COVID-19 registry with an analysis of close contact screening of Henna Residence construction site from 31 May 2021 until 13 June 202.
**Results:** The result depicted a total of 128 cases where 100% of them were foreign workers; 66% Bangladeshi, 13.2% Indonesian, 1.5% Myanmar, 1.5% Vietnamese, 0.78%, Pakistani and 1.5% from India. According to the data, the cases that were related to the male workers were higher than the female workers with a total of 97.6% male workers and 2.3% female workers. **Conclusion:** The arising number of cases were seen as related to the confined space residency for the workers and the lack of cooperation from the construction site management. Thus, in order to reduce the number of cases related to construction sites, other government agencies such as the Construction Industry Development Board (CIDB), the Department of Occupational Safety and Health (DOSH) and the Department of Immigration should effectively collaborate with Ministry of Health (MOH) Malaysia.
**Keywords:** Covid-19, Henna Residence construction site cluster, Titiwangsa District Health Office (DHO)

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# Factors Associated with COVID-19 Mortality among Elderly in Johor Bahru

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## Abstract

**Introduction:** COVID-19 infections had been reported to cause mortality especially among the elderly. This study aims to determine the proportion of COVID-19 mortality and the factors associated with COVID-19 mortality among elderly in Johor Bahru.

**Methods:** This study was a cross-sectional study, using secondary data which was obtained from line listing of COVID-19 patients in Johor Bahru from January 2021 to September 2021. A total of 1,433 eligible sample were included in this study. Data was analysed using multiple logistic regression analysis.

**Results:** The proportion of COVID-19 mortality involving elderly in Johor Bahru was 43.5%. Factors associated with COVID-19 mortality were increase in age (AOR = 1.08; 95% CI: 1.06, 1.10; p < 0.01), male (AOR = 1.73; 95% CI: 1.36,2.21; p <0.01), having symptoms (AOR = 3.37; 95% CI: 2.46,4.63; p <0.01), end stage renal failure (AOR = 2.65; 95% CI: 1.97,3.56; p <0.01), malignancy (AOR = 5,61; 95% CI: 1.98,15.89; p <0.01), and unvaccinated (AOR = 5.93; 95% CI: 4.37,8.05; p <0.01). Our study found that living in institution was a protective factor.

**Conclusion:** Elderly is a known risk of COVID-19 mortality. Therefore, those in these group who were male, having symptoms, diagnosed with end stage renal failure and malignancy must be given extra care and monitored closely as they are more likely to succumb to death. Vaccination must be promoted and prioritized as it has a big impact to prevent mortality especially in this age group.

**Keywords:** Mortality, COVID-19, Elderly, Johor Bahru

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# SIMKA ORDER: A Laboratory Information System in Combating COVID-19 Pandemic – A Descriptive Study

Santhi Subramaniam[1]*, Saidatul Syazana Shazri[1], Mohd Ikmal Hakim Azman[1], Sharifah Nora Abu Bakar[1], Mohd Addin @ Rusken Ruslann[1&2], Crystal Anak Peter[1&3]

## Abstract

**Introduction:** Since the pandemic began in March 2020, laboratories received massive number of samples to be tested daily as Real Time Polymerase Chain Reaction (RT-PCR) is a gold standard in diagnosing COVID-19. Both government and private laboratories independently processed the sample via individual laboratory system. Hence, a well-developed laboratory information system (LIS) is required to provide a centralized database that can be used nationwide. The aim of this study is to describe the functions of Sistem Informasi Maklumat Kesihatan Awam (SIMKA) ORDER in facilitating end-to-end laboratory process of COVID-19 samples.

**Methods:** SIMKA ORDER was established by National Public Health Laboratory (NPHL) since October 2020 which focused on the online application process of the sample at the ground level instead of conventional manual form registration.

**Results:** The system functions to monitor samples end-to-end activity which includes sample collection until generating of test report. In addition, Turn Around Time (TAT) is one of the key performance indicators for laboratory component which can be supervised through the system in managing RT-PCR samples. Moreover, the out-sourcing feature of this system enables the samples to be manage efficiently when a laboratory reached its maximum capacity. These key features support an immediate public health response including case index identification and case isolation to break the COVID-19 chain transmission.

**Conclusion:** In summary, SIMKA ORDER provides a different approach on COVID-19 samples management. Further detailed evaluation will need to be done to study its effectiveness in the long run.

**Keywords:** Laboratory information system, end-to-end, SIMKA ORDER, COVID-19

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# SARS-CoV-2 Surveillance: A Descriptive Study by National Public Health Laboratory, Malaysia

Santhi Subramaniam[1]*, Sharifah Nora Abu Bakar[1], Crystal Peter[1&2], Saidatul Syazana Shazri[1], Mohd Ikmal Hakim Azman[1]

## Abstract

**Introduction:** Sentinel surveillance is a network of recruited health facilities that oversee sampling in community as part of public health countermeasures to detect early cases and track community transmission. This study aims to present the descriptive epidemiological characteristics of laboratory confirmed SARS-CoV-2 surveillance samples in Malaysia in the year 2021 from January to September.

**Methods:** In this study, we included positive samples from all 26 SARS-CoV-2 sentinel surveillance health clinics in Malaysia, Epid Week 1 to 39 in year 2021. The samples tested using RT-PCR. Data information extracted from SIMKA and analysed using Microsoft excel.

**Results:** A total of 6,587 positive samples were recorded from Epid Week 1 to 39 this year with Epid Week 37 recorded the highest positivity rate (65.38%). Amongst this fraction, 95.55% are cases of Malaysian while 4.45% are cases from non-Malaysian. Kedah recorded the highest positivity rate (52.79%), followed by Sarawak (44.09%). The highest positive samples are contributed by the working age group from 25 to 60 years old, with further analysis revealed there is no obvious positivity rate discrepancy between male and female contributing 58.44% and 59.52% respectively. Subsequently, the trend of national and sentinel surveillance positivity rate depicted feasible correlation.

**Conclusion:** In conclusion, the positivity rate shows significant recession from Epid Week 37 onwards in line with national recovery plan. Hence, expanding more sentinel sites and other supplementary surveillance program must be put on consideration for better data representativeness. Further studies on disease modeling such as prediction by sentinel samples would enhance Malaysia's existing alert system.

**Keywords:** SARS-CoV-2 Sentinel Surveillance, SIMKA, Public health countermeasure

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# The Characteristics of Violation of Standard Operating Procedures (SOP) of New Norm in Hulu Terengganu District, Terengganu

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## Abstract

**Introduction:** Hulu Terengganu District in Terengganu, was among the last district to maintain zero detection of COVID-19 cases. Hulu Terengganu was green zone until 11th of December 2020, where the first case was detected. Since then, until 21st of October 2021, a total of 3,911 cases were reported. The adherence to Standard Operating Procedures (SOP) of New Norm had been enforced to control the pandemic. This study aimed to determine the characteristics of violation of SOP of New Norm among citizens in Hulu Terengganu District.

**Methods:** A cross-sectional study was conducted from 1st April 2020 until 21st October 2021. Data was collected through random selection from 92,500 citizens of Hulu Terengganu District to yield about 37,800 sample size.

**Results:** A total of 176 notice of violation were issued from 1st April 2020 until 21st October 2021. The highest violated SOP was failure to scan the QR code with 'MySejahtera' smart phone application before entering premises (43.2%). Meanwhile, 23.3% did not wear mask in public area, 17.6% did not practice appropriate social distancing and 10.2% had crossed the inter-state or district border without police's permission during the Movement Control Order (MCO) period. A total of 0.6% refused to stay at home during quarantine period. Majority of the violation of SOP were from individuals and only 1.70% was from big organizations. Additionally, SOP of New Norm were frequently violated by men compared to women (62.5%, 37.5%).

**Conclusion:** Continuous monitoring and enforcement to abide to the SOP of New Norm are crucial for prevention of transmission of COVID-19.

**Keywords:** Standard Operating Procedures (SOP), COVID-19, Violation rate, New Norm

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# The Role of Rapid Test Kit Antibody SARS-CoV-2 in Malaysia in the Year 2020

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## Abstract

**Introduction:** The Rapid Test Kit Antibody (RTK-Ab) was used as a screening tool in COVID-19 management to detect the presence of antibody SARS-CoV-2 in the serum or whole blood of a person by using a pin prick test. The reverse transcription polymerase chain reaction (RT-PCR) was needed to confirm the COVID-19 status. In the year 2020, 197,457 RTK-Ab has been used all over Malaysia, both in government and private health facilities. This paper aims to describe the distribution usage of the RTK-Ab in Malaysia in the year 2020 and to see its association with the RT-PCR test that have been done.

**Methods:** This is an observational study using the data in the year 2020 of RTK-Ab and RT-PCR that were mandatorily entered in the Sistem Informasi Makmal Kesihatan Awam (SIMKA) system. The usage distribution were descriptively shown by frequency & percentage and the association of RTK-Ab and RT-PCR were analysed.

**Results:** The state of Selangor and District Health Office recorded the highest usage with 43,559 (22.06%) and 116,387 (58.94%) kits respectively. About 2,832 (1.43%) were RTK-Ab positive and out of this only 1,810 (63.9%) proceeded with RT-PCR. The RT-PCR results showed that 220 (12.1%) were COVID-19 detected with the CT-value range from 20.2-35.0. From this, 110 (50%) were asymptomatic and 182 (82.7%) were from outbreak cluster.

**Conclusion:** RTK-Ab is useful and widely used as a screening test in the field as the results are fast and easy to be applied. As a screening tool, it is able to detect those who have had antibody towards COVID-19 and further study on sero-prevalence are needed.

**Keywords:** RTK-Ab, COVID-19, screening test, antibody

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# Sociodemographic Characteristics of Import A Cases in Wilayah Persekutuan Kuala Lumpur & Putrajaya (WPKL & P)

Yuvashini Devy*, Harpreeta Kaur, Angeline, Rosvinder Singh

## Abstract

**Introduction:** Malaysia reported its first case of COVID-19 on 25th January 2020 involving three tourists from China. Henceforth, like many other countries globally, Malaysia has also introduced mandatory quarantine for all travellers coming in to the country. Quarantine Stations for travellers that are coming into Malaysia to further reduce the transmission of COVID-19 and also to prevent new strains from getting to the public. WPKL & P has been a host for the majority of these travellers by operating up to 23 quarantine centres with a maximum capacity of 5,903.

**Methods:** A descriptive analysis was performed on the data at the State Health Department of WPKL & P registry for the travellers that undergo mandatory quarantine upon arrival throughout the COVID-19 pandemic. The data analysis includes all travellers undergoing mandatory quarantine from April 2020 till October 2021.

**Results:** A total of 124,339 travellers have been through mandatory quarantine in WPKL & P. Out of which, 1,997 travellers were found positive and majority of them were males. Up to 48% of them were Malaysians and 52% were non-Malaysians. Among the travellers, 54% were tested positive within their mandatory quarantine period in Malaysia.

**Conclusion:** A significant percentage of the COVID-19 cases were contributed by travellers coming into Malaysia. As import cases poses a risk of introduction of new variants into the country, strategies to reduce this risk needs to be enhanced.

**Keywords:** Covid-19, Quarantine stations, Travellers, Kuala Lumpur & Putrajaya

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# Psychosocial Experience among Infected COVID-19 Healthcare Workers in Kota Tinggi District, Johor from December 2020 till March 2021: A Qualitative Study

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## Abstract

**Introduction:** Health care workers (HCWs) play an important role in combatting pandemic COVID-19. HCWs in any setting is at higher risk of being infected by COVID-19 due to their nature of work. It may affect in many ways including physical and psychological well-being. The aim of this study is to explore the psychosocial impact of infected COVID-19 among HCWs in Kota Tinggi, Johor.

**Methods:** Qualitative method was used where in-depth interviews were conducted involving 21 confirmed COVID-19 infected HCWs. Purposive sampling was applied until data was saturated. Audio recordings were transcribed and thematically analysed.

**Results:** Interviews with 21 participants yielded 4 themes, 'Patients experience at disclosure of COVID-19 diagnosis', 'Conflict between professional duties and leaders commandment', 'Relationships with other workers, family and community' and 'Changes in job placement'. Improper disclosure of COVID-19 diagnosis was experienced by the HCWs, experiences of being stigmatized and also temporary loss of qualified job description.

**Conclusion:** Confirmed COVID-19 has been proven to have intense psychological impacts on infected person including HCWs, therefore, optimising COVID-19 management is crucial in any stage of the disease to maintain individuals' mental health wellbeing.

**Keywords:** Covid-19, Healthcare workers, Psychosocial, Primary Care

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# Desa Rejang (DR) Public Housing COVID-19 Outbreak in Titiwangsa – An Urban District Health Office (DHO) Experience

Deenesh Kumar Krishnan*, Vanitha Krishnan, Fuad Hashim, Rosvinder Singh, Roslaili Khairudin, Nordayana Musa, Nurrifhan Husna Hamzah

## Abstract

**Introduction:** Desa Rejang (DR) Public Housing is one of the localities under Setiawangsa Constituency with high population density and high socioeconomic activities. DR was reported to have high numbers of COVID-19 cases and deaths in Titiwangsa Health Office. Hence, an Enhanced Movement Control Order (EMCO) was enforced from 18th June to 1st July 2021. This report aims to describe the COVID-19 cases control and prevention strategies applied by the Titiwangsa DHO in this locality.

**Methods:** Data on the Titiwangsa DHO COVID-19 registry collected during the EMCO of DR Public Housing from 18th of June until 1st of July 2021 was analyzed.

**Results:** A total of 215 COVID-19 cases were reported in DR Public Housing during the EMCO period. Of these, 54% were males and 46% females. The number was higher among the 20 to 59 years age group. Majority of cases were detected among household contacts. The implementation of EMCO in this locality has shown reduction of COVID-19 cases as well addressed the several COVID-19 related issues.

**Conclusion:** EMCO has made a substantial contribution to reduce number of COVID-19 cases. Periodic surveillance and continuous enforcement of standard operating procedures among the urban densely populated localities should be enhanced to reduce the transmission of COVID-19 in the community.

**Keywords:** COVID-19, EMCO, DR Public Housing, Titiwangsa District Health Office

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# Dengue Fever Outbreak Investigation in Taman Sri Rugading Tuaran, Sabah State, Malaysia, 2020

Adrian Adrin[1]*, Noraziah Bakri[1]

## Abstract

**Introduction:** Dengue is one of the most rapidly spreading mosquito-borne viral diseases among humans and is endemic in many countries including Tuaran district, Sabah, Malaysia during 2020.
**Methods:** We conducted an investigation to describe the epidemiological characteristics of the cases, to determine the risk factors for transmission and to recommend appropriate control measures. Case definition for dengue case is individual with fever with two other symptoms such as headache, myalgia, retro-orbital pain, haemorrhagic manifestation or leucopoenia. Environmental survey for Aedes species was also conducted. A case-control study was done. All outbreak cases met the surveillance dengue case definition from 15 December 2019 until 27 January 2020. Control were symptomatic individuals from same resident and were tested laboratory negative for dengue.
**Results:** From 15 December 2019 until 27 January 2020, a total of 22 cases were identified with male to female ratio of 1:1.2. Most cases belonged to age group of 31-40 years old (36.4%), followed by those 21-30 years (22.7%) and 11-20 years old (22.7%) respectively. Cases were mostly private sector worker (31.8%) and student (22.7%). Risk factors for getting dengue infection are by not using nets (OR=4.93, 95% CI=1.43-16.94) and not sleeping inside screened door and windows (OR=3.72, 95% CI=1.17-11.87).
**Conclusion:** This outbreak involved active individuals and contributed by presence of breeding site and not using personal protective measures. Control measures and activities to be focused on mass cleaning up and health education campaigns in the affected communities.
**Keywords:** Dengue, aedes, outbreak, case-control study

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# Epidemiology of COVID-19 in Tuaran Sabah, Malaysia from March 2020 until September 2021: A Descriptive Analysis

Adrian Adrin Annah*, Max Malinoh, Airy AK Andrew Atoi, Noraziah Bakri

## Abstract

**Introduction:** Sabah state, located on the island of Borneo also contributed a high number of COVID-19 cases. Tuaran district in Sabah state is among the top list in terms of COVID-19 morbidity and mortality. The aim of this study is to describe the epidemiology of COVID-19 in Tuaran, Sabah.
**Methods:** We have conducted a retrospective review of COVID-19 cases registered in Tuaran district between March 2020 until September 2021. Using the data from web-databases namely Tuaran line listing database and e-COVID, we analysed epidemiological characteristics and weekly trend for each wave were described based on the number of cases registered and cluster declared in Tuaran district from March 2020 until September 2021.
**Results:** Between March 2020 and September 2021, there were 12,699 cases of COVID-19 reported in Tuaran. We have identified the evolution of sub-district map in Tuaran with number of cases over time among population. The highest number of cases were reported in epid week (EW) 35 year of 2021. Patients aged 30 - 34-year-old and female accounted for the largest rates (1244.6 per 100,000 population) of cases. Most cases are Malaysians followed by Filipinos and Indonesians. Approximately 8,685 (68.39%) of the patients were symptomatic while 4,014 (31.61%) were asymptomatic. There were eight (8) clusters declared since early 2021 until September 2021. The total infection rates were 5.70% (1622/28435), ranging from 2.47% to 57.14%. In terms of transmissibility, the initial case transmission has led to Taman Ikan Jinak cluster, with the highest infection rate of 57.14% while the lowest was Kampung Gayang cluster with 2.47%.
**Conclusion:** Females, young adults, Malaysians and symptomatic patients contributed to the majority of COVID-19 cases in Tuaran. The experience learned from controlling of these pandemics in Tuaran hopefully could serve for future responses of these pandemic.
**Keywords:** COVID-19, descriptive epidemiology, Borneo, Tuaran

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# Recurrent COVID-19 Cluster in Madrasah Miftahul Ulum, Sri Petaling: A Case Study Review

Fatimah Ahmad Fauzi*, Muhamad Hafizan Sanuri, Puvanese Rebecca Pillai Simon, Muhammad Kamil Hazim Jamil Harizan, Siti Aishah Mohamad, Nur Fadhilah Mohd Aswan, Ghazali Chik

## Abstract

**Introduction:** The early wave of COVID-19 pandemic in Malaysia was contributed mainly by the Sri Petaling cluster, which involved Madrasah Miftahul Ulum students who attended a religious event at the Sri Petaling Mosque. After 14 months of the cluster event, recurrent COVID-19 cluster emerged among the students in September 2021, with four-fold increment of positivity rate from the previous cluster. A case study was conducted to determine the contributing factors of repeated COVID-19 outbreak in the school.

**Methods:** This was an observational study from secondary data of Jalan Radin Anum Cluster on confirmed cases focusing on socio-demographic, comorbidity, vaccination status, travel history prior diagnosis and interval time between date of test and date of notification.

**Results:** In the recent COVID-19 outbreak, 67 out of 317 students were detected positive for COVID-19 (Positivity Rate: 21.1%). The mean age of students was 19.9 years old. Majority of positive cases were Malaysian (95.5%), and with some students having comorbid (3%), vaccinated (9%), and history of travel outside school (4.5%). Some notification was late (37.3%) with interval time from date of test was two days and more. Bivariate analysis showed that students having comorbid ($p = .006$), unvaccinated ($p < 0.001$), and travel history ($p = 0.001$) were significantly associated with Covid-19 positive cases.

**Conclusion:** Presence of co-morbidity, unvaccinated, and recent travel history played a significant role to the recent cluster outbreak in Madrasah Miftahul Ulum. Health education and implementation of COVID-19 control and prevention was crucial to prevent repeated outbreak.

**Keywords:** COVID-19 cluster, case study, Malaysia, Sri Petaling

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# COVID-19 Self-Tests and Reporting Trends among Population of Kuala Lumpur and Putrajaya (WPKL & P)

Mohamad Rabani Abdul Wahab*, Rosvinder Singh Harter Lochan Singh

## Abstract

**Introduction:** World Health Organisation (WHO) recommends countries to develop COVID-19 testing strategies adaptable to changes in epidemiology with country specific context and resources available at disposal. COVID-19 self-testing has been described as a way forward to manage and contain the pandemic. As Malaysia prepare moving towards the endemic phase of COVID-19, Ministry of Health (MOH) have given conditional approval of self-test kits with advocation of self-assessment using such method. This study describes the trend of COVID-19 self-testing and reporting among WPKL & P population from the Epidemiology Week (EW) 37 until 41, 2021 as the state moved on from phase 1 of National recovery phase.

**Methods:** A descriptive analysis was performed on the data of COVID-19 self-testing reported to MySejahtera under WPKL & P State Health Department registry from EW 37 – EW 41/2021.

**Results:** An average of 19,286 self-tests were performed and reported with highest number performed during EW 41 with 52% of the tests performed by the male gender. There were 15% reduction in positive test reported from comparing EW 37 to 41 and similarly the positivity rate reduced from 5.69% to 3.92% over the same period. Self-tests from the Kepong, Titiwangsa and Cheras districts were 26% while Lembah Pantai and Putrajaya reported 17% and 5% respectively.

**Conclusion:** COVID-19 self-testing and reporting is a good option as a way forward to manage the pandemic in Malaysia. Empowering the population especially from areas with high population density to be vigilant and self-sufficient will further help to curb spread of disease.

**Keywords:** Self-Testing, Covid-19, Kuala Lumpur & Putrajaya

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